LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

OFFICE OF FISHERIES
INLAND FISHERIES SECTION

2021 AQUATIC VEGETATION CONTROL PLAN

BARATARIA ESTUARY

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1. Waterbody type – Over 100,000 acres of shallow interconnecting lakes, bayous, and manmade canals. Primary waterbodies include Lake Boeuf, Bayou Boeuf, Bayou Chevreuil, Lake Des Allemands, Bayou Des Allemands, Bayou Gauche, Bayou Segnette, Bayou Verret, Lake Cataouatche, Lake Salvador, Bayou Rigolettes, Bayou Perot, the Pen and portions of Little Lake. In addition, there are over 100 miles of manmade oil and gas canals, including the Gulf Intracoastal Water Way (GIWW).

2. Waterbody Board or Lake Commission – fish and wildlife resources are managed by the Louisiana Department of Wildlife and Fisheries (LDWF). A complex mix of state-owned water bottoms and privately owned tracts of land are present throughout the Barataria estuary. Aquatic vegetation is managed in accordance with the LDWF Aquatic Plant Policy and Plan, Management Procedures and Safety Manual.

What significant stakeholders use the lake?
Recreational and commercial fishermen, boaters, hunters, trappers, shipping and commerce, and the oil and gas industry utilize this area. Lake Boeuf WMA, Lake Salvador WMA, Jean Lafitte National Park, and Bayou Segnette State Park are located within the estuary.

What are their needs and concerns? What is the history of aquatic vegetation complaints?
Public access is the primary focus of invasive aquatic weed control in this area. Floating, emergent, and submersed plants are managed for this purpose. Floating aquatic plants such as giant salvinia (*Salvinia molesta*) and water hyacinth (*Pontederia crassipes*) block navigation, obscure fishable shorelines, and accumulate at boat ramps. The Pier 90 and Bayou Segnette boat launches near Lake Cataouatche can become inaccessible when floating vegetation is concentrated by persistent winds.

Have there been any controversial issues on the lake?
Prior to 2008, hydrilla (*Hydrilla verticillata*) covered 90% of the surface area in Lake Cataouatche. Today, hydrilla can only be found growing sparsely with Eurasian watermilfoil (*Myriophyllum spicatum*) and coontail (*Ceratophyllum demersum*) along the shoreline and in the shallow, western quarter of the lake. The cause of the decline of these submersed species remains unclear.

In years past, some areas within the estuary were treated by the US Army Corps of Engineers' (USACE) Removal of Aquatic Growth (RAG) Program for water hyacinth control. The Corps' RAG program was defunded in 2012. In response, LDWF assumed responsibility of many of those areas within the Barataria estuary. Over the last few years, the RAG program has received some funding. However, the funding is severely limited and inconsistent. LDWF will continue to operate as if the RAG program has been defunded.

Aquatic Vegetation Status:

As of 12/31/2020, public waterways within the Barataria estuary held approximately 38,500 acres of nuisance aquatic vegetation.

- 24,000 acres of water hyacinth
- 500 acres of hydrilla
- 3,500 acres of Eurasian watermilfoil
- 6,500 acres of giant salvinia
- 2,000 acres of common salvinia *(Salvinia minima)*
- 1,500 acres of alligatorweed *(Alternanthera philoxeroides)*

Limitations:

- The Barataria estuary consists of over 100,000 acres of tidally influenced waterways. It is also connected to the Mississippi River via freshwater diversion projects. Prior to the introduction of freshwater from the river, salinity as high as 15ppt limited the growth of aquatic plants in the estuary.
- Wind and tides cause movement of floating aquatic plants.
- Storm surge from hurricanes and tropical storms causes significant changes in water levels and salinity.
- Many of the infested canals and shallow ponds are private or restricted areas. Therefore, LDWF is prohibited from treating them.

- Shoreline erosion
- Shallow, silted canals
- The vast size and interconnectedness of waterways within the estuary force LDWF to prioritize and treat only the areas of highest public use.
- USACE only receives limited funding for their RAG program, thus leaving LDWF responsible for treating thousands of additional acres annually.
- Due to the remote locations of boat ramps, LDWF spray crews have long travel times, thus limiting time spent on the water applying herbicide.

Past Control Measures:

Two LDWF spray crews operate in this area along with private contractors, and have sprayed a combined 21,816 acres of nuisance vegetation over the past five years (Table 1). A breakdown of spray crew activity within District 8 can be found in Table 3. A total of 2,060 acres was sprayed in 2020. With only two LDWF spray crews remaining in District 8, private contractors are utilized when possible to treat larger problem areas as funding allows. Giant salvinia was the focus in the Barataria Basin in recent years, but has recently been surpassed by water hyacinth. Spray crews use practices outlined in the LDWF approved Aquatic Herbicide Application Procedures (Table 3). Private contractors were mainly utilized on the lower half of the basin where aquatic vegetation problems tend to be larger and more spread out (Map 1- Map 4).

Table 1. Acres Sprayed in the Barataria Basin from 2016 – 2020.

Waterbody	2016	2017	2018	2019	2020	Total
20101 (Bayous Verret, Chevreuil, Citamon, and Grand)	960	920	0	0	0	1880
20102 (Bayou Boeuf, Halpin and Theriot Canals)	1590	820	1260	810	0	4480
20103 (Lake Boeuf)	0	940	2230	1080	1320	5570
20201 (Bayou des Allemands)	0	80	16	20	0	116
20202 (Lac des Allemands)	130	0	40	60	0	230
20301 (Bayou des Allemands)	622	1008	318	66	20	2034
20302 (Bayou Gauche)	0	44	0	30	40	114
20303 (Lake Cataouatche)	0	0	296	254	238	788
20304 (Lake Salvador)	348	0	474	224	276	1322
20401 (Bayou Lafourche)	144	0	0	0	0	144
20601 (Intracoastal Waterway)	0	0	0	0	0	0
20701 (Bayou Segnette)	806	682	448	382	126	2444
20801 (Intracoastal Waterway)	0	0	0	0	0	0
20802 (Bayou Barataria and Barataria Waterway)	240	0	0	0	0	240
20803 (Pen, The)	588	662	826	10	40	2126
20903 (Barataria Waterway)	0	0	0	0	0	0
20904 (Wilkinson Canal and Wilkinson Bayou)	0	0	0	0	0	0
21102 (Barataria Basin coastal bays and Gulf waters)	2	0	0	0	0	2
20901 (Bayou Rigolettes and Perot)	0	0	134	262	0	396
Total	5430	5156	6042	3198	2060	21886

Table 2. Aquatic Vegetation Treated in the Barataria Basin in 2020.

2020								
Spray Crew	Waterbody code	Alligatorweed	Floaton	Pennywort	Primrose	Salvinia, Giant	Water Hyacinth	Total
Lacombe 2	20103	4	40	2	4	20	1250	1320
	20301						20	20
	20302						40	40
	20303						120	120
	20304						40	40
	20803						40	40
Private Applicator	20303						118	118
	20304						236	236
	20701						126	126
Total		4	40	2	4	20	1990	2060

Recommendations:

Chemical Control:

This area requires continuous herbicide applications to maintain public access. Herbicide applications will be made as needed according to the LDWF approved Aquatic Herbicide Application Procedures (Table 3).

Biological Control:

We recommend continued stocking attempts to reinforce established, reproducing populations of giant salvinia weevils (*Cyrtobagous salviniae*). These locations will be monitored to determine if colonies are being established. Other locations for weevil releases will be considered as conditions and availability dictate.

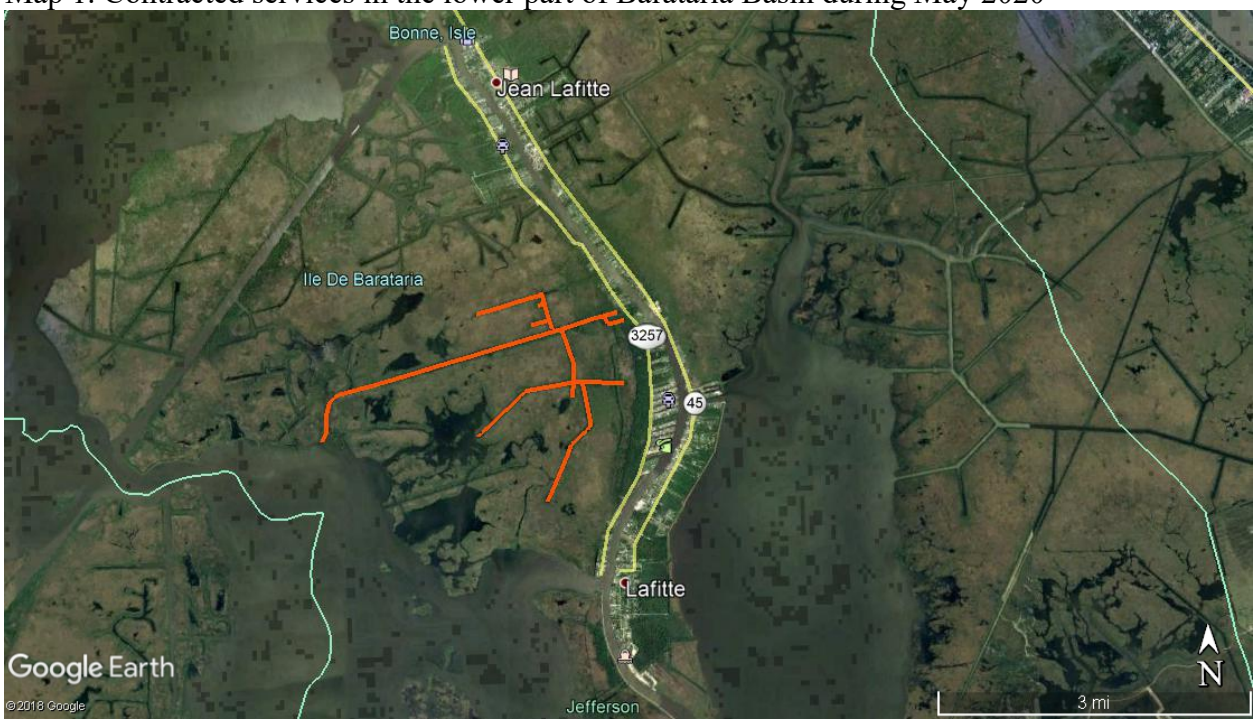
Physical Control:

None at this time.

Table 3. LDWF approved Aquatic Herbicide Application Procedures

Plant Species	Herbicide	Surfactant
***Salvinia spp*. Alternative 1** 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)
***Salvinia spp*. Alternative 2** 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)
***Salvinia spp*. Alternative 3** Common/Giant Salvinia (April 1 to October 31)	MSM (1 oz./acre) Flumioxazin (1 oz./acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
***Salvinia spp*. Alternative 4** Common/Giant Salvinia (November 1 to March 31)	Diquat (0.75 gal/acre)	Nonionic surfactant (0.25 gal/acre)
***Salvinia spp*. Alternative 5** 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)
Alligatorweed/Giant Cut Grass (undeveloped areas)	Imazapyr (0.5 gal/acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
Alligatorweed/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)

Map 1. Contracted services in the lower part of Barataria Basin during May 2020



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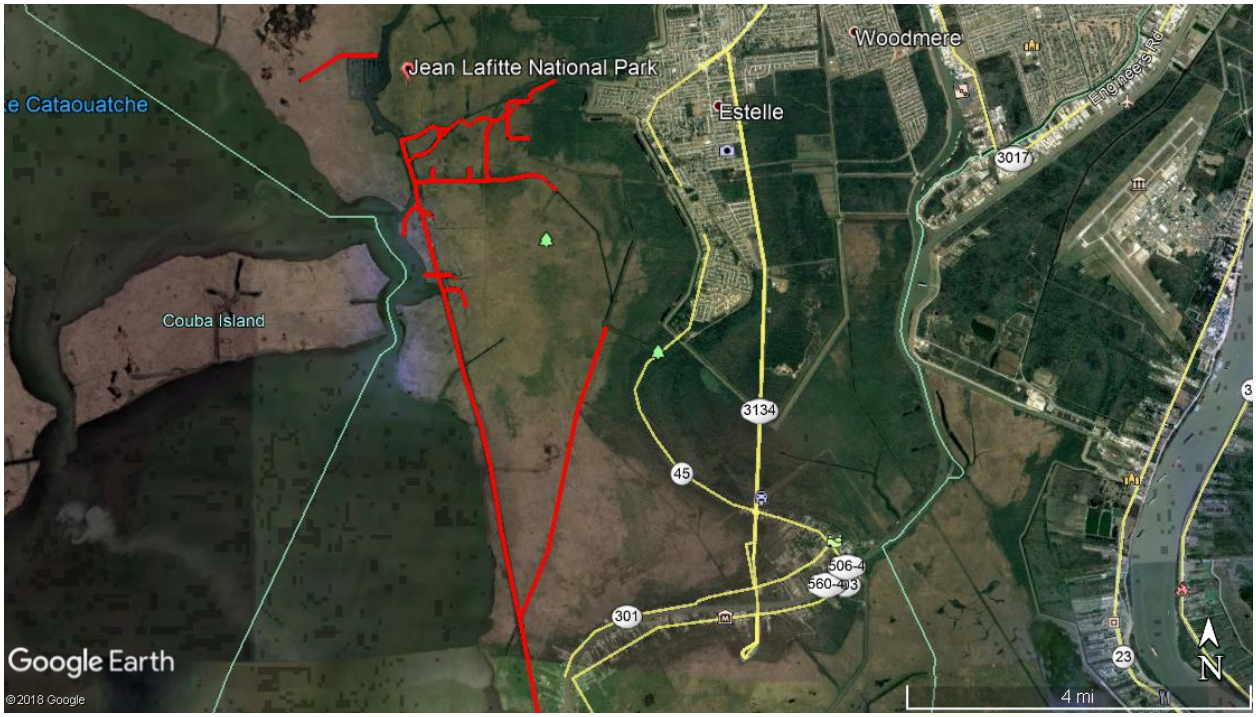

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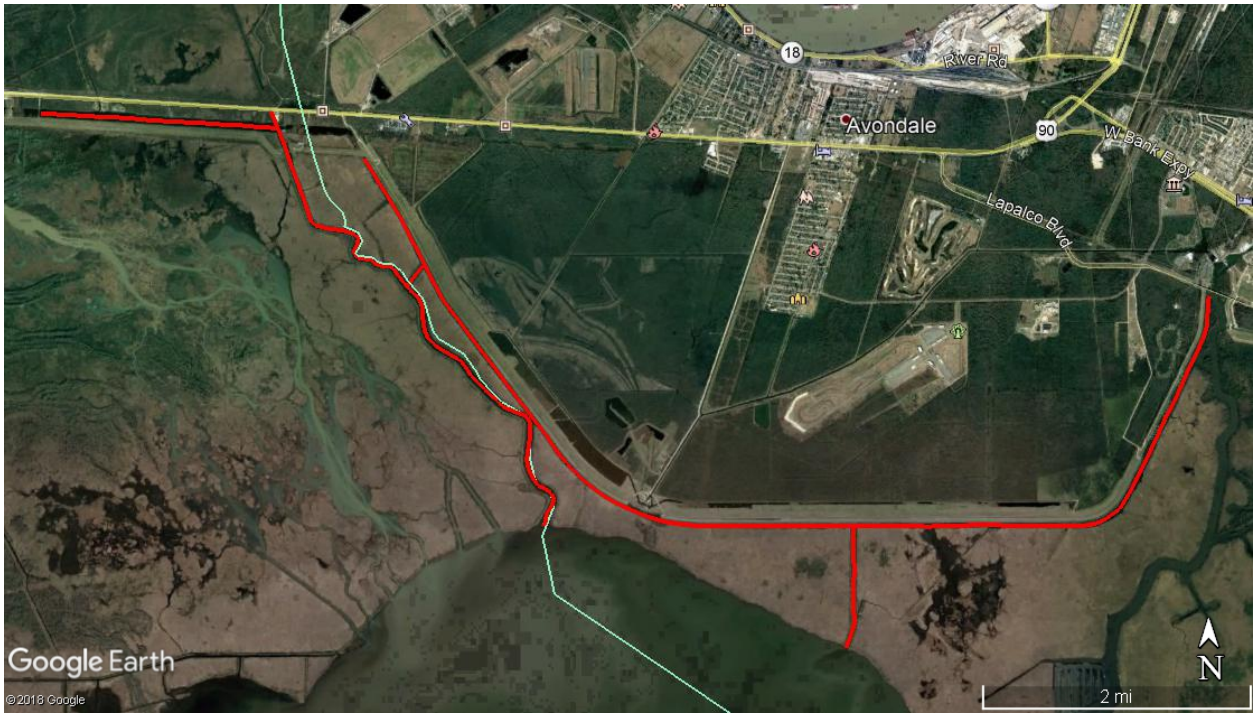

Map 4. Contracted services in the lower part of Barataria Basin during May 2020