



Pentwater Lake Aquatic Plant Control Program 2023 Activity Summary

A publication of the Pentwater Lake Improvement Board

Pentwater Lake Improvement Board
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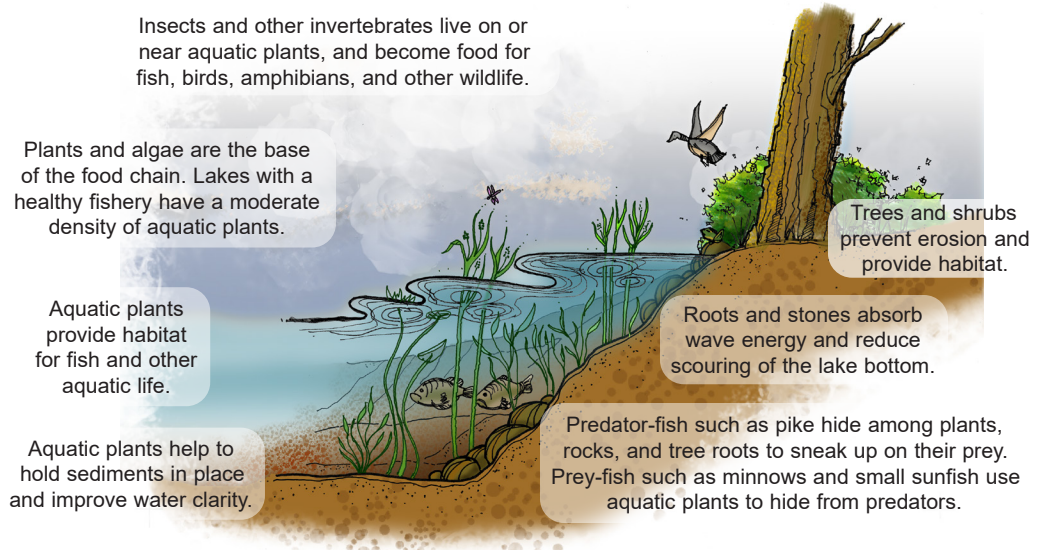
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For the past several years, a nuisance plant control program has been ongoing on Pentwater Lake. The primary objectives of the program are to suppress exotic plant species growth, remove starry stonewort biomass, and to preserve beneficial native plant species. This report contains an overview of plant control activities conducted on Pentwater Lake in 2023.

Aquatic plants are an important component of lakes. They produce oxygen during photosynthesis, provide food, habitat and cover for fish, and help stabilize shoreline and bottom sediments.



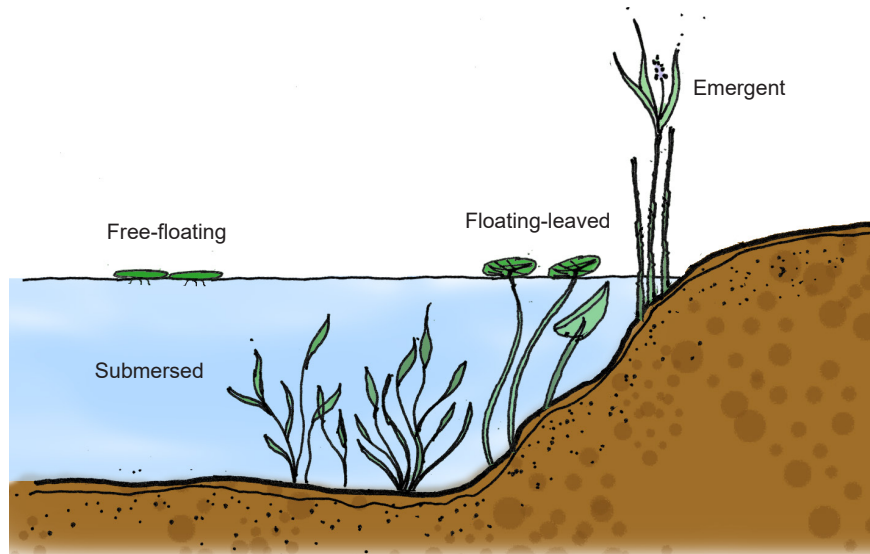
There are four main aquatic plant groups: submersed, floating-leaved, free-floating, and emergent. Each plant group provides important ecological functions. Maintaining a diversity of aquatic plants is important to sustaining a healthy fishery and a healthy lake.



Environmental Consultant
Progressive AE

Herbicide Applicator
PLM Lake and Land Management

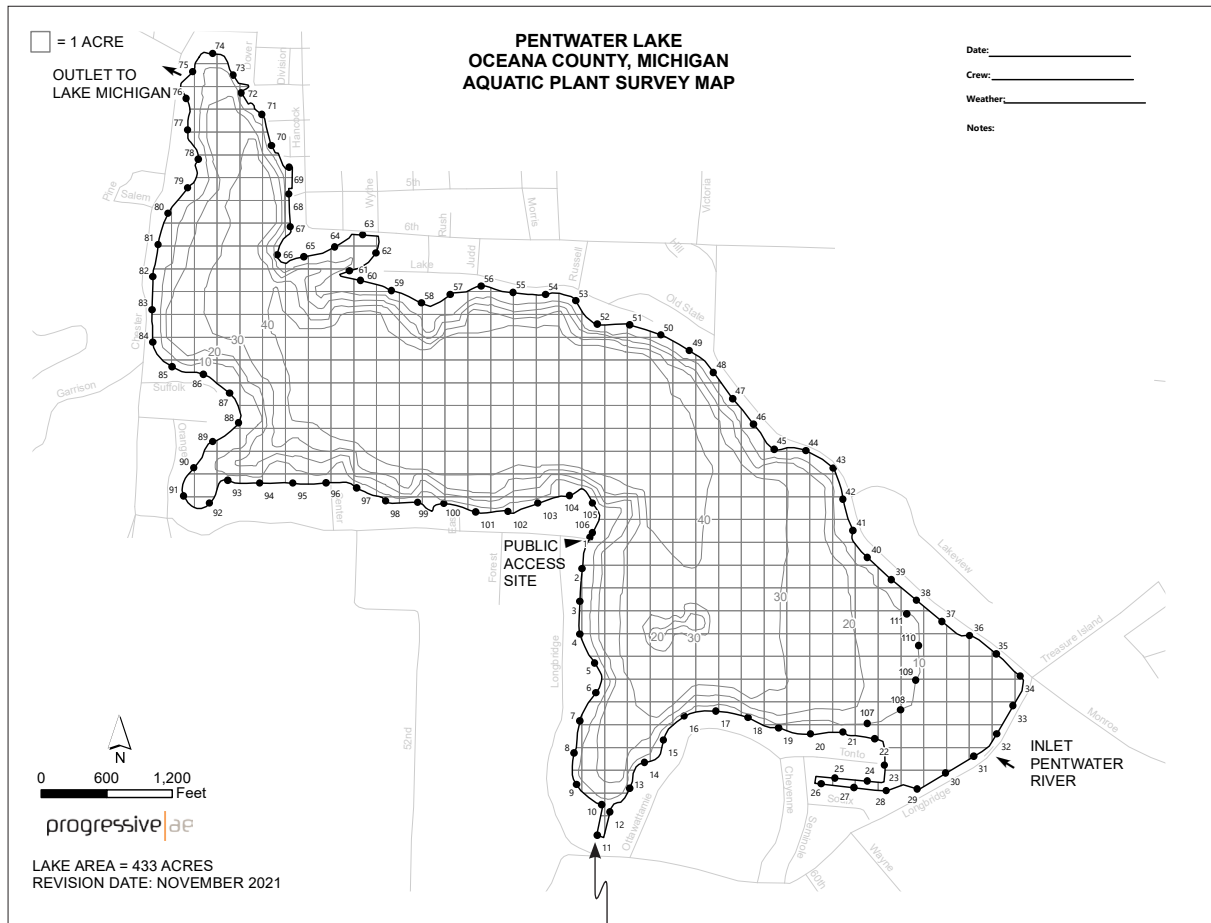
Harvesting Contractor
PLM Lake and Land Management



Plant Surveys

Plant control activities are coordinated under the direction of an environmental consultant, Progressive AE. Biologists from Progressive conduct GPS-guided surveys of the lake to identify problem areas, and georeferenced plant control maps are provided to the plant control contractor.

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GPS reference points established along the shoreline of Pentwater Lake are used to guide plant surveys and to accurately identify the location of nuisance plant growth areas.

Plant control in Pentwater Lake involves the select use of herbicides and mechanical harvesting to control invasive plant growth. Primary plants targeted for control in Pentwater Lake include Eurasian milfoil and starry stonewort. Both of these plants are non-native (exotic) species that tend to be highly invasive and have the potential to spread quickly if left unchecked. Approximately 100 tons (wet weight) of starry stonewort were removed in 2023 via mechanical harvesting.



Eurasian milfoil (*Myriophyllum spicatum*)



Starry stonewort (*Nitellopsis obtusa*)

Plant control activities conducted on Pentwater Lake in 2023 are summarized in the table below.

PENTWATER LAKE			
2023 NUISANCE AQUATIC PLANT CONTROL SUMMARY			
Work Type	Date	Plants Targeted	Acres
Survey	June 8		
Herbicide	June 13	Curly-leaf pondweed, E. milfoil, nuisance natives	5.25
Survey	July 6		
Harvest	July 24	Starry stonewort	19.00
Survey	July 28		
Survey	August 28		
Total			24.25

End-of-year Aquatic Plant Survey

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In addition to the surveys of the lake to identify invasive plant locations, a detailed vegetation survey of Pentwater Lake is conducted in August each year to evaluate the type and abundance of all plants in the lake. The table below lists each plant species observed from 2021-2023 and the relative abundance of each. At the time of the 2023 survey, 16 submersed species, two free-floating species, two floating-leaved species, and four emergent species were found in the lake. Pentwater Lake maintains a good diversity of beneficial, native plants species.

PENTWATER LAKE AQUATIC PLANTS

AVAS SURVEY DATA 2021-2023

Percent of Sites Where Present

Common Name by Group	Scientific Name	August 28, 2023	August 31, 2022	August 25, 2021
Submersed				
Wild celery	<i>Vallisneria americana</i>	77	66	62
Coontail	<i>Ceratophyllum demersum</i>	59	66	58
Richardson's pondweed	<i>Potamogeton richardsonii</i>	45	30	24
Starry stonewort*	<i>Nitellopsis obtusa</i>	42	50	65
Eurasian milfoil*	<i>Myriophyllum spicatum</i>	32	11	11
Chara	<i>Chara</i> sp.	30	16	11
Water stargrass	<i>Heteranthera dubia</i>	29	16	11
Flat-stem pondweed	<i>Potamogeton zosteriformis</i>	26	30	24
Elodea	<i>Elodea canadensis</i>	14	4	3
Slender naiad	<i>Najas flexilis</i>	11	22	9
Bladderwort	<i>Utricularia vulgaris</i>	10	5	11
Sago pondweed	<i>Stuckenia pectinata</i>	7	5	2
Thin-leaf pondweed	<i>Potamogeton</i> sp.	6	9	4
Whitestem pondweed	<i>Potamogeton praelongus</i>	2	10	8
Robbins pondweed	<i>Potamogeton robbinsii</i>	2	0 ⁻	0 ⁻
Curly-leaf pondweed*	<i>Potamogeton crispus</i>	1	3	1
Free-floating				
Duckweed	<i>Lemna minor</i>	5	21	24
Watermeal	<i>Wolffia punctata</i>	1	0 ⁻	0 ⁻
European frogbit*	<i>Hydrocharis morsus-ranae</i>	0 ⁻	0 ⁻	9
Floating-leaved				
Yellow waterlily	<i>Nuphar</i> sp.	3	5	8
White waterlily	<i>Nymphaea odorata</i>	2	1	3
Emergent				
Cattail	<i>Typha</i> sp.	7	5	3
Bulrush	<i>Schoenoplectus</i> sp.	2	5	5
Lake sedge	<i>Carex lacustris</i>	1	0 ⁻	2
Phragmites*	<i>Phragmites australis</i>	1	2	2
Purple Loosestrife*	<i>Lythrum salicaria</i>	0 ⁻	1	0 ⁻

*Invasive exotic species**

Species not observed during survey⁻