

# **LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES**



**OFFICE OF FISHERIES  
INLAND FISHERIES SECTION**

**PART VI -B**

**WATERBODY MANAGEMENT PLAN SERIES**

**CHATHAM LAKE**

**WATERBODY EVALUATION &  
RECOMMENDATIONS**

## **CHRONOLOGY**

DOCUMENT SCHEDULED TO BE UPDATED EVERY FIVE YEARS

January 2009 – Prepared by  
Jesse Bahm, Biologist Manager, District 2

Update – January 2014 – Prepared by  
James Seales, Biologist III, District 1  
Jeff Sibley, Biologist Manager, District 1

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# WATERBODY EVALUATION

## STRATEGY STATEMENT

### Recreational

Chatham Lake fits well in the LDWF strategy to provide a community opportunity to harvest fish. The goal of community fisheries management is to provide increased recreational man-hours through quality fishing opportunities to local anglers.

### Commercial

The physical characteristics of Chatham Lake do not support the large rough fish species that normally comprise a commercial fishery; therefore, a commercial fishery strategy is not used.

### Species of Special Concern

No threatened or endangered fish species are found in this waterbody.

## EXISTING HARVEST REGULATIONS

### Recreational

Statewide regulations for all fish species. Recreational fishing regulations may be viewed at this link: <http://www.wlf.louisiana.gov/fishing/regulations>

### Commercial

Statewide regulations on all species. Commercial fishing regulations may be viewed at this link: <http://www.wlf.louisiana.gov/fishing/regulations>

### Parish Regulations

No commercial fishing May 15 – Sept. 14.

Gillnets: 3 inch min. square during pool stage, 4 inch min. during drawdowns.

## SPECIES EVALUATION

### Recreational

#### Fish Population Prior to Lake Renovation

Chatham Lake has been the subject of minimal sampling due to its small size and close proximity to waters with higher public utilization. Electrofishing was conducted in 2003 to collect data regarding largemouth bass (*Micropterus salmoides*). Largemouth bass are targeted as a species indicative of the overall fish population due to their high position in the food chain. Of various sampling gears used to collect fish population data, electrofishing is the best indicator of largemouth bass abundance and size distribution. Largemouth bass abundance and size structure of fish collected in the 2003 electrofishing sample were unremarkable. The relative weights of the bass captured were in the normal range. Results from the 2003 sample are shown in the chart in Figure 1.

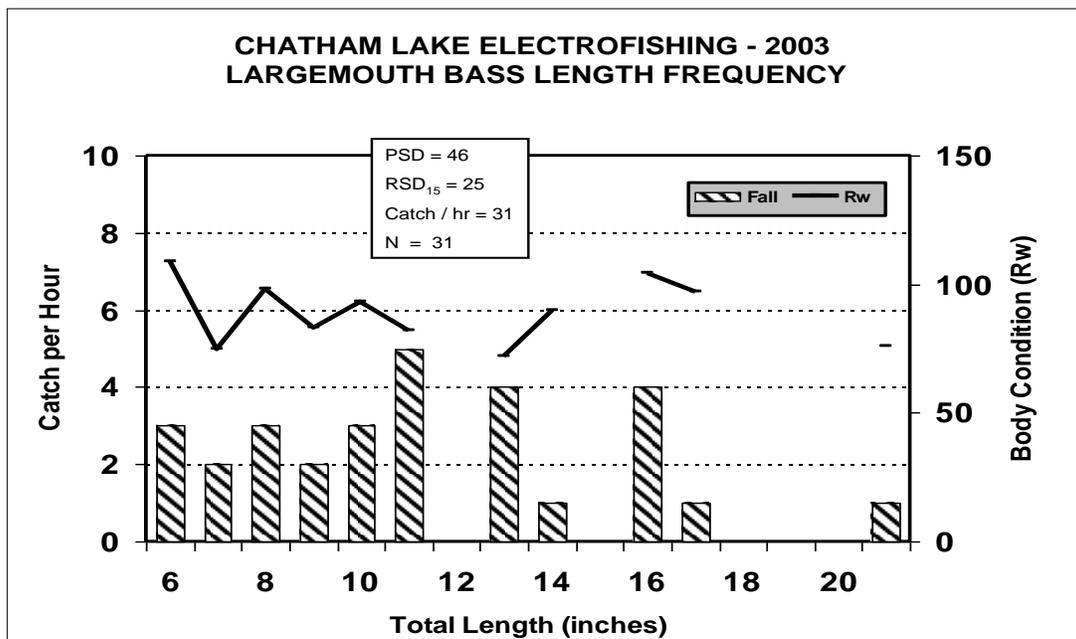


Figure 1. The length frequency distribution of largemouth bass collected on Chatham Lake, LA during summer 2003 electrofishing sample.

During the Chatham Lake drawdown of 2007, all fish were removed from the remaining waters of the lake basin. Scheduled sampling is designed to provide information related to the development of the new Chatham Lake fishery.

Fish species observed after the Chatham Lake rotenone kill are worth noting. Spotted gar were found to be the most common predatory fish, not largemouth bass. Also of note is that some gar survived the initial rotenone application and two follow-up applications. Netting was required to remove the rotenone resistant gar.

### Fish Population Following Lake Renovation and Restocking Efforts

#### Largemouth Bass

##### Relative abundance and size distribution-

Electrofishing has been the primary sampling technique utilized on Chatham Lake following the lake renovation efforts. Catch per unit effort (CPUE) is the term used to describe the number of fish collected during a given time period of sampling. For electrofishing samples the standard CPUE time period is one hour and the unit is number of fish captured. Thus, CPUE is an index of relative abundance for electrofishing results and is usually displayed as the number of fish captured per hour of sampling effort. Results from summer electrofishing samples for stock-size (i.e., total length  $\geq 8$  in.) largemouth bass from 2009 – 2013 are presented in Figure 2. The trend line from data collected during this time period shows a considerable increase in stock-size fish in Chatham Lake over this time period, indicating successful restocking efforts.

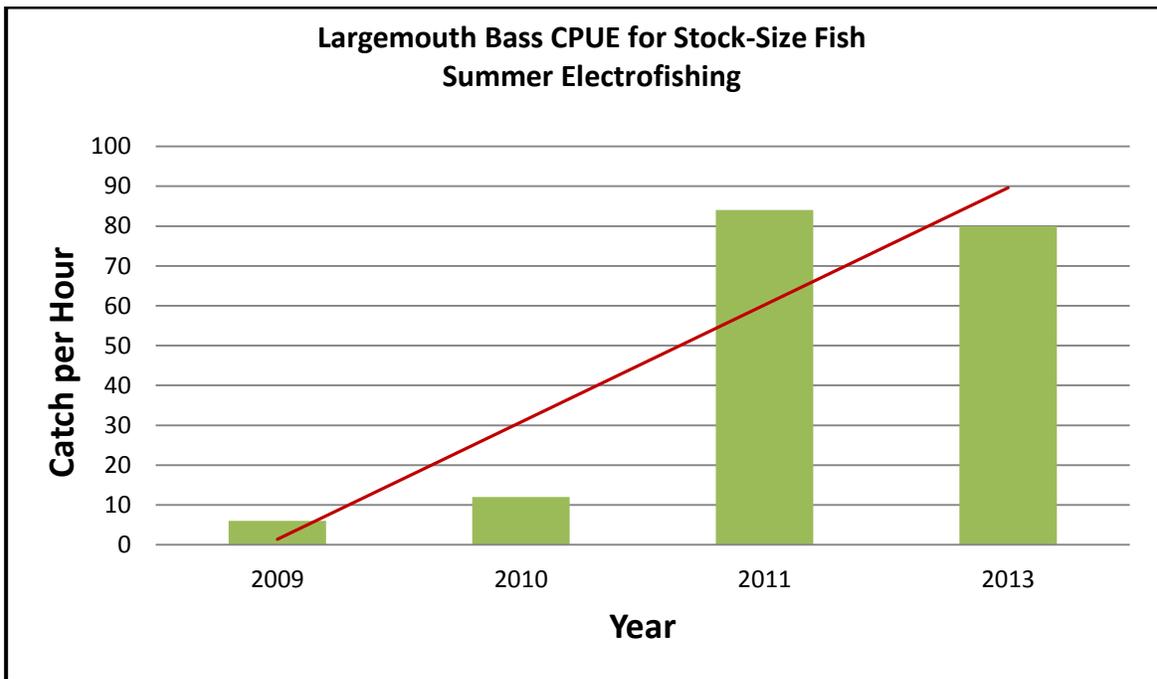


Figure 2. The CPUE for stock-size (8” and larger) largemouth bass on Chatham Lake, LA, from summer electrofishing for 2009-2013, following lake renovation efforts.

The CPUE of quality-size (12” and larger) largemouth bass from 2009 – 2013 is shown in Figure 3. The dramatic increase in CPUE of this size fish provides evidence that lake renovation and restocking efforts have been successful thus far.

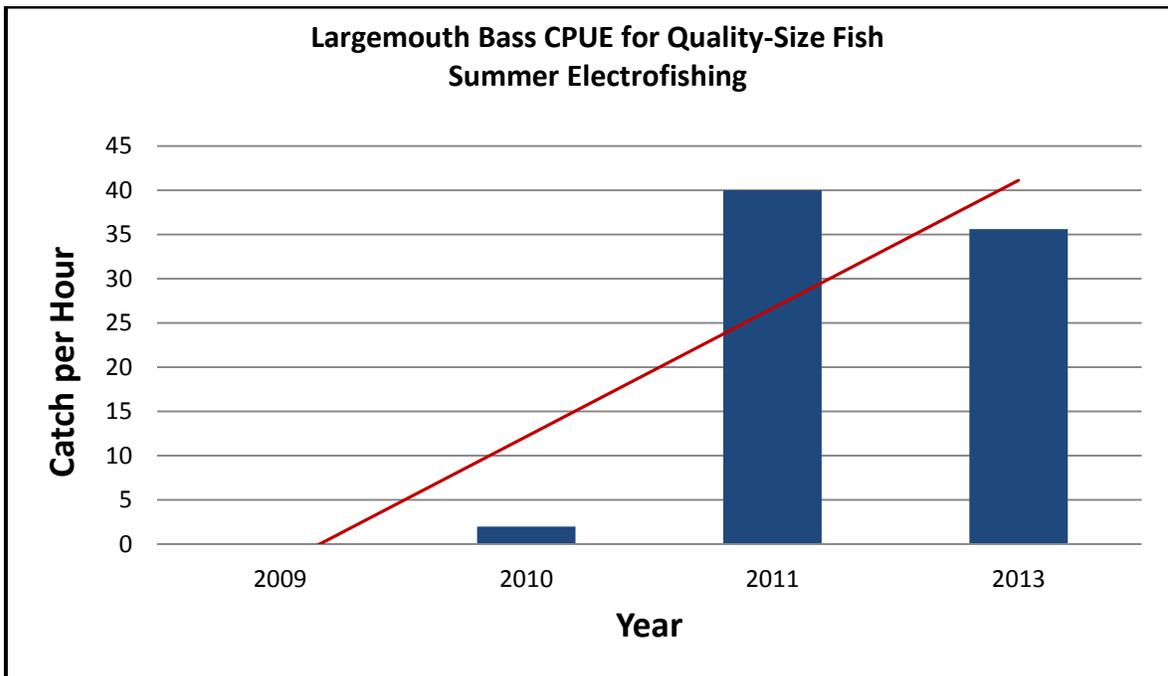


Figure 3. The CPUE for quality-size (12” and larger) largemouth bass on Chatham Lake, LA from summer electrofishing results for 2009-2013, following lake renovation efforts.

## Crappie

Black crappies (*Pomoxis nigromaculatus*) were stocked following the lake renovation. The crappies stocked in Chatham Lake were the blacknose strain of the black crappie. Blacknose strain crappies have a characteristic black stripe that runs from the anterior edge of the dorsal fin to the tip of the snout. Black crappies were not abundant in the forage sample, but the introduction of the blacknose variety into the lake was successful and the fish are reproducing. The CPUE during summertime electrofishing sampling was low, but the fish have become established and are increasing in size. Lead net sampling is planned for 2014 and that should provide information on the developing crappie population.

## Forage

Forage samples were collected in conjunction with summertime electrofishing in 2011 and 2013. Only fishes  $\leq 5$  inches TL are considered as forage for the purpose of evaluating the available forage in the reservoir. Bluegill (*Lepomis macrochirus*), was the primary species available as forage. Bluegill reproduction was exceptional following the lake renovation and subsequent restocking efforts. The initial stocking of 136,250 bream in 2007 consisted of 75% bluegill and 25% redear. Redear did not show up in seine samples collected in 2009 and 2010 or in the 2011 forage sample. Local anglers were also complaining about the lack of redear in the recovering fish population. A subsequent stocking of 159,492 redear fingerlings in 2012 yielded a few small redear in the 2013 electrofishing forage sample, but numbers remain low.

Gizzard shad (*Dorosoma cepedianum*) and threadfin shad (*Dorosoma petenense*) were the primary species found in the forage category in the 2013 sample. Brook silversides (*Labidesthes sicculus*), pirate perch (*Aphredoderus sayanus*), and blackstripe topminnows (*Fundulus notatus*) were also found in the forage category. The number per hour of black bass, crappie, sunfish and forage species are illustrated in Figure 4 and the pounds per hour of these species in Figure 5.

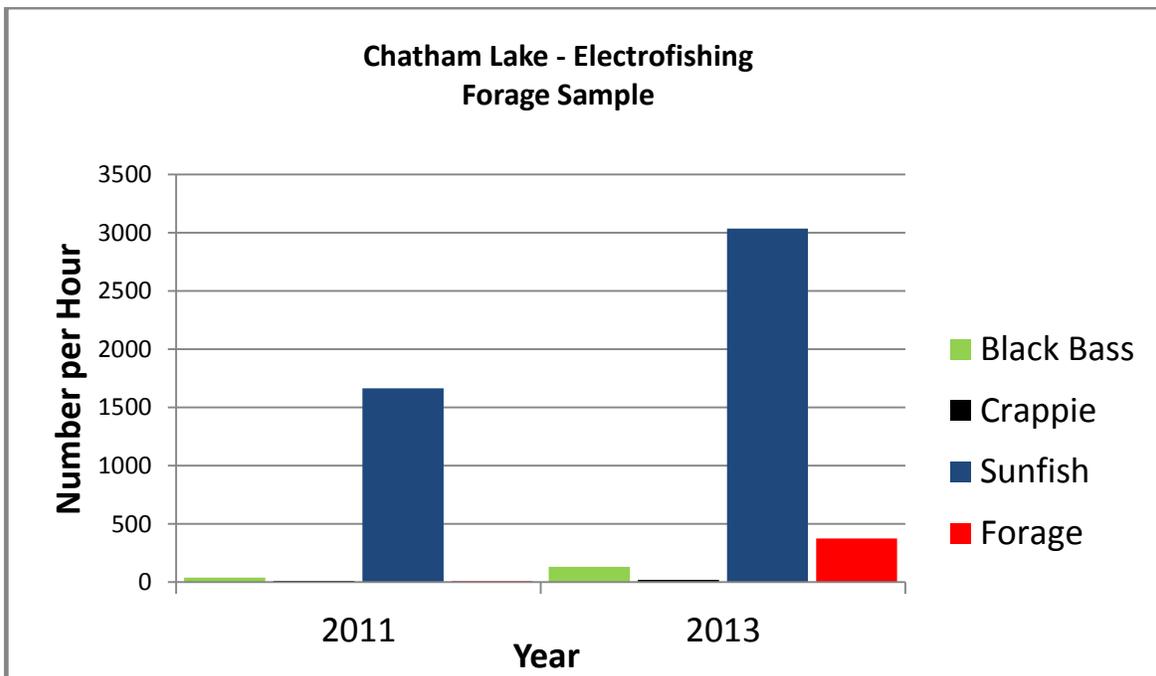


Figure 4. The CPUE (number of fishes per hour) of fishes  $\leq 5$  inches TL captured in Chatham Lake, LA from forage samples taken in 2011 and 2013.

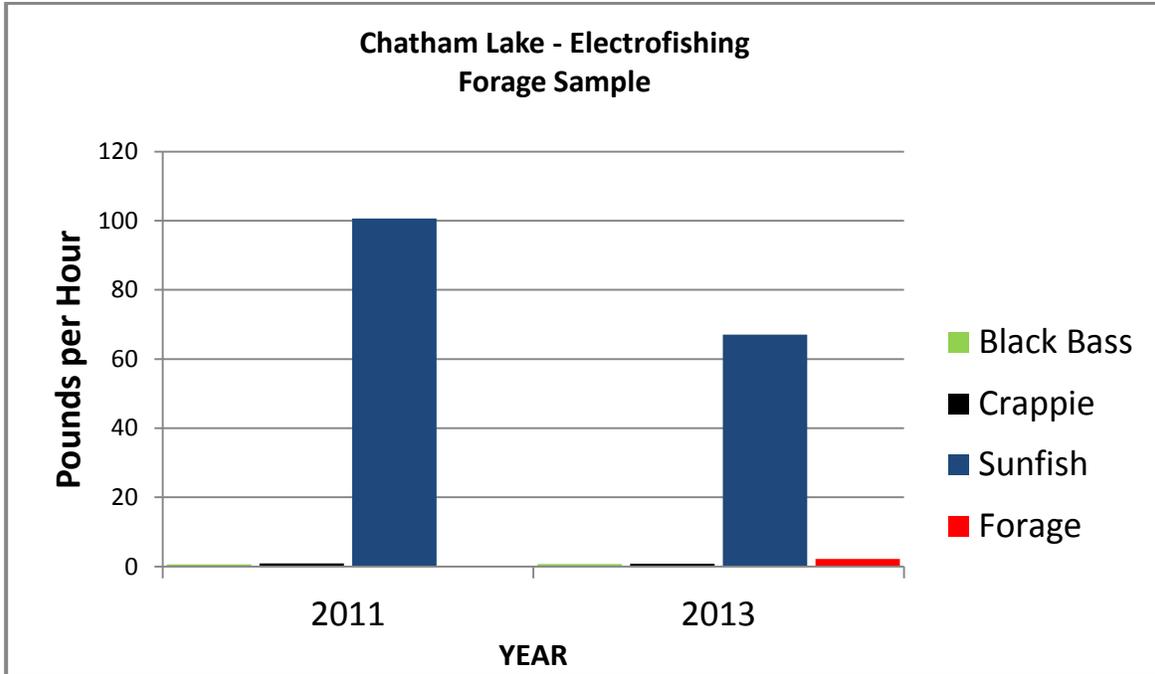


Figure 5. The CPUE (pounds of fishes per hour) of fishes  $< 5$  inches TL captured in Chatham Lake, LA from forage samples taken in 2011 and 2013.

Shoreline seine sampling was conducted in 2009 and 2010 in Chatham Lake. Bluegill was the predominate species collected (Figure 6).

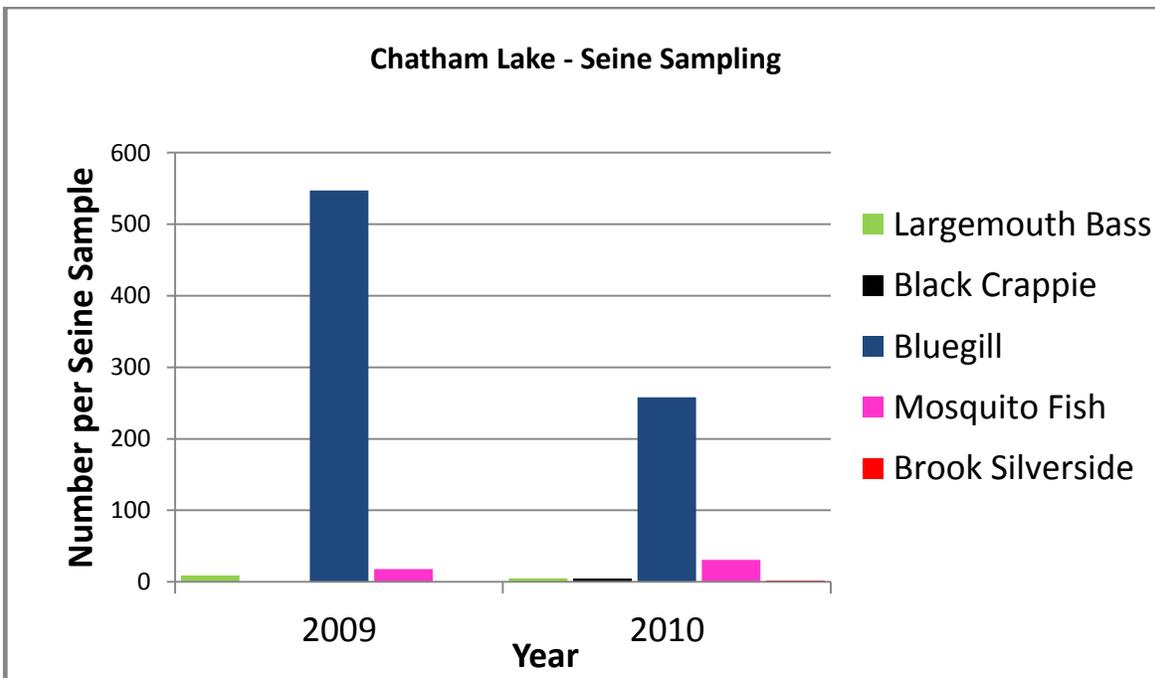


Figure 6. The CPUE (number per seine haul) of small fish ( $\leq 5''$  total length) which included YOY largemouth bass, black crappie, bluegill, mosquito fish, and brook silversides captured in Chatham Lake, LA from 2009 – 2010.

### Commercial

Large rough fish species that normally comprise a commercial fishery are not found in this water body. Channel catfish have been restocked following the lake renovation to provide additional angling opportunities.

## **HABITAT EVALUATION**

### Aquatic Vegetation

At pool stage, approximately 50% of Chatham Lake is less than 4 feet deep. Overabundant aquatic vegetation is typical located in the shallow water areas. Water primrose (*Ludwigia octovalvis*) and alligator weed (*Alternanthera philoxeroides*) compose a significant obstacle to angler access throughout the warm weather growing season. Coverage of submerged aquatic plant species is generally sparse. Submerged vegetation seldom extends to waters deeper than 3 feet. Common species include slender naiad (*Najas minor*), bladderwort (*Utricularia* spp.), fanwort (*Cabomba caroliniana*) and coontail (*Ceratophyllum demersum*). In August 2004, common salvinia (*Salvinia minima*) was observed in Chatham Lake. Coverage of the exotic species was estimated at approximately 10 acres. Herbicide applications and cold weather reduced salvinia to an undetectable level in the winter of 2004. The lake renovation efforts in 2007 provided a temporary reduction in aquatic vegetation, but several years following the complete drawdown of the lake, aquatic vegetation has rebounded to previous levels. The shallow water areas generally have moderate coverage during the growing season and the deeper areas of the lake have sparse coverage. A fringe of vegetation is generally found on most of the shoreline. Salvinia persists in the lake through 2013, but has not become problematic. A vegetation survey conducted on 10/14/13, found less than 15 acres of common salvinia throughout the lake.

### Substrate

The substrate of Chatham Lake is composed of sandy loam. Organic content is generally high in the upper end of the lake due to long term overabundant aquatic vegetation. Suitable fish spawning substrate is available along the shoreline of the deeper end of the lake.

### Artificial Structure

No artificial habitat has been placed in Chatham Lake to date.

## **CONDITION IMBALANCE / PROBLEM**

Impounded in 1952, Chatham Lake is an old lake as compared to other lakes in the surrounding area. Prior to the lake renovation in 2007, the excellent fishing of past decades had long since deteriorated due to an unbalanced fish population that included undesirable fish species. The lake renovation efforts have reestablished a balanced fish population in Chatham Lake. Repairs were also made to the control structure and boat ramp during the extensive drawdown of the lake.

The major concerns for Chatham Lake at this time are maintaining a balanced fish population, improving littoral fisheries habitats and avoiding excessive aquatic vegetation coverage.

## **CORRECTIVE ACTION NEEDED**

The Chatham Lake fish population should be routinely monitored for balance. Foliar herbicide applications should be applied as needed to prevent excessive coverage of emergent and floating aquatic vegetation.

## **RECOMMENDATIONS**

1. Maintain a balanced fish population that includes species that can be accessed by shoreline anglers (i.e. channel catfish, sunfish species).
2. Remove gill nets, trammel nets, hoop nets, and fish traps to allow for more equitable allocation of fisheries resources.
3. Encourage construction of additional fishing piers, artificial reefs, spawning beds, and shoreline trails to increase shoreline angler success. Work with the JPWD and other entities to complete these tasks using the “Louisiana’s Aging Reservoirs and Lakes” grant or other suitable programs.
4. Conduct foliar herbicide applications on floating and emergent aquatic weeds as needed in accordance with the standard operating procedures in the latest version of the “LDWF Aquatic Herbicide Recommendations”.