



**WHITE LAKE** Property Owners Association  
Preservation Project

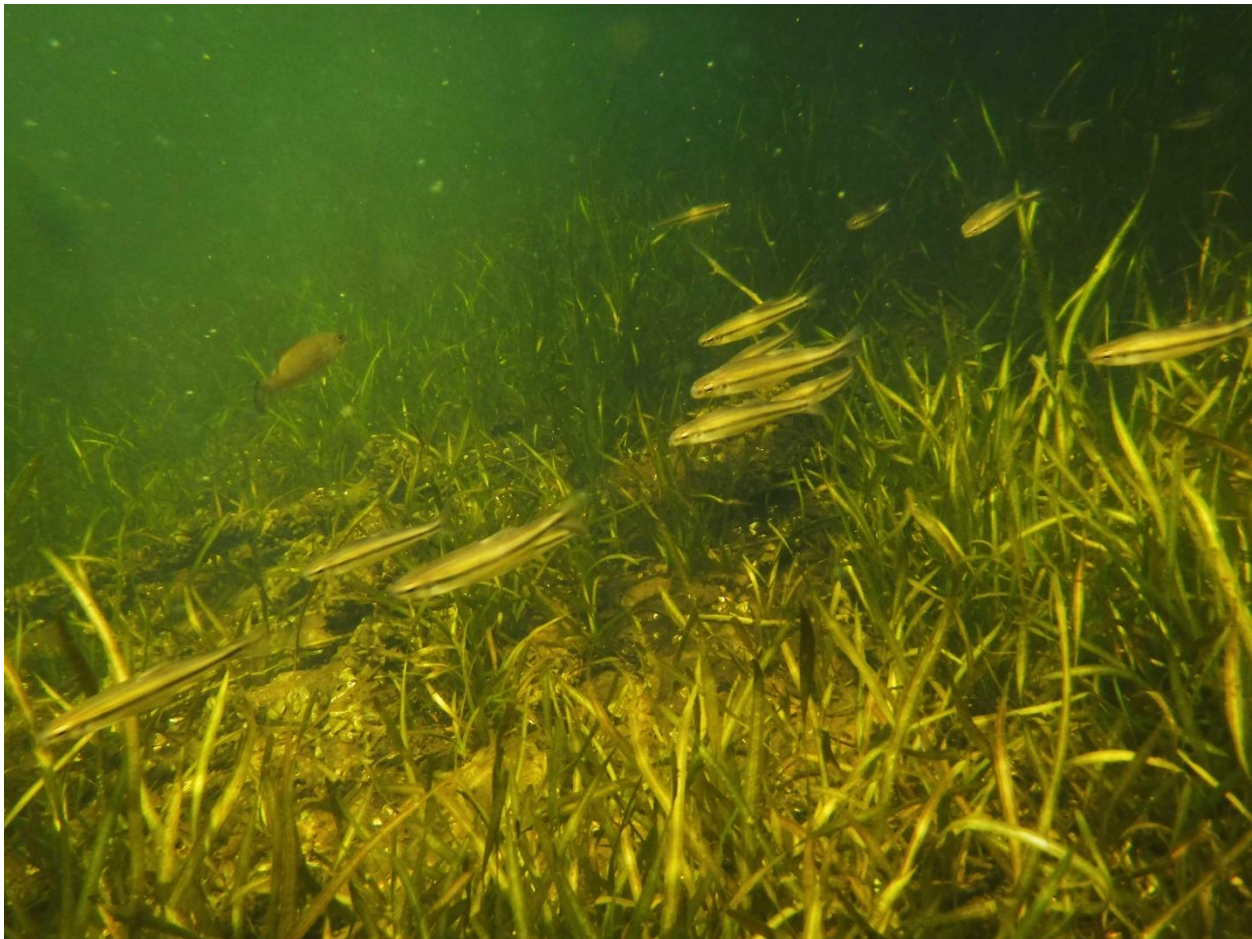


# **SUMMARY REPORT**

## **AQUATIC PLANT SURVEY OF WHITE LAKE**

### **2020**

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## CHANGES IN THE WHITE LAKE AQUATIC PLANT COMMUNITY SINCE 1976

The ability to study change over time in the assemblage of aquatic plants on White Lake was made possible by the efforts of L. J. Bond<sup>1</sup> when he published his findings on the observed occurrence and abundance of aquatic plants in the summer of 1976. A survey in the summer of 2020 was conducted to determine what changes occurred in the White Lake aquatic plant community over the previous 44 years. A total of 174 vegetated aquatic sites were visited. These sites were based on the 98 locations Bond studied covering all parts of the lake. The table below summarises some of the changes found in our 2020 study. The table is based on the difference in relative frequency of occurrence of aquatic plants. It is evident but not too surprising to see that in 44 years some varieties have disappeared or are in decline while other types have increased their occurrence in the lake. A difference that was less than 5% was regarded as not significant. We were able to add 12 additional aquatic plants to the original Bond list.

COMMON NAME	SPECIES NAME	STATUS and CHANGES SINCE 1976
Richardson's Pondweed	<i>Potamogeton richardsonii</i>	The most dominant plant in 2020, major increase
Flat Stem Pondweed	<i>P. zosteriformous</i>	new listing, 2 <sup>nd</sup> dominant type, not seen in 1976
Large Leaf Pondweed	<i>P. amplifolius</i>	new listing, low occurrence
Robbin's Pondweed	<i>P. robinsii</i>	new listing, low occurrence
Floating Pondweed	<i>P. natans</i>	no significant change
White Stem Pondweed	<i>P. praelongus</i>	new listing, low occurrence
Variable Pondweed	<i>P. gramineus</i>	new listing, low occurrence
Sago pondweed	<i>Stuckenia pectinata</i>	severe decline, now rare
Horned pondweed	<i>Zannichellia palustris</i>	severe decline, now absent was 2 <sup>nd</sup> dominant 1976
Slender Water Nymph	<i>Najas flexilis</i>	no significant change
Northern milfoil	<i>Myriophyllum sibiricum</i>	decreased occurrence, was most dominant in 1976
Whorled Leaf	<i>M. verticillatum</i>	new listing, infrequent occurrence
Eurasian Water Milfoil	<i>M. spicatum</i>	new listing, invasive, widely distributed
Wild Celery, Tape Grass	<i>Vallisneria spiralis</i>	no significant change
Water Star Grass	<i>Zosterella dubia</i>	no significant change
Canada Waterweed	<i>Elodea canadensis</i>	no significant change
Coontail	<i>Ceratophyllum demersum</i>	no significant change
Common Bladderwort	<i>Utricularia vulgaris</i>	no significant change
Nitella	<i>Nitella</i>	new listing
aquatic moss	<i>Fontinalis</i>	new listing, in deep water
chara	<i>chara</i>	no significant change
White Water Lily	<i>Nymphaea odorata</i>	increased occurrence
Yellow Water Lily	<i>Nuphar variegata</i>	no significant change
Star duckweed	<i>Lemna triscula</i>	no significant change
Water Marigold	<i>Megalodonta beckii</i>	new listing, common occurrence
frogbit	<i>Limnobium laevigatum</i>	new listing, rare occurrence
Arrowhead	<i>Sagittaria spp.</i>	No significant change
Pickrel Weed	<i>Pontederia cordata</i>	new listing
Common Bulrush	<i>Scirpus validus</i>	no significant change
Wild Rice	<i>Zizania aquatica</i>	increased occurrence
	>5% increase occurrence	invasive
		>5% decrease occurrence

<sup>1</sup>L.J. Bond, *Ecological Study of White Lake, Renfrew and Lanark Counties 1976*, Lanark District, Ministry of Natural Resources, March, 1977.

Significant changes have occurred in White Lake water quality over the past 44 years. These changes are due to several factors all working together to both increase the quantity of aquatic plants in the lake as well as the number of species present.

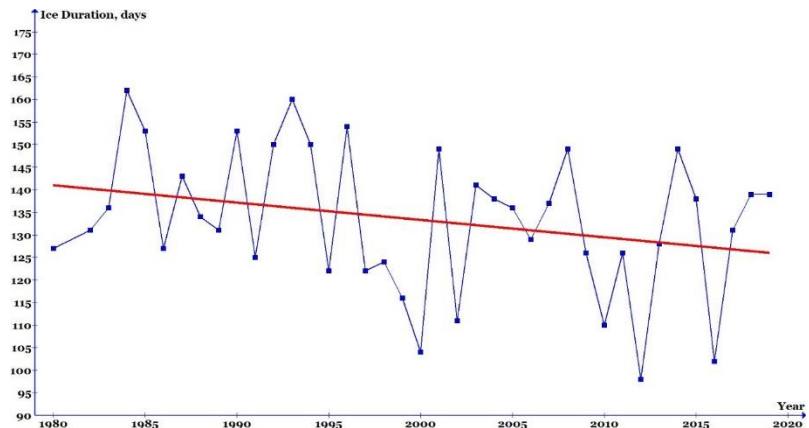
**The first factor** involves lake usage. The table below shows that since 1985, the total number of residences and cottages on White Lake has increased by about 50%. Also, there are now nearly four times the number of permanent homes than existed in 1985.

Year	Residential	Commercial	Total	Permanent Homes
1985*	475	525	1000	59
2018	659	879	1538	209

\*J.P. Ferris, White Lake Integrated Resources Management Plan, Part I, Ministry of Natural Resources, Lanark and Renfrew Counties, December, 1985.

The Provincial Ministry of the Environment states that 100% of phosphorus coming from septic systems within 300m of the lake will end up in the lake. It is inconceivable that this increase in lake usage would not lead to an increase in nutrients reaching the lake and acting as fertilizer for aquatic plants. In fact, ministry reports going back 40 years have warned of ‘cultural eutrophication’, a term used to denote an increased rate at which the lake becomes eutrophic (filling in) as a result of human activity.

**The second factor** is climate change. Data collected for White Lake documenting the number of ice-free days shows that there is now open water on White Lake for an additional 15 days compared to 1980. This extra time allows for a longer growing season for aquatic plants in the lake.



**The third factor** is the presence of zebra mussels, an invasive species, which concentrates nutrients from the lake into a narrow zone near the shoreline where they live. Zebra mussels also clarify lake water allowing more sunlight to reach growing aquatic plants. This factor also promotes both the growth of plants and their spread to new parts of the lake which were previously free of aquatic plants.

