

**LOUISIANA DEPARTMENT OF
WILDLIFE & FISHERIES OFFICE**



**OFFICE OF FISHERIES
INLAND FISHERIES SECTION**

PART VI –C (ARCHIVES)

WATERBODY MANAGEMENT PLAN SERIES

SPRING BAYOU

**AQUATIC VEGETATION TYPE MAPS
AND NARRATIVES**

Spring Bayou vegetative narratives and type maps.

SPRING BAYOU 1983

Spring Bayou had a controlled two foot drawdown in the fall of 1982. At the time of assessment the water was a little above pool stage and muddy. The drawdown seems to have restricted aquatic growth around the shoreline in the areas which were dry during the drawdown. No severe or moderate infestations of aquatic plants were observed.

Spring Bayou
September 1999
G. Scott Longman

Spring Bayou, Avoyelles Parish, was surveyed for the presence of aquatic vegetation on September 22, 1999. Hydrilla (*Hydrilla verticillata*) was discovered in the Spring Bayou complex during the summer of 1994. A fall/winter drawdown attempted in 1996 was not successful due to excessive rainfall. A summer drawdown was performed in 1997 with some control observed. On the day of this survey all interior waterbodies (Coulee Noir, Grand Coulee, Lac Aux Siene, Lac Deux Boutes, Lac Tete De Bouef) were severely infested. Open water on interior lakes was restricted to the dredged main channel and narrow boat lanes, which connect these waterbodies. Grand Lac, which has historically stayed free of infestation, was found to have separated patches of hydrilla throughout. On the north end of the complex, Little River was light to moderately infested near the junction with Boggy Bayou. Old River, on the south and western side of the complex, was found to have scattered patches of hydrilla along the main channel with moderate to severe infestations in the adjacent shallow drainages. Near the junction of Tete Bay and Old River, there was a fringe of hydrilla and coontail (*Ceratophyllum demersum*) with a severe infestation of hydrilla at the southeast termination of Old River. On the eastern side of the complex, open water in Bayou De La Bay was restricted to boat channels by hydrilla and coontail which were covered by frog's-bit (*Limnobium spongia*). Other aquatic vegetation of concern in the Spring Bayou complex area American lotus (*Nelumbo lutea*) and frog's bit. American lotus severely infests shallow coves throughout the complex. Frog's-bit has covered areas "topped out" by hydrilla and continues to spread across the complex. The frog's-bit, which is not controlled by the 2,4-D applied to adjacent Water hyacinth (*Eichhornia crassipes*), appears to be the next vegetation to cause concern for public access to the area.

Spring Bayou
October 2000
G. Scott Longman

Spring Bayou, Avoyelles Parish, was surveyed for the presence of aquatic vegetation on October 5, 2000. Hydrilla (*Hydrilla verticillata*), which has been in Spring Bayou since 1994, continues to increase in severity throughout the complex. Herbicide applications were performed this year during a joint project between the Louisiana Department of Wildlife and Fisheries, the United States Corps of Engineers (USCOE), SePRO Corporation and Ducks Unlimited. Funding for this project was primarily from the donations of concerned citizens. Herbicides were applied to areas within Grand Bay, Grand Coulee, Tee Lac and Lac Tete de Boeuf. Water and plant samples area collected by department personnel biweekly and shipped to USCO and SePro to monitor herbicide levels. On the day of this survey all interior waterbodies (Coulee Noir, Grand Coulee, Lac Aux Siene, Lac Deux Boutes, Lac Tete De Bouef) were moderately to severely infested except for the areas of herbicide applications. Open water on interior lakes was restricted to the dredged main channel and narrow boat lanes, which connect these waterbodies. The hydrilla infestation in Grand Lac has increased into a moderate to severe infestation, with open water occupying the center of the lake near the public boat ramp.

Hydrilla has progressed down Little River, from what was a light infestation near the junction with Boggy Bayou, to a moderate to severe infestation in both directions. Old River has increased to a moderate infestation of disconnected areas of hydrilla with severe amounts in the adjacent shallow drainages. Near the junction of Tete Bay and Old River, there was a fringe of hydrilla and coontail (*Ceratophyllum demersum*) with a severe infestation of hydrilla at the southeast termination of Old River. On the eastern side of the complex, open water in Bayou De La Bay was restricted to boat channels by hydrilla and coontail which were covered by frog's-bit (*Limnobium spongia*).

Other aquatic vegetation of concern in the Spring Bayou complex is American lotus (*Nelumbo lutea*) and frog's-bit. American lotus severely infests shallow coves throughout the complex. Frog's-bit has covered areas "topped out" by hydrilla and continues to spread across the complex. Water hyacinth (*Eichhornia crassipes*), while common throughout the area, is kept under control by department spray crews.

SPRING BAYOU
September 2003
O. Scott Schales

Spring Bayou, Avoyelles Parish, was surveyed for the presence of aquatic vegetation on September 9, 2003. On the day of the survey the water was fairly clear with Secchi disk readings of 91- 94 cm.

Heavy amounts of hydrilla (*Hydrilla verticillata*) continue to infest many of the shallow lakes and coves throughout the Spring Bayou complex. Areas that were free of aquatic vegetation were restricted to the deeper channels, narrow boat lanes, and areas of herbicide treatments. Herbicide treatment areas with open water consist of Lac Deux Boutes (treated with Sonar – summer 2003), Bayou De La Bay (treated with Reward – summer 2003), Grand Lac and the back portion of Tee Lac (treated with Sonar – summer 2002), Lac Tete De Bouef and the front portion of Tee Lac (treated with Sonar – summer 2001). As expected areas with the least amounts of vegetation were the area's most recently treated. Moderate to heavy amounts of American lotus (*Nelumbo lutea*) were observed in the portions of Tee Lac and Grand Lac that had re-vegetated since the herbicide treatments. Grand Coulee, Grand Bay, and Coulee Noir were all heavily infested, with hydrilla being the dominant species. The shallow areas of Boggy Bayou also had a moderate to heavy infestation of primarily hydrilla.

Other submersed vegetation that was observed in moderate amounts was coontail (*Ceratophyllum demersum*). It was found mixed in with the hydrilla throughout the complex. A few specimens of fanwort (*Cabomba caroliniana*) were observed in Bayou De La Bay.

Duckweed (*Lemna minor*) and watermeal (*Wolffia spp.*) was observed in moderate to heavy amounts at various locations throughout the complex. Water hyacinth (*Eichhornia crassipes*), common salvinia (*Salvinia minima*), frogbit (*Limnobium spongia*) and waterfern (*Azolla caroliniana*) were also noted in light to moderate amounts during the survey.

Other aquatic species noted during the survey were alligator weed (*Alternanthera philoxeroides*), water primrose (*Ludwigia spp.*), white water lily (*Nymphaea odorata*), southern watergrass (*Hydrochloa caroliniensis*), pennywort (*Hydrocotyle umbellate*), smartweed (*Polygonum hydropiperoides*), duck potato (*Sagittaria spp.*) giant cutgrass (*Zizaniopsis miliacea*), flatsedge (*Cyperus spp.*), sedge (*Carex spp.*), and cattail (*Typha spp.*).

SPRING BAYOU
September 2004
O. Scott Schales

Spring Bayou, Avoyelles Parish, was surveyed for the presence of aquatic vegetation on September 27, 2004. On the day of the survey the water was fairly clear to clear with secchi disk readings of 53-112 cm.

Heavy infestations of hydrilla (*Hydrilla verticillata*) continue to infest many of the shallow lakes and coves throughout the Spring Bayou complex. Areas that were free of aquatic vegetation were the deeper channels, narrow boat lanes, and portions of the areas that were most recent treated with Sonar (Lac a Deux Boute-treated summer 2003, Grand Lac and Tee Lac-treated summer 2002). Lac Tete De Bouef (treated summer 2001) was completely infested with aquatic vegetation and the back portion of Bayou De La Bay was heavily infested; hydrilla was the dominant species in these areas. Boggy Bayou was also heavily infested with hydrilla. Moderate amounts of coontail (*Ceratophyllum demersum*) were found mixed in with the hydrilla in various locations throughout the complex. Moderate to heavy amounts of American lotus (*Nelumbo lutea*) were observed in Grand Lac, Tee Lac, Grand Coulee, and Coulee Noir, with light amounts observed in other areas of the complex.

Duckweed (*Lemna minor*), watermeal (*Wolffia spp.*), and frogbit (*Limnobium spongia*) were observed in moderate to heavy amounts in various locations throughout the complex. Water hyacinth (*Eichhornia crassipes*), water fern (*Azolla caroliniana*), and common salvinia (*Salvinia minima*) were also noted in light to moderate amounts during the survey.

Other aquatic plant species that were observed during the survey were alligator weed (*Alternanthera philoxeroides*), giant cutgrass (*Zizaniopsis miliacea*), water stargrass (*Heteranthera dubia*), pennywort (*Hydrocotyle umbellate*), water primrose (*Ludwigia spp.*), water paspalum (*Paspalum repens*), duck potato (*Sagittaria spp.*), flatsedge (*Cyperus spp.*), sedge (*Carex spp.*), giant duckweed (*Spirodela polyrhiza*) and smartweed (*Polygonum hydropiperoides*).



SPRING BAYOU
November 9th, 2005
Jody David, Martin Plonsky

Spring Bayou, Avoyelles Parish, was surveyed for the presence of aquatic vegetation on November 9th, 2005. On the day of the survey the water was fairly clear-to-clear.

Severe amounts of hydrilla (*Hydrilla verticillata*) continue to infest many of the shallow lakes and coves throughout the Spring Bayou complex. The areas free of aquatic vegetation are the deeper channels, narrow boat lanes, and areas that were most recently treated with Sonar such as Grand Lac (treated summer of 2002) and Tee Lac (treated summer of 2002 and may 31st, 2005). Lac Tete De Bouef (treated summer 2001) is completely infested with aquatic vegetation. The back portion of Bayou De La Bay is severely infested. Hydrilla is the dominant species in all severely infested areas of Spring Bayou. Moderate amounts of coontail (*Ceratophyllum demersum*) are found mixed in with the hydrilla. Moderate to heavy amounts of American lotus (*Nelumbo lutea*) were observed in Grand Lac, Tee Lac, Grand Coulee, and Coulee Noir, with light amounts observed in other areas of the complex.

Duckweed (*Lemna minor*), watermeal (*Wolffia spp.*), and frogbit (*Limnobium spongia*) were observed in moderate to heavy amounts in various locations throughout the complex. Water hyacinth (*Eichhornia crassipes*), water fern (*Azolla caroliniana*), and common salvinia (*Salvinia minima*) were also noted in moderate to severe amounts during this survey.

Other aquatic plant species that were observed during the survey were alligator weed (*Alternanthera philoxeroides*), giant cutgrass (*Zizaniopsis miliacea*), water stargrass (*Heteranthera dubia*), pennywort (*Hydrocotyle umbellata*), water primrose (*Ludwigia spp.*), water paspalum (*Paspalum repens*), duck potato (*Sagittaria spp.*), flatsedge (*Cyperus spp.*), sedge (*Carex spp.*), giant duckweed (*Spirodela polyrhiza*) and smartweed (*Polygonum hydropiperoides*).

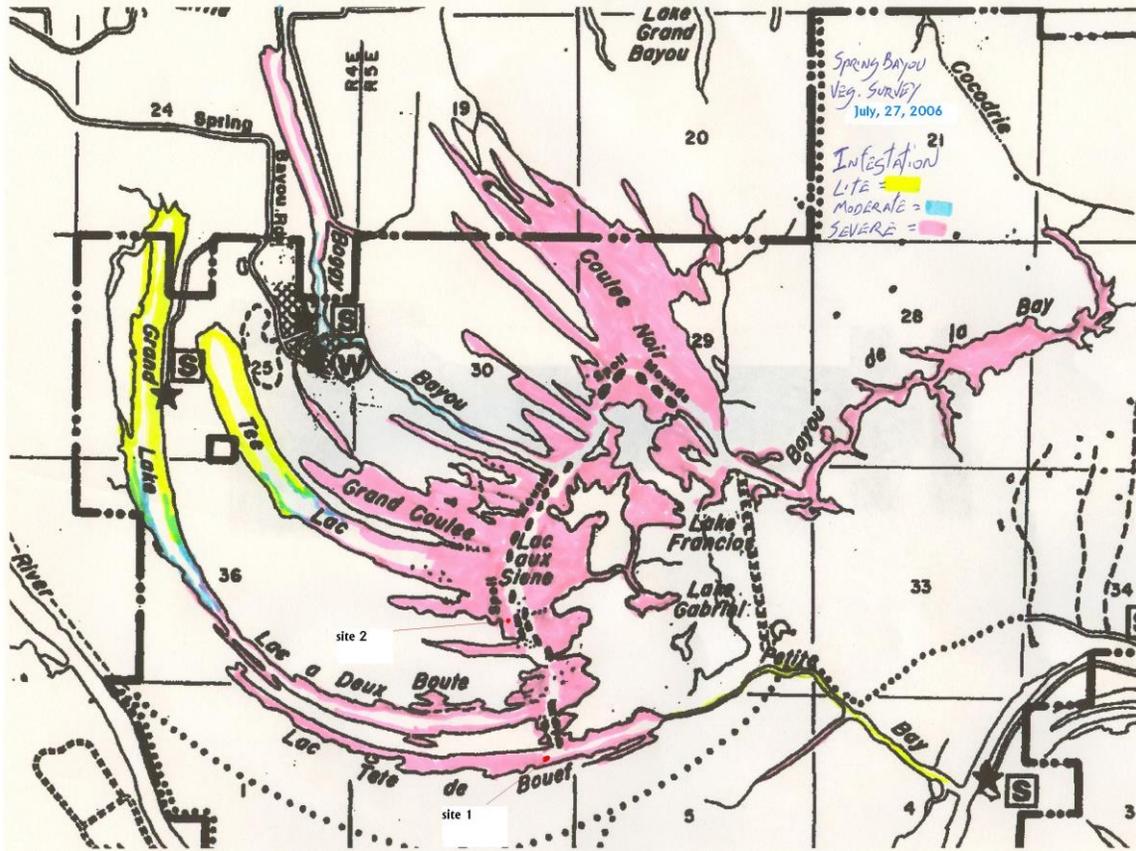
SPRING BAYOU
August 31, 2006
Jody David, Martin Plonsky

Spring Bayou, Avoyelles Parish, was surveyed for the presence of aquatic vegetation on November 9th, 2005. On the day of the survey the water was fairly clear-to-clear.

Severe amounts of hydrilla (*Hydrilla verticillata*) continue to infest many of the shallow lakes and coves throughout the Spring Bayou complex. The areas free of aquatic vegetation are the deeper channels, narrow boat lanes, and areas that were most recently treated with Sonar such as Grand Lac (treated summer of 2002) and Tee Lac (treated summer of 2002 and may 31st, 2005). Lac Tete De Bouef (treated summer 2001) is completely infested with aquatic vegetation. In July of 2006 there was two five acre test plots: one in Tete de Bouef (site 1 – Reward/Komeen) and the second in the mouth of Tee Lac (site 2 – Reward/Cutrine plus). Approx. center of site 1 is 310532.98 N 915937.35 W. Approx. center of site 2 is 310607.12 N 915946.14 W. The back portion of Bayou De La Bay is severely infested. Hydrilla is the dominant species in all severely infested areas of Spring Bayou. Moderate amounts of coontail (*Ceratophyllum demersum*) are found mixed in with the hydrilla. Moderate to heavy amounts of American lotus (*Nelumbo lutea*) were observed in Grand Lac, Tee Lac, Grand Coulee, and Coulee Noir, with light amounts observed in other areas of the complex. No noticeable change in the amount of vegetation was observed in 2006.

Duckweed (*Lemna minor*), watermeal (*Wolffia spp.*), and frogbit (*Limnobium spongia*) were observed in moderate to heavy amounts in various locations throughout the complex. Water hyacinth (*Eichhornia crassipes*), water fern (*Azolla caroliniana*), and common salvinia (*Salvinia minima*) were also noted in moderate to severe amounts during this survey.

Other aquatic plant species that were observed during the survey were alligator weed (*Alternanthera philoxeroides*), giant cutgrass (*Zizaniopsis miliacea*), water stargrass (*Heteranthera dubia*), pennywort (*Hydrocotyle umbellata*), water primrose (*Ludwigia spp.*), water paspalum (*Paspalum repens*), duck potato (*Sagittaria spp.*), flatsedge (*Cyperus spp.*), sedge (*Carex spp.*), giant duckweed (*Spirodela polyrhiza*) and smartweed (*Polygonum hydropiperoides*).



SPRING BAYOU
September 2007
Jody David, Martin Plonsky

Spring Bayou, Avoyelles Parish, was surveyed for the presence of aquatic vegetation on September 12th, 2007. On the day of the survey the water was fairly clear.

Severe amounts of hydrilla (*Hydrilla verticillata*) continue to infest many of the shallow lakes and coves throughout the Spring Bayou complex. The areas free of aquatic vegetation are the deeper channels, narrow boat lanes, and areas that were most recently treated with Sonar on June 6th in areas such as Old River near the camps, Tete de Bouef, Lac a Boutte, Grand Coulee, Coulee Noir and Boggy Bayou near the camps. Also a contact herbicide (Aquathol K) was used during the months of August/September to treat hydrilla in areas along Boggy Bayou and Old River. The back portion of Bayou De La Bay is severely infested. Hydrilla is the dominant species in all severely infested areas of Spring Bayou and Old River. Moderate amounts of coontail (*Ceratophyllum demersum*) are found mixed in with the hydrilla. Moderate to heavy amounts of American lotus (*Nelumbo lutea*) were observed in Grand Lac, Tee Lac, Grand Coulee, and Coulee Noir, with light amounts observed in other areas of the complex. Large impassible mats (floatons) with sedge and primrose were observed in the spoil bank channel.

Duckweed (*Lemna minor*), watermeal (*Wolffia spp.*), and frogbit (*Limnobium spongia*) were observed in moderate to heavy amounts in various locations throughout the complex. Water hyacinth (*Eichhornia crassipes*), water fern (*Azolla caroliniana*), and common salvinia (*Salvinia minima*) were also noted in moderate to severe amounts during this survey.

Other aquatic plant species that were observed during the survey were alligator weed (*Alternanthera philoxeroides*), giant cutgrass (*Zizaniopsis miliacea*), water stargrass (*Heteranthera dubia*), pennywort (*Hydrocotyle umbellata*), water primrose (*Ludwigia spp.*), water paspalum (*Paspalum repens*), duck potato (*Sagittaria spp.*), flatsedge (*Cyperus spp.*), sedge (*Carex spp.*), giant duckweed (*Spirodela polyrhiza*) and smartweed (*Polygonum hydropiperoides*).

2007

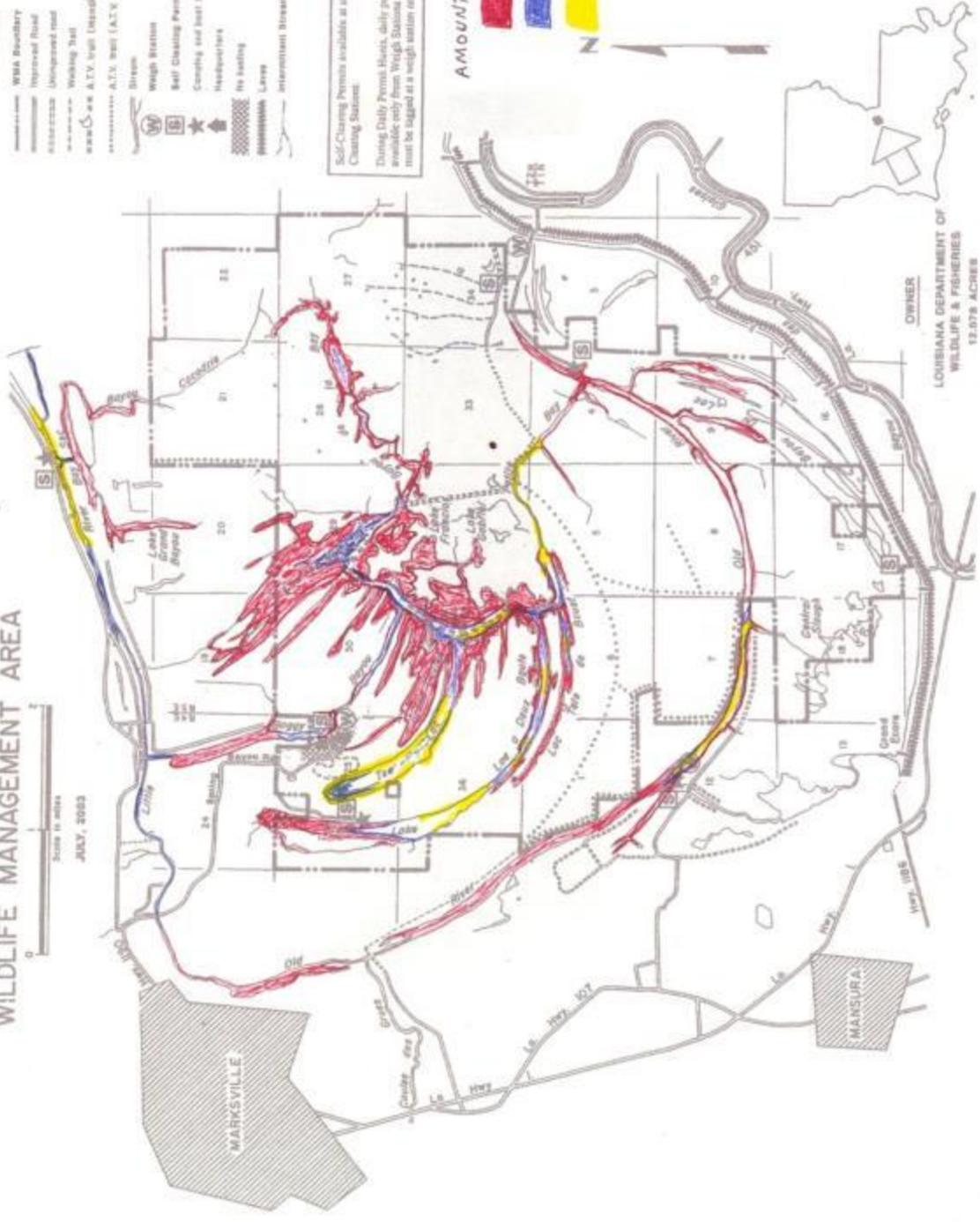
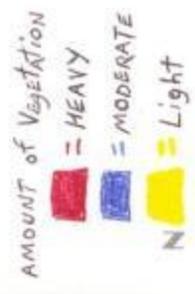
SPRING BAYOU WILDLIFE MANAGEMENT AREA



- LEGEND**
- WMA Boundary
 - Improved Road
 - Unimproved Road
 - Working Trail
 - A.T.V. path (interconnected only)
 - A.T.V. trail (A.T.V. only)
 - Stream
 - Wedge Station
 - Self-Cleaning Permit Station
 - Camping and boat launch
 - Headquarters
 - No hunting
 - Levee
 - Intermittent Stream

Self-Cleaning Permits available at all Self-Cleaning Stations

During Daily Permit Hours, daily permits available only from Wedge Stations and deer must be tagged at a weigh station on day of hunt.



OWNER
LOUISIANA DEPARTMENT OF
WILDLIFE & FISHERIES
12,078 ACRES

TYPE MAPS AND NARRATIVES

Spring Bayou Vegetation Survey July 2010
M. Plonsky, P. Allemond

A survey of vegetation in spring bayou was completed on 7-28-2010. The system is inundated with *Hydrilla verticillata*. Hydrilla is found in all areas of this system less than 6 foot in depth. This coverage is found in over 85% of the entire system's water surface. These areas are practically impassable with conventional outboard motors. In these areas is a mix of *Nymphaea odorata*, *Nelumbo lutea*, *Limnobium spongia*, *Ludwigia peploides*, *Cyanobacteria*, *Carex*, *Lemna minor*, *Polygonum hydropiperoides* and *Eichhornia crassipes*. All of this vegetation combines to form dense mats. Heavy amounts of lotus were observed in Coulee Noir, Boggy Bayou and T-Lac. The thickest mats of sedge were observed in tete au boeuf. The Old river area of the system is also entirely inundated with *Hydrilla verticillata*. *Spirogyra* is found mixed in with all hydrilla mats. All boatramps were free of vegetation.

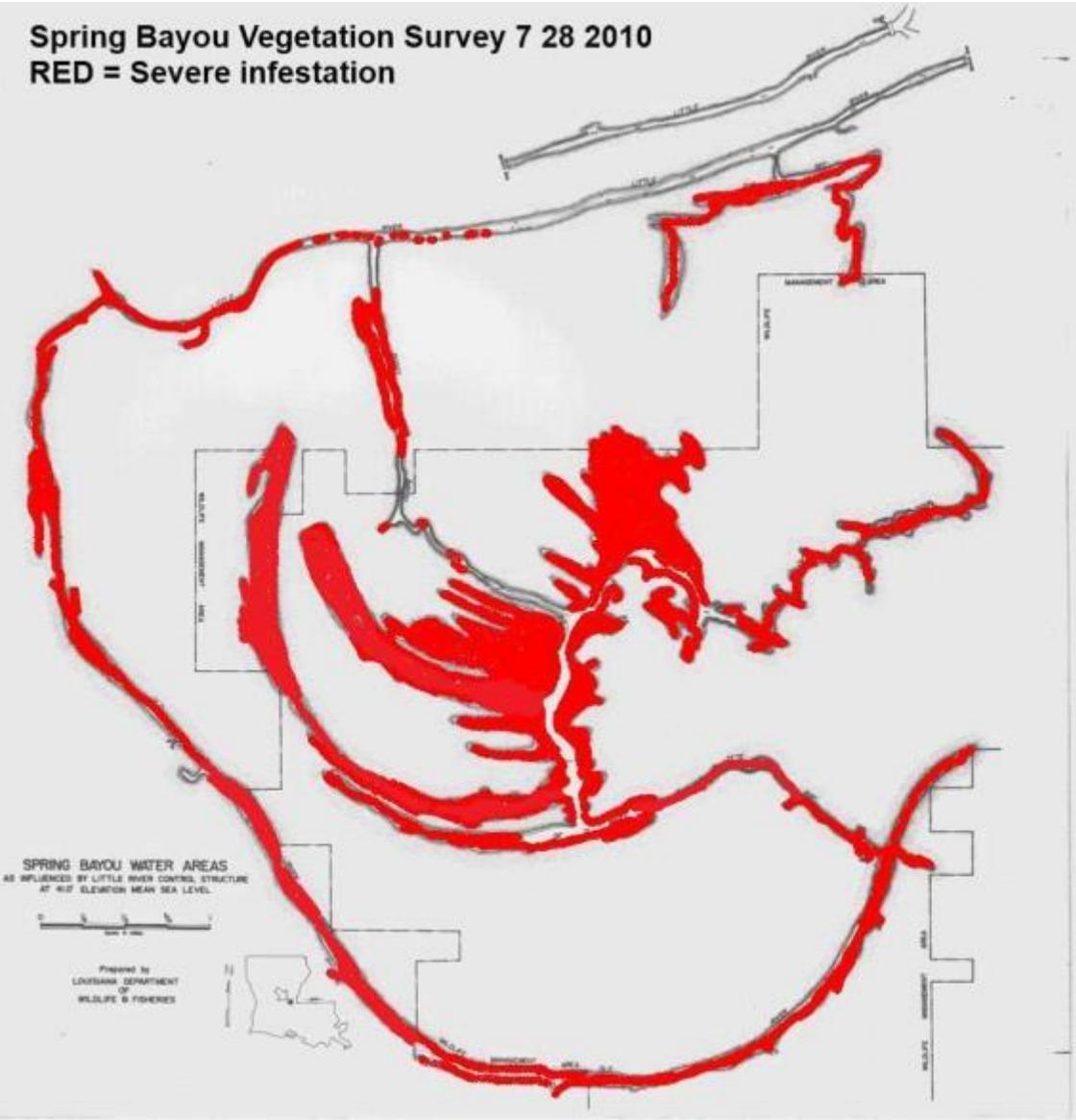
A treatment of Coulee Noir, Tee Lac, Lac Au Des Bouttes, Tete De Boeuf And Old River with the herbicide Sonar was applied during the summer of 2009. This herbicide had no effect on the vegetation. A herbicide treatment using Galleon® mixed with Aquathol will be made in late August of 2010. Areas to be treated are coulee noir, tee lac, tete de boeuf and old river. Tete de boeuf was treated with Sonar® on 7 28 2010 as a comparison to the up-coming Galleon/Aquathol treatment.

Just over 11,000 10 to 12 inch grass carp were stocked into Spring Bayou in January of 2008. 50 additional 20 inch grass carp were also stocked with radio transponders inserted in the fish. These fish were tracked for the following 18 months in order to observe for the possible exit of the carp from the system through the spillway structure. In September of 2008, hurricane Gustav moved through the area and a fish kill resulted. Many grass carp were seen dead however their number was low in comparison to the number stocked and radio tagged carp continued to be located in the system for several month following the hurricane until the batteries in the transponders finally expired during the early summer of 2009. Gillnets were set in the winter of 2010 and two grass carp, both over 24 inches total length were captured in Coulee Noir.

Water quality in the system on the date of the 2010 survey was poor with less than 2.0 mg/l of dissolved oxygen found throughout. Lake water level was 40.7 ft and water temperatures were above 85 degrees F. A fish kill was observed earlier in the month and 2 grass carp were seen dead. Neither were fish that had received a transponder and both were over 20 inches in total length.

Spring Bayou Vegetation Survey 7 28 2010

RED = Severe infestation



Spring Bayou Vegetation survey - 8/19/2011

M. Plonsky

Copious amounts of Hydrilla (*Hydrilla verticillata*) continue to infest much of the Spring Bayou complex with heavy amounts persisting in Coulee Noir, Valerie, Tee lac, Grand Coulee and Grand lac and Lac aux Siene. A survey of Lake Francios and Lake Gabriel could not be attempted. These two areas are entirely filled with woody vegetation. An additional 10,000 grass carp (8 to 10 inches TL) were stocked into the system in spring of 2011. This is additional to the 11,400 10 to 12 inch fish stocked in winter of 2008. These additional 10,000 grass carp were stocked in 2011 as a result of local concern of grass carp mortality as a result of hurricane Gustav during the late summer of 2010. Although a fish kill was observed in Spring bayou following Gustav, not many of the fish observed dead by department employees appeared to be grass carp.

Tete des Boeuf and Boggy Bayou are mostly free of hydrilla as well as Old River from the boatlaunch east to the start of the WMA property. Both locations had been treated with the herbicide Sonar (fluridone). Tete des Bouef was treated in the early summer of 2010. Tete des Bouef is however moderately infested with emergent vegetation most notably American lotus (*Nelumbo lutea*). Boggy bayou and Old River both received an application of Sonar in March of 2011.

Coulee noir and Lac a Deux Boute were treated with an application of endothall and penoxsulam in August of 2010. Coulee Noir displayed little improvement with open water visible only for 5 to 6 months following application. Lac a Des Boute treatment result appears more successful of the two locations with the endothall/penoxsulam treated area remaining free of submerged vegetation up until the mid-summer of 2011 and currently displaying only slight to moderate re-infestation. Coulee Noir is entirely infested with submerged, emergent and floating vegetation. Emergent vegetation has returned moderately to Lac a Deux Boute, first appearing in the late spring of 2011.

Lake Grand bayou, Little River and Bay Sec contain only slight amounts of aquatic vegetation with little to no hydrilla observed. This is perplexing given the past amounts of hydrilla witnessed in Lake Grand bayou and Bay Sec. These areas have not received any direct application of fluridone but did receive a slight stocking (200 or so 8 to 10 “) triploid grass carp in 2011 of the 10,000 total that were stocked.

Old River west of the boatlaunch continues to be thick with hydrilla as well as Old River east of the Tee bay boatlaunch. A thick mat of hydrilla was also observed in the Old River side of the chute between Old River and Tete des Bouef. Tee bay boatlaunch was thick with hydrilla as well as the boatlaunch at Grand lac. Boggy bayou boatlaunch and Bay Sec boatlaunch are mostly free of submerged vegetation and remain very usable for standard outboard motors.

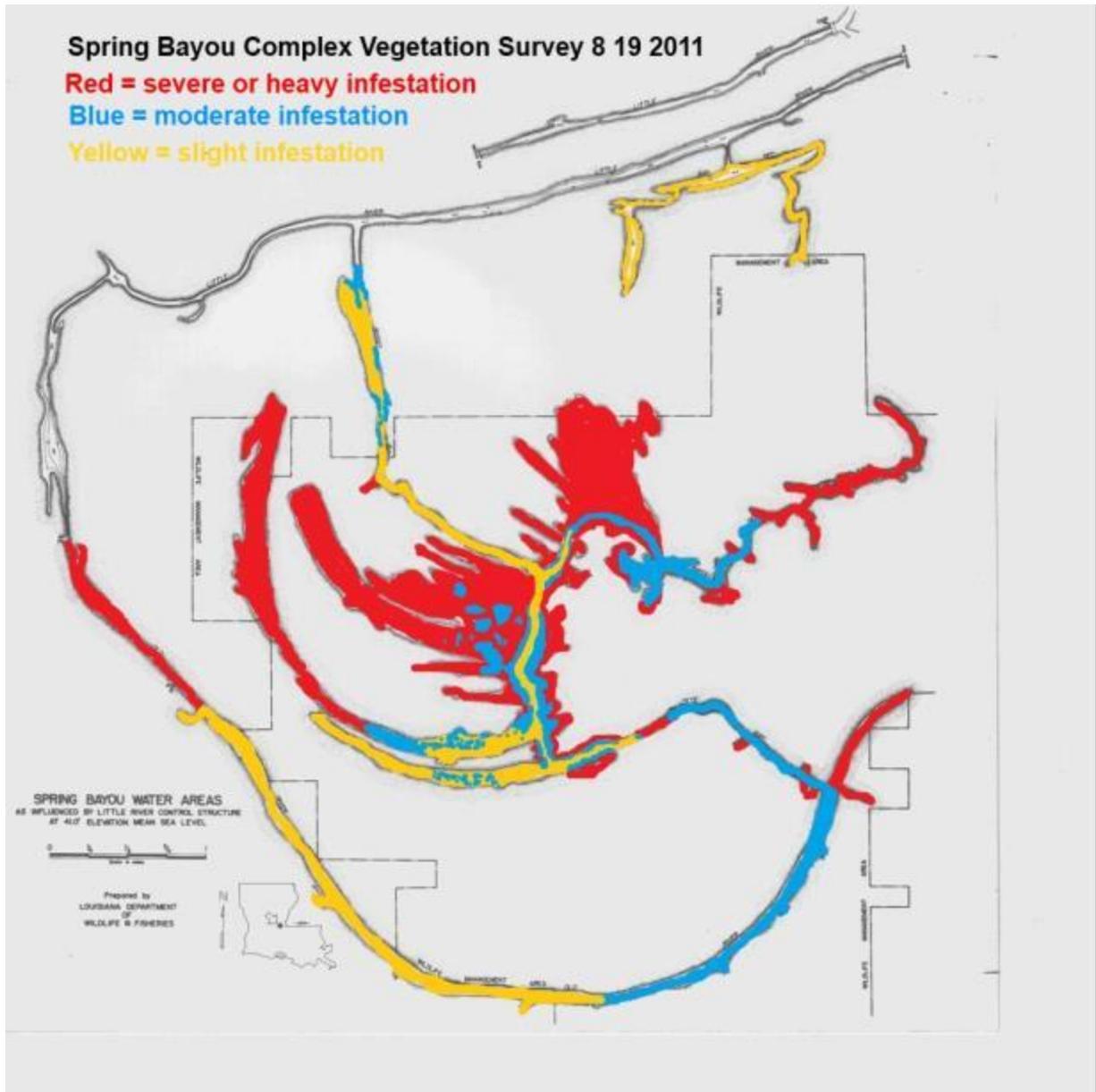
Grand lac is entirely covered with hydrilla. This area also had a substantial amount of American lotus (*Nelumbo lutea*). American lotus is also prevalent in Coulee Noir, Tee lac, Grand Coulee, Tete des Bouef, Lac a Deux Boute and along the banks of Boggy bayou near the spoil bank canal. Slight amounts of American lotus were observed in boggy bayou in the private camp area. Duckweed (*Lemna spp.*) and water meal (*Wolffia spp.*) are found throughout the system with slightest amounts observed in Old River in the area free of hydrilla. Water fern (*Azolla caroliniana*) is also found in great supply in the hydrilla infested areas. Small floatons of nut sedge (*Cyperus spp.*) and water primrose (*Ludwigia spp.*) were observed in the Valerie area and mixed within the mats of hydrilla found within the system. Small patches of frogbit (*Limnobium spongia*) and water hyacinth (*Eichhornia crassipes*) were seen throughout the system.

Water quality continues to be problematic throughout the system with dissolved oxygen levels below 1.0 mg/l common at any depth greater than 2 feet. Best oxygen levels were observed in the vicinity of the camps in Old River with dissolved oxygen levels above 2.0 mg/l at 4 feet. Surface, less than 1 foot below surface, dissolved oxygen levels are above 3.0 mg/l throughout except in Valerie where surface DO was less than 2.0 mg/l. This is a large improvement from the surface dissolved oxygen levels as recorded during the backwater flooding event occurring in May of this year which were below 1.0 mg/l at surface throughout the Spring bayou system. Sulfide bubbles could be seen on the surface of the water in Tete des Bouef on 8 19 2011.

Several small openings in the hydrilla mats were observed in the Tee lac area as well as in Grand bay. This may be due to grass carp feeding. Spring bayou suffered fish kills this June. A significant rise in the Atchafalaya River due to heavy rainfall in the Midwest as well as substantial snowmelt resulted in water levels above 44 feet within the Spring bayou system. Pool for this system is currently 41 feet MSL. This water input was black in color and was low in dissolved oxygen. It is believed that this was swamp backwater that was pushed into the system through little river from the hundreds of acres of flooded swamp land located between the Spring Bayou system and the Atchafalaya river 7 miles to the east. Area rainfall amounts were below average preceding the river rise with much of surrounding areas in drought. As this backwater moved into the system and sat for several weeks, water conditions diminished and fish kills were experienced. Few grass carp were observed dead. Tracking of the 12 radio implanted grass carp both before and after the fish kills resulted in similar number of located fish and displayed tagged fish movement within the system following the fish kills.

Date	Temp	SpCond	Salinity	Depth	pH	pHmV	Turbidity+	Chlorophyl	d.o. percent	d.o. mg/l	station
8/19/11	29.95	0.241	0.11	2.540	7.28	-15.7	4.0	30.9	11.80	0.89	valerie
8/19/11	30.58	0.240	0.11	0.458	7.21	-11.7	4.3	36.0	22.20	1.66	
8/19/11	30.53	0.237	0.11	1.807	7.30	-16.8	501.4	50.9	17.00	1.27	grand bay
8/19/11	31.05	0.236	0.11	0.369	7.38	-21.3	4.3	37.1	51.80	3.84	
8/19/11	28.60	0.275	0.13	8.410	6.92	4.7	11.8	190.4	4.70	0.36	c. noir
8/19/11	31.36	0.237	0.11	0.378	7.31	-17.8	3.8	35.3	47.70	3.52	
8/19/11	30.59	0.247	0.12	3.032	6.81	10.8	37.0	18.0	5.80	0.43	t. bouef
8/19/11	31.23	0.244	0.11	0.504	7.29	-16.5	5.2	72.9	63.80	4.72	
8/19/11	29.46	0.317	0.15	3.266	6.72	15.9	58.2	2.3	7.10	0.54	lac boutte
8/19/11	30.33	0.228	0.11	0.416	7.18	-10.1	5.4	47.0	42.80	3.21	
8/19/11	25.83	0.392	0.19	10.406	6.66	19.1	64.7	167.1	7.10	0.58	tee lac
8/19/11	30.96	0.234	0.11	0.436	7.25	-14.4	3.6	69.6	46.20	3.44	
8/19/11	28.30	0.332	0.16	8.619	6.67	18.6	12.7	239.9	6.10	0.47	spoil
8/19/11	31.41	0.235	0.11	0.454	7.25	-14.0	3.3	55.7	47.90	3.53	
8/19/11	30.86	0.231	0.11	1.455	7.44	-25.1	885.4	46.0	26.10	1.94	boggy
8/19/11	32.50	0.235	0.11	0.317	7.66	-37.7	16.5	33.3	91.90	6.65	

Date	Temp	SpCond	Salinity	Depth	pH	pHmV	Turbidity+	Chlorophyl	d.o. percent	d.o. mg/l	station
8/8/11	32.44	0.459	0.22	0.713	7.95	-54.2	12.2	40.1	90.80	6.57	old river camps
8/8/11	32.73	0.457	0.22	0.170	7.97	-55.3	14.0	37.4	97.80	7.05	
8/8/11	30.98	0.267	0.12	3.192	7.40	-22.4	72.7	29.1	9.10	0.68	
8/8/11	34.05	0.256	0.12	0.406	7.97	-55.7	4.6	26.7	115.60	8.15	tee bay
8/8/11	32.12	0.365	0.17	2.357	7.53	-30.2	15.6	30.6	18.50	1.34	
8/8/11	33.64	0.396	0.19	0.320	8.27	-72.5	13.7	29.5	119.30	8.47	tete de bouef
8/8/11	32.60	0.370	0.17	2.063	7.77	-43.7	13.0	32.4	45.30	3.27	



Red areas are impassable with standard outboard motor or paddle.

Blue areas are passable with outboard but may require the cleaning of the prop.

Yellow areas are easily passable with outboard or paddle.

Spring Bayou Aquatic Vegetation Typemap - 9/10/2012

Spring bayou WMA continues to be heavily infested throughout with submerged (*Hydrilla verticillata*, *Ceratophyllum demersum*, *Cabomba caroliniana*, *Utricularia spp.*) emergent (*Alternanthera philoxeroides*, *Cyperus spp.*, *Hydrocotyle spp.*, *Ludwigia spp.*, copious *Nelumbo lutea*, *Zizaniopsis miliacea*) and floating aquatic vegetation (*Eichhornia crassipes*, *Lemna spp.*, *Salvinia minima*, *Limnobium spongia*) predominantly. However, the Old River area from the T' bay boatlaunch back to the Old River boatlaunch is nearly completely free of any aquatic vegetation with only a light fringe of water primrose and water hyacinth observed sporadically occupying the banks. A thin amount of hydrilla growing into a large impassable mat does exist in Old River at about the entrance to the Old River boatlaunch and extends westerly beyond the Old river boatlaunch. The eastward end of Old River just east of the T'bay boatlaunch is once again free of submerged vegetation. This area had cleared of hydrilla about two years ago with a moderate return of hydrilla in this area during the summer of 2011. Numerous grass carp were captured in gill nets set in this area in November of 2011. Suitable water quality with dissolved oxygen level measured above 2.0 mg/l persisted in Old River throughout 2012. There were no reports of fish kills in Old River for the summer of 2012. Below are photographs of Old River, west end and east end at T'bay. Water color in Old River is very brown and muddy on the western end with clearer water on the east end. Lake Water Level = 41 feet (pool).



Old River near Old River boatlaunch looking west.



Old River near Old River boatlaunch looking east.



Old River near T'Bay boatlaunch(center right) looking east.

An accumulation of Common Salvinia, Duckweed, Water Hyacinth and light amounts of hydrilla was encountered in the entrance to the chute, the narrow connective canal between Petite bay and Lac Tete de Bouef. This raft of vegetation spanned the bayou and is an often troublesome accumulation location. A picture of the raft is below.



Entrance into “chute” from Petite Bay.

Two fallen trees most likely a result of hurricane Isaac, which moved through the Spring Bayou area in late August, was observed in the chute. There were no reports of dead fish in Spring Bayou following Isaac.



Fallen trees in chute.



Lac Tete de Bouef is free of submerged vegetation from its eastern end entrance to about halfway to its western end. At this point, a heavy amount of hydrilla is apparent along with hydrilla, coontail, American lotus, duckweed, common salvinia, water primrose and water hyacinth.



Lac Tete de Bouef entrance from Spoil bank canal looking east to back of Lac.

Lac a Deux Boute is impassable by outboard or paddle from the spoil bank canal entrance to Grand Lac. Open water persisted in Lac a Deux Boute until early August. Aquatic vegetation

observed is similar to what is found throughout the WMA. A picture of the entrance at the spoil bank location is below along with a picture looking towards Tee Lac.



Spoil bank canal entrance into Lac a Deux Boute



Looking towards Tee Lac from entrance into Lac a Deux Boute

The patches of open water observed in Tee Lac during the vegetation survey of 2011 have diminished considerably. One small open area remains visible. Tee Lac and Lac aux Siene are impassable with outboard or paddle. Below is a picture of Tee Lac as well as pictures of the shallow area east of Tee Lac, Lac aux Siene, located behind the spoil mounds from the spoil bank canal.



Tee Lac



Spoil bank mounds across from Tee Lac (Lac aux Siene)



Spoil bank canal looking south back towards Lac a Deux Boute from Tee Lac entrance

Coulee Noir is impassable with outboard motor or paddle. Heavy amounts of hydrilla continue to plague this location despite the continual presence of radio transmitter inserted grass carp located within coulee noir during the grass carp tracking events from early winter of 2011 through July of 2012. Heavy amounts of coontail are also present. Below is a picture of coulee noir on 9 10 2012.



Coulee Noir looking west with spoil bank canal on left



Coulee Noir



Coulee Noir looking east with spoil bank canal on right

The Grand bay area and the channel to the entrance into the Bayou da la Bay area remains light with aquatic vegetation within the center of the channel, however, Bayou de la Bay itself is impassable due to heavy accumulations of aquatic vegetation especially submerged hydrilla. A picture of this area is below.



Grand Bay area located between Coulee Noir and Bayou da la Bay



Entrance into Bayou de la Bay

Lake Francios and Lake Gabriel are unapproachable by outboard or paddle due to complete coverage of aquatic vegetation.

Boggy Bayou canal from Lac aux Siene to the entrance of Boggy Bayou Lake is relatively free of submerged vegetation but slight to moderate amounts of hydrilla were observed along the banks. The Boggy Bayou boat launch is free of vegetation but is bordered on both sides

with a healthy accumulation of hydrilla especially in the area between the Boggy Bayou boat launch landing and the bank.

The area just outside the WMA to the north of the boat launch, Boggy Bayou Lake, is almost impassable due to submerged aquatic vegetation except for a narrow strip traversing the lake from north to south. This lake is very shallow with average depth of 2.5 feet. A picture of Boggy Bayou Lake is below.



Boggy Bayou Lake looking north from southern end

From Boggy Bayou lake heading to the spillway down little river, only slight amounts of submerged aquatic vegetation was observed. A proliferation of American lotus occurred in little river this spring located just before the Bay Sec boat launch. Slight amounts of Alligator weed are found in front of the lake drain pipes. The Bay Sec boat launch is free of accumulations of aquatic vegetation.

Grand Lac is almost entirely entombed with submerged, emergent and floating aquatic vegetation except for the very noticeable open area around the boat launch extending across the lake and to the right of the boat launch. This area was cleared during the aquatic weed harvester demonstration back in August of 2012. This demonstration was conducted by local private owners of the aquatic vegetation harvester in hopes of gaining acceptance of this apparatus as a successful addition to the war on aquatic weed infestation in Spring Bayou. Pictures of the harvester and its handy work around the Grand Lac boat launch are below. The open water created is also represented on the Spring Bayou 2012 vegetation survey map attached to the end of this report.



Aquatic Vegetation Harvester



Grand Lac boat launch 9 10 2012



Grand Lac boat launch looking north in Grand Lac after harvester demonstration

Water qualities were obtained using an YSI 6600 Sonde. This data is below. Dissolved oxygen levels were highest in Old River and were lowest in the WMA. Dissolved oxygen levels below 3.0 mg/l were common in the WMA. Water color was a muddy brown in Old River and water in the WMA area was a clear black. This fact is evident in the turbidity readings of the YSI sonde.

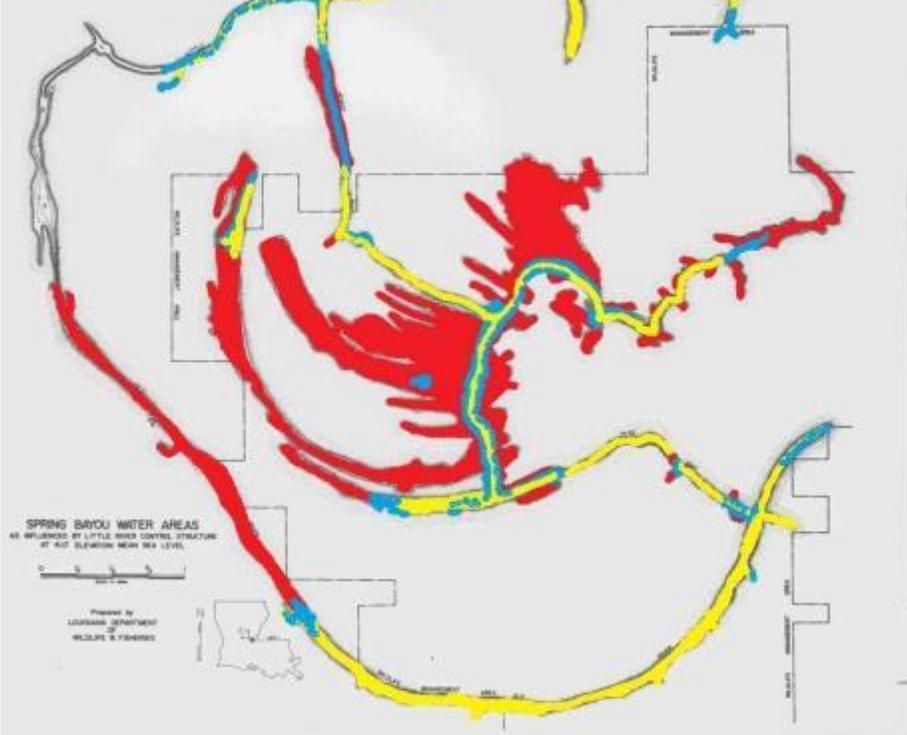
Date	Temp	SpCond	Salinity	Depth	pH	Turbidity+	Chlorophyl	d.o. mg/l	location		
9/10/12	26.76	0.273	0.13	2.156	8.43	11.6	14.4	6.19	old river near boatlaunch		
9/10/12	27.34	0.273	0.13	0.885	8.08	8.6	14.0	5.81			
9/10/12	26.82	0.242	0.11	1.904	7.96	4.1	23.5	4.80	tee bay boatlaunch		
9/10/12	27.68	0.240	0.11	0.537	8.00	3.0	19.6	5.16			
9/10/12	26.52	0.248	0.12	2.285	7.85	1.1	31.9	2.86	tete au bouf		
9/10/12	26.79	0.247	0.12	0.641	7.84	8.5	41.2	2.79			
9/10/12	25.82	0.247	0.12	10.739	7.52	6.8	23.2	1.82	tee lac canal		
9/10/12	27.25	0.237	0.11	0.638	7.47	1.6	30.4	2.23			
9/10/12	25.82	0.251	0.12	4.272	7.27	1.8	22.3	2.17	grand bay		
9/10/12	27.28	0.245	0.11	0.753	7.23	1.9	30.1	2.74			
9/10/12	25.59	0.241	0.11	3.663	7.30	1.1	21.0	2.55	boggy bayou boatlaunch		
9/10/12	26.78	0.239	0.11	0.643	7.29	1.3	28.4	3.53			

Spring Bayou Aquatic Vegetation Survey 9 11 2012

Red = Heavy Infestation

Blue = Moderate infestation

Yellow = Slight Infestation



Spring Bayou Aquatic Vegetation Survey 8 15 2013

J. David, M. Plonsky survey personnel

Report submitted by M. Plonsky

The majority of Spring Bayou continues to be covered with *Hydrilla verticillata* except for Old River, Tete de Bouef and in the vicinity of the Grand Lac boat launch as well as all of the deeper bayou portions of Boggy Bayou, center portions of Grand Bay through to Bayou de la Bay and the Spoil Bank Canal. An aerial application from a helicopter of the herbicide glyphosate, trade name Aquamaster, was completed on 08/08/2013 for control of American Lotus (*Nelumbo lutea*). Areas treated were Coulee Noir, Tee Lac, Grand Coulee and Lake Francios (see attached map). The survey of these areas one week after demonstrated a noticeable browning of lotus. An application of endothall into Coulee Noir, Tee Lac and Lac a Deux Boute was initiated later in this month, 08/21/2013, in an attempt to create usable boatlanes. As of 8/27/2013, no injection of endothall into Coulee Noir was completed due to low water levels. No lotus was observed in Old River and only small patches of lotus were visible within Tete de Bouef, especially near the lake's eastern terminal end. Light patches of lotus were observed within Grand Lac with light amounts of hydrilla. The vicinity near the Grand Lac boatlaunch was free of aquatic vegetation. Lac a Deux Boute was entirely full of heavy amounts of hydrilla with a heavy covering of water meal, duckweed and patches of common salvinia. A light amount of lotus is present at this area's southern end near the spoil bank canal.

Old river from the Tee Bay boatlaunch to the Old River boatlaunch was free of hydrilla and little to no aquatic vegetation was observed except for a light fringe of water meal (*Lemna valdiviana*), duckweed (*Spirodela polyrhiza*) and common salvinia (*Salvinia minima*) seen along the shallow banks within the WMA portion of Old River. The vicinity of the private camps along Old River was free of all aquatic vegetation. Hydrilla can still be found in moderate amounts just north of the Tee Bay boatlaunch in Old River but only light amounts were observed just east of the Old River boatlaunch. The shallow water of this area disallowed any further observation east of the Old River boatlaunch. Lake water level on the day of the survey was 40.6 ft. MSL. System pool is 41 ft. MSL. Elevated water levels greater than 45 ft. MSL occurred within the complex during the early months of 2013 with concerns regarding flooding of camps along Little River. Discussions regarding the opening of the spillway drains for flood abatement were dismissed due to the equal water level occurring on both sides of the spillway. Road conditions to the spillway during this event were impassable by most means of transport due to water and mud covered dirt road and arrival by boat was not possible due to a low bridge which crosses Little River.

Heavy amounts of nut sedge (*Cyperus odoratus*) and water primrose (*Ludwigia spp.*) exist within the shallow bankside areas of the WMA, however none of this vegetation was seen floating within the deeper bayou portions of the system and was not posing any problems for boat traffic. This may change as hydrilla coverage within the WMA decreases due to grass carp

feeding freeing the floating vegetation to drift out into the main channels. A stocking of an additional 20,000 grass carp to the existing 21,000 stocked since 2008, will occur this coming fall of 2013.

Light amounts of hydrilla and coontail (*Ceratophyllum demersum*) were observed near the Old River boatlaunch. Moderate amounts of hydrilla were seen at the Boggy bayou boatlaunch. Grand Lac boatlaunch is free of hydrilla. All boatlaunches are usable and not impeded by vegetation.

Water meal and duckweed were seen throughout the entire complex but did not pose any problem for boat passage. Moderate amounts of common salvinia were observed mixed within the water meal and duckweed. NO GIANT SALVINIA WAS OBSERVED. Most bank areas of the bayou portions of the system is crusted with thick clumps of giant cutgrass (*Zizaniopsis miliacea*) but do not pose any problem with regard to boating or fishing access at this time. Small patches of frog's bit (*Limnobium spongia*) were observed mixed in the accumulations of other aquatic vegetation noted. No survey of Little River, Bay Sec or the spillway structure was conducted at this time due to low water levels. Below are water qualities for Spring Bayou as well as before and after pictures of one of the glyphosate treated areas, Coulee Noir, fishing activity on the day of the survey in Tete de Bouef and Old River.

Date	Temp	SpCond	Salinity	Depth	pH	pHmV	Turbidity+	Chlorophyl	percent d.o.	d.o. mg/l	location
06/28/13	27.67	0.094	0.04	3.496	6.56	26.0	8.0	19.1	12.50	0.99	grand bay
06/28/13	30.19	0.086	0.04	0.182	6.69	18.3	7.2	16.7	40.30	3.04	grand bay
06/28/13	29.94	0.153	0.07	3.729	6.67	20.0	4.8	2.1	11.70	0.89	coulee noir
06/28/13	31.12	0.085	0.04	0.100	6.82	11.0	10.7	25.6	53.20	3.94	coulee noir
06/28/13	30.60	0.141	0.06	3.293	6.98	1.0	6.0	1.0	7.40	0.56	tete de bouef
06/28/13	31.64	0.073	0.03	-0.055	7.70	-42.0	9.4	18.8	101.20	7.44	tete de bouef
06/28/13	31.33	0.104	0.05	3.680	6.88	7.5	3.6	0.0	9.50	0.70	old river
06/28/13	32.71	0.097	0.04	0.235	7.08	-5.1	309.3	22.4	77.70	5.61	old river
06/28/13	27.68	0.113	0.05	5.582	6.58	25.1	3.5	0.7	6.40	0.51	boggy bayou
06/28/13	29.42	0.082	0.04	0.227	6.53	28.0	12.8	30.0	19.30	1.47	boggy bayou

Date	Temp	SpCond	Salinity	Depth	pH	pHmV	Turbidity+	Chlorophyl	percent d.o.	d.o. mg/l	location
08/15/13	28.42	0.106	0.05	2.321	7.29	-17.4	137.7	34.2	57.60	4.47	old river
08/15/13	28.88	0.105	0.05	0.144	7.31	-18.6	15.2	38.5	75.00	5.78	old river
08/15/13	28.64	0.107	0.05	2.762	7.05	-3.2	9.9	0.9	8.00	0.62	tete de bouef
08/15/13	28.73	0.097	0.04	0.055	6.97	1.5	11.9	46.0	30.00	2.32	tete de bouef
08/15/13	27.75	0.102	0.05	4.315	6.77	13.9	7.3	25.0	6.60	0.52	coulee noir
08/15/13	28.18	0.095	0.04	0.452	6.78	12.9	8.5	30.5	12.70	0.99	coulee noir
08/15/13	28.47	0.096	0.04	5.486	6.89	6.7	21.2	20.4	17.30	1.34	boggy bayou
08/15/13	29.29	0.094	0.04	0.173	6.96	2.2	9.6	25.6	43.90	3.36	boggy bayou



Coulee Noir 06/28/2013



Coulee Noir 08/08/2013



Coulee Noir 08/15/2013



Tete de Bouef 08/15/2013



Old River 08/15/2013

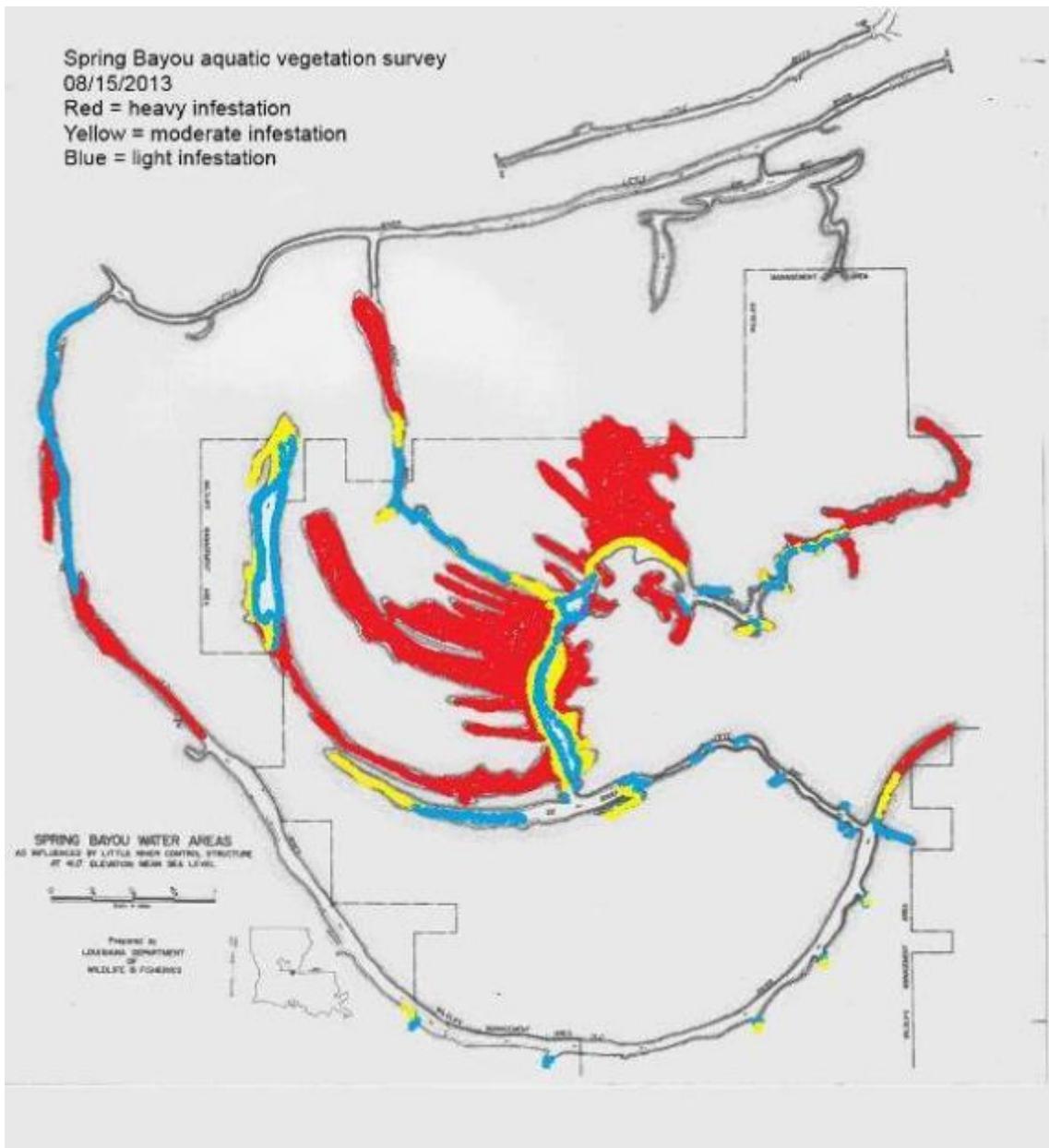
Spring Bayou aquatic vegetation survey

08/15/2013

Red = heavy infestation

Yellow = moderate infestation

Blue = light infestation





LDWF Schedules Aerial Herbicide Application in Spring Bayou

The Louisiana Department of Wildlife and Fisheries has scheduled an aerial herbicide application to control vegetation in Spring Bayou. American lotus, a large floating pad, has expanded in coverage to the extent that navigation has become severely impeded. Approximately 300 acres of the vegetation will be treated in areas outlined below. The Department urges anglers and boaters to stay away from the treatment areas on August 20, 2013.

All herbicides used in LDWF control efforts are approved by the Environmental Protection Agency as safe for aquatic use. No fish consumption advisories will be issued for the Spring Bayou herbicide application areas.

In August of 2013, a total of 19 acres of hydrilla was treated in Coulee Noir, Tee Lac and Lac a de Boutte to clear access lanes using an in-water treatment of the contact herbicide Aquathol K at a rate of 4 ppm. Upon investigation a month later these lanes were opening up and allowing boating access. Also, 6 acres of hydrilla were treated at all four boat landings using the systemic herbicides SONAR PR & Q at a rate of 6 ppm. As of October of 2013, hydrilla infestations were considerably reduced in these areas.



Aerial photo of the Spring Bayou Complex highlighting areas where contact herbicides were applied in 2013 to open access lanes.



Spring Bayou Aquatic Vegetation Survey August 2014

Personnel; J. David, M. Plonsky

A survey of aquatic vegetation revealed a considerable reduction in *Hydrilla verticillata* within Coulee Noir, Tee Lac, Lac aux Seine, and Lac a Deux Boute. Water level in the lake on the day of the survey was 41.45 ft. Pool for this system is 41 ft (spillway height). Numerous days of elevated water levels existed within Spring Bayou this year. Local rainfall totals were improved from the previous two years. This year has so far been a good year for improved water qualities in the Spring Bayou complex with no reports of dead fish within the system this year to date. Water quality was recorded on the 6600 YSI sonde from the spoil canal at the entrance to tee lac. Bottom water at a depth of 7 feet provided 2.0 mg/l of dissolved oxygen. Ph at both top and bottom were at 7.4 at 12:30pm. Water was very clear with a NTU reading of less than 10.

Old River remains completely free of hydrilla. Little to no problem vegetation was seen in Old River or the Tee Bay boat launch area. Additional area bordering Old River has now become free of hydrilla. Gill net samples collected in November of 2013 contained grass carp at all location sets throughout the complex and Old River. Grass carp appeared healthy and free of lesions or parasites.

Hydrilla can be found within the shallow backwater areas of the complex in which exists poor water quality in comparison to the deeper more open areas of the complex. For the past couple years, we would see an opening in the hydrilla occur within Tee Lac only to see this area once again close back up by the end of the summer. These were summers characterized by high air and water temps, low rainfall amounts and deflated dissolved oxygen levels. We will see if the open water in Tee Lac persists.

Other vegetation observed was American lotus which was covering the surface of Tete De Bouef and Lac A Deux Boute. Reports of thick lotus within grand lac have been stated in recent meetings but this area was not surveyed this day. An attempt to do so was made by boat from Lac A Deux Boute but could not be completed due to excessive amounts of water meal and hydrilla found in the gap connecting Lac A Deux Boute to grand lac. Pictures of Grand Lac from the boat launch were taken 07/02/2014 and are included in this report along with pictures taken on 07/30/2014. All lotus observed within tete des bouef and Lac A Deux Boute was easily navigated through and posed no problems of access. Water meal was found through the complex with excessive amounts seen in the Valerie/ De La Bay areas. This area was the most inundated with excessive aquatic vegetation. Water levels in this area are shallow and copious amounts of swamp gas was emitted to the water's surface upon bottom disturbance by the outboard motor.

Coulee Noir was free of lotus and has remained so throughout 2014, as of the date of this report. A slight return of lotus was seen in the vicinity of tee lac mostly in the direction of Grand Coulee. Little to no lotus was observed within lac aux seine. No large flotons of vegetation were

encountered and travel within the complex is better than last year. Higher water levels help with navigation as well. Areal application on American lotus is scheduled for August 20th 2014.

A fringe of hydrilla was observed lining the banks of boggy bayou from the spoil bank canal cut back to the WMA HQ. Boggy Bayou boat launch was free of vegetation and the new boat docks were complete.

NO GIANT SALVINIA OBSERVED. Very little common salvinia observed. A slightly greater amount of Azolla was seen throughout the complex than in previous years mostly in the shallower (less than 2 foot) areas. Very little water hyacinth was seen.

Vegetation percent:

Hydrilla = approximately 15% of vegetative cover

All other vegetative types = 35% of biomass which includes water hyacinth, alligator weed, pennywort, common salvinia, lotus, duckweed, water meal, frog's bit and primrose.



Grand Lac boat launch 7 2 2014



Coulee Noir 7 30 2014



Tete De Bouef 7 30 2014 (little hydrilla beneath the lotus)



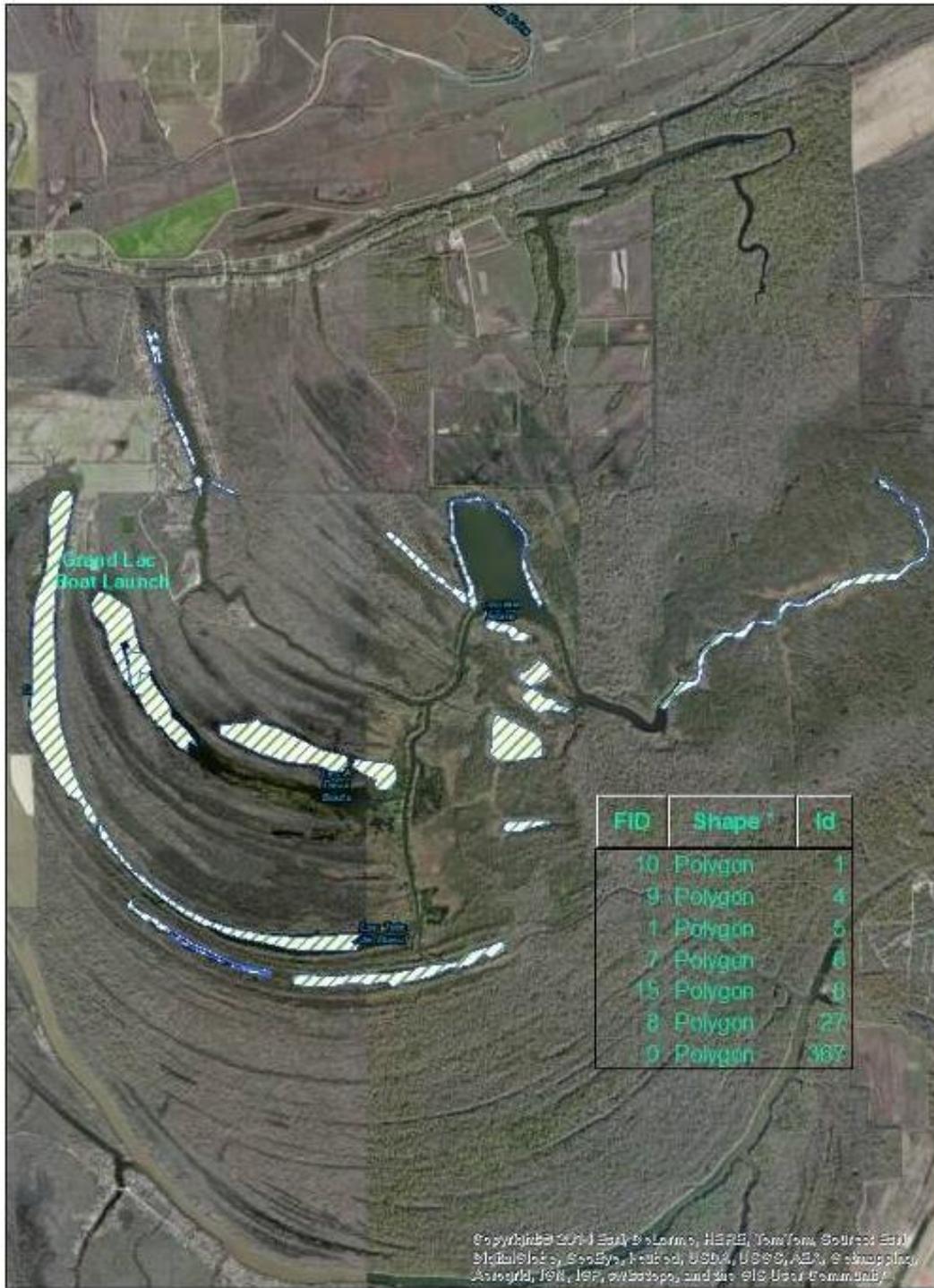
New dock Boggy Bayou boat launch 7 30 2014



Petite Bay boat launch 7 30 2014 (cove just past boat launch is newly open water free of hydrilla)



Grand Coulee/ Tee Lac 7 30 2014



Surface area = 2,718 ac at pool stage, Hydrilla infestation totaling 15.38% SAV 418 acres.