

**LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES**



Office of Fisheries

**Evaluation of the WaterMower for Giant Salvinia Control**

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**Louisiana Department of Wildlife and Fisheries**

**P.O. Box 98000, Baton Rouge, LA 70898**

## **Evaluation of the WaterMower for Giant Salvinia Control**

Following the establishment of giant salvinia in several northwest Louisiana waterbodies, Mr. John Bourque of Elm Grove, LA created The WaterMower. The WaterMower is a pontoon boat-based aquatic weed mulcher. It uses a conveyor belt to transport floating plant material from the water surface into a grinding machine mounted on the boat. After the plant material is shredded by the machine, it is discharged from a chute on the side of the boat. Mr. Bourque has sought an opportunity to demonstrate the capabilities of The WaterMower to the Louisiana Department of Wildlife and Fisheries (LDWF). His intention was to show that this machine was a viable alternative for giant salvinia control in Louisiana.

### **Demonstration Agreement**

During a conversation on April 2, 2013 between LDWF Secretary Robert Barham and Mr. Bourque, an agreement was made to perform a fair assessment of The WaterMower's capabilities during field trials. The agreement included demonstrations to be conducted on two separate sites – one of Mr. Bourque's choosing and one chosen by LDWF staff. Results of both demonstrations would be evaluated by LDWF staff and documented in a written assessment. The purpose of the evaluation was to determine the following:

1. If the equipment could effectively navigate and operate in typical giant salvinia habitat
2. If the equipment could operate as effectively as one LDWF spray crew (i.e., control 25 acres of giant salvinia per day)
3. If the equipment could operate at a cost equal to, or less than materials and manpower costs for one LDWF spray crew (i.e., \$73.00 per acre)



Figure 1. The WaterMower April 26, 2013.

### **Demonstration Site**

At the request of Mr. Bourque, a demonstration was scheduled to take place at the Lake Bistineau State Park boat ramp on April 26, 2013. This site had suitable coverage of giant salvinia for the field trial and offered a quality boat launch that could accommodate the large craft. A section of float boom had previously been placed near the boat ramp to aid in giant salvinia control efforts in the state park area.

No plant material flowed into, or out of the site during the demonstration. The area inside the boom containment was 4.5 acres and was covered by approximately 99% giant salvinia. The salvinia coverage in this site was a single layer of primary growth, the early growth stage of the plant. The state park test site was free of navigational obstructions. Very few trees, logs, or stumps are present in the site.

Mr. Bourque began operating the WaterMower in the test site at 9:00 AM and stopped working at 2:00 PM. LDWF Aquatic Plant Control Biologists measured the amount of open water inside of the boom containment to determine production of the WaterMower. After five hours of work, the WaterMower cleared 2.05 acres of 4.5 acre test site.



Figure 2. View from boat ramp at the beginning of the demonstration.



Figure 3. View to the left of the boat ramp at the beginning of the demonstration.



Figure 4. View from boat ramp after 5 hours of work.



Figure 5. View to the left of the boat ramp after 5 hours of work.



Figure 6. Floating material following demonstration.

### **Salvinia Regeneration**

The WaterMower demonstration of April 26, 2013 allowed an opportunity to compare the results with an earlier study conducted by LDWF. Three years ago, on April 14, 2010, Mr. Bourque demonstrated the shredding capabilities of the WaterMower. The test was limited in scope because local water bodies did not have enough salvinia in open water areas to make practical use of the WaterMower. A demonstration under actual conditions (i.e., giant salvinia amongst trees, stumps, and logs) was not possible.



Figure 7: The WaterMower demonstration in April 2010.

Instead, salvinia from three 15 gallon containers was placed on the conveyor of the WaterMower. The discharged material was deposited onto a large polyethylene tarp. Samples were transported to a controlled environment for observation. No salvinia regeneration occurred throughout the six week test period.

During the April 26, 2013 demonstration, vegetative discharge from the WaterMower was collected from a boat pier within the demonstration site. LDWF biologists transported the material to a

controlled environment for observation. Contrary to the results of the 2010 study, the samples did regenerate into giant salvinia plants. Primary stage salvinia growth was present within a 19 day period. The most obvious difference between the two studies is plant material volume. Total plant material use in the 2010 study was contained in three 15 gallon tubs. The recent observations included much more material and also more accurately reflected actual conditions.

### **Conclusion**

At the rate of production demonstrated by the WaterMower (0.41 acres of giant salvinia / hour), over 60 hours would be required to produce results comparable to one 2-man spray crew work-day. A demonstration that equipment could effectively navigate and operate in typical giant salvinia habitat was not conducted. Mr. Bourque elected not to conduct the remainder of the demonstration as per his agreement with Secretary Barham. A second site was to be included in the demonstration. LDWF staff had selected a site that more closely represents habitat where giant salvinia occurs in Lake Bistineau. A comparison of costs was also not possible. No costs for operation were provided by Mr. Bourque.

The WaterMower did not meet minimum qualifications for LDWF consideration. Notice was provided to Mr. Bourque that his offer to contract services of the WaterMower to LDWF is respectfully declined. However, LDWF staff will remain available for another demonstration under the same agreement upon request.