

# **LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES**



**OFFICE OF FISHERIES  
INLAND FISHERIES SECTION**

**2024 AQUATIC VEGETATION CONTROL PLAN**

**BAYOU BLACK / TERREBONNE MARSH**

1. Waterbody type –Freshwater marsh with shallow interconnecting lakes, bayous, and manmade canals, interspersed with oil field canal systems.
2. Water level range (MSL) – tidal
3. Surface area range – Estimated 30,000 acres
4. Waterbody Board or Lake Commission –  
The Louisiana Department of Wildlife and Fisheries (LDWF) manages all state owned water bottoms. Many segments of privately owned lands and adjacent canals are present throughout the Terrebonne Parish freshwater marsh area.

What significant stakeholders use the lake?

Camp owners, recreational/commercial anglers, hunters, trappers, shipping, commerce, and recreational boaters. The oil and gas industry is also a major stakeholder in this area.

What are their needs and concerns? What is the history of aquatic vegetation complaints?  
Water hyacinth (*Pontederia crassipes*) has been the main source of complaints over the past few decades. Water hyacinth coverage usually totals about 12,000 acres per year. Privately owned shallow lakes and bays are harboring water hyacinth year round and are constantly flowing into adjacent public bayous and canals.

Have there been any controversial issues on the lake?

In the past, the U.S. Army Corps of Engineers (USACE) has assumed responsibility for aquatic vegetation control. As of January 2012, the USACE discontinued herbicide applications for aquatic vegetation control in Louisiana. Historically, the Terrebonne marsh was a prime target for USACE spraying efforts. LDWF assumed responsibility for the entirety of this area from 2012 to 2016. In recent years, the USACE has received limited funding, which has allowed them to resume hiring contractors for herbicide applications in the area.

## **Aquatic Vegetation Status:**

Problematic Species as of November 1, 2023:

Water hyacinth – 2,500 acres

Alligator weed (*Alternanthera philoxeroides*) – 500 acres

Common salvinia (*Salvinia minima*) – 500 acres

Hydrilla (*Hydrilla verticillata*) – 1,500 acres

Eurasian watermilfoil (*Myriophyllum spicatum*) – 500 acres

Giant salvinia (*Salvinia molesta*) – 250 acres

Beneficial Species as of November 1, 2023:

Coontail (*Ceratophyllum demersum*) – 1,000 acres

Fanwort (*Cabomba caroliniana*) – 750 acres

## **Limitations:**

Access is limited due to large areas of privately owned land. Many of these areas are ponds and large areas of open marsh that often serve as a nursery source for water hyacinth. Plant materials from these areas are a continuous source of infestation for adjacent public areas.

Wind and tides cause movement of floating aquatic plants making thorough treatment difficult.

## **Past Control Measures:**

### *Chemical*

The majority of past herbicide applications have been focused on water hyacinth using 2,4-D at a rate of 0.5 gallons per acre with a 90:10 non-ionic surfactant (1 pt/acre). In the presence of mixed vegetation, diquat (0.75 gal/acre) with a 90:10 non-ionic surfactant (0.25 gal/acre) or either imazamox or imazapyr (0.5 gal/acre) with Turbulence surfactant (0.25 gal/acre) has occasionally been used.

USACE contractors have treated an average of 6,000 acres of water hyacinth annually in the past. This estimate is based on data obtained from USACE Aquatic Plant Control Operations. Spray data from the years 2008, 2010, & 2011 were used to calculate an annual average of acres sprayed. The year 2009 was not included in obtaining this number due to incomplete data. See Appendix A.

In 2012, LDWF Inland Fisheries began the widespread use of contract spray applications in this area. Multiple contracts are requested annually in order to chemically treat the vast amount of vegetation in the Bayou Black/Terrebonne Marsh area. The target species of control efforts is water hyacinth, which is by far the most abundant, prolific, and problematic species of vegetation present. In 2023, a total of 2089 acres of vegetation in the Bayou Black/Terrebonne Marsh area was treated by LDWF spray crews and contractors. Contractors hired by USACE also treated approximately 1,000 acres of vegetation in the area. Water hyacinth was the targeted species of vegetation. Prior to the start of the contracts, all areas were broken down into three areas of priority:

- 1) State claimed / publicly accessible waterways (i.e. Bayous Copasaw, Penchant, etc.) having top priority
- 2) Non-state claimed / publicly accessible waterways (i.e. School Board canals, etc.) having secondary priority, and
- 3) Dead-end canals (state or non-state claimed and publicly accessible) or canals/bayous with little physical accessibility but serving as a source for re-infestation having third priority.

In this manner, the contract application proceeded such that primary priority areas were treated first, followed by secondary & tertiary, and then recycled to primary priority, and so on.

<b>Acres of vegetation treated in Bayou Black/Terrebonne marsh, by year, 2014-2023</b>				
	<b>Water hyacinth</b>	<b>Alligator weed</b>	<b>Giant salvinia</b>	<b>Water Paspalum (<i>Paspalum repens</i>)</b>
<b>2014</b>	<b>11,242</b>	<b>84</b>	<b>-</b>	<b>-</b>
<b>2015</b>	<b>11,394</b>	<b>36</b>	<b>-</b>	<b>-</b>
<b>2016</b>	<b>7,145</b>	<b>55</b>	<b>110</b>	<b>-</b>
<b>2017</b>	<b>6,374</b>	<b>49</b>	<b>981</b>	<b>-</b>
<b>2018</b>	<b>3,536</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>2019</b>	<b>2,900</b>	<b>5</b>	<b>-</b>	<b>-</b>
<b>2020</b>	<b>3,780</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>2021</b>	<b>1,500</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>2022</b>	<b>4,651</b>	<b>10</b>	<b>-</b>	<b>-</b>
<b>2023</b>	<b>1,771</b>	<b>92</b>	<b>226</b>	

***Biological***

Giant salvinia weevils (*Cyrtobagous salviniae*) were released on multiple occasions, in a variety of locations in the Bayou Black/Terrebonne marsh area in 2013, 2014, and 2021. Follow-up site visits to those locations have indicated that weevils are spreading throughout the area.

**Recommendations:**

During the growing season, the Bayou Black / Terrebonne Marsh will be monitored regularly to identify areas of severe infestation, and treated as per the LDWF Aquatic Herbicide Application Procedures:

<b>Plant Species</b>	<b>Herbicide</b>	<b>Surfactant</b>
<b>Salvinia spp. Alternative 1</b> Common/Giant Salvinia (April 1 to October 31)	Glyphosate (0.75 gal/acre) Diquat (0.25 gal/acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
<b>Salvinia spp. Alternative 2</b> Common/Giant Salvinia (April 1 to October 31)	Glyphosate (0.75 gal/acre) Flumioxazin (2 oz./acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
<b>Salvinia spp. Alternative 3</b> Common/Giant Salvinia (April 1 to October 31)	MSM (1 oz./acre) Flumioxazin (1 oz./acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
<b>Salvinia spp. Alternative 4</b> Common/Giant Salvinia (November 1 to March 31)	Diquat (0.75 gal/acre)	Nonionic surfactant (0.25 gal/acre)
<b>Salvinia spp. Alternative 5</b> Common/Giant Salvinia (November 1 to March 31)	Flumioxazin (12 oz./acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
Water Hyacinth	2, 4-D (0.5 gal/acre)	Nonionic surfactant (1 pint/acre)
Water Hyacinth in waiver areas (March 15 to September 15)	Glyphosate (0.75 gal/acre)	Nonionic surfactant (0.25 gal/acre)
Alligator Weed/Giant Cut Grass (undeveloped areas)	Imazapyr (0.5 gal/acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
Alligator Weed/Giant Cut Grass (developed areas)	Imazamox (0.5 gal/acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
American Lotus	2, 4-D (0.5 gal/acre)	Nonionic surfactant (1 pint/acre)
American Lotus in waiver areas (March 15 to September 15)	Glyphosate (0.5 gal/acre)	Nonionic surfactant (0.25 gal/acre)
American Lotus in waiver areas with potable water intakes (March 15 to September 15)	Triclopyr (0.5gal/acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
Duckweed	Diquat (1.0 gal/acre) or Flumioxazin (8 oz./acre)	Nonionic surfactant (0.25 gal/acre) or Turbulence (or approved equivalent, 0.25 gal/acre)
Cuban Bulrush (sedge)	2, 4-D (0.5 gal/acre)	Nonionic surfactant (1 pint/acre)
Cuban Bulrush (sedge) in waiver areas (March 15 to September 15)	Glyphosate (0.75 gal/acre)	Nonionic surfactant (0.25 gal/acre)
Water Lettuce	Diquat (1.0 gal/acre) or Flumioxazin (6 oz./acre)	Nonionic surfactant (0.25 gal/acre) or Turbulence (or approved equivalent, 0.25 gal/acre)

Contract herbicide applications should be used extensively in the Bayou Black / Terrebonne Marsh. Based on average annual spray data obtained from USACE, combined with recent LDWF spray data, a treatment of at least 12,000 acres of vegetation in the Bayou Black area per year is warranted. Assuming an average of five acres of vegetation treated per hour per crew, a contract (based on eight hour days) of no less than 300 days should be utilized. If we consider treating only State owned/leased waterbottoms and publicly accessible areas (see Appendix A), the total acreage that would be treated would be reduced by half. In this instance, treatment of 6,000 acres of vegetation is the estimated required effort.

Estimates of surface water acreages of State owned/leased or publically accessible water by site are:

Site	Area
Bayou Copasaw	800
Intracoastal Waterway	2,000
Bayou Penchant	2,700
Piquat Bayou	40
Hackberry Lake	600
Bayou Black	360
Bay Wallace	100
Total acres	6,600

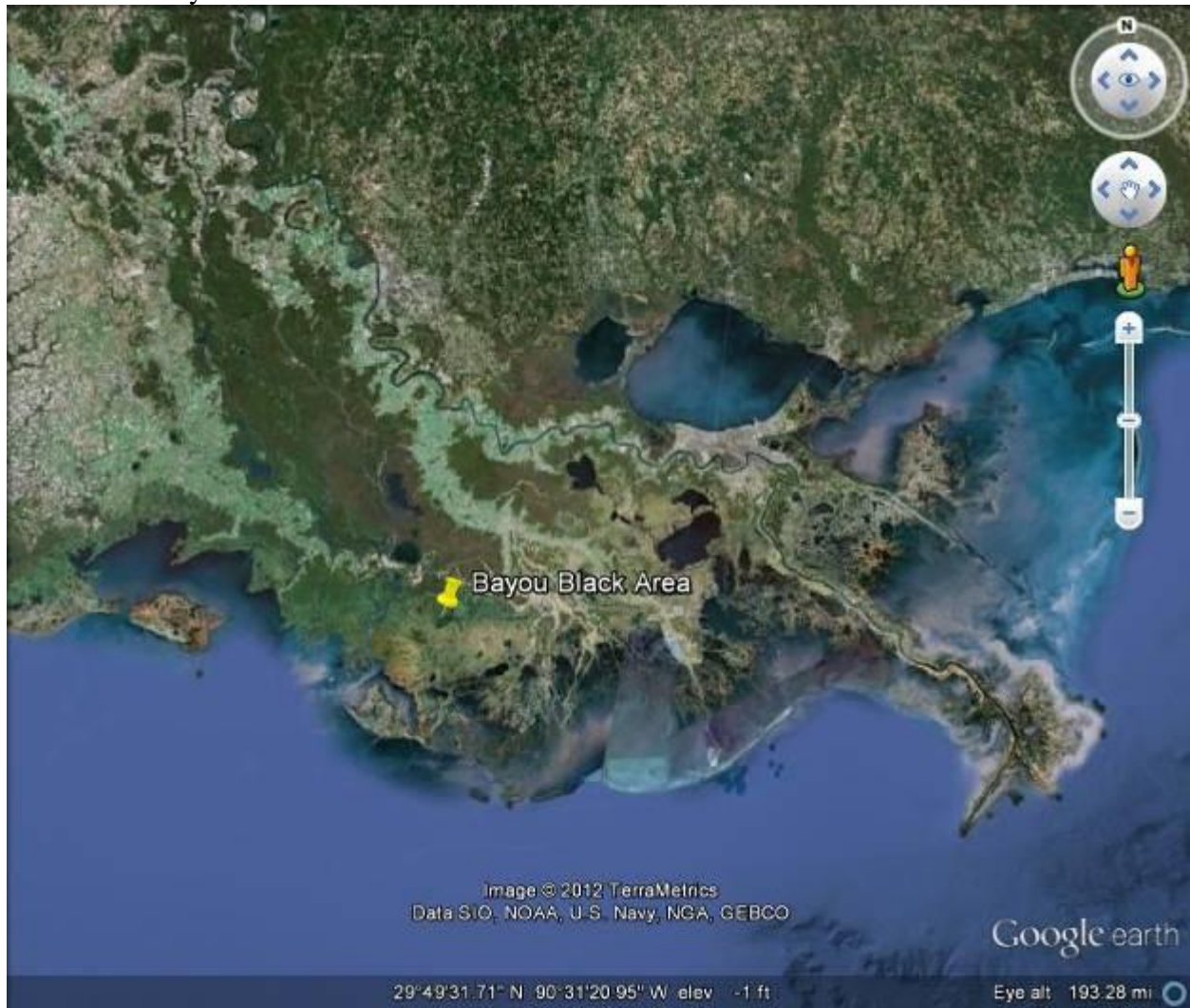
Control efforts will be prioritized to provide boating access in public waters for fishing and hunting interests. A public waterbody is one that is no more restrictive to the general public than to any other group or individual.

Maps:

Bayou Black / Terrebonne Marsh



Location of Bayou Black / Terrebonne Marsh in Louisiana





Map of Bayou Black/Terrebonne Marsh Including Priority Rankings for Areas to be treated



## Appendix A.

USACE Spraying - Terrebonne Parish							
2008							
	Bayou Black	Turtle Bayou	Penchant Area	Copasaw Area	Orange Grove	Jug Lake	Total
Work Plan 1 - March	100	350	675	175			
Work Plan 2 - April	300		75	225	100		
Work Plan 3 - May	100	325		225			
Work Plan 4 - June		200	550		225	350	
Work Plan 5 - July		350		225			
Work Plan 6 - August			500			500	
Work Plan 7 - October				150			
Work Plan 8 - October	300						
Work Plan 9 - November	100	250	300		300		
Annual Totals	900	1475	2100	1000	625	850	6950
2009							
Work Plan 1 - July	150	450	625	175	250		
Work Plan 2 - August			600		250		
Work Plan 3 - September	150	400	250				
Work Plan 4 - October	125					600	
Annual Totals	425	850	1475	175	500	600	4025
2010							
Work Plan 1 - April	100	200		50	200		
Work Plan 2 - May		350	250				
Work Plan 3 - June	100		175			300	
Work Plan 4 - July		100	450	200	300		
Work Plan 5 - September	125	350	175	150		350	
Work Plan 6 - October			350				
Work Plan 7 - October			350				
Annual Totals	325	1000	1750	400	500	650	4625
2011							
Work Plan 1 - March	100	250	200		200		
Work Plan 3 - May		400					
Work Plan 4 - June	125		725	300		250	
Work Plan 6 - August	100	325	650		225	250	
Work Plan 7 - September			475				
Work Plan 8 - October		350	150	175		100	
Work Plan 9 - November			625				
Work Plan 10 - November		250					
Annual Totals	325	1575	2825	475	425	600	6225