



Water Quality

Summary – MV Lake Study

- Overall water quality is good but in danger
 - North basin susceptible being shallow with low flow
- Sources pumping nutrients into North basin
 - 4 Creeks
 - Septic systems
 - Wastewater treatment facility
 - Mask island run-off
- Community action and behavior change required
 - Get septic system inspected and repaired (if required)
 - Use phosphorus free soaps
 - Maintain a healthy shoreline
 - Decrease nutrient inputs from livestock into Lake

What Every Wants to Know

- How will this impact me?
- Is Kamaniskeg going to have an algae bloom?
- Answer: Don't know
 - Lakes are complex systems
 - Each lake is unique and distinct
 - Need better (quality and quantity) monitoring to understand Kamaniskeg and get insight into health of lake

Impact Of Excessive Nutrients

- Algae blooms
- Excessive growth of aquatic plants
- Decrease in water clarity
- Lower levels of dissolved oxygen
 - May impact fish stock & diversity
- Increased levels of coliform and E. coli bacteria
- Possible increase in the presence of carcinogens, such as chloroform, resulting from increased organic matter reacting with disinfectants such as chlorine

*Note that nutrients are only one of the variables that influence algal blooms. Blooms are also impacted by increased temperatures and water column stability. Algae blooms may be toxic and give water poor taste and odour.

Source: FOCA Healthy Waterfronts Handbook, 2008.

Current Monitoring

- Lake Partner Program
 - Thanks to our new volunteers including Blackfish Bay
 - Few monitoring sites points
 - Limited by government support and approval of sites
 - Phosphorus – only in spring
 - Clarity measurements – monthly secchi disk readings
 - Temperature measurements - monthly
 - Volunteer initiative – consistency difficult
 - No interpretation of results or report
- Overall: good start but limited

Professional Monitoring

- Additional initiative – continue Lake Partner Program
- Expert advice and insight
- More data points: 24 in proposal including Blackfish Bay
 - Once a year: July when results of 2009 were their “worst”
- More parameters:
 - Lab tests: total phosphorus, nitrate and total suspended solids.
 - Field measurements: temp, conductivity, dissolved oxygen & clarity
 - Some sediment sampling
- Final Report
 - Comparing annual results – water quality changes discussed
 - Recommendations

Estimate: Professional Monitoring

- Reached out to Cambium for initial proposal
 - Same group that MV hired
- If KAPOA provides boat and driver:
 - \$3,400 + tax
- If consultant provides boat and driver
 - \$4,000 + tax
- Approximately: \$25 per member (assuming 200)
 - Could be offset by advertising , sponsorship and fund raising (volunteers required)
 - Could reach out to municipalities to share costs



What Can You Do?

Recognize it's Serious

Table 7 Summary of Nutrient and Sediment Source Inputs

Source	Total Phosphorus	
	kg/yr	% total
Tributaries ¹	121.97	44%
WWTP	83.95	31%
Septic Systems ²	68.4	25%

"For every pound of phosphorus in the water, 500 pounds of aquatic vegetation is produced."

Source: FOCA Healthy Waterfronts 2008 brochure.

¹ Based on average of eight (8) ice-free months

² Based on the equation supplied by Dillon and Rigler, 1975.

The greatest percent of total loading for each parameter are highlighted in bold

NA means data not available

Maintain Your Septic System

- Septic systems are huge threat
 - Most do not show obvious signs of malfunction
 - Get expert to inspect your system
 - Experts advise: pump-out septic every 3 to 5 years
- Phosphorus is tough to remove
 - Use phosphorus free detergents
 - Dishwasher detergent is especially high in phosphorus

More than 50% of the septic systems tested required repairs.

Maintain a Healthy Shoreline

- Free FOCA brochure: 24 page “Healthy Waterfronts”
 - Link on KAPOA website on Water Quality Page
- Reduce or eliminate fertilizer use
- Plant and/or maintain vegetative buffers
- Leave vegetation along the shoreline intact and plant buffer strips or allow natural vegetation to recolonize along the shoreline in areas where vegetation has been previously cleared.



How important is
water quality to you?