

# **LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES**



**OFFICE OF FISHERIES  
INLAND FISHERIES SECTION**

**PART VI -B**

**WATERBODY MANAGEMENT PLAN SERIES**

**IATT LAKE**

**WATERBODY EVALUATION &  
RECOMMENDATIONS**

## **CHRONOLOGY**

DOCUMENT SCHEDULED TO BE UPDATED EVERY THREE YEARS

March 18, 2010 - Prepared by

Richard Moses, Biologist Manager, District 3  
Lynn Mathews, Biologist Supervisor, District 3

November, 2013 – Updated by

Richard Moses, Biologist Manager, District 3  
Shelby Richard, Biologist II, District 3

March 2016 – Updated by:

Richard Moses, Biologist Manager, District 3  
Shelby Richard, Biologist III, District 3

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# WATERBODY EVALUATION

## STRATEGY STATEMENT

### Recreational

Sportfish species are managed to provide a sustainable population while providing anglers the opportunity to catch or harvest adequate numbers of fish to maintain angler interest and efforts.

### Commercial

The physical characteristics of Iatt Lake will not support a commercial fishery. Therefore a commercial fisheries management strategy is not in effect.

### Species of Special Concern

No threatened or endangered fish species are known to inhabit this waterbody.

## EXISTING HARVEST REGULATIONS

### Recreational

Statewide regulations for all fish species, the LDWF recreational fishing regulations may be viewed at the link below:

<http://www.wlf.louisiana.gov/fishing/regulations>

### Commercial

The LDWF commercial fishing regulations may be viewed at the link below:

<http://www.wlf.louisiana.gov/fishing/regulations>

## SPECIES EVALUATION

### Recreational

Largemouth bass (LMB) populations are targeted for assessment because they are a species indicative of the overall health of the fish population due to their high position in the food chain. Electrofishing is the most efficient sampling method for collecting largemouth bass to evaluate abundance and size distribution, with the exception of large bass. Gill net sampling is generally the preferred method to determine the status of large bass and other large fish species. However, gill net use in Iatt Lake is limited due to extensive shallow water and dense aquatic vegetation.

### *Largemouth Bass*

#### Relative abundance and size structure indices-

Electrofishing has been used to collect largemouth bass population data in Iatt Lake since 1991. In Figure 1, springtime electrofishing results are used as an indicator of largemouth

bass relative abundance with total catch-per-unit-effort (CPUE) indicated since 1991. Sampling was conducted in the spring and fall on a bi-annual basis through 2007 except during years when the lake was undergoing a drawdown or aquatic vegetation restricted access to shallow water sampling areas. Figure 2 indicates that trends in catch per unit of effort for all largemouth bass size groups are varied. Sampling from 2001 until 2005 indicated an increasing LMB population. This population spike was likely a result of record high water levels in 2001 that likely improved LMB spawning conditions and recruitment. The decrease in CPUE from 2005 to 2010 was likely a result of several factors. The first factor was a reduction in sampling efficiency due to the extensive hydrilla coverage, and the second was a reduction in the fish population due to a fish kill in 2008 in association with Hurricane Gustav. The expanding LMB population, beginning in 2011 and continuing through 2015 is likely a result of extensive LDWF stocking efforts and natural reproductive efforts to repopulate the lake following the 2008 fish kill. The significant amount of submergent vegetation, primarily hydrilla, makes it difficult to acquire a representative LMB sample. Electrofishing sampling is primarily conducted in shallow water depths. The majority of waters less than 6 feet in Iatt Lake are matted to the surface with submergent vegetation. Fall sampling was conducted in 2005, 2011, 2013, and in 2014. Fall sampling was not conducted in 2015 when the lake was undergoing a drawdown.

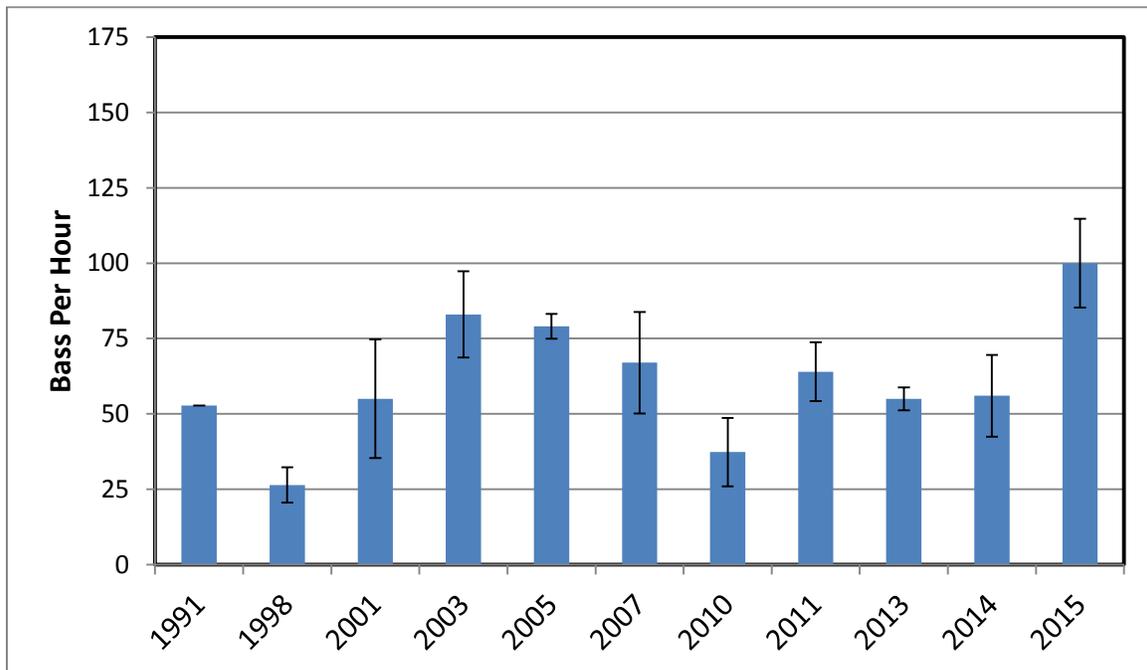


Figure 1. The total CPUE ( $\pm$  SE) for largemouth bass collected from Iatt Lake, Louisiana during spring electrofishing from 1991 – 2015. Error bars represent standard error of total CPUE.

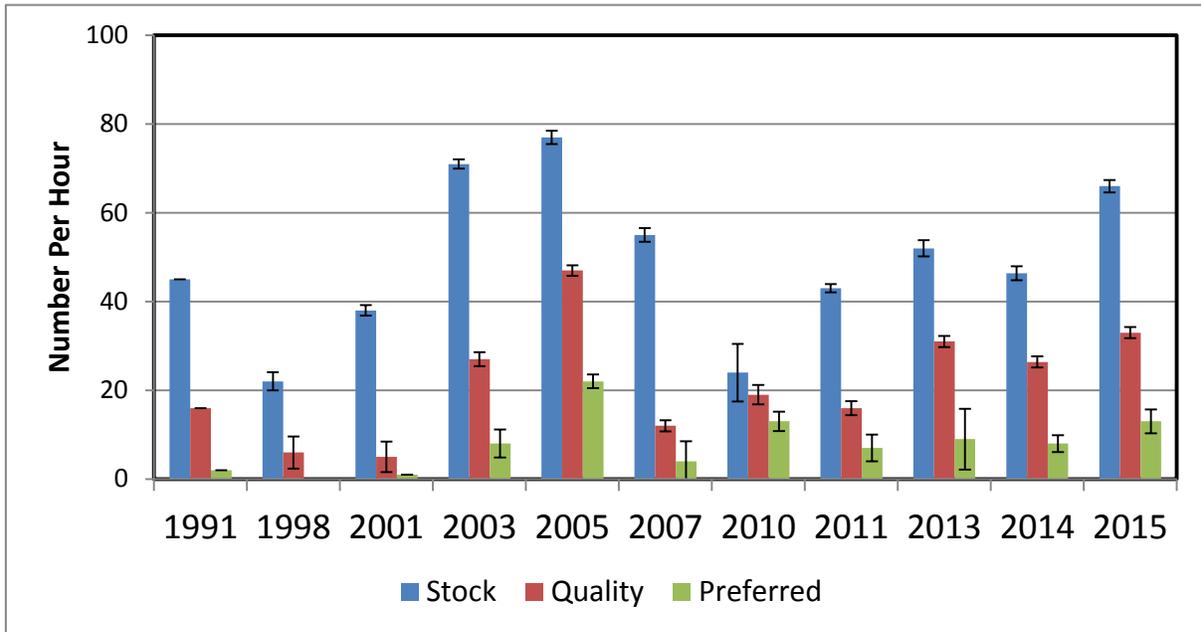


Figure 2. The CPUE ( $\pm$  SE) for stock-, quality-, and preferred-size classes of largemouth bass collected from Iatt Lake, Louisiana for spring seasons from 1991 – 2015.

Proportional stock density (PSD) and relative stock density (RSD) are indices used to numerically describe length-frequency data. Proportional stock density compares the number of fish of quality size (greater than 12 inches for largemouth bass) to the number of bass of stock size (8 inches in length). PSD is expressed as a percent. A fish population with a high PSD consists mainly of larger individuals, whereas a population with a low PSD consists mainly of smaller fish. For example, Figure 3, below indicates a PSD of 62 for 2013. The number indicates that 62% of the bass stock (fish over 8 inches) in the sample was at least 12 inches or longer. Individual lakes vary widely in their ability to support populations of bass. Generally, PSD's between 40 and 60 are considered good.

$$\text{PSD} = \frac{\text{Number of bass} > 12 \text{ inches}}{\text{Number of bass} > 8 \text{ inches}} \times 100$$

Relative stock density (RSD) is the proportion of largemouth bass in a stock (fish over 8 inches) that are 15 inches or longer.

$$\text{RSD} = \frac{\text{Number of bass} > 15 \text{ inches}}{\text{Number of bass} > 8 \text{ inches}} \times 100$$

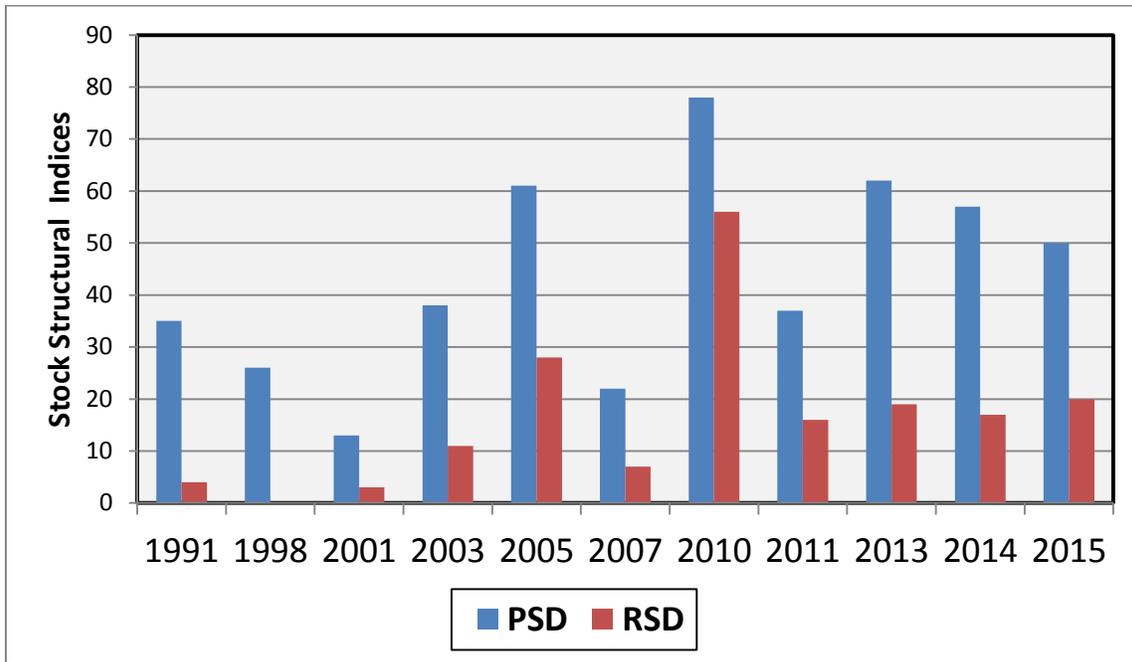


Figure 3. The stock structural indices (PSD and RSD-p) for largemouth bass collected from Iatt Lake, Louisiana for spring electrofishing efforts from 1991 – 2015.

Trends in sampling data indicate PSD's and RSD's increased from 2001 until 2005, then sharply declined from 2005 to 2007 with a sharp increase in 2010. As discussed in the section above, the decrease in CPUE during springtime electrofishing may not be a true indication of the LMB population. The increase in submergent aquatic vegetation (SAV), primarily hydrilla, limited access to electrofishing stations. This had a negative impact on electrofishing efforts and likely caused the drop in all aspects of electrofishing sampling including CPUE, PSD's and RSD's. Due to several factors including drawdowns, triploid grass carp and severe freezing temperatures, the aquatic vegetation is less dense than previous years. If better control of aquatic vegetation occurs in the future, more reliable electrofishing samples may be available.

#### Forage and relative weight-

Prior to 2011, the primary forage for largemouth bass in Iatt Lake was sunfish and silversides (see Figure 4 below). Following summer drawdowns, crawfish are plentiful in the lake and are readily consumed. Forage availability was measured through shoreline seine sampling and indirectly through measurement of largemouth bass body condition or relative weight.

In the fall of 2011, forage availability was measured by electrofishing sampling. A large number of threadfin shad were collected. Figure 5 below indicates over 50% of the available forage that year was threadfin shad. Prior to this event no threadfin shad had been collected in Iatt Lake. It is suspected that the extreme high water levels that occurred in the fall of 2008 provided an opportunity for the threadfin shad to enter the lake from the Red River as it overflowed.

Relative weight ( $W_r$ ) is the ratio of a fish's weight to the weight of a "standard" fish of the same length. The index is calculated by dividing the weight of a fish by the standard weight for its length, and multiplying the quotient by 100. Largemouth bass relative weights below 80 indicate a potential problem with forage availability. Relative weights have historically been calculated from fish collected during fall electrofishing. Unfortunately, fall sampling data was not conducted on Iatt Lake in some years due to fall drawdowns and heavy aquatic vegetation coverage. Relative weight results (Figure 6) indicate that Iatt Lake largemouth bass  $W_r$  values fall within acceptable levels.

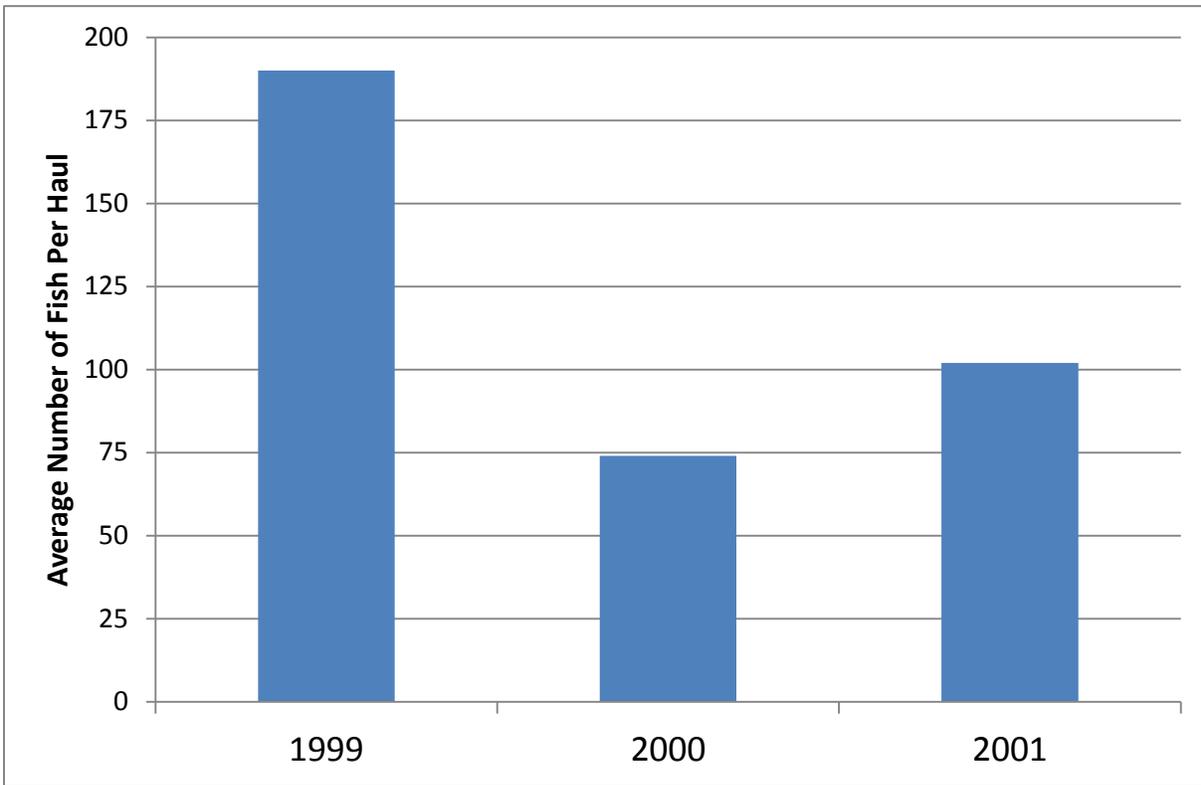


Figure 4. The CPUE (average number per seine haul) of centrarchid sunfishes (*Lepomis* spp.) and silversides (*Labidesthes sicculus*) from shoreline seining for Iatt Lake, LA, for 1999 - 2001.

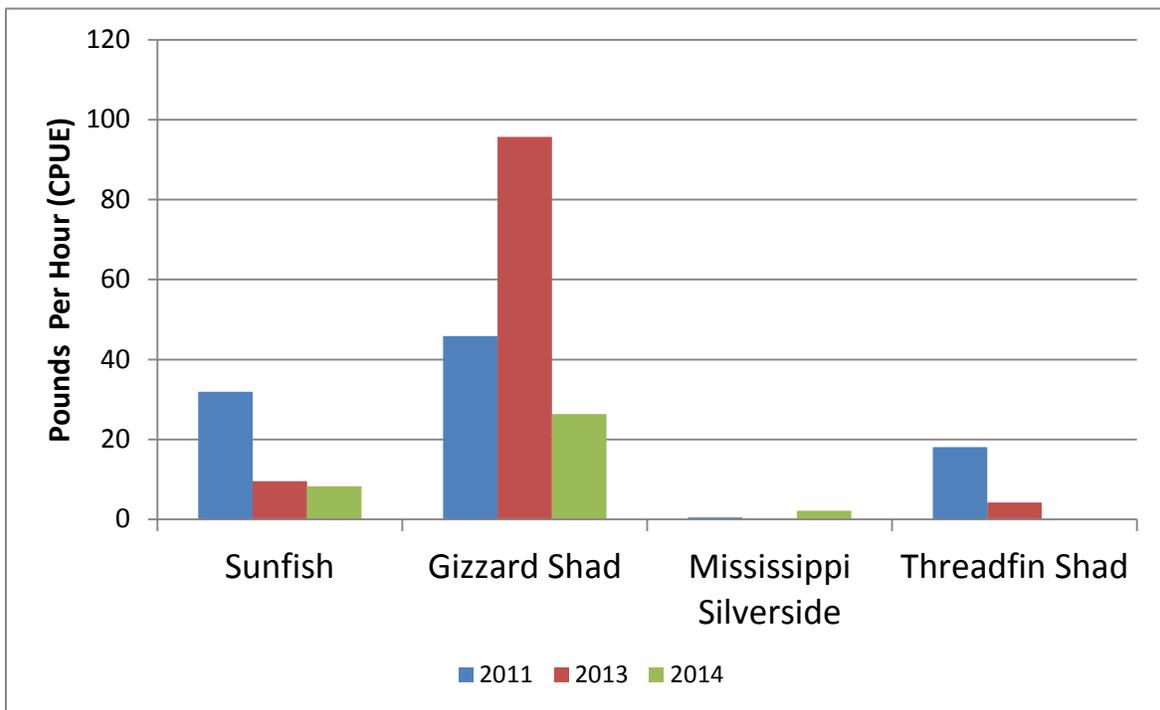


Figure 5. The CPUE (Pounds collected per hour) by electrofishing of forage species found in Iatt Lake, Louisiana for 2011, 2013, and 2014.

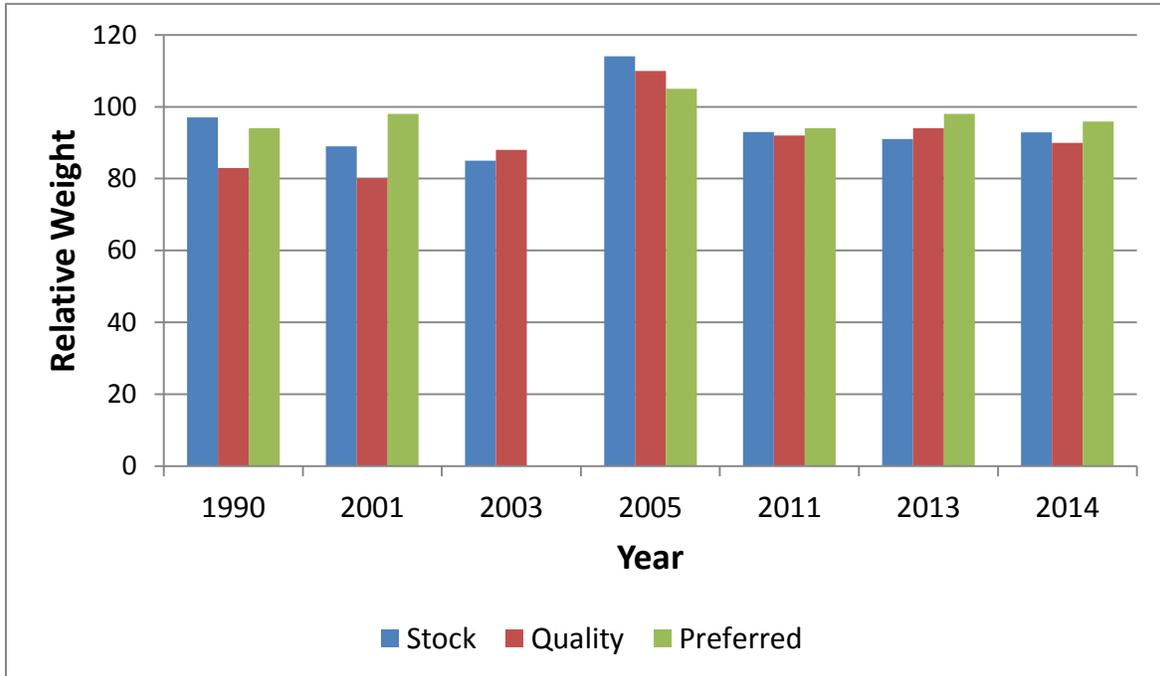


Figure 6. The Wr's for stock-, quality-, and preferred-size classes of largemouth bass collected from Iatt Lake, Louisiana during fall electrofishing results from 1990 – 2014.

### Largemouth bass age and growth-

Age and growth data were collected from 39 LMB in the fall of 1990. The results of this sample are listed in Table 1 below and indicate Iatt bass growth rates are lower than the state average. However, due to the small sample size additional age and growth data is needed. Historically, aquatic vegetation problems have been the main issue concerning the management of Iatt Lake. Prior to 2010, LDWF sampling protocol required otoliths collected for age and growth analysis be collected in the fall. Due to the severe aquatic vegetation problem numerous drawdowns occurred in the fall, the low water during the drawdown prohibited sampling in the fall. Also, scheduled fall sampling was canceled on several occasions due to thick vegetation limiting access to sampling areas. A three year population assessment and genetic study was initiated in the spring of 2013. The results of this study will provide important LMB age and growth information. Results will be available following the completion of the study.

Table 1. Largemouth bass growth rates in inches for Iatt Lake, Louisiana for the years 1990 and 2013-2015.

	1990 (N=39)	2013 (N=110)	2014 (N=112)	2015 (N=112)
Age	Length in Inches			
1	5.6	9.13	8.85	10.07
2	10.3	12.04	12.63	14.05
3	13.0	15	14.72	15.74
4	14.9	15.9	15.27	16.53
5	16.0	-	18.58	16.65
6	16.8	-	22.08	18.74
7	-	-	-	22.04
8	-	-	21.65	19.92
9	-	-	21.37	-

### Largemouth bass genetics-

Florida bass (FLMB) have been sporadically stocked into Iatt Lake primarily to improve public relationships with the local fishermen and lake users. The first stocking was initiated in 1994 with 145,000 fry and 37,895 fingerlings being stocked at that time. Subsequent stocking in 1998 added 35,300 fingerlings. These initial limited stockings did not likely increase the Florida genetic influence. The number of Florida bass stocked into Iatt Lake was low when compared to other central Louisiana lakes. However additional stockings in 2005, 2006, and 2009 added 205,169 fingerlings. Genetic sampling was scheduled for the fall of 2007. However, fall sampling in 2007 was cancelled due to excessive submergent vegetation. All portions of the lake less than six feet deep were matted to the surface making it impossible to collect a representative sample for testing. Genetic sampling was conducted on 17 LMB in 1990 prior to initial stocking of Florida bass and did not reveal the presence of the Florida bass strain in the fish population.

Due to a fish kill which occurred in the fall of 2008, restoration stockings of approximately 1

million Florida bass fingerlings took place from 2009 - 2012. A three year population assessment and genetic evaluation was conducted on Iatt Lake during 2013-2015. Tissues and otoliths were collected to determine age and growth data on the largemouth bass population. See Table 2 for a complete history of genetic testing.

Table 2. Largemouth bass genetic analysis for Iatt Lake, Louisiana.

Year	% Northern	% Florida	% Hybrid	% Florida Influence
1990	100 (N=17)	0	0	0
2013	85.8 (N=97)	1.8 (N=2)	12.4 (N=14)	14.2
2014	82 (N=100)	18 (N=22)	0	18
2015	82.5 (N=109)	0.8 (N=1)	16.7 (N=22)	17.5

### Crappie

Historical rotenone sampling data from 1961 through 1984 averaged 4.6 pounds of black crappie and 4.7 pounds of LMB per acre in Iatt Lake. Average total standing crop of fish per acre for the same time period was 72 pounds. Due to extensive shallow water, stumps and excessive submergent vegetation no lead net sampling of crappie or sunfish has been conducted. However, numerous crappie fishermen utilize the lake and it is one of the most sought after species in the lake. Primarily, the fish are caught in the winter and early spring prior to the emergence of aquatic vegetation. Also, fishing hanging yo-yo's from cypress trees limbs is popular during the winter months.

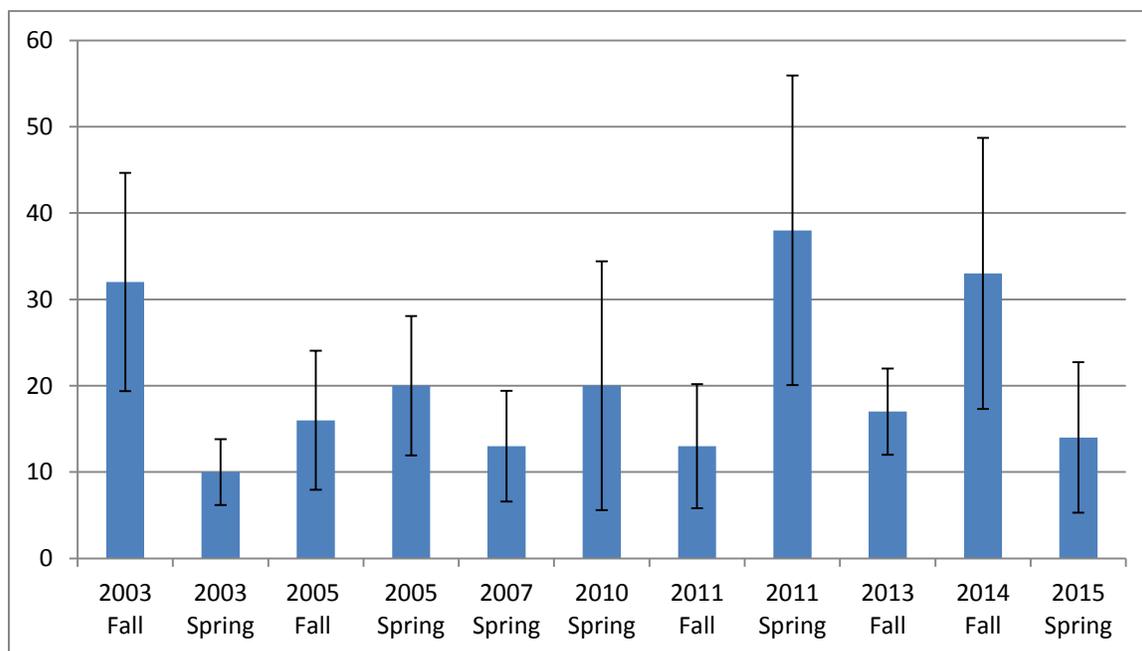


Figure 7. The total CPUE ( $\pm$  SE) for crappie collected from Iatt Lake, Louisiana for spring and/or fall electrofishing from 2003 – 2015. Error bars represent standard error of total CPUE.

### Commercial

Large rough fish species that normally comprise a commercial fishery are not found in this waterbody in sufficient quantity for a viable commercial fishery. In 1999, gill net sampling collected 2 carp, 3 freshwater drum, 2 blue catfish, and 1 flathead catfish. Gill net sampling in 2009 collected few commercial fish. Gill nets results are found in Figure 8 below.

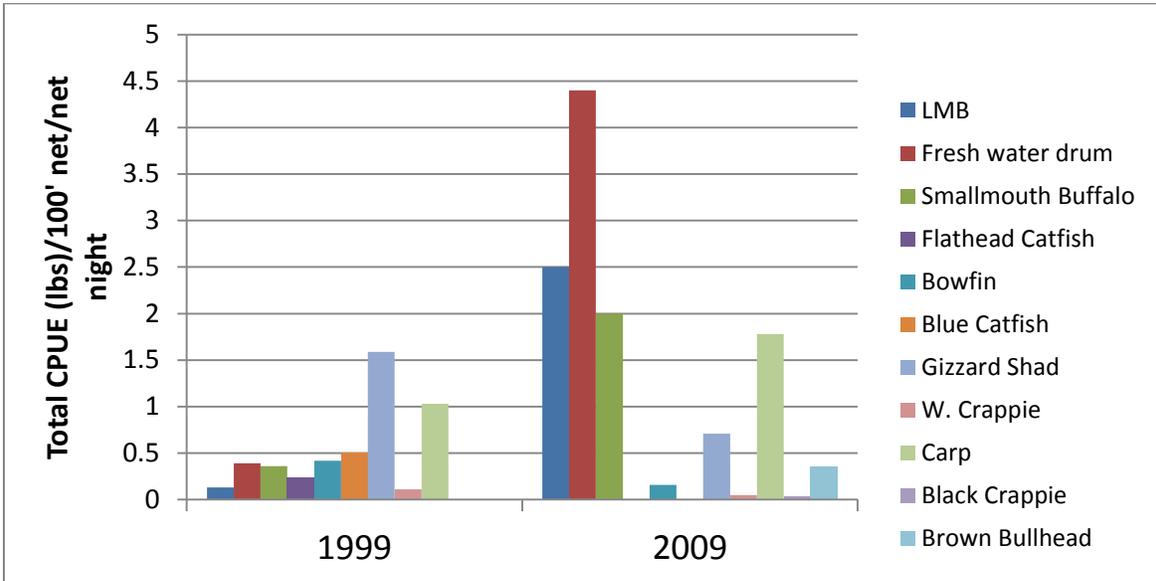


Figure 8. The total CPUE by species for fish collected with gill nets in Iatt Lake, Louisiana.

### Creel Survey

The most recent angler creel surveys were conducted on Iatt Lake in 2013 to gather data on recreational fishing efforts and harvest. Creel survey results are found in Figure 9 below.

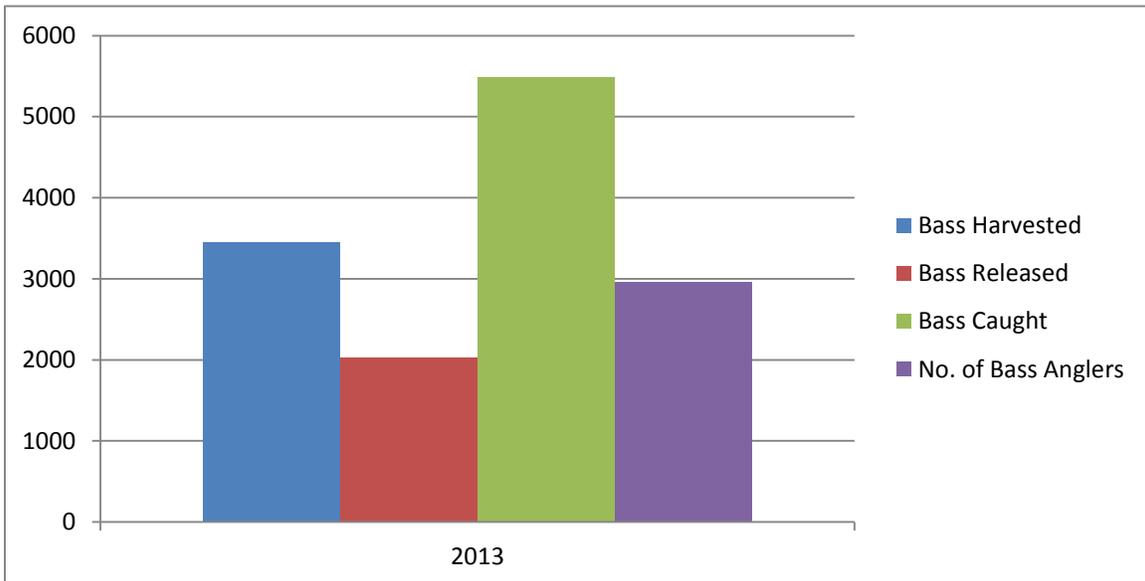


Figure 9. The largemouth bass harvest and angler effort information collected during recreational creel surveys on Iatt Lake, Louisiana during 2013.

### Species of Special Concern

No threatened or endangered fish species are known to inhabit this waterbody.

## **HABITAT EVALUATION**

Aquatic Vegetation – Iatt Lake has extensive coverage of timber throughout most of the lake. The majority of the lake has water less than 6 feet deep and is infested with submerged aquatic vegetation (SAV). The northern half of the lake is predominately bladderwort (*Utricularia* spp.) and cabomba (*Cabomba caroliniana*). The southern end of the lake was infested with hydrilla (*Hydrilla verticillata*) until 2008. The lake was drawn down 8 feet below pool elevation in 2008, and triploid grass carp were stocked. Large areas of American lotus (*Nelumbo lutea*) are also found throughout the lake. Since Iatt Lake was created in 1956, aquatic vegetation has been problematic. Historically, aquatic weeds create problems in the late summer and fall by restricting access to fishermen and recreational boating. Much of the shallow water areas of the lake are inaccessible.

Herbicide spraying is conducted annually on Iatt Lake, primarily for giant salvinia control. Giant salvinia was discovered on the north end of the lake near Hog Island boat ramp in the fall of 2012. Spray efforts were increased in the area. Unfortunately, eradication was unsuccessful. The habitat where the salvinia was discovered had extensive shallow water and timber which made treatments difficult. Due to the extensive bald cypress-water tupelo coverage throughout the lake, giant salvinia is causing severe problems at this time. In 2015, 1,195 acres of giant salvinia were sprayed; however, it continues to cause serious problems for lake users.

Problem vegetation in 2016 is expected to be similar in species and coverage to recent years. A vegetation survey was conducted on July 17-18, 2015. At that time the major problem vegetation was giant salvinia. Coverage was estimated to be 3,200 acres. In addition, SAV coverage was significant and it was matted to the surface in waters out to the 6 foot depth contour. Species included fanwort, bladderwort, coontail, and a minimal amount of hydrilla. The extensive coverage of giant salvinia prevented a reliable estimate of SAV acreage. Generally, American lotus coverage is near 1000 acres during the late summer in Iatt Lake. However, it was minimal at the time of the survey, likely due to spring and summer high water levels. Alligator weed and water hyacinth coverage was less than usual. This was also likely the result of the high water levels.

The SAV coverage for 2016 should be less than normal due to the 2015 drawdown and record high water levels the lake experienced in March 2016. Also, the drawdown was followed with a full stocking of 49,700 triploid grass carp in November and December of 2015. We expect a reduction in SAV for several years. However, emergent vegetation, primarily giant salvinia, will likely continue to cause problems. The 2015/2016 winter weather was mild and due to the extremely fast growth rate of giant salvinia, it is likely to cover 3,000 to 4,000 acres by late summer 2016.

### Substrate

Natural water level fluctuations that historically controlled leaf litter build-up were altered with the impoundment of Iatt Lake. When the spillway was constructed, it caused water levels to remain constant as opposed to the former regime that included high spring and low fall water levels. The thick stand of cypress and tupelo produces a large amount of leaves each year. Leaves that remain underwater decompose at a far slower rate than those exposed to the air. The annual low water period that oxidized organics was a necessary component to the swamp ecosystem that existed before the lake was impounded. The annual senescence of submerged vegetation also contributes to the accumulation of organic matter.

### Artificial Structure

Iatt Lake has an overabundance of natural complex cover including aquatic vegetation and cypress and tupelo timber. No artificial structure is necessary.

## **CONDITION IMBALANCE / PROBLEM**

Iatt Lake has a severe infestation of aquatic vegetation. Submerged and floating vegetation is causing problems with boating access and fishing during the late summer and fall. Most of the water less than 6 feet deep is matted with submerged vegetation to the point that boating access is difficult. Bladderwort, fanwort and lotus have formed large mats in areas of the lake that are impenetrable by boat. These areas make it difficult for camp and home owners to access their boat houses and piers.

Excessive organic material has accumulated on the lake bottom due to the disruption of the natural water level regime when Iatt Lake was created. Without annual exposure to air in the late summer and fall months, leaves decompose under water through the much slower anaerobic decomposition process. Throughout the life of the impoundment, the material has accumulated to such an extent that spawning substrate for nesting fish is covered. The numerous drawdowns that have occurred every 3 to 5 years on Iatt have not caused a significant reduction in organic bottom sediments. Consequently, a reduction in fish production is expected in the future and a more aggressive drawdown regime may be required.

## **CORRECTIVE ACTION NEEDED**

The fish sampling program has been sporadic due to an extensive infestation of aquatic vegetation. Available sampling results indicate a LMB population that fluctuates widely. It is believed that much of the variance in sampling error is a result of heavy aquatic vegetation rather than actual population change. Unfortunately, due to the heavy tree and vegetation coverage in Iatt Lake, organic leaf litter will continue to be a concern. At some point in the future, a more aggressive drawdown regime may be necessary. A drawdown regime that emulates natural annual fall low water periods would be of great benefit.

Immediate needs include vegetation control and a reduction of organic substrate.

## RECOMMENDATIONS

1. Continue existing recreational and commercial harvest regulations.
2. LDWF will complete the analysis of the three year largemouth bass population assessment and review the current recreational harvest regulations and determine if changes are needed.
3. Due to the presence of giant salvinia, additional vegetation surveys will be conducted monthly to monitor salvinia coverage.
4. Spray efforts will concentrate on giant salvinia utilizing the herbicide mixture described below:

LDWF spray crews will continue treating emergent and floating vegetation as needed with either glyphosate or diquat and an approved surfactant. These herbicides are applied at the rate of 0.75 gallons per acre with the surfactant applied at 0.25 gallons per acre. A diquat/glyphosate will be applied to giant salvinia infestations at a rate of 0.75 gal/acre glyphosate, 0.25 gal/acre diquat, and 0.25 gal/acre Turbulence from April 1 through October 31. Outside of that time frame, salvinia should be controlled with applications of diquat (0.75 gal/acre) and a 90:10 non-ionic surfactant. Alligator weed will be controlled with imazapyr (0.5 gal/acre) in undeveloped areas and with Clearcast (0.5 gal/acre) near houses and developed shorelines.

5. The extreme growth rate of giant salvinia is going to require a more aggressive drawdown regime than those previously used in Iatt Lake to control the SAV infestation. An abbreviated summer drawdown was conducted in 2015, however, with consideration of the current status and the projected vegetation coverage on Iatt Lake, a lake drawdown is again recommended for 2016. To avoid unnecessary damage to nesting sportfish reproduction, the drawdown should be initiated as early as possible the week of May 16, 2016.

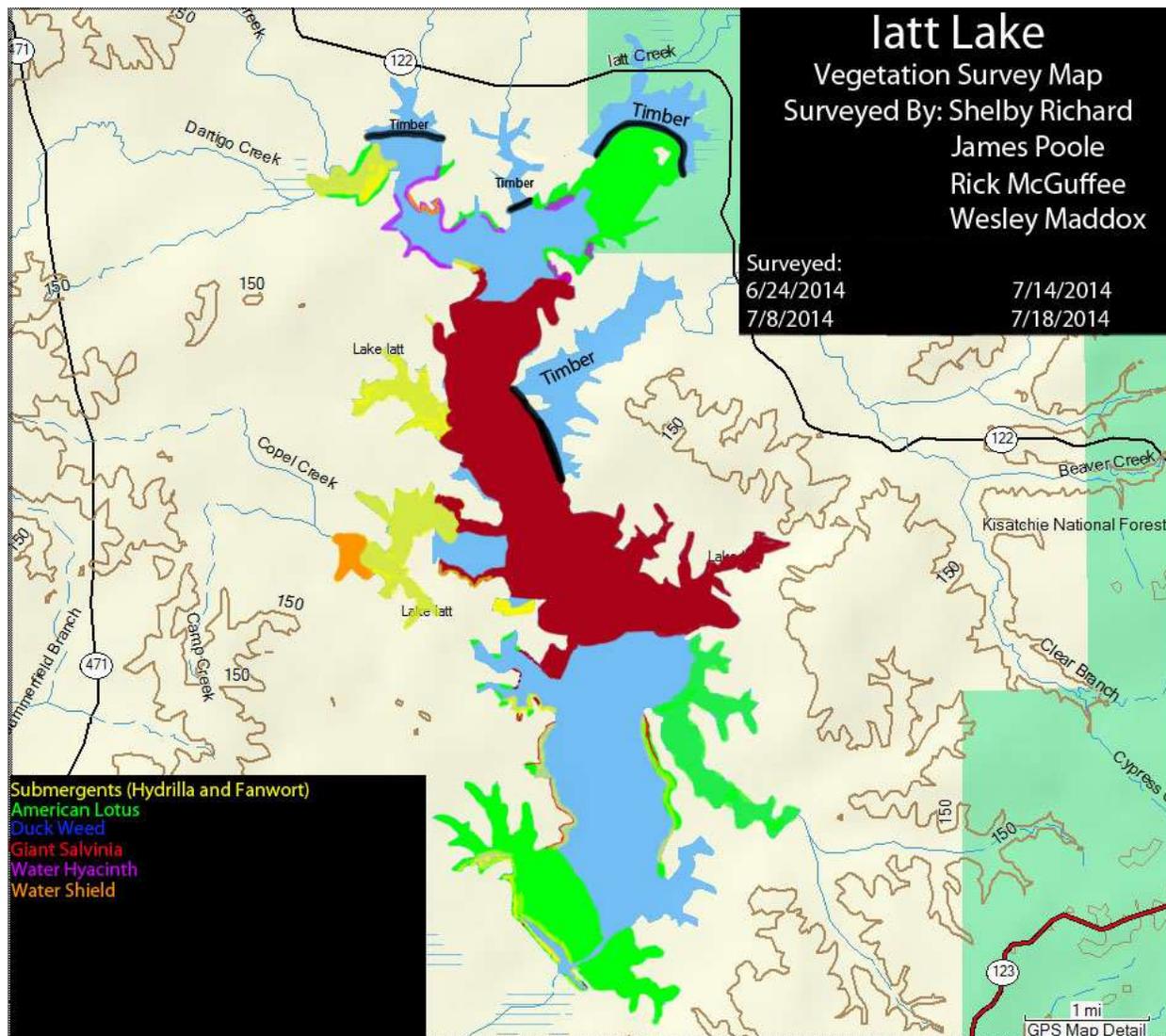
The target level for the 2016 Iatt Lake drawdown will be 8' below normal pool elevation. The timing and depth of the drawdown was selected in a process intended to minimize inconvenience to lake users and maximize drying of the highly organic lake bottom. It became apparent during the 2015 drawdown that a minimum reduction of 8' was needed to provide adequate drying of the lake bottom. The drying period is designed to mimic the seasonal water fluctuation that historically served to reduce accretion of organic detritus. The drying period is also critical for control of aquatic vegetation, particularly giant salvinia. Lake drawdowns are currently the most efficient and cost effective management option to provide large scale control of giant salvinia during the growing season. It is important to note that giant salvinia must be completely dried for successful control. The invasive species can easily survive in pooled water or even on moist substrate.

The dewatering rate should be 4-6 inches per day if possible. The lake should remain in a drawdown state for a minimum of 90 days once the target level is reached. The drawdown gates will be closed no later than the 1<sup>st</sup> week of October 2016. The LDWF staff will work with DOTD personnel to operate the control gate to fluctuate the water level in an effort to strand and dry additional floating vegetation if conditions allow. Care should be taken to minimize the downstream transfer of giant salvinia through the Iatt Lake control structure.

Giant salvinia has become an established component of the Iatt Lake ecosystem and will remain so into the foreseeable future. It is likely that annual summer drawdowns will be required in order keep the lake navigable for recreational use the remainder of the year.

# APPENDIX I – Type Maps

## Typemap Iatt Lake - 2014



## June and August 2013

Iatt Lake, northeast of Colfax in Grant Parish, is a 7100 acre lake. It is a flooded swamp type impoundment with 80% of the surface covered with cypress and tupelo timber. It was surveyed for the presence of aquatic vegetation in June and August of 2013.

As in past years, the majority of the lake was infested with vegetation. Greater than 80% of the lake area was infested with submersed vegetation primarily fanwort and bladderwort. Additional submersed vegetation included coontail, southern naiad, and filamentous algae. The only area of the lake without submersed vegetation was the deep water channels. Unlike recent years no hydrilla was observed. Triploid grass carp stocked in 2009 have apparently alleviated hydrilla, at the current time.

Emergent vegetation was found throughout the lake. The dominant emergent vegetation observed was American lotus. Numerous additional species observed included water hyacinth, white water lily, pennywort, alligatorweed, common and giant salvinia, and duckweed to name a few.

## Aquatic Vegetation Survey 2013



**Area 1** – 75 % American lotus, 30% water hyacinth, scattered common and giant salvinia, fringe of alligator weed and pennywort

**Area 2** – 40% American lotus, 40% water hyacinth, mixed with white water lily, scattered common and giant salvinia, fringe of alligator weed and pennywort

**Area 3** – 30% American lotus, 20% water hyacinth, mixed with white water lily, fringe of alligatorweed and pennywort

**Area 4** – 80% American lotus, scattered common and giant salvinia