



Ottawa River Watershed Governance: making the case for a Watershed Council

Discussion Paper*

March 2017

* This document is also available in French

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Summary

To date, we have “managed” the Ottawa River and its tributaries via piecemeal legislation. In this framework, we struggle with important and seemingly intractable problems—such as ongoing releases of untreated sewage into the water we swim in and use for drinking, toxic algal blooms due to regional nutrient loading, and precipitous declines in populations of native fish and other aquatic wildlife. Gathering momentum, interest, and urgency suggest that now is the time to address the ongoing issues in the Ottawa River Watershed.

Ottawa Riverkeeper presents this paper with the intent of initiating discussion about ways we can work together to protect our shared water and sustain resilient communities. This paper 1) briefly characterizes the Ottawa River; 2) provides insights based on regional experience, emerging best practices, alternative models of water governance, and a social initiative known as Collective Impact; 3) summarizes steps taken to date; and 4) proposes a way forward.

In the spirit of collaboration, and in hope of improving the health of our shared river and the resilience of the communities within and the Ottawa River Watershed, Ottawa Riverkeeper proposes creating a collaborative, multi-sectoral Ottawa River Watershed Council. This Watershed Council would facilitate and improve information exchange, deepen relationships, and build trust among diverse stakeholders throughout the Ottawa River Watershed. Members of the Watershed Council would share responsibility for protecting all dimensions of sustainability (environmental integrity, economic productivity, and social well-being), monitoring status indicators, and collectively addressing issues as they arise, within the Ottawa River Watershed. Recognizing that this is the starting point of an evolving and adaptive process, Ottawa Riverkeeper respectfully presents possibilities for the structure, composition, and operation of the Watershed Council. Ottawa Riverkeeper is committed to working collaboratively to find effective ways to monitor and protect our shared water and to sustain resilient communities. Ottawa Riverkeeper sincerely hopes that you will get involved in shaping the future of the Ottawa River Watershed—this incredible place where we live, work, and play.

Feedback

To optimize water governance for the Ottawa River and its tributaries, Ottawa Riverkeeper seeks broad-ranging input on the design and operation of the proposed Ottawa River Watershed Council. Ottawa Riverkeeper also wishes to gauge interest in membership on the proposed Council. Ottawa Riverkeeper hopes that you will participate in this process. As you read this discussion paper, please consider the following questions and share your thoughts by responding to our quick and easy online survey, found at <https://www.surveymonkey.com/r/HX8K582>.

1. Do you agree that, to protect and restore the Ottawa River and its tributaries, water governance should encompass the entire watershed and integrate all dimensions of sustainability (environment, economy and social well-being)?
2. Do you believe that water governance should be evidence-based and that relevant knowledge, information, and data should be pooled?
3. Are you interested in working collaboratively with others to improve sustainability and quality of life within the Ottawa River Watershed?
4. Do you support the creation of a Watershed Council and are you in favour of Ottawa Riverkeeper acting as the backbone or secretariat, supporting and coordinating participants in the proposed Watershed Council?

Introduction

Clean fresh water sustains life. As we place increasing demands on surface water and ground water throughout our watershed, we begin to recognize that water is finite and invaluable. As we experience problems (such as pollution, competition, and scarcity), we begin to acknowledge that our many demands may be incompatible and collectively unsustainable. We become increasingly aware of the need to manage water wisely. In the realm of water, complications arise because 1) we use water for so many purposes, and 2) flowing water transcends political boundaries.

To date, we have “managed” the Ottawa River and its tributaries via piecemeal legislation. This approach addresses only a limited suite of water-related matters, it confusingly fragments and disperses authorities across many government agencies and designated organizations, and it obscures accountability. In this framework, we struggle with important and seemingly intractable problems. We experience ongoing releases of untreated sewage into the water we swim in and use for drinking. Regional nutrient loading is causing toxic algal blooms. We are currently witnessing a precipitous decline in populations of native fish and other aquatic wildlife. These ongoing problems underscore the need to take action to protect our river.

Mounting concern for the Ottawa River gave rise to the creation of Ottawa Riverkeeper, a federally registered charity. Since 2000, Ottawa Riverkeeper has been working in the Ottawa River Watershed, learning about the river, monitoring it, promoting its significance, and helping diverse users to protect ‘their’ local water. In 2006, Ottawa Riverkeeper published a comprehensive assessment of the Ottawa River.¹ Since 2010, Ottawa Riverkeeper

Water Governance is the decision-making process through which water is managed.²

Water governance describes:

- 1) how decisions are made,
- 2) who makes decisions, and
- 3) who is accountable for decisions.

¹ Ottawa Riverkeeper. (2006). **Ottawa Riverkeeper’s River Report**. Issue 1- Ecology and Impacts. Ottawa, ON: Ottawa Riverkeeper/Sentinelles Outaouais.

has convened diverse stakeholders and led discussions about improving the management of our shared river. Now, in the spirit of collaboration, and in hope of improving water governance in the Ottawa River Watershed, Ottawa Riverkeeper proposes creating a collaborative, multi-sectoral Ottawa River Watershed Council (ORWC). This Council would facilitate and improve information exchange, deepen relationships, and build trust among diverse stakeholders throughout the Ottawa River Watershed. Members of the Ottawa River Watershed Council would share responsibility for protecting all dimensions of sustainability (environmental integrity, economic productivity, and social well-being), monitoring status indicators, and collectively addressing issues as they arise within the Ottawa River Watershed.

Ottawa Riverkeeper presents this paper with the intent of initiating discussion about ways we can work together to protect our shared water and sustain resilient communities. This paper briefly characterizes the Ottawa River, provides insight into alternative forms of water governance, and proposes a way forward.

Background

The Ottawa River has far-reaching significance. On satellite imagery, the Ottawa stands out as one of the great rivers of North America. It is sacred to Indigenous peoples and flows through Canada's capital city. It sustains millions of Canadians, as well as rich biodiversity—including many rare and threatened species. The Ottawa River has outstanding cultural, heritage, and natural values. The Ontario side of the river was officially designated a Canadian Heritage River by the federal government in 2016. The designation "Lieu Historique" is under consideration in Quebec and expected in 2017.

In size, in eastern Canada, the Ottawa River is second only to the Saint Lawrence River. From its source in the Laurentian Mountains of central Quebec to its confluence with the Saint Lawrence River at Montreal, the Ottawa River flows 1,271 kilometres. For most of its length, the Ottawa River forms the boundary between the provinces of Quebec and Ontario. The watershed of the Ottawa River is approximately the size of England. Encompassing

² De Loe, R., & Kreutzwiser, R. (2007). **Challenging the status quo: The evolution of water governance in Canada.** In K. Bakker (Ed.), *Eau Canada: The future of Canada's water* (pp. 85-103). Vancouver, BC: University of British Columbia Press.

approximately 146,000 km², the Ottawa River Watershed is the twelfth largest in Canada. Approximately two-thirds of the watershed is in Quebec and one-third is in Ontario.

The Ottawa River and its tributaries provide drinking water to millions of residents living in municipalities that border the river, including Ottawa, Gatineau, Laval, and Montreal. The Ottawa River is an important economic engine, providing water for industry, hydroelectricity, tourism, and recreation. The Ottawa River is also home to rich and diverse ecosystems that help to sustain Canada's biodiversity and underpin fundamental human rights and benefits.

Water management in the Ottawa River Watershed: a confusing division of responsibilities

Water management in Canada is complex and the management of the Ottawa River is no exception. Reflecting political boundaries, historical allocation of legislative authorities, and patterns of human settlement and use, the Ottawa River and its tributaries are subject to overlapping laws, policies, and priorities of the federal government, two provincial governments, various agencies and organizations, industry, the private sector, and over 200 municipalities and First Nation communities located within the watershed.

First Nations and Métis

First Nations and Métis Peoples have an important longstanding relationship with the Ottawa River Watershed. Prior to European colonization, Indigenous customs, laws, and beliefs governed the use of water throughout their territories. While the Constitution of Canada indicates the distribution of responsibility and 'ownership' of waters for the federal government and the provinces, the scope of First Nations authority and rights remains unsettled regarding waters on reserves, waters that flow through reserves, and waters on traditional territories.³ To date, Indigenous water rights have been largely ignored across the Ottawa River Watershed. However, Indigenous Peoples' relationship with water demands far more than a simple

³ Phare, Merrell-Ann. (2011). **Restoring the lifeblood: Water, First Nations and opportunities for change**. Co-published by the Circle on Philanthropy and Aboriginal Peoples, the Canadian Environmental Grantmakers Network and the Walter and Duncan Gordon Foundation. Toronto.

recognition of a right to use or drink water and should respect their responsibility to make decisions for the preservation of water and its ability to sustain life.⁴

Governments

In Canada, all levels of government have designated responsibilities for water protection.

Reflecting key legislative powers, provincial governments have the primary role and responsibility for managing freshwater. Within the provincial governments of Quebec and Ontario, this responsibility is dispersed across several agencies and departments. Specific responsibilities include, but are not limited to, authorization of water use, water supply, pollution control, and thermal and hydroelectric power development.

Provincial and federal governments share jurisdiction over water-related issues in the realms of agriculture, health, and environmental protection.

The federal government has jurisdiction over matters related to fisheries, toxic substances, navigation, federal lands, nuclear safety, transboundary issues, and international relations. In some areas of federal jurisdiction, such as fisheries management and fish habitat protection, the federal government has delegated some of its authority by entering agreements with provincial governments, Conservation Authorities, industry associations, and conservation groups.

Both federal and provincial governments have delegated responsibilities to municipalities and regional counties. Accordingly, local governments are responsible for building and managing facilities for drinking water, and for wastewater collection and treatment. Local governments are also responsible for wetland conservation, waste management and protecting our shorelines and floodplains from development.

Regional agreements and organizations

To further address water management in the Ottawa River Watershed, regional agreements and organizations have been established over the years. Some apply to the entire watershed while others apply regionally.

⁴ Walkem, Ardith. **Indigenous Peoples Water Rights: Challenges and Opportunities in an Era of Increased North American Integration**. <http://www.onwa.ca/upload/documents/water-rights-canada.pdf>. Accessed January 24, 2017.

In 1983, the governments of Canada, Ontario, and Quebec established the Agreement Respecting Ottawa River Basin Regulation.⁵ The goal of this agreement is to prevent flooding of the Ottawa River and its tributaries while maintaining the interests of various users, particularly producers of hydroelectric energy. This agreement is managed by the Ottawa River Regulation Planning Board, whose members include representatives of the Department of the Environment (Canada), Department of Public Works (Canada), Department of Transport (Canada), Ministry of Natural Resources (Ontario), and Ministry of Environment (Quebec), as well as Crown corporations Ontario Power Generation and Hydro-Québec. The authority of the board and governance is defined by the 1983 Agreement.

At the provincial scale, both the Ontario and Quebec governments are mandated to support organizations that facilitate provincial/municipal cooperation and collaboration at the sub-watershed scale.

In 2002, Quebec adopted the “Politique Nationale de l’eau” (National Water Policy), thereby instituting integrated water governance and creating “Organismes de Bassins Versants” (OBV) to implement integrated and concerted water management across the province. The Quebec portion of the Ottawa River Watershed is divided among seven organizations: Organisme de bassin versant du Témiscamingue (OBVT), Agence de bassin versant des 7 (ABV 7), Comité du bassin versant de la rivière du Lièvre (COBALI), Organisme de bassins versants des rivières Rouge, Petite Nation et Saumon (OBV RPNS), Organisme de bassin versant de la rivière du Nord (ABRINORD), Conseil du bassin versant de la région de Vaudreuil-Soulanges (COBAVER-VS), and Conseil des bassins versants des Mille-Îles (COBAMIL).

Ontario has long-standing Conservation Authorities. These local, community-based public sector organizations are legislated by the Conservation Authorities Act, which was originally passed in 1946 in response to extensive flooding, erosion, deforestation, and soil loss resulting from poor land, water, and forestry management practices in earlier years.⁶ Representing municipalities within a watershed and working in partnership with others, Conservation

⁵ An Agreement Respecting Ottawa River Basin Regulation. 1983. <http://ottawariver.ca/dev/wp-content/uploads/agreement.pdf>. Accessed January 12, 2017.

⁶ What is a Conservation Authority? <http://conservationontario.ca/about-us/faqs#governance>. Accessed February 21, 2017.

Authorities are recognized as leaders in the field of integrated water resource management.⁷ In the Ottawa River Watershed, four conservation authorities work in four sub-watersheds (the Mattawa, Mississippi, Rideau, and South Nation). However, no Conservation Authorities exist in Renfrew County where three significant tributaries (the Madawaska, Petawawa and Bonnechere Rivers) flow into the Ottawa River.

Private sector

The private sector has an important role in water protection. Some businesses are leading change in the Ottawa River Watershed by implementing projects that foster innovation, demonstrate sustainability, and reduce impacts on the aquatic environment.

Shortcomings of current water management: demonstrating the need for change

Many individuals, organizations, and agencies have worked long and hard to create and coordinate effective projects, policies, and legislation to address ongoing issues in the Ottawa River Watershed. Despite ongoing efforts and good intent, many complex issues (such as water pollution, shoreline degradation, and declining fish populations) remain intractable under the current framework of water management. Based on 15 years experience working in the Ottawa River Watershed, Ottawa Riverkeeper offers the following observations:

- Throughout the watershed, many people are confused about rules, decision-making authority, and accountability across overlapping jurisdictions.
- First Nation governments are typically not included in decision-making that directly impacts their traditional ways, culture, and well-being.
- Many municipalities and regional governments lack the capacity to create strategies or action plans to protect surface water or groundwater within their political boundaries.

⁷ Charley Wort. 2016. Integrated watershed management and Ontario's conservation authorities. International Journal of Water Resources Development.

- Many municipalities and regional governments feel ill-prepared to respond to serious threats like oil spills, flooding, and contamination of drinking water.
- There is no comprehensive management plan, conservation strategy, shared vision, or common agenda for the Ottawa River Watershed.
- There are no regular watershed forums to share Ottawa River experience, data, knowledge, or challenges across government agencies, academia, and stakeholders.
- There is no means or protocol to consolidate harmonized data and information.
- There is no system or plan to track and report on river and watershed health over time. (making it “difficult” to establish priorities and invest most effectively).
- Although every municipality and First Nation community in the watershed needs effective water and sewage infrastructure, there is no method or process to prioritize federal and provincial investments in infrastructure upgrades and maintenance that will lead to the greatest impact on watershed health.
- The 1983 Agreement Respecting Ottawa River Basin Regulation only addresses hydroelectric production and flood prevention. It does not include protocols or goals to address important issues such as biodiversity, fish migration, or recreation.
- The Ottawa River, next to the Great Lakes, has the most influence on water quality and quantity in the St. Lawrence River, yet this tributary is not included in any plans or agreements involving the management of the St. Lawrence River.
- Traditional knowledge is underutilized.⁸

These observations reveal a piecemeal attempt to manage the water in the Ottawa River watershed resulting from 1) fragmentation and dispersal of powers and responsibilities across governments, agencies and organizations, 2) political boundaries, 3) cultural differences, and 4) narrow foci. This approach is:

⁸ McGregor, D. (2012). **Traditional Knowledge: Considerations for Protecting Water in Ontario**. The International Indigenous Policy Journal, 3(3). <http://ir.lib.uwo.ca/iipj/vol3/iss3/11>

- Inconsistent: rules and objectives vary and conflict
- Inefficient: isolation fosters duplication of effort and precludes learning from one another
- Incomplete: important input, interests, and considerations are overlooked, cumulative effects are ignored
- Inadequate: accountability is obscured or absent

This flawed approach to water governance inevitably leads to complex problems that are challenging to solve. Notably, the untenable situation in the Ottawa River Watershed is by no means unique: piecemeal attempts to manage water are well-documented throughout Canada⁹ and the world.¹⁰

Toward effective water governance: valuable insights

Amidst widespread concern, there is growing awareness that sustainable water management requires a bold shift toward a new form of governance at the watershed scale.^{11,12,13,14} As we think about developing inclusive, sustainable governance for the Ottawa River Watershed, we can gain valuable insight from regional experience, emerging best practices, alternative models of watershed governance, and a social innovation initiative known as Collective Impact.

⁹ Bakker, K., & Cook, C. (2011). **Water governance in Canada: Innovation and fragmentation**. International Journal of Water Resources Development, 27(2), 275-289.

¹⁰ Dustin Garrick, George R.M. Anderson, Daniel Connell and Jamie Pittock. 2014. **Federal Rivers: Managing Water in Multi-Layered Political Systems**. Edward Elgar Publishing Limited.

¹¹ Environment Canada. **Integrated Watershed Management**. <http://www.ec.gc.ca/eau-water>. Accessed January 15, 2017.

¹² Brandes, O.M., & Morris, T. with Archer, J.L., Brandes, L., Moore, M.L., O’Riordan, J., Overduin, N. (2016, June). **Illumination: Insights and Perspectives for Building Effective Watershed Governance in B.C.** Victoria, Canada: POLIS Project on Ecological Governance, University of Victoria.

¹³ David Marshall, Steve Litke and Theresa Fresco. 2016. **Managing the Fraser River Basin**. Pages 249-267 in Water Policy and Governance in Canada. Editors Steven Renzetti and Diane P. Dupont.

¹⁴ Mark Winfield. May 2016. **A New Era of Environmental Governance in Canada**. The George Cedric Metcalf Charitable Foundation. <http://metcalffoundation.com/stories/publications>. Accessed January 31, 2017.

Emerging best practices

Effective solutions require commitment and action from many levels of government, industry and civil society. Moreover, to assess and address complex challenges, decision-making must consider diverse impacts at multiple scales. For example, this means considering the consequences of upstream activities on downstream communities, the effects of dams on water levels and aquatic life, the impact of water pollution in areas used for recreation or as sources of potable water.

In Canada and around the world, water management increasingly emphasizes the inclusion of Indigenous Peoples in decision-making processes, collaboration among Indigenous Peoples, governments, stakeholders, and the public, and using the watershed as the geographical focus of water management plans.^{15,16,17, 18, 19, 20}

Integrated Water Resource Management is now recognized as the best practice for coping with conflicting demands and as a way forward in the pursuit of efficient, equitable, and sustainable water governance. Integrated Water Resource Management emphasizes:

- Integrating environmental, economic, and social interests and concerns into decision-making, and

¹⁵ Simms, R., Harris, L., Joe, N., & Bakker, K. (2016). Navigating the tensions in collaborative watershed governance: **Water governance and Indigenous communities in British Columbia**, Canada. *Geoforum*, 73, 6-16. doi:10.1016/j.geoforum.2016.04.005

¹⁶ Wilson, Pieg. 2013. For the Forum for Leadership on Water (FLOW). **The Blue Paper: Water Co-Governance in Canada**. <https://www.flowcanada.org/our-work>. Accessed January 31, 2017.

¹⁷ Morrison, K. E., Parkes, M. W., Hallstrom, L. H., Neudoerffer, R. C., Bunch, M. J., & Venema, H. D. (2012). **Ecohealth and watersheds: Watersheds as settings for health and well-being in Canada**. Network for Ecosystem Sustainability and Health (Publication Series No. 3) and the International Institute for Sustainable Development, Winnipeg, MB. http://www.iisd.org/pdf/2012/ecohealth_watersheds_canada.pdf. Accessed January 12, 2017.

¹⁸ Mitchell, B. 1990b. **Integrated water management: International experiences and perspectives**. London: Belhaven Press

¹⁹ Rahaman, M.M. and Varis, O. 2005. **Integrated water resources management: Evolution, prospects and future challenges**. *Sustainability: Science, Practice and Policy* 1(1): 15-21.

²⁰ International Finance Corporation. **Participatory Watershed Governance: Water Sustainability at Scale through Inclusive Approaches**. <http://www.ifc.org/wps/wcm/connect/3c597b0042cf568e87cfef384c61d9f7/IFC+Knowledge+Paper.pdf?MOD=AJPERES>. Accessed January 15, 2017.

- Minimizing adverse impacts on shared water resources.

Comparing watershed governance models

As we think about how to move forward in our own watershed, we can learn from different models or approaches toward watershed governance.^{21,22,23} In Canada, the Fraser Basin Council is a leader in the field and they have authored several papers that review and compare different approaches to watershed governance²⁴ and models for how to achieve financial sustainability.²⁵ The Saint Lawrence Action Plan²⁶ has stood the test of time, has developed an excellent model for data sharing²⁷ and has developed a suite of indicators to monitor the health of the St. Lawrence River over time²⁸. Throughout Ontario, Conservation Authorities have adopted Integrated Watershed Management (IWM) as the most effective approach.²⁹ There

²¹ Émilie Lagacé. 2011. Shared Water, One Framework: **What Canada can learn from EU Water Governance**. Walter Duncan Gordon Foundation.

²² OECD. 2011. **Water Governance in OECD Countries: A Multi-level Approach**, OECD Studies on Water, OECD Publishing. Retrieved from <http://dx.doi.org/10.1787/9789264119284-en> on November 12, 2016.

²³ Serge Villeneuve, Jean Painchaud, Clément Dugas. **Targeted Sustainable Development: 15 Years Of Government And Community Intervention On The St. Lawrence River**. Environmental Monitoring and Assessment (2006) 113: 285–301.

²⁴ Fraser Basin Council. 2015. **Collaborative Watershed Governance: Keys to success and current examples in BC**. [http://www.fraserbasin.bc.ca/Library/Water_BCWF/Collaborative Watershed Governance Keys to Success and Case Studies-May1-2015.pdf](http://www.fraserbasin.bc.ca/Library/Water_BCWF/Collaborative_Watershed_Governance_Keys_to_Success_and_Case_Studies-May1-2015.pdf). Accessed January 31, 2017.

²⁵ Fraser Basin Council. May 2015. **Financial Mechanisms and Models for Collaborative Watershed Governance: Discussion Paper**. [http://www.fraserbasin.bc.ca/Library/Water_BCWF/Financial Mechanisms and Models for Watershed Governance-May1-2015_web.pdf](http://www.fraserbasin.bc.ca/Library/Water_BCWF/Financial_Mechanisms_and_Models_for_Watershed_Governance-May1-2015_web.pdf). Accessed January 31, 2017.

²⁶ Serge Villeneuve, Jean Painchaud, Clément Dugas. **Targeted Sustainable Development: 15 Years Of Government And Community Intervention On The St. Lawrence River**. Environmental Monitoring and Assessment (2006) 113: 285–301.

²⁷ St. Lawrence Global Observatory: <https://ogsl.ca/en/> Accessed January 31, 2017.

²⁸ http://planstlaurent.qc.ca/en/state_monitoring/monitoring_sheets.html. Accessed January 31, 2017.

²⁹ Conservation Ontario. 2010. Overview of Integrated Watershed Management in Ontario. http://conservationontario.ca/media/IWM_OverviewIWM_Final_Jun2.pdf. Accessed February 2, 2017.

are also numerous examples coming out of British Columbia, particularly with a focus on Indigenous Water Governance.³⁰

Table 1 (Appendix B) compares six models of water governance in Canada. Each of these models illustrates one or more important themes of “good” governance, such as partnerships among federal and provincial governments, incorporation of First Nations’ traditional knowledge, and effective, local leadership.

Notably, although individual models of water governance differ (because they must address regional conditions, needs, and challenges), the Polis Project on Ecological Governance has identified “winning conditions” for successful watershed governance.³¹

Collective Impact

In the realm of social initiatives, a framework known as Collective Impact has enabled lasting, large-scale solutions to deeply entrenched, complex problems. Collective Impact may also be gainfully applied to complex, large-scale resource management issues, such as pollution and declining biodiversity within a watershed.

In short, we can do more working together, than working independently or alone. Collective Impact suggests an effective structure for enabling broad (often cross-sector) collaboration to solve a specific problem. Collective Impact is adaptive and action-oriented. In the Collective Impact framework, successful initiatives reflect five elements:^{32, 33}

- **Common Agenda:** All participating organizations (government agencies, non-profits, industrial and commercial interests, community members, etc.) have a

³⁰ Rosie Simms. 2015. **Indigenous Water Governance in British Columbia and Canada: Annotated Bibliography.** A project of the Water Economics, Policy and Governance Network. <https://watergovernance.ca/wp-content/uploads/2015/06/Indigenous-water-governance-annotated-bibliography-final.pdf>. Accessed Feb. 1, 2017.

³¹ Brandes, O., & O’Riordan, J. 2014. **A Blueprint for watershed governance in British Columbia.** University of Victoria, B.C.: POLIS Project on Ecological Governance.

³² Fay Hanleybrown, John Kania & Mark Kramer. 2012. **"Channeling Change: Making Collective Impact Work."** Stanford Social Innovation Review. http://www.ssireview.org/blog/entry/channeling_change_making_collective_impact_work. Accessed Jan 25, 2017.

³³ John Kania and Mark Kraimer. 2011. **"Collective Impact."** Stanford Social Innovation Review. https://ssir.org/articles/entry/collective_impact. Accessed February 22, 2017.

shared vision for social change that includes a common understanding of the problem and a joint approach to solving the problem through agreed upon actions.

Note: Every participant need not agree with every other participant on all dimensions of the problem. In fact, disagreements may continue to divide participants. All participants must agree, however, on the primary goals of the collective impact initiative as a whole.

- **Shared Measurement System:** Agreement on the ways success will be measured and reported with a short list of key indicators across all participating organizations.

Note: Collecting data and measuring results consistently on a short list of indicators at the community level and across all participating organizations not only ensures that all efforts remain aligned, it also enables the participants to hold each other accountable and learn from each other's successes and failures.

- **Mutually Reinforcing Activities:** Engagement of a diverse set of stakeholders, typically across sectors, coordinating a set of differentiated activities through a mutually reinforcing plan of action.

Note: Collective Impact initiatives depend on a diverse group of stakeholders working together, not by requiring that all participants do the same thing, but by encouraging each participant to undertake the specific set of activities at which it excels in a way that supports and is coordinated with the actions of others. The power of collective action comes not from the sheer number of participants or the uniformity of their efforts, but from the coordination of their differentiated activities through a mutually reinforcing plan of action. Each stakeholder's efforts must fit into an overarching plan if their combined efforts are to succeed.

- **Continuous Communication:** Frequent communications over a long period of time among key players within and across organizations, to build trust and inform ongoing learning and adaptation of strategy.

Note: Developing trust among non-profit organizations, corporations, and government agencies is a monumental challenge. Participants need several years of regular meetings to build up enough experience with each other to recognize and appreciate the common motivation behind their different efforts. They need time to see that their own interests will be treated fairly and that decisions will be made on the basis of objective evidence and the best possible solution to the problem, not to favour the priorities of one organization over another. Even the process of creating a common vocabulary takes time, and it is an essential prerequisite to developing shared measurement systems.

- **Backbone Organization:** Ongoing support provided by an independent staff dedicated to the initiative. The backbone staff tends to play six roles to move the initiative forward: Guide Vision and Strategy; Support Aligned Activity; Establish Shared Measurement Practices; Build Public Will; Advance Policy; and Mobilize Funding.

Note: Creating and managing collective impact requires dedicated staff with a very specific set of skills to serve as the backbone for the entire initiative. Coordination takes time and resources. The expectation that collaboration can occur without a supporting infrastructure is one of the most frequent reasons why it fails. The backbone organization requires a dedicated staff separate from the participating organizations who can plan, manage, and support the initiative through ongoing facilitation, technology and communications support, data collection and reporting, and handling the myriad logistical and administrative details needed for the initiative to function smoothly. In the best of circumstances, these backbone organizations embody the principles of adaptive leadership: the ability to focus people's attention and create a sense of urgency, the skill to apply pressure to stakeholders without overwhelming them, the competence to frame issues in a way that presents opportunities as well as difficulties, and the strength to mediate conflict among stakeholders.

Improving governance of the Ottawa River Watershed: milestones

Since 2010, Ottawa Riverkeeper has been working with others, leading the way toward improved governance in the Ottawa River Watershed. There is great support and interest from other organizations and agencies to find better ways of managing the Ottawa River, as is demonstrated by our collective achievements to date.

In 2010, Ottawa Riverkeeper partnered with the National Capital Commission to convene the first **Ottawa River Summit**. The 2010 Summit was, for many of the delegates, the first time they had the opportunity to hear their neighbours' concerns and to discuss a shared vision for the restoration and protection of our shared river. There was general agreement on the need for a "body" to organize and support a collective approach to managing the Ottawa River. Most delegates favoured a bottom-up approach.

In 2015, Ottawa Riverkeeper partnered with de Gaspé Beaubien Foundation to organize **AquaHacking 2015 - Ottawa River Summit**. The 2015 Summit was a platform to convene watershed stakeholders to discuss governance of the Ottawa River Watershed and to find new partners to help stakeholders embrace technology as a means to improve water protection. In the months leading up to the Summit, Ottawa Riverkeeper struck an advisory committee comprised of approximately 30 individuals representing all levels of government (including First Nations), business, Conservation Authorities (ON), Organismes de Bassins Versants (QC) and industry.

The Ottawa River Summit Advisory Committee met five times and identified four areas on which to focus our collective efforts to improve the health and future of the Ottawa River. Together we co-created **The Gatineau Declaration Towards an Integrated Approach to Sustainable Water Management Within the Ottawa River Watershed** (Appendix A)—hereafter referenced as the "Gatineau Declaration". The Gatineau Declaration was tabled at the Summit and signed by most participants (~200), signalling acknowledgement of the need to share responsibility for the health of the Ottawa River. To date, over 1000 municipalities, organizations, businesses and individuals from the watershed have signed the Gatineau Declaration.

Key actions outlined in the Gatineau Declaration:

- Acknowledge and celebrate the cultural, heritage, and natural values within the Ottawa River Watershed.
- Create new forums, or adapt existing ones, for integrating and sharing information, research, and knowledge about the health of the Ottawa River Watershed, the challenges we face, and potential solutions or best management practices relevant to protecting freshwater ecosystems.
- Agree on a set of indicators (such as water quality, biodiversity, shoreline integrity, etc.) to monitor and report on watershed health.
- Recognise people, businesses, organizations, and communities who are leading change in our watershed or are implementing projects that foster innovation and promote sustainable river management.

At the Summit, the Ontario and Quebec Environment Ministers announced the creation of an **Interprovincial Joint Committee on Water Management**³⁴ to facilitate information sharing between Ontario and Quebec on water management issues in the Ottawa River. The Joint Committee consists of the regional directors of the ministries and is not mandated to convene stakeholders.

Recommendations

Gathering momentum, interest, and urgency suggest that now is the time to address the ongoing issues in the Ottawa River Watershed. In the spirit of collaboration, and in hope of achieving better water governance for the Ottawa River and its tributaries, Ottawa Riverkeeper respectfully offers the following recommendations to initiate discussion about this process.

Ottawa River Watershed Council

Ottawa Riverkeeper proposes creating a multi-sectoral, collaborative Ottawa River Watershed Council (ORWC). This Council would facilitate and improve information exchange, deepen relationships, and build trust among diverse stakeholders throughout the Ottawa River

³⁴ Ministry of the Environment and Climate Change, May 29, 2015. **Quebec and Ontario Strengthen their Collaboration on Shared Water Management** <https://news.ontario.ca/ene/en/2015/05/quebec-and-ontario-strengthen-their-collaboration-on-shared-water-management.html>. Accessed January 31, 2017.

Watershed. Members of the Ottawa River Watershed Council would share responsibility for protecting all dimensions of sustainability (environmental integrity, economic productivity, and social well-being), monitoring status indicators, and collectively addressing issues within the Ottawa River Watershed as they arise.

In the following section, we consider what this Ottawa River Watershed Council could look like. Ottawa Riverkeeper recognizes that this is the starting point of an evolving and adaptive process that will require trust and faith that we share common goals. We sincerely hope you will get involved in shaping the future of this incredible watershed where we live, work, and play.

Name and Purpose

The **Ottawa River Watershed Council** (In French: *Conseil de bassin de la rivière des Outaouais*) will be a collective of representatives from diverse sectors within the Ottawa River Watershed, including First Nations, municipal governments, provincial and federal agencies, nongovernment organizations, as well as representatives from business, industry, and tourism who are motivated by at least one common issue or interest to work together to protect and restore the Ottawa River through agreed actions.

Geographic Focus

The Council's geographic focus would be articulated around the main stem of the Ottawa River—from its source at Lake Capimitchigama to its confluence with the St. Lawrence River at Montreal. The Ottawa River's health is indissociable from that of its entire watershed, which spans over 146,000 km². Consequently, the Council would seek representation from across the watershed in order to understand the health of the tributaries and sub-watersheds. The action plan, priorities, and projects would be developed using a watershed approach.

Membership

Interested individuals, organizations and governments may become involved with the Watershed Council at one of the following levels:

Steering Committee Member

- The Council will be led by its Steering Committee, a broad cross-section of individuals working together to improve watershed health and the well-being of all communities within the watershed.

Committee Member

- Committees engage actively in the work of the Council and contribute to advancing the yearly objectives and longer-term goals.

Member

- Members work together across boundaries to support, endorse, and implement strategies and projects identified by the collective.

Network Email List

- Everyone who wishes to be in the network will receive regular updates and information regarding committee progress and public meetings.

Council Structure

The Council will be a collection of individuals from existing organizations who are interested in and motivated to participate on an action-oriented council. The Council would not be a regulatory or a policy-making authority.

*Note: We recommend **not** creating a new, registered organization as this would take significant time and resources, and would divert attention from taking collective action to solve problems.*

Participation will be voluntary. Members will be encouraged to take collective action to support, endorse, and implement strategies and projects identified by the Council.

Committees of the Watershed Council

The Council will have the ability to create committees as needed to inform decision-making and support advancing the yearly objectives and longer term goals co-created by the Council.

We recommend immediately forming two committees:

- 1) The Steering Committee: this committee will lead the Watershed Council and its members will represent the diverse sectors engaged in the collaborative.

- 2) The Science Committee on Ottawa River Watershed Health: this committee will identify, gather, and analyse relevant data and knowledge, including traditional knowledge, to assess watershed health. The committee will make recommendations for priority action areas and develop an appropriate and affordable way to define and measure watershed health, using the three pillars of sustainability (Environmental Integrity, Economic Productivity, and Social Well-Being).

Composition of the Steering Committee

We recommend the Steering Committee be comprised of individuals invited according to the following principles:

- Adequate geographic representation from within the watershed.
- Adequate sectoral representation (all levels of government, business, industry, civil society).
- Individuals with decision-making authority within their organizations.
- A limited number of members to ensure efficiency (e.g. 15 - 25).

See Appendix C for recommendations regarding the composition of the Steering Committee based on these principles.

Guiding principals

- 1) The Council will adopt a strategy based on sustainable development principles and public participation.
- 2) Given the unique relationship that First Nations and Métis peoples have with water, the river, and their environment, we recommend collaboration and respect for traditional values, knowledge, laws and customs.
- 3) The Steering Committee will co-create detailed terms of reference for the Council and each committee will co-create its own terms of reference that will be approved by the Council.

- 4) The Council will take an action-oriented approach to leading change in the watershed, focusing on projects and shared actions to improve watershed health and embrace inclusive decision-making.
- 5) Council members will embrace the opportunity to deepen relationships and trust within the watershed. This includes developing a shared understanding of the existing stressors within the watershed, the impact those stressors have on communities, individuals, and other species throughout the watershed, and acknowledging the complexity that exists to find appropriate and effective solutions.
- 6) The composition of the Council and its committees may change and adapt as the common agenda of the Council evolves.

Capacity and Resources

To ensure success, the Watershed Council will require human and financial resources. Entities that provide support to a collective are often referenced as the “backbone organization”³⁵ or the “secretariat”. Given that, to date, Ottawa Riverkeeper has been leading the way to improved watershed governance, Ottawa Riverkeeper will continue to seek partners and financial support to convene and support meetings and work toward co-creating an Ottawa River Watershed Council.

The first order of business of the Council is to identify the entity or team best suited to serve as the “backbone organization” for the Watershed Council. It is important to note that the backbone organization is not responsible for setting the agenda. This backbone organization would ensure logistics and communications for the Council, mobilize resources on its behalf, support aligned activities, and provide strategic guidance to develop a common agenda.

Note: Ottawa Riverkeeper is willing to provide backbone support for the Watershed Council.

³⁵ Collaboration for Impact. **The Backbone Organization.** <http://www.collaborationforimpact.com/collective-impact/the-backbone-organisation/>. Accessed Feb 02 2017.

Financial sustainability

- In the short term (1-3 years), the backbone organization should be prepared to raise seed funding to support the process of convening and supporting the Watershed Council.

Note: If selected as the backbone organization, Ottawa Riverkeeper is prepared to raise seed funding.

- The Council should aim to be financially sustainable within 3-5 years of its inauguration.

Public forum

Public forums should be held periodically to share and exchange information and knowledge within the broader community. These forums provide an opportunity for the public to learn about watershed stakeholders and their initiatives, and to hold the Council accountable to the realization of its action plan and priorities.

Frequency of meetings and timeline

The Watershed Council will meet once a year, prior to a public forum. The Steering Committee will have a minimum of four working meetings per year and a minimum of one field trip within the watershed.

We recommend the first meeting of the Steering Committee be held in the spring or summer of 2017.

Conclusion

The legislative framework we currently use throughout the Ottawa River Watershed for “managing” water is not working to protect our communities, the Ottawa River and its tributaries. Gathering momentum, interest, and urgency suggest that now is the time to address ongoing and complex problems throughout the Ottawa River Watershed. Although the process of developing more effective water governance is necessarily evolving and adaptive, we have collective experience, resources, motivation, and good will to build on. Ottawa Riverkeeper is committed to working collaboratively to find effective ways to monitor and protect our shared waters. To initiate discussion, Ottawa Riverkeeper proposes forming a collaborative, multi-sectoral Ottawa River Watershed Council and respectfully presents possibilities for its structure, composition, and operation. To further this discussion, Ottawa Riverkeeper hopes that you will contribute by responding to this quick and easy online survey (<https://www.surveymonkey.com/r/HX8K582>).

Ottawa Riverkeeper sincerely hopes that you will participate in shaping the future of the Ottawa River Watershed—this incredible place where we live, work, and play. Working together, toward shared goals, we can build an inclusive, integrated and sustainable approach to watershed management. With this, Ottawa Riverkeeper believes that the Ottawa River could become the cleanest, most liveable capital river in the world.

Appendix A – Gatineau Declaration



Gatineau Declaration Towards an Integrated Approach to Sustainable Water Management within the Ottawa River Watershed

The undersigned participants of the Ottawa River Summit, Representing various sectors of society, including municipal governments, First Nations, businesses, provincial and federal agencies and not-for-profit organizations among others,

Having met in Gatineau, Quebec, on May 29, 2015,

Acknowledging that:

The Ottawa River watershed drains an area of 146,300 square kilometres, is the largest tributary of the St. Lawrence River, and has 17 major tributaries of its own,

Further acknowledging that for much of its length the Ottawa River forms a shared boundary for Quebec and Ontario and that the federal government as well as the provincial governments of Quebec and Ontario and many municipalities within the watershed have unique roles and responsibilities to protect ecosystem health within Ottawa River Watershed,

Further acknowledging that First Nations and Métis peoples have an important longstanding relationship with the Ottawa River Watershed,

Recognizing that water is an essential element that sustains and connects all life, has been instrumental in our past development and it is equally the key to our future prosperity,

Further recognizing that within our watershed we have unique and valued biodiversity as well as recreation, tourism and economic development opportunities that require us to manage our freshwater ecosystems effectively,

Further recognizing that the implementation of an integrated approach to watershed management is essential for setting priorities and taking actions to restore and protect the health of the Ottawa River Watershed,

Further recognizing that government, business and civil society all have a stewardship role to play in solving our water challenges and that raising the level of awareness and understanding of water protection issues is essential,

With the goal of developing collaborative, adaptive, and fair solutions to achieve improved water quality and ecosystem health that recognize environmental, social, and economic values,

Adopt the Gatineau Declaration on an Integrated Approach to Sustainable Water Management within the Ottawa River Watershed, which is annexed to this present resolution.





PRESENTED BY



Fondation
de Gaspé Beaubien
Foundation

IN PARTNERSHIP WITH



ASSOCIATED PARTNER



Annex - The Action Agenda

Gatineau Declaration Towards an Integrated Approach to Sustainable Water Management within the Ottawa River Watershed

We, stakeholders with a common interest in the health of the Ottawa River Watershed, assembled at the Ottawa River Summit in Gatineau, Quebec on May 29, 2015, affirm our commitment to work collectively for a healthy and sustainable future for the Ottawa River Watershed.

We acknowledge a shared responsibility to preserve the biodiversity, the quality of our water and the well-being of communities within the Ottawa River Watershed.

We propose to work with all relevant levels of government, business and industry, as well as civil society to:

1. Acknowledge and celebrate the cultural, heritage, and natural values within the Ottawa River Watershed;
2. Create new forums, or adapt existing ones, for integrating and sharing information, research and knowledge about the health of the Ottawa River Watershed, the challenges we face, and potential solutions or best management practices relevant to protecting freshwater ecosystems;
3. Agree on a set of indicators (such as water quality, biodiversity, shoreline integrity, etc.) to monitor and report on river health; and
4. Recognise people, businesses, organizations, and communities who are leading change in our watershed or are implementing projects that foster innovation and promote sustainable river management.

We aim to monitor, review, assess and publicly report on an annual basis on our progress towards the achievement of our action agenda.

We are in agreement that this must be an inclusive process, and will work to involve all governments, organizations and key stakeholders from around the Ottawa River Watershed.



Appendix B – Founding members of the steering committee

Founding members of the Steering Committee of the Ottawa River Watershed Council, as recommended by Ottawa Riverkeeper.

Sector (seats)	Sector representation	Geographic area
Governments (10)	Federal government (2)	Individuals should have both Quebec and Ontario Regions within their mandates
	Provincial governments (2)	1 from ON; 1 from QC
	First Nations (2)	ON / QC
	Municipal governments (4)	Ottawa, Gatineau, Temiscaming, Hawkesbury
Industries with watershed impact (4)	Hydro-electric industry (2)	Hydro QC, OPG
	Non-hydro industry (2)	1 each from forestry and agriculture
Public / Community sector (8)	Tourism (1)	
	Education (1)	
	Public Health (1)	
	Youth (1)	
	Environment (2)	
	Hunters & Anglers (1)	
	Recreation (1)	
Sub-watershed management (2)	Conservation Authorities (1)	
	Organismes de bassin versant (1)	
National Capital Commission (1)	National Capital Commission (1)	
Ottawa River Regulation Secretariat (1)	Ottawa River Regulation Secretariat (1)	

Canadian Models of Watershed Governance						
Characteristics	Mackenzie River Basin Board	Fraser Basin Council	Cowichan Watershed Board	Conservation Authorities	Organismes de bassin versant	Tables de concertation régionales (St. Lawrence River)
Geographic Facts						
River Length	4, 241 km	1,375 km	47 km	Varies	Varies (generally under 500 km)	Sections of St-Lawrence River and estuary
Watershed Area	1, 800, 000 km ²	240, 000 km ²	~ 1, 000 km ²	Varies	Varies	N/A
Watershed Population	< 500, 000	2.9 million	~ 20, 000	Varies	Varies	10 000 < x < 4 000 000
Jurisdictions	CAN, BC, AB, SK, YK, NWT (6)	CAN, BC (2)	CAN, BC (2)	ON (1)	QC (1)	CAN, QC (2)
Governance Features						
Binding Legislative Agreement Among Jurisdictions	Yes (The Mackenzie River Basin Transboundary Waters Master Agreement)	N/A	No	N/A	N/A	Yes (Saint-Lawrence Action Plan)
Legal Entity	Yes, (a Board of Directors)	Yes (the Council is a Board of Directors)	No	Yes (Conservation Authorities Act)	Yes (Organismes sans but lucratif enregistrés en vertu de la partie 3 de la Loi sur le compagnies Québec)	No
Watershed Management Plan	No	Yes (Strategic Plan 2016-2021)	Yes (Cowichan Basin Water Management Plan)	Yes (Sub watershed level)	Yes (Water Master Plans)	Yes (regional integrated management plans)
Regulatory Decision-Making Authority	No	No	No	Yes (at the municipal planning level)	No	No
Number of Representatives	13 (3 federal government, 1 per province/territory, 1 First Nation per province/territory)	38 (22 gov.: 3 fed., 3 BC, 1 regional district, 1 First Nation per language group, and 16 non-gov.: 2 per geographic region, 1 youth)	12 (co-chaired by First Nation Chief and Mayor)	Between 12 and 25 (80% are elected municipal councillors)	Between 10 and 30: 1/3 municipal, 1/3 economic, 1/3 community	Between 15 and 35 (proportional representation)
First Nations Representation	Yes, one per province/territory Traditional Knowledge is valued in the decision making process and has a Committee, but Indigenous rights are not explicitly recognized in Master Agreement.	Yes, 1 per language group. Indigenous rights are recognized in their Charter for sustainability. FBC recognizes First Nations as an order of government.	Yes, the Board is co-chaired by a First Nation Chief	No	Yes, in respect of 1912 (Loi à l'effet d'étendre les frontières de la province de Québec) and the will of First Nations to participate (seats are available, but are rarely used).	Yes, in respect of 1912 (Loi à l'effet d'étendre les frontières de la province de Québec) and the will of First Nations to participate (seats are available, but are rarely used).
Government Representation	Yes, the board is appointed by governments	Yes, Council is made of 4 orders of government (federal, provincial, local and First Nations), as well as private and civil society.	Yes, 3/12 are recommended by federal and provincial governments	No	Observers only	Observers only
Funding Sources	Federal, provincial, territorial governments	Federal, provincial, and municipal governments	Grants/local government	Municipal government (48%), self-generated revenues (40%), provincial government (10%), federal government (2%)	Provincial government (\$125K/yr), municipal government, and self-generated revenues	Yes, one per province/territory. Traditional Knowledge is valued in the decision making process and there is a Traditional Knowledge Committee, but Indigenous rights are not explicitly recognized in Master Agreement.
Average Annual Budget	N/A	\$3.8 M	N/A	Between \$2M and \$30M	250 000 \$	125 000 \$

Canadian Models of Watershed Governance (Continued)

Characteristics	Mackenzie River Basin Board	Fraser Basin Council	Cowichan Watershed Board	Conservation Authorities	Organismes de bassin versant	Tables de concertation régionales (St. Lawrence River)
Other information						
Miscellaneous			The board meets monthly. The public is welcome to attend all meetings.	Examples of regulatory authority: Review development proposals; Regulate construction in environmentally sensitive areas (Ontario Regulation 174/06 — Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation); Regulate septic systems.	Regional Round Table and OBV are on each other's Board of Directors if their territories overlap. The mission and composition of the organization are defined in the Loi affirmant le caractère collectif des ressources en eau et visant à renforcer leur protection (C6.2).	Regional Round Table aim to produce an integrated management plan for water in a zone that is not a watershed. The mission and composition of the table are defined in the Loi affirmant le caractère collectif des ressources en eau et visant à renforcer leur protection (C6.2).
Sources	<ul style="list-style-type: none"> • The Mackenzie River Basin Board. http://www.mrbba.ca. Accessed on November 23, 2016 	<ul style="list-style-type: none"> • Fraser Basin Council. http://www.fraserbasin.bc.ca/ Accessed on November 23, 2016. • Fraser Basin Council. 2013. Charter for Sustainability. Accessed on November 23, 2016 from: http://www.fraserbasin.bc.ca/_Library/Fraser_Basin_Council/charter_for_sustainability.pdf • Canada Revenue Agency. Government of Canada. Fraser Basin Council Society. Accessed on November 23, 2016 from: http://www.cra-arc.gc.ca/chrts-gvng/lstngs/menu-fra.html 	<ul style="list-style-type: none"> • Cowichan Watershed Board. http://www.cowichanwatershedboard.ca/ Accessed on November 23, 2016 • Westland Resource Group. 2007. Cowichan Watershed Water Management Plan. Accessed on November 23, 2016 from: http://www.cowichanwatershedboard.ca/sites/default/files/CowichanBasinWaterManagementPlan-March2007.pdf 	<ul style="list-style-type: none"> • Conservation Ontario. http://conservationontario.ca/ Conservation Ontario. 2015. Fact Sheets. Accessed on November 23, 2016 from: http://conservationontario.ca/images/2016/2015_CO_Fact_Sheet.pdf • RVCA. 2016. Annual Report. Accessed on November 23, 2016 from: http://www.rvca.ca/news/2016_annual_report/RVCA%20Annual%20Report%202016.pdf • SNC. 2016. Appendix A. Budget 2017. Accessed on November 23, 2016 from: http://www.nation.on.ca/sites/default/files/1a%202017%20Budget_5.pdf • MVCA. 2015. Annual Report. Accessed on November 23, 2016 from: http://mvc.on.ca/wp-content/uploads/2016/02/2015-MVCA-Annual-Report.pdf • Canada Revenue Agency. Government of Canada. RRCA. Accessed on November 23, 2016 from: http://www.cra-arc.gc.ca/chrts-gvng/lstngs/menu-fra.html • GRCA. 2016. Budget and financial statements. Accessed on November 23, 2016 https://www.grandriver.ca/en/who-we-are/Budget-and-Financial-Statements.aspx 	<ul style="list-style-type: none"> • D. Cloutier, personal communication, January 2017. • A. Verville, personal communication, January 2017. 	<ul style="list-style-type: none"> • Plan d'action Saint-Laurent. Accessed on November 23, 2016 from: http://planstlaurent.qc.ca • TCR HSLGM. Accessed on November 23, 2016 from: www.hslgm.org • ZIP Lac Saint-Pierre. Accessed on November 23, 2016 from: http://comitezplsp.org/tcr/actualites-tcr/ • TCCRQ. Accessed on November 23, 2016 from: http://www.cmquebec.qc.ca/tcrq • A. Verville, personal communication, January 2017. • N. Millot, personal communications, November 2016.