

# Lenore Lake Basin Water Quality

The following is information regarding water quality as a result of high water levels within the Lenore Lake Basin. This information was prepared as of May 7th, 2008. The Lenore Lake Basin is a closed basin with no natural outlets. Freshwater lakes in the basin include Burton and St. Brieux Lakes, while saline lakes include Lenore, Deadmoose and Houghton. Lenore Lake is less saline than both Houghton and Deadmoose Lakes.

Three years of above normal precipitation years has caused water levels in the Lenore Lake basin to rise to near or above historically recorded elevation. These high water levels are causing Houghton Lake to spill into Lenore Lake.

## Water Quality Monitoring for 2008

- Several factors influence water quality in Lenore Lake: inflow from Houghton Lake and Ranch Lake, surface area, precipitation and runoff from the surrounding watershed, outflow, evaporation, soil/geological characteristics, and human influences.
- Water quality of the total inflow to Lenore Lake during the 2008 spring runoff will be similar to, or below, existing Lenore Lake salinity concentrations.
- It is estimated that, in 2008, the total amount of inflow from Houghton Lake to Lenore Lake will make up less than one percent of the total volume of water in Lenore Lake.
- Lake monitoring is being undertaken at the north and south basins of Lake Lenore, Houghton Lake, and Deadmoose Lake every month. Additional sampling will take place on St. Brieux, Ranch, Frog, Middle and Basin Lakes. This information determines baseline or 'natural' characteristics of these lakes.
- Stream monitoring is being undertaken along several locations as well. This is done weekly in the spring but will occur less frequently as summer progresses and flows cease or diminish.

- In addition to Total Dissolved Solids and specific conductivity, other field measurements include temperature, pH and turbidity. Lake monitoring includes sampling for nutrients.

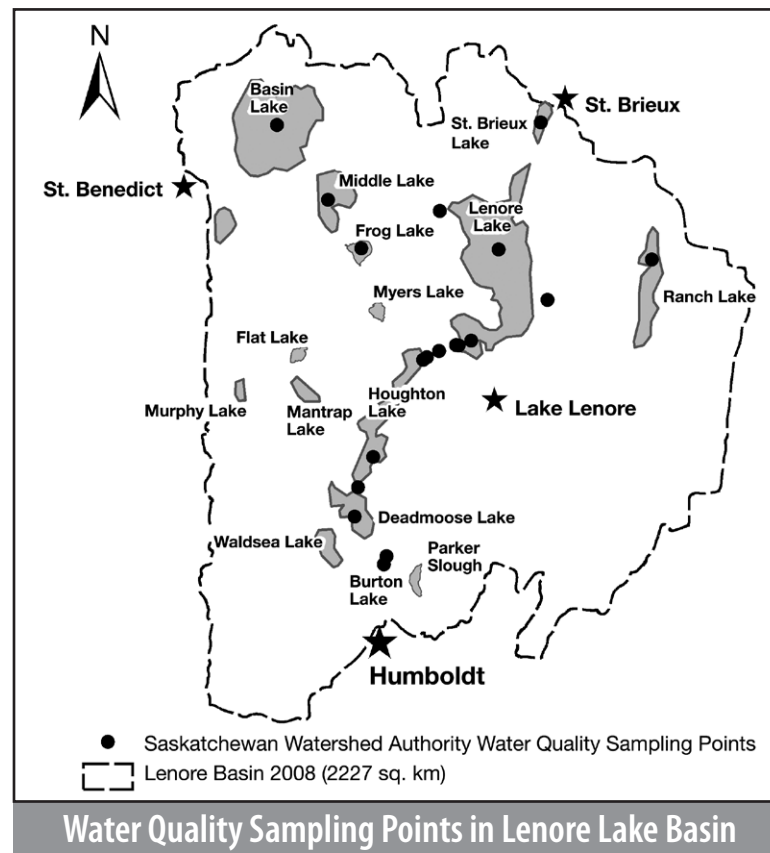
**Water quality monitoring data from four different sample points between Houghton Lake and Lake Lenore are available at [www.swa.ca](http://www.swa.ca), under "Lenore Lake Basin Water Levels". New data will be posted as the lab results are received.**

## Salinity

- **Salinity** is a measure of the dissolved salts in water. For lakes, salinity is measured by determining the concentration of Total Dissolved Solids (TDS). TDS is measured in a laboratory so a second measure, specific conductivity, is used to estimate salinity in the field. The higher the values of specific conductivity and TDS the more saline the water quality.
- **Total Dissolved Solids** is a measure of the amount of all dissolved salts and organics dissolved in the water. A freshwater lake is generally considered to have Total Dissolved Solids less than 1000 milligrams per litre (mg/L).
- **Specific conductivity** measures the resistance of the water to electrical flow. Salts (ions) increase water's ability to 'conduct'. The higher the minerals/salts, the higher the specific conductivity.

## Historical Water Quality of Lenore Lake

- Water quality data from Lenore Lake is intermittently available from the 1930s.
- Since the 1930s, the Total Dissolved Solids in Lenore Lake has ranged from 4000 mg/L to 8000 mg/L. The TDS in Lake Lenore is currently at or near its lowest since the 1930s.
- As with Lake Lenore, Houghton and Deadmoose Lakes have lower concentrations of Total Dissolved Solids compared to their historically known values.



## Water Quality Sampling Points in Lenore Lake Basin

TDS for Houghton and Deadmoose Lakes are approximately 12,000 mg/L and 16,000 mg/L respectively.

## Fish Impacts

- The Saskatchewan Watershed Authority shares water quality monitoring data with Fisheries and Oceans Canada, the Ministry of Environment, and other interested stakeholders to provide them with accurate information with which

to make good decisions regarding their mandate and responsibilities.

- Based on these water quality projections, the Ministry of Environment has stated that the impact to fish populations should be negligible this year.

More information is available online at [www.swa.ca](http://www.swa.ca) under "Lenore Lake Basin Water Levels".

