

LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES



**OFFICE OF FISHERIES
INLAND FISHERIES SECTION**

PART VI -A

WATERBODY MANAGEMENT PLAN SERIES

LOWER SUNK LAKE

LAKE HISTORY & MANAGEMENT ISSUES

CHRONOLOGY

December 2009 – Prepared by
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LAKE HISTORY

GENERAL INFORMATION

Date reservoir formed

This is not a reservoir it is a natural lake formed by natural geological processes prior to recorded history

Impoundment

N/A – this is not an impoundment it is a natural lake
State owned water bottoms within LDWF owned Three Rivers WMA.

Size

800 acres

Watershed ratio

4:1

Pool stage

33.0' MSL

Parish/s located

Concordia

Latitude: 31° 85' 51" N

Longitude: 91° 41' 48" W

Border waters

NONE

Drawdown description

Time it takes to drawdown – N/A There is no drawdown capacity on the lake

Spillway – None; outflow leaves the lake through two 36" culverts with risers. One is located in the Bee Bayou outflow channel and one in the Silver Lakes Drain. These structures were installed in 2000.

Flow rate – Slow, estimated at about 20 cubic feet per second.

Sluiceway - None

Who controls

Louisiana Department of Wildlife & Fisheries, Wildlife Division

Lower Sunk Lake is managed as part Three Rivers WMA under supervision of District 4 Wildlife Biologist, Lowrey Moak

Lake Authority

LA Dept. of Wildlife & Fisheries; Wildlife Division Three Rivers WMA

Association

None

Authorization

LA Department of Wildlife & Fisheries; Wildlife Division; Three Rivers WMA

ACCESS

Three Rivers WMA maps are printed annually by LA Wildlife & Fisheries, Wildlife Division and made available from the Department website <<http://www.wlf.louisiana.gov/>>.

Map with Lower Sunk Lake Boat Ramp:



Boat docks

One concrete boat launching ramp for public use is maintained by Wildlife Division on Three Rivers WMA. Lat. 31° 09' 06"N, Long. 91° 40' 12"W

Piers

There are no piers, public or private on the lake

State/Federal facilities

Three Rivers Wildlife Management Area

Reefs

No artificial reefs constructed.

Shoreline development

The entire lake is located within the boundaries of Three Rivers WMA. The entire shoreline is surrounded by undeveloped bottomland hardwood forest.

State/National Parks
Three Rivers WMA

PHYSICAL DESCRIPTION

Shoreline length
4.82 miles

Timber type
Cypress trees throughout the lake, button bush and willow along the shoreline. Nutall oak, overcup oak and bitter pecan timber on the shoreline.

Average depth
3.5 ft.

Maximum depth
7 ft.

Natural seasonal water fluctuation
There are no gauges on the lake but fluctuation in most years is generally less than 2 feet, except during extreme flood years when the lake receives backwater flooding from Red River and the lake can rise as much as 10 feet above pool stage. This occurs only once every 15 years or so when Red River stages exceed 45' MSL.

Events / problems
A severe drought occurred in 1999-2000 causing Lower Sunk Lake to completely dry up. At that time, LDWF Wildlife Division constructed a new water control structure to improve water retention. Excavations were made for a boat channel and several holes to provide deep water areas to serve as summer refuge for fish. In 2001, the lake re-filled and Inland Fish Division began restocking efforts. Bluegill, redear sunfish, channel catfish and Florida largemouth bass were stocked during the period of 2001-2004. Anglers had excellent sport fishing success from 2003-2006. By spring 2006, coverage of the invasive aquatic weed, Hydrilla extended throughout most of the lake. Boating and fishing access was severely limited. In late summer of 2006, the dense growth of Hydrilla caused oxygen depletion and near total mortality of all game fish species. Submerged vegetation control efforts began in August 2007 with a treatment of the herbicide, Sonar. In addition, triploid grass carp were stocked for maintenance control in March, 2008. Control efforts have been effective to date.

Water Level
Pool stage is 33.0 ft. MSL. Pool stage is controlled by two culverts, one at the Bee Bayou outlet on the north end of the lake and one on the Silver Lake Drain outlet on the south end of the lake. Backwater flooding occurs during extreme flood years when the stage on Red River exceeds 45.0 ft. MSL.

MANAGEMENT ISSUES

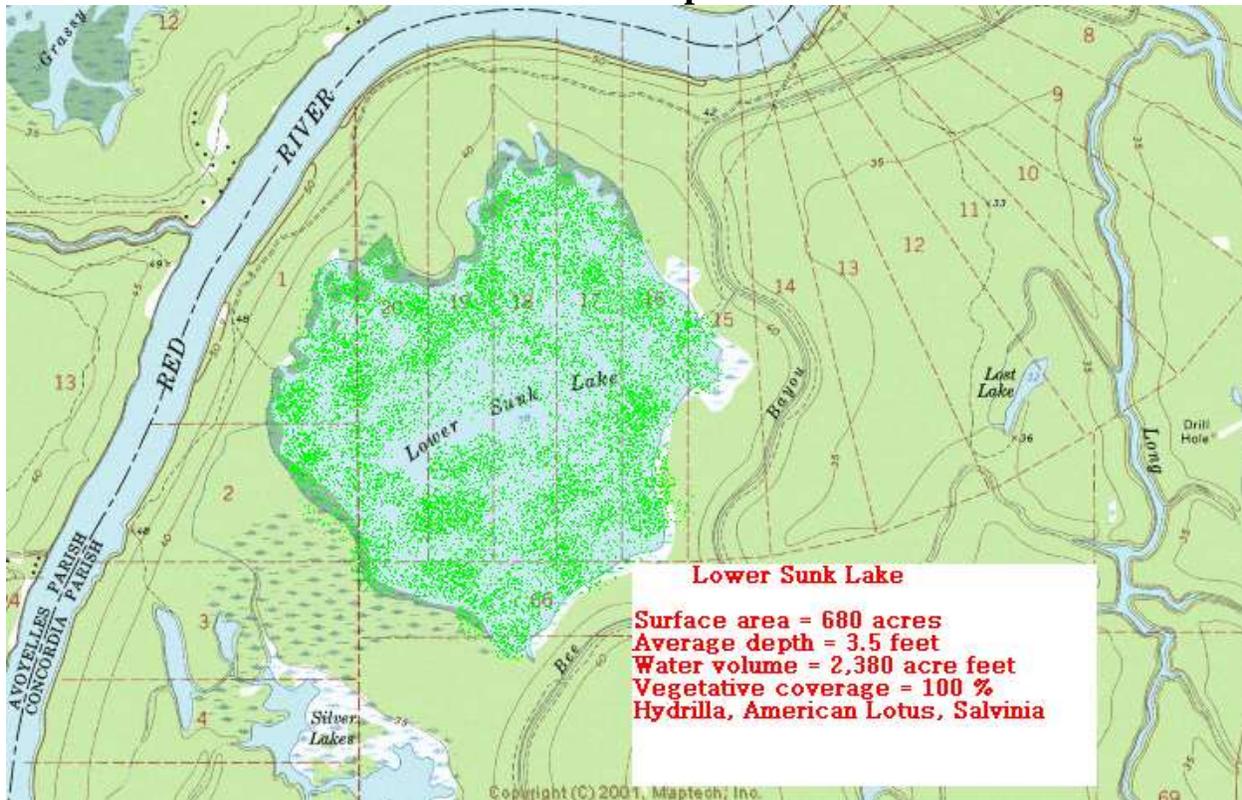
Aquatic Vegetation

Submerged vegetation – In the past, Lower Sunk Lake supported coontail, Nitella and other native submersed vegetation. The combined coverage of submerged vegetation did not present serious problems. However, the lake was invaded by the exotic species, Hydrilla in 2002. By 2005, the entire lake bed was covered by dense beds of hydrilla to the extent that boating access was eliminated. In the summer of 2006, the dense vegetation caused severe dissolved oxygen depletion and fish kill.

Type map

An aquatic vegetation type map survey was conducted in September of 2006. The results documented approximately 100 % coverage of submerged aquatic vegetation. Over 95% of the vegetation was hydrilla with the remaining species including coontail and Nitella. Floating vegetation included American lotus, water hyacinth, alligator weed and water primrose. Emergent vegetation included cattail.

Lower Sunk Lake September 2006



Biomass sampling

No biomass sampling conducted.

Treatment history by year available

Biological

March 31, 2008: 2,400 adult Triploid Grass Carp were stocked for maintenance control of submersed vegetation.

Chemical

2, 4-D treatments are made annually for control of surface vegetation

Whole lake treatment with Sonar in August 2007 for control of hydrilla was very successful

HISTORY OF REGULATIONS

Recreational

Statewide regulations are in effect for all game fish species.

Commercial

Statewide regulations are in effect for all commercial species.

DRAWDOWN HISTORY

Natural water fluctuation – there is no drawdown capacity.

FISH KILLS / DISEASE HISTORY

Total fish kill in 1999-2000 as lake completely dried up due to drought

Near total kill in 2006 due to oxygen depletion caused by dense hydrilla growth

CONTAMINANTS / POLLUTUION

Related information available at Louisiana Department of Environmental Quality website:

<www.deq.louisiana.gov>

Water quality

No fish consumption or swimming advisories have been issued for Lower Sunk Lake.

Water level

Pool stage is 33.0 ft. MSL. There are no water gauges on the lake.

Fish samples

History – Lower Sunk Lake was sampled by electrofishing in spring of 2003, 2005 and 2008.

Electrofishing is scheduled for 2010. Complete information on sampling history and sampling schedule is entered on the Inland Fisheries website at <<http://inland/364/joey>> under the Standardized Sampling Section.

LOWER SUNK LAKE SAMPLING	
2003	Electrofishing 1 – 15 minute sample (spring)
2005	Electrofishing 4 – 15 minute samples (spring)
2008	Electrofishing 3 – 15 minute samples (spring and fall); Seine – 1 sample (summer); Frame-nets – 4 samples (fall), Aquatic type mapping
2009	Aquatic type mapping
2010	Electrofishing 3–15 minute samples (spring and fall); LMB genetics and age & growth, Aquatic type mapping

Lake records

No related data available.

Stocking history

The stocking history for Lower Sunk Lake is entered on the Inland Fisheries website at <<http://inland364/joey>> under the Hatchery & Stocking Section.

LOWER SUNK LAKE STOCKING						
YEAR	FLMB	CHANNEL CATFISH	BLUEGILL	REDEAR SUNFISH	GOLDEN SHINER	TRIPLOID GRASS CARP
2001		11,316	331,475			
2002	84,876	16,541	1,820,066			
	P-II 3,699					
2003	3,699	44,175	709,898		25,753	
2004	88,352	10,832	709,898			
2008		59,653	237,063	35,216		2,400

Species profile

Gar Family, LEPISOSTEIDAE

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

Bowfin Family, AMIIDAE

- Bowfin, *Amia calva* Linnaeus

Freshwater Eel Family, ANGUILLIDAE

- American eel, *Anguilla rostrata* (Lesueur)

Herring Family, CLUPEIDAE

- Skipjack herring, *Alosa chrysochloris* (Rafinesque)
- Gizzard shad, *Dorosoma cepedianum* (Lesueur)
- Threadfin shad, *Dorosoma petenense* (Günther)

Pike Family, ESOCIDAE

- Grass pickerel, *Esox americanus vermiculatus* Lesueur
- Chain pickerel, *Esox niger* Lesueur

Minnow Family, CYPRINIDAE

- Common Carp, *Cyprinus carpio* Linnaeus
- Cypress minnow, *Hybognathus hayi* Jordan
- Mississippi silvery minnow, *Hybognathus nuchalis* Agassiz
- Golden shiner, *Notemigonus crysoleucas* (Mitchill)
- Pallid shiner, *Notropis amnis* Hubbs and Greene
- Emerald shiner, *Notropis atherinoides* Rafinesque
- River shiner, *Notropis blennioides* (Girard)
- Ribbon shiner, *Lythrurus fumeus* Evermann
- Taillight shiner, *Notropis maculatus* (Hay)
- Chub shiner, *Notropis potteri* Hubbs and Bonham
- Silverband shiner, *Notropis shumardi* (Girard)
- Weed shiner, *Notropis texanus* (Girard)
- Blacktail shiner, *Cyprinella venustus* (Girard)
- Bluehead shiner, *Notropis hubbsi* Bailey and Robison
- Mimic shiner, *Notropis volucellus* (Cope)
- Bullhead minnow, *Pimephales vigilax* (Baird and Girard)

Sucker Family, CATOSTOMIDAE

- River carpsucker, *Carpionodes carpio* (Rafinesque)
- Blue sucker, *Cycleptus elongatus* (Lesueur)
- 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)
Blacktail redhorse, *Moxostoma poecilurum* (Jordan)

Freshwater Catfish Family, ICTALURIDAE

Black bullhead, *Ameiurus melas* (Rafinesque)
Yellow bullhead, *Ameiurus natalis* (Lesueur)
Brown bullhead, *Ameiurus nebulosus* (Lesueur)
Blue catfish, *Ictalurus furcatus* (Lesueur)
Channel catfish, *Ictalurus punctatus* (Rafinesque)
Tadpole madtom, *Noturus gyrinus* (Mitchill)
Flathead catfish, *Pylodictis olivaris* (Rafinesque)

Pirate Perch Family, APHREDODERIDAE

Pirate perch, *Aphredoderus sayanus* (Gilliams)

Killifish Family, CYPRINODONTIDAE

Golden topminnow, *Fundulus chrysotus* (Günther)
Starhead topminnow, *Fundulus notti* (Agassiz)
Blackstripe topminnow, *Fundulus notatus* (Rafinesque)
Blackspotted topminnow, *Fundulus olivaceus* (Storer)

Livebearer Family, POECILIIDAE

Western mosquitofish, *Gambusia affinis* (Baird and Girard)

Silverside Family, ATHERINIDAE

Inland silverside, *Menidia beryllina* (Cope)

Temperate Bass Family, PERCICHTHYIDAE

White bass, *Morone chrysops* (Rafinesque)
Yellow bass, *Morone mississippiensis* Jordan and Eigenmann

Sunfish Family, CENTRARCHIDAE

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)
Spotted sunfish, *Lepomis punctatus* (Valenciennes)
Bantam sunfish, *Lepomis symmetricus* Forbes
Florida largemouth bass, *Micropterus salmoides floridanus* (Lacépède)
Northern largemouth bass, *Micropterus salmoides salmoides* (Lacépède)
White crappie, *Pomoxis annularis* Rafinesque
Black crappie, *Pomoxis nigromaculatus* (Lesueur)

Perch Family, PERCIDAE

Bluntnose darter, *Etheostoma chlorosomum* (Hay)

Slough darter, *Etheostoma gracile* (Girard)

Cypress darter, *Etheostoma proeliare* (Hay)

Sauger, *Stizostedion canadense* (Smith)

Drum Family, SCIAENIDAE

Freshwater drum, *Aplodinotus grunniens* Rafinesque

Genetics

No genetic sampling conducted to date.

Threatened/endangered/exotic species

None

CREEL

No creel surveys have been conducted on Lower Sunk Lake

HYDROLOGICAL CHANGES

Lower Sunk Lake receives backwater flooding from Red River during severe flood events. No flooding has occurred in more than 20 years. Lock and dam construction in the 1980's in conjunction with the Corps of Engineers Red River Waterways Project has reduced backwater flooding in the area.

In 1999 and 2000, severe drought occurred and Lower Sunk Lake completely dried up. In 2000, LDWF's Wildlife Division installed water control structures at the lake's two outlets (Bee Bayou and Silver Lake Drain) that have improved the water retention capacity of the lake.

WATER USE

Hunting

Large numbers of waterfowl winter on Lower Sunk Lake. It is a popular waterfowl hunting area. Lower Sunk Lake is primarily a resting area for waterfowl. Feeding areas are utilized in adjacent flooded bottomland hardwood forests and agricultural lands.

Skiing

None

Fishing & Boat Riding

Lower Sunk Lake is very popular for both fishing and boating.

Swimming

None

Irrigation

None

Etc.

Multi-use area is heavily utilized by the public for fishing, frogging, alligator trapping, waterfowl hunting and bird watching.