



WWF

FACTSHEET

2013

Fresh Water

Freshwater Health Assessment: Taking the Pulse of our Living Waters



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A group of Atlantic salmon swimming upriver to spawn.

OUR GOAL

WWF WILL WORK WITH FRESHWATER COMMUNITY LEADERS TO ASSESS THE HEALTH OF ALL MAJOR WATER BODIES IN CANADA BY 2017.

Introduction

Water is fundamental to life. The water we use – for drinking, to irrigate fields and gardens, to generate electricity and sustain our communities – is water that we share with all life on earth. Healthy waters matter – for people and for nature.

However, most of us don't know how healthy Canada's local waterways are—nor do we have a clear picture of how healthy Canada's rivers, lakes and streams are on a national scale. WWF is one of hundreds of organizations in government, civil society and innovative businesses across the country working on freshwater issues. Collectively, this work encompasses everything from watershed monitoring to stream restoration projects to legal and policy reform.

Enter WWF's national Freshwater Health Assessment (FHA), a framework that aims to evaluate the health of Canada's waters. By 2017, Canada's 150th birthday, WWF will work with freshwater community leaders to assess the health of all major water bodies in Canada. This will provide a platform for ongoing measurement of how the health of Canada's waters is improving or declining, and complement the efforts of local organizations across the country that are working to protect and restore their local water bodies.



Measuring Progress and Shaping Plans

Over the past decade, the water community's collective efforts have resulted in many compelling water strategies, plans and policies across Canada. This is important work, but the community has had no way to measure the cumulative impact of this work nationally, or whether and how it is actually improving the health of our waters. Are we making a difference?

As pressures on our waters are mounting, Canada's need for a broadly applicable, science-based, understandable framework for assessing the health of freshwater ecosystems across the country is critical to a sustainable future. The freshwater community needs a way to measure its progress, as well

as insight into what more must be done to preserve and protect Canada's water wealth.

Canada currently has no agreed upon framework for assessing or setting targets for the health of our waters, no basis on which to judge if water use and practices are sustainable. This is the gap that WWF will help fill. The Freshwater Health Assessment aims to drive a science-based, assessment of the health of Canada's waters. It is intended to be national in scope and to help drive a broader movement pushing for a renewed focus on evidence-based water policy across Canada. It will be an essential tool in any and every local freshwater advocate's toolbox.

Assessing Ecological Health

WWF-Canada has worked with experts from universities and government agencies to develop the FHA. It is intended to provide a set of core metrics that can be applied across Canada's major water bodies, using currently available monitoring data, to assess ecological health in a scientifically credible manner. This framework was inspired and informed by international examples of best practice in this field, including work in South Africa, Australia,

the European Union, and the United States. Further, we have drawn upon freshwater reporting initiatives underway in Canada, including work in Ontario, Alberta and New Brunswick.

While the current FHA was designed specifically for assessing rivers, the framework will be expanded over the next 12 months to include lake ecosystems.

Assessing Freshwater Health in Canada: Four Metrics

The framework is comprised of four metrics: water quality, hydrology (water flow), fish and benthic macro-invertebrates. The metrics used in the assessment framework were chosen to provide representation of key elements of a river ecosystem. They are also commonly monitored in most Canadian jurisdictions. Additional metrics representing components of aquatic ecosystems, such as fluvial geomorphology, wetlands and riparian vegetation, may be considered in future iterations of the framework.

Water Quality



Why? Water quality can have significant impacts on aquatic life, drinking water and recreation.

Approach: WWF's metric compares levels of chemical contaminants—such as chloride, phosphorus or heavy metals—in a river to guidelines (or standards) set by provincial and federal governments, as well as to monitor long-term trends in levels of these contaminants.

Data Source: Federal and provincial water quality monitoring programs.

Water Flow



Why? How much water flows, and when, is a critical driver of ecosystem health. Withdrawing, holding back or diverting water disrupts the natural pattern of river flows, which can have serious repercussions.

Approach: Developed with the assistance of experts, our methodology examines trends of water quantity and timing in a river and identifies significant changes in natural flow patterns over time, which can have a negative impact on the health of our waters.

Data Source: The HYDAT database, managed by the Water Survey of Canada.

Fish



Why? Fish are an integral component of freshwater health due to their integral role in aquatic food webs, and high value to humans (for food, recreation and spiritual reasons).

Approach: WWF's metric evaluates changes in the diversity of native fish over time in a river. Biodiversity of native species is key - a large number of fish does not necessarily indicate a healthy freshwater ecosystem if many of those fish species are non-native and invasive.

Data Source: Provincial governmental agencies.

Benthic Invertebrates



Why? Flies, beetles, aquatic worms, snails, leeches and such—called benthic macro-invertebrates by scientists—reveal a lot about the health of a freshwater system and are an important link in the aquatic food chain.

Approach: Specifically, aquatic scientists look at whether a river lacks species sensitive to ecological disturbance, which can indicate poor aquatic health.

Data Source: Environment Canada's CABIN initiative, and provincial databases where they exist.

THE METRICS USED IN THE ASSESSMENT FRAMEWORK WERE CHOSEN TO REPRESENT KEY ELEMENTS OF A RIVER ECOSYSTEM.

The Freshwater Health Assessment “Score Card”

Based on the results for the four metrics, WWF has developed a formula for scoring freshwater health. This formula is intended to provide a broadly applicable approach for evaluating river health in Canada. While the assessment can be applied at any scale, we are calculating scores at the watershed scale as defined by the Water Survey of Canada.

We have chosen to apply the assessment at a scale that complements what other local or watershed groups typically use, a scale that is most identifiable and relevant to the public. The intent is that freshwater health, over time, can be assessed and improvement or decline in its health can be measured and tracked. The assessment is national in scope and intended to provide a consistent framework for evaluating freshwater health at a broad scale. It is not intended to evaluate the impacts

of individual projects or assess the health of water bodies at a site or local scale.

Categorical scores assigned to each metric have a corresponding numeric value out of 4: Very Good= 4; Good = 3; Fair = 2; Poor = 1; Very Poor = 0. These values are added to create an overall score. The overall score is converted to a percentage of the maximum available score.

Where data availability or accessibility is problematic, assessment of certain metrics - and in some cases, full river assessments - cannot be undertaken. In these instances, we highlight the data deficiency in hopes that additional data may be sourced from local water managers and to illustrate the need for improved monitoring and access to data. Where there is an adequate level of data, a level of confidence is assigned to the results.

VISIT
wwf.ca/waterhealth
TO VIEW COMPLETE ASSESSMENTS.

For more information, contact:

Emily Giles
 Freshwater Program
 Manager
 WWF-Canada
 416-489-4567 ext.7290
egiles@wwfcanada.org

Planning for the Future

The Freshwater Health Assessment is WWF’s response to growing concerns about the declining availability of and access to information on freshwater health in Canada. We have created an accessible assessment to allow all citizens to understand the baseline health of our rivers and lakes. It is a scientifically rigorous analysis that can be presented clearly to help inform decisions,

actions, and policies, as well as communicated to stakeholders. The Freshwater Health Assessment framework is now ready to be scaled up and applied to rivers across the country, providing the basis for WWF and the freshwater community to work together towards our ambitious goal: to assess the health of all major Canadian water bodies by 2017.



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	<p>Why we are here. We are creating solutions to the most serious conservation challenges facing our planet, helping people and nature thrive.</p> <hr/> <p>wwf.ca</p>
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