

#### Sample Date: May 4, 2022 **Next Sample: May 17, 2022** (weather permitting)



Temperatures are warming up with the onset of warmer air temperatures.







View from Little Lake boat launch



11.6 mg/L

This is plenty for cold and warm water fish species.

## Little Lake **41 cm Outflow** Level

Readings taken at the McMurty Dr outflow structure indicate that levels are slightly higher than the same time last year.



Little Lake outflow on McMurty Dr.



## **General Observations**

 Yellow/green water
 High wind gusts colour

 Plant material floating on surface

Foam on water surface

#### **Invasive Species**

Invasive Species found on Little Lake

- Glossy Buckthorn & Japanese **Beetles**
- **Glossy Buckthorn** is a shrub which can crowd out native species in large numbers. Their fruits do not provide adequate nutrition for wildlife compared to native shrub species which decreases available food sources for wildlife.
- Japanese Beetles are an invasive insect which feed on a large variety of plants. They have few natural controls outside of their native range giving them a competitive advantage which allows them to decimate large crops and gardens.





Measuring water level at outlet



**Glossy Buckthorn** 



**Japanese Beetle** 

# LITTLE LAKE SEASONAL WATER QUALITY TRENDS

#### **Surface Temperature & Bottom Water Dissolved Oxygen**



Oxygen levels are above the Provincial Water Quality Objectives for cold and warm water fish.

#### Water Clarity & Lake Depth



Water clarity is considered good if the lakebed is visible. The lakebed was not visible on the first sample day of 2022, but was visible in May of 2021.

#### **Surface Water Conductivity** 400 Conductivity (µS/cm) 350 300 250 200 150 11120 PO121 May25 AUGIT 001,72

Conductivity indicates the amount of dissolved material in the water. Value are higher than in May of last year.

#### Lake Water Levels at **McMurty Dr. Outflow**





#### Sample Date: May 17, 2022 Next Sample: May 31, 2022 (weather permitting)



**Temperature at** 

Temperatures are warming up with the onset of warmer air temperatures.

**Bottom Water** 

9.5 mg/L

This is plenty for cold and

warm water fish species.

Oxygen

Dissolved o O o

0





E

E



View from Little Lake boat launch



Little Lake outflow on McMurty Dr.



## **General Observations**

 Yellow/brown water colour

 High strong winds with big waves

Little Lake

**Outflow** 

Level

time last year.

- Pollen on surface near shoreline
- Foam and plant material on water surface

#### **Invasive Species**

Invasive Species found in or around Little Lake:

- Purple Loosestrife (Lythrum salicaria) is a wetland invasive flowering plant which can form dense monocultures and out grow native vegetation.
- Eurasian Water-milfoil (Myriophyllum spicatum) is an aquatic invasive plant that forms thick mats of underwater vegetation which prevents native plant growth and can significantly hinder the recreational use of the water way by entangling boat propellers and hindering activities such as swimming and fishing.



37.5 cm









**Eurasian Water-milfoil** 

# LITTLE LAKE SEASONAL WATER QUALITY TRENDS

## **Surface Temperature & Bottom Water Dissolved Oxygen**



Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish

#### Water Clarity & Lake Depth



Water clarity is considered excellent if the lakebed is visible. So far this season the lake bed has not been visible.

# **Surface Water Conductivity**



Conductivity indicates the amount of dissolved material in the water. Values are lower than other inland lakes in the area like Orr Lake.

#### Lake Water Levels at **McMurty Dr. Outflow**





Water

#### Sample Date: May 31, 2022 Next Sample: June 14, 2022 (weather permitting)

# **Temperature at Surface** 23.5°C





Depth



Water clarity is good, the lakebed is visible.



View from Little Lake boat launch



13.5 mg/L

This is plenty for cold and warm water fish species.

## Little Lake **Outflow** Level



Readings taken at the McMurty Dr outflow structure indicate that levels are slightly higher than the same time last year.



Little Lake outflow on McMurty Dr.



## **General Observations**

**Bright green/brown** water colour

## **Invasive Species**

Invasive Species found in or around Little Lake:

- Zebra Mussels (ZMs) (Dreissena polymorpha) are invasive mussels that are widespread in Severn Sound, Bass Lake and Lake Couchiching. Small populations have also been observed in Orr and Little Lake
- ZMs are efficient filter feeders, and can have negative impacts on the ecology of a lake



**Recreational users are** reminded to <u>Clean</u>, **Drain** and **Dry** ALL equipment before & after entering the lake!





 Plant growth noticed on lakebed



Foam on Shoreline



Pollen on surface near shoreline

Zebra mussel attached to Chara



**Mussels on Eurasian Milfoil** 

# LITTLE LAKE SEASONAL WATER QUALITY TRENDS

## **Surface Temperature & Bottom Water Dissolved Oxygen**



Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish.

#### Water Clarity & Lake Depth



Water clarity is considered good if the lakebed is visible. The lakebed was visible on May 31st. Sediment and algae can contribute to lower clarity.

#### **Surface Water Conductivity** 400 Conductivity (µS/cm) 350 300 250 200 150 0012 PO121 Jun 22 May 25 11120 AUST Septa

Conductivity indicates the amount of dissolved material in the water. Values are lower than other inland lakes in the area like Orr Lake.

#### Lake Water Levels at **McMurty Dr. Outflow**





Lake

Depth

#### Sample Date: June 14, 2022 Next Sample: June 28, 2022 (weather permitting)

## **Temperature at Surface** 22.6°C

Temperatures are increasing with rise in daytime air temperatures.

#### Water 3.8 m **Clarity**

4.0 m

Water clarity is good when lakebed is visible. Plant growth prevented the lakebed from being visible.





View from Little Lake boat launch

#### **Bottom Water** Dissolved o O o Oxygen $\bigcirc$

## 11.3 mg/L

This is plenty for cold and warm water fish species.

## **Little Lake Outflow** Level



Readings taken at the McMurty Dr outflow structure indicate that levels are slightly higher than the same time last year.



Little Lake outflow on McMurty Dr.

## **General Observations**

 Yellow/brown water colour

- Plant material on water surface
- Some plant material and pollen on shoreline
- Algae on rocks near shore - not harmful

## **Invasive Species**

Invasive Species that have not been detected in Little Lake but that you should be on the look out for:

- Yellow Iris is a troublesome invasive species that outgrows native aquatic plants and harms biodiversity within aquatic ecosystems. It was originally introduced as an ornamental plant.
- Chinese Mystery Snails can be identified by the "trapdoor" on their shells which no native species have. They can resist predation and alter food webs by significantly reducing native snail populations.









Aquatic plant growth near shore



Yellow Iris



**Chinese Mystery Snail** 

# LITTLE LAKE SEASONAL WATER QUALITY TRENDS

## **Surface Temperature & Bottom Water Dissolved Oxygen**



Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish, even as temperatures are warming.

#### Water Clarity & Lake Depth



Water clarity is considered excellent if the lakebed is visible. Plant growth impeding lake bed visibility. The lakebed was last visible on May 31st.

#### **Surface Water Conductivity** 400 Conductivity (µS/cm) 350 300 250 200 150 0012 PO121 AUST 50014

Conductivity indicates the amount of dissolved material in the water. Value have been consistent over the season so far.

#### Lake Water Levels at **McMurty Dr. Outflow**





Lake

Depth

#### Sample Date: June 28, 2022 Next Sample: July 12, 2022 (weather permitting)

## **Temperature at Surface** 22.5°C

Temperatures have leveled off in response to fluctuations in air temperatures.

#### Water 3.5 m **Clarity**

3.9 m

Water clarity is good when lakebed is visible. Plant

growth prevented the lakebed from being visible.

E



View from Little Lake boat launch



9.6 mg/L

This is plenty for cold and warm water fish species.



Readings taken at the McMurty Dr outflow structure indicate that levels have dropped from June 14th.



Little Lake outflow on McMurty Dr.



## **General Observations**

 Yellow/green water colour

- Plant material and foam on water surface
- · Lots of plant material and foam on shoreline
- No algae or pollen on shore

#### **Invasive Species**

Invasive Species found in or around Little Lake:

 Phragmites/Common Reed (Phragmites australis ssp. australis) is a tall perennial grass that is native to Eurasia. Phragmites is an aggressive semi-aquatic plant that threatens native plants and wildlife, human safety, agriculture and recreational activities. It invades a variety of habitats including lakes, shorelines, wetlands, beaches, ditches, and roadsides and succeeds in disturbed habitats. The seed head and stems will persist through the fall, winter and into early spring.



Snapping turtle at dock





Plant material and foam on shoreline



Phragmites - aquatic



Phragmites - terrestrial

# LITTLE LAKE SEASONAL WATER QUALITY TRENDS

## **Surface Temperature & Bottom Water Dissolved Oxygen**



Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish.

#### Water Clarity & Lake Depth



Water clarity is considered excellent if the lakebed is visible. Plant growth impeded lake bed visibility. The lakebed was last visible on May 31st.

#### **Surface Water Conductivity** 400 Conductivity (µS/cm) 350 300 250 200 150 Jun 22 11120 0012 PO121 May25 AUGT Septa

Conductivity indicates the amount of dissolved material in the water. Value have been consistent over the season so far.

#### Lake Water Levels at **McMurty Dr. Outflow**





Lake

Depth

#### Sample Date: July 12, 2022 Next Sample: July 26, 2022 (weather permitting)



Temperatures have increased slightly since the last update.

# Water 3.0 m

3.7 m

Water clarity is good when lakebed is visible. Plant growth prevented the lakebed from being visible.



E



View from Little Lake boat launch



## 9.89 mg/L

This is plenty for cold and warm water fish species.



Plant material and

Readings taken at the McMurty Dr outflow structure indicate that levels have dropped since June 14th.



Little Lake outflow on McMurty Dr.



## **General Observations**

 Green/yellow water colour

#### **Invasive Species**

Invasive Species found in or around Little Lake:

- **Purple Loosestrife** (*Lythrum salicaria*) is a wetland invasive flowering plant which can form dense monocultures and out grow native vegetation.
- Eurasian Water-milfoil

(*Myriophyllum spicatum*)I s an aquatic invasive plant that forms thick mats of underwater vegetation which prevents native plant growth and can significantly hinder the recreational use of the water way by entangling boat propellers and hindering activities such as swimming and fishing. foam on water surface caused by hig

Canoeing out to sampling site

- Langmuir streaks on surface
  caused by high winds
- Some foam and plants on shoreline



Plant material and foam on shoreline



Purple Loosestrife



**Eurasian Water-milfoil** 

# LITTLE LAKE SEASONAL WATER QUALITY TRENDS

## Surface Temperature & Bottom Water Dissolved Oxygen



Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish.

#### Water Clarity & Lake Depth



Water clarity is considered excellent if the lakebed is visible. Plant growth impeded lake bed visibility. The lakebed was last visible on May 31<sup>st</sup>.



Conductivity indicates the amount of dissolved material in the water. Values have been consistent over the season so far.

# Lake Water Levels at McMurty Dr. Outflow





Lake

Depth

#### Sample Date: July 26, 2022 Next Sample: August 9, 2022 (weather permitting)



Temperatures have leveled out since the last update.

#### Water 2.8 m **Clarity**

3.6 m

Water clarity is good when lakebed is visible. Plant growth prevented the lakebed from being visible.



View from Little Lake boat launch



9.6 mg/L

This is plenty for cold and warm water fish species.



Readings taken at the McMurty Dr outflow structure indicate that levels have dropped since July 12th.



Little Lake outflow on McMurty Dr.



## **General Observations**

water colour

#### **Invasive Species**

Invasive Species found in or around Little Lake:

- Amur Maple (Acer ginnala) is a small tree which is often used for landscaping because of its ornamental features. When Amur Maple escapes to natural areas, it can shade out desirable native species.
- Manitoba (Boxelder) Maple (Acer negundo) is native to the Canadian prairies, however, in Ontario it is considered an invasive species. Manitoba maple grows fast, is relatively short-lived and forms a dense canopy at maturity, shading out native plant species.

- Bright vellow green
  Plant material and foam on water surface
- Thick duckweed mats in water downstream of outlet structure

E

E

 Some foam washed up on shoreline



Staff sampling water quality

Freshwater mussel near shoreline



Amur Maple



Manitoba (Boxelder) Maple

# LITTLE LAKE SEASONAL WATER QUALITY TRENDS

## **Surface Temperature & Bottom Water Dissolved Oxygen**



Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish.

#### Water Clarity & Lake Depth



Water clarity is considered excellent if the lakebed is visible. Plant growth impeded lake bed visibility. The lakebed was last visible on May 31st.



Conductivity indicates the amount of dissolved material in the water. Values have been consistent over the season so far.

#### Lake Water Levels at **McMurty Dr. Outflow**





Lake

Depth

#### Sample Date: August 9, 2022 Next Sample: August 23, 2022 (weather permitting)

# Temperature at Surface

24.7°C

Temperatures have increased slightly since the last update.

# Water 3.4 m

# 3.6 m

Water clarity is good when lakebed is visible. Water clarity has improved since July 26<sup>th</sup> but is still impeded by plant growth.



E



View from Little Lake boat launch



## 8.6 mg/L

This is plenty for cold and warm water fish species.



Readings taken at the McMurty Dr outflow structure indicate that levels have risen slightly since July 26<sup>th</sup>.



Little Lake outflow on McMurty Dr.



## **General Observations**

Bright green water colour

- Plant material and foam on water surface
- Filamentous algae near shore by outflow structure
- Some plant material washed up on shoreline

#### **Invasive Species**

Invasive Species found in or around Little Lake:

- Starry Stonewort (SSW) (Nitellopsis obtusa) is a green freshwater algae that forms dense mats under the water's surface. SSW spreads rapidly through fragments and can overtake shorelines, interfering with watercraft, swimming, and fishing.
- Round Goby (Neogobium melanostomus) is a small bottomdwelling fish that is prevalent in the Great Lakes. They reproduce rapidly and outcompete native species of fish. Note: Round Goby is present in Midland Harbour but not yet reported in Little Lake.



Staff sampling zooplankton

Pickerelweed near shoreline



Underwater photo of SSW



Round Goby

# LITTLE LAKE SEASONAL WATER QUALITY TRENDS

#### Surface Temperature & Bottom Water Dissolved Oxygen



Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish, despite warming water temperatures.

#### Water Clarity & Lake Depth



Water clarity is considered excellent if the lakebed is visible. Plant growth impeded lake bed visibility. The lakebed was last visible on May 31<sup>st</sup>.

# Surface Water Conductivity

Conductivity indicates the amount of dissolved material in the water. Values have been consistent over the season so far.

# Lake Water Levels at McMurty Dr. Outflow





Lake

Depth

#### Sample Date: August 23, 2022 Next Sample: September 6, 2022 (weather permitting)

## **Temperature at Surface**

25.1°C

Temperatures have increased slightly since the last update.

#### Water 3.2 m **Clarity**

3.6 m

Water clarity is good when lakebed is visible. Water clarity has decreased slightly since August 9<sup>th</sup> and is mainly impeded by plant growth.



E



View from Little Lake boat launch



## 9.82 mg/L

This is plenty for cold and warm water fish species.



surface

Readings taken at the McMurty Dr outflow structure indicate that levels have decreased since August 9th.



Little Lake outflow on McMurty Dr.



## **General Observations**

 Bright yellow green
 Some foam on water water colour

- Beach has been posted as closed by the Town
- Aquatic plant growth <sup>3</sup>/<sub>4</sub> to the water surface

## **Invasive Species**

Invasive Species that have not been detected around Little Lake but that you should be on the look out for:

- Giant Hogweed (Heracleum mantegazzianum) is a large noxious plant that is a member of the Carrot family. This species is often confused with Queen Anne's Lace.
- Can reach up to 5 meters in height with leaves that are up to 1.5 meters wide.
- Do not touch this plant because its sap contains toxins that cause severe burns to skin and eyes when exposed to light.





- - Aquatic plant growth



Hogweed stem & immature flower



Hogweed leaves

# LITTLE LAKE SEASONAL WATER QUALITY TRENDS

#### Surface Temperature & Bottom Water **Dissolved Oxygen**



Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish, despite warming water temperatures.

#### Water Clarity & Lake Depth



Water clarity is considered excellent if the lakebed is visible, which last occurred May 31<sup>st</sup>. Plant growth has impeded lake bed visibility.

#### **Surface Water Conductivity** 400 Conductivity (µS/cm) 350 300 250 200 150 11120 00172 AQ121 AUG T

Conductivity indicates the amount of dissolved material in the water. Values have been consistent over the season so far.

#### Lake Water Levels at **McMurty Dr. Outflow**





Sample Date: September 6, 2022 Next Sample: September 20, 2022 (weather permitting)

# Temperature at Surface



Temperatures have dropped since August 23<sup>rd</sup>.

## Water 3.7 m Clarity

Lake

Depth

3.7 m

Water clarity is good when lakebed is visible. Water clarity has increased from August 23<sup>rd</sup> and the lakebed is now visible.





View from Little Lake boat launch

## Bottom Water Dissolved ooo Oxygen OOO

## 10.03 mg/L

This is plenty for cold and warm water fish species.

## Little Lake Outflow Level



Readings taken at the McMurty Dr outflow structure indicate that levels have decreased steadily since early August.



Little Lake outflow on McMurty Dr.



## **General Observations**

Bright green water colour

- en water Some plant material on water surface
- Plant material washed up onshore
- Beach has been reopened

#### **Invasive Species**

Invasive Species that <u>have not been</u> <u>detected around Little Lake</u> but that you should be on the look out for:

Banded Mystery Snail

(*Viviparus georgianus*) is an invasive invertebrate that has been introduced to the Great Lakes. Mystery snails reproduce rapidly, overtake shorelines, and can carry disease.

• European Frog-Bit (Hydrocharis morsus-ranae) is an aquatic plant that creates large mats on the water surfaces. These mats can decrease biodiversity and hinder recreational water activities.



Plant material washed up onshore





Banded Mystery Snail



European Frog-Bit

# LITTLE LAKE SEASONAL WATER QUALITY TRENDS

## Surface Temperature & Bottom Water Dissolved Oxygen



Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish.

#### Water Clarity & Lake Depth



Water clarity is considered excellent if the lakebed is visible. Water clarity has increased since the last update, making the lakebed visible.



Conductivity indicates the amount of dissolved material in the water. Values have been consistent over the season.

# Lake Water Levels at McMurty Dr. Outflow





Lake

Depth

#### Sample Date: September 20, 2022 Next Sample: October 4, 2022 (weather permitting)

## **Temperature at Surface**

20.2°C

Temperatures are decreasing with cooler air temperatures.

#### Water 3.6 m **Clarity**

# 3.6 m

Water clarity is good when lakebed is visible. Water clarity has remained stable since September 6<sup>th</sup> and the lakebed is still visible.





View from Little Lake boat launch



## 10.28 mg/L

This is plenty for cold and warm water fish species.





Readings taken at the McMurty Dr outflow structure indicate that levels have decreased steadily since early August.

Some foam and plant material



Little Lake outflow on McMurty Dr.



## **General Observations**

 Bright vellow green water colour

**Invasive Species** 

Invasive Species that have not been detected in Little Lake but that you should be on the look out for:

- **Rusty Crayfish** (Orconectes • *rusticus*) is a large invertebrate species that has a distinct rusty coloured patch on the side of its shell and black bands on its claws.
- They compete with other crayfish species and feed on aquatic vegetation that reduces habitat and food for other species.



**Recreational users are** reminded to Clean, **Drain** and **Dry ALL** equipment before & after entering the lake!



Preserving a zooplankton sample

- Lake bottom is visible through plant growth
- Some foam on shoreline



Measuring water clarity



Rusty patch on shell



Black banding on claw

# LITTLE LAKE SEASONAL WATER QUALITY TRENDS

## Surface Temperature & Bottom Water **Dissolved Oxygen**



Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish.

#### Water Clarity & Lake Depth



Water clarity is considered excellent if the lakebed is visible. Water clarity has remained stable with the lakebed still visible.



Conductivity is related to the concentration of dissolved material in the water. Values have risen slightly, possibly due to a decrease in lake volume.

#### Lake Water Levels at **McMurty Dr. Outflow**





#### LITTLE LAKE (Midland) Sample Date: Oct 5, 2022 **CONDITIONS UPDATE** End of sampling for 2022 season

## **Temperature at Surface**

15°C

Temperatures are decreasing with cooler air temperatures.

#### Water 3.8 m **Clarity**

Lake

Depth

# 3.8 m

Water clarity is good when lakebed is visible. Water clarity has remained stable since September 6<sup>th</sup> and the lakebed is still visible.



E



View from Little Lake boat launch



## 11.22 mg/L

This is plenty for cold and warm water fish species.

#### Little Lake 7.5 cm Outflow Level

Readings taken at the McMurty Dr. outflow structure indicate that levels have increased since the last update on September 20<sup>th</sup>.



Little Lake outflow on McMurty Dr.



## **General Observations**

 Bright vellow green water colour

- Insect casings and plant material on water surface
- Lake bottom is visible through plant growth
- Some foam on **North shoreline**

#### **Invasive Species**

Invasive Species found in or around Little Lake:

- Japanese Knotweed
- (Reynoutria japonica) is a woodystemmed plant that grows in dense thickets and out-competes native plant species. This plant can damage infrastructure by growing through concrete and asphalt.
- Periwinkle (Vinca major & Vinca *minor*) is a small ornamental groundcover plant that commonly escapes from gardens. Periwinkle spreads very quickly and outcompetes native species. This invasive plant is still sold at nurseries and garden centers today.









Japanese Knotweed



Periwinkle

# LITTLE LAKE SEASONAL WATER QUALITY TRENDS

#### **Surface Temperature & Bottom Water Dissolved Oxygen**



Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish.

#### Water Clarity & Lake Depth



Water clarity is considered excellent if the lakebed is visible. Water clarity has remained stable since Aug 31<sup>st</sup>, with the lakebed still visible.



Conductivity is related to the concentration of dissolved material in the water. Values have risen slightly, possibly due to a reduction in lake volume.

#### Lake Water Levels at **McMurty Dr. Outflow**

