# 2013 Barataria Estuary Vegetation Control Plan

LDWF, Inland Fisheries

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1. Waterbody type – Over 100,000 acres of shallow interconnecting lakes, bayous, and manmade canals. Primary waterbodies include Lake Beouf, Bayou Beouf, 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. Also, there are over 100 miles of manmade oil and gas canals including the Gulf Intracoastal Water Way (GIWW).

2. Waterbody Board or Lake Commission – All waterbodies in this estuary are state owned water bottoms where fish and wildlife resources are managed by the Louisiana Department of Wildlife and Fisheries (LDWF). Many segments of privately owned lands are present throughout the Barataria estuary.

**What significant stakeholders use the lake?**

Recreational and commercial fishermen, boaters, hunters, trappers, shipping and commerce, and the oil and gas industry use this area. Lake Beouf 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 submerged plants are managed for this purpose. Floating aquatic plants such as giant salvinia and water hyacinth can block canals, 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 packed in by persistent winds.

**Have there been any controversial issues on the lake?**
Prior to 2008, hydrilla covered 90% of the surface area in Lake Cataouatche. Today hydrilla can only be found growing sparsely with Eurasian watermilfoil and coontail along the shoreline and in the shallow western quarter of the lake. The cause of the decline of these submerged species is still undetermined. Some areas within the estuary were treated by the US Army Corps of Engineers' (USACE) Aquatic Plant Control Program for water hyacinth control. The inconsistency of herbicide applications in these areas lead to instances of infestation and public complaints. With the removal of their budget for plant control, the USACE will no longer spray nuisance vegetation in the area. LDWF has assumed the responsibility.

## Aquatic Vegetation Status:

As of 2/10/2013 an estimated 13,000 acres of nuisance aquatic vegetation is in the system.
6,000 acres of Water hyacinth (*Eichhornia crassipes*)
1,000 acres of Hydrilla (*Hydrilla verticillata*)
2,000 acres of Eurasian watermilfoil (*Myriophyllum spicatum*)
4,000 acres of Giant salvinia (*Salvinia molesta*)

## Limitations:

- The Barataria Estuary consists of over 100,000 acres of tidally influenced waterways. It is also connected o 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 on private land.
- 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 will no longer treat nuisance vegetation leaving LDWF responsible for treating thousands of additional acres annually.
- Spray crews must travel 2 hours by vehicle to reach boat ramps accessing this area which reduces time spent on the water spraying.

## Past Control Measures:

Three LDWF spray crews operate in this area and have sprayed 18,619 acres of nuisance vegetation in the past five years (Table 1), with a high of 5,357 acres in 2012 (Table 2). This area accounts for 50% of District 8's annual spraying efforts. Giant salvinia has been the recent focus in the Barataria Basin. Spray crews have switched from applying diquat at 0.75 gallons per acre to applying glyphosate at 0.75 gallons per acre with good results. Both of these herbicides have been used with a non-ionic surfactant at 0.25 gallons per acre. Also, giant salvinia weevils (*Cyrtobagous salviniae*) have been introduced to both public and private waters in this area. Since 2008, 74,400 adult weevils have been released in 10 different waterbodies throughout the basin.

## Recommendations:

### Chemical Control

This area requires continuous herbicide applications to maintain public access. Water hyacinth will be treated at a rate of 0.5 gallons per acre with 2,4-D. Giant salvinia will continue to be treated with a glyphosate (0.75 gal/acre)/ diquat (0.25 gal/acre) mix with Aqua King Plus (.25 gal/acre) and Thoroughbred (8oz/acre) surfactants as needed. Monthly scouting trips will be conducted to determine if, when, and where contract spraying will be conducted.

### Biological Control

We recommend continued attempts to reinforce established reproducing populations of giant salvinia weevils (Map 1). These locations will be monitored to determine if colonies are being established. Other locations for weevil release will be considered as conditions dictate, and weevils and manpower are available.

Table 1. Acres Sprayed in the Barataria Basin from 2008 – 2012.

| | Year | | | | | Total |
|---|---|---|---|---|---|---|
| | 2008 | 2009 | 2010 | 2011 | 2012 | |
| | Acres Sprayed Sum | Acres Sprayed Sum | Acres Sprayed Sum | Acres Sprayed Sum | Acres Sprayed Sum | Acres Sprayed Sum |
| Body of Water | 204 | 270 | 160 | 538 | . | 1,172 |
| 20101 - Bayous Verret, Chevreuil, Citamon, and Grand | | | | | | |
| 20102 - Bayou Boeuf, Halpin & Theriot Canals | . | . | . | 72 | . | 72 |
| 20103 - Lake Boeuf | 798 | 1,086 | 802 | 1099 | . | 3,784 |
| 20201 - Bayou des Allemands | . | . | . | . | 193 | 193 |
| 20202 - Lac des Allemands | 90 | 83 | 79 | 91 | 339 | 681 |
| 20301 - Bayou des Allemands | 50 | 272 | 23 | 21 | 1,912 | 2,278 |
| 20303 - Lake Cataouatche | . | 1,018 | 220 | 161 | 463 | 1,861 |
| 20304 - Lake Salvador | 1,726 | 1,838 | 2,003 | 2,774 | 1,420 | 9,760 |
| 20401 - Bayou Lafourche | . | . | . | . | 243 | 243 |
| 20601 - Intracoastal Waterway | 105 | 75 | 10 | 7 | 55 | 252 |
| 20701 - Bayou Segnette | . | . | . | 135 | 593 | 728 |
| 20801 - Intracoastal Waterway | 38 | 21 | . | 10 | . | 69 |
| 20802 - Bayou Barataria and Barataria Waterway | . | . | 40 | . | . | 40 |
| 20803 - Pen, The | . | . | . | 182 | 109 | 291 |
| 20903 - Barataria Waterway | . | 46 | 67 | 37 | 30 | 179 |
| 20904 - Wilkinson Canal and Wilkinson Bayou | . | . | 13 | . | . | 13 |
| Total | 3,011 | 4,709 | 3,417 | 5,127 | 5,357 | 21,616 |

Table 2. Vegetation sprayed and herbicides used in the Barataria Basin in 2012.

| Herbicide | Vegetation | Body of Water | Acres Sprayed |
|---|---|---|---|
| 2,4-D | Alligatorweed | 20202 - Lac des Allemands | 25 |
| | | 20301 - Bayou des Allemands | 261 |
| | | 20303 - Lake Cataouatche | 23 |
| | | 20304 - Lake Salvador | 46 |
| | | 20701 - Bayou Segnette | 12 |
| | Pennywort | 20202 - Lac des Allemands | 22 |
| | | 20301 - Bayou des Allemands | 36 |
| | | 20304 - Lake Salvador | 4 |
| | | 20601 - Intracoastal Waterway | 4 |
| | | 20701 - Bayou Segnette | 5 |
| | Primrose | 20202 - Lac des Allemands | 2 |
| | | 20301 - Bayou des Allemands | 2 |
| | Salvinia, Giant | 20304 - Lake Salvador | 14 |
| | Sedge | 20202 - Lac des Allemands | 8 |
| | Water Hyacinth | 20201 - Bayou des Allemands | 193 |

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|---|---|---|---|
| | | 20202 - Lac des Allemands | 90 |
| | | 20301 - Bayou des Allemands | 1,514 |
| | | 20303 - Lake Cataouatche | 440 |
| | | 20304 - Lake Salvador | 997 |
| | | 20601 - Intracoastal Waterway | 32 |
| | | 20701 - Bayou Segnette | 577 |
| | | 20803 - Pen, The | 90 |
| | | 20903 - Barataria Waterway | 30 |
| Aqua Master | Alligatorweed | 20202 - Lac des Allemands | 20 |
| | Pennywort | 20202 - Lac des Allemands | 1 |
| | | 20301 - Bayou des Allemands | 5 |
| | Primrose | 20301 - Bayou des Allemands | 5 |
| | Salvinia, Common | 20202 - Lac des Allemands | 22 |
| | | 20304 - Lake Salvador | 12 |
| | Salvinia, Giant | 20202 - Lac des Allemands | 30 |
| | | 20301 - Bayou des Allemands | 7 |
| | | 20304 - Lake Salvador | 22 |
| | Sedge | 20301 - Bayou des Allemands | 56 |
| | | 20304 - Lake Salvador | 11 |
| | Water Hyacinth | 20202 - Lac des Allemands | 66 |
| | | 20301 - Bayou des Allemands | 21 |
| | | 20304 - Lake Salvador | 69 |
| | | 20401 - Bayou Lafourche | 243 |
| Tribune | Alligatorweed | 20304 - Lake Salvador | 8 |
| | Pennywort | 20202 - Lac des Allemands | 2 |
| | Salvinia, Common | 20202 - Lac des Allemands | 21 |
| | Salvinia, Giant | 20202 - Lac des Allemands | 27 |
| | | 20304 - Lake Salvador | 186 |
| | | 20601 - Intracoastal Waterway | 8 |
| | | 20803 - Pen, The | 4 |
| | Sedge | 20202 - Lac des Allemands | 1 |
| | Water Hyacinth | 20202 - Lac des Allemands | 3 |
| | | 20304 - Lake Salvador | 53 |
| | | 20601 - Intracoastal Waterway | 12 |
| | | 20803 - Pen, The | 15 |
| Total | | | 5,357 |

Table 3. Number of giant salvinia weevils (*Cyrtobagous salviniae*) individuals released per water body in the Barataria Basin through 2012.

| SUMOF INDIVIDUALS | PER WATER BODY | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | 20101 | 20102 | 20201 | 20202 | 20301 | 20302 | 20304 | 20701 | 20801 | 20802 | Grand Total |
| 2008 | | | 3600 | | | 400 | 800 | | | | 4800 |
| 2009 | | | 4800 | | | 400 | | | | | 5200 |
| 2011 | | 4000 | | | | | | | | | 4000 |
| 2012 | 800 | 12000 | 2400 | 3200 | 14000 | 2000 | 14800 | 4800 | 2400 | 4000 | 60400 |
| **Grand Total** | **800** | **16000** | **10800** | **3200** | **14000** | **2800** | **15600** | **4800** | **2400** | **4000** | **74400** |

Map1. Number of individual giant salvinia weevil releases per water body through 2012.