

## Coventry Lake Invasive Species Management 2021

The 2021 approach to invasive *Hydrilla verticillata* (Hydrilla) management in Coventry Lake will be similar to the past season. The main Hydrilla management technique will be another lake-wide low-dose fluridone systemic herbicide treatment, aimed at 2.5ppb. Since 2018, fluridone use has been extremely effective against existing Hydrilla beds in the lake. The fluridone treatments (Sonar One) were also extremely effective against invasive *Myriophyllum spicatum* (Eurasian milfoil), with minimal impacts to many of the native aquatic plants present in the lake. As in 2020, the fluridone treatment will begin around the first week in July and the target concentration will be maintained for at least ninety days.

Prior to the herbicide treatment, intensive aquatic plant surveys will be performed to document all native and invasive species present in Coventry Lake. The first survey, in June, will specifically search for low-frequency patches of the state-listed aquatic plants *Potamogeton vaseyi* and *Lipocarpa micranthra*. This survey will include inspections at all previously known Hydrilla locations. Areas where state-listed aquatic plant species are found in close proximity to invasive Hydrilla patches will be protected from herbicide exposure using limno-barriers, if deemed necessary. The full-lake comprehensive aquatic plant survey will be performed in early July. This survey will document the presence and density of all native and invasive aquatic plants, and will search the littoral zone for any new Hydrilla patches or regrowth. Fluridone herbicide treatment will begin at this time.

There will be at least two mid-season follow-up “checks” on previously known Hydrilla patches to observe how the herbicide affects growing Hydrilla. These “checks” will include a snorkel search for Hydrilla in the western island cove. The snorkel search will provide much more detailed information about potential small Hydrilla patches that are not readily visible from the surface and may be present at low densities that escape detection via weed-raking survey techniques. Any Hydrilla beds will be marked with a GPS, and treatment applicators will follow-up with direct fluridone pellet applications to increase dosage within persistent Hydrilla patches. If any Hydrilla appears unaffected by the fluridone by September, managers will make the decision to follow-up with either a contact herbicide spot treatment, hand-removal, or benthic barriers.

Protection of *P. vaseyi* with limno-barriers will be most important if a follow-up contact herbicide is needed to target small areas of persistent Hydrilla growth. A small contact herbicide treatment, in addition to fluridone, is most likely the best approach for any persistent Hydrilla in the shallow western island cove (41.772082, -72.316697). This cove was the only location where Hydrilla was seen to persist after fluridone treatment in 2020. A contact herbicide treatment would be less than 5-acres to avoid impacts to native species in the cove. The late-season 2020 presence of scattered small Hydrilla patches in this cove was attributed to the apparent dilution of fluridone near a stream inlet. Therefore, the 2021 plan also calls for a turbidity curtain placed perpendicular to the inflowing stream current, in an attempt to diffuse and slightly reroute inflow. The reroute strategy may prove effective in supplying freshwater to the nearby *Potamogeton vaseyi* bed, which is known to grow near the potential contact herbicide treatment shoreline. The feasibility of the turbidity curtain will be determined early in the 2021 season.

If funding allows, we would also like to establish a Hydrilla tuber monitoring program. The monitoring would focus on the previously known large beds of Hydrilla: 1. In the boat ramp cove, 2. The outer island area, which was previously covered by benthic barriers during the 2018-2019 initial fluridone treatments. Additional sampling sites can also be incorporated into the study design, but will be

dependent on available funding for this research and education part of the Coventry Lake Hydrilla Management project.

Tuber (and turion) sampling procedures would aim to take at least 30 sediment core samples in each area, but more samples may be necessary if tuber density is very sparse. Exact tuber sampling locations would be tracked using a transect and quadrat sampling method. Hydrilla tubers can remain viable in the sediments for up to seven years. Tuber density should decline over time with sustained years of fluridone treatment. Tuber density will also help determine when it may be appropriate to stop, or break from, full-lake fluridone treatments. Long-term Hydrilla eradication from Coventry Lake will only be possible if we understand the regrowth potential from various sediment tuber banks. This tuber sampling would be designed in a way that would make it easily reproducible by UCONN Avery Point scientific divers (AAUS certified divers). Depending on the first year of tuber sampling results, monitoring can be done by students interested in carrying out a long-term Hydrilla research and management study.

The end goal is to eliminate Hydrilla in Coventry Lake, but it is not feasible to treat Coventry Lake with systemic herbicides for an indefinite amount of time. In future years, where fluridone treatments are not performed annually, tuber sampling and underwater transect surveys will become essential to plan for a long-term treatment schedule.

As in previous years, all aquatic plant survey, sampling, and treatment data will be compiled with appropriate maps and site photos in a year-end 2021 Coventry Lake Hydrilla Management report.

### **Timeline of Management Action:**

May 2021:

1. Site inspection and plan for potential stream plume diffusion at western island cove Hydrilla site (41.772082, -72.316697).

June 2021:

2. NDDDB search for state-listed aquatic plants, maps produced of all state-list species, follow-up communication and reporting to DEEP
3. Inspect previously known Hydrilla locations and determine if any growth is visible
4. If growth is visible, consider beginning fluridone treatment ASAP

Early July 2021:

5. Comprehensive aquatic plant survey and detailed lake-wide search for Hydrilla

Late July 2021:

6. Begin snorkel survey in area where Hydrilla persisted after the 2020 fluridone treatment
7. Underwater tuber sampling at the two large, previously known Hydrilla beds. Tuber sampling will note if any Hydrilla tubers or turions have sprouted in these areas and attempt to determine viability of any non-sprouted tubers.

August 2021:

8. Mid-season 'check' on *Potamogeton vaseyi* and any Hydrilla patches
9. Finish snorkel survey, underwater growth inspections, and tuber sampling
10. Concentration testing and booster treatment to maintain appropriate fluridone concentrations; boost concentration immediately around any Hydrilla patches found during the July survey or underwater search/samplings.

September 2021:

11. Follow-up check on areas of concern, if deemed necessary. If any Hydrilla still present and seemingly unaffected by fluridone, choose between a contact herbicide spot treatment, hand-pulling, or benthic barriers. In all cases, ensure appropriate *P. vaseyi* protection measures.
12. Maintain good communication and send status report to community members

Late Sept-Early October 2021:

13. Post-treatment survey of all native and invasive aquatic plant species

December 2021:

14. Complete final 2021 management report