



# Monitoring Water Resources

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## Main Points

### What we examined

Canada is home to roughly seven percent of the Earth's renewable fresh water. From the Gander River in the east to Campbell River in the west, to the Mackenzie River in the north, and thousands of other rivers and lakes in between, water defines our landscape. Environment Canada maintains two programs to monitor the long-term quality and quantity of surface fresh water resources in Canada.

The Department's Fresh Water Quality Monitoring program monitors long-term water quality at 456 sites across the country to assess and report on the status of Canada's rivers and lakes and on changes to the health of aquatic ecosystems. The data and information produced by the program are intended to serve various water management activities and needs, such as establishing baseline conditions, determining trends in aquatic ecosystem health, and detecting emerging water quality issues. The data and information provided by the program are also intended to inform regulatory activities.

The Department's National Hydrometric Program monitors the quantity of surface water resources at 2,107 sites across the country and is intended to provide Canadians with the data, information, and knowledge they need to make water management decisions. Water quantity data and information are used to determine how much water is available for various uses such as irrigation and industrial and domestic uses, to make trans-boundary water allocation decisions, and for flood forecasting.

We examined how Environment Canada manages each of these programs and how it measures and reports on the programs' performance.

Audit work for this chapter was substantially completed on 30 June 2010.

### Why it's important

According to recent public opinion polls, Canadians regard fresh water as the country's most important natural resource, more important than oil and gas and forestry. Fresh water is a critical factor in most economic and industrial activities, from the production of goods and

services, including food, to recreation and tourism. Canadians count on fresh water for just about every aspect of their lives. Water is also essential to the health of ecosystems and, in turn, to the well-being of Canadians.

Understanding the status and long-term trends in the quality and quantity of the country's fresh water resources is of vital importance to Canada's future prosperity.

### What we found

- Environment Canada is not adequately monitoring the quality and quantity of Canada's surface water resources. Although it has run the Fresh Water Quality Monitoring program and the National Hydrometric Program since the 1970s, the Department has not fully defined the extent of its water monitoring responsibilities, particularly on federal lands such as First Nations reserves, Canadian Forces bases, national parks, and national wildlife areas. The Department is not monitoring water quality on the majority of federal lands and does not know whether other federal departments are doing so. As a result, there may be vast areas under federal jurisdiction where fresh water quality and quantity conditions are not being monitored.
- Environment Canada has not located its monitoring stations based on an assessment of risks to water quality and quantity. As a result, it may not be focussing its monitoring efforts on the activities and substances that pose the greatest risks.
- Both of the water monitoring programs we audited developed quality control procedures intended to ensure that the data they disseminate is fit for their intended uses. The National Hydrometric Program has consistently applied its quality control procedures to validate the data from the stations we examined. The Fresh Water Quality Monitoring program has not. As a result, Environment Canada cannot assure users that its water quality data is fit for their intended uses.
- The Department has not established many of the essential management practices needed to plan, implement, assess, and improve its long-term monitoring programs. It has not taken the initial steps to clearly establish the extent of each program's monitoring responsibilities, risk-based priorities, and client needs. As a consequence, the Department has no objective basis on which to identify opportunities for improvement or take corrective actions to improve these programs.

**The Department has responded.** The Department agrees with all of our recommendations. Its detailed responses follow the recommendations throughout the chapter.