



# KAWARTHA CONSERVATION

Discover • Protect • Restore



# Lake Dalrymple Working Group Meeting #6

March 7, 2023



# AGENDA

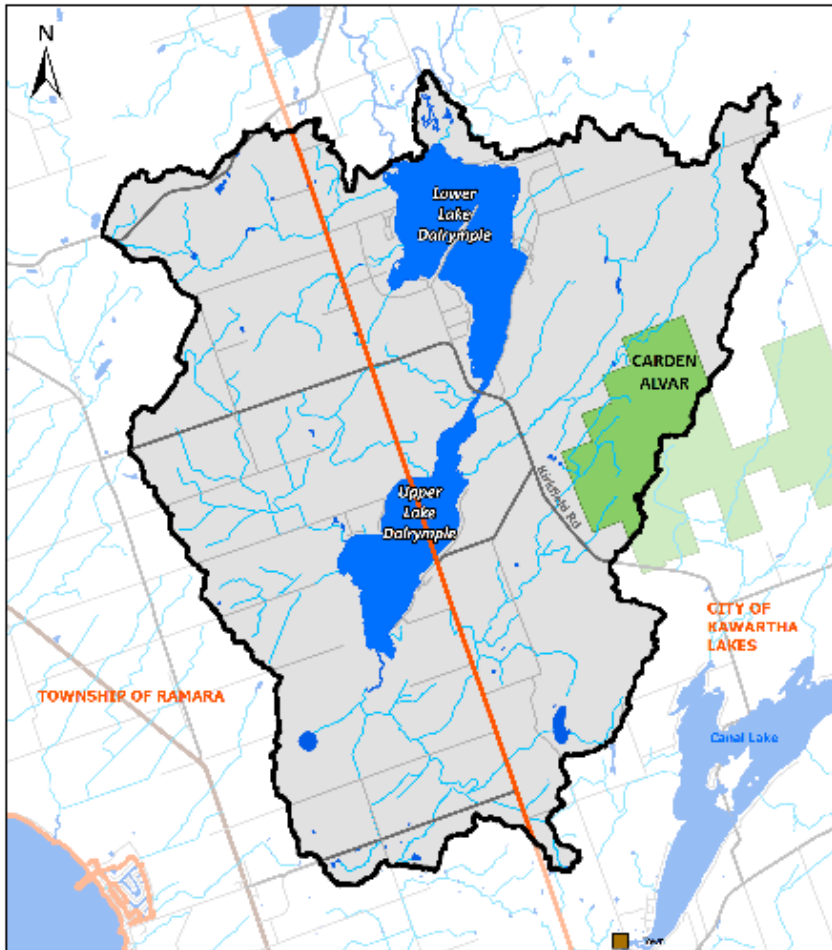
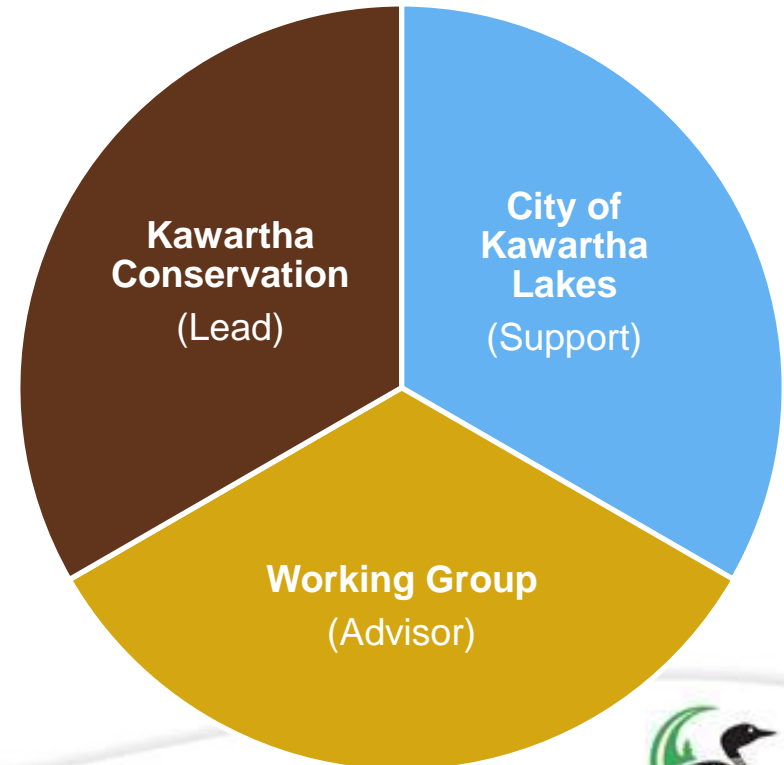
1. Welcome
2. Roundtable Introductions
3. Project update
4. Lake Sediment Quality Sampling Results, from 2022
5. Monitoring Summary Dashboard Update
6. Discussion on Potential Solutions to Key Issues
7. Other business?
8. Closing – next meeting



# Project Overview

## Lake Dalrymple Management Plan

4 year project  
(2021-2024)



Lake Dalrymple Overview Map



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Scale: 1:95,000



- Town
- Highway
- Lake Shore
- Minor Road
- Watercourse
- Lake Dalrymple
- Lake Simcoe
- Lake Couchiching
- Provincial Boundary
- Municipal Boundary

# Project Overview - requirements



Science + Community Input = Lake Plan

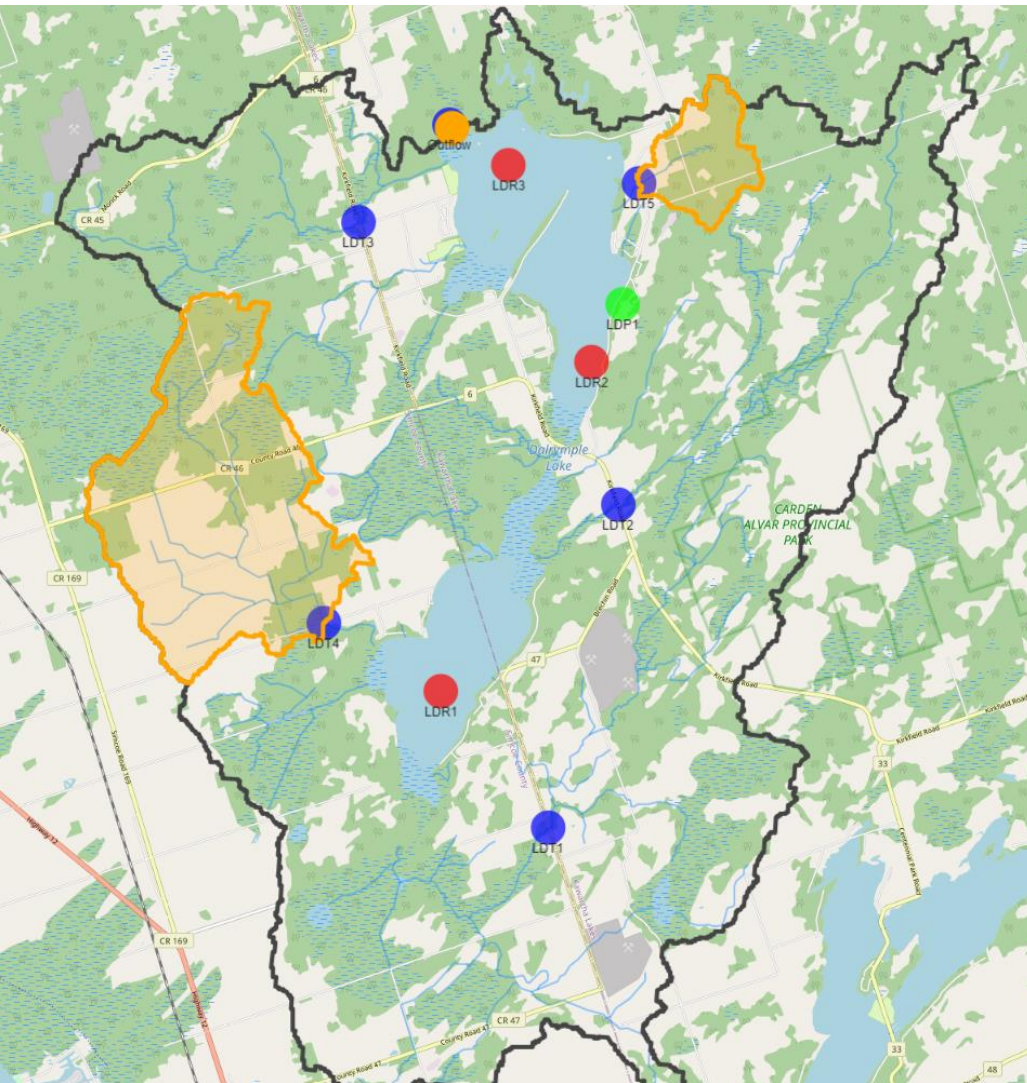


# Workplan Update

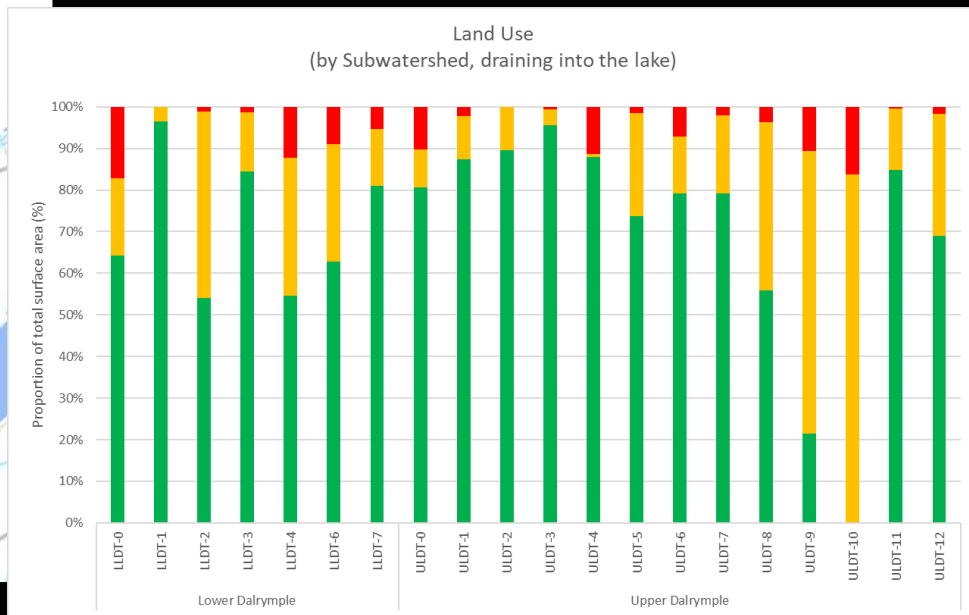
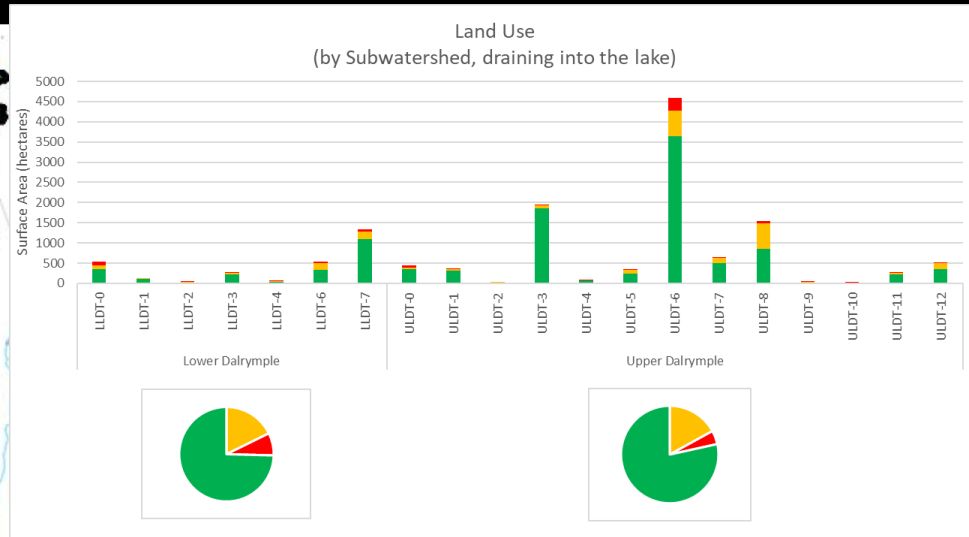
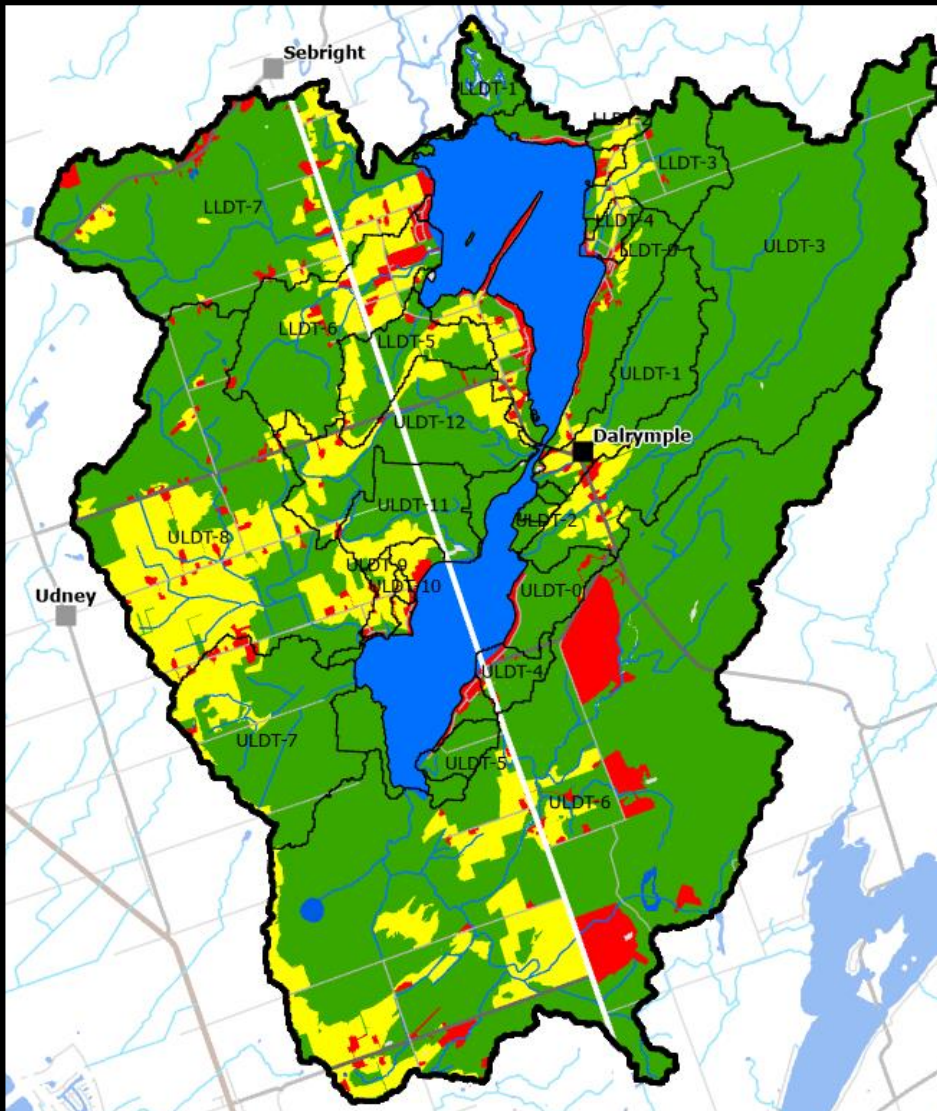


KEY PLANNING COMPONENTS	
<-- Staff / Stakeholder / Working Group input -->	<b>Scoping</b> a. Who are the key stakeholders? b. What are stakeholder's key values/issues/goals? c. What information is available?
	<b>Characterizing</b> a. What are the key lake resources? b. What are the functions (benefits/values) and linkages? c. What are the key management issues? d. What are the information gaps?
	<b>Planning</b> a. What are the outcomes, goals, objectives? b. What are draft management targets? c. What are the proposed management strategies/actions? d. Evaluate alternatives against response/feasibility criteria? e. What are the preferred management actions? f. How will success, change, efforts be tracked?

# Core Monitoring Network



# Land Use 2018 Imagery

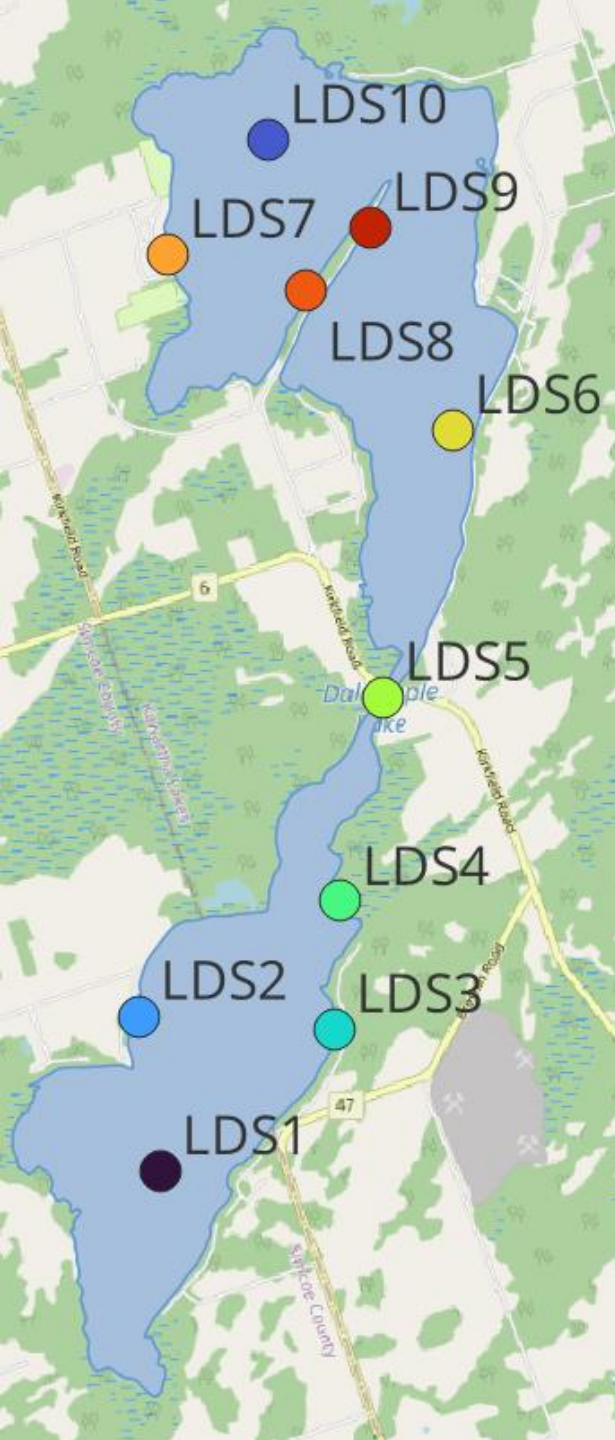


Natural vs Agriculture vs Developed



# Sediment Sampling

- 10 sites were used to collect sediment samples.
- Look at the following characteristics:
  - **3 types of nutrients** (carbon, phosphorus, and nitrogen).
  - **11 types of heavy metals** (lead, arsenic, cadmium, etc).
  - **15 types of organic contaminants** (Gasoline, garbage, asphalt, etc).

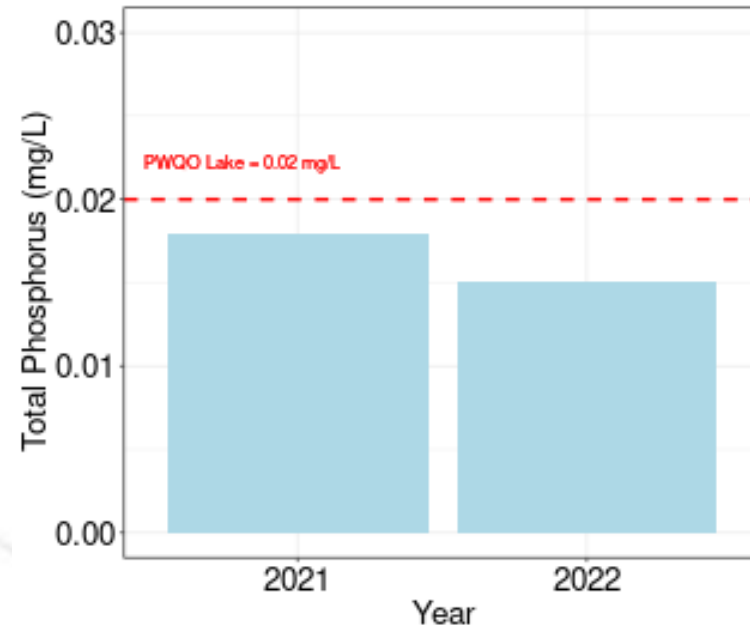
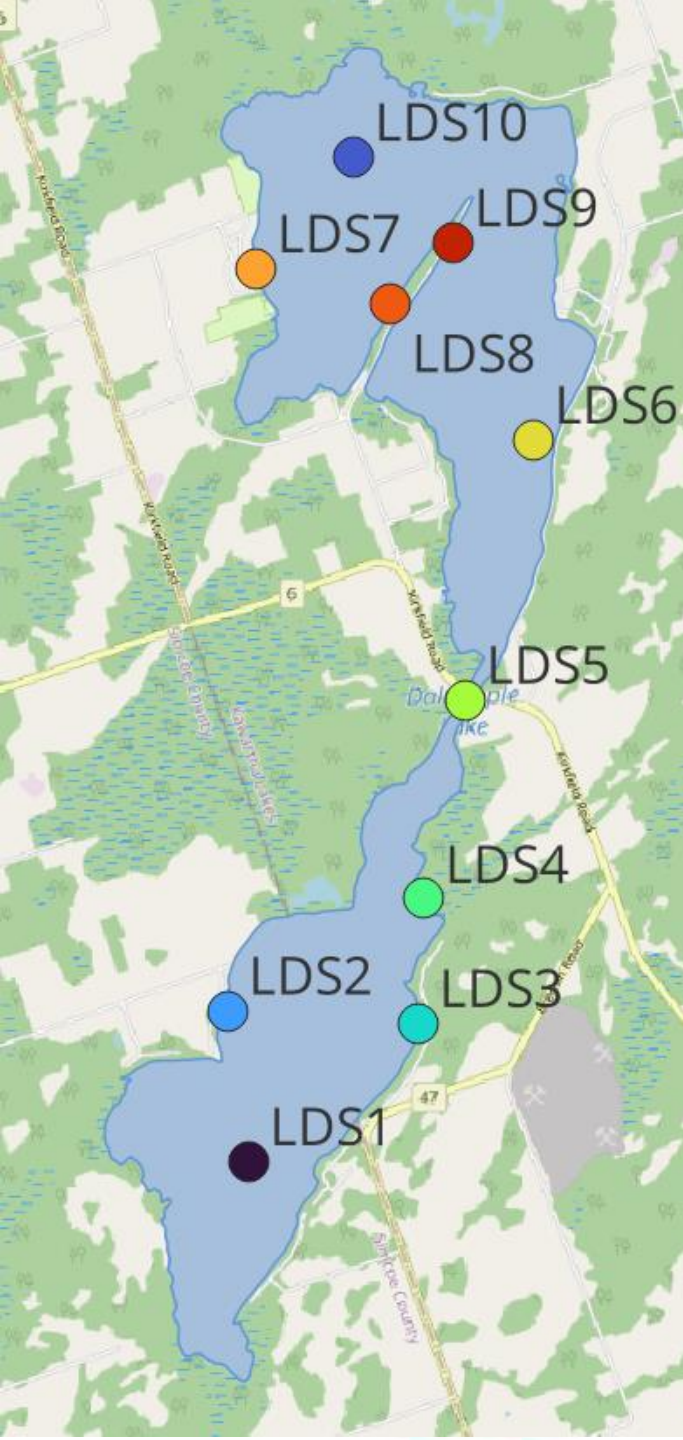


Compared against the Provincial Sediment Quality Guideline and Canadian Sediment Quality Guidelines

- To protect the aquatic environment by setting safe levels for metals, nutrients (substances which promote the growth of algae) and organic compounds.

# Sediment Sampling Results – Nutrients

- Sediment samples indicate enriched nutrients throughout the lake (except the boat launch).
- Which results in a healthy ecosystems (as indicated by our current water quality results) with lush vegetation. Without vegetation, excess nutrients would be taken up by algae, leading to poor water quality.





# Sediment Sampling Results – Heavy Metals

- No site had levels at or above the Severe Effect Level for metals.
- However, there were some higher levels at the site level. These sites should be considered clean to marginally polluted.
  - LDS1 – Nickel
  - LDS2 – Iron
  - LDS4 – Cadmium and Copper
  - LDS6 – Copper and Lead
  - LDS7 – Manganese
  - LDS10 – Cadmium, Copper, Lead, Nickel, and Zinc.

Note that LDS1, LDS6 & LDS10 are the deepest basins in Lower Dalrymple.



# Sediment Sampling Results - Organic Contaminants

- No site had levels at or above the Severe Effect Level for PAHs.
- More were found below detection limits.
- However, there were some higher levels at the site level. These sites should be considered clean to marginally polluted.
  - LDS5
  - LDS6
  - LDS10

Note that LDS6 & LDS10 are the deepest basins in Lower Dalrymple.

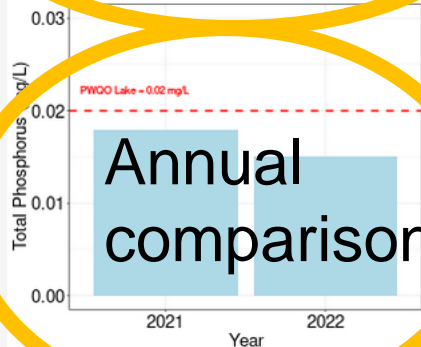
# Monitoring Summary Dashboard

## Total Phosphorus Concentrations

Select Waterbody Type

- Lake
- Tributary
- All

Buttons



Phosphorus is an essential nutrient for the growth of plants and animals. Excessive amounts of phosphorus can lead to uncontrollable growth of plants and rapid eutrophication.

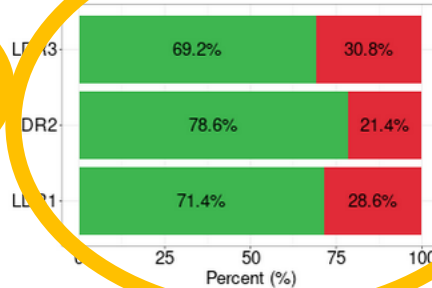
Concentrations of Total Phosphorus (TP) are compared against the interim Provincial Water Quality Objectives (PWQO) for TP, which is set at 0.03 mg/L for streams and river, and 0.02 mg/L for lake. At these levels, nuisance growth of plants and algae should be avoided.

**Figure Top-left:** Annual average TP concentrations (milligrams per liter) for Lake and/or Tributary.

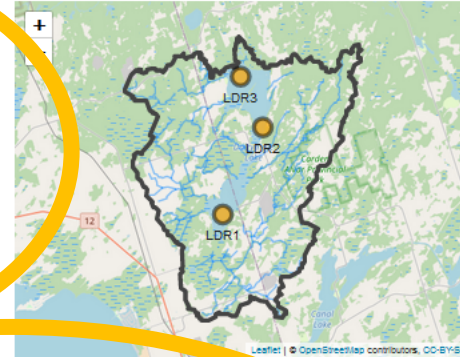
**Figure Top-middle:** Pass/Fail percentage of all samples per site.

**Figure Top-right:** Map of select sampling site in the Lake Dalrymple watershed.

## Total Phosphorus Exceedance Rate



## Overall pass/fail %



Waterbody Type	Year	PhosphorusTotal_mgL	Site
Lake	2021	0.015	LDR1
Lake	2021	0.040	LDR1
Lake	2021	0.011	LDR1
Lake	2021	0.014	LDR1
Lake	2021	0.010	LDR1
Lake	2021	0.025	LDR1
Lake	2021	0.022	LDR1
Lake	2022	0.009	LDR1
Lake	2022	0.013	LDR1
Lake	2022	0.014	LDR1

Open Data

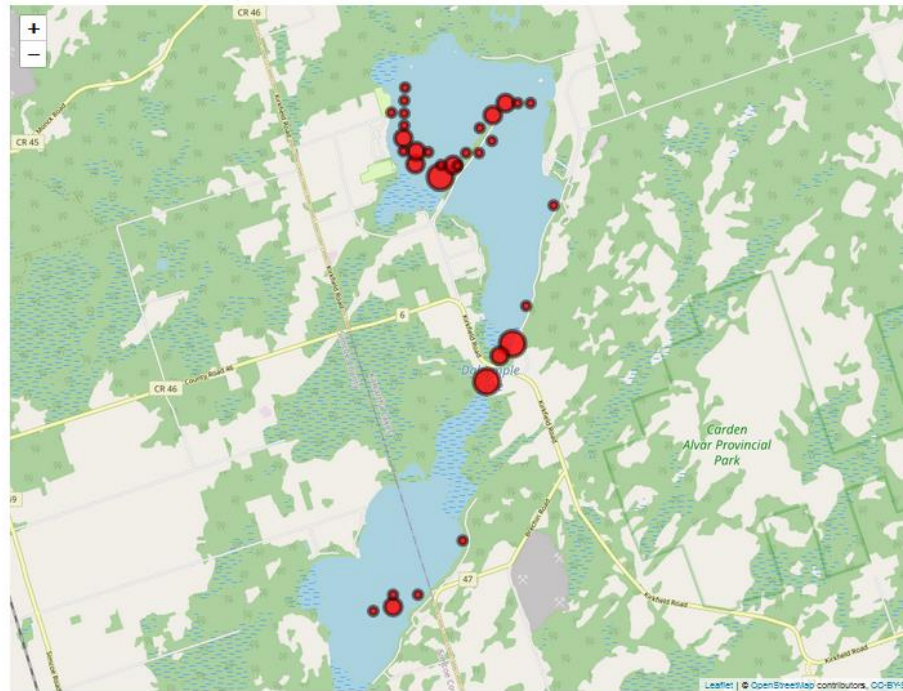
# Monitoring Summary Dashboard

Lake Dalrymple Management Plan | Welcome | About | Water Quality | Fish and Plants | Climate and Water Levels

## Aquatic Plant Survey

### Aquatic Plant Species/Group

Invasives  
Emergent  
Invasives  
Submergent  
Floating  
-----  
Bladderwort species  
Bulrush species  
Cattail species



Show 25 entries

Search:

Name	Latin name	class	Latitude	Longitude
Invasives		Group	44.63903	-79.11262
Invasives		Group	44.64434	-79.10740
Invasives		Group	44.66799	-79.12177
Invasives		Group	44.60693	-79.13130

Map will change with your selection

Open data

Select your species/group

Values

Concerns

Changes



# Closing

**Thank you!**

## **Lake Dalrymple Management Plan Webpage**

<https://www.kawarthaconservation.com/en/environmental-sciences/lake-dalrymple-management-plan.aspx>

## **Examples of Lake Management Plans**

<https://www.kawarthaconservation.com/en/environmental-sciences/lake-and-environmental-management-plans.aspx>

## **Contact Us!**

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