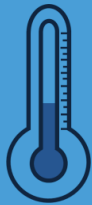


# ORR LAKE CONDITIONS UPDATE

July 19 2021

## Temperature at Surface

24.6°C



This is considered warm, but less than the max recorded in 2015 (26°C).

## Water Clarity

1.9 m



## Lake Depth

2.1 m

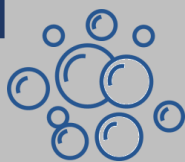
Water clarity is low and likely related to algae in the water and lake sediments getting stirred up.



View from Orr Lake boat launch

## Bottom Water Dissolved Oxygen

9.4 mg/L



This is sufficient for cold and warm water fish species.

## Wye River Water Level

32 cm



This is higher than Jun 21, and is likely related to recent rainfall. Water levels in Orr Lake are managed by the Township of Springwater, taking into account the needs of the lake and the river.



Wye River levels at Baseline Rd.



## General Observations

- Mayfly cases floating on surface
- Green water colour, large & small flecks of algae
- Floating aquatic plant material, bugs on surface
- Some floating mats of algae (not blue green)

## Invasive Species

Invasive Species found on the Orr lake shoreline in recent surveys:

- **Yellow Iris, Chinese Mystery Snail, Bittersweet Nightshade, and Coltsfoot**
- **Yellow Iris** is a troublesome invasive species that outgrows native aquatic plants and harms biodiversity within aquatic ecosystems.
- **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.



Ophridium, aka "jelly balls"



Deceased Pumpkinseed



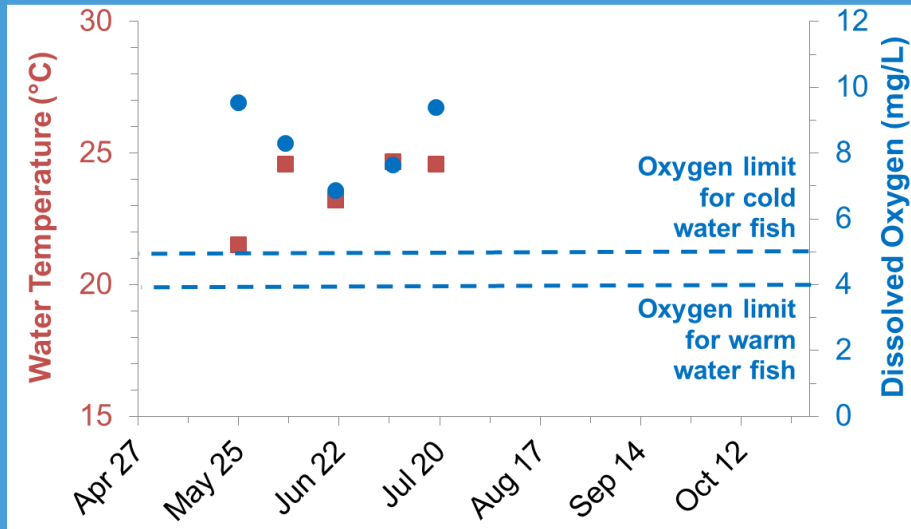
Yellow Iris



Chinese Mystery Snail

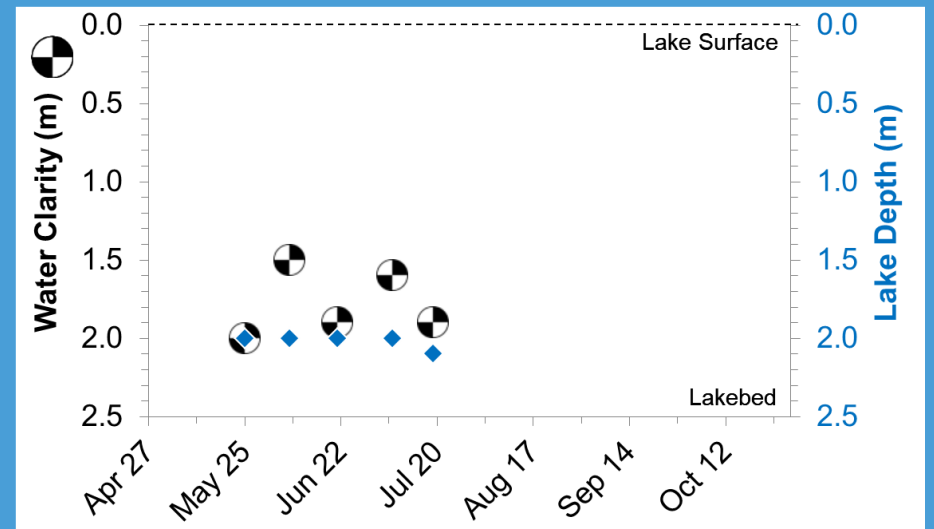
# ORR LAKE SEASONAL WATER QUALITY TRENDS

## Surface Temperature & Bottom Water Dissolved Oxygen



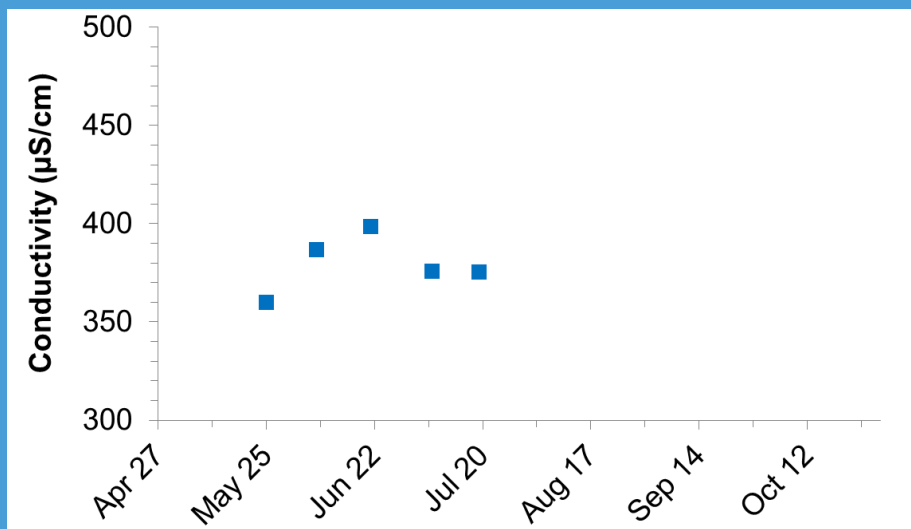
Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish, although high temperatures may cause stress.

## Water Clarity & Lake Depth



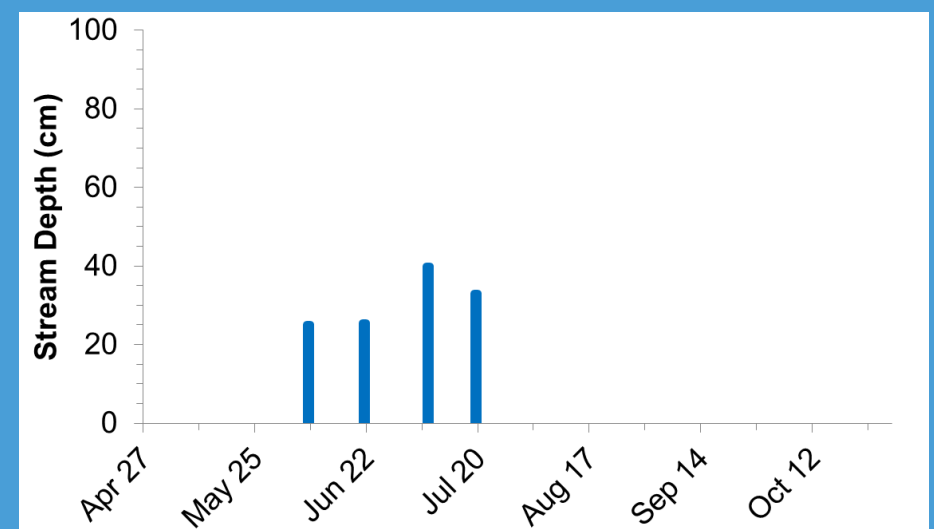
Water clarity is considered good if the lakebed is visible. This has so far only been the case on May 25<sup>th</sup>. Algae and sediment contribute to low clarity.

## Surface Water Conductivity



Conductivity indicates the amount of dissolved material in the water. Values are higher than other inland lakes in the area but similar to Bass Lake.

## Wye River Stream Depth (Baseline Rd.)



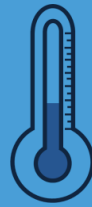
Wye River levels are closely linked to recent rainfall and the number logs in at the Orr Lake dam.

# ORR LAKE CONDITIONS UPDATE

August 4 2021

## Temperature at Surface

22.1°C



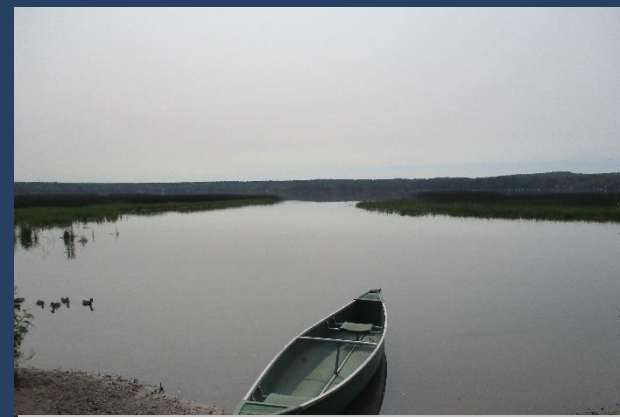
This is considered warm, but less than the max recorded in 2015 (26°C).

Water Clarity 1.8 m



Lake Depth 2.1 m

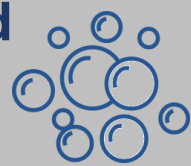
Water clarity is low and likely related to algae in the water and lake sediments getting stirred up.



View from Orr Lake boat launch

## Bottom Water Dissolved Oxygen

8.8 mg/L



This is sufficient for cold and warm water fish species.

Wye River Water Level 30 cm



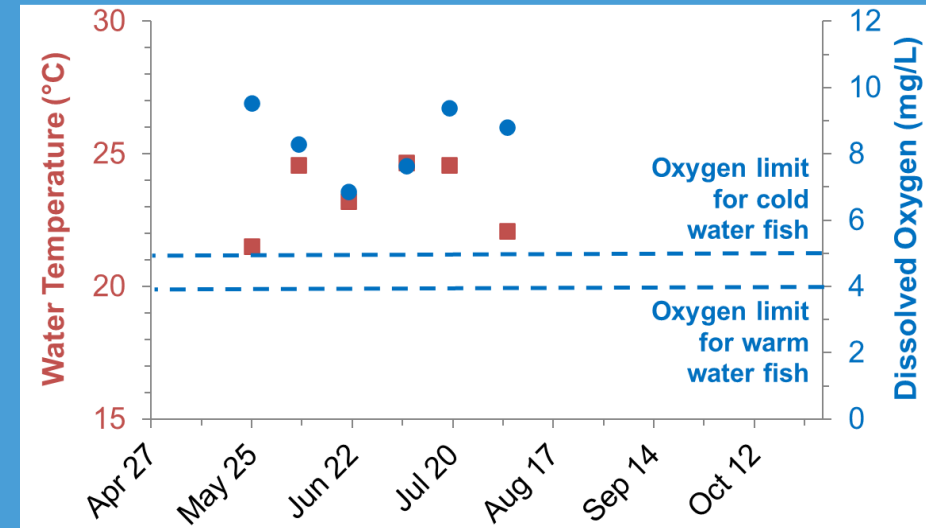
This is lower than July 19th. Water levels in Orr Lake are managed by the Township of Springwater, taking into account the needs of the lake and the river.



Wye River levels at Baseline Rd.

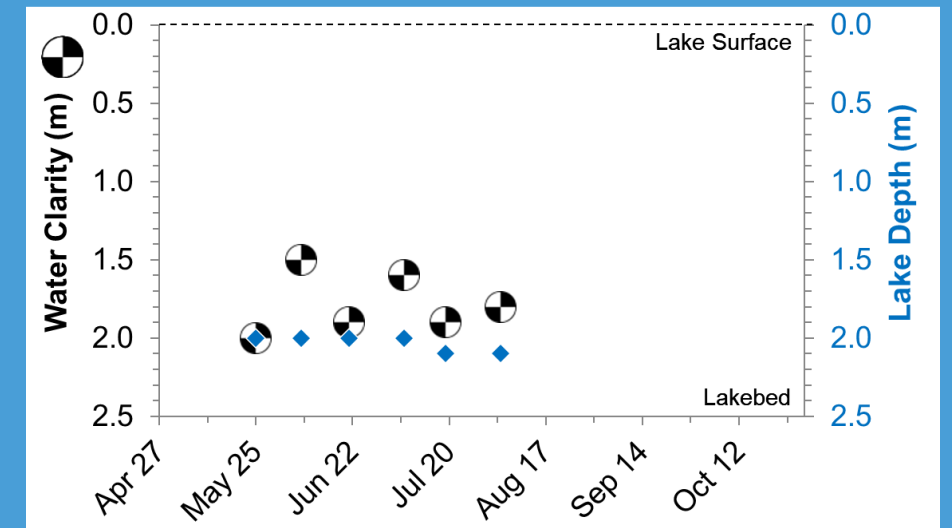
# ORR LAKE SEASONAL WATER QUALITY TRENDS

## Surface Temperature & Bottom Water Dissolved Oxygen



Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish, although high temperatures may cause stress.

## Water Clarity & Lake Depth



Water clarity is considered good if the lakebed is visible. This has so far only been the case on May 25<sup>th</sup>. Algae and sediment contribute to low clarity.



## General Observations

- Insect cases floating on surface
- Small to large flecks of algae
- Floating aquatic plant material on surface
- Green/yellow water colour

## Invasive Species

Invasive Species found on Orr lake shoreline in recent surveys:

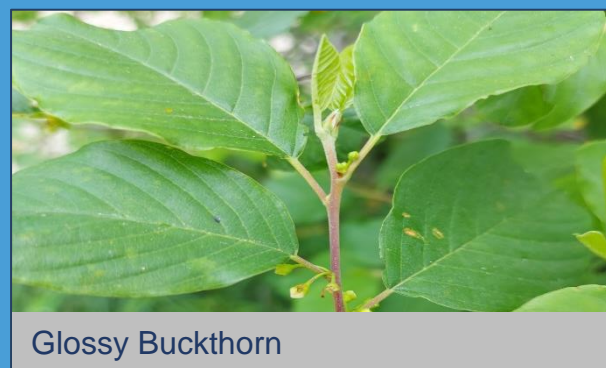
- **Glossy Buckthorn & Japanese Beetles**
- **Glossy Buckthorn** is a shrub which can crowd out native species in large numbers. Their fruits do not provide adequate nutrition for wildlife compared to native shrub species which decreases available food sources for wildlife.
- **Japanese Beetles** are 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



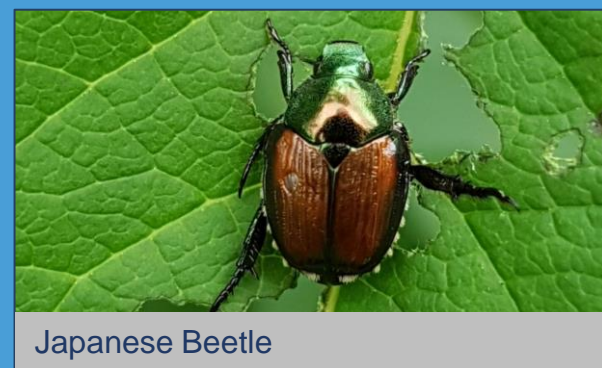
Mallard ducks on shoreline



Family fishing on Orr Lake

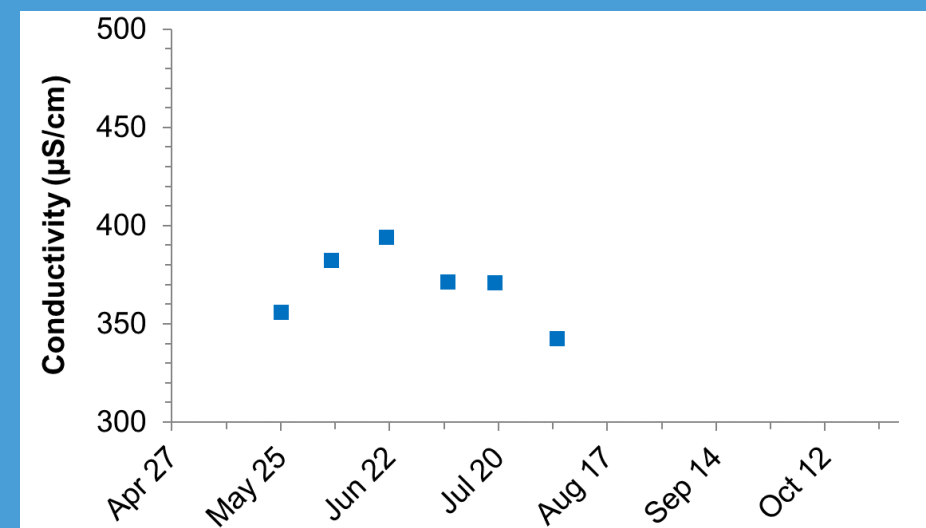


Glossy Buckthorn



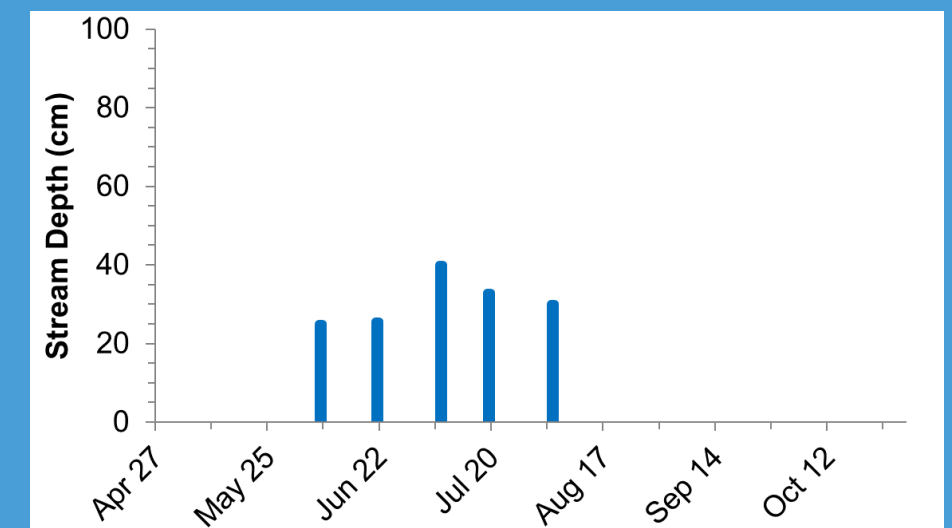
Japanese Beetle

## Surface Water Conductivity



Conductivity indicates the amount of dissolved material in the water. Values are higher than other inland lakes in the area but similar to Bass Lake.

## Wye River Stream Depth (Baseline Rd.)

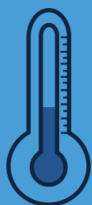


Wye River levels are closely linked to recent rainfall and the number logs in at the Orr Lake dam.

# ORR LAKE CONDITIONS UPDATE

Sample Date: Aug 16 2021  
Next Sample: Aug 30 2021  
(weather permitting)


**Temperature at Surface**



**23.8°C**

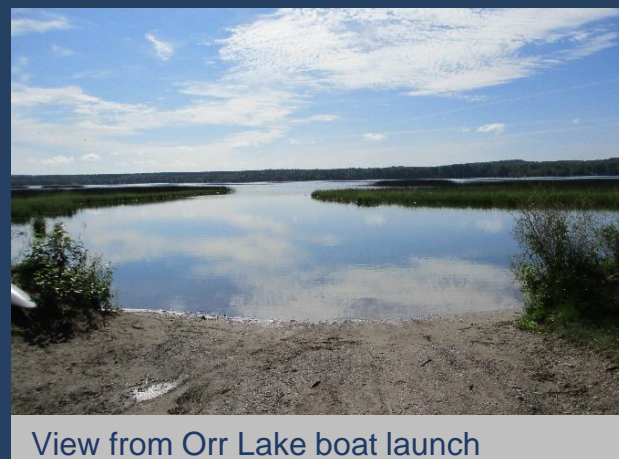
This is considered warm, but is cooler than values recorded in late May.

**Water Clarity** 1.8 m

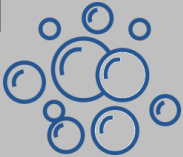


**Lake Depth** 2.0 m

Water clarity is low and likely related to algae in the water and lake sediments getting stirred up.




**Bottom Water Dissolved Oxygen**



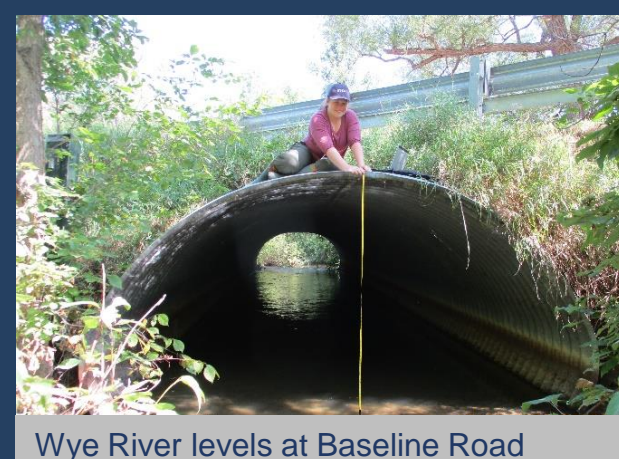
**8.5 mg/L**

This is sufficient for cold and warm water fish species.

**Wye River Water Level** 30.4 cm



Slightly higher than Aug 4. Water levels in Orr Lake are managed by the Township of Springwater, taking into account the needs of the lake and the river.



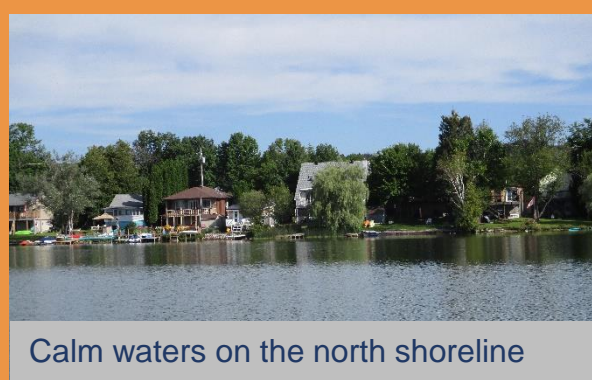
## General Observations

- Foam floating on surface
- Lots of small to large flecks of algae
- Floating aquatic plant material on surface
- Bright green water colour

**Invasive Species**

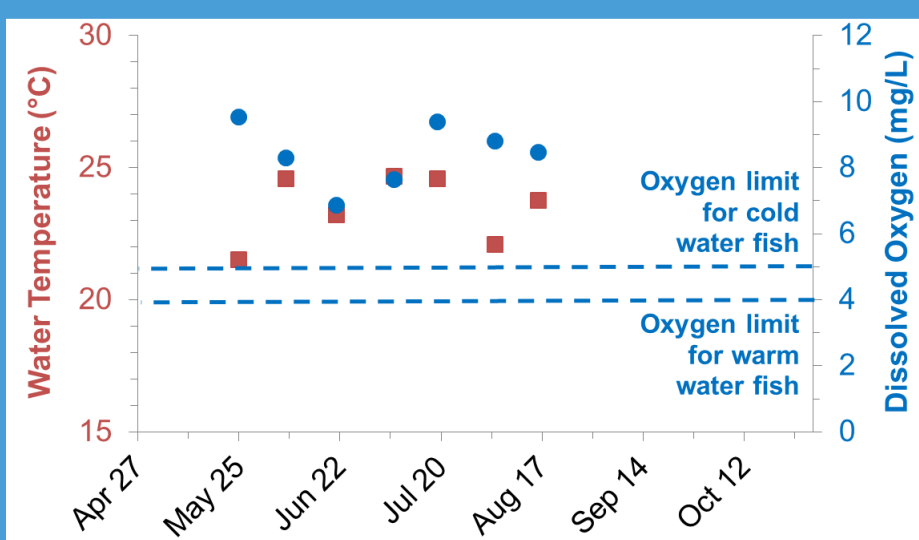
Invasive Species found on Orr Lake shoreline in recent surveys: **Amur Maple** (*Acer ginnala*) and **Manitoba Maple** (*Acer negundo*)

- **Amur Maple** 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** 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.



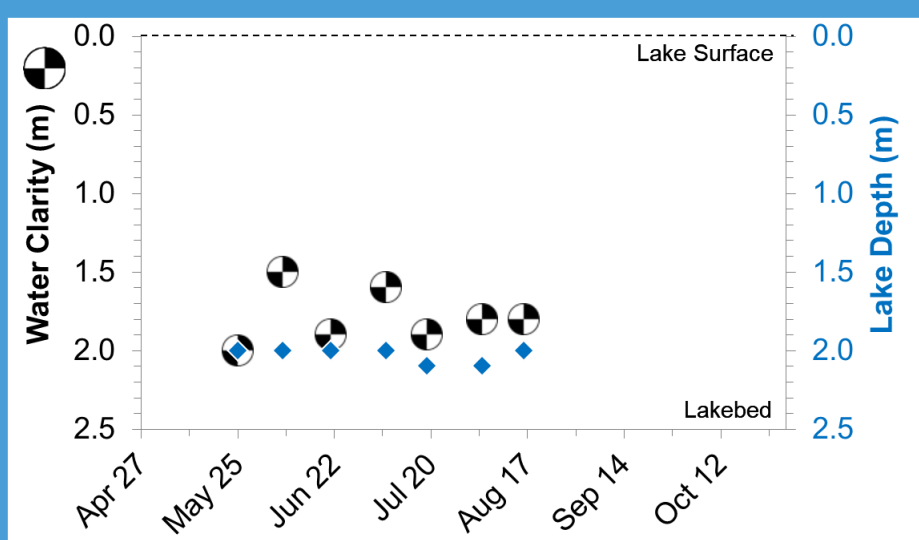
## ORR LAKE SEASONAL WATER QUALITY TRENDS

### Surface Temperature & Bottom Water Dissolved Oxygen



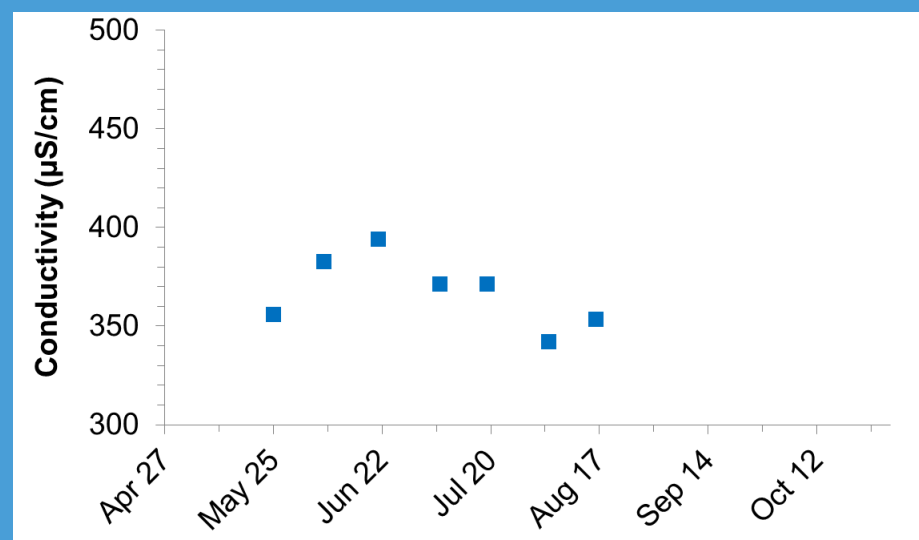
Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish, although high temperatures may cause stress.

### Water Clarity & Lake Depth



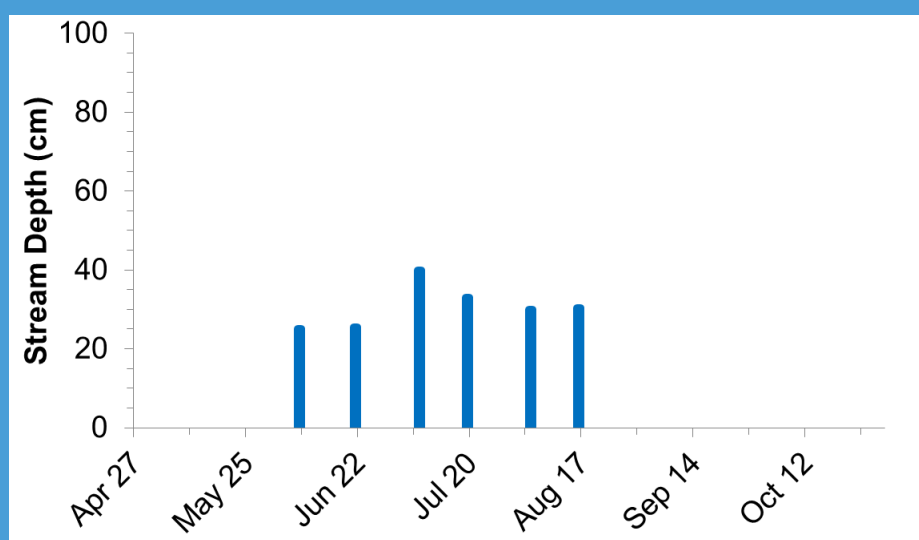
Water clarity is considered good if the lakebed is visible. This has so far only been the case on May 25<sup>th</sup>. Algae and sediment contribute to low clarity.

### Surface Water Conductivity



Conductivity indicates the amount of dissolved material in the water. Values are higher than other inland lakes in the area but similar to Bass Lake.

### Wye River Stream Depth (Baseline Rd.)



Wye River levels are closely linked to recent rainfall and the number logs in at the Orr Lake dam.



# ORR LAKE CONDITIONS UPDATE

Sample Date: Aug 30, 2021  
Next Sample: Sept 13, 2021  
(weather permitting)

## Temperature at Surface

24.9°C



This is considered warm, but is cooler than values recorded in late May.

Water Clarity 1.7m



Lake Depth 2.0m

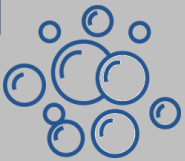
Water clarity is low and likely related to algae in the water and lake sediments getting stirred up.



View from Orr Lake boat launch

## Bottom Water Dissolved Oxygen

8.6 mg/L



This is sufficient for cold and warm water fish species.

Wye River Water Level 27 cm



Water level lower than on Aug 16. Water levels in Orr Lake are managed by the Township of Springwater, taking into account the needs of the lake and the river.



Wye River levels at Baseline Road



## General Observations

- Bright green/yellow water colour
- Lots of small flecks of algae
- Floating aquatic plant material on surface
- No foam or insect casings on surface

## Invasive Species

Invasive Species found on Orr Lake shoreline in recent surveys: **Purple Loosestrife** (*Lythrum salicaria*) and **Eurasian Water-milfoil** (*Myriophyllum spicatum*)

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



Monitoring Orr Lake tributaries



Well vegetated northern shoreline



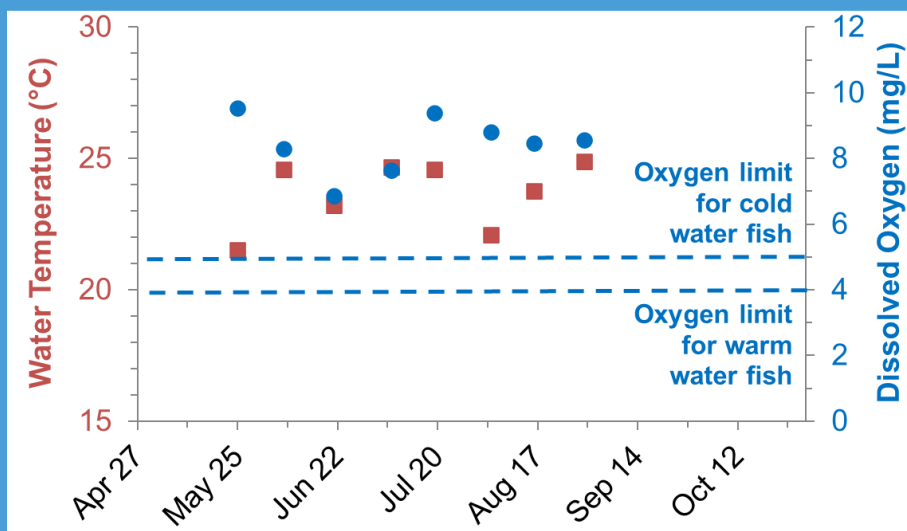
Purple Loosestrife



Eurasian Water-milfoil

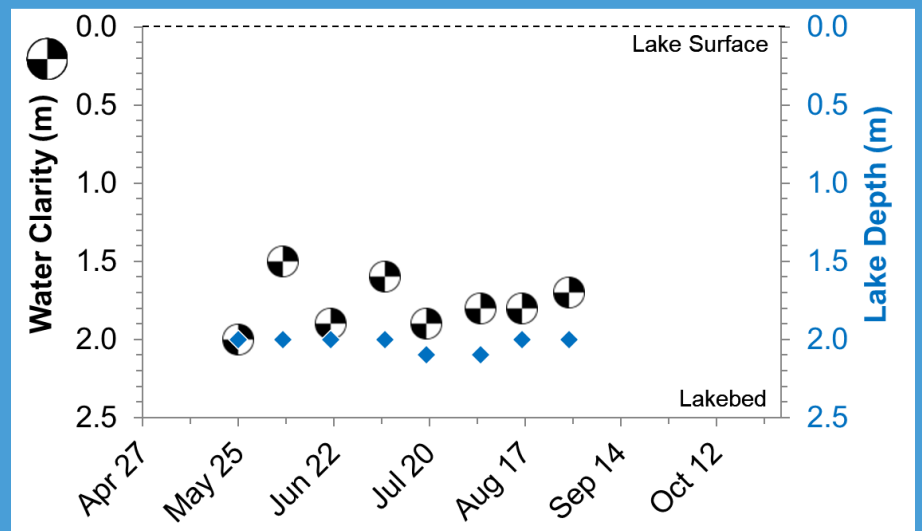
# ORR LAKE SEASONAL WATER QUALITY TRENDS

## Surface Temperature & Bottom Water Dissolved Oxygen



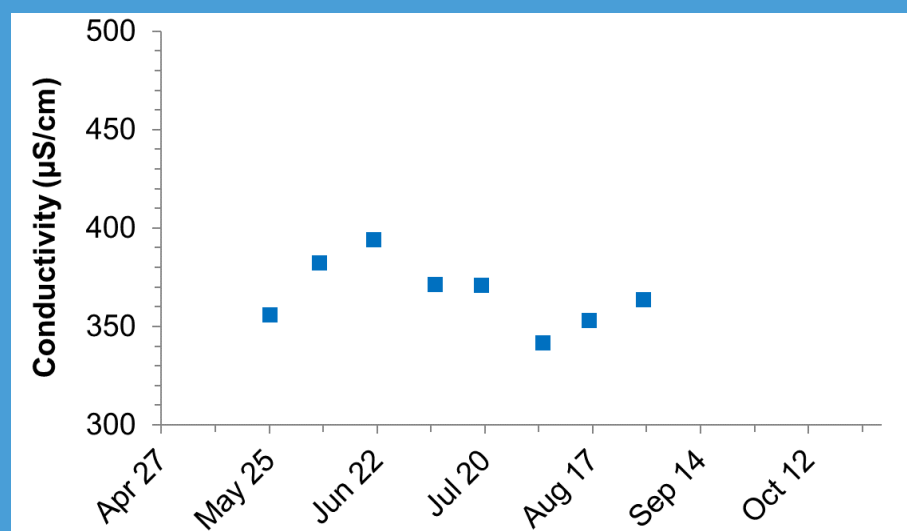
Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish, although high temperatures may cause stress.

## Water Clarity & Lake Depth



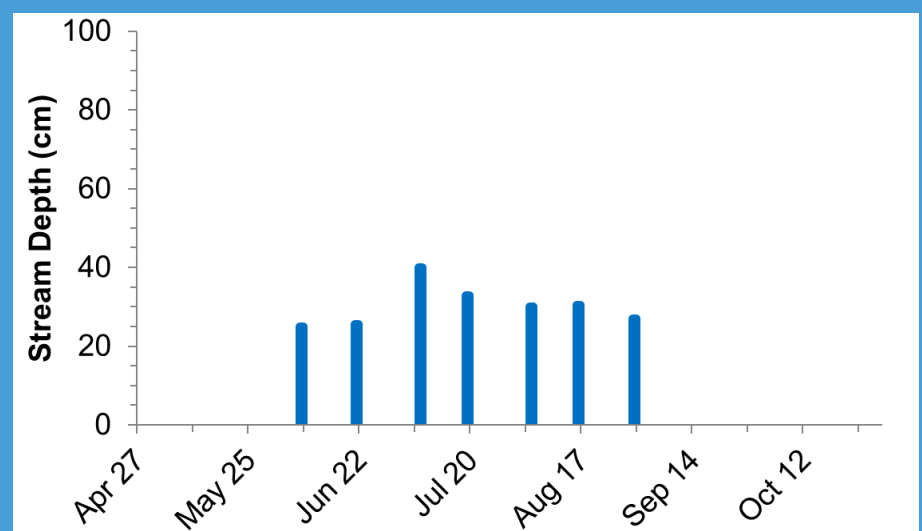
Water clarity is considered good if the lakebed is visible. This has so far only been the case on May 25<sup>th</sup>. Algae and sediment contribute to low clarity.

## Surface Water Conductivity



Conductivity indicates the amount of dissolved material in the water. Values are higher than other inland lakes in the area but similar to Bass Lake.

## Wye River Stream Depth (Baseline Rd.)



Wye River levels are closely linked to recent rainfall and the number logs in at the Orr Lake dam.



# ORR LAKE CONDITIONS UPDATE

Sample Date: Sept 13, 2021  
Next Sample: Sept 27, 2021  
(weather permitting)

## Temperature at Surface

19.5°C



The lake is cooling off now as nighttime temperature start to drop.

## Water Clarity

1.8 m



## Lake Depth

2.0 m

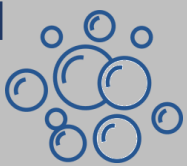
Water clarity is low and likely related to algae in the water and lake sediments getting stirred up.



View from Orr Lake boat launch

## Bottom Water Dissolved Oxygen

9.3 mg/L



This is plenty for cold and warm water fish species.

## Wye River Water Level

30 cm



Water level is higher than on Aug 30. Orr Lake water levels are managed by the Township of Springwater, taking into account the needs of the lake and the river.



Wye River levels at Baseline Road

## General Observations

- Green/yellow water colour
- Some small flecks of algae
- Floating aquatic plant material on surface
- Insect casings observed on surface

## Invasive Species

Invasive Species found on Orr Lake shoreline in recent surveys: **Zebra Mussel** (*Dreissena polymorpha*)

- **Zebra Mussels (ZMs)** are invasive mussels that are widespread in Severn Sound, Bass Lake and Lake Couchiching
- ZMs are efficient filter feeders, and can have negative impacts on the ecology of a lake
- **This is the first occurrence of ZMs that SSEA has documented.** Let us know if you've observed them in the past!



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



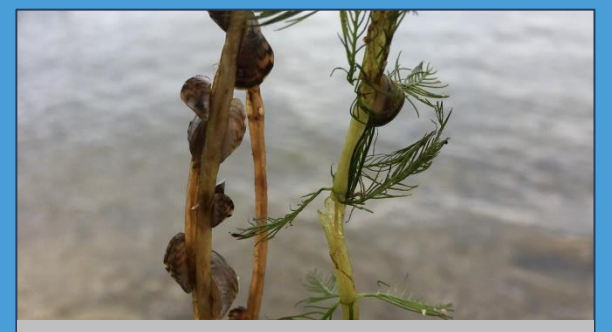
Northern Leopard frog in stream



Dragonfly nymph in stream



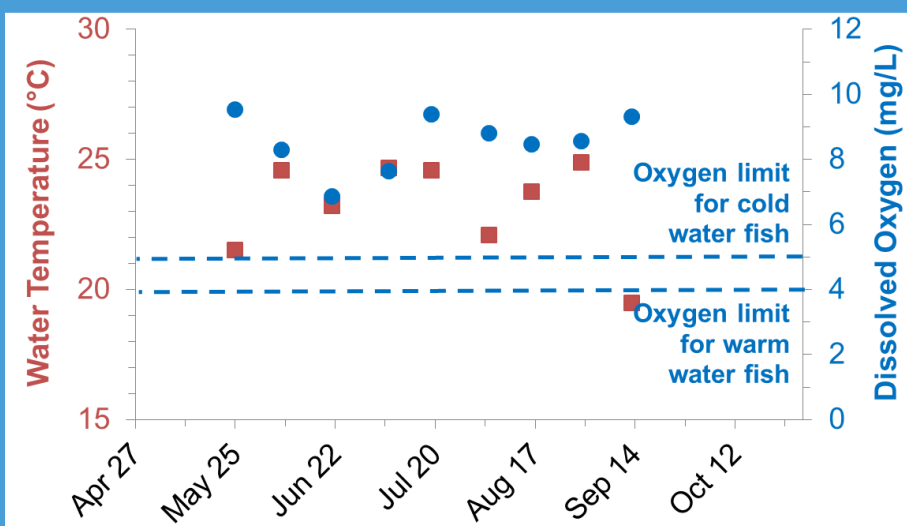
Zebra mussel attached to *Chara*



Mussels on Eurasian Milfoil (Midland)

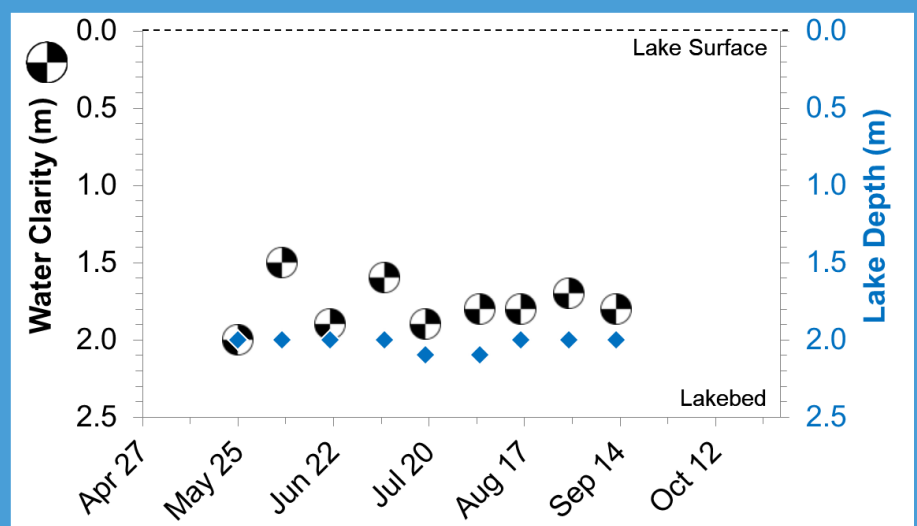
# ORR LAKE SEASONAL WATER QUALITY TRENDS

## Surface Temperature & Bottom Water Dissolved Oxygen



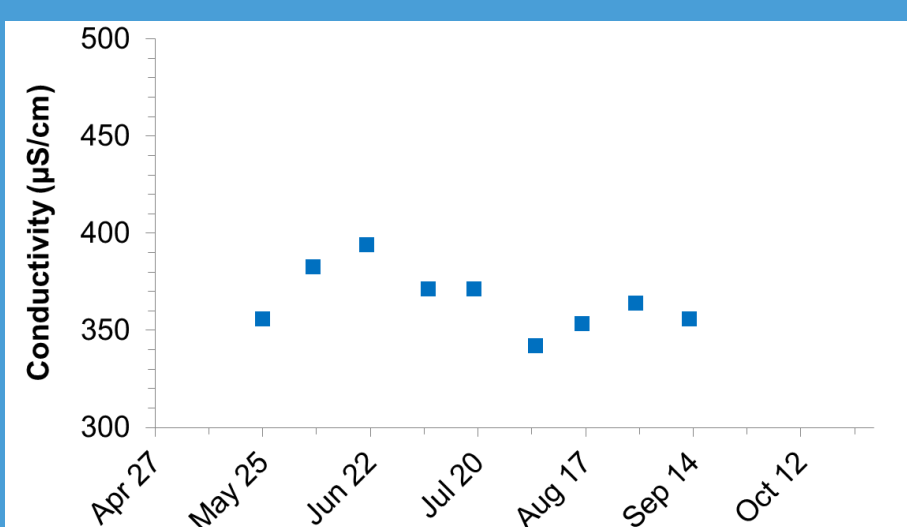
Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish, and temperatures are now starting to cool off.

## Water Clarity & Lake Depth



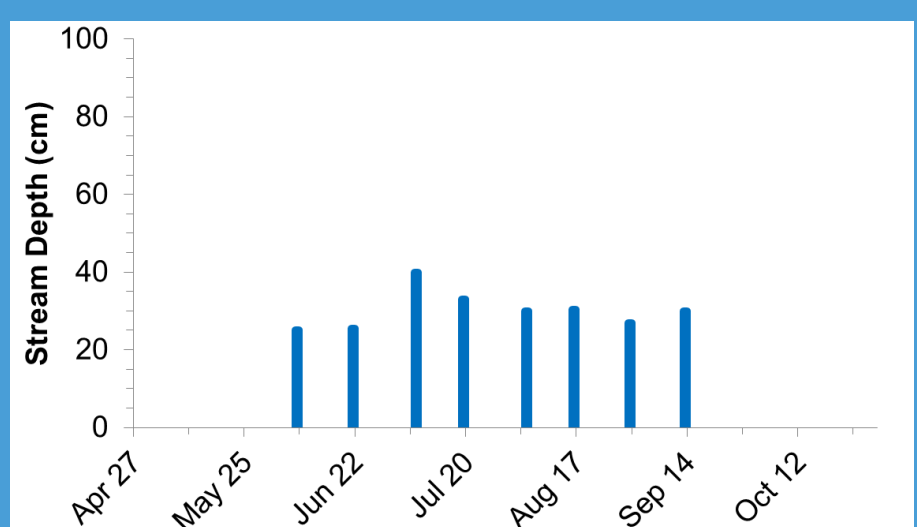
Water clarity is considered good if the lakebed is visible. This has so far only been the case on May 25<sup>th</sup>. Algae and sediment contribute to low clarity.

## Surface Water Conductivity



Conductivity indicates the amount of dissolved material in the water. Values are higher than other inland lakes in the area but similar to Bass Lake.

## Wye River Stream Depth (Baseline Rd.)



Wye River levels are closely linked to recent rainfall and the number logs in at the Orr Lake dam.



# ORR LAKE CONDITIONS UPDATE

Sample Date: Sept 28, 2021  
Next Sample: Oct 12, 2021  
(weather permitting)

## Temperature at Surface

16.1°C



Temperatures are cooling off with the onset of cool fall nighttime air temperatures.

## Water Clarity

2.2 m



## Lake Depth

2.6 m

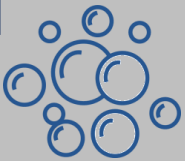
Water clarity is low and likely related to algae in the water and lake sediments getting stirred up.



View from Orr Lake boat launch

## Bottom Water Dissolved Oxygen

9.2 mg/L



This is plenty for cold and warm water fish species.

## Wye River Water Level

51 cm



Water levels were higher than on Sept 13 due to significant rainfall. Water levels in Orr Lake are managed by the Township of Springwater, taking into account the needs of the lake and the river.



Wye River levels at Baseline Road

## General Observations



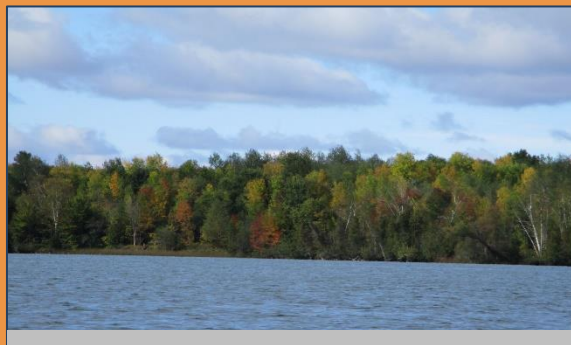
- Green/yellow water colour
- Lots of suspended sediment & flecks of algae
- Floating aquatic plant material on surface
- Some foam on surface

## Invasive Species

Invasive Species found on Orr Lake shoreline in recent surveys:

**Common Reed/Phragmites**  
(*Phragmites australis* ssp. *australis*)

**Phragmites** 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.



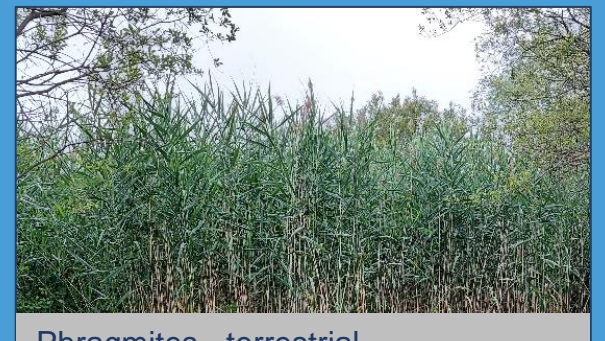
Changing Colours, west end of lake



Zooplankton sampling



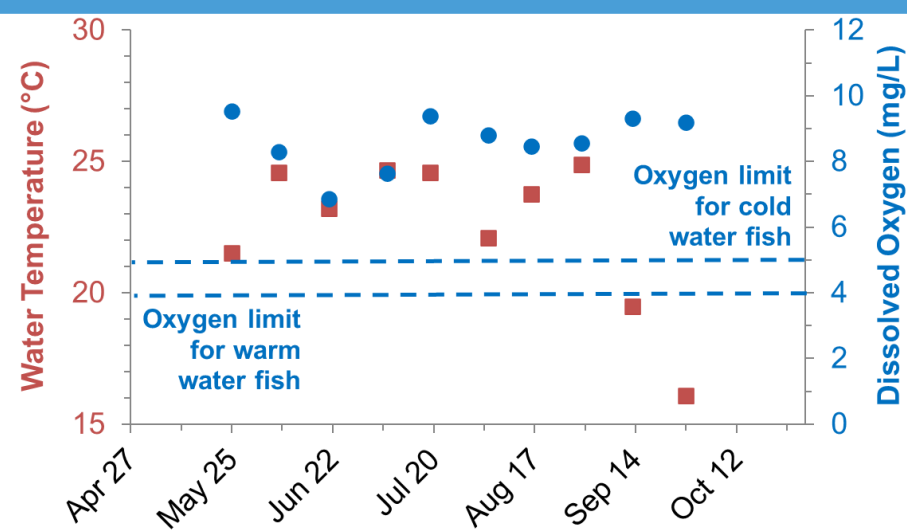
Phragmites - aquatic



Phragmites - terrestrial

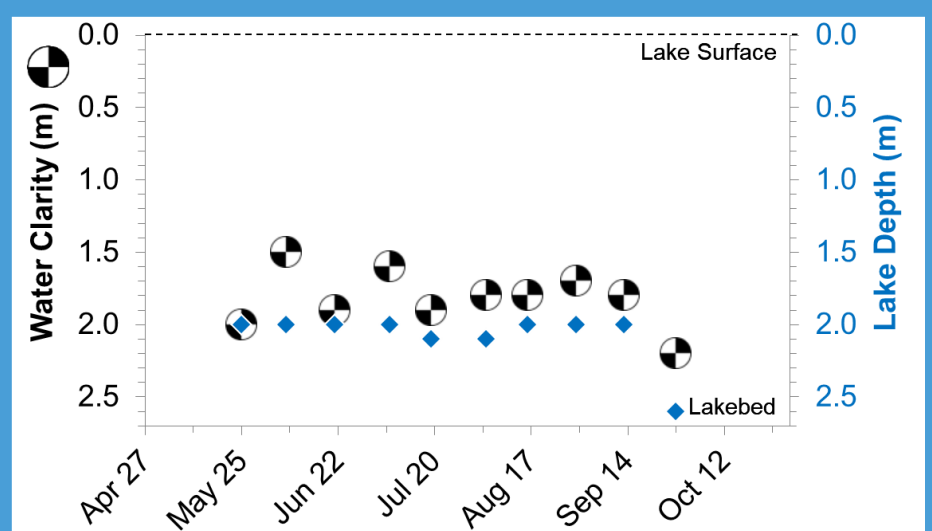
# ORR LAKE SEASONAL WATER QUALITY TRENDS

## Surface Temperature & Bottom Water Dissolved Oxygen



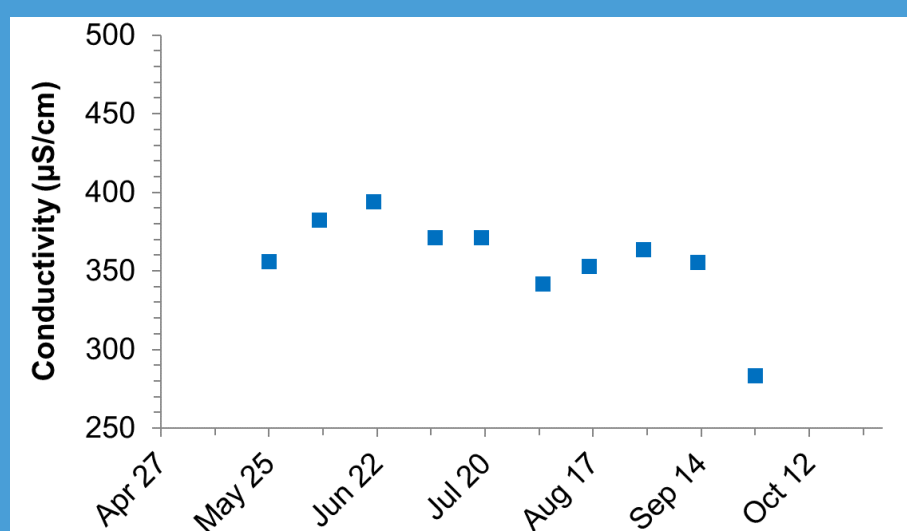
Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish, even during periods of high temperatures.

## Water Clarity & Lake Depth



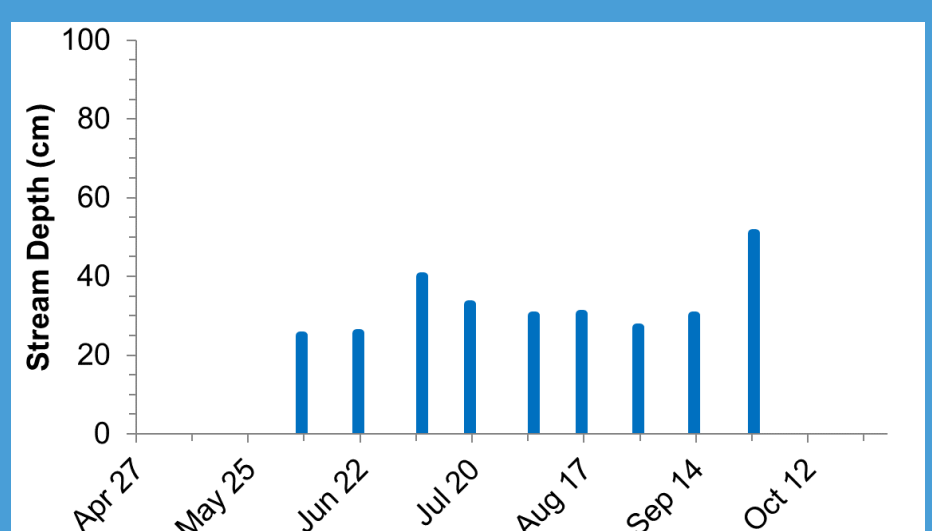
Water clarity is considered good if the lakebed is visible. This has so far only been the case on May 25<sup>th</sup>. Algae and sediment contribute to low clarity.

## Surface Water Conductivity



Conductivity indicates the amount of dissolved material in the water. Values are higher than other inland lakes in the area but similar to Bass Lake.

## Wye River Stream Depth (Baseline Rd.)



Wye River levels are closely linked to recent rainfall and the number logs in at the Orr Lake dam. Recent rain events led to higher water levels.



# ORR LAKE CONDITIONS UPDATE

Sample Date: Oct 12, 2021  
(Last sample run)

## Temperature at Surface

18.7°C



Temperatures increased slightly with warm daytime temperatures.

Water Clarity 2 m



Lake Depth 2 m

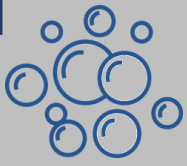
Water clarity is good and likely related to lower amounts of algae growth and suspended sediment.



View from Orr Lake boat launch

## Bottom Water Dissolved Oxygen

5.7 mg/L



This is just enough for cold and warm water fish species.

Wye River Water Level 40 cm



Water levels were lower than on Sept 28. Water levels in Orr Lake are managed by the Township of Springwater, taking into account the needs of the lake and the river.



Wye River levels at Baseline Road



## General Observations

- Green water colour
- Lots of flecks of algae
- Floating aquatic plant material on surface
- Lots of foam on surface

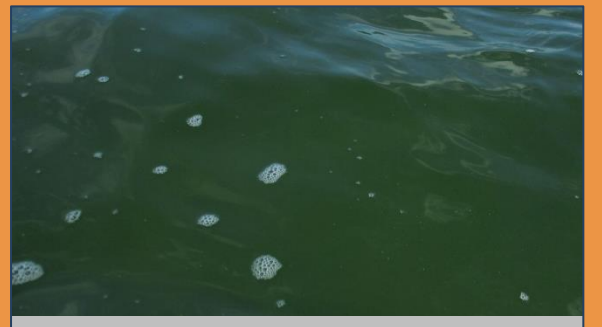
## Invasive Species

Here are some Invasive Species that have not been detected in Orr Lake but you should be on the look out for:

- **Round Goby** (*Neogobium melanostomus*) is a fish that reproduces rapidly and outcompetes native species of fish, including species at risk. It is illegal to use Round Goby as bait in Canada. Gobies are widespread in Severn Sound.
- **Spiny Waterfleas** (*Bythotrephes longimanus*) are predatory zooplankton that congregate to form masses on fishing lines. They reproduce quickly, outcompeting native zooplankton species, and harming fish that eat them due to their sharp spines.



Naturally occurring foam along shore



Green water colour and foam



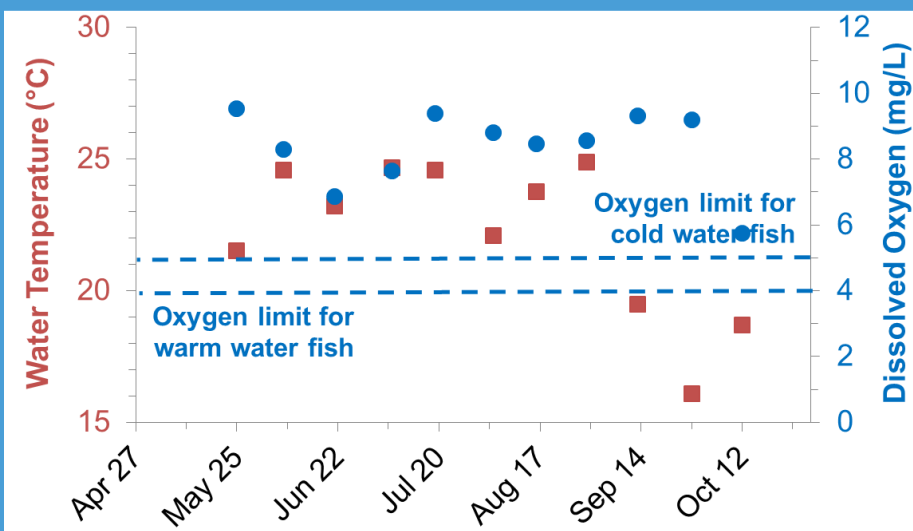
Round Goby



Spiny Waterflea

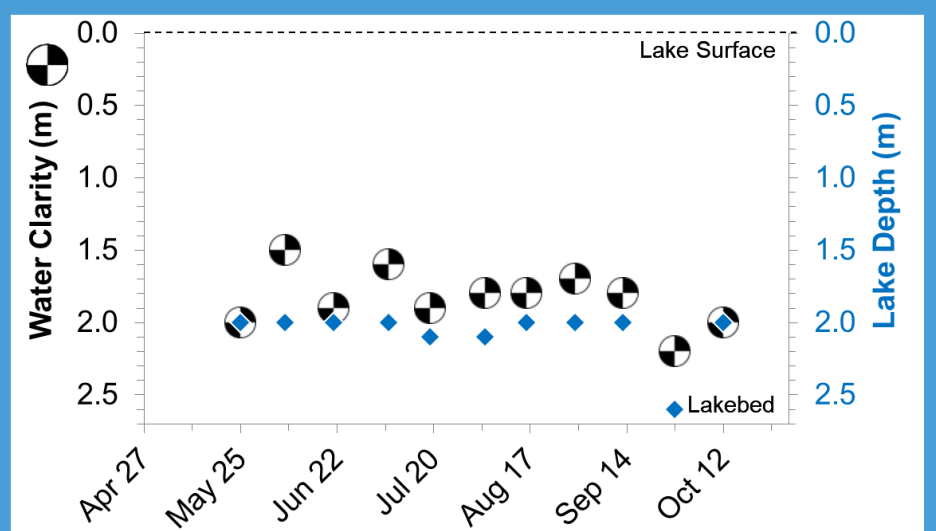
# ORR LAKE SEASONAL WATER QUALITY TRENDS

## Surface Temperature & Bottom Water Dissolved Oxygen



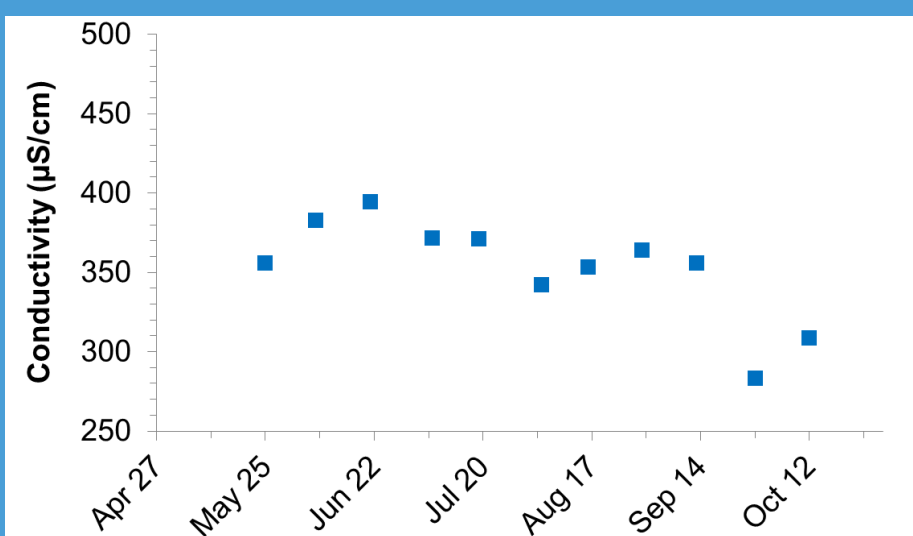
Oxygen levels have remained above the Provincial Water Quality Objectives for cold and warm water fish, even during periods of high temperatures.

## Water Clarity & Lake Depth



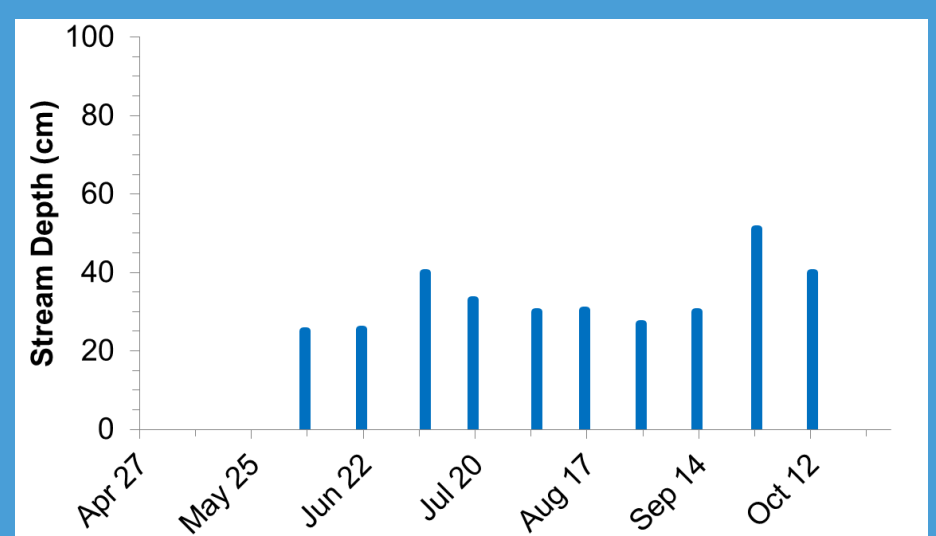
Water clarity is considered good if the lakebed is visible. This was only the case on May 25<sup>th</sup> & Oct 12<sup>th</sup>. Algae and sediment contribute to low clarity.

## Surface Water Conductivity



Conductivity indicates the amount of dissolved material in the water. Values dropped recently with increased rainfall, which has a dilution effect.

## Wye River Stream Depth (Baseline Rd.)



Wye River levels are closely linked to recent rainfall & the number logs in at the Orr Lake dam. High levels on Sept 28 occurred after heavy rains.