

**Aquatic Pesticide Application Plan (APAP) Rev. 3a**  
**September 24, 2022**  
**by: Reclamation District 1601**  
**Sevenmile Slough & Twitchell Island**  
**Sacramento County, CA**

### **History:**

The eradication of Water Hyacinth within Sevenmile Slough has been an ongoing problem for Reclamation District 1601 ("RD-1601") for many years. Cal Boating & Waterways kept the Water Hyacinth level at acceptable levels by herbicide spraying until 2003 when budget cuts required them to discontinue spraying operations. For the next three years, no spraying was done and the water hyacinth level increased to a point that the slough was inundated from side to side and end to end with approximately 55 acres of water hyacinth growth that was two to four feet thick.

### **Scientific Analysis**

RD-1601 hired Hanson Environmental Consultants to determine if the water hyacinth growth created a hazard to aquatic life in the slough. Hanson determined that the dissolved oxygen levels in the slough were so low that the slough could not support aquatic life.

### **Mechanical Harvesting**

RD-1601 retained Aquatic Environments, Inc. in 2007 and 2008 to continue the water hyacinth eradication using mechanical harvesting. This effort failed due to the extreme size of the mats of hyacinth and the fact that the mats were as much as 4 feet thick. The mechanical harvesters could not penetrate the mats. Aquatic Environments switched to using herbicide spraying using airboats that were similar to Cal Boating & Waterways to deliver Aquamaster herbicide. The herbicide was combined with a Crop Oil adjuvant to insure that the herbicide would not stray from the target pests, and it would remain on the exposed leaves of the water hyacinth and penetrate the plants to the roots. Aquatic Environments had limited success, due to their airboat's inability to penetrate the dense "mats" of water hyacinth.

### **Pontoon Boat Operations**

In 2009, RD-1601 elected to undertake the spraying operations with its own forces. We purchased a pontoon boat and spray equipment that is capable of accurately spraying the hyacinth from the edges of the mats. With a concentrated effort of spraying what can be reached with our spray equipment, then waiting for the sprayed plants to die and wither, thus providing access to more spray area; we were successful in reducing the area encumbered by water hyacinth from a high of 55 acres, down to a remaining 2 to 3 acres. This area is

concentrated at the east end of the slough near Owl Harbor Marina. Our plan was to continue our operations by spraying the areas of water hyacinth in small areas and then continuing into new sections of the hyacinth mat when the herbicide reduced the volume of hyacinth to a point that a boat can penetrate. Our goal was to spray the hyacinth at any time that the ambient temperature is above 80 degrees F. This gives the most penetration and most complete eradication.

We traversed Sevenmile Slough from time to time during the hyacinth's peak growing season (April to November) to perform maintenance spraying of any segments of the plant that may break off from the large mat at the east end and float west. **All segments had to be eradicated or propagation would begin anew.**

Our spraying procedures called for controlled spraying from our pontoon boat on windless or very low wind days. We therefore have good control of the herbicide propagation. The herbicide is mixed with an adjuvant (Crop Oil) to prevent it from being blown from the location where it is deposited. The herbicide/adjuvant mixture is done in the RD-1601 maintenance facility on a concrete floor with cleanup equipment at the ready in the event of any spillage. The mixture is then transported to the boat and loaded into a reservoir on the boat that is designed to receive and safely hold the material as it is being diluted and mixed with water that is pumped in from the Slough. The mixture is metered to comply with the FIFRA labeling of the Aquamaster and then sprayed through a pump/hose and nozzle system directly onto the water hyacinth. Since spraying is done on windless or very low wind days we are able to control the overspray to prevent spraying of any other plant life.

We have successfully used this APAP from April of 2008 through November of 2008. The schedule was repeated during 2009, 2010 and 2011.

We did maintenance spraying as necessary; always from our pontoon boat that is dedicated to spraying operations, always on windless or very low wind days and always focusing the herbicide application on the target plants.

Our forces are well trained and experienced in these spraying procedures and are intimately familiar with Sevenmile Slough. We reduced the 100% coverage of water hyacinth that had previously lowered the dissolved oxygen level in the slough to a level that precluded fish of any species. Through our continuing efforts, the level of safety for fish was maintained and the marine habitat was returned to a healthy level.

### **Proposed 2022 Operational Revisions to APAP**

Cal Boating and Waterways sprayed herbicide in Sevenmile Slough until their funding ran out in 2019. RD-1601 has been unable to continue spraying operations with our pontoon boat since it was damaged beyond repair. We are

in touch with a commercial drone operator that is currently retained by the Mosquito Abatement district to perform vector control in our area.

We propose to modify our APAP to include the spraying of aquatic pests using a pontoon boat as described in our original APAP and also using low-flying agricultural drones that are capable of performing the same type of spraying that we previously did from our pontoon boat. The drones have the significant advantage that they do not have to motor through the water hyacinth (which is sometimes four feet thick) to deliver the herbicide. They can, instead fly just above the tops of the aquatic weeds to deliver the same herbicide and adjuvant that we have been delivering from our pontoon boat. We wish to reserve the use of a pontoon boat in the event that the described agricultural drones are not available and we wish to return to spraying with a pontoon boat.

Under this APAP revision the drones can be used to improve the water quality and dissolved oxygen levels in Sevenmile Slough to permit aquatic life to once again occupy the slough.

The use of drones flying just above the aquatic weeds will also allow us to clear the drainage canals and areas of adjacent standing water on Twitchell Island. These canals and adjacent areas of standing water were not previously accessible by our pontoon boat due to their narrow width.

Our drone spraying procedures will be similar to the controlled spraying from our pontoon boat. Spraying will be restricted to windless or very low wind days. This provides good control of the herbicide propagation. The herbicide is mixed with an adjuvant (Crop Oil) to prevent it from being blown from the location where it is deposited. The herbicide/adjuvant mixture is done in the RD-1601 maintenance facility on a concrete floor with cleanup equipment at the ready in the event of spillage. The mixture is then transported to the takeoff and landing area of the drone and loaded into a reservoir on the drone that is designed to receive and safely hold the material during flight. The mixture is metered on the drone to comply with the FIFRA labeling of Aquamaster and then sprayed through the drone delivery system directly onto the aquatic weeds. Since spraying is done on windless or very low wind days, we will be able to control any possible overspray to prevent spraying of any other plant life.