LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

OFFICE OF FISHERIES
INLAND FISHERIES SECTION

2021 AQUATIC VEGETATION CONTROL PLAN

SPANISH LAKE

Lake History

Spanish Lake was a natural lake that dated to pre-1700s. It was created because of a Mississippi River meander through the Bayou Teche area millennia ago. Parts of the water bottom were claimed through Spanish Land Grants prior to the 1800's. Historical information indicates that Louis Charles de Blanc de St. Denis, b. April 29, 1753, d. April 6, 1826, had an active plantation on the shores of Spanish Lake called the Lady of the Lake. He built the Keystone canal from Spanish Lake to the Bayou Teche in the early 1800's to power his sugar cane grinding mill before the advent of steam powered mills. The sale of the bottom of this canal to the present riparian landowners was authorized by Wildlife and Fisheries as the result of legislation passed in 2007.

The General Land Office State Meander Line was established in 1843--1844, which defined the lake's boundaries and established state sovereignty over the lake regardless of whether or not there is water present in the lake bottom.

Waterbody Information

Size
1,260 acres (See attachment.)

Shoreline length
Approximately 7 miles

Average depth
4.81 feet

Maximum depth
6.75 feet

Natural seasonal water fluctuation
Not known, as the drawdown structure has always leaked. It is assumed that there should be no fluctuation other than evapotranspiration.

Watershed
The watershed of Spanish Lake is reported to be 2.5:1, or nearly direct rainfall.
The lake is (90%) surrounded by a ring levee. At this time, the only means of increasing the water level in the lake is through pumping surface water and/or rainfall.

Pool stage
11.0 feet MSL was reported in 2002 by the Louisiana Department of Transportation and Development (LDOTD), Louisiana Dam Safety Program State Project No.: 750-99-0056, Inspection Report for Spanish Lake. (See Attachment)
The 1947 report by C. A. Bell reported the lake elevation to be 10.3 Mean Gulf Level (M.G.L.) at the time of his soundings to discover the depth of the lake and that the surrounding banks were floating turf with an elevation of 12.0 feet M.G.L.

Mr. Harry Schafer, Wildlife and Fisheries Biologist, reported in 1953 that the elevation of the lakeshore was about 12.0 feet M.G.L.

Parish/s located
Iberia / Upper St. Martin

Border waters
The border waters, with which there is no connection to the lake except through the drawdown structure, are Joe Daigre Canal to Bayou Tortue to the Bayou Teche.

Drawdown description
No firm description of the drawdown rate with or without rainfall, or depending on the water level of the Bayou Teche, has been found in any historical literature.

Spillway
Gate size - 24 inch, through cofferdam at levee
Number of gates - 1
Condition – Newly rebuilt 2001, Leaks around contact points with levee
Repairs were undertaken with creosote timbers driven into the levee to form wing walls at the z-piles' contact points on the levee. Dirt was repacked at the timber wings to fill the holes that had eroded down about 4 feet around the end of the cofferdam. The timber wings were not butted to the z-piles and, consequently, the water again eroded around the contact points of the levee. In 2016, repairs to the leaking structure were undertaken once again and completed correctly.

Flow rate – Variable flow rate dependent on water level

Sluiceway
Sluiceway location – Directly behind drawdown structure, draining through the Joe Daigre canal into Bayou Tortue and then to Bayou Teche.
Sluiceway opening - 60-inch coal tar coated corrugated pipe through levee
Condition – Good
Flow rate - Variable flow rate dependent on water level

Who controls
LDOTD District 3
Phone – (337) 262-6100
Physical Address -428 Hugh Wallis Road
Lafayette, La. 70508
Mailing Address - P.O. Box 3648
Lafayette, La. 70502-3648

LAKE AUTHORITY

The owner of the Spanish Lake water bottom is the State of Louisiana. Management authority belongs to the Louisiana Department of Wildlife & Fisheries.

Association
Spanish Lake State Game and Fishing Commission

Past Control Measures:

In 2000, an attempt to establish tape grass (*Vallisneria americana*) failed, as no plant growth was observed in the lake. Likely causes for the failure were erratic water levels caused by the leaking control structure, overabundant common carp (*Cyprinus carpio*), and high turbidity. The Spanish Lake control structure was repaired in the summer of 2013.

Spanish Lake is a nutrient-rich impoundment with heavy phytoplankton turbidity throughout much of the year. Aquatic plant growth is inhibited by the plankton turbidity. Submersed aquatic vegetation is essentially absent in Spanish Lake. American lotus (*Nelumbo lutea*) occurs in two locations along the breakwater levees. A small amount of water hyacinth (*Pontederia crassipes*) was observed in the boat landing access channel. Emersed plant species along the shoreline are alligator weed (*Alternanthera philoxeroides*), maidencane (*Panicum hemitomon*), water primrose (*Ludwigia peploides*), duck potato (*Sagittaria latifolia*), Roseau cane (*Phragmites australis*), and cattail (*Typha latifolia*).

No herbicide applications were necessary from 2011 to 2020.

Aquatic Vegetation Status:

In October 2014, water hyacinth, alligator weed, water primrose, and American lotus covered approximately 15 acres total throughout the lake.

In October 2015, water hyacinth, alligator weed, water primrose, and American lotus covered approximately 20 acres total throughout the lake.

In October 2016, water hyacinth, alligator weed, water primrose, common salvinia (*Salvinia minima*) and American lotus covered approximately 25 acres total throughout the lake. American lotus has increased slightly on the northeast side of the lake. Also detected was a small amount of common salvina near the boat launch. During the August flood that over-topped the levee, aquatic plants such as common salvinia may have entered the lake.

In October of 2017, water hyacinth, alligator weed, water primrose, common salvinia and American lotus covered approximately 15 acres total throughout the lake. American lotus has decreased slightly and is generally located on the northeast end of the lake. Common salvinia is still in small amounts near the launch.

In November of 2018, water hyacinth, alligator weed, water primrose and American lotus covered approximately 10 acres total throughout the lake. American lotus was located on the northeast end of the lake and all other species were sighted on the south end of the lake.

In September of 2019, very little aquatic vegetation was observed in the lake. Water hyacinth, water primrose and alligator weed covered approximately 10 acres throughout the lake. No American lotus was observed in the lake.

In November of 2020, very little aquatic vegetation was observed in the lake. Water hyacinth and common salvinia was seen by the boat launch. No American lotus was observed in the lake.

Proposed Control Measures for 2021:

Biological Control
Biological control methods are not recommended at this time.

Chemical Control
Foliar herbicide applications on Spanish Lake will be conducted as needed according to the LDWF Aquatic Herbicide Application Procedures:

Plant Species	Herbicide	Surfactant
***Salvinia spp*. Alternative 1** Common/Giant Salvinia (April 1 to October 31)	Glyphosate (0.75 gal/acre) Diquat (0.25 gal/acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
***Salvinia spp*. Alternative 2** Common/Giant Salvinia (April 1 to October 31)	Glyphosate (0.75 gal/acre) Flumioxazin (2 oz./acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
***Salvinia spp*. Alternative 3** Common/Giant Salvinia (April 1 to October 31)	MSM (1 oz./acre) Flumioxazin (1 oz./acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
***Salvinia spp*. Alternative 4** Common/Giant Salvinia (November 1 to March 31)	Diquat (0.75 gal/acre)	Nonionic surfactant (0.25 gal/acre)
***Salvinia spp*. Alternative 5** Common/Giant Salvinia (November 1 to March 31)	Flumioxazin (12 oz./acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
Water Hyacinth	2, 4-D (0.5 gal/acre)	Nonionic surfactant (1 pint/acre)
Water Hyacinth in waiver areas (March 15 to September 15)	Glyphosate (0.75 gal/acre)	Nonionic surfactant (0.25 gal/acre)
Alligator Weed/Giant Cut Grass (undeveloped areas)	Imazapyr (0.5 gal/acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
Alligator Weed/Giant Cut Grass (developed areas)	Imazamox (0.5 gal/acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
American Lotus	2, 4-D (0.5 gal/acre)	Nonionic surfactant (1 pint/acre)
American Lotus in waiver areas (March 15 to September 15)	Glyphosate (0.5 gal/acre)	Nonionic surfactant (0.25 gal/acre)
American Lotus in waiver areas	Triclopyr (0.5gal/acre)	Turbulence (or approved

with potable water intakes (March 15 to September 15)		equivalent, 0.25 gal/acre)
Duckweed	Diquat (1.0 gal/acre) or Flumioxazin (8 oz./acre)	Nonionic surfactant (0.25 gal/acre) or Turbulence (or approved equivalent, 0.25 gal/acre)
Cuban Bulrush (sedge)	2, 4-D (0.5 gal/acre)	Nonionic surfactant (1 pint/acre)
Cuban Bulrush (sedge) in waiver areas (March 15 to September 15)	Glyphosate (0.75 gal/acre)	Nonionic surfactant (0.25 gal/acre)
Water Lettuce	Diquat (1.0 gal/acre) or Flumioxazin (6 oz./acre)	Nonionic surfactant (0.25 gal/acre) or Turbulence (or approved equivalent, 0.25 gal/acre)

Typemaps:

Spanish Lake Vegetation Survey 6-24-2011 - Martin Plonsky

A survey of aquatic vegetation found in Spanish Lake resulted in the conclusion that there is little to no aquatic vegetation in the lake. Very thin amounts of water hyacinth were observed near the boat launch and on the shoreline of the breakwater islands on the eastern side of the lake. The lake water was saturated ("bloom" condition) with planktonic algae and water ph was above 8.0. Small bunches of iris were seen growing along the eastern bank of the lake. Average water depth was 2 feet. The vegetation survey was conducted on the same day we investigated the report of a fish kill at the lake. No dead fish were observed.

Date	Temp	SpCond	Salinity	Depth	pH	Turbidity+	% odo	DO	Chlorophyl
6/24/11	28.18	0.155	0.07	-0.121	9.09	69.5	129.70	10.12	55.8
6/24/11	27.81	0.155	0.07	0.327	8.75	79.8	109.70	8.61	56.0