



An example of a good shoreline buffer zone in an agricultural area. Quebec's Agricultural Operations Regulation stipulates that the buffer zone be at least three metres wide, but many experts suggest a buffer zone of 10-15 metres should be used to protect water from agricultural runoff.

Barrier One

Quebec strategizes for source water protection.

BY DAPHNE FERGUSON

SOURCE WATER PROTECTION—an essential first barrier in a multi-barrier approach to safe drinking water—has been the focus of a number of recent provincial strategies, laws and regulations across Canada, and Quebec is no exception. Beginning with the catalyzing Quebec Water Policy (QWP) in 2002, a flurry of new and modified laws, regulations and policies have been developed to address a variety of different threats to drinking water sources. However, Quebec has no overarching strategy on source water protection and the measures put in place since 2002 have been criticized as insufficient to ensure an acceptable level of risk.

The Ministry of Sustainable Development, Environment and Parks (MDDEP) recently expressed, in its strategic plan for 2009-2014, a commitment to developing a source water protection strategy by 2012.

In the run-up to this anticipated strategy, it is a good time to take stock of where Quebec sits with source water protection and to identify the most important gaps in protection that should be addressed in the coming strategy.

Legislative and policy tools

A significant step towards the protection of the quality of groundwater sources was taken with the adoption of the Groundwater Catchment Regulation (GWCR) in 2002. The regulation obliges municipalities to delineate wellhead catchment areas for all wellheads used as a public water sources and to identify bacteriological and virological protection areas based on groundwater times of transport of 200 days for bacteria and

550 days for viruses. Municipalities must also conduct an inventory of land uses or activities likely to modify groundwater quality. Livestock and manure spreading/stocking are prohibited inside bacteriological areas if groundwater has been determined vulnerable.

The protection of surface-water bodies is principally addressed through the governance framework of integrated watershed management, which was one

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of the principal commitments made in the QWP. In the years following the QWP, 33 water basin organizations were created in "priority watersheds" as



Principally caused by increased phosphorus loading associated with agricultural activities and human settlements, blue-green algae (cyanobacteria) represent a major and growing problem in Quebec's lakes and rivers and a threat to public health. Some of these potentially toxic algal blooms have been found near water intake pipes, obliging local authorities to emit drinking water bans.

deemed by the policy, covering 25 per cent of southern Quebec. More recently, in March 2009, the territory was divided into 40 watershed management zones covering 100 per cent of this territory.

The watershed organizations are made up of representatives of the relevant actors found in the territory of the watershed: regional municipalities, local municipalities, environmental groups, water users, citizens, and provincial government. They are essentially steering committees charged with developing a Water Master Plan for their watershed, including an assessment of watershed health, the principal challenges and their solutions, and an action plan. The actions are to be realized through non-binding "watershed contracts" with the actors responsible for undertaking the identified actions.

Beyond these two initiatives, a large number of provincial regulations, policies and strategies seek to address specific threats to source water quality. Regulations have been passed concerning private septic systems, discharges from boats, phosphorous content of dish detergents and the amount of phosphorous applied to agricultural lands through the spreading of manure. Greater efforts have also been made to

ensure implementation of the Policy on Protection of Shores, Riverbanks and Floodplains (adopted 1987, last revised 2005) by local and regional municipalities.

Furthermore, the *Municipal Powers Act*, which came into force January 1, 2006, gives municipalities wide powers to adopt regulations to protect the local environment. For example, some municipalities have adopted regulations concerning the spreading of manure and access to lakes by motorized vehicles.

Critiques of the Quebec approach

The approach in Quebec has sometimes been compared in an unfavourable light to several other North American jurisdictions—including New Brunswick, Nova Scotia, several U.S. states such as Maine—where lakes and rivers used as drinking water sources have been made protected areas. However, the Quebec case more closely resembles that of Ontario, where the drinking water sources for the majority of the population lie where significant development has already occurred and the creation of protected natural watershed areas is therefore not possible.

The high degree of development and the heterogeneity of threats to surface

water sources in Quebec and Ontario watersheds lend themselves to a decentralized governance of source water protection. Both the Quebec and Ontario approaches rely on watershed committees made up of local stakeholders to develop and implement plans to protect source water quality and quantity.

Ontario's approach, however, provides more thorough protection of drinking water sources. Communities are required to identify intake protection zones based on times of travel, assess risks to local drinking water sources, and put forward recommended risk management options to address these threats. In Quebec, the water master plans that must be prepared in each watershed are intended to improve water quality. But as Pierre Depot, member of one of Quebec's watershed organizations, points out, "drinking water sources are treated the same as any other water body." There are no specific measures required to identify or protect drinking water source areas, and no assessment of risks to water quality at intake points is required.

The lack of risk assessment in Quebec has been identified as a major shortcoming of the province's approach. "It is clear that the risk assessment approach is pertinent and necessary," writes Hubert Demard,

environmental consultant, in a report on the protection of drinking water quality prepared for the MDDEP.

Although groundwater sources are better protected on paper, there is an important implementation gap for the GWCR. Manuel Rodriguez, researcher and professor at Laval University, found

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that fewer than half of the municipalities he surveyed in southern Quebec had been able to comply with the GWCR. "In general," Rodriguez explains, "it's the small municipalities that have fewer financial and human resources to deal with a new regulatory framework, and therefore need support to help apply the new norms."

The lack of financial resources is a critical obstacle for the protection of both groundwater and surface water supplies. Sustainable funding is required to support implementation of measures to protect source water. Demard recommends that "Quebec should consider a governmental program of funding and entrust the management of source water protection to the water basin organizations." Currently, there is no budget allocated to the implementation of watershed protection, only for the preparation of the water master plans.

It is hoped that the new Regulation Respecting the Declaration of Water Withdrawals (2009), which allows the province to require large water users to report their water takings and to put in place a system of user fees, will enable the creation of a fund for the protection of water resources. However, the regulation specifically excludes many types of water users, including hydroelectric production, agriculture and aquaculture, leaving only the municipal sector and large industries as potential contributors.

Finally, the province must work to find real solutions to the problem of agricultural runoff, the most significant source of pollution in Quebec's principal watersheds. There are no easy answers. "In the current context,

it would be difficult to impose further financial constraints on the agricultural sector," cautions Rodriguez. "Rather, greater application and enforcement of existing regulations is necessary." Many observers also believe that limits to further agricultural development (particularly pig farming) are necessary in highly degraded watersheds. In the lead up to the drafting of the Agricultural Operations Regulation (2005), the government had committed to introducing

legislation that would help limit further agricultural development in watersheds where the phosphorus charge exceeds the environment's assimilative capacity (that is, ensuring a phosphorus charge low enough to avoid eutrophication of water bodies). However, this concept was dropped from the final regulation.

Looking forward

Quebec's water sources are better

protected today than before the advent of the QWP, but significant gaps remain. In the development of a more comprehensive approach to source water protection, the government should focus its attention on the development of a risk assessment framework for surface water sources and a sustainable funding mechanism, and should pursue the approach to land use planning in agricultural areas based on capacity of support for phosphorus loading. A decentralized approach to source water protection is desirable, but the province needs to play a leadership role. A legislative approach could be part of the solution, believes Depot, suggesting that "Quebec should adopt a law on clean drinking water, like in Ontario, to oversee the management of drinking water sources by municipalities." WC

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