Evaluation of ECCC's Freshwater Quality Science

Evaluation At a Glance

April 2026

Environment and Climate Change Canada
Environnement et Changement climatique Canada
Canada

Cat. No.: En4-794/2026-1E-PDF
ISBN: 978-1-100-00120-3
EC 25019.18

Environment and Climate Change Canada
Public Information Centre
Place Vincent Massey building
351 St-Joseph boulevard
Gatineau Quebec K1A 0H3

Toll free: 1-800-668-6767
Email: enviroinfo@ec.gc.ca

Aussi disponible en français

Freshwater Quality Science Overview

ECCC's freshwater quality science activities are designed to support Canadians in having access to clean water.

The department's freshwater quality science activities include:

- Long term monitoring and surveillance aimed at reporting on freshwater quality and aquatic ecosystem health.
- Laboratory analysis, analytical method development, and other technical services.
- Research and modelling.
- Reporting on and sharing science; and
- Science activities/advice in support of programs, policy, regulation, and enforcement.

These actions also support the federal government's freshwater management priorities including the Freshwater Action Plan led by the Canada Water Agency (CWA). They enable and support program, regulatory, and policy needs for internal and external partners and stakeholders.

The activities are led by the Water Science and Technology Directorate within the Science and Technology Branch.

Scope and Methodology

Scope

The evaluation of ECCC's Freshwater Quality Science covers the 5-year period from 2020-2021 to 2024-2025. The evaluation focusses on the following themes:

Relevance	Governance	Efficiency	Effectiveness

Methodology

A variety of sources was used, including:

Document Review	Interviews	Case Studies	Data analysis
Review covered governance documents and agreements, reports on plans, priorities and performance, among others.	26 interviews were conducted with ECCC and Canada Water Agency representatives (n=17) and with external partners and stakeholders involved (n=9).	3 case studies were conducted on the unique challenges, delivery, and key impacts of the activities.	Data analysis provided information on the achievement of results and on the availability, use, and quality of performance information.

Findings (1 of 2)

Relevance

Federal involvement in freshwater quality science is critical to addressing national priorities, transboundary issues, and international obligations.

ECCC provides standardized monitoring, long-term data, environmental emergency support, and scientific expertise that support policy and regulatory development, implementation, and environmental law enforcement. Retaining these activities within ECCC supports integration with broader environment, climate change, and nature priorities and enhances evidence-based decision-making.

Emerging pressures stemming from climate change and environmental security and sovereignty further underscore the need for federal leadership to maintain consistent standards and to fulfill regulatory obligations and uphold commitments to Indigenous rights and international agreements.

Governance

Roles and responsibilities are mostly clear, although coordination with the new Canada Water Agency is still evolving.

There is room for improvement in the identification and uptake of research priorities, especially as planning science against needs, risks, and priorities becomes increasingly important in the current fiscal context.

Some aspects of the suite of activities incorporate equity, diversity, and inclusion, but there is still room to further contribute to environmental justice.

Collaboration is efficient with some partners, but less consistent with academic and Indigenous groups.

Findings (2 of 2)

Efficiency

Partnerships are employed for a cost-effective and efficient delivery model.

It has improved over time through the application of different initiatives such as the risk-based adaptive management framework. There is also a focus on implementing modern approaches such as better collection, analysis, and use of information and data to support informed decision-making.

Access to vessels in the Great Lakes is an important opportunity that requires timely resolution to support the achievement of results.

Effectiveness

The evaluation has identified an opportunity to improve the freshwater quality science activities' performance measurement framework by establishing better measures and indicators to track progress against expected results.

Progress was observed towards achieving the result of developing science and objectives by priority ecosystem and informing freshwater decision-making. These activities support the long-term goal of clean water provision to Canadians by enabling programs, regulation administration, enforcement, and by supporting protection and restoration actions.

Opportunities for advancement include addressing gaps in knowledge and ecosystem assessment and enhancing the application of Indigenous Science.

Recommendations

1. The Assistant Deputy Minister of Science and Technology Branch should work at developing an integrated and centralized research tracking, resource allocation prioritization and decision-making framework that integrates water research. The framework should consider interdisciplinary requirements and stakeholder expectations to ensure that resources are directed towards key activities in line with overall departmental priorities. The framework should also be presented at the Executive Management Committee for approval.

2. The Assistant Deputy Minister of the Science and Technology Branch should work at developing a performance measurement framework that may be used to improve measuring and reporting on progress, contributions, and results achieved including for ECCC's freshwater quality science activities.

Management Action plan (1 of 3)

Recommendation 1: The Assistant Deputy Minister of Science and Technology Branch should work at developing an integrated and centralized research tracking, resource allocation prioritization and decision-making framework that integrates water research. The framework should consider interdisciplinary requirements and stakeholder expectations to ensure that resources are directed towards key activities in line with overall departmental priorities. The framework should also be presented at the Executive Management Committee for approval.

Action 1: Develop the research framework

Deliverables	Timeline	Responsibles
Environmental scan of high-level priorities, including for water research across STB	October 5, 2026	DG [Applied Environmental Research and Modelling Directorate], STB
Draft framework outlining key elements such as tracking approach, prioritization criteria, resource allocation, decision points, and alignment with departmental priorities for consultation	March 31, 2027	DG [Applied Environmental Research and Modelling Directorate], STB
Consultation results with consideration of interdisciplinary requirements and stakeholder expectations	October 5, 2027	DG [Applied Environmental Research and Modelling Directorate], STB
Final research framework	March 31, 2028	DG [Applied Environmental Research and Modelling Directorate], STB
Briefing material for EMC to secure approval	March 31, 2028	DG [Applied Environmental Research and Modelling Directorate], STB

Management Action plan (2 of 3)

Recommendation 1: The Assistant Deputy Minister of Science and Technology Branch should work at developing an integrated and centralized research tracking, resource allocation prioritization and decision-making framework that integrates water research. The framework should consider interdisciplinary requirements and stakeholder expectations to ensure that resources are directed towards key activities in line with overall departmental priorities. The framework should also be presented at the Executive Management Committee for approval.

Action 2: Develop the resource allocation process under the framework

Deliverables	Timeline	Responsibles
Draft resource allocation decision framework	January 29, 2027	DG [Science Policy, Planning, and Assessment Directorate], STB
Stakeholder-informed resource allocation summary	February 26, 2027	DG [Science Policy, Planning, and Assessment Directorate], STB
Final resource allocation decision framework	February 28, 2028	DG [Science Policy, Planning, and Assessment Directorate], STB

Management Action plan (3 of 3)

Recommendation 2: The Assistant Deputy Minister of the Science and Technology Branch should work at developing a performance measurement framework that may be used to improve measuring and reporting on progress, contributions, and results achieved including for ECCC's freshwater quality science activities.

Action 1: Develop a performance measurement framework for ECCC's water science activities

Deliverables	Timeline	Responsibles
Environmental scan of existing water quality science related indicators	September 14, 2026	DG, Science, Policy, Planning, and Assessment Directorate, STB
Consultation summary of decision-makers (predominantly internal to ECCC) who use results information to understand their needs.	November 16, 2026	DG, Science, Policy, Planning, and Assessment Directorate, STB
Draft a performance measurement framework, strengthening ECCC's ability to consistently measure and report on progress, contributions, and results achieved. The Framework is contingent on the Comprehensive Expenditure Review realities and STB reorganization.	March 31, 2027	DG, Science, Policy, Planning, and Assessment Directorate, STB
Work with the Corporate Management Directorate to ensure that the performance management framework is aligned with the DRF, current departmental program inventory, and performance information profile.	March 31, 2027	DG, Science, Policy, Planning, and Assessment Directorate, STB
Finalize the performance measurement framework.	March 31, 2028	DG, Science, Policy, Planning, and Assessment Directorate, STB