

Lake Joseph North Association

Benthic Biomonitoring of North Lake Joseph

(First Sampling Date - August 2021)

Introduction

The health of a lake is very much dependent on, and reflected by, its benthos which is the biological community in the bottom sediment of a lake or river. The abundance and diversity of this living community in the littoral zone (shallow water nearest to dry land) can be indicative of the overall health of a lake. This zone is especially important to lake quality and is impacted by snowmelt, property runoff, and sedimentation (Jess Lario; District of Muskoka 2021). Thus, we all are instrumental in maintaining this healthy ecosystem by taking proper actions in and around the lake.

2021 Sampling and Results

Benthic sampling on North Lake Joseph took place on August 18, 2021 with the expert assistance of Jess Lario, Biomonitoring Technician with the District of Muskoka. The overall results are available to LJNA members but in summary, the data indicated that the benthos is in good health.

The location of the sampling site was in the northern section of the Lake, at the Port Cockburn Boat Launch (Figure 1) and Jess used a “kick-and-sweep” benthic sampling strategy, as recommended by the 2007 Ontario Ministry of the Environment’s Benthos Biomonitoring Network Protocol. She then brought the sediment samples to the nearshore, where a group of cottagers sorted the organisms and Jess helped to identify them.



Figure 1: Boat Launch, Port Cockburn (North Lake Joseph 2021 sampling site)

Figure 2 indicates some of the organisms observed. These results indicated that while the sampling site is a more impacted area due to anthropogenic activity of boat launching, the biodiversity of organisms was healthy. Additionally, organisms that are indicators of poor water quality (ie. midges) were present but in below-average numbers.



Sow bugs (Isopoda)



Mites (Hydracarina)



Caddisflies (Trichoptera)



Fairy shrimp (Amphipoda)



Mayflies (Ephemeroptera)



Midges (Chironomidae)

Figure 2: Top six benthic invertebrates identified at the sampling site

Summer of 2022: All LJNA members welcome to come sample benthos!

Moving forward, Jess has recommended that sampling be done at the boat launch site again this summer and that another site be sampled in a different part of North Lake Joseph to establish representative trends of the lake. The location of the second site is currently being determined, with an established **sampling date of August 20th**.

Additionally, Jess lauded LJNA for caring about the lake and taking an active role in monitoring programs such as benthic analysis and cannot wait to help the members of LJNA sample the benthos in August.

LJNA is looking for volunteers to help with the sampling in August. All are welcome and it is a fun and educational few hours in the sun. This should be of interest to adults and children alike, including students, especially those interested in the biological sciences.