

Progress Report for Marinette County Hydrilla Rapid Response Project Phase 1 (AIRR-033-08)

In the summer of 2005, *Hydrilla verticillata*, an aquatic invasive plant native to Asia, was found growing in a 1.5 acre excavated private pond located in central Marinette County. Originally it was thought to be *Elodea Canadensis*, a common native aquatic plant. However, because the pond had been stocked with plants purchased from out of Wisconsin, and the so-called *Elodea* looked "funny", the landowners sought an exact identification. In July of 2007 a number of experts including Dr. Mike Netherland of the US Army Corp of Engineers (USACE) concluded that the plant was indeed *Hydrilla*.

The Marinette County Land and Water Division (LWCD) was asked by the Wisconsin Department of Natural Resources (WDNR) to sponsor an Aquatic Invasive Species Rapid Response grant to fund eradication and monitoring of the hydrilla. The Department of Agriculture, Trade and Consumer Protection (DATCP) took the lead in dealing with the hydrilla discovery since the pond was licensed as a fish-rearing facility by that agency. A team composed of staff from DATCP, WDNR, USACE and LWCD was developed to determine a response plan. The pond owner's also played a cooperative and active role in plan implementation.

Hydrilla had spread widely throughout the shallow half of the pond and scattered shallow areas around the perimeter of the deep half of the pond since its initial sighting by the owner. It was growing just below and up to the surface of the pond. Greg Sevener, WDNR Watershed Specialist viewed the deep half of the pond with an underwater camera lowered from a boat. He did not notice hydrilla or much of any vegetation growing on the bottom of the deep area, which was up to 12 feet deep. The owner had not placed any sediment over the liner bottom in the deep half of the pond except around the upper edge. The owner had also placed a blue dye in the pond. This may have limited light penetration in the deeper areas.

August 29, 2007 Aquatic Biologists Inc. (ABI) treated the pond with liquid Aquathol K at 3ppm following the treatment plan developed by the response team. Greg Sevener, Bob Gutknecht from the DATCP Pesticide Section, and Brooke Sanneh from the DATCP Plant Industry Division were present to observe the treatment. John Skogerboe from the USACE and representatives from the United Phosphorus Inc. (which markets Aquathol K) visited the site on that date since they were in the vicinity. Paul Leisten from Aquatic Biologists treated the pond from a company boat. The treatment completely killed the vegetative portion of the hydrilla, reducing the possibility of it being carried to another water body before, during or after the planned dewatering of the pond.

October 19, 2007 Klieman Well Drilling from Iron Mountain, MI began draining the pond. The response team had suggested that the pond be completely dewatered to freeze hydrilla tubers and propagules to render them incapable of germinating in the spring of 2008. A centrifugal pump, with a pumping rate of 60,000 gallons/hour, took three days to drain the pond. Smaller pumps were also needed to pump out the small depressions in the shallow area of the pond. Water was pumped onto upland owned by the pond owners. It quickly soaked into the native sandy soils. The pond owner and Greg Sevener emphatically informed the Klieman staff about the importance of thoroughly flushing and cleaning the equipment after the pumping was completed to avoid accidental transport of hydrilla propagules. The pond owners maintained the small depressions of the pond bottom by pumping them as water drained into them. Greg Sevener instructed the pond owners to facilitate sediment drainage and drying as much as possible prior to freezing.

November 2, 2007, after the pond's sandy loam bottom sediment had drained and dried to enable walking over it, Chuck Druckrey (LWCD), Greg Cleereman (LWCD) and Greg Sevenser visited the pond to view it and excavate for tubers. No hydrilla plant mass was visible. Very little root structure was encountered in the soil when excavated by hand. Two separate areas of the pond bottom, that previously had a lush growth of hydrilla, were searched for hydrilla. The search areas with dimensions of 2.2 and 1.7 square feet respectively, were excavated approximately seven inches deep. The sandy loam soil was screened using a sifting device made by LWCD staff. Twelve tubers in total were collected from the two excavations.

Greg Sevenser took the tubers to the WDNR Peshtigo office. Greg planted tubers in two different quart milk containers with the native pond soil. One container was left in the heated wet lab while the other was placed in a freezer. Hydrilla tubers germinated in the container left in the warm lab after 3 to 4 weeks. After a month had passed, the frozen container was taken out, filled with water, and left in the warm wet lab. The frozen tubers did not germinate. This indicated to us freezing does impact the tubers capability to germinate.

During the winter of 2007-2008 the pond owners, who are official weather observers, kept a record of frost depth with an officially installed frost-measuring probe on their property. Frost was found to have penetrated at least 11 inches into the soil prior to snow cover. When the snow melted Greg Sevenser, with the help of the pond owners, excavated six square feet of pond sediment and sampled. Eleven tubers were found which exhibited variable color and consistency. They were blackish colored to white and most were mushy except one, which was firmer to touch. Greg Sevenser took the tubers back to the Peshtigo Office wet lab and planted them in the native pond sandy loam within an aquarium. None of the 11 tubers germinated in the aquarium.

May 29, 2008 Chuck Druckrey visited the pond with John Skogerboe and Paul Leisten to locate any germinating hydrilla. They used an underwater camera to view the partially filled pond and also walked around the perimeter. No hydrilla was seen growing during the visit.

June 17, 2008 ABI treated the refilled pond with Sonar-Q solid formulation of fluridone at a rate of 30 ppb as recommended by Dr. Koschnick from SePRO Company and the technical team to prevent the growth of any still viable hydrilla propagules. Greg Sevenser stopped by the pond a day after the treatment and noted the tablets slowly dissolving on the bottom of the pond.

July 25, 2008 the pond owner took a grab sample of pond water on and the concentration of fluridone was determined to be 16.7 ppb. The pond owner was given instructions by the SePRO Company to take a grab sample every 30 days during the summer. The pond owners then sent the sample using overnight shipping to a lab to perform a test for fluridone concentration. Dr. Koschnick from SePRO recommended maintaining a fluridone concentration of 5 - 10 ppb in the pond throughout the growing season to kill any new hydrilla growth.

August 24, 2008 the owners took another pond water sample. The fluridone concentration was determined to be 9.8 ppb. This concentration was still well within the directed range of 5 to 10 ppb to remain viable for killing any germinating hydrilla.

Greg Sevenser visited the pond a few times during the growing season when in the area and noted an absence of hydrilla when walking around the pond. The pond owner was also watching to note any growth of hydrilla and saw no growth. There was a lush growth of chara in the shallow area of the pond and other emergent plants along with a small pondweed and some yellow floating heart. The pond owner has been working to physically remove the yellow floating heart.

After the 2008 growing season little was done on the project except for administrative activities until July 2009. On July 8, 2009 Greg Sevenser and Chuck Druckrey visited the pond and did a thorough reconnaissance. The pond was at its normal fill level and no blue dye was present

which may have impaired inspection of the pond. The inspection began with Sevenser and Druckrey slowly walking the entire pond perimeter. Both individuals were wearing polarized sunglasses, which cut water surface glare. They then used a boat to search deeper areas, once again wearing polarized sunglasses. They also used an Aqua-scope and underwater camera. The dominant vegetation on the bottom of the pond was *chara*. There was also a fine leafed *potamogeton* and possibly spikerush. Cattails were present but exhibited browning, possibly residual effects from the earlier chemical treatment. Scattered growth of yellow floating heart was still apparent. No visual evidence was found of hydrilla.

July 9, 2009 Greg Sevenser forwarded an email to Greg Cleereman that instructed him to close out the grant.

August 2009 the grant was closed.