



Kings County Lake Monitoring Program

Tools for Healthy Watersheds Workshop

Leanne Jennings, Planner

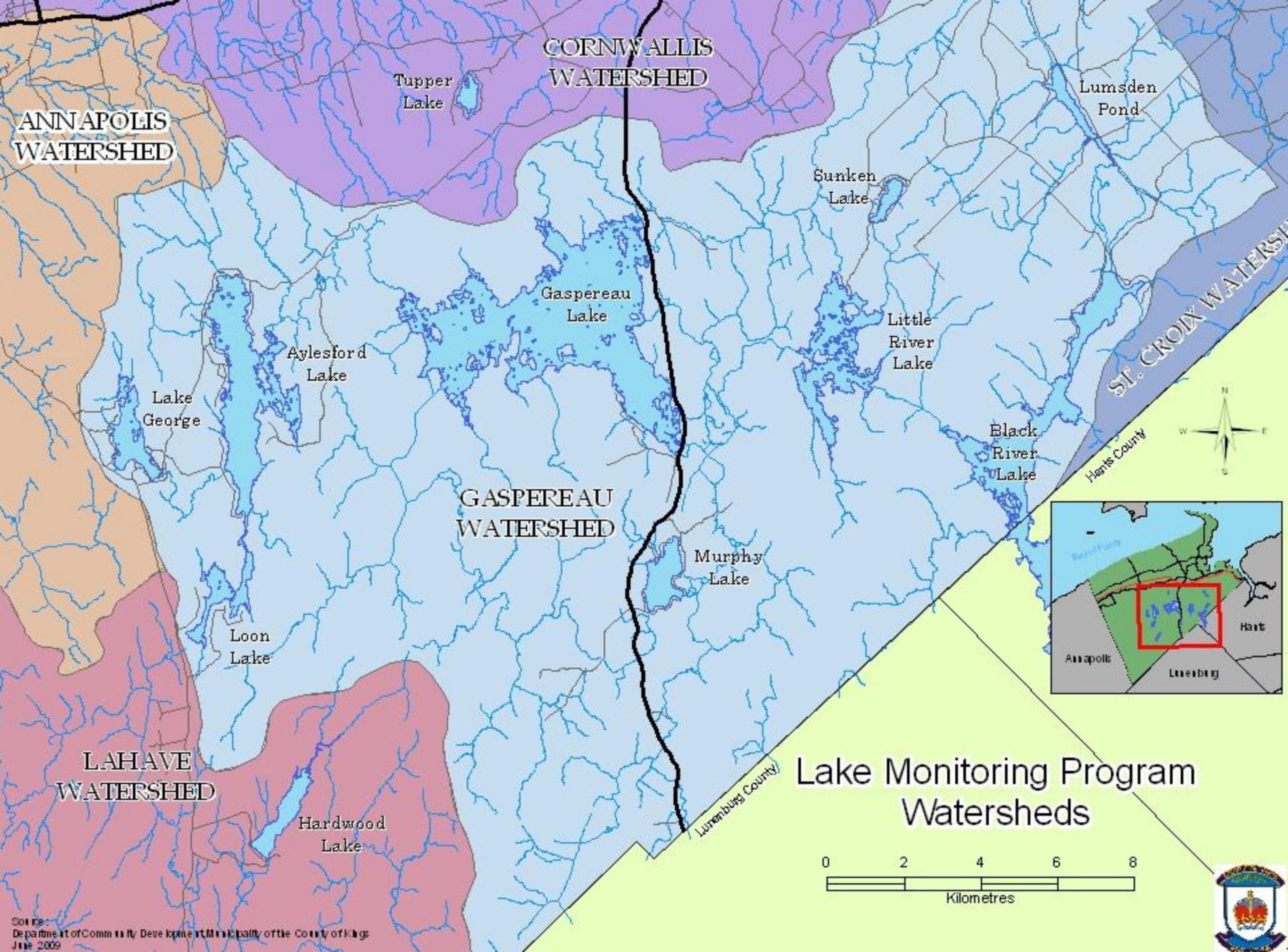


History of the Program



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- 
- 1983 NS Environmental Control Council advise
 - 1992 Municipality agreed to study lake capacity
 - 1995 study recommends lake capacity model
 - 1997 Lake Capacity Model was run, new land use policies were adopted



**ANNAPOLIS
WATERSHED**

**CORNWALLIS
WATERSHED**

Tupper
Lake

Lumsden
Pond

Sunken
Lake

Gaspereau
Lake

Little
River
Lake

Aylesford
Lake

Lake
George

Black
River
Lake

**GASPEREAU
WATERSHED**

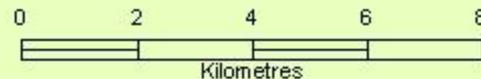
Murphy
Lake

Loon
Lake

**LAHAVE
WATERSHED**

Hardwood
Lake

Lake Monitoring Program Watersheds

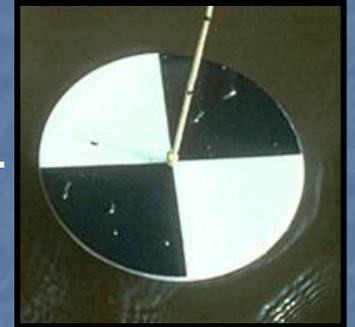




What we Sample?

- Water Clarity (secchi disk) —
- Phosphorus (nutrient)
- Chlorophyll a (algae)

- Weather
- Temperature
- pH, alkalinity, Conductivity, Nitrogen
- Color



Lake Science



----- Increase



Algae



----- Increase



----- Poor Quality







How we Sample?



- **Dedicated Volunteers**



- **Onsite observations**



- **Lab analysis**

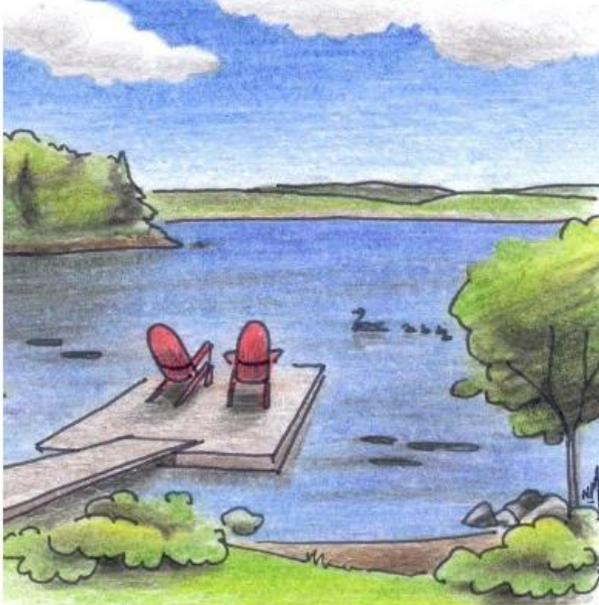


Why we Sample?

- Establish Baselines
- Observe Trends
- Identify Problems
- Involves the community
- Guide Land Use Planning



Developing Near a Lake



Guidelines for New Development

Guidelines for Improving Existing Development



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2009

Public Education

Guidelines for New Development

Whether you develop as-of-right or by site plan approval, below are guidelines for minimizing negative impact on lake water quality.

 This brochure provides general advice. Please contact the Municipality and Nova Scotia Environment for approval before beginning any lakeshore project.

1 The Municipality requires that dwellings be set back at least 65 feet from the shoreline. This area, called a buffer, should be allowed to grow naturally. The thick vegetation will filter nutrients and pollution as well as create habitat.

2 The buffer should be left as natural as possible. Even dead vegetation creates food and habitat and combats erosion with its root systems. Municipal bylaws allow clearing only for a path and view of the lake.

3 Keep lawns and gardens as far from the lake and as small as possible, preserving the buffer and minimizing the amount of fertilizer or pesticide that may reach the lake. Keep in mind that the Land Use Bylaw only allows 50% of the lot to be cleared of natural vegetation.

4 Keep steep slopes naturally vegetated or plant as needed to prevent erosion.

There should only be one path **5** through the buffer and it should be made of permeable material like wood chips or gravel.

Manage runoff from buildings or driveways by diverting it with **6** landscaping so it has time to be absorbed.

Instead of altering **7** natural terrain to build paths, consider using a raised boardwalk or steps to negotiate slopes or wet areas.

While not encouraged, **8** Municipal bylaws do allow boathouses if they are at least 4 feet from the bank. Docks and boathouses together should affect no more than 25% of your lot's water frontage.

If building a dock, place it **9** where it will have the least impact on existing features and choose an environmentally friendly floating design.

Don't alter the shoreline by **10** building barriers, walls or even adding sand or fill. These deaden the shoreline by destroying habitat.





MUNICIPALITY OF THE COUNTY OF KINGS

Lake Monitoring Program

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Kings County Lake Monitoring Program's Newest Volunteers - The Gaspereau Scout Troop

With the addition of Sunken Lake to this year's Lake Monitoring Program, Kings County was in need of new volunteers. Thankfully, the Gaspereau Scout Troop stepped up to the plate and offered to help us monitor the lake's water quality. The Boy Scout camp is located on the north end of Sunken Lake. The camp is a place where Scouts between the ages of 11 and 14 meet to take part in fun outdoor adventures, to learn about nature and to gain valuable outdoor skills. Through their participation in the Lake Monitoring Program, the Scouts are learning about lake ecology and how human development can

impact the natural environment. As environmental stewards, the Gaspereau Scout Troop are also contributing to their community by collecting the water quality information needed to effectively manage shoreland development and sustain a healthy and clean lake environment.

See Gaspereau Scouts on last page

Inside this issue:

- Gaspereau Boy Scouts
- 2007 Volunteers
- Wetlands
- New Shoreland Development Policy
- 1997 - 2006 Results



Seth and Reg Newell

The 2007 Lake Monitoring Volunteers:

Sunken Lake - Gaspereau Boy Scouts

Lake George - Fred Hayden

Loon Lake - Mark and Ben Raymond

Jumper Lake - Kelly and Dave Sheehan

Aylesford Lake - Andy and Terry Brysli

Gaspereau Lake - Wendy and Rick Salsman

Murphy Lake - Ruth, Reg and Seth Newell

Little River Lake - Paige and Bill Milligan

Black River Lake - Arnold Forsythe, Delmar Jordan and Barry Davidson

Lumsden Pond - Barry Yoell, Monty and Jacob Sheffield

Kings County would like to thank the hard work and dedication of its 2007 volunteers!



Challenges

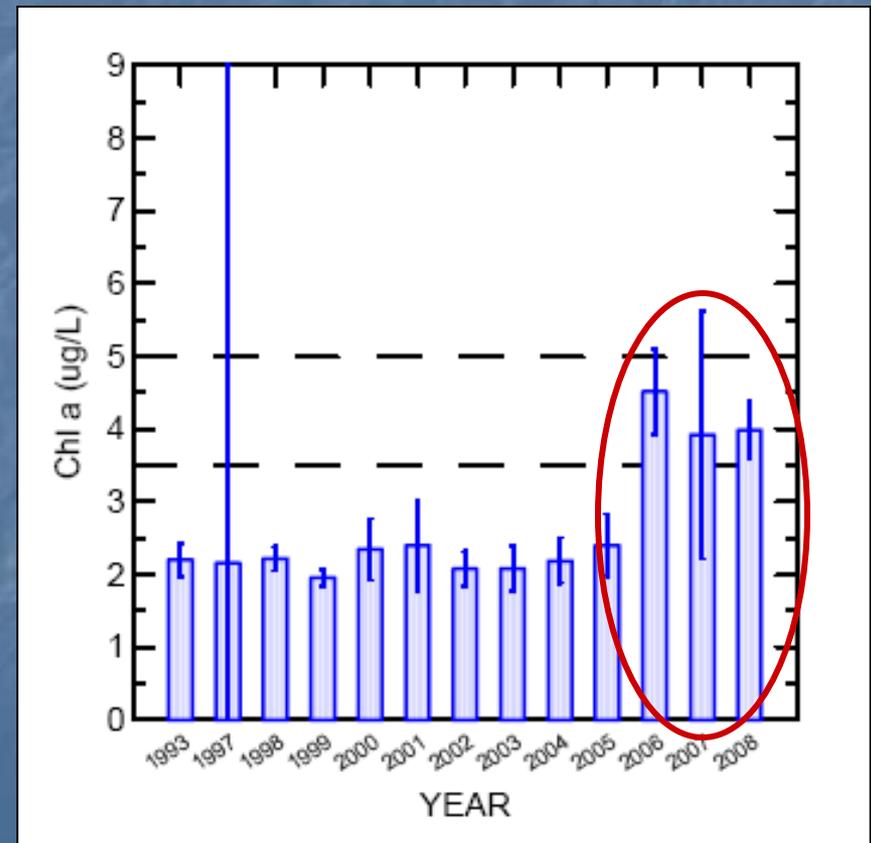
➤ Enforcement of land use controls





Challenges

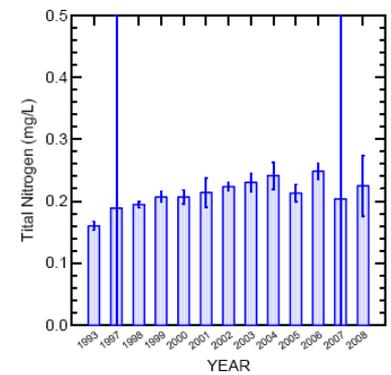
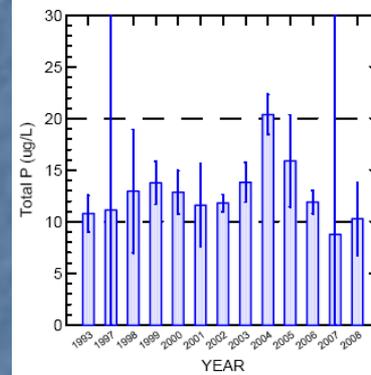
- Inconsistent laboratory testing
- Using a predictive model to establish land use controls
 - Dystrophic – dark (Tea) coloured lakes
 - draw-downs
- Requests for more lakes to be added
- Keeping the model up to date



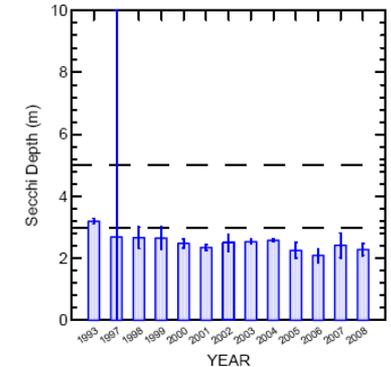
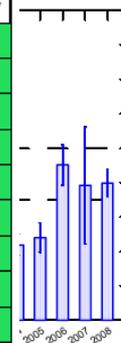


Lessons Learned

- Ability to respond to public questions and perceived water quality issues
- Importance of education and the clear communication of results



Lake	WQI	Poor Water Quality	Good Water Quality
George	70	[Progress bar from red to green]	
Loon	48	[Progress bar from red to green]	
Aylesford	79	[Progress bar from red to green]	
Gaspereau	69	[Progress bar from red to green]	
Murphy	78	[Progress bar from red to green]	
Little River	59	[Progress bar from red to green]	
Black River	79	[Progress bar from red to green]	
Lumsden	58	[Progress bar from red to green]	
Hardwood	70	[Progress bar from red to green]	
Sunken	60	[Progress bar from red to green]	
Tupper	51	[Progress bar from red to green]	





Take Home Messages

- It is possible and useful for a Municipality to run a lake monitoring program
- The Monitoring Program, however, requires continual review to ensure it remains relevant in a Municipal land use planning context