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2013 Cocodrie Lake Aquatic Vegetation Control Plan

LDWF, Inland Fisheries

Date reservoir formed

Act 38 of the 1957 Louisiana Legislature created the Cocodrie Lake Game and Fish Preserve and Commission within the Parishes of Evangeline and Rapides. Bayou Cocodrie Dam was designed by the Louisiana Office of Public Works, constructed by T.P. Groom, Inc. and completed in 1959. Act 38 specifically protected riparian rights downstream of the project and Bayou Cocodrie flows are not to fall below the established minimum low flows as determined by the United States Geological Survey gauging station at Clearwater, LA. When the Cocodrie Commission was abolished with Act 858 in January 1982, the original riparian rights downstream, as authorized by Act 38 were retained in full force.

The spillway/dam was completed in 1959 (Good condition)

Type of Control Structure

The dam consists of an earthen embankment, approximately 1,400 feet long with a 12 foot crown at elevation 65 feet MSL. There is one primary spillway consisting of an un-gated reinforcement concrete weir (spillway), approximately 100 feet long with a crest elevation of 51 feet MSL. There is one drawdown structure consisting of a reinforced concrete drop inlet structure with one sluice gate, 111 linear feet of 48 inch diameter corrugated metal pipe running under the embankment, and a reinforced concrete outlet structure. **(See picture below)**

Water Level Range (MSL)

51.0' above mean sea level (MSL)

Surface Area Range

6,100 acres at pool stage

Average depth

5-6 feet

Watershed ratio

16:1(watershed is 100,000 acres)

Drawdown Capability - The lake drops approximately ½ inch per day with the gate completely opened. The lake can be drawn down 6-8 feet.

Lake Commission

By virtue of the authority conferred by Louisiana Revised Statutes LA R.S. 56:721 et seq. and other constitutional and statutory supplemental thereto, there is hereby established a Rapides-Evangeline Parish Cocodrie Lake Fish and Game Preserve.- **AMENDED**

Cocodrie Lake Commission

Act 858 of the 1981 Legislature abolished approximately 19 special game and fish commissions including the Cocodrie Lake Game and Fish Commission which governed Cocodrie Lake. Authorities for lakes & structures were transferred to LDWF. However, parish government under state law can select/appoint a panel of interested/concerned citizens to serve on committees in an advisory capacity to the jury. The Cocodrie Lake Commission fills that role with respect to fish and wildlife issues on Cocodrie Lake.

Primary Contact Information

Members – Cocodrie Lake commission consists of five members – 2 from Evangeline parish, 2 from Rapides parish and one representative from the CLECO electric plant.

Chairman – Charles Bo Johnson (337) 461 – 5678	Evangeline parish
Johnny Barton (318) 488 - 2322	Rapides parish
Henry Corley (318) 709-1398	Rapides parish
Sam Johnson (337) 359-7130	Evangeline parish
Joe Sepulvado (337) 838-3133	CLECO representative

Procedure for Spillway openings

In 1981, Acts No. 733, § 1, eff. July 23, 1981, RS 38§26 - mandated that ...“the Department of Transportation and Development, office of public works, is hereby authorized and directed to operate and maintain the dam, water-control structures, gates, spillway, and related appurtenances to the extent that it deems necessary to insure that the man-made impoundment structure and the attendant water-control devices are functioning to design capabilities” (Including Cocodrie Lake in Rapides parish - Clearwater spillway). RS 38§26 also says “The operation and maintenance referred to in Subsection C shall not transfer or delegate {to DOTD} the responsibility or authority of the regulation, operation, or maintenance of the surrounding shoreline, water bottom, or for recreational and park operations, nor determination of pool elevations, stage releases, or other lake management activities.”

Therefore, for lake management purposes only, LDWF drawdown recommendations will be shared with the Cocodrie Lake Commission and with the Evangeline and Rapides Parish Police Juries. With local consensus, and with LDWF approval up to the Secretary, a detailed request can be forwarded to the Secretary of the Louisiana Department of Transportation and Development (DOTD) for operation of the spillway. The Department of Transportation and Development operates the structure.

DRAWDOWN HISTORY

Cocodrie Lake became infested with noxious aquatic plants relatively soon after impoundment. The first drawdown was conducted in 1945 in an effort to combat a submerged aquatic plant problem. Since that time, Cocodrie Lake has been lowered regularly for control of aquatic vegetation. Dewatering was limited because the water outlet consists of only one, four foot control gate. With the gate open to maximum extent, the lake level can be reduced approximately ½ - 1 inch per day. With significant rainfall, the lake level rises rapidly and negates drawdown progress.

Drawdown dates

Fourteen drawdowns have been conducted for control of Cocodrie Lake submerged aquatic vegetation. The majority of the drawdowns were conducted from September – December (Fall/Winter). Other drawdowns were conducted in the summer months or year round to combat noxious aquatic plants such as common salvinia and hydrilla.

During the drought years of 1999 and 2000, water levels remained low. This condition reduced aquatic vegetation and resulted in improved spawning substrate for nesting fishes.

Between the years of 2008 – 2010, the gate remained open year round as part of an effort to control common salvinia. Spray crews continued to apply herbicide, with some success, as the plants receded from the wooded areas of the reservoir. As a result of the hard freeze of December

2009 and the continued cold weather of January 2010, common salvinia coverage was reduced substantially.

DRAWDOWN HISTORY				
Date Opened	Date Closed	Purpose	Results	Issues
September 1965	November 1965	To control native submerged vegetation	Good	Lake lowered 3-4'
September 1967	November 1967	To control native submerged vegetation	Fair	Lake lowered 3-4'
September 1970	October 1970	To control native submerged vegetation	Fair	Lake lowered 3-4'
September 1972	October 1972	To control native submerged vegetation	Fair	Lake lowered 3-4'
September 1976	October 1976	To control native submerged vegetation	Fair	Lake lowered 3-4'
September 1983	October 1983	To control native submerged vegetation	Fair	Lake lowered 3-4'
September 1995	November 1995	To control native submerged vegetation	Fair	Lake lowered 3'
September 1996	October 1996	To control native submerged vegetation	Fair	Lake lowered 4-5'
September 1997	October 1997	To control native submerged vegetation	Fair	Lake lowered 3-4'
September 1999	October 1999	To control native submerged vegetation	Fair	Lake lowered 3'
June 2000	August 2000	To control native submerged vegetation	Fair	Lake lowered 5'
May 2008		To control Salvinia and Hydrilla	Fair	Lake lowered 4-5'
2009		To control common salvinia	Good	Lake lowered 4-5'
2010	November 2010	To control common salvinia	Good	Lake lowered 5-6'

What significant stakeholders use the lake?

Recreational activities (fishing and hunting) and water requirements for CLECO electric plant.

What are their needs and concerns?

Complaints were abundant especially from 2003-2007 due to infestation of common salvinia. At present complaints are very few. Aquatic vegetation is under control for now.

Have there been any controversial issues on the lake?

The abundance of common salvinia and the use of water fluctuation as a control measure was a controversial issue. Duck hunters and fishermen were hindered during this time. To manage the spread of common salvinia, the control gate was opened completely and left to remain open for three years.

Aquatic Vegetation Status:

Common salvinia has been the main plant problem in Cocodrie Lake. Through the use of drawdowns, (2008-2010), herbicide (diquat) applications, and cold/ice weather conditions, this plant species has been reduced and kept under control the past few years. At present, common salvinia covers approximately 800 acres of the lake.

In 2012, common salvinia began to re-establish itself throughout the lake. This plant covered approximately 30% of the lake. Submerged plants such as coontail and fanwort made up 5% of the vegetative cover. Other plants included American lotus, alligator weed, and duckweed which make up approximately 10 percent of plant coverage.

Limitations:

Limitations include the restriction to application of restricted herbicides, such as 2-4D, during the growing season of agricultural crops, such as corn, soybeans and cotton. This restriction is in effect during the period of March 15 through September 15. The Department of Agriculture and Forestry will consider requests for waivers to allow for applications of 2, 4-D during this period.

Cocodrie Lake is heavily laden with standing timber comprised primarily of tupelo and cypress. Access for spray crews is greatly restricted.

Public concerns related to reduced access are expressed during drawdowns.

Past Control Measures:

Drawdowns and herbicide applications are the primary means of control for aquatic vegetation in Cocodrie Lake.

From 2008 – 2010 the gate remained opened year round to in an effort to control common salvinia. Spray crews applied herbicide as the plants receded from the woods. During this time, 236 gallons of diquat were applied to 275 acres. Another herbicide used was imazamox (Clearcast) totaling 85 gallons on 206 acres. Both herbicides were applied at a rate of 0.75 gallons per acre.

In 2011 there was approximately 5 % coverage of common salvinia throughout the lake. In addition, floating plants such as duckweed (5% coverage) and water hyacinth (10% coverage) were spread throughout the lake. .

In 2012, foliar herbicide applications were made on nuisance plants such as water hyacinth, duckweed and common salvinia in Cocodrie Lake. A total of 303 gallons were applied to 726 acres. To control water hyacinth, 2,4-D was applied at a rate of 0.5 gallons per acre. Diquat and glyphosate were applied at 0.75 gallons per acre to control common salvinia and duckweed.

Recommendations for 2013:

Common salvinia has once again spread throughout the lake. The invasive species occupies approximately 30% of the lake. Spray crews have applied herbicide to control the spread of this invasive plant and will continue as needed.

To control water hyacinth, 2-4D will be applied at a rate of 0.5 gallons per acre and diquat will be used at 0.75 gallons per acre to control common salvinia. These herbicides will be used as needed.

Lake drawdowns of 6 feet below pool stage are recommended to retard aquatic plant growth and improve the lake's substrate. A drawdown should be conducted during the period of May through August in 2014 and every third year thereafter.

These recommendations will be included in the Cocodrie Lake Waterbody Management Plan scheduled for completion in 2013. All recommendations will be forwarded or presented to both the Police Jury and the Cocodrie Lake Commission for approval.

Lake Cocodrie Vegetation Survey 8/16/2011 by M. Plonsky and P. Allemond

Lake Cocodrie was mostly free of any type of aquatic vegetation. There were small amounts of coontail (*Ceratophyllum demersum*) and water paspalum (*paspalum repens*) observed at the Johnson boatlaunch (30.966601, -92.435672) along with a couple of white water lily (*Nymphaea oderata*). Small patches of common salvinia (*Lemna minor*) were seen in the end of Neal’s bay (30.970467, -92441578) and the entrance into Blue lake (30.978448, -92.434431). Only small amounts of alligatorweed (*Alternanthera philoxeroides*) were observed in the lake surrounding a couple of the smaller trees or stumps within the lake such as in Bennett bay (30.964112, -92.456313). Other than this condition, Bennett bay was free of aquatic vegetation. Small amounts of common salvinia and duckweed were seen surrounding the outflow pipe located adjacent to the spillway structure (31.001387, -92.382661).

At this time, the outflow pipe remained open and lake water was flowing through the pipe and into Bayou Cocodrie. No water was flowing over the spillway and the lake water level was about one foot below the top of the spillway. For the most part, especially when in comparison to previous amounts, Lake Cocodrie is free of any considerable amount of aquatic vegetation.

Dissolved oxygen levels were above 3.0 mg/l at the surface throughout the system however these levels were below 2.0 mg/l and often below 1.0 mg/l at any depth greater than 3.0 feet. Water temperatures were above 30 degrees centigrade at surface and ph was found to be above 6.0 at both surface and bottom at all stations recorded. One boat with one person was observed fishing in Bennett bay.

Date	Temp	SpCond	Salinity	Depth	pH	pHmV	Turbidity+	Chlorophyl	d.o. percent	d.o. mg/l	
08/16/11	29.67	0.063	0.03	3.087	6.93	3.9	269.4	46.8	5.00	0.38	bennet
08/16/11	31.87	0.063	0.03	0.609	6.99	0.3	3.4	17.7	59.20	4.33	
08/16/11	18.06	0.178	0.08	8.868	6.56	23.7	39.9	54.5	4.70	0.45	little lake
08/16/11	29.38	0.094	0.04	0.381	6.74	14.6	0.8	15.0	44.90	3.43	
08/16/11	21.06	0.166	0.08	10.899	6.60	21.7	27.3	56.0	3.80	0.34	fontenot
08/16/11	30.58	0.060	0.03	0.169	6.60	22.7	1.0	15.3	39.20	2.94	



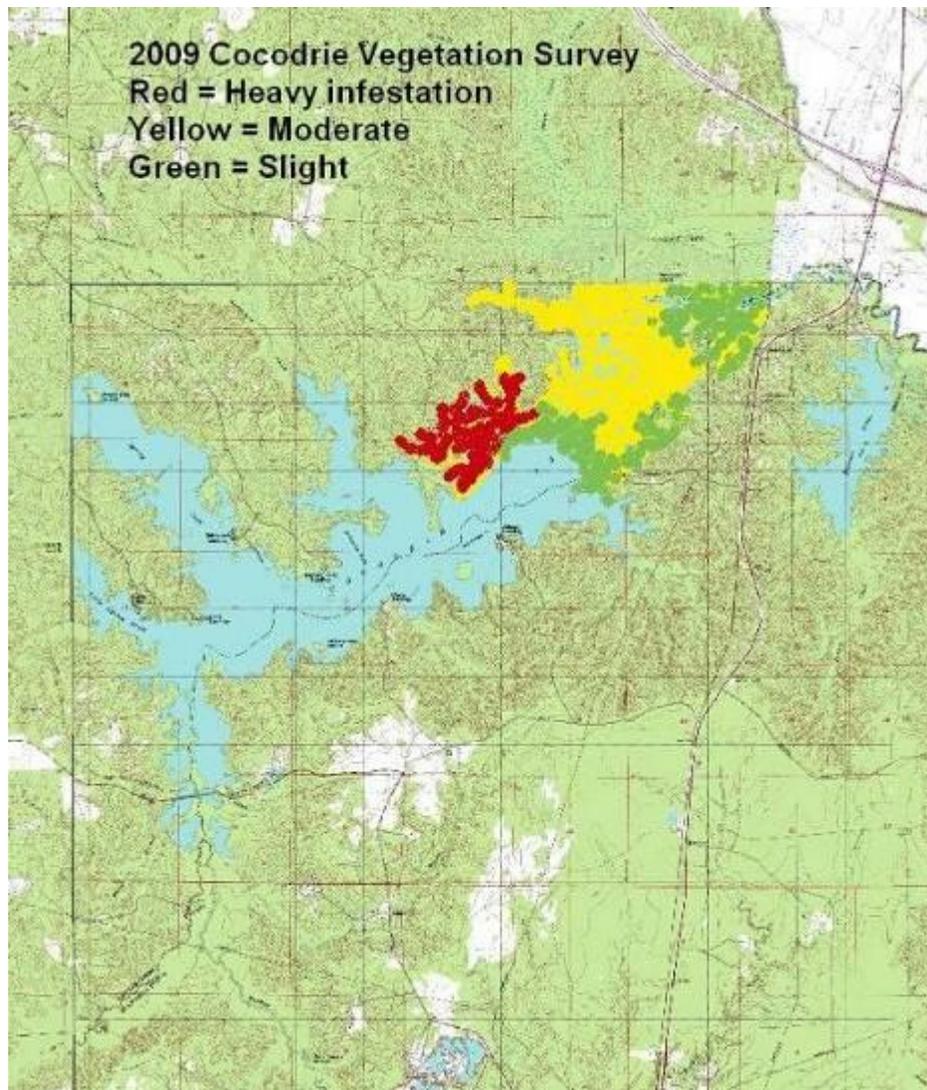
Typemap

Cocodrie Lake Sep. 16th 2009

Field personnel: J. David & M. plonsky

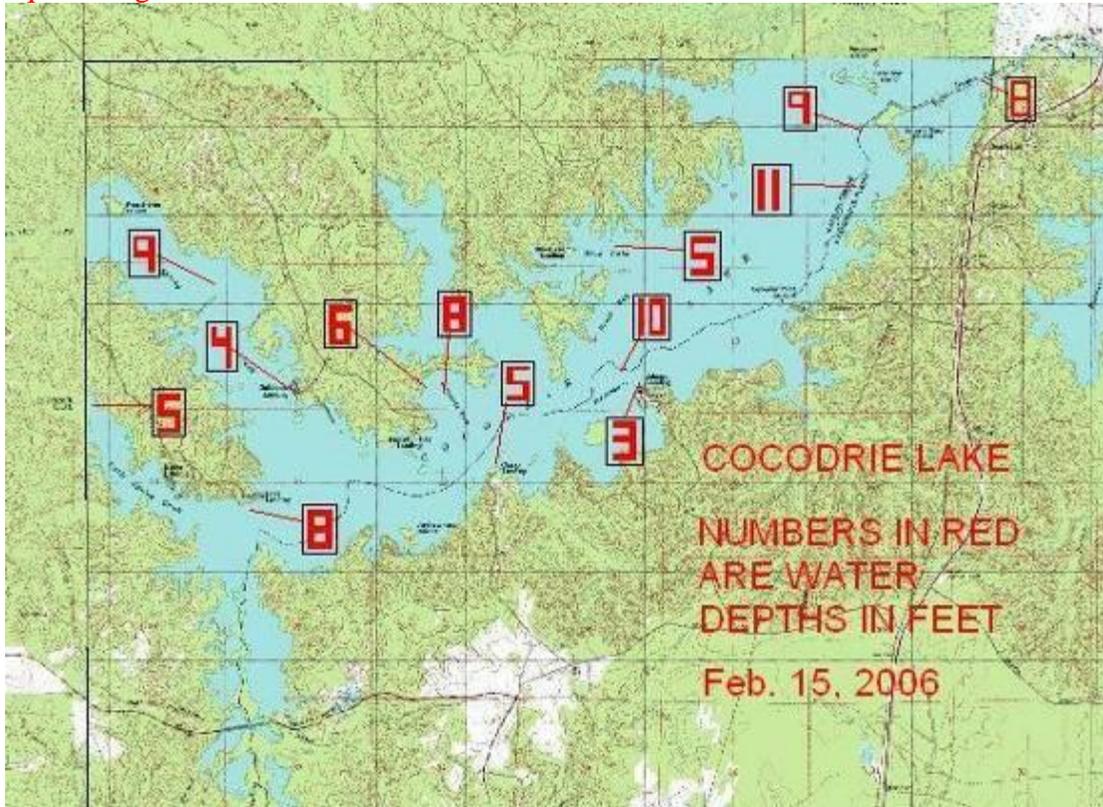
Report by: J. David

Cocodrie Lake is going in the last year of its three year drawdown which began in 2008 to control the spread of Common Salvinia. A survey was conducted on September 16th, 2009 to observe common salvinia. The lake was approximately 4 feet below pool stage. Common Salvinia was observed near the northwest end of the lake, near blue lake, in the channel. Majority of the wooded areas were dry which has reduced the amount of C. salvinia. Other areas observed was Bennetts Bay and Little River where no vegetation was discovered. Neals Bay and Blue Lake had moderate to heavy amounts of C. Salvinia and light amounts of fanwort and hydrilla. Majority of the common salvinia was in the channel flowing towards the control gate.

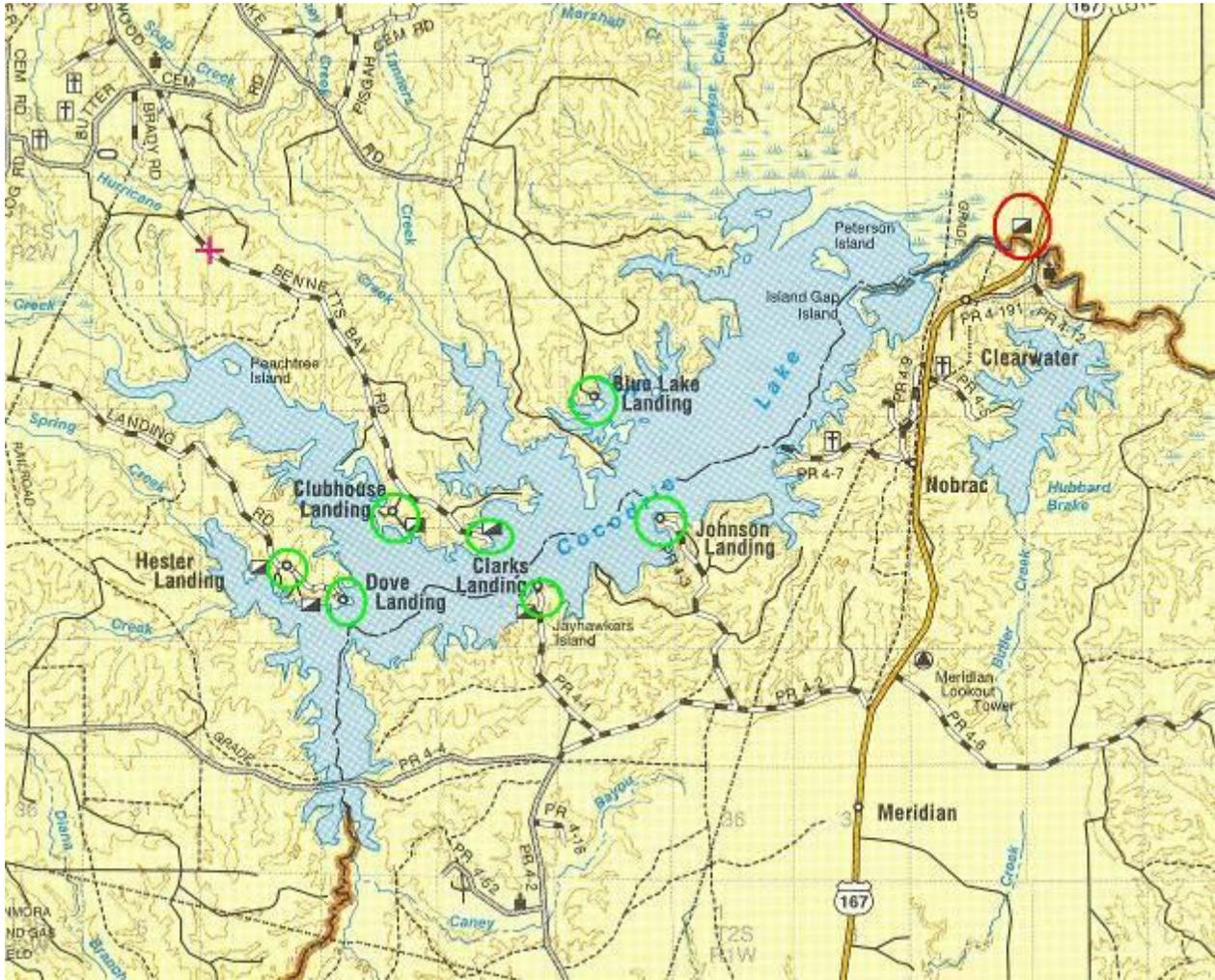


Type map sampling history: (years) 1994, 1995, 1998, 1999, 2003, 2005, 2007, and 2009

Vegetative type maps were conducted in the fall of each year and in turn have kept a summary of aquatic vegetation.



Cocodrie Lake Average Water Depths



Map of Cocodrie Lake with public boat landings



Cocodrie Lake Spillway