

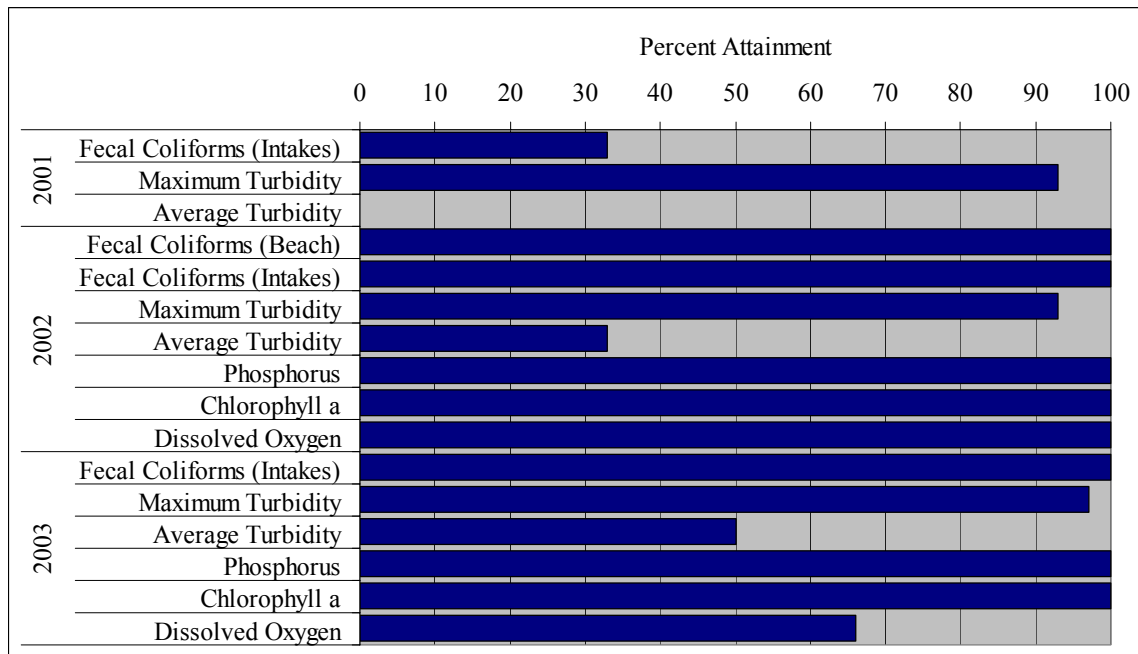
# Attainment of Water Quality Objectives for Lakelse Lake in

## 2001-2003

### EXECUTIVE SUMMARY

Designated water uses for Lakelse Lake include protection of raw drinking water supplies, primary-contact recreation, and aquatic and wildlife use. Water quality objectives set to protect the lake for these designated uses include: fecal coliform concentrations at beaches and water intakes, turbidity, dissolved oxygen, total phosphorus, and chlorophyll *a*. This report summarizes levels of attainment in 2001, 2002 and 2003, and provides recommendations for updating the objectives.

Monitoring completed in 2001, 2002 and 2003 revealed that maximum turbidity objectives were met most of the time, while average turbidity was frequently not met. Fecal coliform, phosphorus, chlorophyll *a* and dissolved oxygen objectives were frequently met when tested in 2002 and 2003. In 2001, the fecal coliform objective was met at only one of three sites. The attainment results are illustrated below.



**Summary of water quality objectives attainment for Lakelse Lake, 2001-2003**

Canadian Council of Ministers of the Environment (CCME) Water Quality Index (WQI) values were calculated for 2002 and 2003 to describe the state of water quality. Attainment percentages and index values are summarized in the table below.

### 2001, 2002 and 2003 Objectives Attainment and 2002 and 2003 WQI

Year	% Attainment	WQI Index Value	WQI Rating
2001	71%	n/a	n/a
2002	88%	49	Marginal
2003	89%	48	Marginal

Overall, sampling results indicate that some water quality objectives at Lakelse Lake are exceeded and that the designated uses may not always be protected. Domestic water users should be warned that fecal coliform and maximum turbidity objectives are occasionally exceeded, indicating that disinfection alone may not be sufficient to ensure that the water is safe for drinking.

It is recommended that two additional bacteriological variables (*E. coli* and enterococci) should be used as water quality objectives to evaluate microbiological water quality in Lakelse Lake:

1. The 90<sup>th</sup> percentile concentration of *E. coli* in Lakelse Lake should not exceed 10 CFU/100 mL at drinking water intakes, and the geometric mean should not exceed 77 CFU/100 mL in samples from recreational beaches.
2. The 90<sup>th</sup> percentile concentration of enterococci in Lakelse Lake should not exceed 3 CFU/100 mL at drinking water intakes, and the geometric mean should not exceed 20 CFU/100 mL in samples from recreational beaches.

Consistently meeting these objectives will indicate that no water treatment in addition to disinfection is required to protect drinking water supplies from bacteria, and that the risk of bacteria-caused gastrointestinal disease through primary-contact recreation at beaches is minimized. Meeting these objectives does not ensure protection from other contaminants; treatment beyond disinfection may still be required for these contaminants.