

Water Quality

Description

A wide range of activities – like the use of hazardous materials in the workplace, pesticide application, and use of household cleaners – can all produce water-borne pollutants. The city's water supply, stormwater, and sewage systems help manage pollutants and maintain good water quality.



Source: City of Prince George.

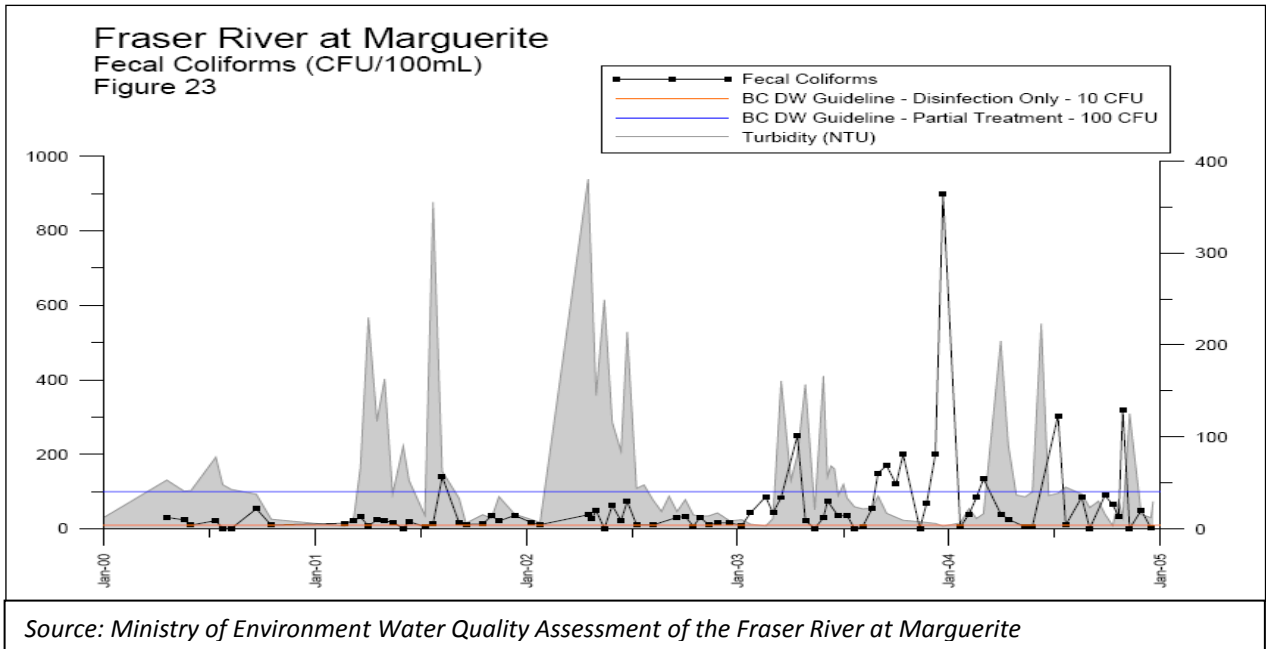
Status and Trends

Management of pollutants upriver and in areas above the Nechako Aquifer is critical to public health in Prince George, because pollutants can easily migrate from the surface into the aquifer, which supplies water to the City. Good water quality downriver is important to the health of residents there, and to the health of fish and other aquatic organisms.

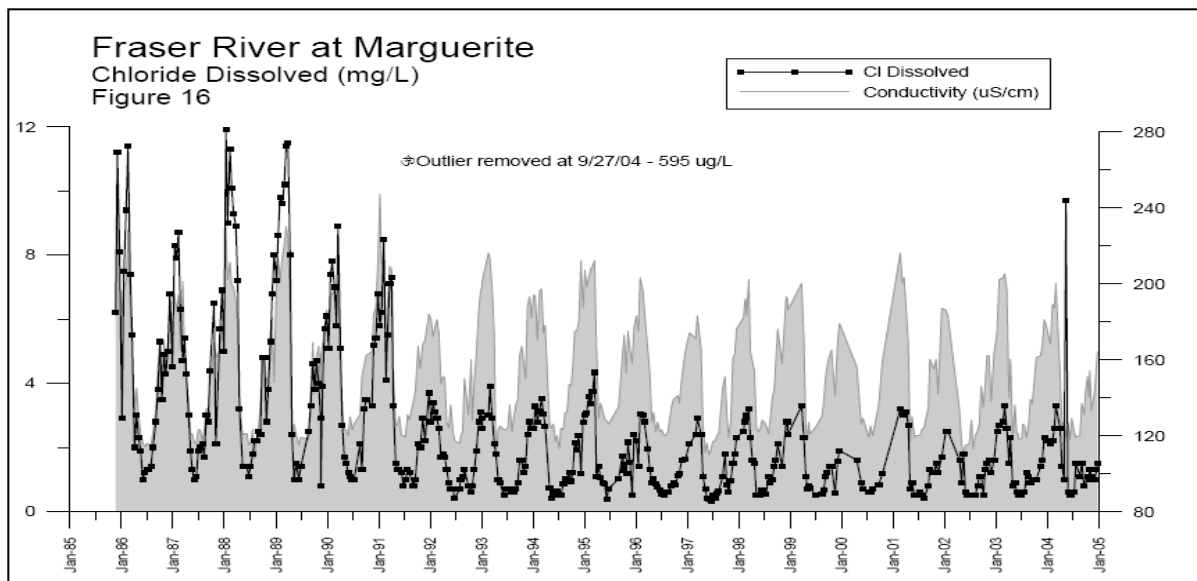
It is hard to assess the status and trends in water quality around Prince George because continuous monitoring is done downstream of Quesnel, not right below Prince George. It is also hard because there are many different pollutants to measure, each of which is related to different sources. However, some examples do illustrate some changes in water quality in the Prince George area:

- **Fecal coliform:** Typically, major sources are treated sewage from wastewater treatment plants, septic systems, and agricultural runoff – although data is not available to confirm this for Prince George. Untreated, municipal wastewater has high coliform levels. The City has a state-of-the-art secondary treatment system at its treatment plant, which substantially reduces levels in water released into the river. As shown in the graph below, the combined effect of human activity in the region has been that levels in the Fraser at Marguerite are often high enough to require treatment of water before it is safe to drink¹.

¹ Swain, L.G. 2007, Water Quality Assessment of Fraser River at Marguerite (1984-2004). Environment Canada and BC Ministry of Environment. http://www.env.gov.bc.ca/wat/wq/quality/sowqofr2/fraser_marguerite.pdf



- Furan and Dioxins:** The most significant sources of water contamination in the Fraser River north of Hope are pulp and paper mills and other industry in Prince George². Furans and dioxins are highly toxic and carcinogenic chemicals produced in chlorine dioxide paper bleaching. As pulp mills have adopted alternative processes, water quality has improved dramatically,³ as shown in the chart below.



² Oriordan, J. & D. Fast. 1997. Water Quality Assessment and Objectives for the Fraser River from Moose Lake to Hope. Ministry of Environment. <http://www.env.gov.bc.ca/wat/wg/objectives/frasermoose/moose.html#table1>

³ Ibid.

Efforts are ongoing to improve water quality. These include for example improvements to industrial processes and watershed drainage plans that aim to reduce erosion and pollutant loading from stormwater.

Performance Measurement

Of the potential measures listed below, which should we use to measure and communicate progress? Would you rather use another one? Why?

The following are approaches Prince George could take to measuring water quality:

- Continued direct measurement of pollutants at Marguerite
- Direct measurement of pollutants immediately downstream of Prince George
- Measurement of “proxies” related to specific pollutants, e.g. % households serviced by different levels of sewage treatment; % impervious cover and pollutant loadings to sediments from stormwater.

Questions for Consideration

- **Priorities:** What pollutants are the most important and why?
- **Sources:** Where is there the most potential to improve water quality?
- **Links:** How can stormwater and sewage be managed so as to provide added public benefits and/or lower costs while improving water quality?
- **Costs:** What costs are associated with future growth and maintenance of water supplies, wastewater, and stormwater? How can different patterns of development and new technologies affect these costs?
- **Industry:** What strategies might allow Prince George to have a strong industrial sector, while ensuring good water quality in the Fraser?

More Information

[City of Prince George Water Conservation Plan](#)

[Water Quality Assessment and Objectives for the Fraser River from Moose Lake to Hope.](#)

[Water Quality Assessment and Objectives for the Fraser River from Moose Lake to Hope. – Technical Document](#)

[Water Quality Assessment of Fraser River at Marguerite \(1984-2004\)](#)