LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES

OFFICE OF FISHERIES
INLAND FISHERIES SECTION

2018 AQUATIC VEGETATION CONTROL PLAN

LOWER SABINE RIVER SYSTEM

The lower Sabine River is a coastal river system with moderate discharge that originates in the grassland prairies east of Dallas, TX. The river in District 5 begins at Toledo Bend Dam and runs south to Sabine Lake and on to the Gulf of Mexico. Numerous oxbows, backwaters, scar lakes, and cypress swamps are associated with the river. It is a boundary water of Louisiana and Texas. River flow volume is primarily dependent upon the Toledo Bend generation schedules.

Waterbody Information

Waterbody Type:
Coastal River

Parish/Location:
LA/TX border running through Vernon, Beauregard, Calcasieu, and Cameron parishes.

Size:
~146 river miles

Watershed Ratio:
Lower basin: Approximately 318 to 1 surface acres

Water Control Structures:
None

Ownership:
State of Louisiana owns the water and water bottoms with the Louisiana Sabine River Authority responsible for management of both through Act 261 by the Louisiana legislature in 1950 (RS 38:2321). The Louisiana Department of Wildlife and Fisheries (LDWF) manages the fish and wildlife resources.

Stakeholders:
Sabine River Authorities of LA and TX are the primary stakeholders. Both agencies regulate water withdrawal for their respective states. Industry uses water from the Sabine River via the Sabine River Authority (SRA) canal that diverts water directly from the river to the Lake Charles area. The Toledo Bend project recently renewed its Federal Energy Regulation Commission license.

The river is used by recreational anglers from both LA and TX. Hunters also use the river as an access route to private hunting leases and the Sabine Island WMA. Additionally, LA allows commercial fishing on its territorial waters.

Past Control Measures:

Biological:

In fall 2012, giant salvinia weevils (*Cyrtobagous salviniae*) (See table 1 for weevil stockings) were stocked at three sites in Lake Bienvenue. Again in 2013, weevils were stocked in Lake Bienvenue, but this time at four sites. In 2014, giant salvinia (*Salvinia molesta*) surface coverage of Lake Bienvenue remained below 5% throughout the year. This is likely attributable to weevil control as no herbicide treatments were conducted, and all remaining salvinia plants showed some degree of weevil damage.

Table 1. Salvinia weevil stockings on the Sabine River 2012-2017.

Year	Number of weevils	Stocking location
2012	3,600	Lake Bienvenue
2013	5,000	Lake Bienvenue
2015	5,600	Lake Bienvenue
2017	19,285	Burned out Bridge

Chemical:
Due to river flows from hydroelectric generation, treatments are seldom needed on the river proper. Past control efforts were concentrated on the SRA canal, the "burned out bridge" area (primarily the access canal from the public boat ramp to the river), and Lake Bienvenue (a 50 acre lake at the Louisiana Welcome Center). Since the SRA canal is not open to public access, treatments were discontinued there in 2007. In 2012, giant salvinia was found in Lake Bienvenue, and LDWF initiated aggressive spray efforts to control the plant in this small, highly visible water body. No herbicide treatments were conducted in 2014 as giant salvinia coverage never reached problematic levels on public waterways.

Traditional control measures for aquatic vegetation in this area have consisted of diquat (0.75 gal/acre) or glyphosate (0.75 gal/acre) applications for common salvinia control. Parrot's feather (*Myriophyllum aquaticum*) and alligator weed (*Alternanthera philoxeroides*) have been treated with 2,4-D (0.5 gal/acre). See Table 2 for current LDWF herbicide spraying recommendations.

Table 2. LDWF Aquatic Herbicide recommendations

Plant Species	Herbicide	Surfactant
Salvinia sp. (April 1 to October 31)	Glyphosate (0.75 gal/acre) Diquat (0.25 gal/acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
Salvinia Sp. (November 1 to March 31)	Diquat (0.75 gal/acre)	Nonionic surfactant (0.25 gal/acre)
Water Hyacinth (*Eichhornia crassipes*)	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 (undeveloped areas)	Imazapyr (0.5 gal/acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
Alligator Weed (developed areas)	Imazamox (0.5 gal/acre)	Turbulence (or approved equivalent, 0.25 gal/acre)
American Lotus (*Nelumbo lutea*)	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 (*Lemna sp.*)	Diquat (1.0 gal/acre)	Nonionic surfactant (0.25 gal/acre)
Cuban Bulrush (*Oxycaryum cubense*) (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 (*Pistia stratiotes*)	Diquat (1.0 gal/acre)	Nonionic surfactant (0.25 gal/acre)

Table 3. Lower Sabine River System herbicide treatments 2007-2018.

Year	Number of Treatments*	Acres Treated	Primary Vegetation Treated
2007	1	14	Water Hyacinth
2008	4	40	Water Hyacinth, Common Salvinia
2009	2	38	Common Salvinia
2010	2	23	Common Salvinia, Water Hyacinth
2011	0	0	N/A
2012	5	75	Giant Salvinia
2013	2	37	Giant Salvinia
2014	0	0	N/A
2015	2	6	Giant salvinia
2016	1	14	Giant salvinia
2017	0	0	N/A
2018	0	0	N/A**

*For reporting purposes, a treatment is defined as one crew for one day.
** 2018 data as of June 12, 2018

Physical:
During dry conditions and periods of little or no power generation, salinities can reach levels high enough to slow growth rates or kill plants in some areas.

Aquatic Vegetation Estimates:

Biomass:

Predicted for 2018:
Giant salvinia: 10 acres
Common salvinia: 10 acres
Water hyacinth: 20 acres

Limitations:

- Backwater swamps and scar lakes, many of which are private, provide nursery habitat for nuisance aquatic plants.
- No drawdown capability
- Frequent natural transport/dispersal from animals and high river flows.

Recommendations:

Biological Control

Continue public outreach efforts to get private landowners to utilize the LDWF/LSU AgCenter weevil stocking program.

Continue monitoring Lake Bienvenue to assess effects of previous weevil stockings.

Chemical Control

Herbicide selection and application rates will be in accordance with the approved LDWF Aquatic Herbicide Application Procedures. High water during the 2016 and 2017, floods as well as a colder than average 2017/2018 winter, has kept the river clean of nuisance aquatic vegetation. Coverage is expected to be low during 2018, due to starting the year with such low coverage numbers.

Figure 1. Map of southwest Louisiana with the lower Sabine River highlighted in red.