Lake Lafourche Aquatic Vegetation Management Plan 2013

LDWF, Inland Fisheries

1. Waterbody type – oxbow lake created by impoundment of Bayou Lafourche (Caldwell Parish), between Boeuf River and Lafourche diversion canal in 1958.
2. Age and condition of control structures – Marengo structure (used for lowering lake) was rebuilt in 2010 and in good condition. Boeuf River structure (used for refilling lake) was rebuilt in 2008 and in good condition.
3. Type of control structure – Marengo structure: 36 in. culvert with manually operated slide gate (Figure 1). Boeuf River structure: 48 in. culvert with manually operated slide gate. Cross Bayou Spillway: (2) 4 ft. culverts

Figure 1. Control structure at Marengo Bayou, used for dewatering the lake. Photo taken during drawdown of 2010.

4. Water level range (MSL) – Pool stage = 48.0 ft. NOTE: In the past, the lake had been regularly held at MSL of 50 ft. – 51 ft. due to obstructions in the Cross Bayou spillway culverts and beaver dams immediately downstream of outflow. The old culverts have been recently replaced and now should maintain the lake at 48.0 ft. Annual fluctuation is typically < 2.5 ft.
5. Surface area – 1,000 acres, no significant change with annual fluctuation
6. Average depth – 6 ft
7. Watershed ratio – 12:1
8. Drawdown potential of structure – 8 ft. (bottom of structure is 40.0 ft.) A coffer dam immediately upstream of structure has held water at 42.0 ft. until a small channel was

dug during the drawdown of 2010.

9. Waterbody Board or Lake Commission – Lake Lafourche Lake Commission
   a. Creation / Nomination – The Lake Commission was created by the Caldwell Parish Police Jury. Commission members are appointed by the Police Jury.
   b. Primary contact information – Carl Brehm, President of Lake Commission, phone (318) 649-0417, address: 204 Griggs Lane, Columbia, LA 71418
   c. Procedure for spillway openings – operated by the Lake Commission with approval and guidance of LDWF. A history of drawdowns is shown in Table 1.

Table 1. History of drawdowns on Lake Lafourche.

DRAWDOWN HISTORY				
Date Opened	Date Closed	Purpose	Results	Issues
Fall, 2010	January, 2011	Repair Marengo control structure, drying of lake bottom, boat ramp repair	Structure successfully repaired, adequate exposure of lake bottom	None
Fall, 1994	Winter, 1995	Fish management – overabundant forage. Vegetation control.	Some improvement noted in fisheries and vegetation	Heavy rains in October shortened the duration of the drawdown
Fall, 1982 (?)	Winter, 1983 (?)	Recommended for control of overabundant forage species and excessive vegetation	None documented, drawdown may not have been achieved	None documented
Multiple drawdowns in early 1960's – Fall/Winter		Vegetation control – coontail and primrose (rec. by LDWF)	Effective	Became controversial due to lengthy refill period and were discontinued

<u>Significant stakeholders and needs/concerns</u>

- Farmers – 3 pumps are currently being used for agricultural irrigation, sufficient water level required during the growing season
- Homeowners – stable water levels, vegetation control, aesthetics
- Boeuf River WMA – encompasses much of the lake, with the Cross Bayou and Marengo control structures located on the WMA
- Anglers
- Waterfowl Hunters

History of aquatic vegetation complaints

There have been periodic complaints are received when nuisance vegetation becomes excessive or is impacting private piers. Most historic complaints have been attributed to coontail *Ceratophyllum demersum* and water primrose *Ludwigia sp.*, primarily in the "coupe" areas of the lake, which are small, shallow oxbows connected to the lake. These areas frequently become covered with dense vegetation. Water primrose has been the most problematic species in the lake. The Lake Commission (letter dated 2004) has requested periodic spraying of nuisance vegetation in Marengo Lake, Cross Bayou, and the south end of the lake.

Controversial issues on the lake

The recommended drawdowns of the 1960's were discontinued due to excessive refill duration after the control gates were closed in mid-winter. Detrimental impacts to the fisheries were reported, as recruitment was impaired because of low water levels during the spawning season.

A structure was built in the 1970's on the upper end of the lake (Boeuf River structure) for the purpose of refilling the lake from the adjacent Boeuf River. In the early 1980's, LDWF recommended against the use of this structure for refilling the lake to prevent introduction of undesirable or exotic species. The Lake Commission has always supported the frequent use of this structure. LDWF only recently adopting a position of no opposition to use of the structure for refill after drawdowns or when water levels become critically low.

The lake had long been held at 2 ft. – 3 ft. above the intended pool stage due to obstructions in the spillway culverts at Cross Bayou. These culverts were insufficient in size and subject to frequent blockages, thus unable to maintain the lake at the intended full pool stage. Consequently, many private piers on the lake were constructed at levels related to this unintended pool stage. On one occasion, after cleaning the culverts out, concrete was poured into them illegally to permanently close them. These culverts were replaced with larger ones in May, 2011 so that the lake will now be maintained at the intended MSL of 48.0 ft.

Aquatic Vegetation Status:

2012

In 2012, coverage of Lake Lafourche aquatic vegetation was considered to be below average. Emergent vegetation re-appeared following the drawdown of 2010, though it was mostly confined to shoreline areas in the coupes. The most abundant species were alligator weed *Alternanthera philoxeroides*, primrose, pennywort *Hydrocotyle sp.*, and water hyacinth. There were very few vegetation complaints in 2012.

Collective coverage and status of beneficial plant species and any considered or implemented efforts to re-establish:

In 2012, moderate amounts of coontail, a native submerged species, were found in various locations throughout the lake.

Limitations:

Factors that may limit the effectiveness of chemical, mechanical, or biological control methods for the aquatic plant problems found in the waterbody.

- Agricultural and residential irrigation may preclude the use of certain herbicides; there are currently 3 pumps on the lake for agricultural irrigation
- Infrequent flooding from adjacent Boeuf River may be a concern if grass carp were to ever become an option for control of submerged vegetation

Regulatory or public factors or anything else that may limit the ability of LDWF to control aquatic plant problems in the waterbody.

- Application of the herbicide 2,4-D would require a waiver from LDAF between March 15 - Sept. 15
- The Lake Commission has requested that they receive notification from LDWF when herbicide treatments are scheduled and that they would like to provide input concerning any vegetation control efforts.

Past Control Measures:

Applications of commonly used aquatic herbicides (2,4-D, diquat dibromide, and glyphosate) have been made by LDWF in custom spray boats. Diquat was used to treat duckweed at a rate of 4qts./acre. Glyphosate was used to treat emergent species at 3qts./acre. 2-4-D was used to treat water hyacinth at 2-3qts/acre. In the past, applications were made when infestations of nuisance vegetation became abundant in the lake. The majority of these efforts were for control of water primrose and other emergent species. Drawdowns have been conducted in the past for control of coontail and emergent species, and were considered to be successful. Past problems with the Marengo control structure and a lack of a refilling option until the 1970's limited the number of drawdowns performed on the lake.

Recent

In 2011, no herbicide applications were made due to effects from the drawdown of 2010. The 8 ft. drawdown initiated in the fall of 2010 has temporarily eliminated any problems associated with nuisance aquatic vegetation in the lake. Prior to that, only maintenance herbicide applications had been conducted on Lake Lafourche. These applications involve a spray crew making monthly visits to the lake during the growing season for control of primrose, water hyacinth and other species if they reached nuisance levels. From the years 2008 – 2010, a total of 40, 161, and 65 acres have been sprayed, respectively, on the lake.

A minimal amount of herbicide treatment was conducted on Lake Lafourche in 2012. Alligator weed was the most abundant nuisance species. Water hyacinth was also treated in the Cross Bayou area, near the control structure. Table 2 shows the number of acres treated with herbicide for various species of vegetation.

Table 2. Acres of vegetation treated with herbicide on Lake Lafourche in 2012.

SPECIES	ACRES
Alligator weed	17
Pennywort	2
Water Primrose	4
Water Hyacinth	9

Recommendations:

Regularly scheduled treatments (1 spray crew day/month) during the growing season are to be continued to maintain nuisance vegetation at minimal levels. Public complaints will be responded to as soon as possible. The Lake Commission will be notified prior to any scheduled herbicide treatment. The following herbicides are to be applied by boat spray crew: diquat dibromide for control of duckweed and other floating or emergent species (3-4qts/acre), Imazapyr for control of alligator weed and other emergent species (2qts/acre), and 2,4-D for control of water hyacinth outside of the 2,4-D waiver period (2-3qts./acre).

Drawdowns for the control of submerged or excessive emergent vegetation should be conducted no more frequently than every 5 years. In the summer of 2015, an assessment of aquatic vegetation in the lake will be made and presented to the Lake Commission. If nuisance vegetation amounts are considered to be excessive and not subject to control with the herbicides, a drawdown of 6 ft. – 8 ft. will be recommended by LDWF. The drawdown should be initiated soon after Labor Day and continue through December 15. The lake should be dewatered at a rate no greater than 4 inches per day. If rainfall has not been sufficient to raise the lake level to 46.0 ft by March 1, the Boeuf River control structure may be opened to refill the lake to the pool stage of 48.0 ft. It is recommended that this structure not be opened between April 1 and November 1 to minimize movement of Asian carp species from the Boeuf River into Lake Lafourche.

Type map:

No detailed type maps have been conducted for Lake Lafourche.