

Client: Slocan Lake Stewardship Society

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Attn: Hillary Elliot, Lane Haywood, Luce Paquin

Date: November 8, 2008

Report on Microbiological Tests – Slocan Lake Water, 5 over 30 days

We have tested the samples of water submitted by you and report as follows:

Method of Testing:

Analyses was performed in accordance with methods outlined in the "Standard Methods of Examination of Water and Wastewater", 17th edition, 1989 Published by the American Public Health Association, Specifically, Section 9222D. All tests were done using Membrane Filtration

Results of Testing:

*Fecal (Thermotolerant) Coliforms
per 100 milliliters*

| Site Location | Oct. 9-10 th | Oct. 14th | Oct. 22nd | Nov. 3rd | Nov. 5th |
|--|-------------------------------------|--|--|---|---------------------------------------|
| 1. Slocan, dock next to beach | 0 | 0 | 0 | 1 | 0 |
| Time/Water Temperature/weather | 9:10AM 13.6° Clear, windy | 2:00PM 11.0° Sunny, calm | 4:45PM 12.1° Sunny | 2:08PM 11° Rainy | 3:35PM 11.6° Rain yesterday |
| 2. Silverton, in front of hotel | 0 | 0 | 0 | 0 | 0 |
| 49°56'54"N, 117°21'26"W +/- 15m offshore Time/Water Temperature/weather | 2:00PM 11.0° Sunny, Clear | 10:20PM 13.2° Sunny, windy, Rain | 12:30AM 12.3° Rain 2 days ago | 9:38PM 11.7° Sun and rain | 2:15PM 11.8° Cloudy with sun |
| 3. Silverton, day park | 1 | 0 | 0 | 1 | 0 |
| 49°57'06"N, 117°21'44"W Time/Water Temperature/weather | 12:40PM 14.2° Sunny, Clear | 10:30PM 12.2 ° Sunny, calm | 12:20AM 11.6° Sunny, calm | 9:25PM 11.59° Cloudy, calm | 2:55PM 11.8° Cloudy with sun |
| 4. New Denver, Front of Hospital | 22 | 0 | 0 | 0 | 0 |
| 49°36'54" N 117°21'26" Time/Water Temperature/weather | 1:10PM 14.9° Sunny, Clear | 3:20PM 14.8 ° Sunny, calm | 11:55AM 12.3° Sunny, calm | 10:15AM 11.7° Calm,, high cloud | 12:40PM 11.5° Cloudy calm |

| | | | | | |
|---|------------------------------------|--|-------------------------------------|--------------------------------------|------------------------------------|
| 5. Downstream from Carpenter Creek | 0 | 0 | 0 | 0 | 0 |
| | 1:50PM 14.6° Sunny, Clear | 4:30PM 13.1 ° Sunny, windy | 11:40AM 11:4° Sunny, calm | 10:05AM 11.8° Calm overcast | 12:30PM 10.5° Cloudy calm |
| 6. Roseberry, downstream Wilson Creek | 0 | 38 | 0 | 0 | 0 |
| | 3:10PM 12:6 Very Windy | 9:40AM 12.3 ° Clear, Sunny, | 10:00AM 11:9° Sunny, calm | 10:45AM 11.5° Calm overcast | 1:05PM 11.5° Cloudy calm |
| 7. Hills, in weed bed in front of houses | 1 | 0 | 2 | 0 | 0 |
| | 4:10PM 14.9 Sunny, calm | 4:00PM 13.0° Clear, Sunny, windy | 10:55AM 10:55° Sunny, calm | 11:45AM 11.5° Calm overcast | 1:45PM 10.5° Cloudy calm |

Passmore Laboratory Ltd. complies with methods and certification through the Standards Council of Canada

Background:

Due to the fact that sample filtrates are cultured and 44.5° C, the presence of Fecal coliforms indicate recent contamination from a warm blooded animal/human source. Although the test has a long history in assessing water quality, Fecal coliforms per se. are not implicated in human infection. The presence of E.coli, a sub group of the Fecal Coliform group is considered a better indication for human illness. In fact, a study that correlated Fecal counts with E.coli in Slocan River samples was done in 1997-2000. Findings suggest a high correlation between these groups e.g. the majority of Fecal counts were E.coli.(1).

Comment on Findings:

The Provincial Standard for Fecal counts in “direct contact” water is 200/100ml. Drinking water standards are 0/100ml. Fecal coliforms counts are expected to be low in pristine lakes like the Slocan. However, older studies (1975 –1981) done on Windermere lake in our region, showed relatively high levels (3.3 MPN/100 ml geometric mean). Here, residential shoreline development is a concern. (2). Historically, studies done on the Slocan River, show elevated counts after rain events during late Summer and early Fall. This is likely due to runoff from agriculture and/or septic leaching. The counts drop quickly with lower water temperatures in Fall with few organisms detected when water temperatures drop below 10 °degrees C. (1).

Regarding the two high counts (New Denver, Oct 9th and Roseberry Oct 14th) - these kind of events are seen in other local lakes. Specifically, the west arm of Kootenay lake where a Health Inspector informed us that occasional elevated counts do occur and that counts may be the result of sporadic nutrient input from animal/human sources.

Regarding the counts at two sites - Silvertown and Hills: a trend may exist, however counts are low and seasonally appropriate sampling (late August, September) is recommended

1. Winlaw Watershed Committee, 2001 Slocan Valley Water Quantity and Quality Monitoring Program, Year 5
2. Ambient Water Quality Objectives for Columbia Lake and Windermere Lake, overview report, Ministry of Environment , 1981.

Respectfully Submitted,
Jennifer Yeow, Microbiologist, Passmore Laboratory