



**SIERRA CLUB OF CANADA FOUNDATION AND ROBERTA BENEFIEL COMMENTS ON
THE POTENTIAL REGIONAL ASSESSMENT OF THE ST. LAWRENCE RIVER AREA**

April 7, 2021

About Sierra Club Canada Foundation

Sierra Club Canada Foundation empowers people to be leaders in protecting, restoring and enjoying healthy and safe ecosystems. We are a grassroots organization with a “think globally, act locally” philosophy. Members are encouraged to actively contribute to environmental causes that engage or inspire them, in a capacity that best suits their capabilities. We have four regional Chapters and a youth-led Chapter, Sierra Youth. We engage in projects designed to connect children to nature, protect wildlife and wild spaces, and to offer solutions to climate change.

Sierra Club of Canada Foundation Involvement in the Potential Regional Assessment

Sierra Club Canada Foundation has worked for decades to protect the environment in Canada and has participated in many kinds of environmental assessments across the country. Our activities have focused on policy solutions, research, advocacy, coalition building, education and outreach.

Our organization was instrumental in the creation of the 1992 *Canadian Environmental Assessment Act* and has engaged in advocacy to improve environmental impact assessment in Canada. Most recently, we provided input into the drafting of the new *Impact Assessment Act* (IAA) that came into force in August 2019. SCCF also participated in the regional assessment of offshore oil and gas exploratory drilling east of Newfoundland and Labrador, carried out in 2019-2020, which was the first regional assessment performed under the new IAA.

Through our participation in a potential and – if it goes forward – an actual regional assessment of the St. Lawrence River, we are committed to ensuring the regional assessment process meets the requirements of the IAA. We reserve the right to provide additional comments on issues concerning the scope and subject matter of this potential

Regional Assessment.

About Roberta Benefiel and her Involvement in the Potential Regional Assessment

Roberta Benefiel is a member of the Sierra Club of Canada with specific and extensive experience on the issue of rivers and the various impacts that affect the health of river ecosystems. She has amassed most of this experience through her work as Riverkeeper for Grand Riverkeeper Labrador, Inc., a non-profit registered with the Federal Government of Canada whose mandate is protection of the Grand, (a.k.a. Churchill) River in Labrador.

Ms. Benefiel's experience with environmental assessments began with the Lower Churchill Hydro Electric Project (LCHP) in 2009. She participated throughout the entire process and during that time served as a Steering Committee member of the Newfoundland and Labrador Environmental Network. She later became involved with the umbrella group, the Réseau Canadien de l'Environnement/Canadian Environmental Network (usually identified as "RCEN"), and their Environmental Assessment and Planning Caucus in order to become more familiar with the federal assessment process. She has since been highly engaged in reviews of past environmental assessment acts, leading up to and including the *Impact Assessment Act*.

Ms. Benefiel is particularly interested in the potential of regional assessments as vehicles for assessing cumulative effects of various projects, and what needs to happen during the process of designing and carrying out regional assessments in order to ensure this happens. Her interest and participation in a St. Lawrence River regional assessment will likely focus on this issue but will also entail input on a variety of other subjects relative to river health.

Recommendations

1. Given the high global, national and regional value of the St. Lawrence River from both ecological and human community perspectives, an RA of the St. Lawrence River should be carried out, and done so in a thorough, careful and comprehensive manner that is appropriate to this high-value and seriously challenged natural resource. Existing federal initiatives are too narrow (variously in either scope or subject matter) and/or too outdated to serve this purpose, but certainly should be included and expanded upon
2. RAs require a great deal of time and energy from government agencies and the public alike, and given the strong likelihood that only one RA will be done on the St. Lawrence River in the near future, this RA should be carried out in an unrushed timeframe that allows for proper study and analysis and involvement of all interested parties in a transparent and inclusive way. Ample time is also necessary

to ensure that pertinent provincial and federal agencies with expertise on various issues can make available existing knowledge on baseline health of the river as well as current and future concerns on harmful impacts.

3. The potential RA of the St. Lawrence River should utilize a broad geographic scope based not only on the river per se, but on the entire St. Lawrence River Basin from its origin at the outflow of Lake Ontario to its mouth at the Gulf of Saint Lawrence. Only a broad scope such as this, which includes the freshwater and saltwater components of the river and reflects the substantial impacts that activities on tributaries can place on the River makes sense for analyzing impacts to a river understood in the sense of an interconnected, integrated, ecological system.
4. Given the high-level of importance of the St. Lawrence River systems, we strongly recommend that the RA combine the first two of the main types of regional assessments described by IAAC.¹ That is, it should 1) fill data gaps and analyze trends and 2) identify mitigation measures and thresholds to guide future planning and project choice and development. It should have three objectives: 1) to compile and provide regional information, 2) identify effects and define mitigation measures and 3) provide regional context for future development and their assessments.²
5. The RA must consider impacts from all types of development projects, industry and municipal activities occurring in the study area including, but not limited to: port expansions, transport hub changes at airport and trans-shipment facilities, refining and petroleum transport, industries involved in manufacturing chemicals, pharmaceuticals, fertilizers and other toxic substances, agricultural operations (especially effluent), municipal wastewater treatment and effluent, drinking water intake/supply, dredging and sand removal, flow regulation at dams and hydroelectric facilities, and invasive species. Additionally -- and critically -- the RA must look at the current and predicted effects of climate change on water quantity, quality, and on flora and fauna, aquatic as well as riverine.
6. The “valued components” that should be evaluated in the RA include freshwater and marine fish and fish habitat, marine mammals, migratory birds, wetlands, special areas (e.g., parks and areas designated for protecting certain flora and fauna), atmospheric emissions, intact forest landscapes, Indigenous communities and

¹ IAAC, “Regional Assessment Under the *Impact Assessment Act*”, <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/regional-assessment-impact-assessment-act.html>.

² We believe it is possible and preferable to include this third objective but *without* making the underlying focus be on regional development planning that presumes the acceptability of expanding industrial and commercial development along the river.

activities and drinking water supplies (quality and quantity). The term “valued components” here should refer primarily to the component’s role in the ecosystem rather than the value that people will place on it, since the latter will vary enormously over different sectors of the public. Given the importance of preserving (and hopefully improving) the ecological health of the river and the communities that depend upon it, a broad approach should be adopted rather than one that centres around a single, keystone species.

7. With respect to the issue of climate change, the RA must go beyond treating “atmospheric emissions” as a valued component and ensure that obligations created under the *Impact Assessment Act* (IAA) relating to climate change are fully recognized and thoroughly and completely factored into the regional assessment. Without accurately assessing GHG emissions associated with the various activities in the Saint Lawrence basin, the proposed regional assessment would fail to identify significant implications for provincial, federal, and regional climate commitments.
8. The RA must include a full, comprehensive analysis of the cumulative impacts on each of the valued components of various development projects, industry and municipal activities along the river, and this cumulative impact analysis must cover the entire study area and include past as well as present impacts. In our view, one of the key values in conducting an RA is that it provides an opportunity to assess cumulative impacts that individual project assessments typically fail to do in any meaningful or useful way.
9. In designing the RA, the Minister and/or body tasked with developing it should review existing federal initiatives involving studies or data sets pertaining to the St. Lawrence River basin or its constituent parts, and consider their value in providing baseline data. Such initiatives should include those in which the federal government has partnered with the province of Québec (or Ontario) or with the United States or an international body like the International Joint Commission.
10. The RA should acknowledge and respect the approach to legal rights for rivers taken earlier this year by the regional municipality of Minganie and the Innu Council of Ekuanitshit granting the Magpie River in Québec nine legal rights, including the right to flow, to maintain its biodiversity and to take legal action.³

³ Morgan Lowrie, “Quebec river granted legal rights as part of global 'personhood' movement,” The Canadian Press (via CBC), Feb. 28, 2021, <https://www.cbc.ca/news/canada/montreal/magpie-river-quebec-canada-personhood-1.5931067>.

Rationale for the regional assessment

The St. Lawrence River is a special and highly significant natural resource, not only in Canada but at the global level as well. For example, in addition to having the highest annual discharge of any river in Canada, it reportedly discharges more water into the Atlantic Ocean than any other river around the world, and in North America is second only to the Mississippi River in terms of discharge.⁴ This discharge, of course, occurs because nearly all the outflow from the Great Lakes travels through the St. Lawrence River on its way to the Atlantic Ocean.

The river and the Great Lakes together comprise a single hydrographic system. According to the federal government, the St. Lawrence river “drains more than 25% of the Earth’s freshwater reserves and influences the environmental processes of the entire North American continent.”⁵ The hydrographic system of the St. Lawrence-Great Lakes has the world’s 13th largest drainage basin.⁶ But even apart from the Great Lakes, the river plays an enormous role in planet ecology. The scientists who study whales in the Gulf of Saint Lawrence at GREMM have remarked that “the Saint-Lawrence River alone collects 1% of the rainwater that falls on the planet”.⁷

In addition to its formidable ecological values, the St. Lawrence River basin holds immeasurable value to the people of Québec. For example, more than 80% of the population of Quebec currently lives on the shores of the St. Lawrence and its tributaries, and of that percentage, half the population draws its drinking water from the river or tributaries.⁸ It should be noted in passing that these facts also reflect the high burdens placed upon the St. Lawrence River.

The immeasurably valuable natural resource that is the St. Lawrence River basin has seen – and been impacted by – centuries of impacts: agricultural expansion, industrialization that brought with it the location of major factories and refineries near the river; population growth in municipalities bordering the river; increased shipping and the consequent construction of canals, locks and other structures in the river for the Saint Lawrence Seaway; and the construction of dams for flow control and electricity production.

⁴ University of Guelph, “St. Lawrence River” (undated), <http://www.aquatic.uoguelph.ca/rivers/stlawr.htm>.

⁵ Government of Canada, “St. Lawrence River: Overview”, (undated), <https://www.canada.ca/en/environment-climate-change/services/st-lawrence-river.html>.

⁶ Ibid.

⁷ GREMM, “Where does the Estuary end and the Gulf begin? And what would make a species better adapted to the Gulf than to the Estuary?” (undated), <https://baleinesendirect.org/en/where-does-the-estuary-end-and-the-gulf-begin-and-what-would-make-a-species-better-adapted-to-the-gulf-than-to-the-estuary/>.

⁸ Government of Québec, “Le Saint-Laurent” (undated), <https://www.environnement.gouv.qc.ca/eau/flrivlac/fleuve.htm>.

While the St. Lawrence River's health has seen some improvement compared to decades past, when high levels of pollution were a critical issue in some areas,⁹ the Québec government has stated that the river's health remains in a delicate balance¹⁰ with the demands made upon it. The river continues to face some of the same challenges as in the past while at the same time facing new ones: impacts from pharmaceutical-related waste, including hormonal substances; pesticides and other toxic chemicals; and perhaps the biggest challenge of them all: impacts from climate change, which in turn pose grave risks to the biodiversity of the river.

On the basis of the facts and factors just described, a rigorous regional assessment of the St. Lawrence river basin aimed at identifying ways to avoid and mitigate risks from future development is, in our opinion, not just a good idea, but rather a necessity. Nonetheless, in the context of the engagement process on this potential RA, we learned of the specific considerations relied upon by the Minister in approaching the decision whether or not to authorize a regional assessment, and as such, we present additional justifications for a regional assessment that respond directly to these considerations.

More specifically, the federal government's guide to requesting a regional or strategic assessment under the *Impact Assessment Act*, contains six key questions, the answers to which can assist the Minister in his/her decision whether to launch the requested regional impact assessment.¹¹ These six questions are also presented in the Background document made available during the engagement sessions. Below, we summarize our answers to the six questions, and then ask and answer a seventh question that – in the context of the climate crisis – we believe should be considered as well.

1. Is large-scale development, including potential designated projects under the Act, expected in the next 5–10 years in the region?

Response: Yes. The Canadian Impact Assessment Registry¹² contains entries for over 50 projects close to the shores of the St. Lawrence River that have either recently completed assessments *or* are currently being assessed. These new projects planned for

⁹ Government of Canada, "St. Lawrence River: Overview", (undated), <https://www.canada.ca/en/environment-climate-change/services/st-lawrence-river.html>, referring to the findings of the 2014 Global Portrait of the State of the St. Lawrence River issued in connection with the St. Lawrence Action Plan. Note: the 2014 report was updated in 2019, see "Overview of the State of the St. Lawrence", <https://www.planstlaurent.qc.ca/en/developing-knowledge/overview-of-the-state-of-the-st-lawrence>, discussed below in this submission.

¹⁰ Government of Québec, "Le Saint-Laurent" (undated), <https://www.environnement.gouv.qc.ca/eau/flrivlac/fleuve.htm>.

¹¹ IAAC, "Operational Guide: Requesting a Regional or Strategic Assessment under the Impact Assessment Act", <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/requesting-regional-strategic-assessment-iaa.html>,

¹² <https://iaac-aeic.gc.ca/050/evaluations> (main search page).

the shores of the St. Lawrence River at various locations include, but are not limited to, the following:

- Numerous expansions or repair projects at port facilities, some of them very extensive, as well as projects involving expansion or repair of wharves;
- Installation of a new tank for liquid bitumen at the Port of Montreal;
- A new fertilizer plant to be located in the industrial park and port facility of Bécancour;
- A new “injectable medication manufacturing plant project” in Boucherville;
- The rehabilitation of a wastewater treatment system on the Richelieu River, about 6 miles from its confluence with the St. Lawrence River;
- Decontamination and deconstruction of buildings at a prison facility in Laval, near a river that flows directly into the Saint Lawrence;
- Removal and/or dismantling of underground fuel tanks and petroleum equipment at Montreal's airport; and
- Numerous bridge repair projects, including major bridges, which will necessitate a large amount of construction equipment and activity in close proximity to the river.

2. Are there environmentally or otherwise sensitive areas or components located in the region that might be affected by development?

Response: Yes. The federal government has referred to the St. Lawrence River as a “priceless jewel of our natural heritage,”¹³ and a quick tour of some of its best features makes that clear. The St. Lawrence River is home to four wetlands of international importance, each of which are designated Ramsar Sites (connected to the 1971 international *Ramsar Convention on Wetlands*). From west to east along the river, the first two sites are fluvial lakes:¹⁴ Lac Saint-François at the western edge of the province of Québec, between the Moses-Saunders and Beauharnois Dams,¹⁵ and Lac Saint-Pierre, downstream of the municipality of Sorel.¹⁶ The wetlands of Lac Saint-Pierre were also declared a World Biosphere Reserve in 2001.¹⁷ The third and fourth wetlands designated as Ramsar sites are Cap Tourmente, on the north shore of the river northeast of Québec

¹³ Government of Canada, “St. Lawrence River: Overview”, (undated), <https://www.canada.ca/en/environment-climate-change/services/st-lawrence-river.html>.

¹⁴ For an excellent and clear map showing the location of these two fluvial lakes in the Saint Lawrence River, please see Christine Hudon, “Managing St. Lawrence River Discharge in Times of Climatic Uncertainty: How Water Quantity Affects Wildlife, Recreation and the Economy,” ResearchGate, September 2006, p. 21, <https://www.researchgate.net/publication/266450742>.

¹⁵ Ramsar Sites Information Service, “Lac Saint-François”, <https://rsis.ramsar.org/ris/361>.

¹⁶ Ramsar Sites Information Service, “Lac Saint-Pierre”, <https://en.unesco.org/biosphere/eu-na/lac-st-pierre>.

¹⁷ Government of Canada, “St. Lawrence River: Overview”, (undated), (<https://www.canada.ca/en/environment-climate-change/services/st-lawrence-river.html>).

City,¹⁸ and Baie de l'Isle-Verte, on the south shore, across from Tadoussac and the mouth of the Saguenay River.¹⁹

The Saguenay-St. Lawrence Marine Park (a joint federal-provincial initiative), represents another area of great ecological value along the St. Lawrence River. As the website for the park explains:

“The confluence of the St. Lawrence Estuary and the Saguenay River, where the waters of the Great Lakes, the Saguenay basin and the Atlantic Ocean meet, is recognized as an ecologically exceptional region. The oceanographic conditions that occur at the confluence of the Saguenay encourage the emergence of life and the concentration of species at the bottom of the food chain.”²⁰ (our emphasis).

The Saguenay-St. Lawrence Marine Park, for example is home to significant and threatened populations of Beluga whales and Blue whales. While much attention has been given to Beluga whales of the St. Lawrence and their protection (and rightly so), it is important to recognize that the Blue whale, the world’s largest living animal, is also found in the Marine Park, despite its location over 500 km inland from the Atlantic Ocean. It is listed as a species at risk “due to pollution, collisions with boats and accidental entanglement in fishing gear.”²¹

In addition to the specially-protected places mentioned above, there are over 60 bird sanctuaries, ecological reserves and conservation parks along the St. Lawrence River.²²

Species at risk in the St. Lawrence River basin constitute key sensitive components that might be affected by development in the region. To name just a few of the marine mammals and fish species at risk, these include:

- Beluga whale and Blue whale, mentioned above;
- American Eel (which has seen great reductions in population due to dams like the Carillon Dam²³ located on the Ottawa River just upstream from its confluence with the St. Lawrence River)
- Lake Sturgeon (highlighted in MCK’s request for a regional assessment)

¹⁸ Ramsar Sites Information Service, “Cap Tourmente”, https://rsis.ramsar.org/RISapp/files/RISrep/CA214RISformer1993_EN.pdf.

¹⁹ Ramsar Sites Information Service “Baie de l’Isle-Verte”, https://rsis.ramsar.org/RISapp/files/RISrep/CA362RISformer1993_EN.pdf.

²⁰ Governments of Canada and Québec, “Saguenay-St. Lawrence Marine Park”, <https://parcmarin.qc.ca/get-to-know/#confluence>.

²¹ Governments of Canada and Québec, “The Saguenay-St. Lawrence Marine Park”, <https://parcmarin.qc.ca/protect/>.

²² Government of Canada, “St. Lawrence River: Overview”, <https://www.canada.ca/en/environment-climate-change/services/st-lawrence-river.html>.

²³ Ottawa Riverkeeper, “FAQs on the Carillon Dam and the American eel”, January 18, 2021, <https://www.ottawariverkeeper.ca/faqs-on-the-carillon-dam-and-the-american-eel/>. We note that the Mohawk Council of Kahnawà:ke mentioned the importance of eel in their request for a regional assessment.

- Striped bass (once extirpated in the St. Lawrence, now successfully reintroduced)
- Deepwater sculpin
- Silver chub
- Northern sunfish
- Copper redhorse (a species found only in Québec)
- Mapleleaf mussel (in the far western part of the St. Lawrence/Ontario segment and in Lake Ontario)

According to the federal Department of Fisheries and Oceans (DFO), the St. Lawrence Lowlands Priority Area, which stretches from where the St. Lawrence River flows into Québec from Ontario all the way to the eastern tip of Île d'Orléans near the north shore and just past La Pocatière on the south shore, includes 13 fish species at risk and one mollusk species at risk.²⁴ Notably, DFO mentions that these species are found not only in the St. Lawrence River, but also in its tributaries, including the Ottawa River, Chateauguay River, Assomption River, Richelieu River and the multiple rivers flowing into Lac Saint-Pierre.

Birds are also vulnerable to impacts from development in the St. Lawrence region, and these include landbirds, waterfowl, waterbirds and shorebirds, some of which are migratory species and some of which are species at risk. In Québec, the Lower Great Lakes and St. Lawrence Plain Bird Conservation Region designated as “BCR 13-QC”,²⁵ covers a large area of the river basin that corresponds roughly to the St. Lawrence Lowlands region mentioned above, and includes the St. Lawrence corridor, a major migration route. Of the 68 priority species identified by Environment Canada for this particular Bird Conservation region in the St. Lawrence lowlands, 22 are species at risk (federal and/or provincial). BCR 13-QC includes a total of 13 migratory bird sanctuaries, 25 “Important Bird Areas” (IBAs), and no less than 190 waterbird staging areas.²⁶

3. Does current and future development in the region have the potential to cause adverse effects, including cumulative effects, that fall within federal jurisdiction? (E.g., effects on fish and fish habitat, aquatic species, migratory birds, changes to the environment on federal lands).

Response: Yes. Pollution and other stressors in the St. Lawrence River basin are currently serious and increasing yet, as indicated above, more development is planned for the region. Given the many species at risk in the St. Lawrence basin, it seems likely that these vulnerable species of fish, birds and other *flora* and *fauna* designated as

²⁴ Government of Canada, DFO, “St. Lawrence Lowlands Priority Area”, <https://www.dfo-mpo.gc.ca/species-especes/sara-lep/cnfasar-fnceap/priority-priorite/profiles/lawrence-laurent-eng.html>.

²⁵ Environment Canada, *Bird Conservation Strategy for Bird Conservation Region 13 in Quebec Region – Lower Great Lakes/St. Lawrence Plain*, October 2013, Executive Summary, p. 1, http://publications.gc.ca/collections/collection_2014/ec/CW66-319-5-2012-eng.pdf.

²⁶ *Ibid*, p. 8.

species at risk are being negatively affected by current development in the region and may well be negatively affected in relation to future development. Some stressors may be creating adverse impacts already (the listing of species as “species at risk” should, *prima facie*, be viewed as a clear signal that adverse impacts are at play), and additional stressors due to new projects, combined with climate change impacts, are likely to increase the probability of adverse effects within already affected species while possibly creating new adverse impacts for other species.

Referring back to the St. Lawrence Lowlands priority area, the DFO has indicated that the main threats to species at risk in that large area, covering 29,000 km² of the St. Lawrence River Basin include: “pollution from agricultural and municipal sources, habitat modification and disturbance, barriers to fish passage and the introduction of invasive species.”²⁷

While surface water pollution is the number one issue identified by the various Quebec watershed boards along the St. Lawrence,²⁸ habitat loss and habitat fragmentation, particularly of wetlands, as well as invasive species problems (*flora* and *fauna*) have also been identified as serious issues by various groups.²⁹ Both surface water pollution and habitat loss and fragmentation can create harm to fish, aquatic species and migratory birds – all areas of federal jurisdiction.

One example is phosphorus contamination, often related to the use of chemical fertilizers, at the mouths of the St. Lawrence River tributaries that empty into Lac Saint-Pierre.³⁰ Phosphorous contamination has previously been found at concentrations that can lead to degradation of the ecosystem, which is highly problematic in an ecologically precious area like Lac Saint-Pierre, which has the largest surface area of marshes and swamps in the entire St. Lawrence basin.³¹

²⁷ Government of Canada, DFO, “St. Lawrence Lowlands Priority Area”, <https://www.dfo-mpo.gc.ca/species-especes/sara-lep/cnfasar-fnceap/priority-priorite/profiles/lawrence-laurent-eng.html>.

²⁸ Ministère de l’Environnement et de la Lutte contre les changements climatiques, RAPPORT SYNTHÈSE SUR LES PROBLÉMATIQUES PRIORITAIRES DES BASSINS VERSANTS DU QUÉBEC - État de situation 2019-2020 (2020), <https://www.environnement.gouv.qc.ca/eau/bassinversant/rapport-problematiques-prioritaires-2019-2020.pdf>. This report synthesizes results of about 40 watershed organizations across Quebec, from the Ontario border to the mouth of the river. The top issue identified by the watershed boards is surface water pollution.

²⁹ WWF, “Watershed Reports – St. Lawrence”, https://watershedreports.wwf.ca/?_ga=2.111472644.1030348337.1615874599-1337410455.1615874599#ws-21/by/threat-overall/threat. This brief fact sheet on the St. Lawrence summarizes key problems in the St. Lawrence River watershed, including the following: “Roads, rail infrastructure and dams contribute to the “very high” scores for habitat fragmentation in every sub-watershed.”

³⁰ Government of Canada, “St. Lawrence River: phosphorus at the mouths of Lake Saint-Pierre tributaries”, <https://www.canada.ca/en/environment-climate-change/services/st-lawrence-river/water-sediment/phosphorus-lake-saint-pierre-tributaries.html>.

³¹ Government of Canada, “St. Lawrence River: changes in the wetlands,” <https://www.canada.ca/en/environment-climate-change/services/st-lawrence-river/increase-decrease-wetlands.html>.

Various studies and resources available from the St. Lawrence Monitoring Program³² – a project under the St. Lawrence Action Plan – outline a wide range of types of contamination and harmful impacts to the *flora* and *fauna* of the St. Lawrence River basin from toxic substances and sediments, and other sources.

In many cases, these sources of contamination can be connected to development, municipal or other projects and activities. As such, it is important to evaluate all future projects in the region for ways in which they may create increased contamination from these kinds of sources or possibly new types of contamination. Cumulative impacts of contamination would seem ripe for creating adverse impacts on environmental components under federal jurisdiction, like fish and fish habitat and migratory birds. Thus, it is essential that any RA of the St. Lawrence River capture and analyze these cumulative effects.

Additionally, alien invasive species can sometimes result from activities under federal jurisdiction, such as shipping and navigation. Invasive species problems can also be created or exacerbated by climate change, and both of these issues can harm biodiversity. The invasive species issue should not be seen simply as a matter of nuisance: many species at risk in Canada, including in the St. Lawrence River basin, are affected by invasive species, thus making them yet more vulnerable.³³

Finally, pesticides are also creating a context for added stress and impacts on aquatic species and fish in the St. Lawrence, and these problems can interact and intersect with as well as exacerbate effects on species that are related to development projects. Recent research involving sampling at numerous locations in the St. Lawrence River was reported to have found that “nearly one-third of the samples had neonicotinoid pesticides at levels higher than the threshold to protect aquatic creatures” and that “glyphosate and atrazine were in more than 80% of samples”.³⁴

4. Does development in the region have the potential to cause adverse impacts on the rights of Indigenous people?

Response: We presume yes, but ultimately defer to Indigenous communities on issues concerning their rights. From the Minister’s response to the Mohawk Council of Kahnawà:ke’s request for a regional impact assessment, it appears that he has already taken note of the fact that current and proposed projects may, both individually and cumulatively, pose risks to Indigenous rights. Furthermore, the request by the Mohawk

³² State of the Saint Lawrence Monitoring Program, “St. Lawrence Monitoring Sheets” (links to various reports of varying dates), <https://www.planstlaurent.qc.ca/en/developing-knowledge/monitoring-sheets-st-lawrence>.

³³ Invasive Species Centre, “Conserving Critical Habitat” (undated), <https://invasivespeciescentre.ca/wp-content/uploads/2020/07/Invasive-Species-and-Species-at-Risk.pdf>.

³⁴ Brian Bienkowski, “Pesticides are all over the St. Lawrence River — many at levels that hurt fish and invertebrates,” Environmental Health News, May 1, 2019, <https://www.ehn.org/pesticides-are-all-over-the-st-lawrence-river-many-at-levels-that-hurt-fish-and-invertebrates-2635826209/consistently-contaminating-water>.

Council of Kahnawà:ke (MCK) along with letters of support for an RA from other Indigenous organizations such as the Grand Council of the Waban-Aki Nation and the Huron-Wendat Nation suggest that Indigenous rights could be at risk from development in the St. Lawrence River region.

5. How would the regional assessment inform future federal impact assessments?

Response: A well-executed and thorough RA could inform future project-specific federal impact assessment decisions by contributing to the effectiveness and efficiency of future assessments, although it must not result in the creation of regulations or policies that will simply make it faster or easier for projects to be approved. Given the very real risks posed to this extremely valuable natural resource from current and planned activities, combined with likely climate change-related impacts to the river system going forward, what is needed are guidelines, thresholds and mitigation measures that can help the federal government properly evaluate the potential risks that new projects may pose to the river basin. In this sense, an RA of the St. Lawrence could be – and should be – an important tool for preserving the resource and for helping project proponents avoid time and money losses in proposing projects that, ultimately, may not fit within the vision of protecting the river and its many values to Canadian society.

6. Would an existing or planned initiative adequately address the issues raised?

Response: No. Existing federal initiatives involving studies and analyses of the river do not suffice: depending upon the initiative, they are either too narrow (in either scope or subject matter), too outdated, focused only on data collection to the exclusion of mitigation or policy considerations with respect to future decision-making, too limited in the analysis of cumulative impacts, or some combination of these problems.

That said, existing federal initiatives involving studies or data sets pertaining to the St. Lawrence River basin or its constituent parts should be reviewed by the panel or committee in charge of the RA. Such initiatives could help inform the design and outcomes of the RA, and be of value in providing baseline data. Additionally, the existing federal initiatives considered should include those in which the federal government has partnered with the province of Québec (or Ontario) or with the United States or an international body like the International Joint Commission.

Additionally, impact assessments of specific projects within the region are not well-suited to a fulsome analysis of cumulative impacts from past, current and potential future development. Clearly the cumulative impacts of development could push the river to its limits and beyond.

7. **[Additional, proposed question]: Are environmentally or otherwise sensitive areas or components located in the region experiencing or are likely to experience harmful or adverse impacts from climate change?**

Response: Yes. Climate change impacts are already occurring and exacerbating various existing stressors on the river, as evidenced by the following excerpt from the *Overview of the State of the St Lawrence 2019*, prepared in connection with the St. Lawrence Action Plan 2011-2026. After explaining that “climate change will modify the hydrologic regime of the St. Lawrence owing to the expected effects on precipitation, snow cover and evapotranspiration,”³⁵ which could lead to impacts including earlier spring flood events, the report states:

“All these changes will have significant consequences for water uses and ecosystems [citation omitted]. For example, the anticipated decrease in spring flows and water levels will have a negative impact on shipping, will require changes in the management of dams and will result in a reduction of flood risks for certain tributaries. **The expected consequences of more severe summer low flows could include a reduction in the capacity of the receiving environment to handle pollutants of various types (domestic and industrial wastewater, for example), greater drinking water supply problems or the drying out of wetlands, leading to impacts on fish and migratory bird populations.**”³⁶ (our emphasis).

In addition to the State of the St. Lawrence Monitoring Program, which tracks and analyzes changes in water levels and flows in the St. Lawrence River,³⁷ a study published in 2006 by a researcher with Environment and Climate Change Canada, looked at various climate change issues affecting and expected to affect water levels in the St. Lawrence river system and the impacts of those changes and concluded:

“**The strong response of St. Lawrence River wetlands to water-level changes and the effects on the quality of faunal habitats make them highly vulnerable to the cumulative impacts of future climate change and human interventions.**”³⁸
(our emphasis)

³⁵ Working Group on the State of the St. Lawrence Monitoring. *Overview of the State of the St. Lawrence 2019*. St. Lawrence Action Plan. Environment & Climate Change Canada, Québec’s ministère de l’Environnement et de la Lutte contre les changements climatiques), Québec’s ministère des Forêts, de la Faune et des Parcs, Parks Canada, Fisheries and Oceans Canada, and Stratégies Saint-Laurent. 2020, p. 57, <https://www.planstlaurent.qc.ca/fileadmin/publications/portrait/portrait-global-etat-saint-laurent-2019-en.pdf> (hereinafter *Overview of the State of the St. Lawrence 2019*).

³⁶ Ibid.

³⁷ Jean-François Cantin, Rémi Gosselin, André Bouchard, Jean Morin and Frank Seglenieks, Environment and Climate Change Canada, Meteorological Service of Canada, with the State of the Saint Lawrence Monitoring Program (undated), https://www.planstlaurent.qc.ca/fileadmin/publications/fiches_indicateurs/Fiche-debits_niveaux_eau_E_final.pdf.

³⁸ Christine Hudon, “Managing St. Lawrence River Discharge in Times of Climatic Uncertainty: How Water Quantity Affects Wildlife, Recreation and the Economy,” ResearchGate, September 2006, <https://www.researchgate.net/publication/266450742>.

Similarly, other studies have raised concerns that increased freshwater runoff from the St. Lawrence river or its tributaries may affect krill transport out of the lower estuary.³⁹

Since climate change impacts have begun to affect various components under federal jurisdiction, and since impacts are expected to increase and expand to other components, all development activities affecting the river must be viewed through that lens. Furthermore, such current and anticipated impacts must be viewed through a comprehensive cumulative effects framework, which a properly designed and executed regional impact assessment could provide. It is critical, for example, to survey and analyze the cumulative effects of development activities along the river corridor in terms of emissions of greenhouse gases such as CO₂ and methane from the river in order to evaluate whether and how the carbon cycle of the river is being affected by development projects and other activities in the St. Lawrence Basin (ex: are methane emissions increasing due to flow changes in the river and impacts on wetlands?). All of these considerations bend strongly in favour of conducting an RA of the St. Lawrence River in order to help identify ways of mitigating impacts through policy, planning and other measures.

We also encourage those conducting the RA to study the mitigating effect on climate change of conserving intact ecosystems. As the IPCC states, “[w]hile some response options have immediate impacts, others take decades to deliver measurable results.”⁴⁰ Climate “response options with immediate impacts include the conservation of high-carbon ecosystems such as peatlands, wetlands, rangelands, mangroves and forests.”⁴¹

Scope of the RA study area

Our arguments in the preceding section on the rationale for conducting an RA also provide the justification for our preferred approach to the scope of the RA and boundaries of the study area. The potential RA of the St. Lawrence River should utilize a broad geographic scope based upon the entire St. Lawrence River basin from its origin at the outflow of Lake Ontario to its mouth at the Gulf of Saint Lawrence. Only a broad scope like this, which includes the freshwater and saltwater components of the river and reflects the substantial impacts that

³⁹ See e.g., Diane Lavoie, Joël Chassé, Yvan Simard, Nicolas Lambert, Peter S. Galbraith, Nathalie Roy & Dave Brickman (2016) Large-Scale Atmospheric and Oceanic Control on Krill Transport into the St. Lawrence Estuary Evidenced with Three-Dimensional Numerical Modelling, *Atmosphere-Ocean*, 54:3, 299-325, <https://www.tandfonline.com/doi/full/10.1080/07055900.2015.1082965>.

⁴⁰ IPCC, 2019: Summary for Policymakers. In: *Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems* [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.- O. Pörtner, D. C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)]. In press, p. 20. https://www.ipcc.ch/site/assets/uploads/sites/4/2020/02/SPM_Updated-Jan20.pdf.

⁴¹ Ibid.

activities on tributaries can place on the St. Lawrence River makes sense for analyzing impacts to a river understood in the sense of an interconnected, ecological system.

The basin approach to studying and evaluating the environment of the St. Lawrence and the impacts of development and climate change has been used in large study and planning initiatives such as the St. Lawrence Action Plan,⁴² in academic treatments of the subject⁴³ and in the long-term water quality monitoring projects for the region.⁴⁴

We believe firmly that the RA must be based upon the full St. Lawrence River basin, or it risks being inaccurate and of limited usefulness with respect to understanding the full impacts of potential projects on the ecologically sensitive areas and valued components of the region. Any meaningful analysis of the state of the river and/or the various stressors affecting its health must cover the entire river, from its source to its mouth.

Whether a full or modified basin approach is used, it is essential that the RA study area encompass the tributaries of the St. Lawrence, since obviously development and other activities occurring on tributaries affects various aspects of water quality, quantity, flow, and ultimately, certain valued components. In the *Overview of the State of the St. Lawrence 2019*, a recent report under the St. Lawrence Action Plan 2011-2026, the authors underscore the “the importance of the tributaries of the St. Lawrence” as follows:

“Beginning in the 2000s, intensification of initiatives to expand knowledge about threatened and vulnerable fish species has made it possible to significantly increase the number of occurrences surveyed. For a number of species, most of these new occurrences have been recorded in the tributaries of the St. Lawrence River. This underlines the fact that these tributaries offer a unique mosaic of habitats for aquatic wildlife and represent important areas for biodiversity.”⁴⁵

With respect to delimiting the study area for the RA, we have already suggested a basin approach, but a few comments are in order here on the issue of the exact boundaries from west to east, and the rationale for extending them for the purposes of the RA.

Western bounds of the study area: We believe that the RA exercise and outcomes will be more effective, accurate and helpful to all, including to the MCK, if the proposed Study Area boundaries are extended further westward. The study area proposed by the MCK, which highlights the use of Lake Sturgeon as a key indicator species, is delimited (approximately) to the west by the Beauharnois dam and to the east by the northeast end of Île d'Orléans.

⁴² See e.g., *Overview of the State of the St. Lawrence 2019*, pp 2 and 7, including figure 1.1. of the St. Lawrence drainage basin, of which the river drainage basin is a distinct subpart.

⁴³ See e.g., James H. Thorp, Gary A. Lamberti & Andrew F. Casper, “St. Lawrence River Basin”, Chapter 22, *Rivers of North America*, by Arthur C. Benke & Colbert E. Cushing, Eds., Academic Press; 1st edition (June 9 2005), online at: https://www.researchgate.net/publication/286485288_St_Lawrence_River_Basin.

⁴⁴ Government of Canada, “Saint Lawrence River Basin Long-term Water Quality Monitoring Data”, <http://donnees.ec.gc.ca/data/substances/monitor/national-long-term-water-quality-monitoring-data/saint-lawrence-river-basin-long-term-water-quality-monitoring-data/?lang=en>.

⁴⁵ *Overview of the State of the St. Lawrence 2019*, p. 27.

We respectfully suggest that, in order to effectively assess impacts such as water quality and habitat conditions on Lake Sturgeon in the St. Lawrence, that it is important to include the beginning segment of the St. Lawrence River, from its origin at the outflow of Lake Ontario, as well. New York State's *Lake Sturgeon Recovery Plan 2018-2024* indicates the presence of Lake Sturgeon from that point (as well as in Lake Ontario itself) eastward to the Moses Saunders Dam, which marks the border between New York State and Québec.⁴⁶ That location is across the river from the St. Regis Mohawk Tribe at Akwesasne and about 80 km from the western edge of the study Area proposed by MCK. The St. Regis Mohawk Tribe is collaborating with New York State on Lake Sturgeon issues.

Another reason for moving the study area boundary westward is to be sure to include Lac Saint-François, home to a wetland of international significance with Ramsar site status. This lake, situated between the Moses Saunders Dam and the Beauharnois Dam represents an area rich in biodiversity. The site encompasses 40 species of vegetation rare in Québec and Canada, and over 75 species of fish.⁴⁷

Eastern bounds of the study area: With respect to the eastern end of the study area, it is often said that the point at which the St. Lawrence river ends and the Gulf of Saint Lawrence begins is Pointe des Monts, QC, where the river widens significantly at a point to the west of Anticosti Island.⁴⁸ Pointe des Monts is located between Baie Comeau and Sept-Îles. Pointe des Monts is the reference point referred to in documents under the St. Lawrence Action Plan.⁴⁹

It has been reported, however, that the Royal Proclamation of 1763, denotes the end of the river and the beginning of the Gulf as a straight line between the mouth of Rivière St-Jean on the north shore of the river to Cap des Rosiers on Gaspé peninsula, which more or less passes the western tip of île d'Anticosti.⁵⁰ This is well past Sept-Îles and close to Mingan, QC.

Another argument for extending the RA study past Pointe des Monts would be to allow engagement by three Québec Innu communities on the North shore that may be concerned about environmental issues on the St. Lawrence River. These three communities are: the Innu-takuaikan Uashat mak Mani-utenam, located near Sept-Îles,⁵¹ the Bande des Innus de

⁴⁶ New York State Department of Conservation, *Lake Sturgeon Recovery Plan 2018-2024*, January 31, 2018, <https://www.fws.gov/midwest/sturgeon/documents/NY%20sturg%20recovery%20plan%202018.pdf>.

⁴⁷ Ramsar Sites Information Service, "Lac Saint-François", <https://rsis.ramsar.org/ris/361>.

⁴⁸ See for example, GREMM, "Where does the Estuary end and the Gulf begin? And what would make a species better adapted to the Gulf than to the Estuary?" (undated), <https://baleinesendirect.org/en/where-does-the-estuary-end-and-the-gulf-begin-and-what-would-make-a-species-better-adapted-to-the-gulf-than-to-the-estuary/>.

⁴⁹ Pointe des Monts is identified as the end of the lower estuary and the beginning of the Gulf of St. Lawrence in *Overview of the State of the St. Lawrence 2019*, p. 32.

⁵⁰ James H. Marsh, "St. Lawrence River", *The Canadian Encyclopedia*, published online February 7, 2006, last edited March 4, 2015, <https://www.thecanadianencyclopedia.ca/en/article/st-lawrence-river#>; The Royal Proclamation, October 7, 1763, paragraph 2, as provided on the website of Simon Fraser University (full-text link: <https://www.sfu.ca/~palys/The%20Royal%20Proclamation.pdf>).

⁵¹ https://www.aadnc-aandc.gc.ca/Mobile/Nations/profile_uashatmaliotenam-fra.html (Government of Canada geographic profile that provides links and contact information for the community).

Ekuanitshit a bit further east, near Mingan,⁵² and the Première Nation des Innus de Nutashquan, located even farther east, facing the easternmost tip of Ile Anticosti.⁵³

Objectives and outcomes

In order to address the question of preferred objectives and outcomes for this RA, we refer to Table 1 on p. 2 of the most recent outline for the 3rd engagement session (“Table 1: Potential Objectives and Outcomes of a Regional Assessment”). Referring to that table, we believe the following objectives and target outcomes would be suitable for an RA of the St. Lawrence River.

a. Preferred RA Objectives

- i. To compile and provide regional information
- ii. To identify effects and define mitigation measures
- iii. To provide regional context for future developments and their assessments

b. Preferred RA Outcomes

- i. Identification and analysis of key information gaps, requirements and opportunities
- ii. Description of potential environmental, health, social, economic, cultural effects (positive or negative) resulting from future development activities (including cumulative effects)
- iii. Description and analysis of key ecological and socioeconomic components, values and issues that should be considered in associated regulatory and planning processes
- iv. Identification of mitigation and follow-up measures for future developments or types of activities (standard and situation-specific)
- v. Recommendations on non-project specific measures to address regional issues (including possible policy, plan, program, regulatory or other initiatives by governments or others).
- vi. Analysis of past, planned and foreseeable development in the region (including possible scenarios)
- vii. Providing an understanding of the regional context that can be used as a framework for considering and evaluating the effects of future activities (especially with respect to cumulative effects)
- viii. Identification of potential planning objectives, preferred development scenarios, possible development controls.

⁵² https://www.aadnc-aandc.gc.ca/Mobile/Nations/profile_mingan-eng.html. See note in footnote 52.

⁵³ https://www.aadnc-aandc.gc.ca/Mobile/Nations/profile_natashquan-eng.html. See note in footnote 52.

Main activities affecting the geographic study area

Given that the Saint Lawrence River valley is, and always has been the geographic centre of much of Québec's population as well as the centre of Québec's economic life, there are numerous activities that affect the proposed study area of the Saint Lawrence River Basin. Many but not all of these are listed below:

- Ports, marine terminal expansions (industrial, cruise, ferries)
- Shipping and associated transshipment facilities for cargo, commodities and oil and gas
- Transport by boats or ferries
- Refineries and crude oil/petroleum products, oil/gas/chemical production, storage and transport facilities
- Major works constructed or installed in navigable waterways (e.g., dredging, sand removal, burying of ferry or telecommunications cables, burying pipelines, shoreline alterations relating to erosion protection, water control structures, aquaculture. Essentially anything covered under the federal Major Works Order)
- Air emissions from industry (e.g., aluminum smelters, cement plants, refineries, chemical plants, etc), including toxic chemical emissions, mercury, particulates and all other air emissions under federal regulation, with special attention to atmospheric deposition (including to tributaries)
- Point source emissions of substances to water by industry, including plants for manufacturing fertilizer, pharmaceuticals, chemicals, etc.
- Mining-related effluent and waste
- Municipal effluent released to the river
- Agriculture-related effluent released to the river
- Flow regulation facilities and hydroelectric dams
- Commercial and residential use of pesticides
- Land clearing or timber harvesting near shorelines
- Recreational fishing

Choice of Valued Components

As the Agency has described it in the context of other environmental and impact assessments, "valued components" are "environmental biophysical or human features that may be impacted by a project." As we understand the Agency's use of this concept, the value of a component relates not only to its role in the ecosystem, but also to the value people place on it. We encourage the view, however, that "valued components" should refer primarily to the component's role in the ecosystem rather than the value that people will place on it, since the latter will vary enormously over different sectors of the public. Additionally, given the importance of preserving (and hopefully improving) the ecological health of the river and the communities that depend on it, we recommend adopting a broad approach that covers

multiple valued components, rather than a narrow approach that centres around a single, keystone or “indicator” species.

Echoing the “valued components” approach used in the NL offshore RA, we recommend that the following valued components be included in an RA of the St. Lawrence River:

- Freshwater Fish and Fish Habitat (including Species at Risk). Including planktons.
- Marine Fish and Fish Habitat (including Species at Risk). Including planktons.
- Migratory Birds (including Species at Risk)
- Marine Mammals (including Species at Risk)
- Wetlands (freshwater, brackish and tidal wetlands).
- Special Areas. In the Saint Lawrence, this would include, to name just a few examples, places like the Saguenay-St. Lawrence Marine Park,⁵⁴ national and provincial parks and specially protected areas along and in the river including Important Bird Areas (IBAs) and other migratory bird conservation areas and any protected areas for sponges and corals in the lower estuary.⁵⁵
- Atmospheric Emissions. This should include both greenhouse gas emissions as well as emissions of toxic substances and particulates, since all of these can, in turn, affect the environment of the river.
- Intact Ecosystems. (Described in the “Rationale” section, above).
- Indigenous Communities and Activities (deferring here, respectfully, to the wishes of the many Indigenous communities in the Saint Lawrence River valley).
- Drinking water quality and quantity for communities along the St. Lawrence.

Existing federal initiatives

In designing the RA, the Minister and/or body tasked with its execution, should review existing federal initiatives involving studies or data sets pertaining to the St. Lawrence River basin or its constituent parts, and consider their value in providing baseline data and information on key indicators of the health of the river.⁵⁶ Additionally, some initiatives could help ensure appropriateness and accuracy of the valued components and issues of concern selected for study. At a minimum, review of existing federal initiatives will help inform the various choices that arise in the design of the RA.

The federal initiatives considered should include those in which the federal government has partnered with the province of Québec, such as the St Lawrence Action Plan, or with the

⁵⁴ Governments of Canada and Québec, “Saguenay-St. Lawrence Marine Park”, <https://parcmarin.qc.ca/home/>.

⁵⁵ This interactive map shows all specially protected areas at the federal level: <https://www.dfo-mpo.gc.ca/oceans/maps-cartes/conservation-eng.html>.

⁵⁶ St. Lawrence Action Plan, *State of the Saint Lawrence Monitoring Program*, (undated) <https://www.planstlaurent.qc.ca/en/developing-knowledge/state-st-lawrence-monitoring-program>.

United States or an international body like the International Joint Commission. We strongly recommend a full outreach to all interested parties and pertinent federal agencies in compiling a list of existing federal initiatives worthy of review.

Lastly, existing federal initiatives could potentially be complemented by an RA on the St. Lawrence in the sense that a comprehensive RA may, in addition to its primary objectives, serve to provide updated information pertinent to those existing initiatives.

Conclusions and recommendations

SCCF and RB assert that strong justification and need exists for an RA of the St. Lawrence River. It is no exaggeration to say that the St. Lawrence Basin is a natural resource of global significance over a host of factors. As such, it must be carefully protected from future harm stemming from both new development projects and the impacts of climate change. A carefully planned and conducted RA can serve as a valuable tool in this endeavor, particularly if it helps guide assessments and, ultimately, decisions about future projects in a way that favours the health of the river basin and the life it supports.

We also strongly recommend an approach to geographic scope and choice of study area that covers the St. Lawrence River basin rather than just the river itself. This is necessary to ensure that the substantial effects that tributaries have on the health of the river are well-understood and accounted for as mitigation measures and policies are developed. Furthermore, we take the position that an assessment of just a segment of the river, rather than its entire course, from source at Lake Ontario to mouth at the Gulf of St. Lawrence, will not lead to complete and accurate information on potential adverse effects and cumulative impacts, regardless of the valued components chosen.

Finally, and in recognition of the fact that there will likely only be time to manage one RA of the St. Lawrence in the coming years, we take the position that the RA should serve three objectives: compile and provide regional information; identify effects and define mitigation measures; and provide regional context for future development projects and their assessments in a way that does not presume the favourability, from a societal point of view, of expanding industrial and commercial development along the river.

SCCF and RB look forward to participating in the next steps, should the Minister decide to go forward with commencing the RA.