

Swollen Bladderwort in Pottapaug and O'Loughlin Ponds Prevention, Response, and Management

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Commonwealth of Massachusetts

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Lieutenant Governor

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DCR Mission

*To protect, promote and enhance our
common wealth of natural, cultural
and recreational resources
for the well-being of all.*



Core Principles

Provide access to a diversity of outdoor recreational experiences and unique landscapes that is equitable, inclusive, and welcoming.

Conserve lands, water, and forests by integrating science, research, and technical expertise into the management of our natural resources.

Advance climate change mitigation and adaptation efforts by implementing sustainable practices and advancing resiliency across our infrastructure, assets, and resources.

Support healthy communities by providing places for people to connect with nature and each other.

Inspire generations of stewards by recognizing and honoring our legacy through partnerships, public, engagement, and education.

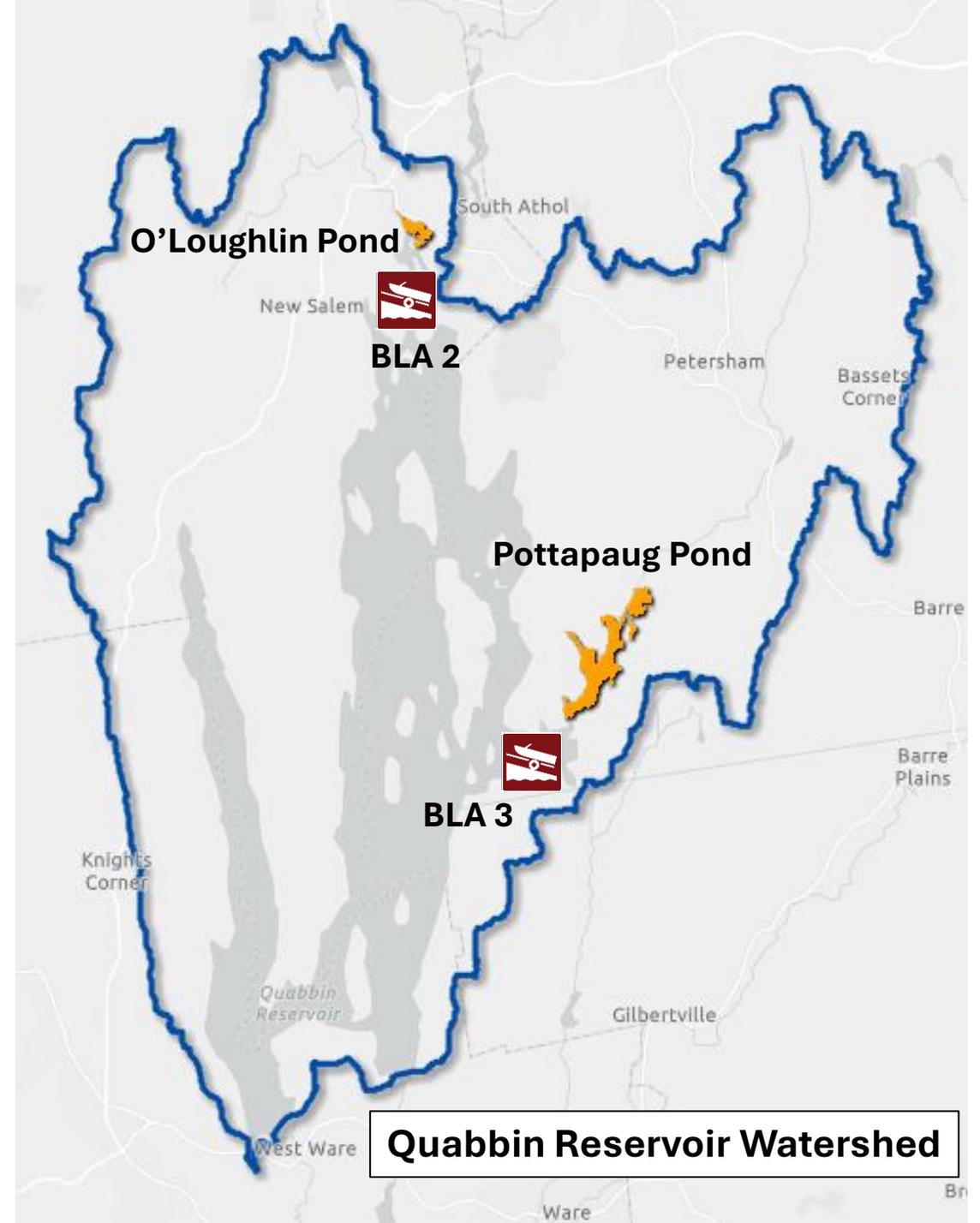


DCR-DWSP Mission, Guiding Legislation

- The Division shall...utilize and conserve said water and other natural resources in order to protect, preserve, and enhance the environment of the Commonwealth and to assure the availability of **pure water** for current and future generations.
 - Chapter 372, Acts of 1984
- The natural ecology of the district shall be maintained, and it shall be conserved in its present degree of wilderness character and shall be protected in its flora and fauna in all reasonable ways to assure the balanced wildlife habitat... Except as otherwise specifically authorized herein, no act or practice shall be undertaken with will adversely affect the balance of nature in the district.
 - Acts of 1972, Chapter 737 (Kelly-Wetmore)

Outline

- AIS definition
- Biology/ecology
- Methods of transport
- WQ and ecological impacts
- Discovery and Response
- Recommendations
- Management Goals
- Questions



What is an Aquatic Invasive Species?

- Is Non-Native
 - May also be called Exotic, Nonindigenous, or Alien Species
- Fully or Partially Aquatic
- Able to reproduce and outcompete native species
- Has an overall **NEGATIVE** impact on native species, the environment, or may cause human harm



Swollen Bladderwort (*Utricularia inflata*)

- Also known as inflated bladderwort
- Shallow and calm waters (coves)
- Native to southern US – **not native to MA**
- Free-floating (not rooted)
- Carnivorous plant – get nutrients from digesting zooplankton
- Floats/pontoon and flower above water
- Easily confused with little floating bladderwort (*U. radiata*) – native
 - Swollen bladderwort is **generally larger** with **more flowers** and **denser underwater sections**. They also have an earlier growth and decay season than the natives.



How is Swollen Bladderwort Transported?

- **Fragmentation** - a small fragment of the stem or branches can create a new plant
 - Caused by propellers, fishing gear, boats (including kayaks/canoes), and trailers
 - Fragments can flow into other areas – high risk of transport from Pottapaug Pond to the Reservoir due to high water flow
- Example introductions:
 - Adirondack Mountain Lakes – method of introduction unknown but all three lakes have **public boat launches** (*Titus et al. 2009*)
 - [Pleasant Pond, ME](#) – Courtesy Boat Inspectors removed swollen bladderwort from a motorized boat **exiting the boat launch**. Follow-up survey confirmed presence at both upper and lower boat launches.
 - [Rhode Island](#) – in 2017, only present in 6 waterbodies. In 2024, this had increased to 11 waterbodies (*RI DEM*)



Water Quality and Ecological Impacts of Swollen Bladderwort

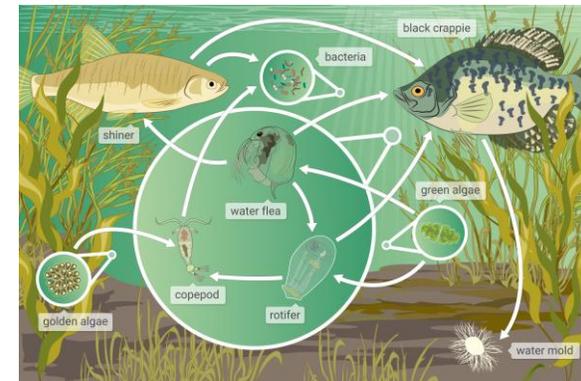
Impact to drinking water

- Reduces oxygen in sediments (*Urban et al. 2009*)
 - Could lead to release of sequestered nutrients into the water column
 - Could lead to an increase in algae levels



Impact to fisheries and food webs

- Reduce prey for juvenile fish
 - Swollen bladderwort caught more prey than native bladderwort
 - Prey composition in swollen bladderwort bladders
 - higher number of zooplankton vs. phytoplankton and higher number of rotifers (*Gordon and Pacheco, 2007*)
- Reduced vegetation variety (*Schultz and Dibble, 2011*)
 - Foraging efficiency decreases (prey can hide and escape in dense mats/stands) = decreased fish growth
 - Reduction in fish density, diversity, and survival rates



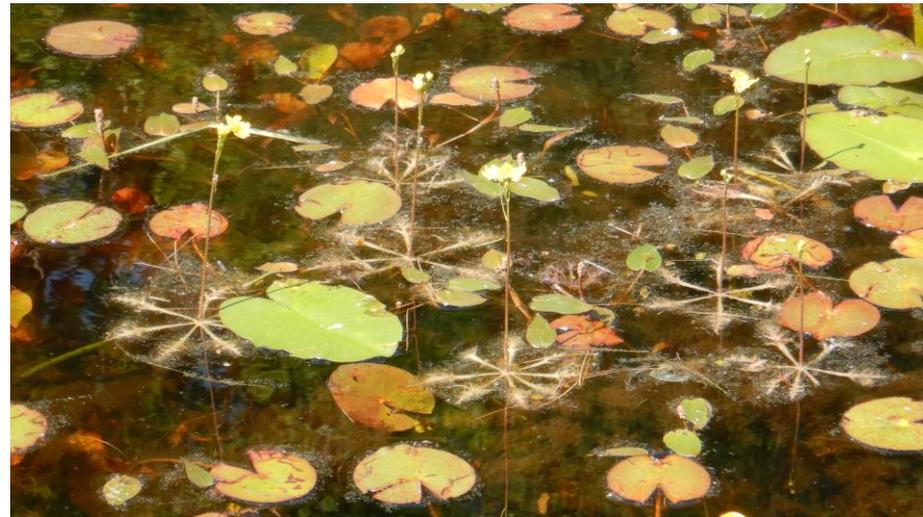
Discovery and Response Timeline - 2023

- Discovered by DCR staff during fragment barrier check
 - Pond survey by DCR to assess presence and density on Pottapaug Pond
 - Pond closed to private boat fishing (2023 – Present)
 - Removal efforts conducted by DCR and contractor hired by the Massachusetts Water Resource Authority (MWRA)
 - Total amount of plant material removed: **115 gallons**



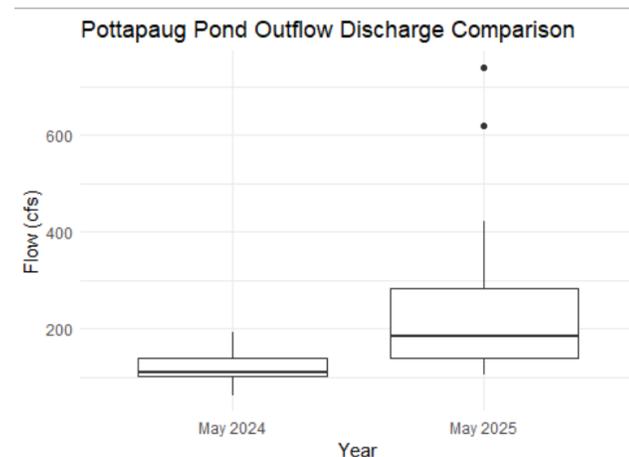
Discovery and Response Timeline - 2024

- Monitoring and removal efforts continued
 - DCR confirmed presence at O'Loughlin Pond
 - All boat fishing (private and rental) was restricted on Pottapaug and O'Loughlin Ponds (2024 – Present)
 - MWRA hired contractors to conduct removal efforts at Pottapaug and O'Loughlin Ponds
 - Total amount of plant material removed: **1,527 gallons**

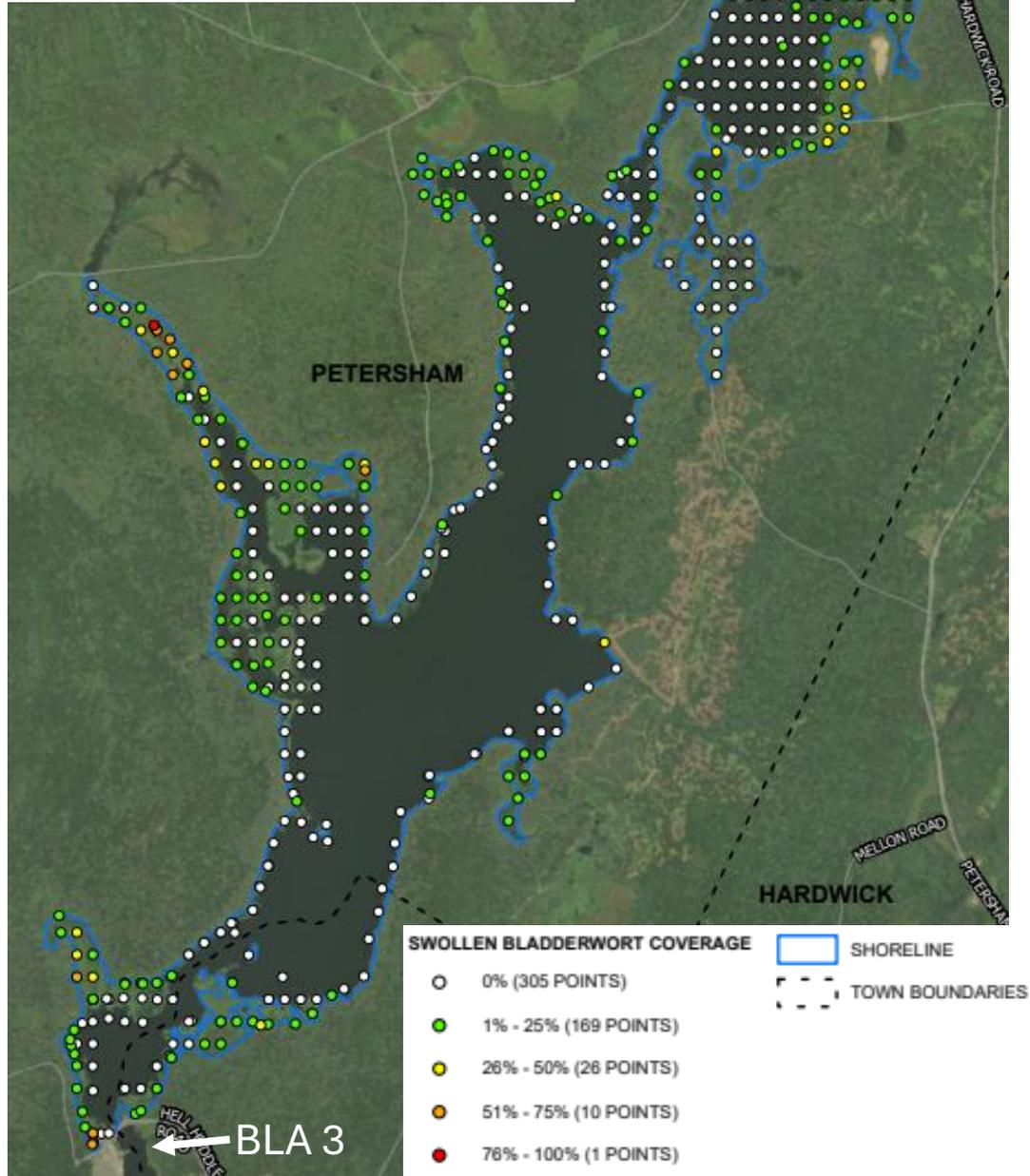


Discovery and Response Timeline - 2025

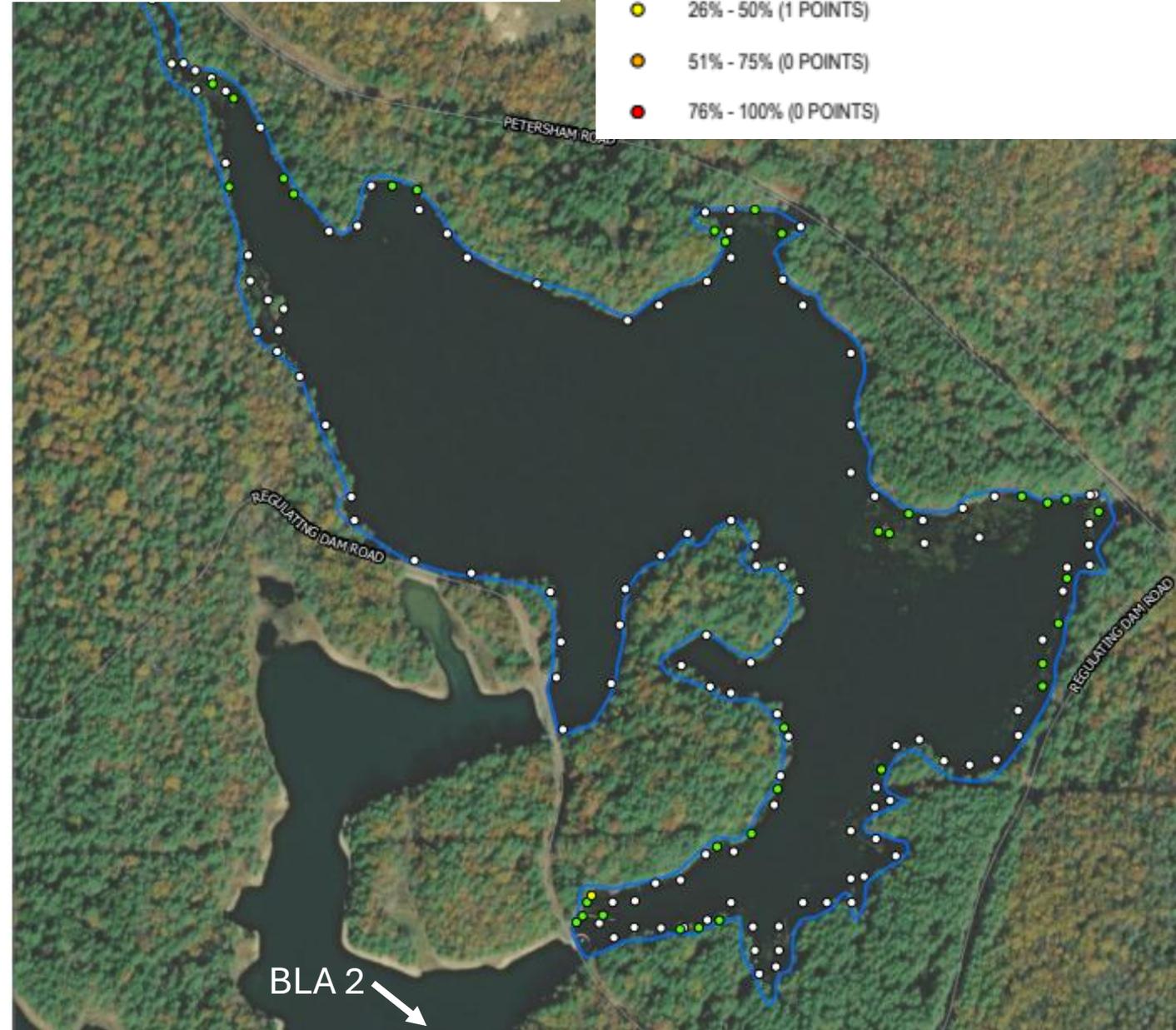
- Monitoring and removal efforts continued
 - DCR installed a fragment barrier at the mouth of the first western cove - prevents spreading
 - MWRA hired contractors to conduct removal efforts at Pottapaug and O'Loughlin Ponds as well as investigate areas on the Reservoir near Boat Launch Area 3
- Total amount of plant material removed: **323 gallons**
 - Reduction in removal amount most likely due to a “bust” year – few plants were blooming making identification difficult and increasing the effort required to locate plants
 - Water levels in 2025 were much higher and more variable than in 2024



2024 Swollen Bladderwort Coverage – Pottapaug
(TRC, 2024)



2025 Swollen Bladderwort Coverage – O'Loughlin
(TRC, 2025)



2025 TRC Report: Boating-Related Risk and Recommendations

Page 10: Boating-Related Risk

- Motorized boat use increases risk of swollen bladderwort spread
 - *“The potential for the spread of swollen bladderwort increases significantly when a water body is used by boats, especially motorized boats, which are more likely to cause fragmentation and facilitate dispersal of the plant.”*
- Restrict public boating
 - *“Given current distribution and density of swollen bladderwort on Pottapaug and O’Loughlin, a conservative and prudent approach would be to restrict all public boating on the ponds until plant densities have decreased.”*
- Decontaminate boats between holding ponds and the Quabbin Reservoir
 - *“Boats should not be allowed into Quabbin Reservoir after visiting a regulating pond like Pottapaug Pond or O’Loughlin pond without decontamination.”*
- Allow boating only in specific areas with little or no plants
 - *“However, a more pragmatic approach could allow boating in areas where plants are not present above trace levels (i.e. no areas of contiguous plant cover).”*

2025 TRC Report: Recommendations for Future Management

Pages 9 and 10: Water-Level Drawdown, Benthic Barriers, and Herbicide

- Herbicides, water level drawdowns, and benthic barriers are **not recommended**

Page 11: Recommendations

- Continue harvesting in the early season (as early as May)
- Conduct pre-harvest surveys
- Prioritize Quabbin Reservoir
- Conduct a pre-harvest survey in Quabbin Reservoir near Boat Launch Area 2
- Focus harvest efforts at O'Loughlin first, then move to Pottapaug
 - Substantial control of bladderwort possible at O'Loughlin
 - Eradication at Pottapaug not realistic

DCR/DWSP Management Goals and Priorities

Primary Goal

- Prevent establishment in the Quabbin Reservoir
 - Locate and remove all plants
 - Prevent the spread from Pottapaug and O'Loughlin into the reservoir

Secondary Goal

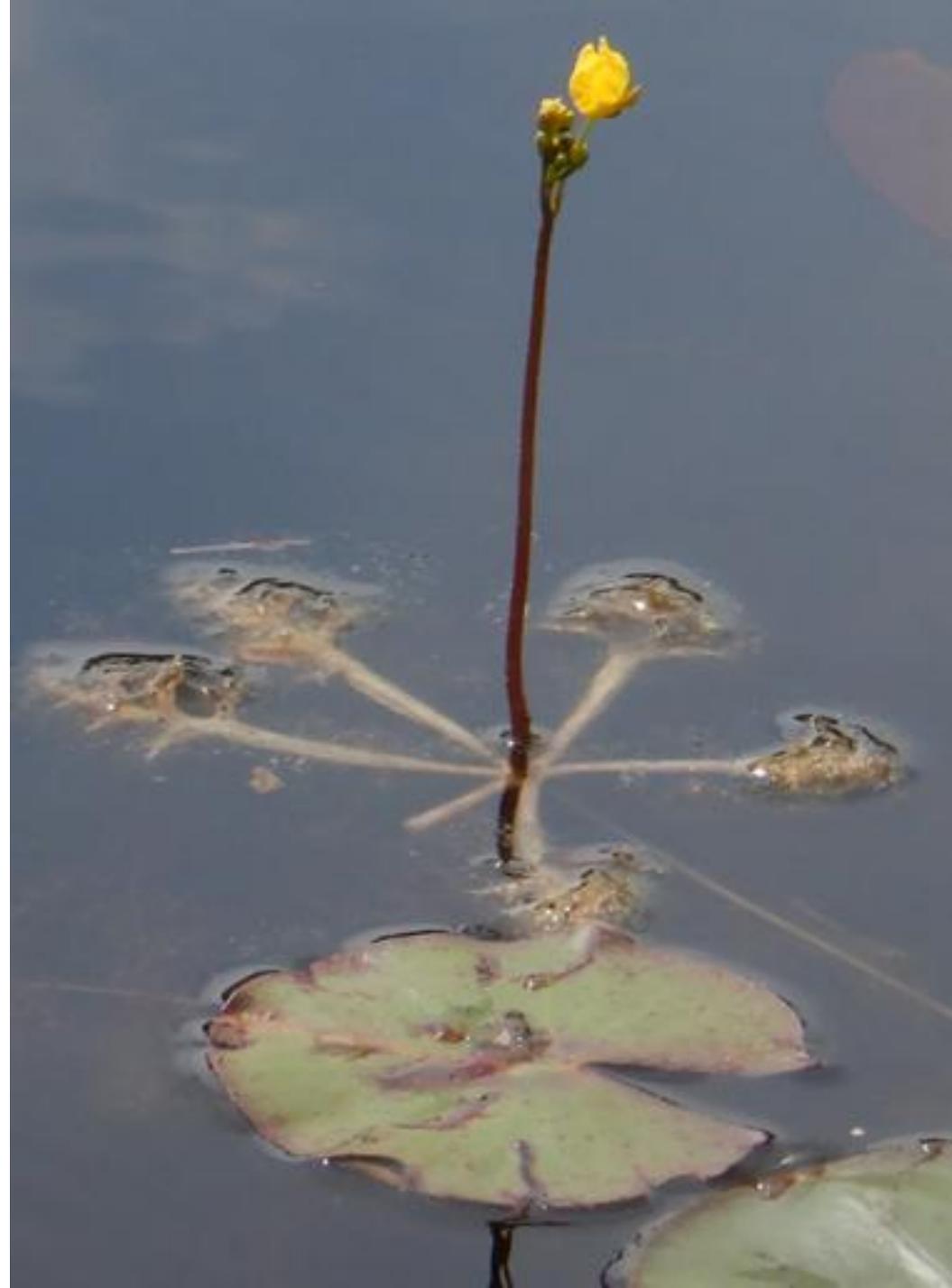
- Try to eradicate plant from O'Loughlin Pond
 - Due to much lower density – eradication may be possible within the next few years
- Continue management in Pottapaug Pond
 - Decrease density in prioritized areas (areas closest to the reservoir)
 - Prevent population expansion
 - Prevent spread into new areas within the pond
 - Deploy additional fragment barriers
- Prevent the spread of bladderwort to other MA waterbodies via boat/trailer transport

Thank you!

Questions?

Deadline to submit public comments is **February 20, 2026**

[Comments can be submitted via the DCR public comment portal.](#)



References and Resources

- **Titus, J. E., and Gris , D. J. (2009).** The invasive freshwater macrophyte *Utricularia inflata* (inflated bladderwort) dominates Adirondack Mountain lake sites1. *The Journal of the Torrey Botanical Society*, 136(4), 479-486.
- **Urban, R. A., Titus, J. E., and Zhu, W. X. (2006).** An invasive macrophyte alters sediment chemistry due to suppression of a native isoetid. *Oecologia*, 148(3), 455-463.
- **Gordon, E., & Pacheco, S. (2007).** Prey composition in the carnivorous plants *Utricularia inflata* and *U. gibba* (Lentibulariaceae) from Paria Peninsula, Venezuela. *Revista de biolog a tropical*, 55(3-4), 795-803.
- **Schultz, R., and Dibble, E. (2011).** Effects of invasive macrophytes on freshwater fish and macroinvertebrate communities: the role of invasive plant traits. *Hydrobiologia (2012) 684: 1-14.*
- **Titus, J. E. (2013).** Invasion in progress: *Utricularia inflata* in Adirondack submersed macrophyte communities. *The Journal of the Torrey Botanical Society*, 140(4), 506-516.
- [Swollen Bladderwort: An Exotic Aquatic Plant \(MA DCR \)](#)
- [Inflated Bladderwort: Fact Sheet \(NH DES \)](#)
- Swollen Bladderwort Control Reports (Mass.gov) - 2023, 2024, and [2025 TRC reports](#)