KAWARTHA CONSERVATION

Discover • Protect • Restore

Lake Dalrymple Working Group Meeting #7

July 5, 2023

AGENDA

1. Welcome
2. Roundtable Introductions
3. Project update

4. Monitoring Data Dashboard updates
5. Lake Capacity Assessments
6. Carden Waste Disposal Site key findings
7. Draft Factsheets (Fish Handling, Invasive Species, Harmful Algae Blooms)
8. Draft Solutions to Key Issues – SEE ATTACHMENT

9. Other business?
10. Closing – next meeting

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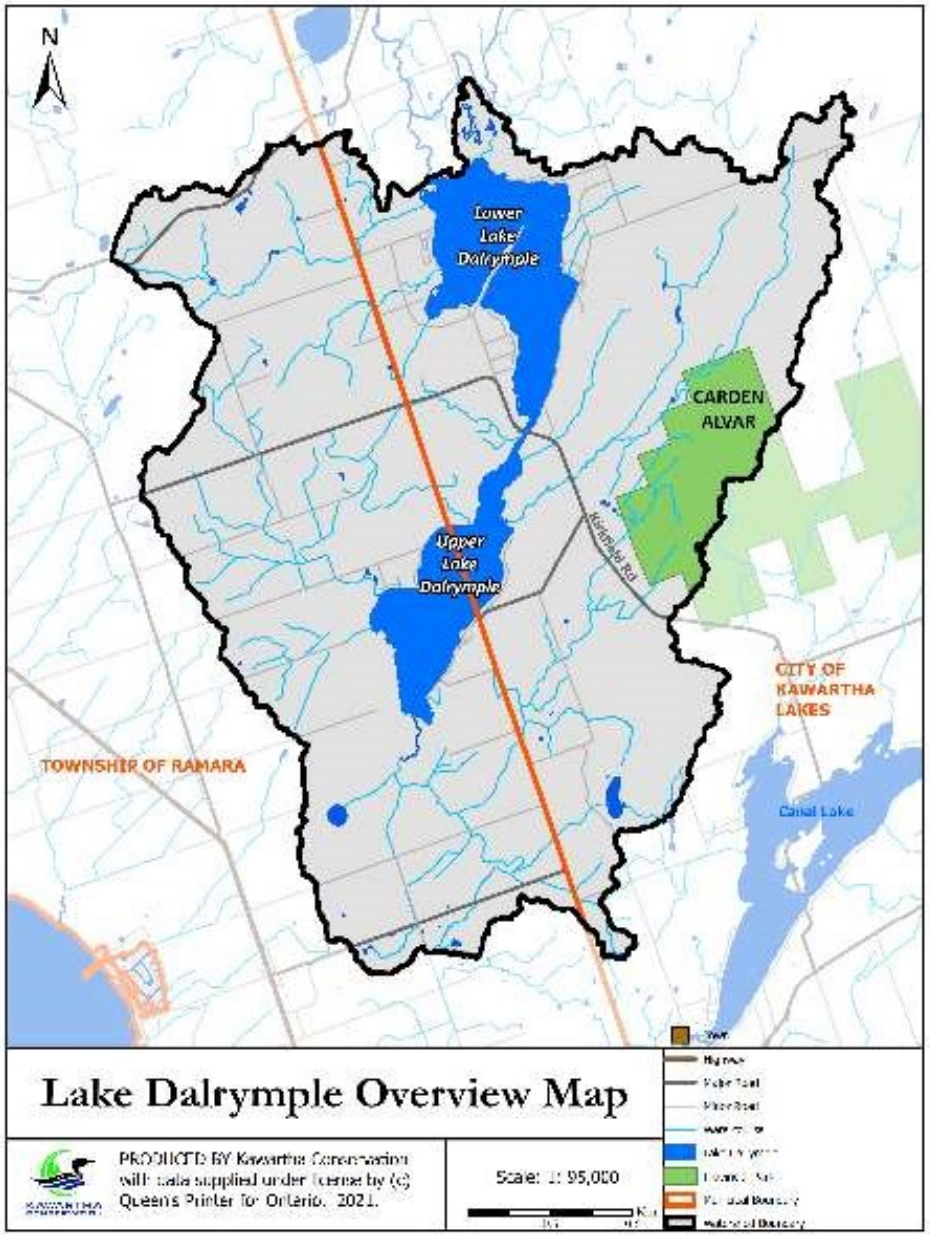
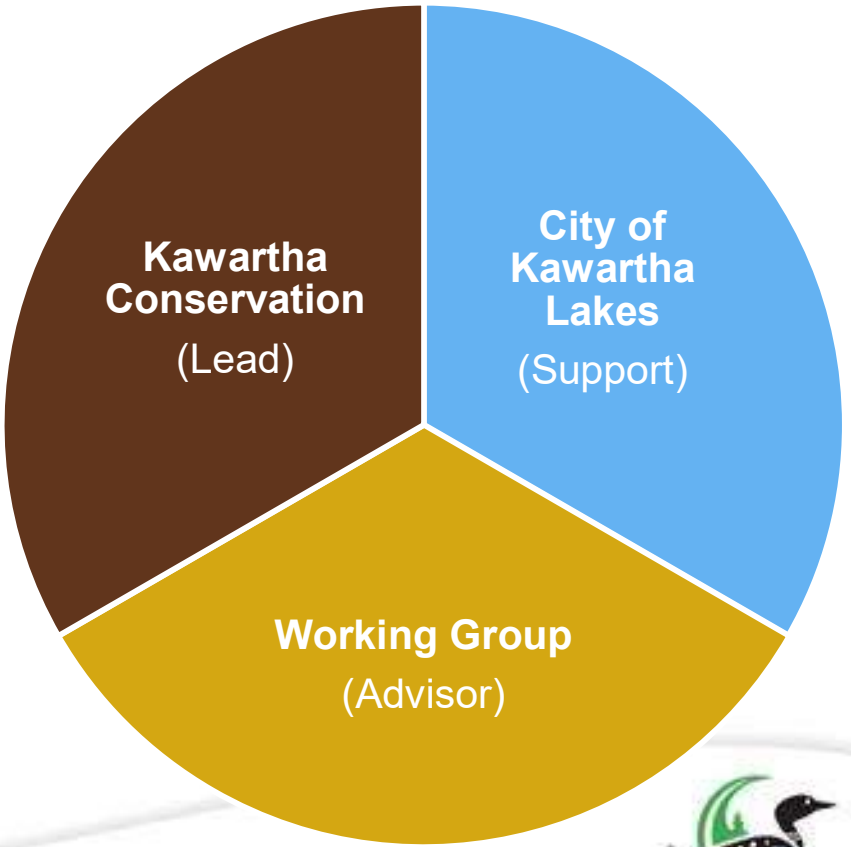
Project Overview



Lake Dalrymple Management Plan

4 year project
(2021-2024)



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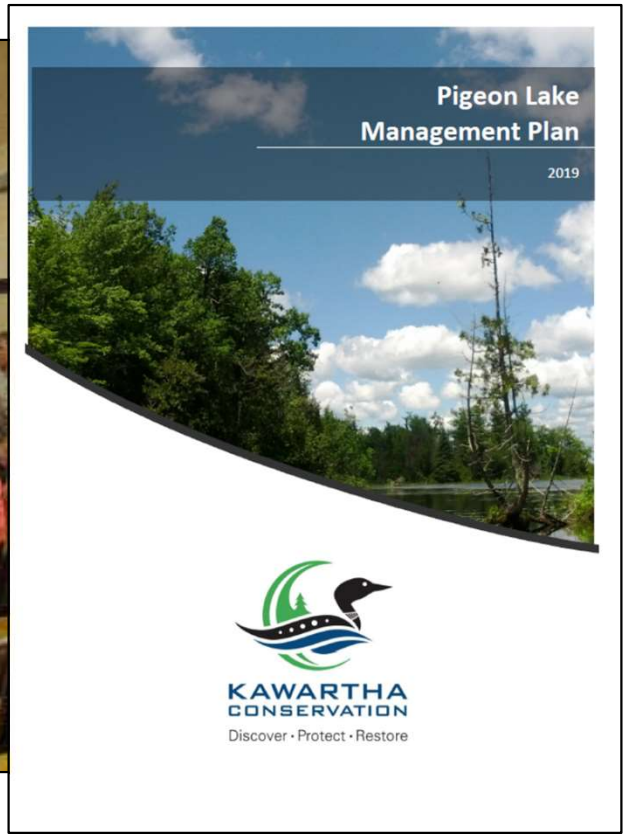
Project Overview - requirements



Science + Community Input = Lake Plan

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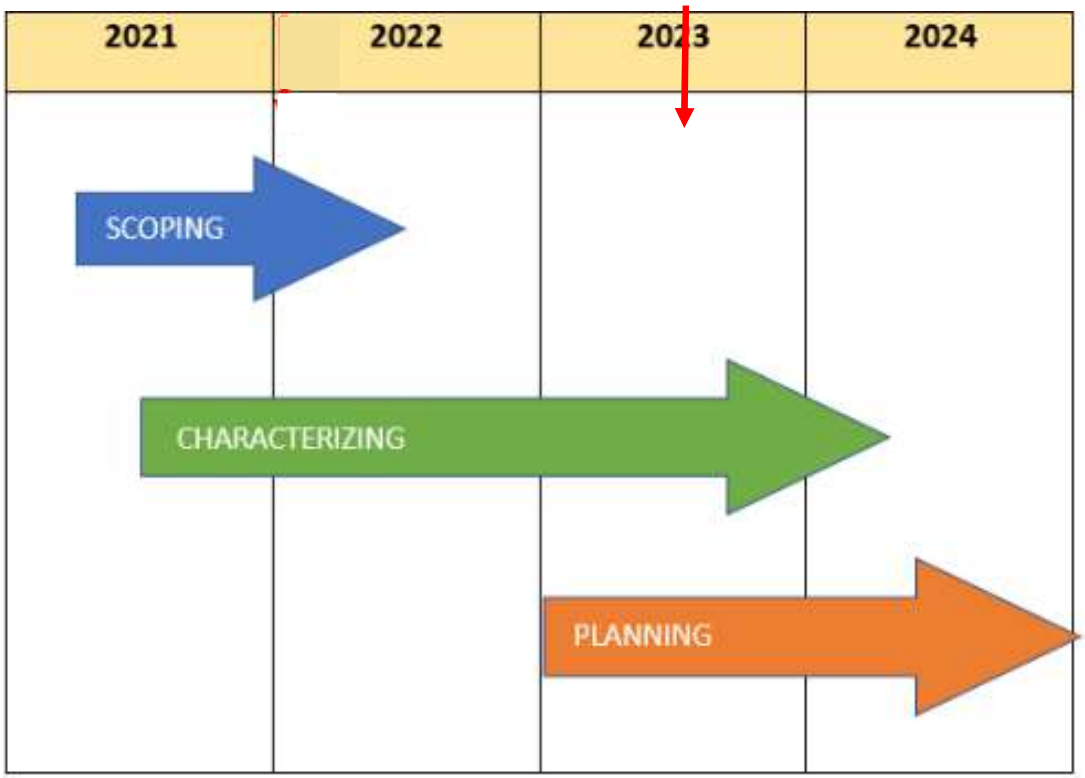
Workplan Update



<-- Staff / Stakeholder / Working Group input -->

KEY PLANNING COMPONENTS
Scoping
a. Who are the key stakeholders?
b. What are stakeholder's key values/issues/goals?
c. What information is available?
Characterizing
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?
Planning
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?

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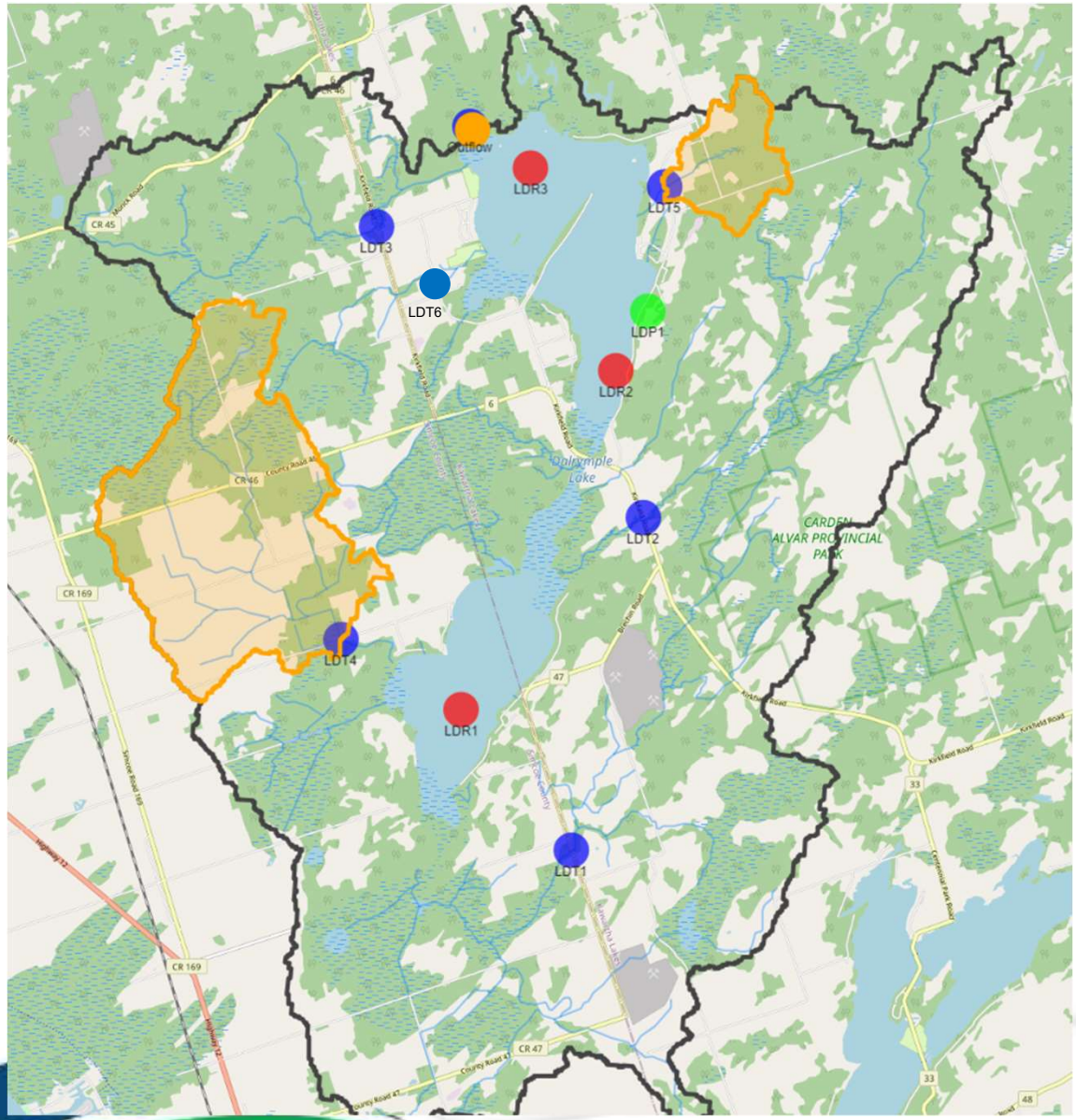
Core Monitoring Network



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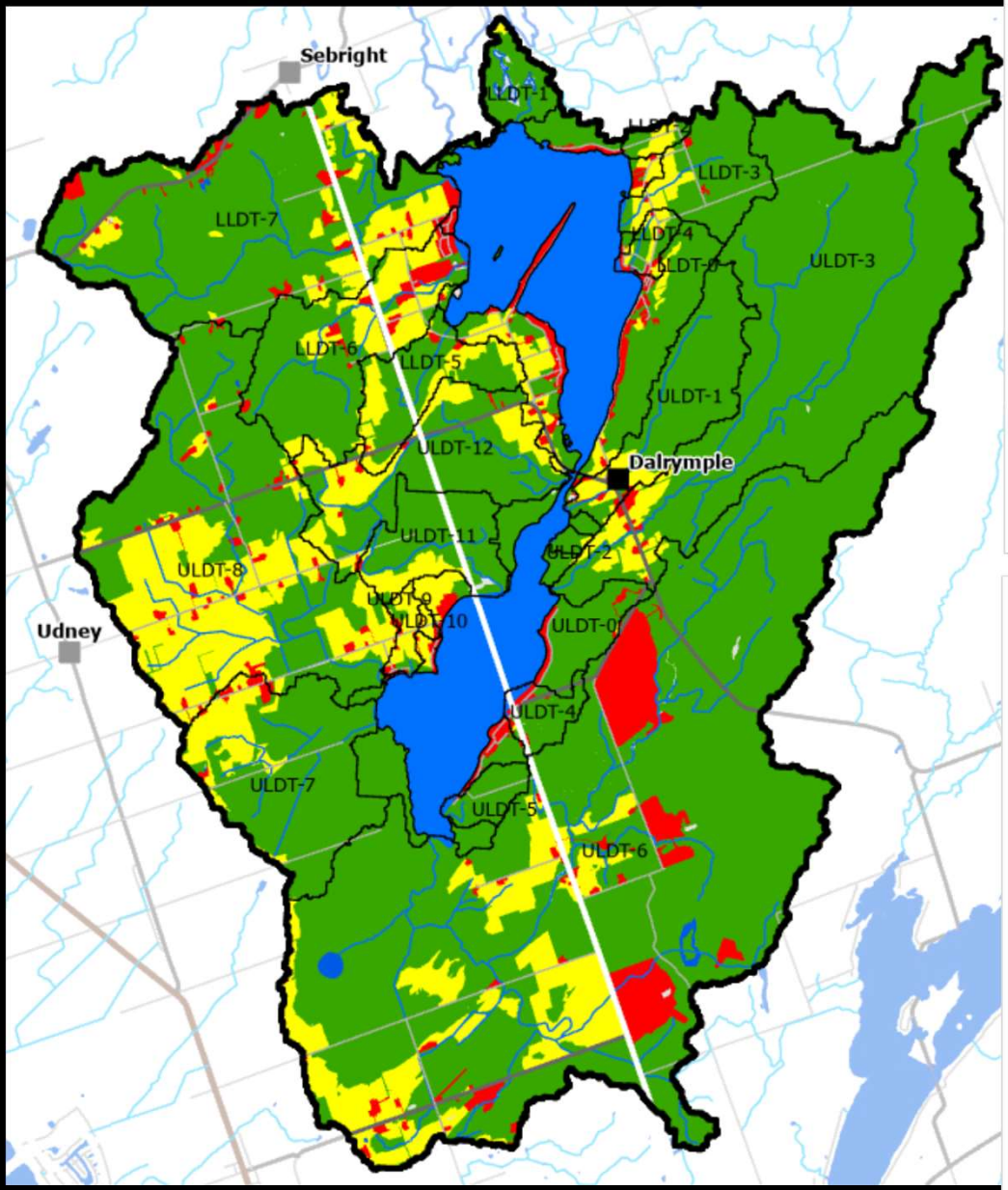
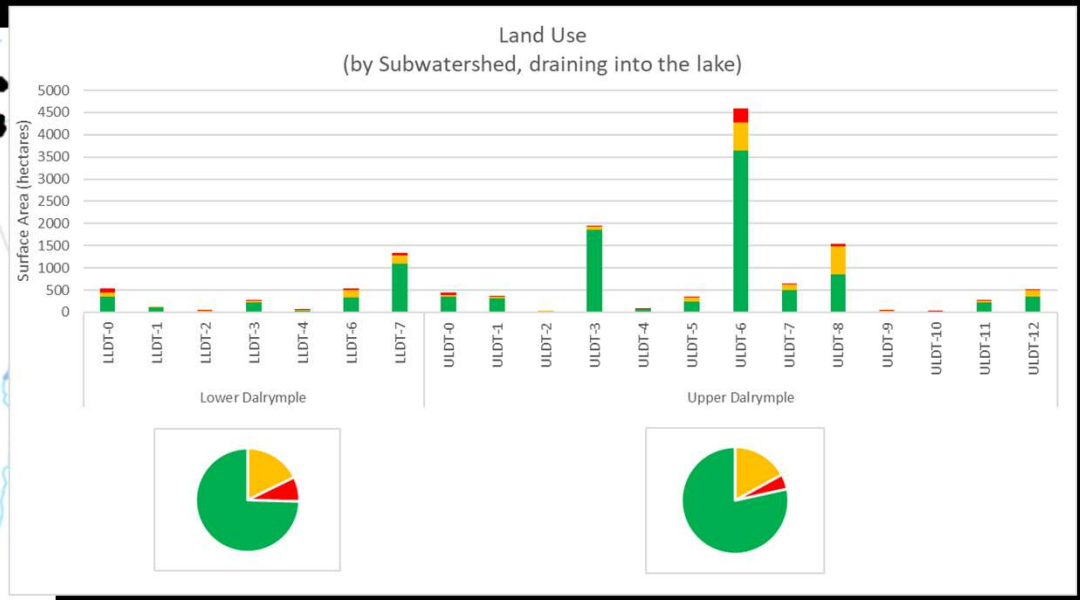
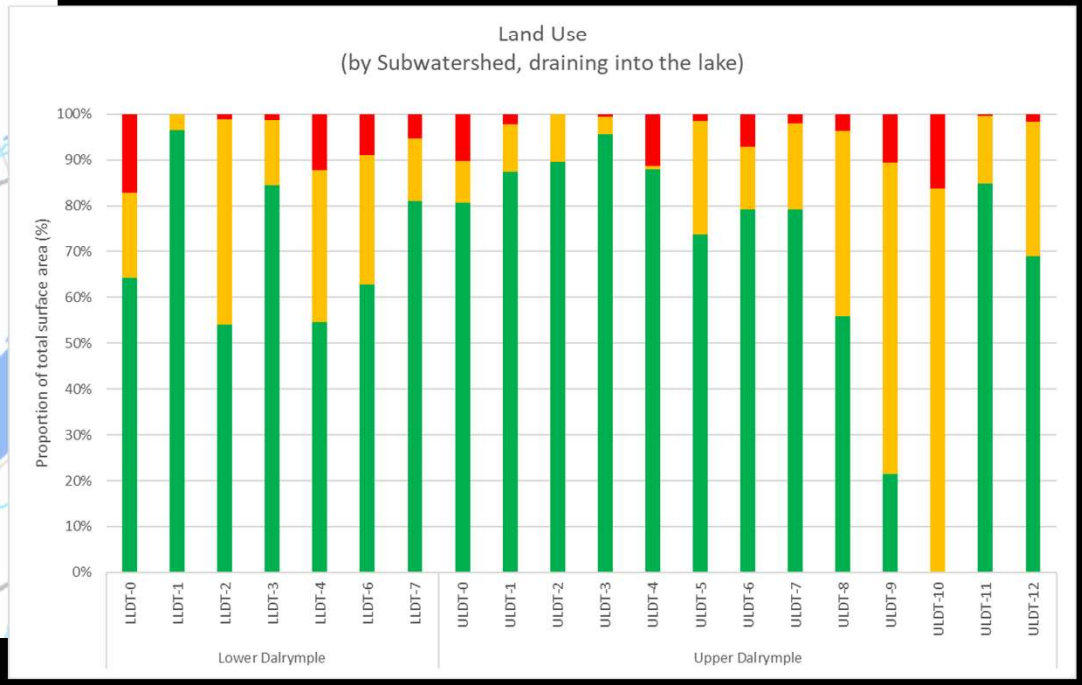
Land Use 2018 Imagery







Natural vs Agriculture vs Developed

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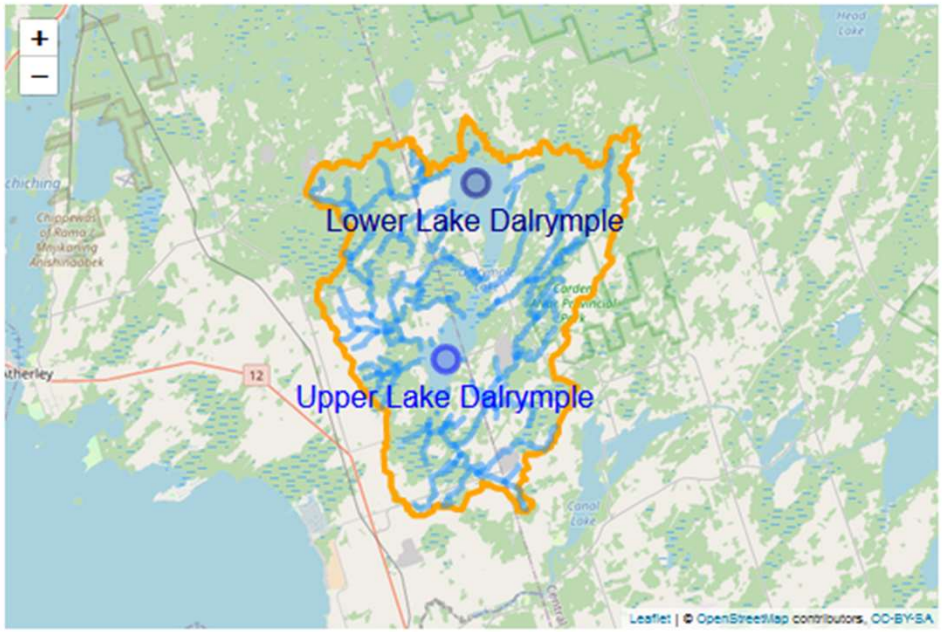
Welcome to the Lake Dalrymple Management Plan Dashboard

Lake Dalrymple Monitoring

This interactive dashboard will be used to deliver the most up to date results from Kawartha Conservation's Lake Dalrymple Management Plan.



Across the top menu panel, you can view results from the following monitoring programs:

- Water Quality
- Water Quantity (Lake and stream water levels)
- Weather (Rain/Snow Amount and Temperature)
- Thermal Regimes of Streams
- Fish Community Survey
- Aquatic Plants Survey
- Lake Temperature

This dashboard was last updated on 2023-06-21

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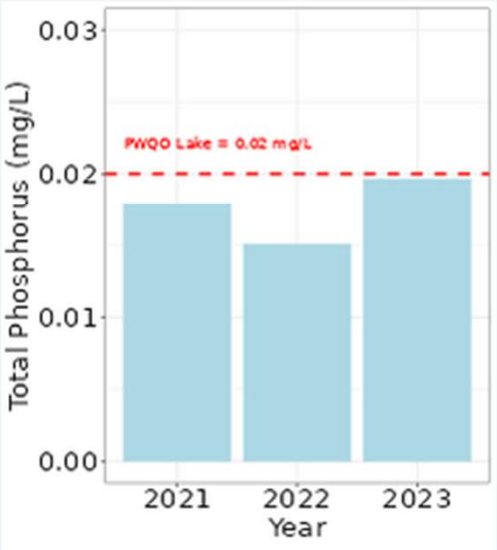
Total Phosphorus Concentrations

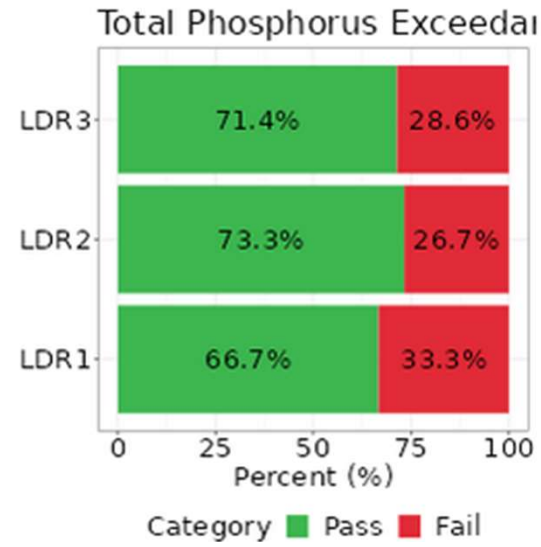
Select Waterbody Type

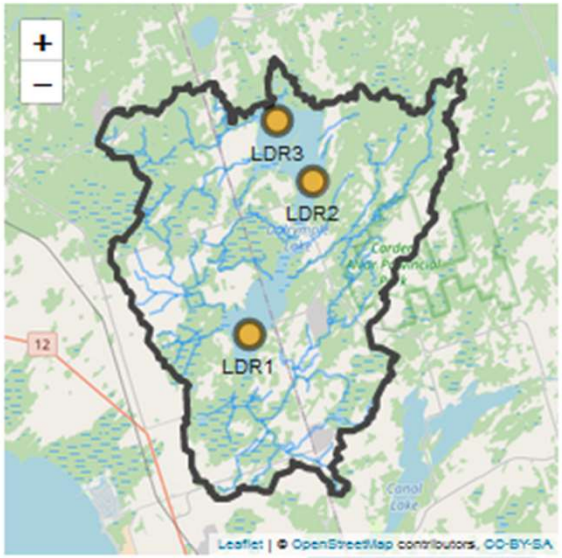
- (•) Lake
- ( ) Tributary
- ( ) All



Phosphorus is **an essential nutrient for the growth of plants and animals.** Excess 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.



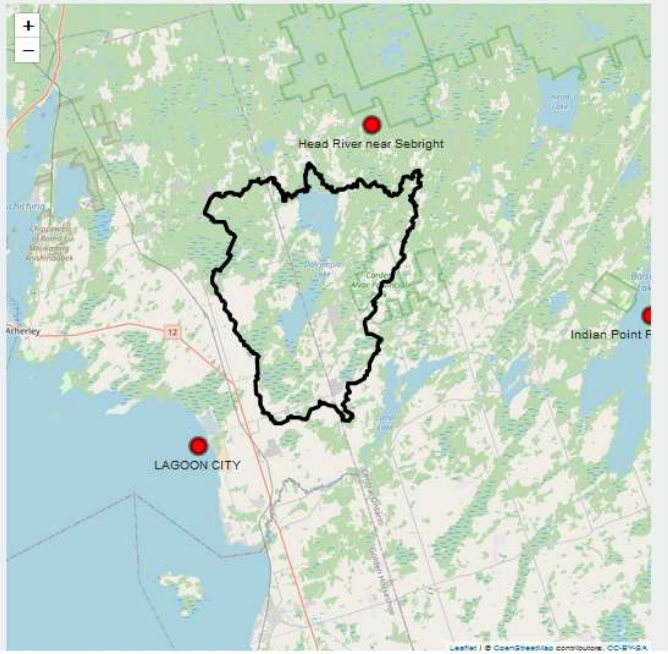


Show 25 entries

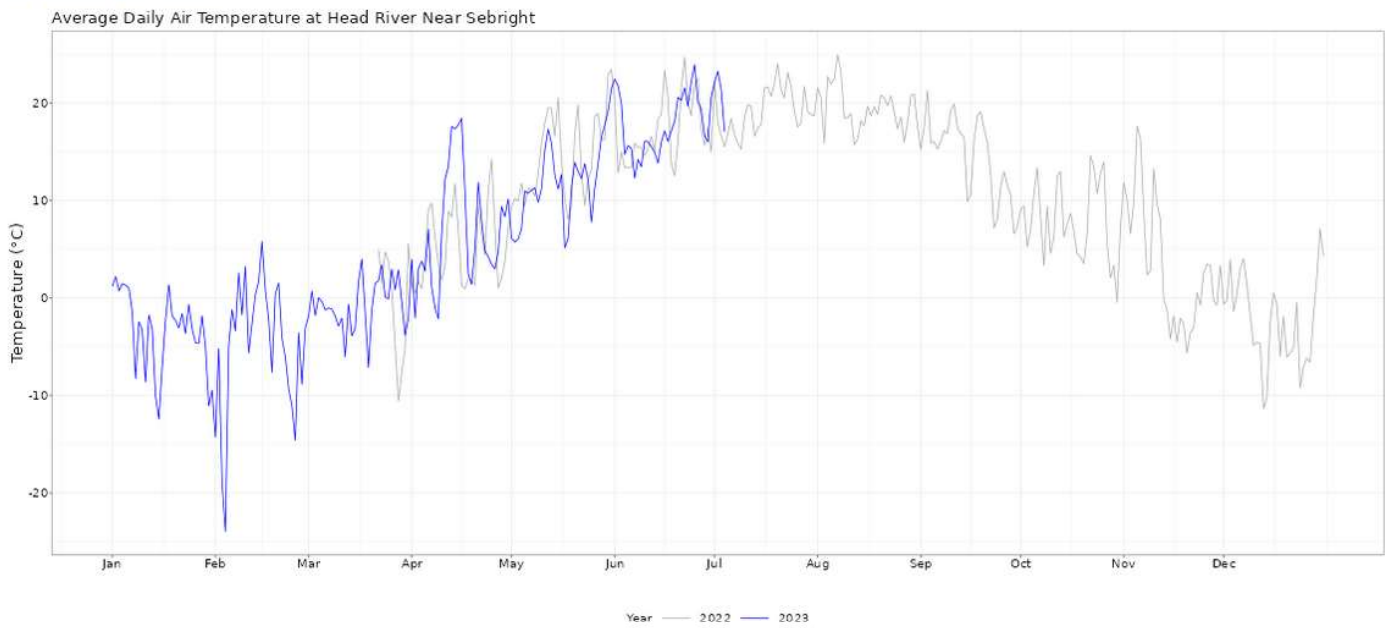
Search:

Waterbody_Type	Year	PhosphorusTotal_mgL
Lake	2023	0.017
Lake	2023	0.020
Lake	2023	0.022
Lake	2022	0.004
Lake	2022	0.009
Lake	2022	0.009
Lake	2022	0.012
Lake	2022	0.012
Lake	2022	0.013
Lake	2022	0.013

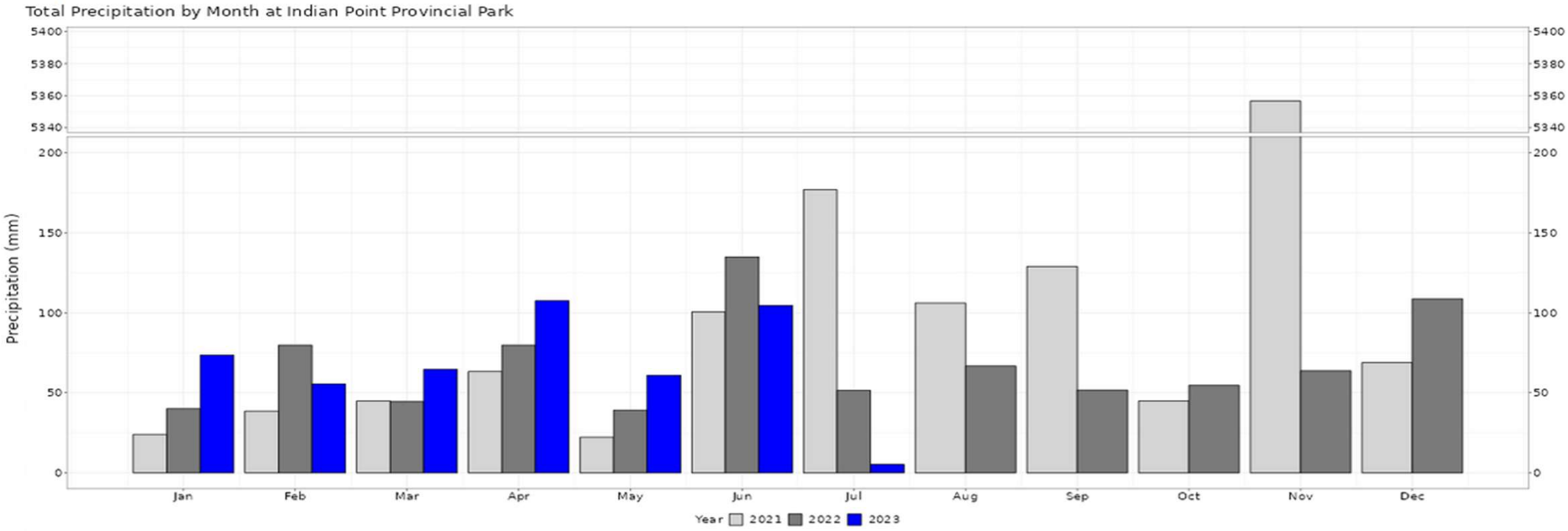
Air Temperature and Precipitation



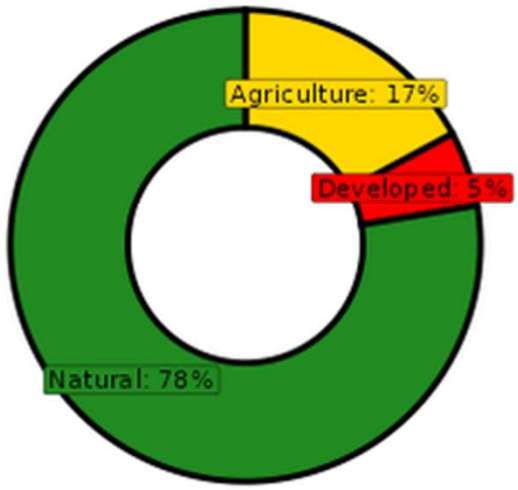
Air Temperature Data



Precipitation Data



Data collected at Ministry of Natural Resources and Forestry's Indian Point Provincial Park Precipitation Station in collaboratio with Kawartha Conservation.


Agriculture: 17%
Developed: 5%
Natural: 78%

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Lake Capacity Assessments

"Carrying Capacity" is a concept in environmental management that involves a level of resource use that allows for long term maintenance of some prescribed level of quality within a predefined level of management determined by the cost of maintaining that quality at a level that will provide resource user satisfaction.

From Township of Ramara Official Plan

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Township of Ramara – Official Plan

Policy 5.2.3.18 The Township may implement its Natural Area goals and objectives by undertaking the following initiatives:

… Participate in environmental monitoring programs and state of the environment reporting that will, among other things, consider cumulative effects and carrying capacity, and assess the relative success of the Township's Natural Area planning policies.

… Demonstrate that the health of aquatic communities and fish habitat are not altered, disrupted or destroyed and that there is no net loss of productive capacity.

… consideration of the assimilative (carrying) capacity of the Lake Couchiching and Lake Simcoe ecosystems and the phosphorous management for Lake Simcoe.

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City of Kawartha Lakes Official Plan

Policy 20.3.11 … Individual lake plans and lake stewardship programs will be encouraged as a method to identify important local values, features and individual lake character. In addition, these programs can be used to monitor water quality, carrying capacity and general lake management.

Policy 31.3.3 … Four Mile Lake is a shoreline residential community that is 'at capacity' for new recreational development and activities.

Policy 3.3.21 … Big Trout Lake is considered to be "at capacity" until water quality sampling is undertaken to determine its status in terms of sustaining a lake trout population.

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Lake Capacity Examples

- Crowding

- Lake-specific Relationship Between Development, Water Quality, and Fishes
  - Water quality guidelines
  - Habitat requirements for fishes

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Crowding

- Dwellings per [shoreline] unit area
  - E.g., **1.62 ha per dwelling ratio** (surface area less the first 30m from shore)

  Township of Sequin Official Plan (Muskoka Region)

- Boats per [lake] unit area

TABLE 9
SUMMARY OF OPTIMUM BOATING DENSITIES

Source	Suggested Density	Boating Uses
Ashton (1971)	5 to 9 acres/boat	All uses combined in Cass Lake
	4 to 9 acres/boat	All uses combined in Orchard Lake
	6 to 11 acres/boat	All uses combined in Union Lake
Kusler (1972)	40 acres/boat	Waterskiing - All uses combined
	20 acres/boat	Waterskiing
	15 acres/boat	Coordinated waterskiing
Jaakson *et al.* (1989)	20 acres/boat	Waterskiing and motorboat cruising
	10 acres/boat	Fishing
	8 acres/boat	Canoeing, kayaking, sailing
	10 acres/boat	All uses combined
Wagner (1991)	25 acres/boat	All recreational activities

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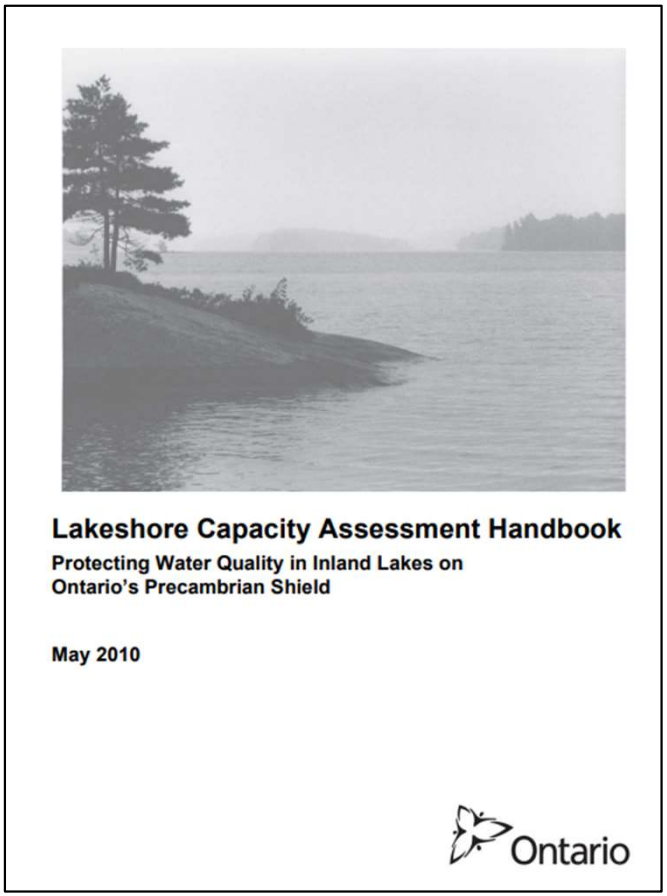
Lake-specific Relationship Between Development, Water Quality, and Fishes

- Lake Trout Lakes
  - Deep cold lakes on Canadian Shield
- Lakeshore Capacity Assessment Handbook

- Spring total phosphorus data (there is some collected by the Lake Partner Program too)
- Fall dissolved oxygen profiles
- Shoreline development counts, including number of:
  - Permanent homes
  - Extended seasonal homes
  - Seasonal homes
  - Resorts (and number of rooms/cabins/units per resort)
  - Trailer parks (and number of trailer sites per park)
  - Youth camps (and average number of campers per day)
  - Campgrounds/RV parks (and number of sites)
  - Vacant lots of record



"It should be emphasized that lakeshore capacity assessment addresses only some aspects of water quality — phosphorus, dissolved oxygen and lake trout habitat."

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Next steps

- Continue to monitor water quality and compare against Provincial Water Quality Objectives.
- Work with MOECP to ‘validate’ Lakeshore Capacity Assessment Handbook model.
- Work with MNRF to examine angler pressure/harvest data.
- Rank Lake Dalrymple against similar lakes re:
  - Key water quality indicators (e.g., phosphorus/clarity)
  - Key land use indicators (e.g., developed/natural shorelines)
  - Key crowding indicators (e.g., dwellings/boats/angling activity)

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CARDEN WASTE DISPOSAL SITE

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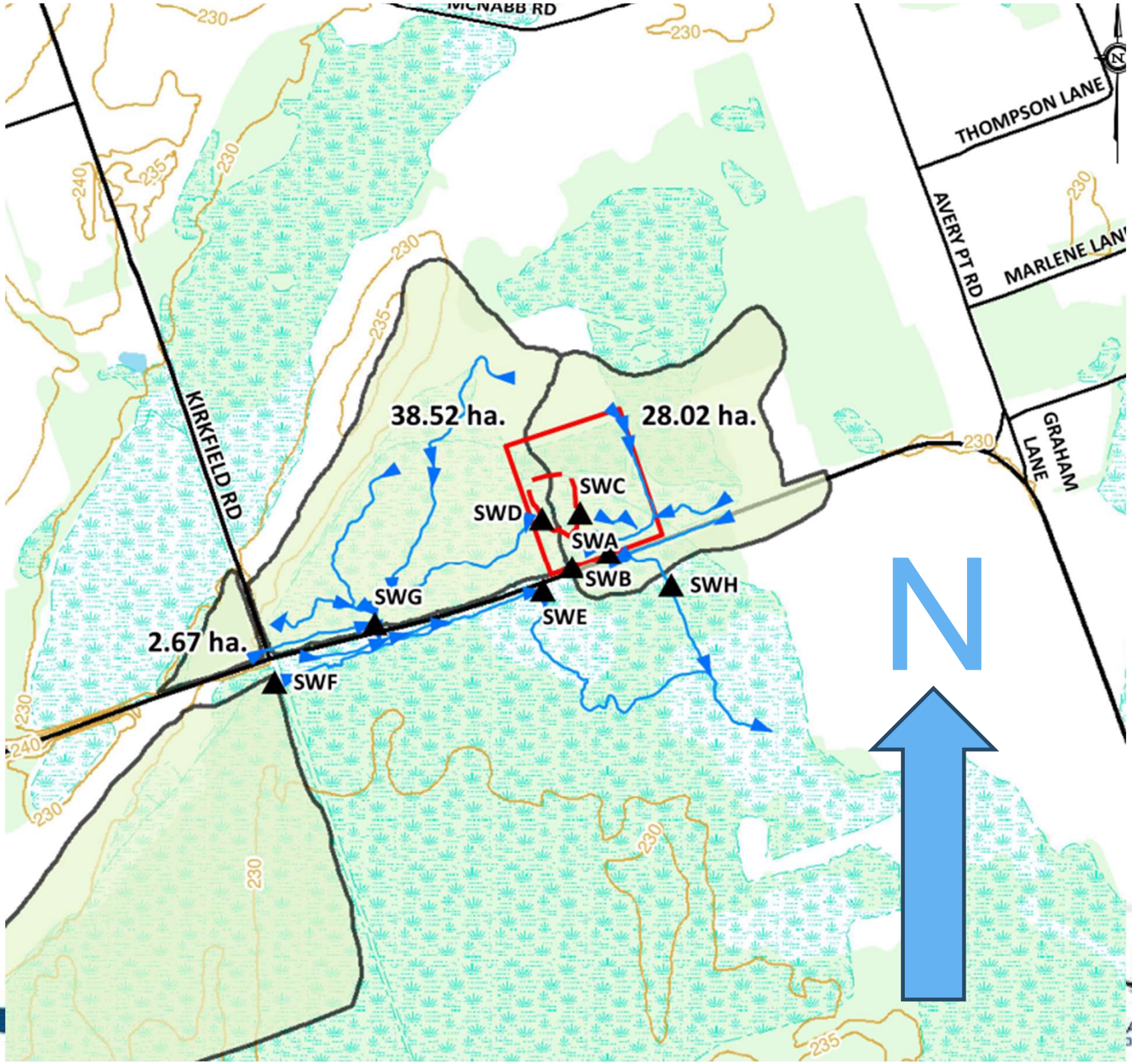
N
MW 02-02-I
(229.20)
(228.58)
MW 02-03-I
SW D
MW 02-03-II
(229.23)
(228.86)
MW 3-95
(229.20)
(228.61)
SW C (large rock)
MW 02-04-I
(229.20)
(228.76)
MW 6-05-I/II
(228.68)
(228.19)
MW -07
(228.75)
(228.31)
BERM
County Road 46
CULVERTS
STA. B
MW 4-95
(228.87)
(228.42)
MW 02-01-I/II
(229.06)
(228.61)
SW A (Ditch)


MCNABB RD
THOMPSON LANE
AVERY PT RD
MARLENE LANE
GRAHAM LANE
KIRKFIELD RD
38.52 ha.
28.02 ha.
2.67 ha.
SWA
SWB
SWC
SWD
SWE
SWF
SWG
SWH
N

Water Quality

- Water collected at the site were higher than those found downgradient and much higher than background levels.
- No significant concern for leaching.
- Chloride (from salt) was found to increase from the site to the road.
- Wetland conditions (high organic) will allow for more retention of leachate.

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Draft Factsheets

Communications tool on key issues and to draw attention to the Management Plan project.

- Prevent the spread of invasive species
- Catch and Release Fish Handling
- Recognize Harmful Algae Blooms

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INVASIVE SPECIES

FACT SHEET — LAKE DALRYMPLE

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Managing and preventing invasive species was a key issue identified by the Lake Dalrymple community as important for protecting the health and future of the lake.

HOW CAN I HELP?

01 CLEAN

Inspect and clean plants, animals, mud, and other natural substances from the watercraft, trailer, and gear (fishing equipment, waders, boots, etc.) between trips.

02 DRAIN

Drain all water from your watercraft, trailer, and equipment and gear between trips. (HOW

03 DRY

Dry all parts of your watercraft, trailer, and equipment and gear completely between trips (HOW?)

BEST PRACTICES

- **Never release or move fish, animals, or plants from one waterbody into another.**
- **Learn to recognize invasive aquatic species and report them to eddmaps.org**
- **Inform others about the threat of aquatic invasive species.**

These recommendations are provided by the Canadian Council on Invasive Species to help minimize the introduction and spread of on-native species.

Learn more at canadainvasives.ca/programs/clean-drain-dry/

kawarthaconservation.com/LakeDalrymple

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Main concerns (red) that people have about the state of Lake Dalrymple, and potential solutions (yellow) to issues that people have.

#	Concerns	Examples	Background Information	Potential Solutions
				
				underline = main theme;
				bold = management recommendation;
				CAPITALS = lead (partner) in best position to undertake recommendation.
				Hyperlink = link to website for further information

1	Dump Site on County Road 47	Contaminated soils leaching into lake	Site is currently closed by City of Kawartha Lakes (through Municipal Law Enforcement Ontario).	Regulations and Enforcement. **If site were to resume operation, follow provincial Excess Soils Regulations for importing new fill.** O.Reg. 406/19. Golder Factsheet. CITY OF KAWARTHA LAKES (MINISTRY OF ENVIRONMENT, CONSERVATION, AND PARKS). Regulations and Enforcement. **Pursue legal processes related to contamination of water quality, including: prosecution, mandatory testing, and site remediation (cleanup) if needed.** CITY OF KAWARTHA LAKES (MINISTRY OF ENVIRONMENT, CONSERVATION, AND PARKS). Communications and Outreach. **Municipality to update landowners on status of file, with emphasize on status of site remediation efforts.** CITY OF KAWARTHA LAKES.
2	Dug Canal on Kirkfield Road	Impact on water levels Destroying creek/wetland habitats		Regulations and Enforcement. **Pursue legal processes related to alterations to watercourses, wetlands, and fish habitat, and contamination of water quality, including: prosecution, mandatory environmental testing, and site remediation (cleanup) if needed.** MINISTRY OF NATURAL RESOURCES AND FORESTRY; FISHERIES AND OCEANS CANADA (CITY OF KAWARTHA LAKES). Communications and Outreach. **Municipality to update landowners on status of file, with emphasize on status of site remediation efforts.** CITY OF KAWARTHA LAKES.
3	Weeds and algae	Mid-summer algae blooms Weed growth (e.g., SE bay adjacent to Avery Point Rd., Upper Lake Dalrymple) Increased eutrophication Reduced dissolved oxygen in winter?	Aquatic plants are beneficial for lake health. Upper Lake Dalrymple is naturally prone to aquatic plant growth, and is classified as a wetland (provincially significant). Invasive species (e.g., Eurasian Watermilfoil, Starry Stonewort) can exasperate problems. Excessive nutrient inputs (e.g., phosphorus and nitrogen) can exasperate problems. Wild rice is prolific in Upper Dalrymple, and is a culturally significant resource for First Nations communities.	Research and Monitoring. **Monitor dissolved oxygen concentrations in winter months with heavy ice cover, and compare with Provincial Water Quality Objectives.** LOCAL RESIDENTS (KAWARTHA CONSERVATION; ACADEMIA; ANGLERS). Research and Monitoring. **Monitor phosphorus and water clarity through Lake Partner Program. Currently only 1 site is monitored (Upper Dalrymple). Keep that site active and add at least 1 more site (Lower Dalrymple – deep spot).** LOCAL RESIDENTS (FEDERATION OF ONTARIO COTTAGERS' ASSOCIATION; MINISTRY OF ENVIRONMENT, CONSERVATION, AND PARKS). Communications and Outreach. **Disseminate information to watershed residents on nutrient reduction best management practices (e.g., no fertilizing lawn, establishing buffer zone at water's edge, filtering/slowing runoff, farm nutrient management, septic system maintenance, etc.).**

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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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705.328.2271 ext. 222

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