

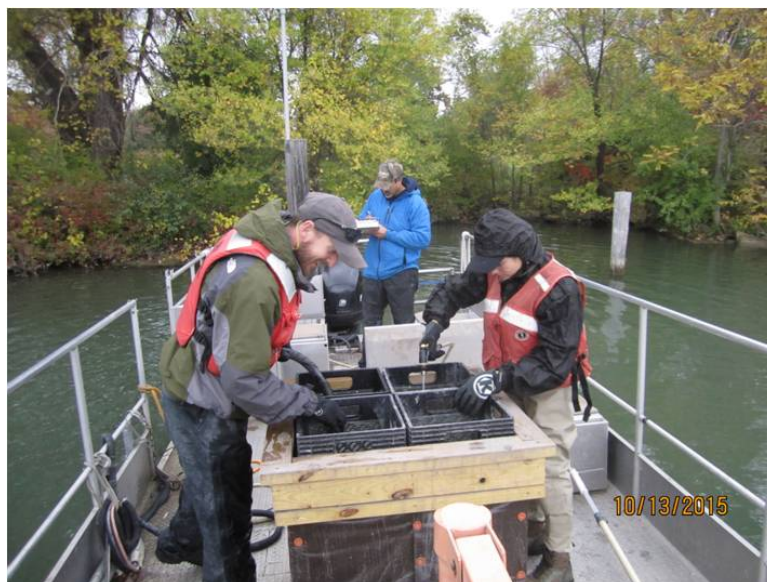
APCRP: Linking Plant Biology with Management Strategies to Improve Control of Monoecious Hydrilla

Capability

The monoecious biotype of hydrilla is encroaching on unique water resources in the Northern Tier states, and spread of this exotic invasive plant into lakes, rivers, streams, and reservoirs is of significant concern to resource managers throughout this region. There are numerous ongoing eradication projects for hydrilla in the Northern Tier states; however, a more in-depth understanding of the linkage between the biology of monoecious hydrilla and environmental constraints to growth will be valuable to resource managers responsible for planning and implementing future hydrilla management and eradication projects. The objective of this research is to

develop an improved understanding of monoecious hydrilla invasion biology in northern latitudes via laboratory, mesocosm, and field trials. This work will focus on factors that influence tuber sprouting, growth rates under varying environmental conditions, and initiation of tuber production in northern lakes. Various management strategies will be evaluated at the mesocosm and field scale. Improved plant phenology information will allow resource managers to optimize strategies for control and eradication efforts.

Current hydrilla eradication programs can take five to seven years, and a key point of emphasis for this research is to provide managers with information regarding timing of managements and adapting treatments to changing conditions as tuber banks and plant distribution and density decline. Novel approaches towards managing small remnant beds of hydrilla are being developed for field testing in 2016 and 2017.



Hydrilla tuber sampling in the Erie Canal, NY with collaborating partners from the Buffalo District and NY DEC. Intense sampling during multiple times of the year is an important component of this hydrilla control demonstration project. The information from this project will be disseminated to managers throughout the Northern Tier states.

Applications

A hydrilla control demonstration project on the Erie Canal illustrates how this plant biology information can lead to adaptive management. Based on laboratory and field information, herbicide treatments were planned to manage hydrilla in over 15 miles of the canal. After two years of intense management in 2014 and 2015, current hydrilla distribution and tuber densities suggest managers can adapt strategies to more specifically target plant beds. This will allow for significant cost savings and reduced herbicide usage through the life-cycle of hydrilla eradication and control projects. This information was obtained via intense monitoring efforts and significant collaborations between ERDC, the Buffalo District, NY DEC, and U.S. Fish and Wildlife Service.

Status

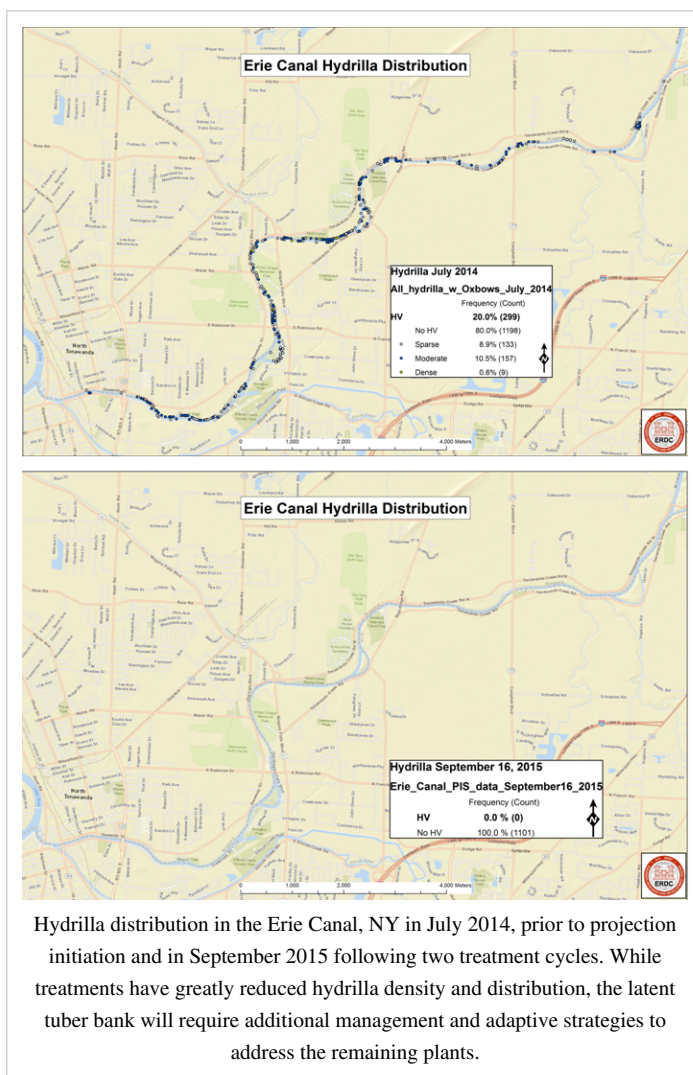
This research is being funded by the Aquatic Plant Control Research Control Program. This work was initiated in FY13 and is scheduled to run through FY18.

Documentation and References

- Netherland M.D. and Greer M 2014. Establishing Research and Management Priorities for Monoecious Hydrilla. ERDC/TN-APCRP-MI-8. <http://el.erdcl.usace.army.mil/elpubs/pdf/apcml-08.pdf>
- Netherland, M.D. 2015. Laboratory and Greenhouse Response of Monoecious Hydrilla to Fluridone. J. Aquat. Plant Manage. 53:178-184. <https://protect.fireeye.com/url?k=6bd7e3d2-879a-40c0-9c86-b45eb24e924e&u=http://apms.org/wp/wp-content/uploads/2015/02/japm-53-02-178-abstract.pdf>

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