

Source Water Protection Report





OUR MISSION

“To provide world-class services for our customers and our environment”

“Quality in means quality out” and this is why we invest the time and effort to protect our watersheds to keep our source water protected. Halifax Water prides itself in having some of the most pristine watersheds anywhere in Canada through proactive management including a focus on public land ownership, research, water quality monitoring, sustainable forestry practices and supporting regulations. This approach is made possible through professional staff working with the communities and customers we serve. We hope you find a new appreciation for your drinking water as you read about the activities profiled in this brochure.

A handwritten signature in blue ink that reads "Carl Yates". The signature is fluid and cursive, written in a professional style.

Carl D. Yates, M.A.Sc., P.Eng.
General Manager



ABOUT HALIFAX WATER'S SOURCE WATER PROTECTION PROGRAM



Halifax Water's mission is to provide world-class services for our customers and our environment. To maintain high quality water standards, Halifax Water uses a multiple barrier approach, a series of checks and balances from the water source to the customer's tap. Protecting our customers' drinking water supplies at the source is the first step in this process.

Halifax Water's Source Water Protection Program tools include:

- Public Awareness, Involvement and Education
- Source Water Quality Monitoring
- Promotion of Best Management Practices
- Sound Forest and Land Management Practices
- Regulations for Environmental Protection

As Halifax Water's first source water protection report, this publication highlights accomplishments and future initiatives that support the ongoing commitment to provide high-quality water and protect water supply areas.

HALIFAX WATER SOURCE WATER SUPPLIES



Lake Major



Pockwock Lake

Halifax Water currently manages eight watersheds, as well as three groundwater sources, that collectively supply drinking water to over 79,000 customers in Halifax Regional Municipality:

- Pockwock Lake, located 25 km northwest of downtown Halifax, is the drinking water supply serving the communities of Halifax, Bedford, Sackville, Beaverbank, and Timberlea.
- Tomahawk Lake, located northwest of Halifax near Pockwock Lake, is a future water supply supplement to Pockwock Lake.
- Lake Major, located 10 km northeast of downtown Dartmouth, provides water to Dartmouth, Cole Harbour, Eastern Passage, Westphal, Cherry Brook, North Preston, and Montague.
- Bennery Lake, located just west of Halifax Stanfield International Airport, is the water supply for the Halifax Stanfield International Airport and Aerotech Business Park.
- Chain Lake and Lake Lamont/Topsail are the current emergency backup water supplies for the areas served by Pockwock Lake and Lake Major.
- Lake Fletcher serves as the water supply for customers in the Collin's Park subdivision located in the community of Wellington.
- The Musquodoboit River serves as the source water supply for the community of Middle Musquodoboit.
- Well heads currently provide groundwater to a number of Halifax Water customers. A well head located near Five Island Lake serves about 11 customers, while well heads located near Miller Lake and Silver Sands (Cow Bay) each serve approximately 48 customers.



Source Water Protection Team

Halifax Water has dedicated trained staff working to preserve our watersheds. The Watershed Manager is a registered professional forester and is focused on forest health and property management. In 2009 the position of Source Water Planner was created. Our Source Water Planner has advanced degrees in aquatic sciences and focuses on water quality and community engagement.

Source Quality Monitoring

- In 2009, Halifax Water significantly expanded its source water monitoring program.
- The program now includes the monitoring of streams, rivers, and lakes at key locations for biological, physical, and chemical characteristics. Watershed monitoring is performed by staff from Halifax Water's Water Quality Section.
- Source water quality information is used by Halifax Water to identify current conditions, track changes, set goals, and support management decision making.

Watershed Advisory Committees

- There are currently three Watershed Advisory committees that provide support to Halifax Water:
 - Pockwock Lake Watershed Management Committee
 - Lake Major Watershed Advisory Board
 - Bennery Lake Watershed Management Committee
- The committees are made up of representatives from Halifax Water, Nova Scotia Environment, Nova Scotia Department of Natural Resources, Municipal Planning & Development, as well as watershed stakeholders and users.
- The Pockwock Lake Watershed Management Committee increased its membership in 2009 with the addition of a staff representative from the Municipality of East Hants, and a community representative from the region of Mount Uniacke. With these additions, the committee better represents the watershed stakeholders.
- Each committee met twice in 2009, as per the terms of reference, and provided support and feedback on watershed matters, including:
 - Issues of Local Concern
 - Enhancement of Environmental Regulations & Guidelines
 - Watershed Security
 - Local Development
 - Public Awareness and Education Initiatives
 - Best Management Practices



Water Crossings Inspection Program

Halifax Water operates a water crossing inspection program whereby all crossing structures are inspected every five years with more frequently used crossings inspected every two years. The program is conducted to identify and prioritize locations requiring repairs or replacement. In 2009, the five year inspection program was carried out on all water crossing structures located on Halifax Water controlled roads.



Forest Management

- Halifax Water manages forested land within its watersheds with the objectives of maintenance and improvement of water quality, as well as conservation of the forest ecosystem.
- Hurricane Juan clean-up efforts were completed in 2009 to facilitate forest renewal and minimize the potential for forest fire within the Lake Major Watershed.
- Halifax Water also provided a full-day Pockwock Watershed tour to representatives from the Registered Professional Foresters Association of Nova Scotia, the Canadian Institute of Forestry, and the Nova Forest Alliance. The tour was an opportunity for the forest community to observe Halifax Water's forest management practices, and what controls are in place to ensure ecological sustainability and good water quality.
- Halifax Water was featured in the October 2009 issue of Canadian Forest Industries magazine profiling the collective efforts of Halifax Water, the Nova Scotia Department of Natural Resources, and Elmsdale Lumber Ltd to manage the Pockwock Watershed forest with the goal of water quality conservation and improvement in mind.
- Halifax Water continued to work with government agencies in 2009 to slow the spread of the Brown Spruce Longhorn Beetle (BSLB). Areas identified as "BSLB Hot Spots" within the Lake Lamont and Lake Major watersheds have been decreased as a result of management techniques.



Watershed Best Management Practices

- Prior to 2009, Halifax Water developed Best Management Practices specifically for the Lake Major and Pockwock Watersheds.
- In 2009, with the support of the committees and the Nova Scotia Department of Natural Resources, Halifax Water expanded its current Best Management Practices to include all of Halifax Water's watersheds.



Research Projects

- Halifax Water has partnered with Dalhousie University and the Natural Science and Engineering Research Council for two source water protection research projects which began in 2009.
 - **Climate Change Strategies for Management in Forested Watersheds**
 - Assessment of the vulnerability of the Pockwock and Lake Major Watersheds to climate change, and management strategies to ensure long term watershed resilience and water quality conservation.
 - **Continuous vs. Discrete Watershed Monitoring in Pockwock Watershed**
 - Evaluation of various watershed monitoring and sampling protocols in order to develop efficient, meaningful approaches for evaluating water quality and support strategic decision making.
- In 2009, Halifax Water also partnered with the Dalhousie Faculty of Engineering undergraduate program to have a class of final-year students perform a research project as part of their degree requirements:
 - **Hydrogeological Site Assessment of the Silver Sands Well Head Area**
 - Groundwater water transport characteristics were examined, and recommendations were made for enhancing well water protection from microbial and chemical contaminants.



Communications & Awareness

- To keep customers and watershed users informed, Halifax Water maintains signage, website information, distributes public notifications and publications, and participates in public events on an ongoing basis.
- Some of the highlights from 2009 include:
 - Over 340 youths living in and around the Lake Major Watershed learned about water preservation, conservation and sustainability, and the importance of maintaining a healthy water supply through Clean Nova Scotia's Adopt-A-Watershed Program. Activities included interactive presentations, art projects, scheduled litter cleanups, and watershed field trips. Funding for this program was provided by Halifax Water, the South Eastern Community Health Board, and the Unilever-Evergreen Aquatic Stewardship Grant.
 - "Halifax Water's Source Water Protection Program" was presented at the 62nd Annual Conference of the Atlantic Canada Water and Wastewater Association, held in October 2009.
 - Halifax Water held a Middle Musquodoboit Treatment Plant and Source Water Protection Plan Information Session open house in November 2009 to a great positive response.
 - Interested community members were given an opportunity to participate in an evening walking tour of the Pockwock Watershed as part of the Ecology Action Centre's "Paint the Town Blue Month" – an overview of Halifax Water's source water protection activities, such as sustainable forest management practices and water quality monitoring program, were featured during tour.
 - The first phase of an Active Transportation Trail intersecting the Lake Major Watershed was completed in 2009. The trail is a joint project of The Preston Area Trails Association, Halifax Regional Municipality, and Halifax Water.





Support & Cooperation: Cornerstones of Source Protection

- Halifax Water continues to strive for excellence in source water protection planning as part of its integrated and holistic approach to managing water resources from source to the customer's tap.
 - Commitment from Halifax Water's staff and senior management is essential to the success of the Source Water Protection team in their pursuits to maintain, improve, and protect drinking water supplies at the source.
 - Cooperative participation by water users and stakeholders is also crucial to ensure Halifax Water is able to meet or exceed its goals for source water protection and environmental stewardship.
- Halifax Water strives for continuous improvement in delivering world class drinking water services to our customers. Some of the upcoming additions to Halifax Water's current Source Water Protection activities include:
- Investigating the need and interest in the formation of new voluntary advisory boards on an ongoing basis based on community feedback received in the water supply area.
 - As the Source Water Quality Monitoring Program has recently been expanded, Halifax Water looks forward to further building a scientific knowledge base to support the current management of its drinking water resources.
 - With respect to recreational activities, Halifax Water continues to monitor and evaluate the impact of recreational vehicle activity, in the context of maintaining source water quality.
 - Halifax Water is committed to educating the public and increasing awareness of the watersheds. In 2009, key signage locations were identified throughout the watersheds; beginning in 2010 these locations will be posted with new watershed signs to raise awareness of where drinking water comes from and the importance of keeping it clean!
 - Communication and education initiatives are also being expanded on an ongoing basis through website developments, distribution of publications, and the formation of partnerships with other organizations.

