

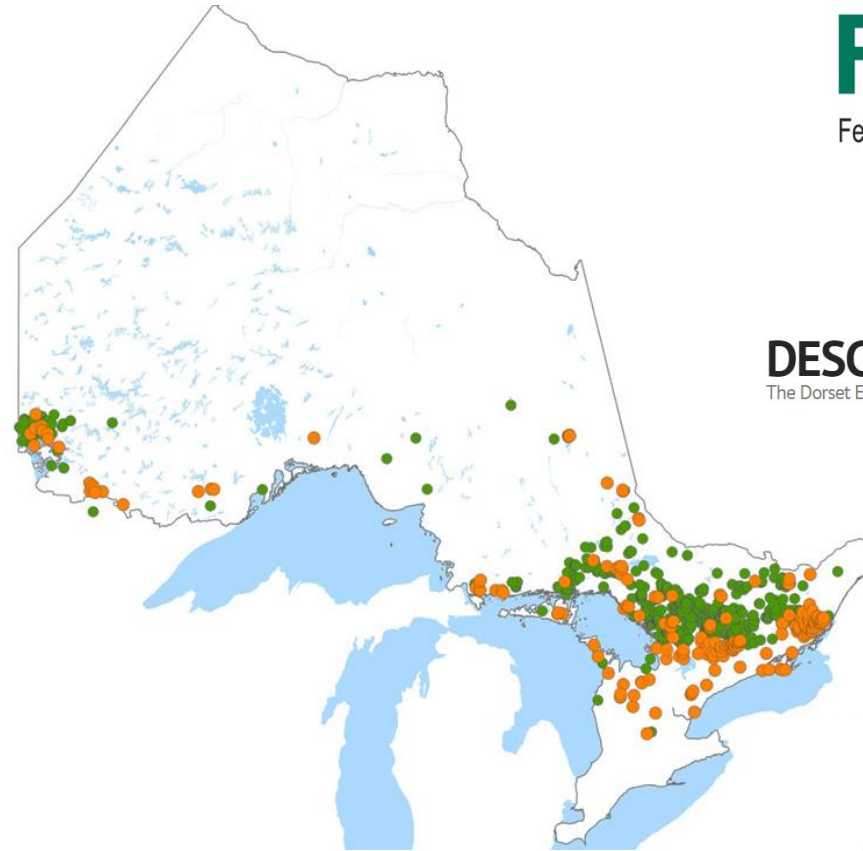
THE LAKE PARTNER PROGRAM

Emily Shapiera, Federation of Ontario Cottagers' Associations

Lake Partner Program

- Each year, > 600 volunteers monitor water quality and water clarity in 550 lakes at over 800 locations
- Volunteers send water samples to the Dorset Environmental Science Centre chemistry lab for analyses
- Data are updated and shared annually online
- Data used to assess and report on water quality across Ontario

**Largest volunteer-based
water quality monitoring
program of its kind in Canada**



Why Do We Care?

- Clean drinking water
- Hydro energy
- Economics
- Protecting species and ecosystems
- Health
- Recreation and aesthetics
- Spirituality
- Moral obligation
- Proactivity for the future







Clean Water – More than Just Nice to Look at!

- \$80 billion in residential waterfront real estate in Ontario
- \$800+ million in annual property taxes connected to waterfront properties
- \$1 billion annually on recreational boating
- commercial fisheries (~\$42.5 million)
- water-related tourism (~\$5.5 billion)

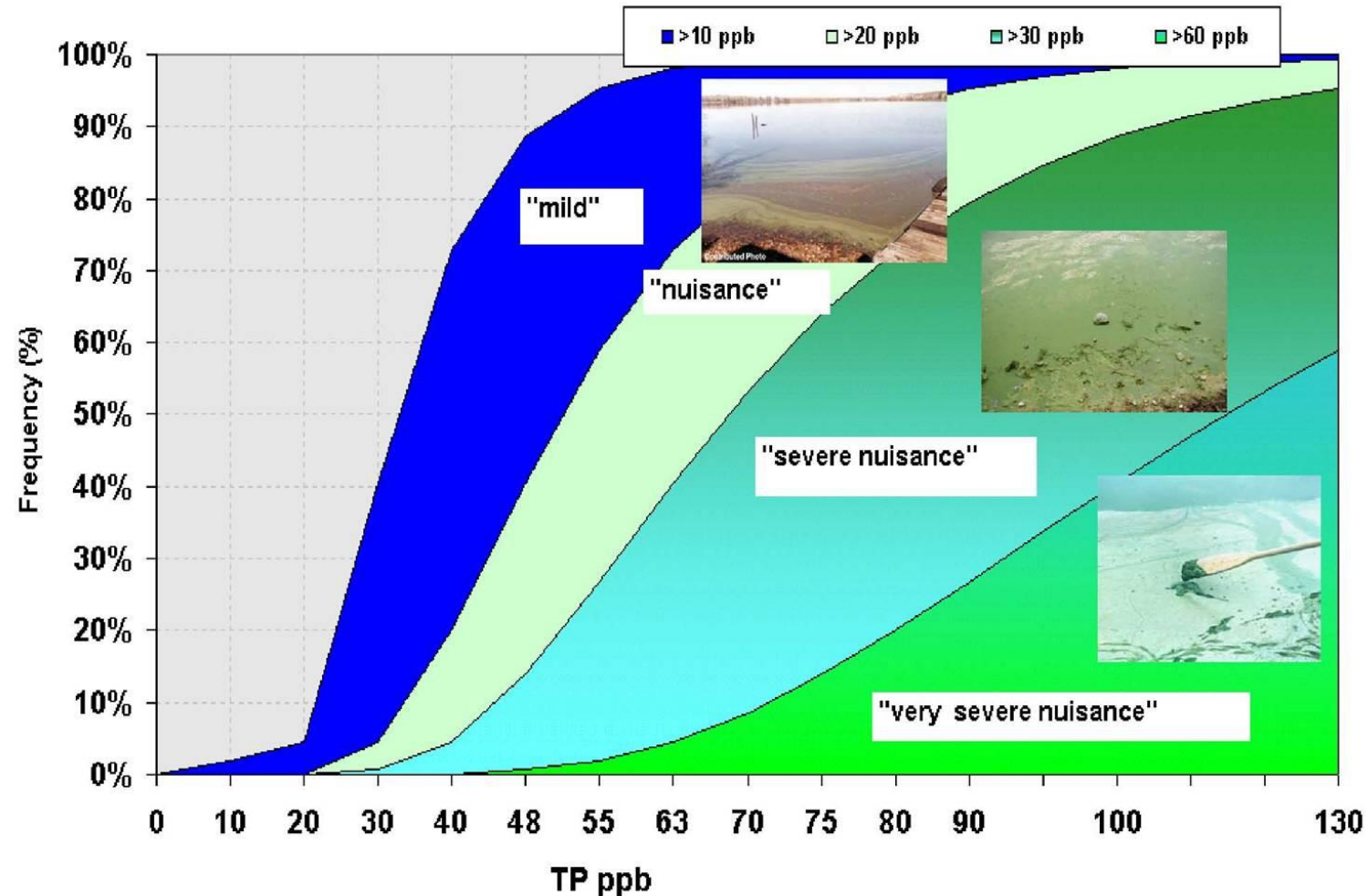


What We Measure

Total Phosphorus (TP)	Water clarity	Calcium (since 2008)	Chloride (since 2015)
<ul style="list-style-type: none">Important nutrient controlling the growth of algae in Ontario Lakes 	<ul style="list-style-type: none">Estimated using a Secchi Disk 	<ul style="list-style-type: none">Essential element that is required by all living organisms 	<ul style="list-style-type: none">There have been increases in chloride concentrations across the province due to road salt 

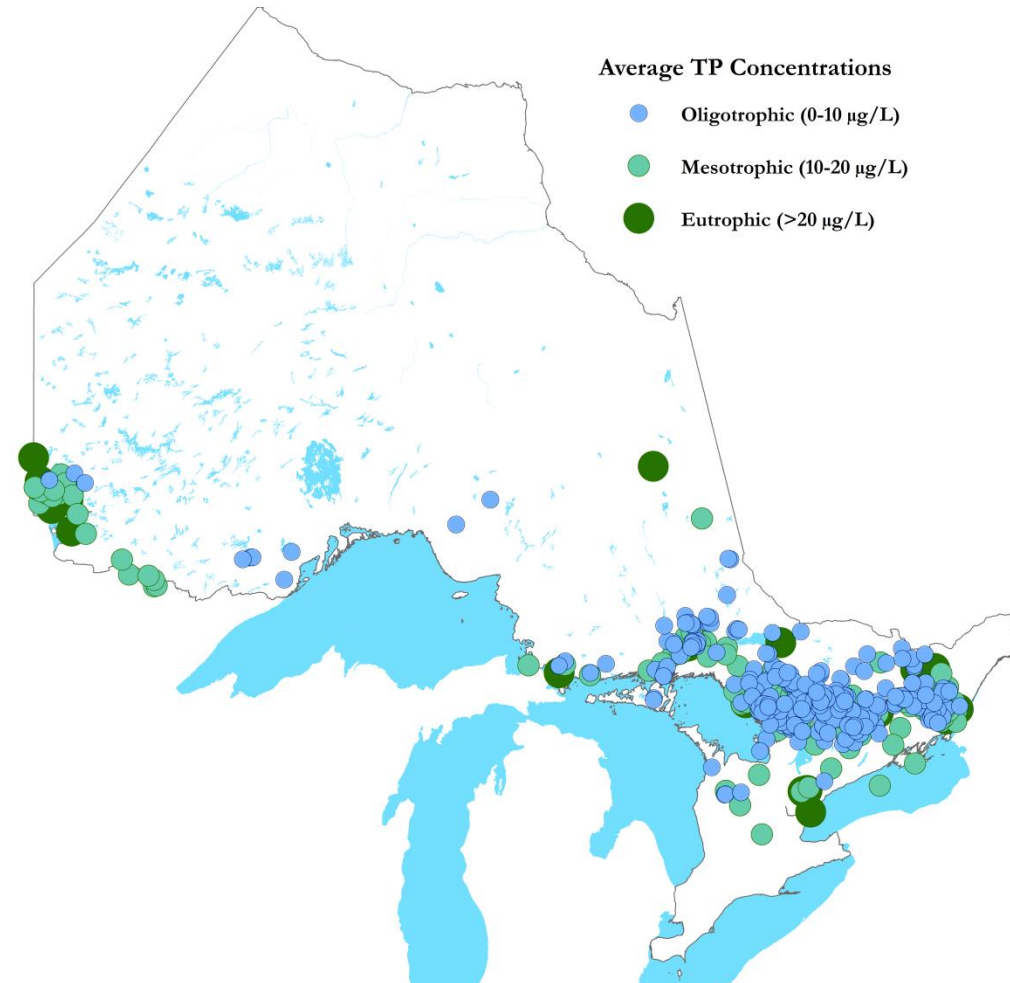
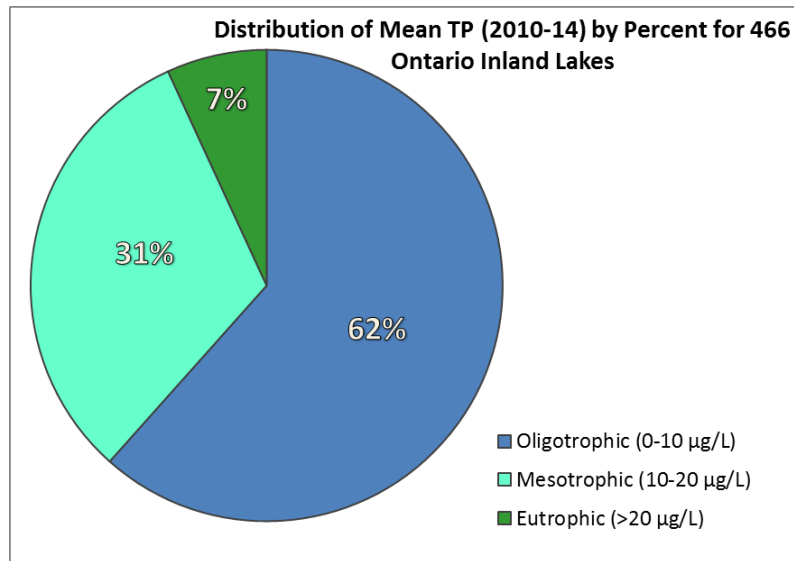
Total Phosphorus

Chlorophyll-a interval frequency versus total phosphorus.



LPP – Phosphorus

93% of inland lakes in the Lake Partner Program meet the provincial water quality objective



Calcium

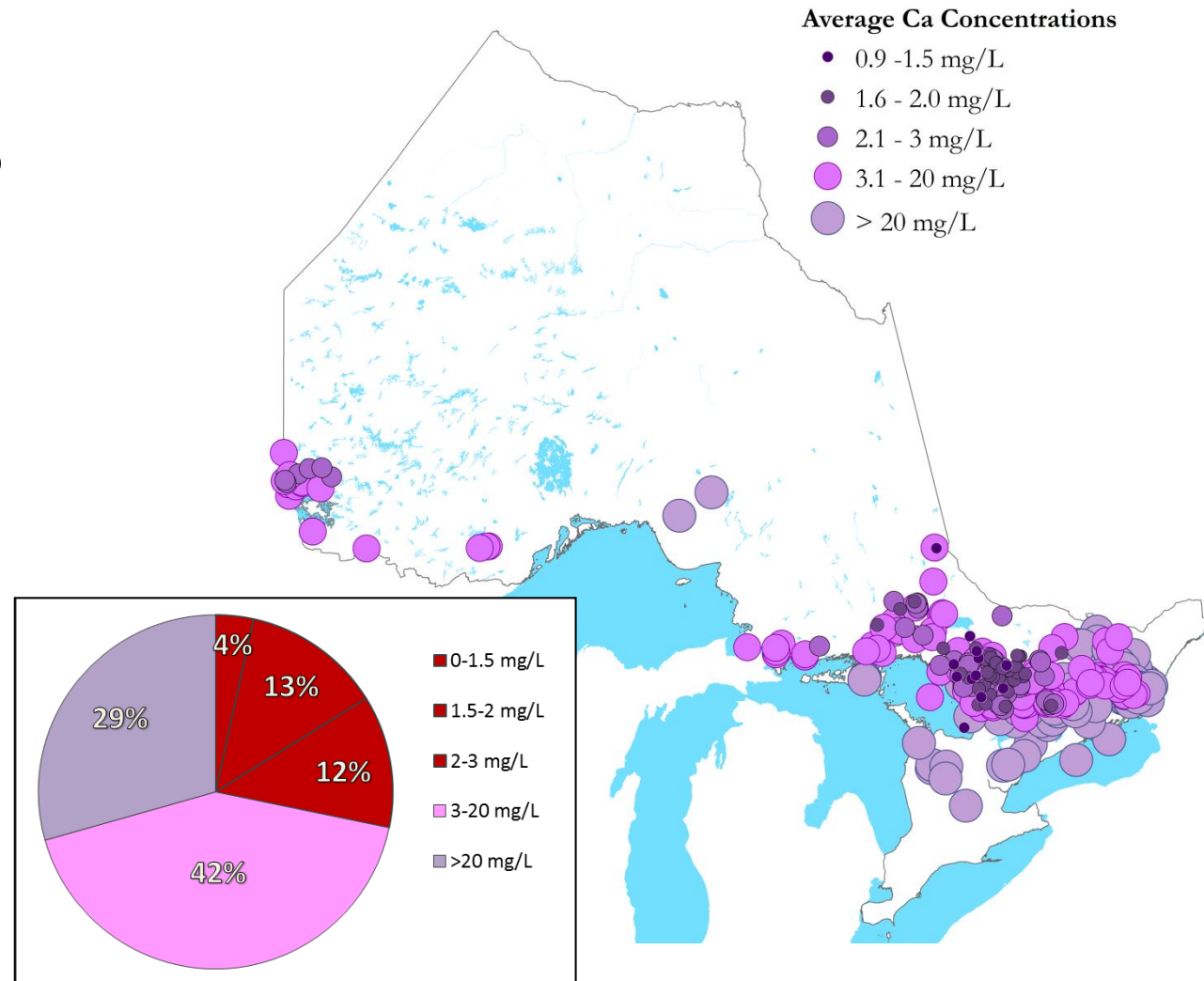


- Ca is a nutrient required by all living organisms to varying degrees
- some organisms are very sensitive to declining Ca levels
- e.g., *Daphnia* (zooplankton) - Ca is used to regenerate their carapaces when they moult

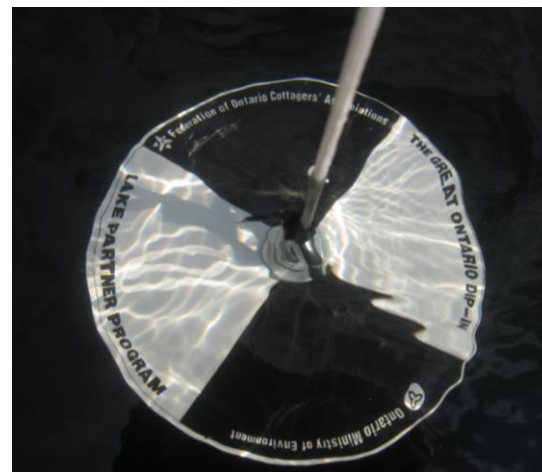
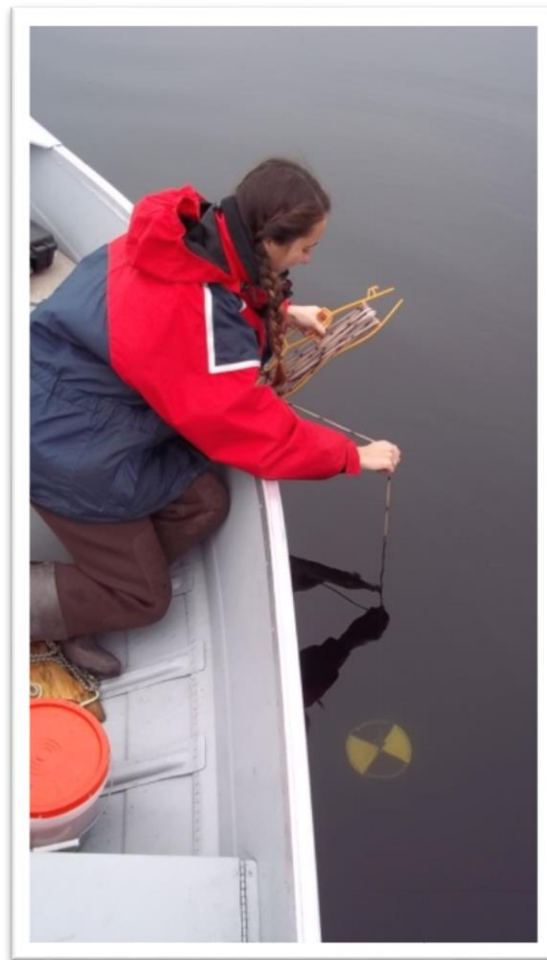
LPP - Calcium

The majority of LPP lakes in Ontario have Ca levels that can support calcium-rich aquatic organisms

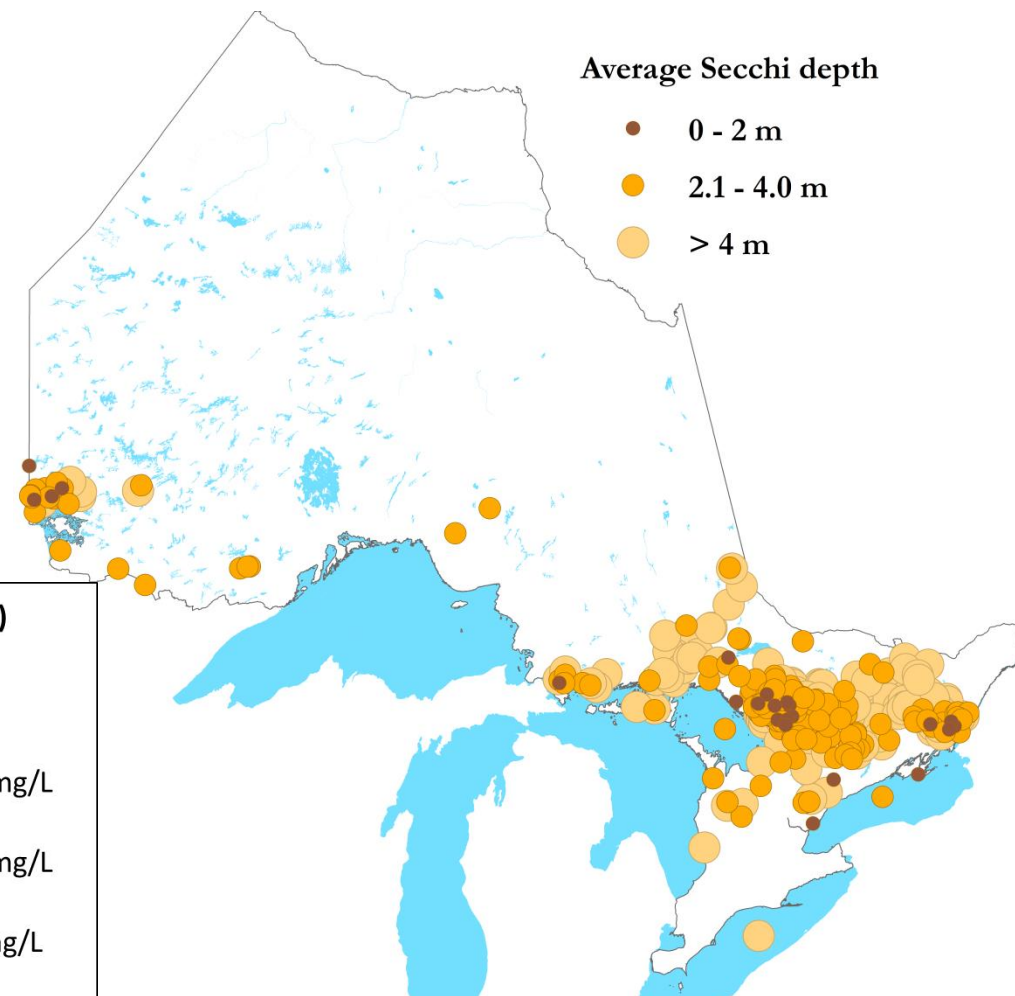
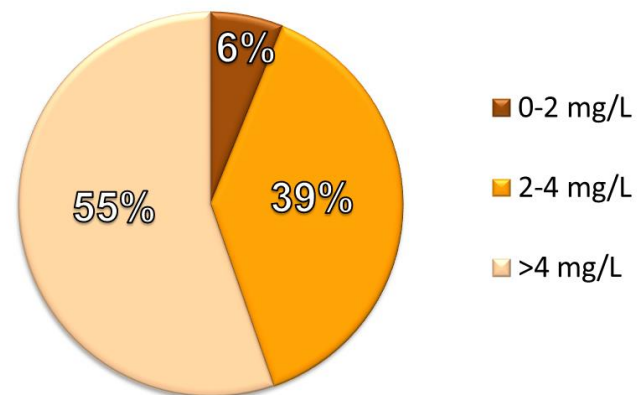
But, ~15% of lakes are at Ca concentrations that may hinder the reproduction and survival of some Ca-rich organisms (< 2.0 mg/L)



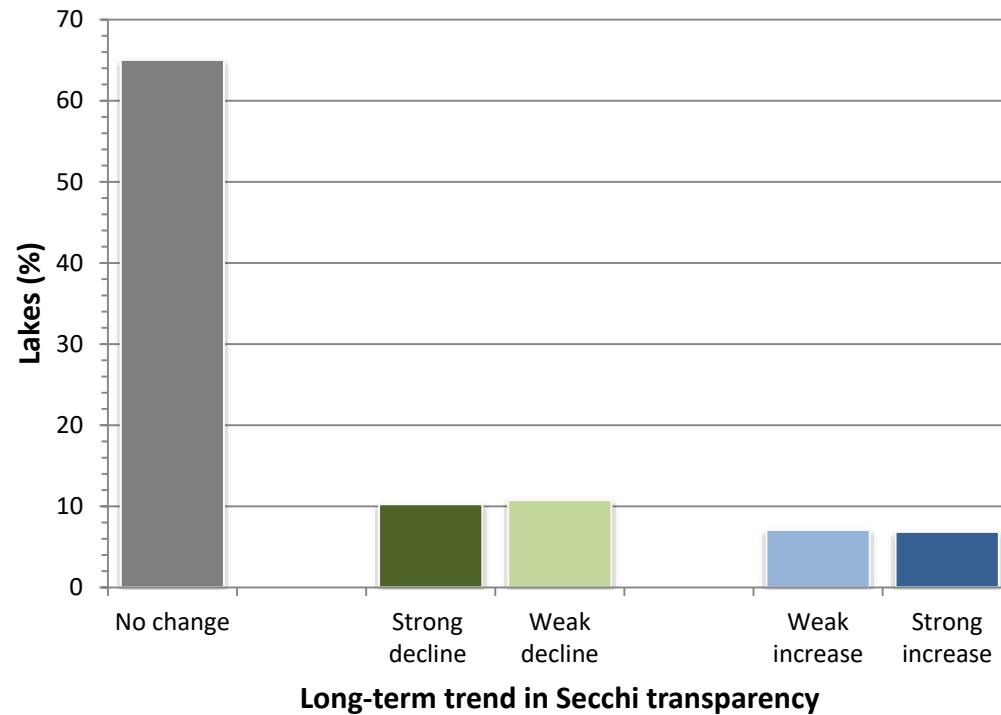
Water Clarity



Distribution of mean Secchi depth (2010-14)



LPP – Water Clarity



- Most lakes show no significant change in Secchi from 2000-2014
- ~21% of the lakes show a decline in water clarity over time
- This could be due to long-term increases in dissolved organic carbon (DOC) – lakes are becoming more tea-stained in appearance

LPP – Chloride

Lake salinity is potentially increasing due to road salt

Runoff could be an issue to lake health

LPP beginning to analyze for chloride; dataset will help watch for trends



Next Generation of Citizen Scientists

The LPP and FOCA are committed to engaging youth in the natural world, through citizen science, outreach, and partnerships with schools.

One of our youngest volunteers at 10 years old!

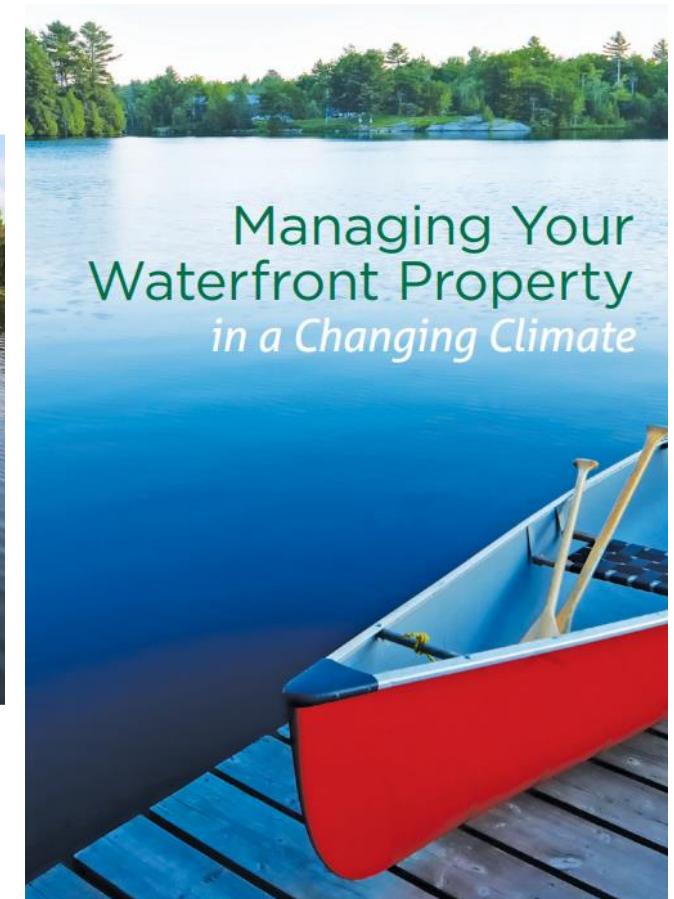
Kids investigating benthic invertebrates at the Haliburton-Muskoka-Kawartha Children's Water Festival!



Current Generation of Ontarians

FOCA aims to:

- increase awareness about environmental stewardship
- Keep members aware of policy updates and changes that could affect Ontario waterfront owners and users
- Provide resources that Ontarians can use to help protect our lakes!



With support from
the Ministry of Natural
Resources and Forestry

FOCA
Federation of Ontario Cottagers' Associations

Interested in joining the Lake
Partner Program?

Call 1-800-470-8322 or email
lakepartner@ontario.ca