

# **LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES**



**OFFICE OF FISHERIES  
INLAND FISHERIES DIVISION**

**PART VI -B**

**WATERBODY MANAGEMENT PLAN SERIES**

**BAYOU MACON CUTOFF LAKES**

**WATERBODY EVALUATION &  
RECOMMENDATIONS**

# **CHRONOLOGY**

DOCUMENT SCHEDULED TO BE UPDATED EVERY FOUR YEARS

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# WATERBODY EVALUATION

## STRATEGY STATEMENT

### Recreational

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

### Commercial

The Bayou Macon Cutoff lakes collectively support a moderate population of commercial fish species. These species are not intensively managed, as their presence and abundance is generally a factor of habitat conditions and flood patterns of Bayou Macon. Harvest of commercial species with adherence to state regulations is generally encouraged to enhance sportfish populations and provide value to an often under-utilized natural resource.

### Species of Special Concern

No threatened or endangered fish species are found in these waterbodies.

## EXISTING HARVEST REGULATIONS

### Recreational

Statewide regulations are in effect for all species. Current Louisiana fishing regulations can be found at: <http://www.wlf.louisiana.gov/regulations>

### Commercial

Statewide regulations are in effect for all species. Current Louisiana commercial fishing regulations can be found at: <http://www.wlf.louisiana.gov/regulations>

## SPECIES EVALUATION

### Recreational

Largemouth bass *Micropterus salmoides* have been a species targeted for sampling, as their status is generally indicative of the overall fish population due to their high position in the food chain. Electrofishing is currently the best available indicator of largemouth bass abundance and size distribution, with the exception of large bass. Gill net sampling is used to determine the status of large bass and other large fish species. Shoreline seining is used to collect information related to fish reproduction.

### *Largemouth Bass*

Electrofishing samples have been conducted on the Bayou Macon Cutoff lakes randomly since 2003. Though this type of sampling strategy provides a general estimate, or “snapshot”, of the current population status, reliable assumptions cannot be made due to a high degree of sampling error associated with these low intensity samples. Nonetheless, relative abundance and size distributions have been determined from data collected during several electrofishing samples. Length distributions from the most recent samples on each of the lakes are shown below in Figures 1, 2 and 3. A length distribution from the summer

sample of 2013 on Cutoffs 2 and 3 is not included, as the sample size was very low in both lakes and only “presence” of largemouth bass was noted. Each of the samples illustrated below shows a balanced size distribution of bass collected; with the exception of the 2008 fall sample in Cutoff 3 which followed a major fish kill. Most size classes are represented in each sample, indicating consistent recruitment. Each sample also shows that bass greater or equal to 17 inches were present. It should be noted that larger size bass are not efficiently sampled by electrofishing.

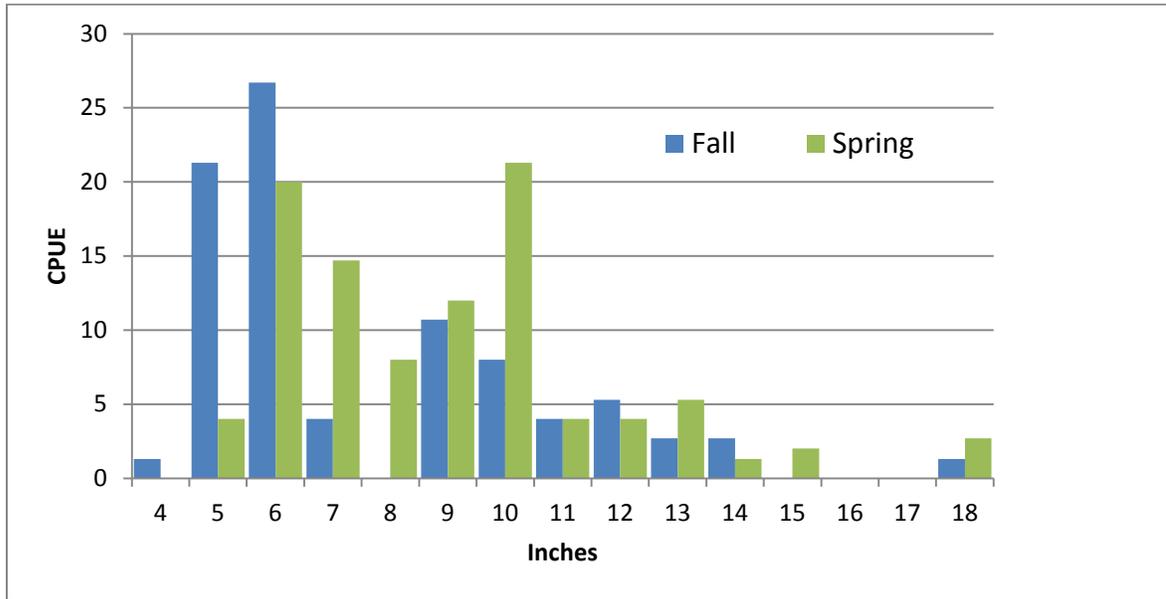


Figure 1. Catch per Unit Effort (CPUE) of largemouth bass by inch group during spring and fall electrofishing on Bayou Macon Cutoff 2 in 2007.

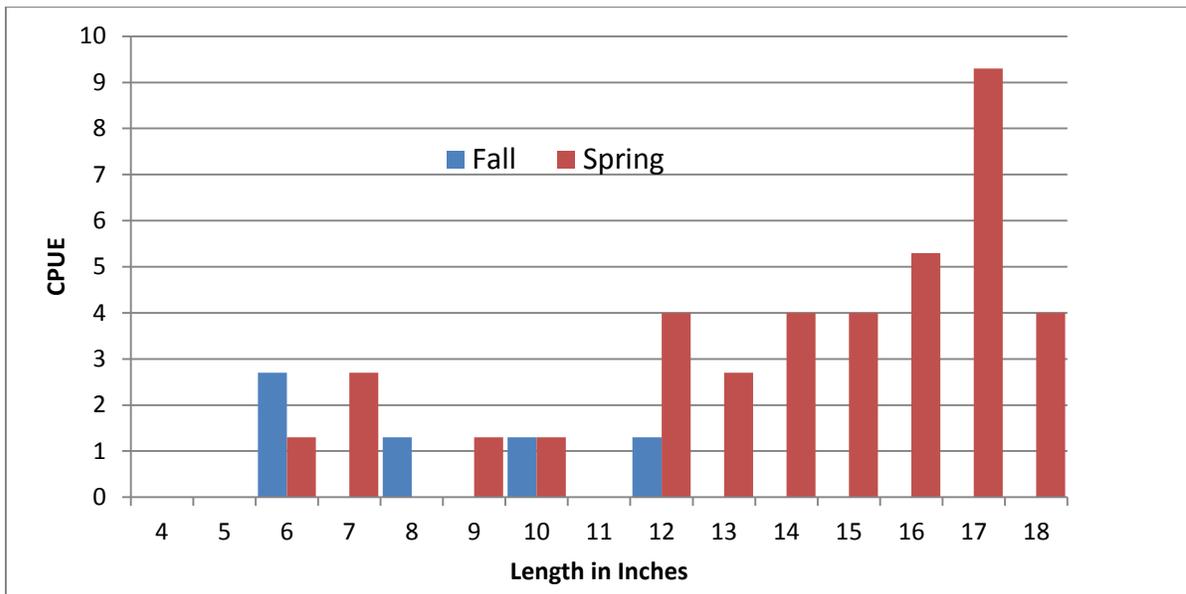


Figure 2. Catch per Unit Effort (CPUE) of largemouth bass by inch group during spring and fall electrofishing on Bayou Macon Cutoff 3 in 2008.

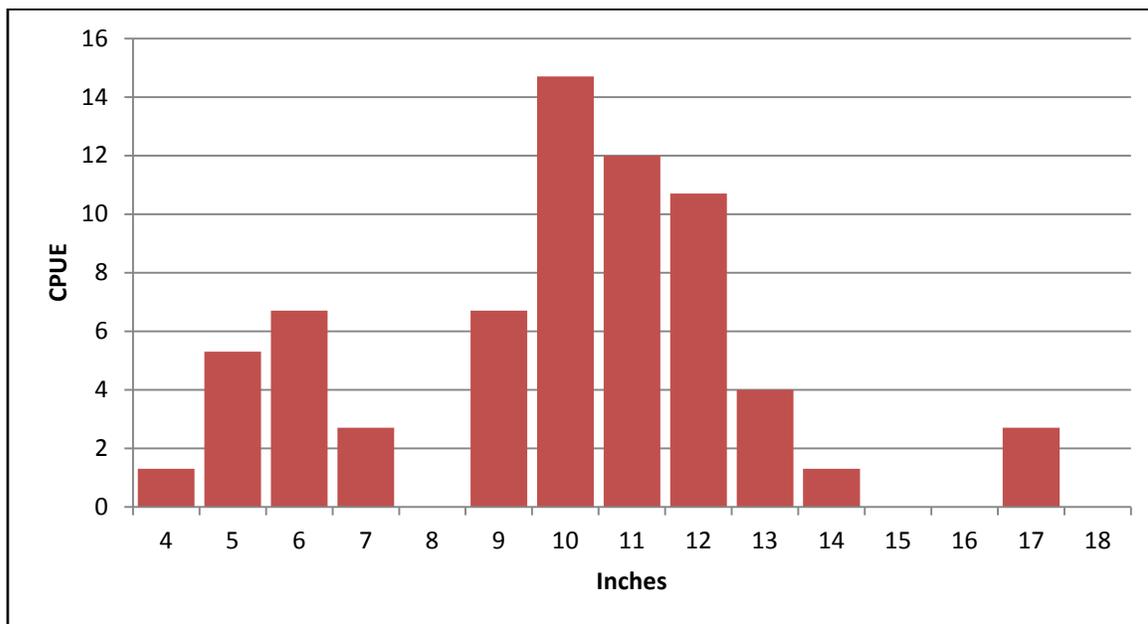


Figure 3. Catch per Unit Effort (CPUE) of largemouth bass by inch group during spring electrofishing on Bayou Macon Cutoff 1 in 2009.

#### *Forage*

Sunfish *Lepomis spp.*, silversides *Labidesthes spp.*, crappies *Pomoxis spp.* and shad *Dorosoma spp.* have been identified as the primary bass forage species in the Bayou Macon Cutoff lakes. Forage availability has been estimated indirectly through measurement of largemouth bass body condition or relative weight. Relative weight (Wr) 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 of bass from recent fall electrofishing samples have exceeded 90 for all size groups. These results indicate that these lakes had abundant and available forage for largemouth bass during the years sampled.

#### *Crappie and Other sunfish species*

The Bayou Macon Cutoffs have been known for quality crappie and sunfish angling. Sampling directed specifically for these species has not been conducted. Lead nets, which have recently become the standardized sampling gear for crappie, have not been used in these lakes. Both white crappie *P. nigromaculatus* and black crappie *P. annularis* have been documented in Bayou Macon Cutoffs from LDWF sampling.

Biomass and electrofishing forage sampling have shown bluegill *Lepomis macrochirus* to be the dominant sunfish species. Other common species are redear sunfish *L. microlophus*, longear sunfish *L. megalotis*, and orangespotted sunfish *L. humilis*.

#### Commercial

Commercial fish species abundance has been evaluated in the past during biomass samples with the use of rotenone. The most recent sample intended to targeted commercial species was conducted with gill nets in Cutoff 1 during 2005. Smallmouth buffalo *Ictiobus bubalus*, blue catfish *Ictalurus furcatus*, flathead catfish *Pylodictis olivaris*, freshwater drum

*Aplodinotus grunniens*, and longnose gar *Lepisosteus osseus*, which are all commercially important species, were documented from this sample, though numbers were not high for any of these species. Relative abundance of these species has not been estimated in recent years.

#### Invasive Species

The following species of Asian carp, which have been documented in Bayou Macon, are believed to be in each of the Bayou Macon Cutoff lakes: grass carp *Ctenopharyngodon idella*, silver carp *Hypophthalmichthys molitrix*, and bighead carp *H. nobilis*. Their abundance and potential negative impacts to native species and habitat is unknown.

## **HABITAT EVALUATION**

#### Aquatic Vegetation

Aquatic vegetation in each of the Bayou Macon Cutoff lakes is typically confined to the shoreline and protected coves. Alligator weed *Alternanthera philoxeroides* and water hyacinth *Eichhornia crassipes* are the most abundant species in each lake. Water hyacinth will often form small mats at the ends of the lakes and in small coves. Alligator weed is typically found scattered along the shoreline, sometimes forming substantial mats. These two exotic species occasionally require herbicide treatments to reduce coverage, especially when impeding navigation, impacting private residences, or causing a potential threat to fish and wildlife habitat. Submerged vegetation is primarily comprised of coontail *Ceratophyllum demersum* in shallow areas, but is not typically abundant.

#### Substrate

The natural substrate of these lakes is typical of the soils of the Mississippi alluvial valley. Silt loams and Sharkey clays are the most common soil types of the area. Though once a scoured channel of Bayou Macon, the lake bottoms are now covered with upper layer silts and fine clays from the surrounding agricultural watershed.

#### Available complex cover

The most prominent forms of complex cover in the Bayou Macon Cutoff lakes are live bald cypress *Taxodium distichum* trees, dead snags and stumps, and some residential piers. Cypress trees are abundant around much of the shoreline and in the shallow areas on each end of the lake. The roots and “knees” of these trees provide significant cover utilized by many species of fish.

#### Artificial Structure

No artificial structures have been placed into these lakes by LDWF.

## **CONDITION IMBALANCE / PROBLEM**

Though not properly documented, the threat of sediment accretion, lowered water quality, and habitat degradation from agricultural runoff should be addressed. With the absence of flow in these lakes, there is a very real potential for significant accumulations of silt from adjacent agricultural fields. Layers of silt can cause the lakes to become shallower, increase turbidity, and degrade the spawning habitat for many species of fish. There is also potential harm to the aquatic habitat from runoff of agricultural pesticides and fertilizers. Fish kills also become much more likely under these conditions.

## **CORRECTIVE ACTION NEEDED**

The issues mentioned above should be properly investigated. Efforts should be made to address areas of agricultural runoff into these lakes. Improvements to water quality and overall health of a waterbody can typically be achieved by implementing best management practices (BMP's) that reduce runoff from agricultural fields and by diverting drainage away from the lakes.

## **RECOMMENDATIONS**

Efforts should be made to promote improved water quality and reduce habitat degradation. Involvement will be required by governing agencies, property owners, and agricultural producers within the watershed. These efforts should include but not be limited to: limiting water removal for agricultural irrigation during summer months, leaving a vegetated buffer along the shorelines, diverting major drainage ditches away from the lakes, and strict adherence to agricultural BMP's to reduce field runoff.

### Aquatic Vegetation Recommendations

At least one assessment by an LDWF spray crew will be conducted in spring, summer, and fall on each of the lakes to determine the need for treatment and to determine the presence of invasive species. All water hyacinth, or any other species determined to be a serious threat (i.e. common salvinia *Salvinia minima* or giant salvinia *S. molesta*), will be treated immediately in accordance with the approved LDWF Aquatic Herbicide Application Procedure. Water hyacinth will be treated with 2,4-D (0.5 gal/acre) and Surf-AC 910 (1 pt./acre) outside of the 2,4,-D waiver period. Glyphosate (0.75 gal/acre) and Surf-AC 910 (0.25 gal/acre) will be used between March 15 and Sept. 15. Any aquatic vegetation in proximity of the spillways will be treated. Alligator weed or other emergent shoreline species will be maintained at a level to provide shoreline cover for fish, but not negatively impacting boating, access, recreation, or wildlife. A general rule will be to maintain it within 10 ft. of the shoreline and to prevent it from completely covering shallow areas or coves. Crews will treat alligator weed and other similar emergent species with imazapyr (0.5 gal/acre) and Turbulence surfactant (0.25 gal/acre) since each of these lakes are mostly undeveloped and irrigation restrictions are not an issue. Complaints from residents or the Police Jury will be responded to as soon as possible.