

# CANADA – BRITISH COLUMBIA WATER QUALITY MONITORING AGREEMENT



State of Water Quality of  
St. Mary Lake  
1975-1995

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Holms, G. B.

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## Executive Summary

St. Mary Lake is located on Saltspring Island (Figure 1). The watershed for this small lake is 7.07 km<sup>2</sup>.

This report assesses 20 years of water quality data and made the following conclusions:

- Total phosphorus values in the water column have decreased since 1980. However, phosphorus values exceeded the criteria for recreation and aquatic life.
- Phosphorus has been the limiting nutrient for algal growth in St. Mary Lake since 1986.
- Total organic carbon values exceeded the criterion for drinking water. Chlorinated drinking water may produce trihalomethanes which exceed the drinking water criterion (0.10 mg/L) when total organic carbon values are greater than 4 mg/L.
- The Capital Regional District's Health Protection and Environmental Division determined that the public beach on St. Mary Lake was suitable for bathing between 1988 and 1995.
- All mean summer chlorophyll *a* values collected between 1979 and 1989 exceeded the upper limits for protecting drinking water (2.5 µg/L) and aquatic life (3.5 µg/L).
- Extinction depth values from St. Mary met the criterion (> 1.2 m) for recreational use in 65% of the measurements.
- Turbidity values from St. Mary were outside the limits (5 NTU and 1 NTU) for drinking water. North Saltspring Water Works uses a sand filter to reduce the turbidity of the water to meet the drinking water criterion (1 NTU).

We recommend that a remediation plan be developed and implemented to improve water quality in St. Mary Lake.

We recommend monitoring:

- to identify changes in water quality attributed to biological activity in the lakes, to activities within the watershed such as urbanization, and to changes in nonpoint discharge.

The monitoring program could be implemented by an St. Mary Lake stewardship group with assistance from the Ministry of Environment, Lands and Parks.

- to determine whether the public beach is suitable for bathing.

The monitoring program will continue to be implemented at the bathing beach by the Capital Regional District's Health Protection and Environmental Division. In future, local interest groups (e.g., St. Mary Lake stewardship group, Island Trust) could assist with this ongoing monitoring.

STATE OF WATER QUALITY OF ST. MARY LAKE

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- to determine whether drinking water from the lake meets the fecal coliform criterion.

The monitoring program could be implemented by the Capital Regional District's Health Protection and Environmental Division, or by a St. Mary Lake stewardship group.

- to determine whether trihalomethanes values in chlorinated drinking water from St. Mary Lake met the drinking water criterion.

The monitoring program should be implemented by the two water works licencees (North Saltspring Waterworks District and Capital Regional District). The results of this monitoring should be reported, on a quarterly basis, to the Capital Regional District's Health Protection and Environmental Division.