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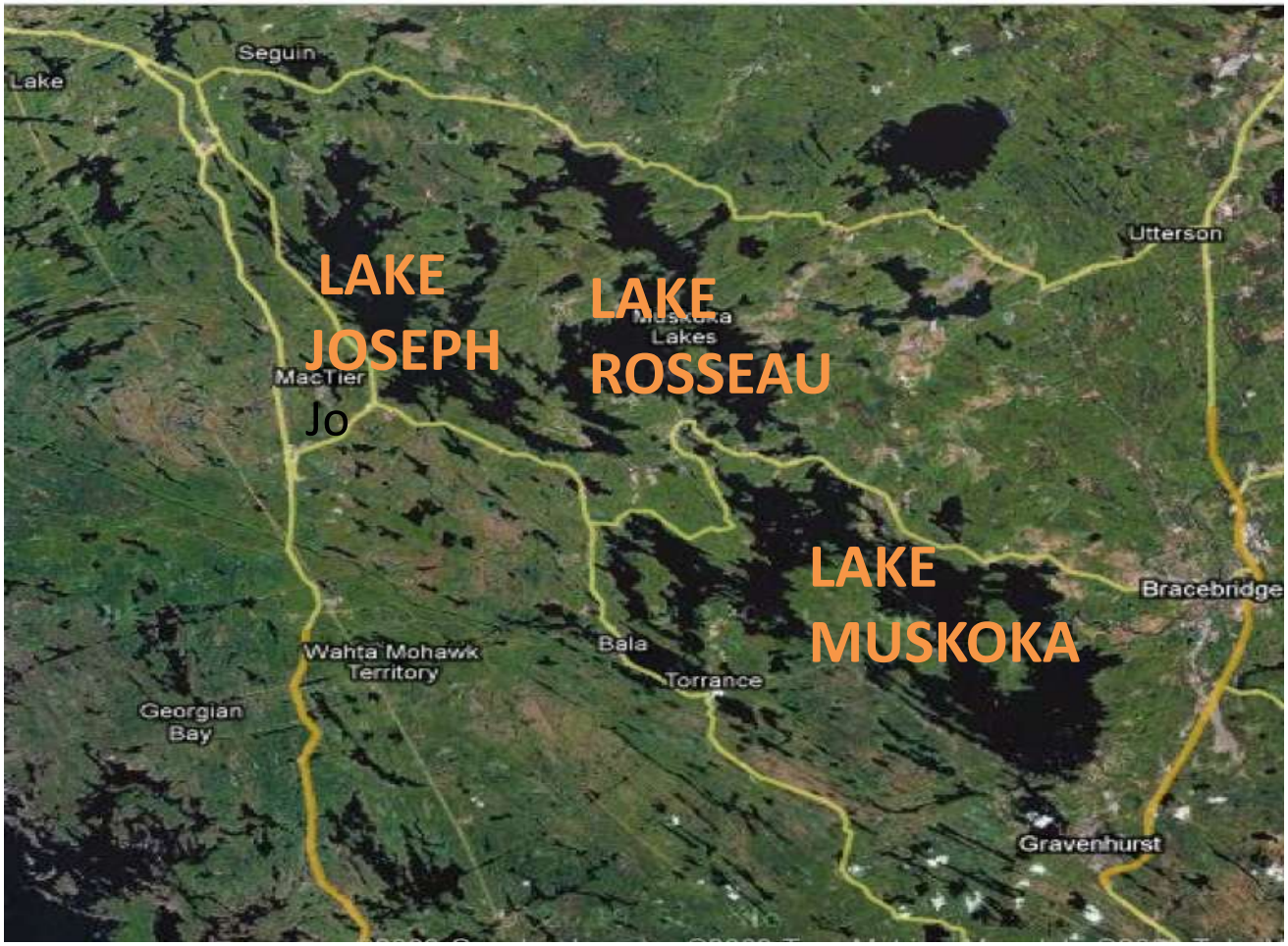
Water Quality Initiative

- Monitoring
- Action Programs
- Stewardship

Muskoka Lakes



Phosphorus

Overload = Algae Bloom

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WQI Objectives

1. Investigate sources of P in ‘Areas of Concern’
2. Provide data to support regulation of vulnerable areas
3. Monitor bacteria
4. Remedial Action
5. Encourage Stewardship

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Program Overview

- Began in 2001
- 170 sampling sites in 45 areas
- 15 lakes/rivers – Muskoka, Rosseau, Joseph and surrounding area
- Over 100 volunteers
- Technical support by RiverStone Environmental in Bracebridge

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Monitoring Activity

- Total Phosphorus
  - Spring turnover
  - Seasonal
  - Stream monitoring
- Calcium
- Clarity (secchi depth)
  - At deep water site
- Bacteria
  - Total Coliform
  - *E.Coli*
- Temperature
  - With every sample

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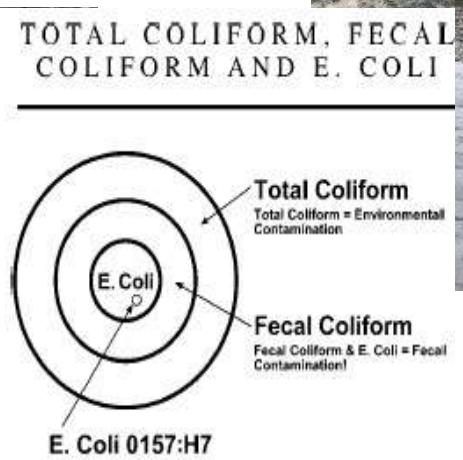
Bacteria – *E. coli*

- It is natural and its is everywhere!
- Treat all drinking water taken from the lake.
- Maintain septic systems.
- Pick up dog poop.
- *E.coli* levels increase after rainfall events.



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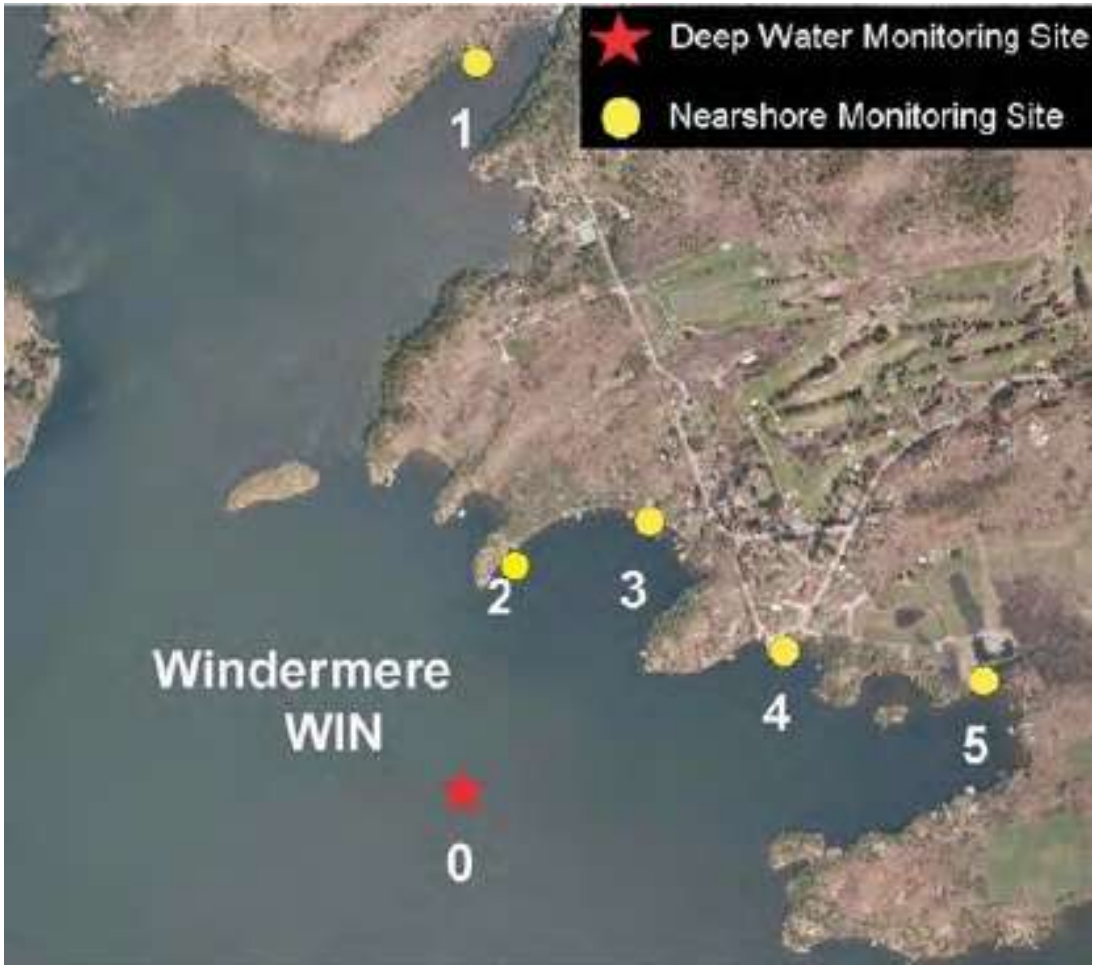
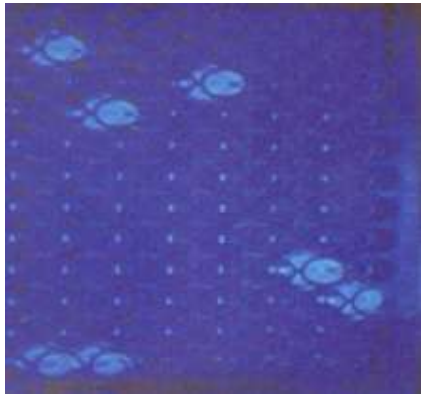
Study Design



Methodology

- Samples taken from Victoria Day to Labour Day
- Phosphorus
  - Victoria Day samples are TPso
  - Analysis done by Dorset Environmental Science Centre
- Bacteria
  - Total coliform and *E.Coli* analysis done by the team leaders for each area
  - ColiPlates and incubators within 24 hours of the samples being taken



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SAMPLE DATA SHEET

WINDERMERE (WIN)

Area Description

The Windermere village area in northern Lake Rosseau is a highly developed resort and residential area. There is a large resort complex, golf course, marina, and many residential properties. In addition, there is a significant amount of agricultural land near the sampling area. Several creeks outlet into this area, one of which flows through farms fields and wetlands and enters the lake at the marina. WIN-1 is located away from the village in a primarily natural area at the outlet of the Dee River and Clark Pond.

Volunteer Recognition

Windermere was monitored in 2010 by **Rebecca Francis**, Lisa Noonan, Cameron Purdy, Drew Purdy, Katherine Seybold, and Peter Seybold.

2010 Data

WIN-0: TP-Spring turnover = 7.3 µg/L
TP-Yearly mean = 4.5 ug/L
Secchi = 4.2 m
Total coliforms = 4 cfu/100 mL
Total *E. coli* = 1 cfu/100 mL

WIN-1: TP-Yearly mean = 12.1 µg/L
Total coliforms = 47 cfu/100 mL
Total *E. coli* = 4 cfu/100 mL

WIN-2: TP-Yearly mean = 8.3 µg/L
Total coliforms = 28 cfu/100 mL
Total *E. coli* = 3 cfu/100 mL

WIN-3: TP-Yearly mean = 4.3 µg/L
Total coliforms = 18 cfu/100 mL
Total *E. coli* = 3 cfu/100 mL

WIN-4: TP-Yearly mean = 5.5 µg/L
Total coliforms = 46 cfu/100 mL
Total *E. coli* = 6 cfu/100 mL

WIN-5: TP-Yearly mean = 9.8 µg/L
Total coliforms = 79 cfu/100 mL
Total *E. coli* = 24 cfu/100 mL

Trends

Monitoring of Windermere started in 2003. Since then, both spring turnover and yearly mean phosphorus concentrations have fluctuated.

In 2010, bacteria levels at WIN-5 were elevated relative to other sites in the area, with *E. coli* being above the MLA upper limit.

High bacteria counts recorded at WIN-3 in 2009 were not observed in 2010.

Comments and/or Recommendations

Nearshore sampling at WIN-1 and WIN-5 suggests potential land-based influences on nearshore phosphorus.

Elevated levels of phosphorus and *E. coli* at WIN -5 warrant further investigation of land use and creek influence in 2011.

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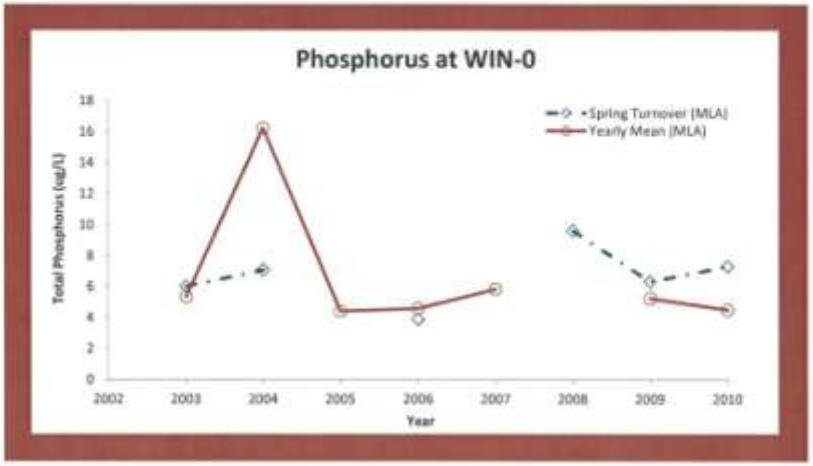
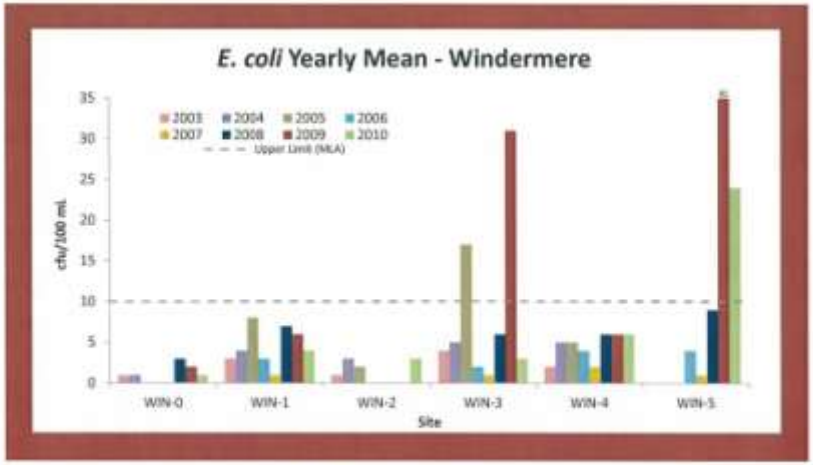
(WIN) WINDERMERE





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5/2/2011

Action Plan

What you can do

- Gather relevant data
- Contact the MLA
- Preliminary meeting with reps
- Set up community seminar
- Community Stewardship Action Plan

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Relevant Data

1. List main concerns:
   - Phosphorus, E.coli, weed growth
2. Identify area on map or sketch:
   - Length of shore, number of cottages
3. Other influences:
   - construction, golf course, marina
4. Previous monitoring data
5. Contact information for two reps

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Action Plan

What you can do

- Gather relevant data
- Contact the MLA
- Preliminary meeting with group reps
- Set up community seminar
- Community Action Plan

WQI – Financial Assistance

- Let's get started!
- Up to $1500 per approved group location
- Up to an additional $1000 'matching dollars'
- Significant MLA involvement in Year 1
- Some MLA involvement in Year 2
- DIY in Year 3 !

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STEWARDSHIP

<u>Everyone's responsibility!</u>

- *Maintain septics*
- *Maintain natural areas*
- *Shoreline restoration*
- *Stormwater control*
- *<u>Get Involved!</u>*

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Maintain Septics

- Pump regularly (3-5 years)
- Don’t overuse an old or undersized system
- Make sure there are no visible (*or smellable*) leaks yourself
- If you are replacing a system, make sure it is technically superior, not the minimum required

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Maintaining Natural Areas

Shoreline Restoration

- Intercept run-off
- Prevent erosion
- Provide food and shelter for animals

Forested Corridors

- Intercepts run-off
- Source of other nutrients
- Removes carbon dioxide

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Advantages of Native Plants





- Tolerant of variable conditions and our harsh Muskoka extremes
- Can outcompete most annual weeds
- Habitat and food benefit for wildlife
- Resistant to pests and disease
- Blend in with the natural environment

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Stormwater

- Rain barrels
- Gardens
- Pervious surfaces

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What You Can Do

- Monitor water quality to see if there is a problem
- Develop an Action Plan to address the problem
- Practice good stewardship on your own property

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Muskoka Lakes Association

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THANK YOU FOR YOUR INTEREST !