LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES

OFFICE OF FISHERIES
INLAND FISHERIES SECTION

PART VI –B

WATERBODY MANAGEMENT PLAN SERIES

LAKE FIELDS-LAKE LONG COMPLEX

WATERBODY EVALUATION &
RECOMMENDATIONS

CHRONOLOGY

DOCUMENT SCHEDULED TO BE UPDATED ANNUALLY

November 2013 – Prepared by
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WATERBODY EVALUATION

STRATEGY STATEMENT

Recreational
Recreational species are managed to provide a sustainable population while providing anglers the opportunity to catch or harvest numbers of fish.

Commercial
Commercial species of fish are managed to provide a sustainable population.

Species of Special Concern
Species of special concern are managed to ensure sustaining populations.

EXISTING HARVEST REGULATIONS

Recreational
Statewide regulations are in effect for all species.
http://www.wlf.louisiana.gov/fishing/regulations

Commercial
Statewide regulations are in effect for all species
http://www.wlf.louisiana.gov/fishing/regulations

SPECIES EVALUATION

Largemouth Bass

Relative abundance, relative weight and size distribution-
Spring electrofishing results indicates that there has been relatively no change in catch-per-unit-of-effort (CPUE = bass per hour) of largemouth bass (*Micropterus salmoides*) since 2008 (Figure 1). Figure 1 shows that linear relationship among all sample years is nearly horizontal. Fall electrofishing sample results show that relative weights (Wr) of largemouth bass have remained at 95 and above for substock-, stock- and quality-size fish (Figure 2). Relative weight 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 Wr below 80 indicate a potential problem with forage availability. Figure 2 indicates that the condition of largemouth bass is in the healthy range with relative weights at 95 and above. Length frequencies from 2009 to 2011 fall electrofishing results indicate that in 2009 there were more substock-sized fish inch groups present than in the following years (Figure 3). This increase in substock-size fish was likely the result of recruitment the year following

Hurricane Gustav. Although numbers of fish per inch group were at their lowest in fall 2011 electrofishing, stock densities in both the proportion of preferred-size and stock-sized fish were at their highest (Figure 4). 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). The 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 37 for 2009. The number indicates that 37% of the bass stock (fish over 8 inches) in the sample was at least 12 inches or longer.

$$PSD = \frac{\text{Number of bass>12 inches}}{\text{Number of bass>8 inches}} \text{ x100}$$

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

$$RSD = \frac{\text{Number of bass>15 inches}}{\text{Number of bass>8 inches}} \text{ x100}$$

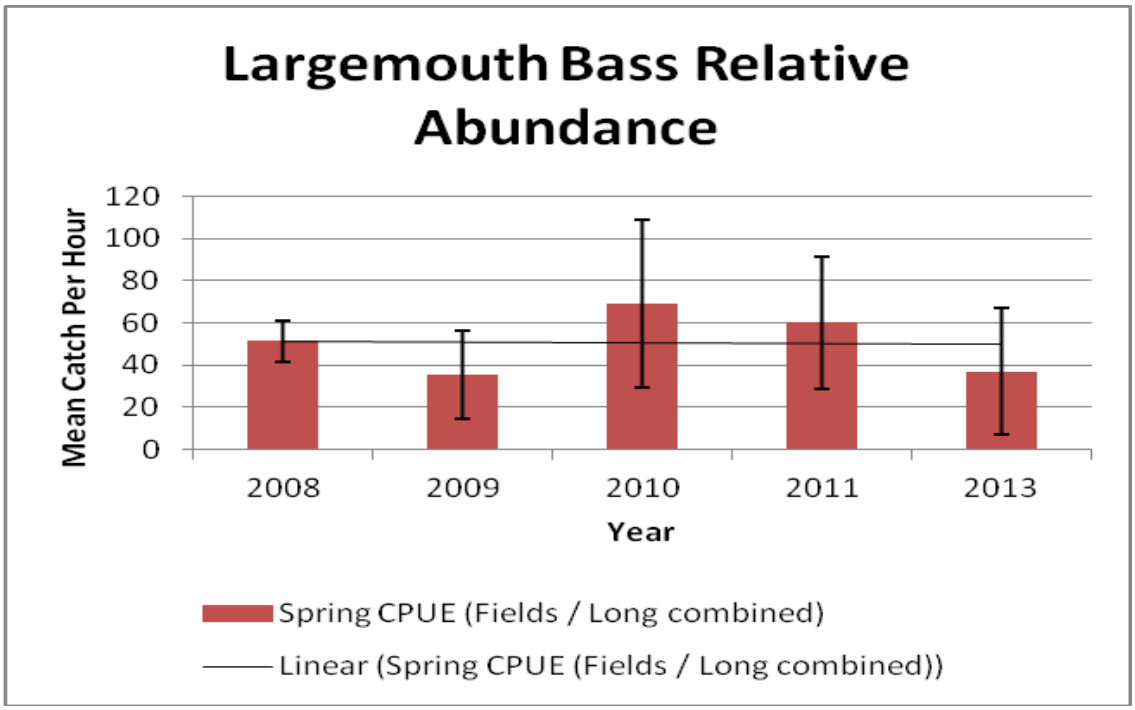


Figure 1. The mean CPUE in spring electrofishing number per hour for largemouth bass in Lake Fields-Lake Long Complex, LA, from 2008 to 2013. Error bars represent

95% confidence limits of the mean CPUE. Values for n by year: n=50 (2008), n=80 (2009), n=69 (2010), n=60 (2011), n=37 (2013).

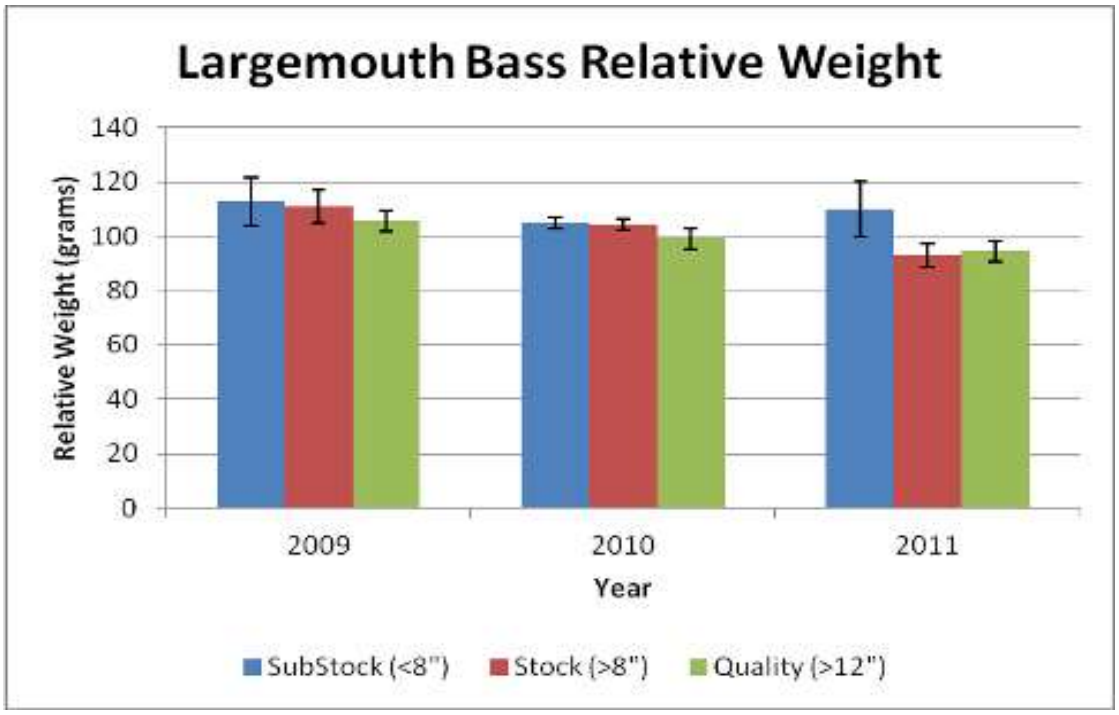


Figure 2. The mean relative weights (± 95% CI) for largemouth bass collected in fall electrofishing samples from Lake Fields-Lake Long Complex, LA, from 2009 to 2011. Error bars represent 95% confidence limits of the mean relative weights. Values for n by year: n=254 (2009), n=106 (2010), n=27 (2011).

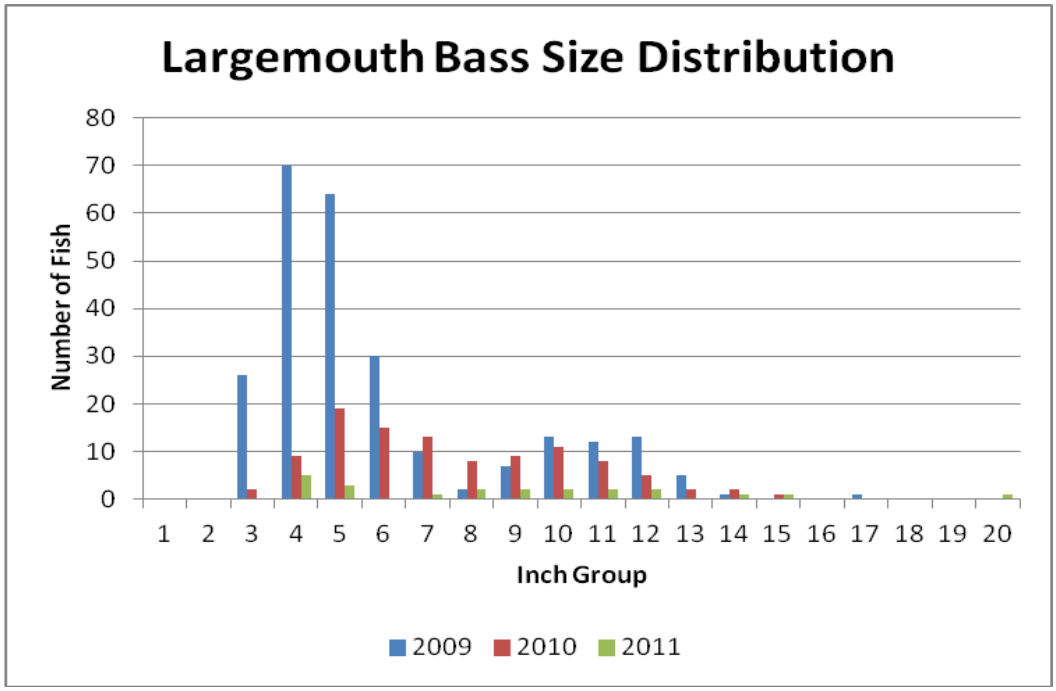


Figure 3. The size distribution (length groups) for largemouth bass from fall electrofishing results in the Lake Fields-Lake Long Complex, LA, from 2009 to 2011. Values for n by year: n=254 (2009), n=106 (2010), n=27 (2011).

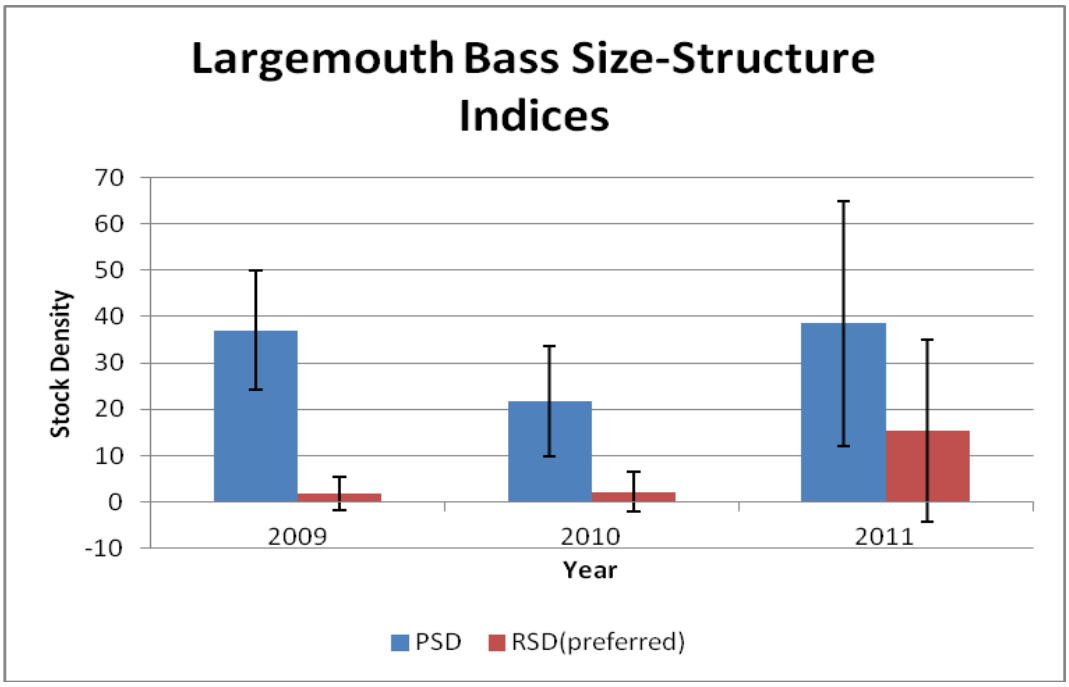


Figure 4. The mean size-structure indices (PSD and RSDp) for largemouth bass from fall electrofishing results From Lake Fields-Lake Long Complex, LA, from 2009 to 2011. Error bars represent 95% confidence limits of the mean size-structure indices.

Genetics

Largemouth bass have not been tested for the Florida allele.

Stockings

There are no records of largemouth bass being stocked into the system. In 2013, 4,823 black crappie fingerlings were stocked.

Forage

Forage availability is typically measured directly through electrofishing and shoreline seine sampling and indirectly through measurement of largemouth bass body condition or relative weight.

Forage composition in catch-per-unit-effort by species collected in fall electrofishing samples in 2011 are presented in Figure 6. Forage is comprised mainly of bluegill sunfish, followed by threadfin shad (*Dorosoma petenense*), Gulf menhaden (*Brevoortia patronus*), redspotted, redear, longear and warmouth sunfishes and golden shiner (*Notemigonus crysoleucas*).

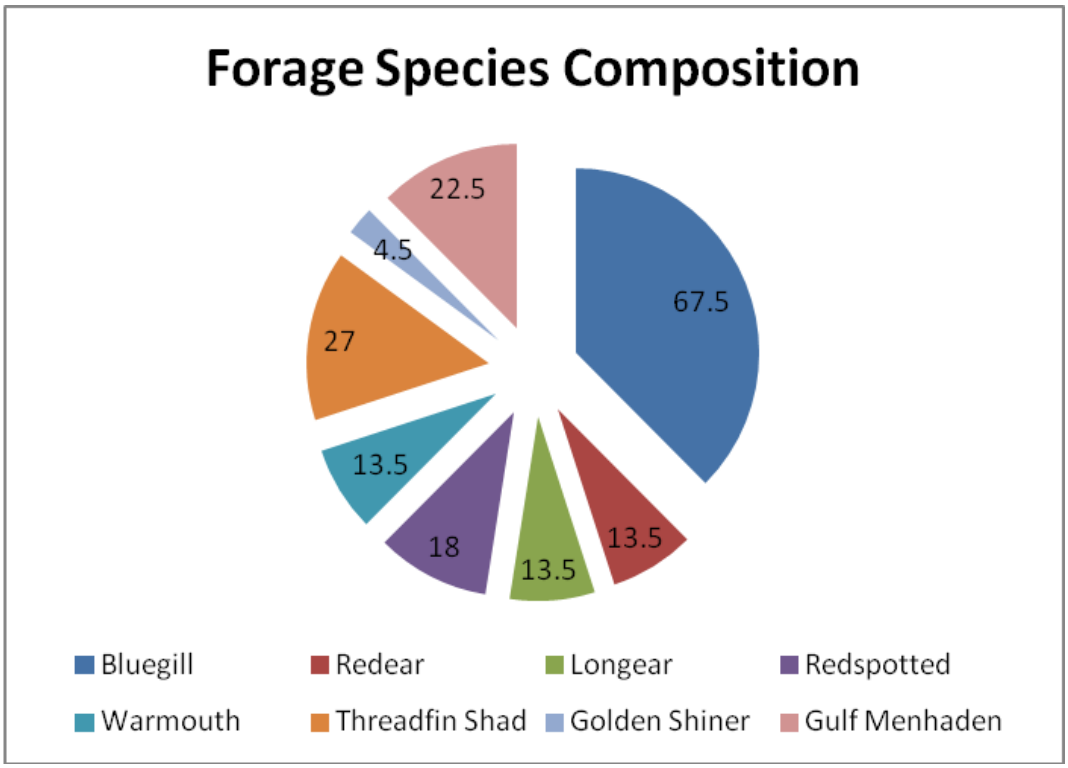


Figure 6. The forage species composition (CPUE = number by species) collected in fall electrofishing results in 2011 from Lake Fields-Lake Long Complex, LA.

Aquatic Invasive Species

Though their populations have not been monitored, common carp (*Cyprinus carpio*), and Asian carp species are present.

HABITAT EVALUATION

Aquatic Vegetation

Biological Control

Giant salvinia weevils (*Cyrtobagous salviniae*) were stocked throughout this area in 2011, March 2012 and September 2012. To date an estimated 160,000 weevils have been released in multiple stocking events. Weevil damage to plants was evident during follow up field observations. Continued stocking of giant salvinia weevils is recommended.

Chemical Control

In summer of 2013, a contract was awarded to treat 465 acres of nuisance aquatic vegetation in the system (SEE APPENDIX I – AQUATIC PLANT CONTROL CONTRACT EVALUATION, AQUATIC PLANT CONTROL CONTRACT MAP – APPENDIX II).

Limitations

Lakes Fields and Lake Long are shallow, natural coastal lakes that, at times, can be difficult to spray. Tidal influence can interfere with herbicide treatments. Floating vegetation (primarily water hyacinth) enters Company Canal via Bayou Lafourche. Due to the resolution prohibiting the use of 2,4-D in Bayou Lafourche between Raceland and Valentine, aquatic vegetation control cannot be conducted at the source of the infestation.

Water Quality

Currently, there are no contamination advisories. Several construction projects have been completed in efforts to improve the overall water quality of the system. Project goals were aimed at reducing inflow of nutrient laden waters and the intrusion of saltwater into the system.

Substrate

Soft sediments and decomposed organic matter overlying clayey back swamp deposits.

CONDITION IMBALANCE / PROBLEM

1. Nutrient laden runoff that can result in low levels of dissolved oxygen.
2. Salt water intrusion via Company Canal if not enough fresh water enters the system due to drought conditions and/or in case of a storm surge.
3. The construction of Mississippi River levees and dam across Bayou Lafourche at the Mississippi River has led to poor water quality and habitat loss in the complex.
4. The system is subject to infestations of nuisance aquatic organisms that are present in the Intracoastal Waterway. Especially Asian carp and common carp. It is not feasible to exclude such infestations.
5. Nuisance aquatic vegetation that impede navigation and degrade habitat.

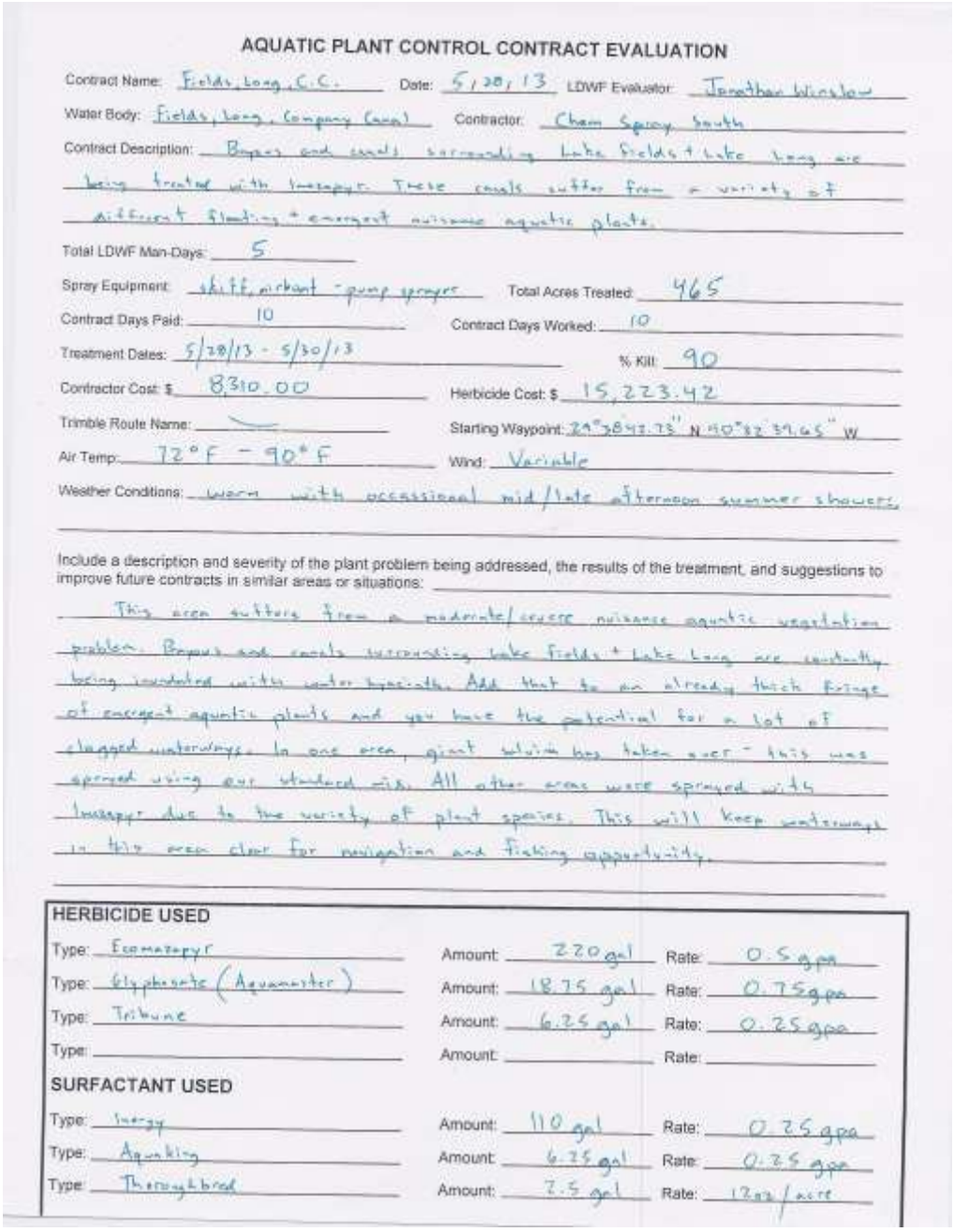
CORRECTIVE ACTION NEEDED

1. Implement BMP's to reduce the amount of nutrient laden runoff entering the system.
2. Implement projects that will continue to restore the hydrology and improve water quality and habitat within the complex.
3. Control Asian carp and common carp populations.
4. Control aquatic vegetation in the system and upstream at its source.

RECOMMENDATIONS/ACTION PLAN

1. Continue standardized sampling of fish populations to evaluate the condition of the stocks.
2. Continue to evaluate the presence of invasive aquatic organisms.
3. Encourage projects to improve water quality by reducing the amount of nutrients and salt water entering the system, and to increase the amount of fresh water.
4. These lakes and the surrounding areas will be assessed monthly during the growing season for nuisance aquatic plant infestations. Public complaints will receive a timely response. Problem areas will be treated as they arise with foliar applications of the appropriate herbicide: Water hyacinth (*Eichhornia crassipes*) should be treated with 2,4-D at a rate of 0.5 gallons per acre. Due to the resolution prohibiting the use of 2,4-D in Bayou Lafourche between Raceland and Valentine, aquatic vegetation will be controlled in these areas with glyphosate at the source Common salvinia should be treated with glyphosate (0.75 gallons per acre) + diquat (0.25 gallons per acre) + Aqua King Plus (0.25 gallons per acre) + Thoroughbred (8 oz. per acre) during warm months and with diquat (0.75 gallons per acre) with a non-ionic surfactant (0.25 gallons per acre) during the winter. Alligator weed should be treated with Imazapyr (0.5 gallons per acre) with Inergy surfactant (0.25 gallons per acre). Alligator weed growth in developed areas will be treated with Clearcast (0.5 gallons per acre) and Inergy surfactant (0.25 gallons per acre). Combinations of different submerged/emergent plants will be treated with Sonar AS in areas of little to no flow if conditions warrant such action. Sonar AS should be applied at a rate of between 40 and 90 parts per billion. In-water treatments will be conducted with approval of Inland Fisheries Administration on a case by case basis.

APPENDIX I
AQUATIC PLANT CONTROL CONTRACT EVALUTION



AQUATIC PLANT CONTROL CONTRACT EVALUATION

Contract Name: Fields, Long, C.C. Date: 5/20/13 LDWF Evaluator: Jonathan Winslow

Water Body: Fields, Long, Company Canal Contractor: Cham Spray South

Contract Description: Bayous and canals surrounding Lake Fields & Lake Long are being treated with Imazapyr. These canals suffer from a variety of different floating & emergent nuisance aquatic plants.

Total LDWF Man-Days: 5

Spray Equipment: skiff, airboat - pump sprayer Total Acres Treated: 465

Contract Days Paid: 10 Contract Days Worked: 10

Treatment Dates: 5/28/13 - 5/30/13 % Kill: 90

Contractor Cost: $ 8,310.00 Herbicide Cost: $ 15,223.42

Trimble Route Name: ~ Starting Waypoint: 29°28'43.78" N 90°32'39.65" W

Air Temp: 72°F - 90°F Wind: Variable

Weather Conditions: warm with occasional mid/late afternoon summer showers.

Include a description and severity of the plant problem being addressed, the results of the treatment, and suggestions to improve future contracts in similar areas or situations:

This area suffers from a moderate/severe nuisance aquatic vegetation problem. Bayous and canals surrounding Lake Fields & Lake Long are routinely being inundated with water hyacinth. Add that to an already thick fringe of emergent aquatic plants and you have the potential for a lot of clogged waterways. In one area, giant salvia has taken over - this was sprayed using our standard mix. All other areas were sprayed with Imazapyr due to the variety of plant species. This will keep waterways in this area clear for navigation and fishing opportunity.

HERBICIDE USED

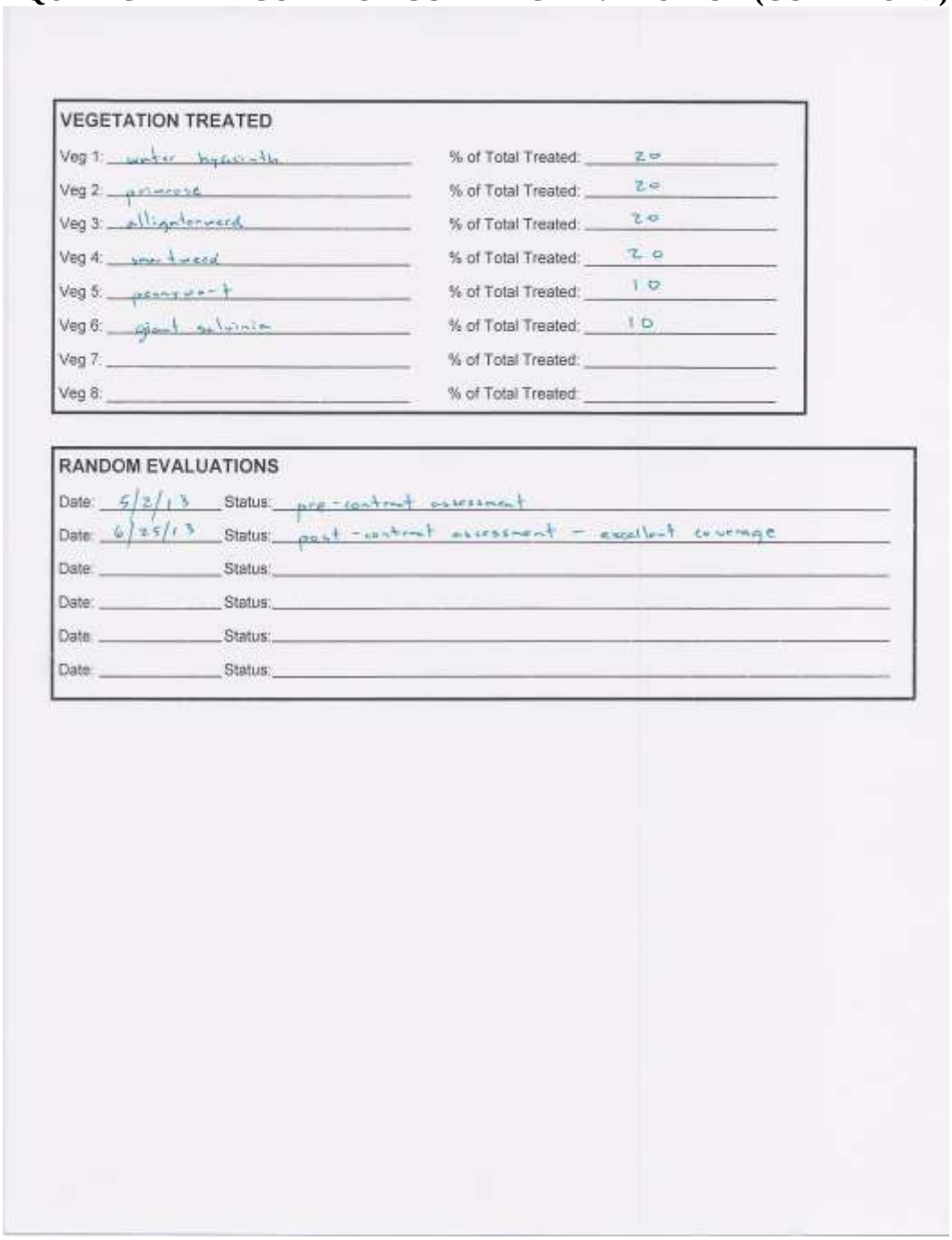
Type: Ecomazapyr	Amount: 220 gal	Rate: 0.5 gpa
Type: Glyphosate (Aquamaster)	Amount: 18.75 gal	Rate: 0.75 gpa
Type: Tribune	Amount: 6.25 gal	Rate: 0.25 gpa
Type:	Amount:	Rate:

SURFACTANT USED

Type: Inergy	Amount: 110 gal	Rate: 0.25 gpa
Type: Aquaking	Amount: 6.25 gal	Rate: 0.25 gpa
Type: Thoroughbred	Amount: 7.5 gal	Rate: 12oz/acre

APPENDIX I

AQUATIC PLANT CONTROL CONTRACT EVALUTION (CONTINUED)



VEGETATION TREATED

Veg 1:	water hyacinth	% of Total Treated:	20
Veg 2:	primrose	% of Total Treated:	20
Veg 3:	alligatorweed	% of Total Treated:	20
Veg 4:	smartweed	% of Total Treated:	20
Veg 5:	pennywort	% of Total Treated:	10
Veg 6:	giant salvinia	% of Total Treated:	10
Veg 7:		% of Total Treated:	
Veg 8:		% of Total Treated:	

RANDOM EVALUATIONS

Date:	5/2/13	Status:	pre-control assessment
Date:	6/25/13	Status:	post-control assessment – excellent coverage
Date:		Status:	
Date:		Status:	
Date:		Status:	
Date:		Status:	

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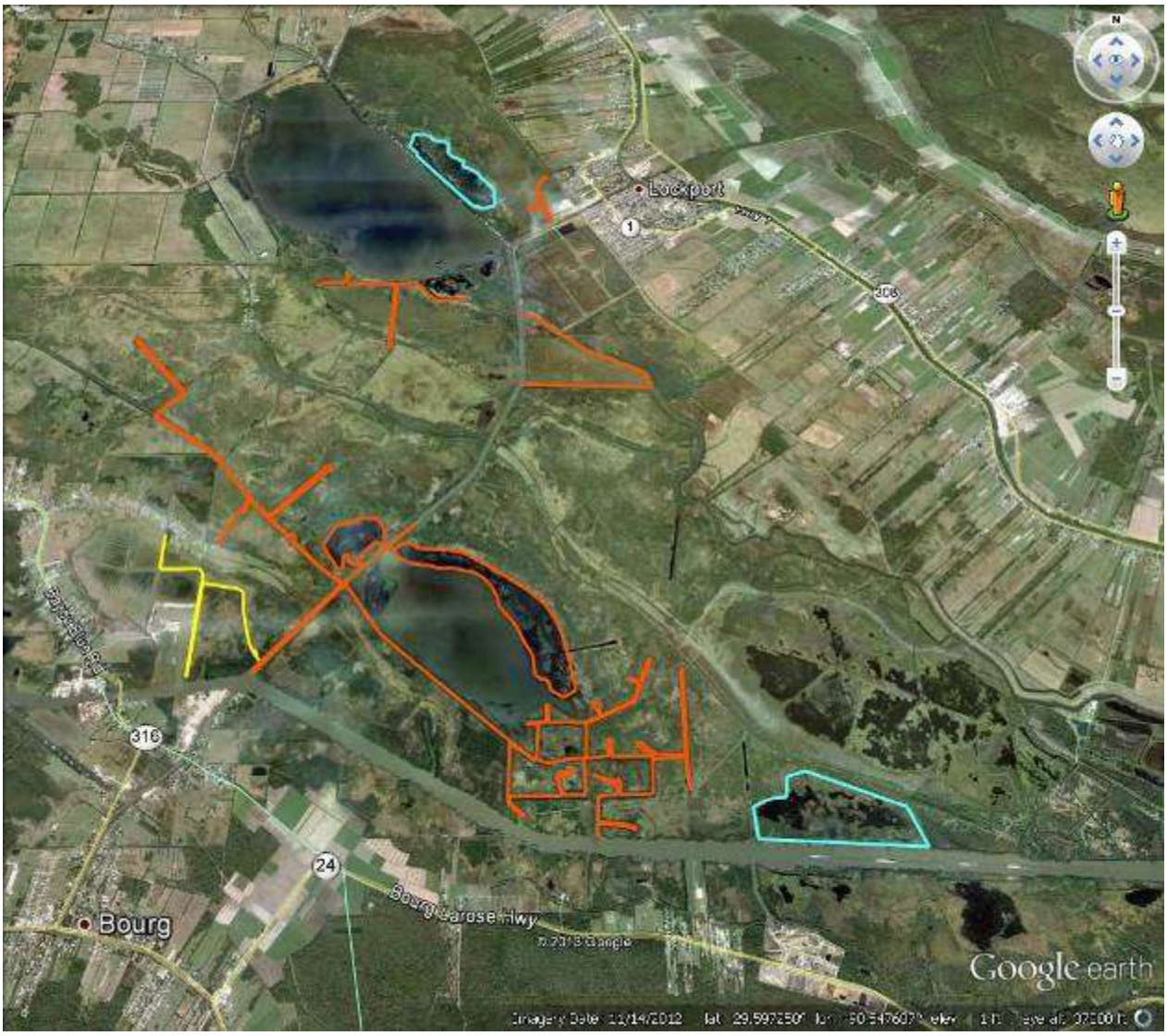
APPENDIX II
AQUATIC PLANT CONTROL CONTRACT MAP OF TREATMENT AREA



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