

A scenic view of Lake Maspenock with a forested shoreline and houses. The text is overlaid on the image.

Lake Maspenock Aquatic Weed Management Public Hearing

November 18, 2019

Presented by the
Lake Maspenock Weed Management and Control
Advisory Group

Impacts of Excess Vegetation

- Deterioration and potential loss of habitat for fish, wildlife, and other aquatic species;
- Deterioration of wetlands and water quality;
- Diminished area for recreational activities such as swimming, fishing and boating;
- Increased silting, and reduced lake basin capacity; and
- Potential reduction of property value adjacent to the deteriorated aquatic habitat.

Lake Maspenock Problem Aquatic Weeds

Fanwort (*Invasive species*)



Largeleaf Pondweed
(*Nuisance species*)



Variable milfoil (*Invasive species*)



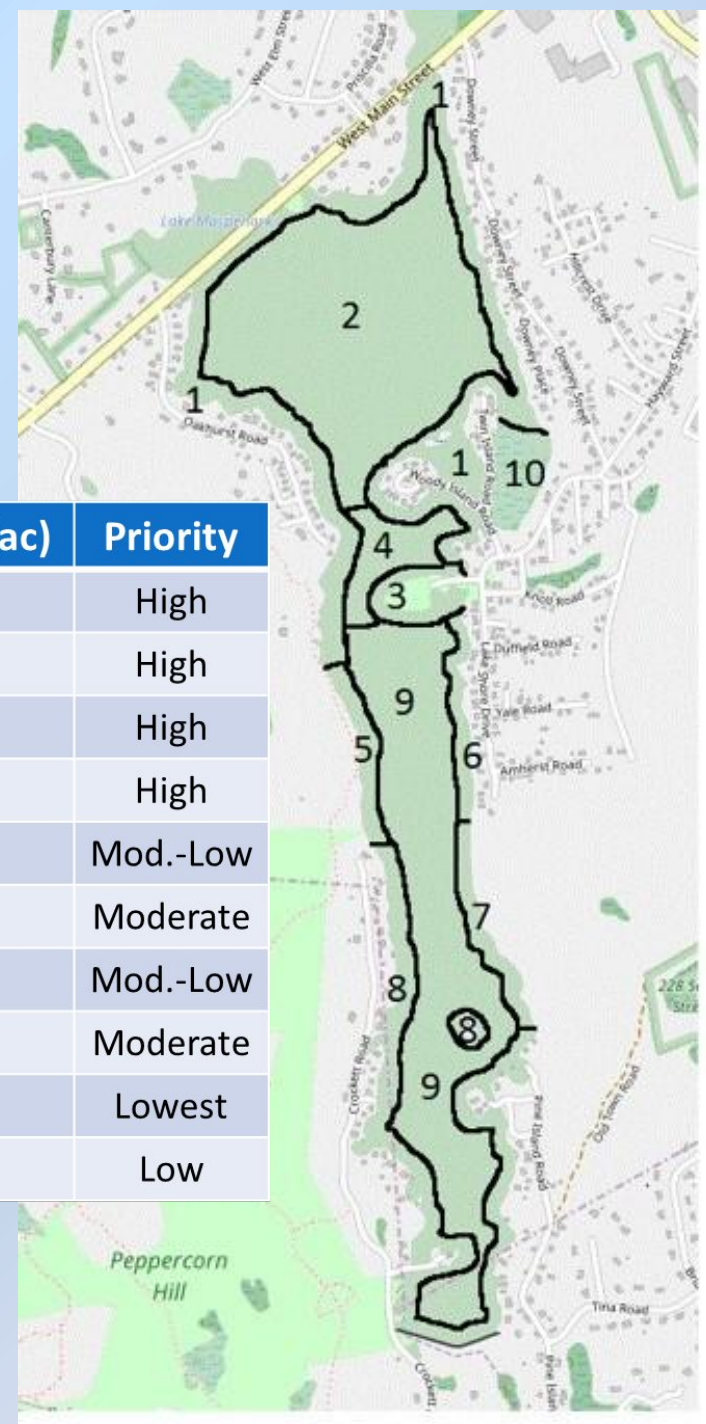
Prop fouling

Recent Status of Aquatic Vegetation

- Full deep drawdown (8 ft.) in 2015-2016, combined with very cold, dry winter, led to excellent vegetation control for two summers (2016 and 2017)
- Starting in fall 2018, monitoring indicated aquatic vegetation regrowth in many areas
- Summer 2019 saw widespread nuisance weed beds and detrimental impact on recreation in North Basin

Lake Management Zones

Zone	Identifier	Area (ac)	Priority
1	North & Middle Basin Shoreline	17	High
2	North Basin Center	94	High
3	Sandy Beach Shoreline	2	High
4	Central Basin Center	12	High
5	Southern Basin Undeveloped Shoreline WEST	2	Mod.-Low
6	Southern Basin Developed Shoreline EAST	2	Moderate
7	Southern Basin Undeveloped Shoreline EAST	2	Mod.-Low
8	Southern Basin Developed Shoreline WEST	8	Moderate
9	Southern Basin Center	94	Lowest
10	The Swamp	<1	Low



Aerial photograph of Lake Maspenock January 6, 2016

Dewatered North
Basin of Lake

Sandy Beach Island
(Town Beach)

West Main
Street Crossing

Woody Island

Outlet Dam
Structure in Milford



How did the Advisory Group further evaluate and refine lake management options?

- We looked at these key factors:
 - **Feasibility** – could we do this on Lake Maspenock?
 - **Effectiveness** – how well does the option work?
 - **Human health and ecological effects** – is it safe?
 - **Cost** – what is the cost (total or \$/per acre)?
 - **Longevity of treatment** – how long does it last?
 - **Compatibility with other options** – does it complement the beneficial effect of other options?
- Final options included both short-term and long-term management

Overview and Costs of Vegetation Control Options

Management Intensity	Activity	Estimated Costs*	Conditions for Action	Plant Thresholds
No	Drawdown and Monitoring	\$0	Follows a successful deep draw down	Plants in check
Low	Benthic Barriers; Hand-Harvesting	\$2 - \$9K	Isolated patches in areas with high public use	Spotty patches, mostly preventative actions
Moderate	Small-scale Harvesting or Herbicide Treatment; DASH	\$10 - \$30K	Heavy plant growth but confined to isolated coves or shoreline areas	Plants clearly present but height or density does not significantly impact lake functions. in management zone
High	Large-Scale Harvesting	\$350K	Lake-wide, heavy plant growth impeding ecological and recreational functions	Plants impinging surface over many areas, boating and swimming impacted over most zones

* Costs were estimated from information provided by lake management companies, agency reviews, or vendors

Current Lake Management Options

- Conservation Commission requirements for extended drawdown cannot be met
- The 2019-2020 water level drawdown will be limited to 5 feet will not adequately control expected weed growth next summer
- Accordingly, it will be necessary to consider alternative aquatic weed control options in 2020

North Basin Weed Control Options

- Mechanical harvesting and herbicide treatments
- Critical review conducted based on Management Plan
- Advisory Group voted to pursue aquatic herbicide treatment as the better (more targeted and cost-effective) option to reduce weed growth in North Basin
- Herbicides being considered are diquat and endothall

Diquat

- Diquat dibromide is registered with USEPA and MA and has been used in lakes for over 30 years
- Diquat is a fast-acting herbicide that works by disrupting cell membranes and interfering with photosynthesis.
- It is a broad (non-selective) herbicide and will kill a wide variety of plants on contact, usually within a week.
- Diquat aquatic formulations are applied as liquids. Partial treatments of ponds are usually conducted to avoid excessive weed decomposition and resulting low dissolved oxygen levels.
- Useful fact sheet available at:
<https://dnr.wi.gov/lakes/plants/factsheets/DiquatFactsheet.pdf>

Endothall

- Endothall is a selective contact herbicide, registered with USEPA and MA, and has been used to manage submerged aquatic vegetation for over 50 years.
- It is a selective herbicide that effectively controls milfoil, pondweeds and naiad species.
- Endothall acid works by interfering with plant respiration, affecting protein and lipid biosynthesis, and disrupting plant cell membranes.
- It causes cellular breakdown of plants within 2-5 days. Symptoms of plant damage will become apparent within a week of application.
- Useful fact sheet available at:
<https://dnr.wi.gov/lakes/plants/factsheets/EndothallFactsheet.pdf>

Preparation for 2020 Lake Season

- Presentation of options to residents and lake users at Public Hearing (tonight)
- DPW to identify vendors and obtain bids (non-binding) for herbicide treatment to expedite contract process
- Obtain any necessary permits or permissions
- Following Town Meeting in early May, conduct an aquatic vegetation survey to assess need, and if justified, start preparing for herbicide treatment

Useful Sources of Information

Information regarding potential aquatic vegetation control options is widely available and easily accessed. For Massachusetts-specific information, the Group consulted the:

- Eutrophication and Aquatic Plant Management in Massachusetts. Final Generic Environmental Impact Report (GEIR)
- Practical Guide to Lake Management in Massachusetts
- The Massachusetts Lake and Pond Guide. Protection Through Education
- EOEEA (2016a) website for Aquatic Vegetation Control at <http://www.mass.gov/eea/agencies/agr/pesticides/aquatic-vegetation-management.html>. (information on herbicide products that have been approved for use in Massachusetts)

Additional aquatic vegetation control management information and guidance was also gleaned from the scientific literature, on websites of state regulatory agencies, non-profit lake associations, and commercial lake management companies

QUESTIONS & COMMENTS