

## **Interagency Giant Salvinia Control Team**

2<sup>nd</sup> Meeting Karnack Civic Center, Karnack Texas  
February 3, 2010

### ***Welcome from Caddo Lake Institute***

Rick Lowerre, President, CLI  
Provided room, refreshments and lunch for the group.

### ***Giant Salvinia Harvesting***

Jack Canson, CLI

Conducted a 10-day demonstration and trial near Bird Island in an area heavily infested with giant salvinia and water hyacinth. A handout was provided. A \$25K grant from the city of Marshall, a discounted harvester and other in-kind contributions helped make this happen. They were able to test the rate of removal from this type of harvester. Could a mechanical harvester effectively work on Caddo Lake (a flooded swamp)? Previous attempts with harvesters on this lake have had difficulties. CLI found that they could use a harvester. They operated for 100 hours and had no mechanical downtime even though they hit several stumps. The use of a transport barge to move vegetation from the harvester to the off loading area would increase the efficiency of the operation, but funding limitations did not allow for this. The particular harvester used cleared about 2.1 acres in an hour about \$350.70 per acre (not counting the cost of the equipment). Many limitations in harvesting were observed and are detailed in the report (*Mechanical Removal of Aquatic Vegetation at Caddo Lake*). If harvesting is planned, an additional study would be necessary to determine the value of the acre removed, including nutrients, carbon offset, etc. Further investigations are warranted with respect to harvesting. One of the advantages is that harvesting provides immediate relief. Shore fishers were observed to return to fishing almost immediately after plants were removed. The area harvested in this trial was refilled with invasive aquatic vegetation within 30 to 40 days post treatment.

### ***Caddo Lake Giant Salvinia Controls in 2010***

**Caddo Lake Pilot Study**—Howard Elder, TPWD

Last time we talked about building above-ground tanks with traffic barriers and pond liners, however, the cost to transport the barriers was prohibitive even though the barriers were donated. Instead, wooden tanks like those at the USACE Lewisville Facility were considered. These are much cheaper. It was decided to go with these (100 x 20 ft pond) as the long and narrow design allows for the easiest weevil harvesting. Estimated cost to construct this type and design pond is about \$2,000 each. These ponds should be sufficient for 80,000 weevils per pond per year, assuming one harvest per year. A site has been not yet been chosen due to adequate volume and quality waters. Lake waters would be fine, but trucking them becomes prohibitive. Consideration includes the availability of clean water, electricity, shelter from freezing temperatures, etc. Portable

buildings available from FarmTek are being considered as well as pond heaters. Several locations near Caddo were discussed and TPWD will be meeting with these folks soon. Further discussion covered possibilities for maximizing production.

### **Weevil Culture**—Julie Nachtreib, USACE

#### **Weevil Culture boxes**

- Boxes are 5 by 10 ft by 2 ft deep
- The Facility has 20 culture boxes
- August 2009 all boxes were complete
- Weevils peak and Salvinia dies quickly
- 14 boxes have weevils
- 6 just have Salvinia

#### **Winter**

- In a greenhouse she has 6 100 gallon tanks with 650 adult weevils per square meter
- Outdoor boxes were covered with plastic and 4 boxes had deicers (limited by power)
- They may be selecting for cold-hardy weevils

#### **Production**

- Peaked in Summer at 650 per square meter
- Sustaining numbers above 300 per square meter even into this winter
- Hoping for multiple peaks beginning in April or May

### ***Current Weevil Research***

#### **Michael Grodowitz, USACE**

- Working on a physiological age determinations
  - May be different than chronological age
  - Degree days, nutrients and other factors contribute to physiological age
- Can determine reproductive health of weevils over time
- Working closely with Seth Johnson at LSU
- Looking also at effects of herbicides on weevils, including direct and indirect mortality
- Someone should look into the population structure and survivability of different age classes on transported plants

#### **Dearl Sanders and Seth Johnson, LSU**

- Found that weevils will crawl away from bad conditions but will not fly
- This means that weevils must be transported to new areas
- Looking at effects of cold temperatures on Salvinia and weevils.
- This is the coldest period we have had since 1989 (10 years before salvinia was introduced): this year is a good opportunity to hit salvinia populations hard; this opportunity should not be squandered

- Working on improving pond production of weevils

### **Monitoring & Tracking**

- James Everitt (USDA-ARS) and Rod Summy (UT Pan American) were unable to make this meeting
- Syncing application information (weevils/herbicides) with GIS

### **Agency/Organization Control Plans in 2010**

#### **Texas Parks & Wildlife Department - Howard Elder**

- Marketing campaign will increase outreach
  - Everyone should know about giant salvinia
  - Kicks off in April
  - Gas Pump Toppers, Bumper Stickers, Signs
- Has to remind folks that over 300,000 weevils have been released on Toledo Bend., expects increased control
- Earl Chilton and Carter Smith are in favor if these efforts
- Salvinia continues to show up in new lakes
- TPWD encourages quick response
- Weevil rearing project will hopefully continue into 2011 and 2012
- The use of booms to protect treated areas is a good idea to help reveal results

#### **Louisiana Department of Wildlife & Fisheries**

- See Handout
- Videos also on YouTube: Search "Giant Salvinia"

#### **Louisiana State University**

- Looking at a new chemical treatment
- A geneticist is looking for differences between plants from the initial release sites and some of the new ones.
  - It seems that there are differences between different populations
  - There are different species of giant salvinia (not just *S. molesta*)

#### **Texas A&M University**

- Sen. Kay Bailey Hutchinson called about putting together money for a Center for Invasive Species Eradication
- Money should compliment on-going efforts, new techniques, enhancing existing techniques, and go for on-the-ground work
- May be able to provide graduate students for existing efforts

#### **East Texas Baptist University**

- Stand ready to help as they can
- Close to Caddo Lake (20 min)
- Has undergrads to do work
- Can do water quality

### **USACE, Lewisville Aquatic Ecosystem Research Facility**

- Continue rearing and increase production

### **USACE, Engineer Research & Development Center**

- Looking into underlying cause for salvinia invasiveness
  - One is the absence of predators - we are addressing this
  - Another is nutrient levels
    - Looking into helping native plants stay healthy so they may act as nutrient sinks

### **USFWS, Trinity River National Wildlife Refuge**

- Two releases 3 years ago and year ago
- Weevils were introduced into areas where weevils already existed
- Still have giant salvinia
- Looking for more weevils

### **USFWS, Caddo Lake National Wildlife Refuge**

- Working with TPWD

### **USFWS, Red River National Wildlife Refuge**

- Have some isolated spots with salvinia
- Will work with existing rearing teams to get weevils

### **Cypress Valley Navigation District**

- Maintains boat roads and channel markers on the Texas side of Caddo Lake
- Made up of locals
- Works with TPWD
- Hires contractors to spray and keep areas clear

### **Caddo Lake Institute**

- Have had National Fish & Wildlife Foundation grants in the past but not now
- Looking for private sources of money to work with salvinia
- Worked on Harvester project as discussed earlier
- Started a shoreline watch program

### **Northwestern State University**

- Will begin a weevil rearing station this year at their aquaculture facility
- She has a six acre pond that will be used for weevils
- Also has a 20 acre and 70 acre pond available for use if needed

### **Caddo Parish Navigation District**

- Has some funding for fighting salvinia this year
- Is especially interested in what NSU is doing

## ***Control Team Organizational Structure***

- **Weevil Rearing and Release Team:** Howard, Dearl, Seth, Alex, Michael, Juliette, and Julie
- **Locals Talent Team:** Ken, Jack, Larry to help with existing projects
- **Refuges**
- **Central Coordination/Web Site:** David Britton
- **Remote Sensing:** James Everitt and Rod Summy
- **Standards Team:** Julie, Mike, Seth, and Dearl

## ***Actions & Responsibilities***

- **Weevile Rearing and Release Team**
  - Howard, Dearl, Seth, Alex, Michael, Juliette, and Julie
  - Should coordinate strategic releases for this year.
  - Survey work will not start until waters exceed 70 °F.
  - Meeting should be held in approximately Mid-April
  - Juliette Delabbio offered to host the meeting at her facility (Aquaculture Research Center Northwestern State University of Louisiana) - date TBD
  - Need a map to show where weevils have been and will be released in order to be strategic, include James Everitt (USDA-ARS) and Rod Summy (UT-Pan Am) for Imagery
- Dearl and Mike could use some baseline information from James Everitt regarding imagery as we go into the upcoming season. Dearl will contact James.
- Locals Team Ken, Jack, Larry to help with existing projects
- Julie, Mike, Seth, and Dearl should coordinate sampling protocols so that quantitative measures can be compared

## ***Research Questions***

- The direct and indirect effects of herbicides on weevil mortality needs to be evaluated; this will further our knowledge on the most effective treatment tactics
- An assessment of reproductive viability weevils present during releases; specific questions to be answered are;
  - What is the best stage in life to harvest?
  - What is the best stage to release?
- Evaluate release methodologies; is the current method of releasing weevil infested salvinia preferable or would transplanting adults only produce favorable results?
- What effects do thermal conditions have on the weevils and their reproductive capabilities?