LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES

OFFICE OF FISHERIES
INLAND FISHERIES SECTION

PART VI -A

WATERBODY MANAGEMENT PLAN SERIES

LAKE LOUIS

LAKE HISTORY & MANAGEMENT ISSUES

CHRONOLOGY

DOCUMENT SCHEDULED TO BE UPDATED EVERY THREE YEARS

February 2013 - Prepared by
Richard Moses, Biologist Manager, District 3

April 2016 – Updated by
Richard Moses, Biologist Manager, District 3
Shelby Richard, Biologist III, District 3

Remainder of this page left intentionally blank.

TABLE OF CONTENTS

LAKE HISTORY

General Information

Date reservoir formed

Lake Louis is a natural lake and bayou complex. The lake was originally named Lovelace Lake and the connecting bayou was Bayou Louis. Lake Louis was impounded in 1955 when the Department of Public Works constructed an earthen dam in Bayou Louis at the point where it flowed into the Ouachita River. This dam raised the water level in the bayou to an elevation of 36 feet mean sea level (MSL) and caused the water level to increase and connect with Lovelace Lake. In the late 1970's and early 1980's, the U. S. Army Corps of Engineers (USACE) began construction of the Sicily Island Levee Project. This project was developed to provide flood protection to homes and agricultural crops. The Lake Louis complex was encircled with 56 miles of flood control levees. As part of the fisheries mitigation for this project, the earthen dam that created Lake Louis was replaced with a concrete two-way gated structure in 1984. Additional mitigation work in 1985 included a weir between Bayou Louis and the Ha Ha Bayou pumping station. This structure raised the pool elevation of Lake Louis by another two feet to its present day elevation of 38.0' MSL. See **Appendix I** for a map of the Sicily Island Levee Project.

Impoundment

Lake Louis is a state owned waterbody. It was created naturally prior to recorded history. However the Lake Louis complex as we know it today has been altered substantially during the past 60 years for flood control and water quality improvement.

Purposes for creation – Current impoundment is due to mitigation for adjacent USACE flood control project. Current use of Lake Louis is primarily recreational fisheries and boating.

Size

1,000 acres

Water shed

62,300 acres

Pool stage

38.0 ft. MSL

Parish/s located

Catahoula

Border waters

Ouachita River

Drawdown description
Annual drawdowns of 4 feet have occurred since 1999. The lake is dewatered 0.2 ft. per day.

Drawdown structure - (sluiceway) - Photograph available in **Appendix II**.
Gate size – 60" corrugated metal pipe (CMP) with vertical lift gates
Number of gates - 2
Condition – Good
Flow rate – 350 cubic feet per second (cfs)

Spillway – Photograph available in **Appendix III**
There is no spillway located at the drawdown structure. There is an un-gated sheet piling/rock weir approximately 100' wide located in a man-made canal between Lake Louis and the Ha Ha Bayou pumping station. This weir maintains the 38.0 ft. MSL water level in Lake Louis and allows excess water to overflow to the Ha Ha Bayou pumping station.

Who controls
The Tensas Basin Levee Board is the project manager for the Bayou Louis control structure. The Levee Board is responsible for all physical operation under normal and emergency conditions in accordance with the specified plan coordinated between the U.S. Corps of Engineers, the U.S. Fish and Wildlife Service, the Louisiana Department of Wildlife and Fisheries, the Office of Public Works, and the Tensas Levee Board.

Lake Authority

The Lake Louis Commission is appointed by the Catahoula Parish Police Jury and works under the oversight of the Louisiana Department of Wildlife and Fisheries (LDWF)

Association
The Lake Louis Commission President- Tim Ford
P.O. Box 258
Harrisonburg, LA. 71340

Authorization
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 Lake Louis Commission fills that role with respect to fisheries issues in Catahoula Parish.

Access - maps with locations in **Appendix IV**.

Public Commercial Boat Launches

1. Hwy 8 Bridge- One Lane Concrete Ramp – No User Fee
2. The Rocks- One Lane Concrete Ramp – Fee Required
3. Bayou Falcon Ramp- Closed /Not usable due to siltation
4. Bill and Faye's Landing – One Lane Concrete Ramp – Fee Required

Piers
There is no public fishing piers located on Lake Louis however numerous private piers are located on the lake.

State/Federal facilities
No state or federal facilities are located on Lake Louis.

Reefs
No reefs

Shoreline Development

State/National Parks
NONE

Shoreline development by landowners
The northern 30% of the lake is developed with homes and camps along both sides of the lake. The private residences have numerous piers. The north end of the lake extends into the Town of Sicily Island. The southern 70% of the lake is predominately agricultural fields.

Physical Description of Lake

Shoreline length
44 miles

Timber type
The majority of the lake is not timbered. The edge of the lake has scattered button bush (*Cephalanthus occidentalis*) and swamp privet (*Forestiera acuminate).*

Average depth
25 feet

Maximum depth
70 feet

Natural seasonal water fluctuation
Due to the large watershed, a 5.0 ft. to 6.0 ft. water level fluctuation is common and during heavy rainfall events a 10.0 ft. to 12.0 ft. fluctuation is possible.

Events / Problems

Due to extensive land clearing and agriculture production within the watershed, turbidity is an ongoing concern. The current lake management plan calls for annual drawdowns each fall/winter to help offset this problem. There have been several Natural Resource Conservation Service incentive programs offered to landowners within the watershed to help decrease agricultural run-off. The success of these programs has not been documented. Currently there is a program available to landowners in the Lake Louis watershed for 2012.

MANAGEMENT ISSUES

Aquatic Vegetation

Historically aquatic vegetation has not caused problems on Lake Louis. No submerged vegetation is found in the lake. Emergent vegetation found in the lake consists of alligator weed (*Alternanthera philoxeroides*) and water primrose (*Ludwigia* spp.). Water level fluctuation and high turbidity levels are the limiting factors. The 2013 aquatic vegetation plan calls for annual vegetation surveys. These will occur in late summer to monitor the lake for the introduction of problem vegetation, primarily exotics such as giant salvinia (*Salvinia molesta*).

A vegetation survey was conducted in the fall of 2015 and there were no problem plant species. There was a fringe of alligator weed along the shoreline. It was very sporadic and covered less than 10 acres. It likely provides limited benefit to fish species. Due to high turbidity levels there is no submersed vegetation. No problem vegetation is expected for 2016.

Type map
A vegetation survey was conducted in the fall of 2015 and less than 1% of the lake had aquatic vegetation.

Biomass
No biomass sampling has been conducted.

Treatment history by year available
No biological treatments or herbicide applications have been conducted on Lake Louis.

History of Regulations

Recreational
Statewide regulations for all fish species, the current recreational fishing regulations may be viewed at the attached link: http://www.wlf.louisiana.gov/fishing/regulations

Commercial

Statewide regulations apply. The current commercial fishing regulations may be viewed at the attached link: http://www.wlf.louisiana.gov/fishing/regulations

Drawdown History

The earthen dam built by The Department of Public Works in 1955 raised the water level in the Bayou Louis complex to 36' MSL. This dam prevented natural historical water exchange between Lake Louis and the Ouachita River. The dam also prevented turbid silt laden agricultural runoff from flowing out of the system. This created a turbid, unproductive waterbody. By the late1970's game fish populations began to decrease and the department began receiving complaints from local fishermen.

This coincided with the USACE, Sicily Island Flood control project. As fisheries mitigation for the flood control project, the earthen dam was replaced with a concrete gated structure that allowed water levels to be controlled. The USACE predicted operation of the Bayou Louis structure would mitigate 75% of the fisheries losses that occurred from the flood control project. In order to maximize the benefits of the water control structure, an operation plan was developed and formally agreed upon by the USACE, LDWF, and the U.S. Fish and Wildlife Service. The specific provisions of the plan are provided below.

A drawdown has occurred yearly since 1999-2000 except during 2008 when heavy rainfall from Hurricane Gustav raised the Ouachita River above the Lake pool stage preventing the capability of a drawdown. The drawdown agreement is provided below.

Lake Louis Water Management Agreement

A joint water management agreement has been in place since 1999 between LDWF, U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), and the Tensas Basin Levee District. This joint management plan was developed as mitigation for the Sicily Island Levee Flood Control Project. The flood control project cut-off water exchange from Lake Louis to surrounding tributaries and increased the amount of agriculture run-off going into the lake. This created turbidity and water quality issues. The joint management plan is as follows:

1. The Bayou Louis water control structure is operated by the Tensas Basin Levee District under supervision of LDWF. (They send fax reports to LDWF District 3 in Pineville each time the gate is opened or closed).

2. Beginning September 1 each year, the Bayou Louis structure is opened and the Bayou Louis-Lake Louis complex is drawn down from the 38.0 ft. MSL pool stage to elevation 34.0 feet MSL at a rate of 0.2 ft. per day. (This cannot be done some years due to heavy rainfall causing the Ouachita River water level to rise higher than the lake water level).

3. The Bayou Louis-Lake Louis complex is brought back to pool by February 15. The desired pool stage can be attained by closing the structure and ponding local runoff or by introduction of Ouachita River water through the structure.

4. The Bayou Louis-Lake Louis complex is allowed to exceed pool stage (up to a maximum of 40' MSL) from late February to early May. This is accomplished by introduction of Ouachita River water into the lake system. The water levels of the complex return to pool stage (38 feet MSL) when stages fall on the Ouachita River and when the gates of the Bayou Louis structure are closed.

Purpose

Water fluctuations that mimic the historic water level regime of Bayou Louis-Lake Louis complex provide fisheries habitat improvement. This is accomplished by exposing the shoreline to drying conditions during fall-winter, which allows organic matter to decompose and silts to compact.

Success

The drawdowns have been successful. The fisheries community has changed from a population dominated by rough fish (e.g., common carp, buffalofish) to a productive sport fish population including good bass and crappie populations.

Fishing closure

The lake has never been closed to fishing during the drawdowns.

Depth below pool

The Lake is drawn down 4 feet below pool stage as long as the level of the Ouachita River does not impede outflow.

Estimated % exposed

Due to the large percentage of deep water, less than 20% of the lake bottom is exposed during the 4 foot drawdowns.

Who operates the structure:

The structure is operated by the Tensas Levee Board

Fish kills / disease history, LMBV

None documented

Contaminants / pollution

In response to recent sampling and analysis of fish-mercury data, the Louisiana Department of Health & Hospitals (LDHH), Department of Environmental Quality (LDEQ), and Department of Wildlife & Fisheries (LDWF) have issued the following advisory for Bayou Louis in Catahoula parish where unacceptable levels of mercury have been detected in bass, buffalo, catfish, crappie (sac-a-lait), freshwater drum (gaspergou), and bowfin (choupique, grinnel). The advisory area includes Bayou Louis from its headwaters to its confluence with the Ouachita River.

LDHH, LDEQ, and LDWF advise that the following precautions be taken when eating fish taken from Bayou Louis:

Women of childbearing age and children less than seven years of age SHOULD NOT CONSUME BOWFIN and should consume no more than ONE MEAL PER MONTH of all other species combined from the advisory area (a meal is considered to be half a pound of fish for adults and children).

Other adults and children seven years of age and older SHOULD NOT CONSUME BOWFIN and should consume no more than FOUR MEALS PER MONTH of all other species combined from the advisory area (a meal is considered to be half a pound of fish for adults and children).

Unless the fish species is specifically addressed in the details of the advisory, please limit consumption of all species in an advisory area to 4 meals per month. Louisiana fish consumption advisories are based on the estimate that the average Louisiana resident eats 4 fish meals per month (1 meal = ½ pound). If you or your family members eat more than 4 meals of fish a month from local water bodies, you might increase your health risks. You can contact the Office of Public Health toll free at 1-888-293-7020 for more information about eating fish that contain chemicals. Additional information can be found at the link below:

http://www.wlf.louisiana.gov/fishing/fish-consumption-advisory

Water quality

Naturally occurring mercury levels are discussed in the above section. Water quality is sufficient to produce and maintain a quality fishery. However during much of the year turbidity levels are above preferred levels.

Water level

Normal pool stage is 38.0 ft. msl. Water levels fluctuate depending on rainfall and flooding of homes and camps can occur due to the extensive watershed.

Biological

Fish samples

History – Lake Louis fish population sampling began in 1985 and 1986 with biomass standing crop (rotenone) sampling. Lake Louis was not sampled again until 1998 when haul seine sampling was conducted. Since 1998 fish sampling with various gears has occurred every two to four years. A complete sampling record is listed in Table 1 below:

Table 1. Historical, current and proposed fish sampling on Lake Louis, Louisiana, from 1985 until 2016.

Year	Lake Louis Sampling History
1985	Rotenone – 4 Stations
1986	Rotenone – 4 Stations
1987	Rotenone – 4 Stations
1990	Rotenone – 4 Stations
1998	Seine – 2 Stations; Rotenone – 4 Stations
1999	Electrofishing – Fall 4 Stations
2001	Seine – 2 Stations; Electrofishing – Spring 4 Stations Fall 3 Stations; Frame Nets – 14 Samples
2002	Seine – 2 Stations; Gill Nets – 2 Stations; Electrofishing – Spring and Fall 4 Stations Frame Nets – 4 Samples; Lead Nets – 15 Samples
2004	Seine – 2 Stations; Electrofishing – Spring and Fall 4 Stations
2008	Seine – 2 Stations; Electrofishing – Spring and Fall 4 Stations; Lead Nets – 12 Samples
2012	Electrofishing – 3 Spring and 4 Fall Stations; Forage – 1 Station;
2013	Gill Nets – 3 Stations; Lead Nets – 26 Samples*
2014	Lead Nets – 24 Samples*
2015	Lead Nets – 36 Samples*
2016	Creel Survey Ongoing *
2017	No sampling scheduled
2018	No sampling scheduled
2019	No sampling scheduled
* Denotes Crappie Population Study	

Lake records

No official records are kept for Lake Louis.

Stocking History

Lake Louis has had minimal stocking of the Florida strain of largemouth bass since 1999. The limited stocking is due to reduced habitat conditions caused by high turbidity. Historical stocking records can be found in Table 2. No stockings have occurred since 2009.

Table 2. Fish stocking record for Lake Louis, Louisiana, from 1999.

Year	Florida Largemouth Bass
1999	19,979
2000	11,970
2002	14,161
2003	14,282
2004	14,025
2008	9,900
2009	11,590

Species profile

As per Freshwater Fishes of Louisiana by Dr. Neil H. Douglas, fish species listed below in Table 3 have been collected or are likely to occur in Lake Louis.

Table 3. Freshwater fishes collected or likely to occur in Lake Louis, Louisiana

Lamprey Family, PETROMYZONTIDAE
Southern brook lamprey, *Ichthyomyzon gagei* Hubbs and Trautman
Chestnut lamprey, *Ichthyomyzon castaneus* Girard

Gar Family, LEPISOSTEIDAE
- Spotted gar, *Lepisosteus oculatus* (Winchell)
- Longnose gar, *Lepisosteus osseus* (Linnaeus)
- Shortnose gar, *Lepisosteus platostomus* Rafinesque
- Alligator gar, *Atractosteus spatula* (Lacépède)

Bowfin Family, AMIIDAE
- Bowfin, *Amia calva* Linnaeus

Herring Family, CLUPEIDAE
- Gizzard shad, *Dorosoma cepedianum* (Lesueur)
- Threadfin shad, *Dorosoma petenense* (Günther)

Minnow Family, CYPRINIDAE
- Blacktail shiner, *Cyprinella venusta* (Girard)
- Common Carp, *Cyprinus carpio* Linnaeus
- Cypress minnow, *Hybognathus hayi* Jordan
- Striped shiner, *Luxilus chrysocephalus* Rafinesque
- Golden shiner, *Notemigonus crysoleucas* (Mitchill)
- Emerald shiner, *Notropis atherinoides* Rafinesque
- Taillight shiner, *Notropis maculatus* (Hay)
- Weed shiner, *Notropis texanus* (Girard)
- Mimic shiner, *Notropis volucellus* (Cope)
- Bullhead minnow, *Pimephales vigilax* (Baird and Girard)
- Creek chub, *Semotilus atromaculatus* (Mitchill)

Sucker Family, CATOSTOMIDAE
- Lake chubsucker, *Erimyzon sucetta* (Lacépède)
- Smallmouth buffalo, *Ictiobus bubalus* (Rafinesque)
- Bigmouth buffalo, *Ictiobus cyprinellus* (Valenciennes)

Black buffalo, *Ictiobus niger* (Rafinesque)
Spotted sucker, *Minytrema melanops* (Rafinesque)

Freshwater Catfish Family, ICTALURIDAE
Black bullhead, *Ameiurus melas* (Rafinesque)
Yellow bullhead, *Ameiurus natalis* (Lesueur)
Tadpole madtom, *Noturus gyrinus* (Mitchill)
Blue Catfish, *Ictalurus furcatus* (Lesueur)
Channel Catfish, *Ictalurus punctatus* (Rafinesque)
Flathead Catfish, *Pylodictis olivaris* (Rafinesque)

Pike Family, ESOCIDAE
Grass pickerel, *Esox americanus vermiculatus* (Lesueur)
Chain pickerel, *Esox niger* (Lesueur)

Pirate Perch Family, APHREDODERIDAE
Pirate perch, *Aphredoderus sayanus* (Gilliams)

Killifish Family, CYPRINODONTIDAE
Golden topminnow, *Fundulus chrysotus* (Günther)
Starhead topminnow, *Fundulus nottii* (Agassiz)
Blackstripe topminnow, *Fundulus notatus* (Rafinesque)
Blackspotted topminnow, *Fundulus olivaceus* (Storer)

Livebearer Family, POECILIIDAE
Western mosquitofish, *Gambusia affinis* (Baird and Girard)

Silverside Family, ATHERINIDAE
Brook silverside, *Labidesthes sicculus* (Cope)
Mississippi silverside, *Menidia audens* (Hay)

Temperate Bass Family, PERCICHTHYIDAE
White bass, *Morone chrysops* (Rafinesque)
Yellow bass, *Morone mississippiensis* Jordan and Eigenmann
Hybrid Striped bass, *Morone chrysops X M. saxatilis*

Sunfish Family, CENTRARCHIDAE
Banded pygmy sunfish, *Elassoma zonatum* (Jordan)
Green sunfish, *Lepomis cyanellus* (Rafinesque)
Warmouth, *Lepomis gulosus* (Cuvier)
Orangespotted sunfish, *Lepomis humilis* (Girard)
Bluegill, *Lepomis macrochirus* (Rafinesque)
Dollar sunfish, *Lepomis marginatus* (Holbrook)
Longear sunfish, *Lepomis megalotis* (Rafinesque)

Redear sunfish, *Lepomis microlophus* (Günther)
Redspotted sunfish, *Lepomis miniatus* (Valenciennes)
Bantam sunfish, *Lepomis symmetricus* (Forbes)
Florida largemouth bass, *Micropterus floridanus* (Kassler et al. 2005)
Northern largemouth bass, *Micropterus salmoides* (Lacépède)
White crappie, *Pomoxis annularis* (Rafinesque)
Black crappie, *Pomoxis nigromaculatus* (Lesueur)

Perch Family, PERCIDAE
Bluntnose darter, *Etheostoma chlorosomum* (Hay)
Swamp darter, *Etheostoma fusiforme* (Girard)
Slough darter, *Etheostoma gracile* (Girard)
Cypress darter, *Etheostoma proeliare* (Hay)
Logperch, *Percina caprodes* (Rafinesque)

Drum Family, SCIAENIDAE
Freshwater drum, *Aplodinotus grunniens* Rafinesque

Genetics

Due to the small number of Florida largemouth bass stocked into Lake Louis, electrophoretic analysis has only been conducted during two years. Genetic testing was conducted in 2002 and 2008. The presence of the Florida allele was small in 2002 and not found in 2008. See Table 4 below.

Table 4. Genetics of largemouth bass in Lake Louis, LA in 2002 and 2008.

Year	No. Sampled	% Northern	% Florida	% Hybrid	% Florida Influence
2002	10	98	2	0	2
2008	10	100	0	0	0

Threatened/endangered/exotic species

Exotic Asian carp have been documented in Lake Louis; likely introduced from the Ouachita River during high water events.

Hydrological changes

Numerous hydrological changes have occurred during the past 60 years. The changes began in 1955 when the Department of Public Works placed an earthen plug in Bayou Louis near the point where it flows into the Ouachita River. The Sicily Island Project accounts for the majority of the hydrological changes that have occurred in the Lake Louis watershed. It was designed to provide flood protection for approximately 80,000 acres and included 56 miles of levee encircling Lake Louis. It also includes two pumping plants, 11 miles of channel construction and numerous small gravity drainage structures. A map showing the Sicily Island Project structures is found in Appendix I.

In addition, as fisheries mitigation for the Sicily Island Project the earthen structure mentioned above was replaced in 1985 by a USACE water control structure. This gated

structure allows Lake Louis water levels to be altered. Mitigation also included closure dams in Bayou Falcon and Billy's Bayou to divert turbid agricultural drainage out of Lake Louis. A sheet piling-rock weir located in a man-made canal raised the Lake Louis pool elevation to 38' MSL. The canal allows excess water flowing over the weir to reach the Ha-Ha Bayou pumping plant.

The Sicily Island Project began in the early 1980's and was completed in 2002.

Water use

Hunting
Limited duck hunting occurs

Recreational water sports
Recreational water sports are popular on Lake Louis and include water skiing, jets skis, party barges, and other recreational boats. The extreme ends of the lake are not suitable for water sports but the main body of the lake is free of obstructions for skiers and recreational boaters.

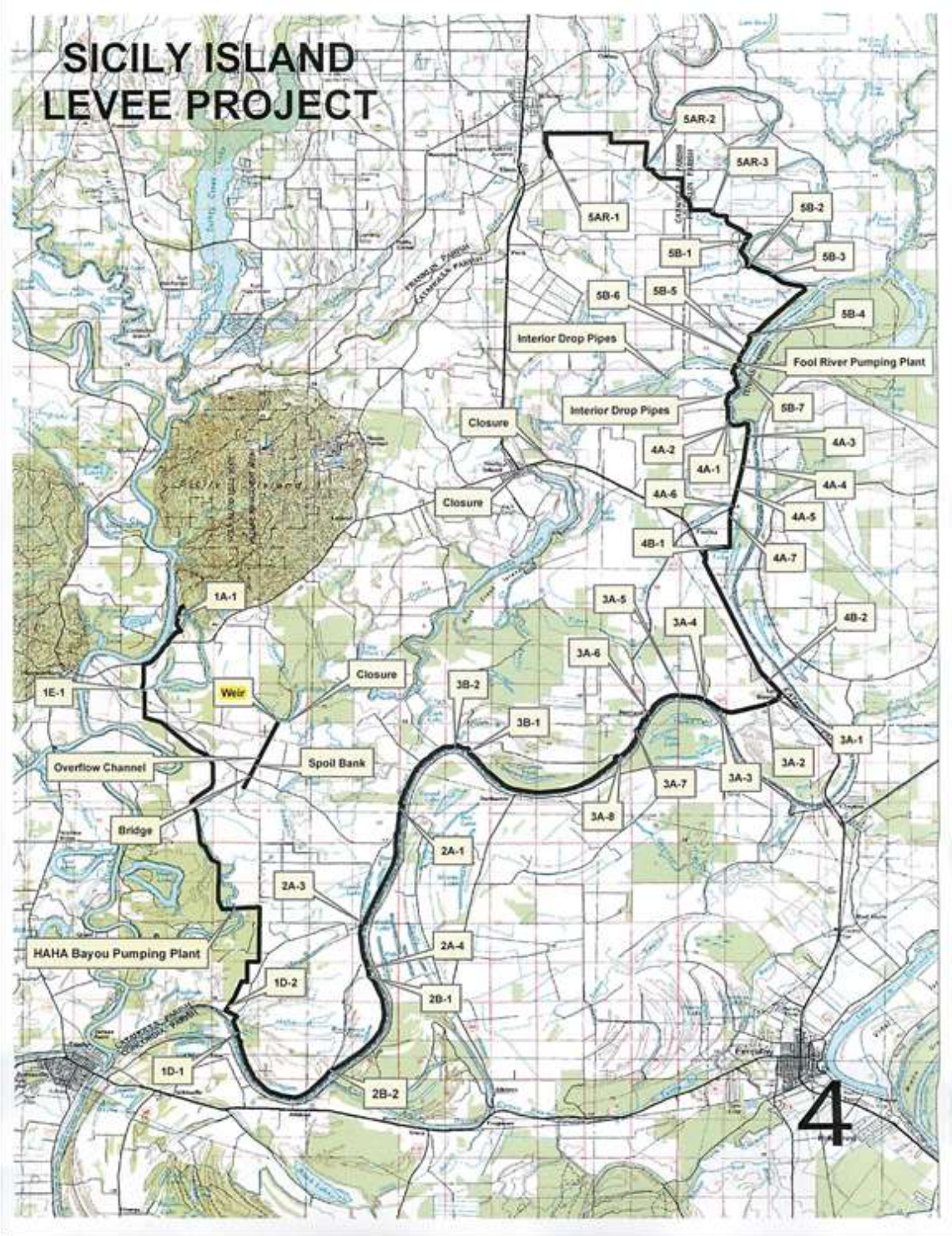
Fishing
Lake Louis is utilized extensively for recreational fishing -- primarily for largemouth bass and crappie. Limited commercial fishing for channel catfish and buffalo fishes is conducted by a small number of fishermen.

Swimming
Yes

Irrigation
Agricultural irrigation does occur and numerous pumps were observed in the lake during the drought period of summer/fall 2011. The volume of water drawn from the lake is not monitored.

Appendix I
(return to date formed)

Sicily Island levee project including drainage alterations.



Appendix II
(return to drawdown)

Lake Louis drawdown structure

Appendix III
(return to spillway)

Lake Louis sheet piling/rock weir

Appendix IV
(return to Access)

Boat Ramp Locations