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# National and Local Definitions of an Environmental Nuisance: Water Pollution and River Decontamination in Six Urban Areas of Quebec, 1945–1980

Stéphane Castonguay and Vincent Bernard

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### Article abstract

When it created the Water Purification Board in 1961, the Quebec government intended to proceed with a major reorganization of the municipal wastewater treatment and drinking water systems throughout the province. In the following decades, the Department of Municipal Affairs and Environment developed a series of programs and policies for the treatment of wastewater. If water pollution then appeared as a national problem and the subject of a consensual definition, neighbouring communities were facing specific problems that government policies tended to obscure. Our analysis of six municipalities (Drummondville, Sherbrooke, Saint-Hyacinthe, Granby, Trois-Rivières, and Shawinigan) located in three river basins (Saint-François, Yamaska, and Saint-Maurice), each with its own topography and hydrology, population, and industrial growth, and political and cultural history, reveals precisely how communities articulated their different understandings of pollution problems, as well as their distinct definitions of nuisance and means of coping with pollution. By identifying, at the local level, multiple representations of pollution phenomena and practices put forward to decontaminate water, we shed light on the difficulties surrounding the implementation of water treatment infrastructure in municipalities across Quebec between 1945 and 1980.

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# *National and Local Definitions of an Environmental Nuisance: Water Pollution and River Decontamination in Six Urban Areas of Quebec, 1945–1980*

*Stéphane Castonguay and Vincent Bernard*

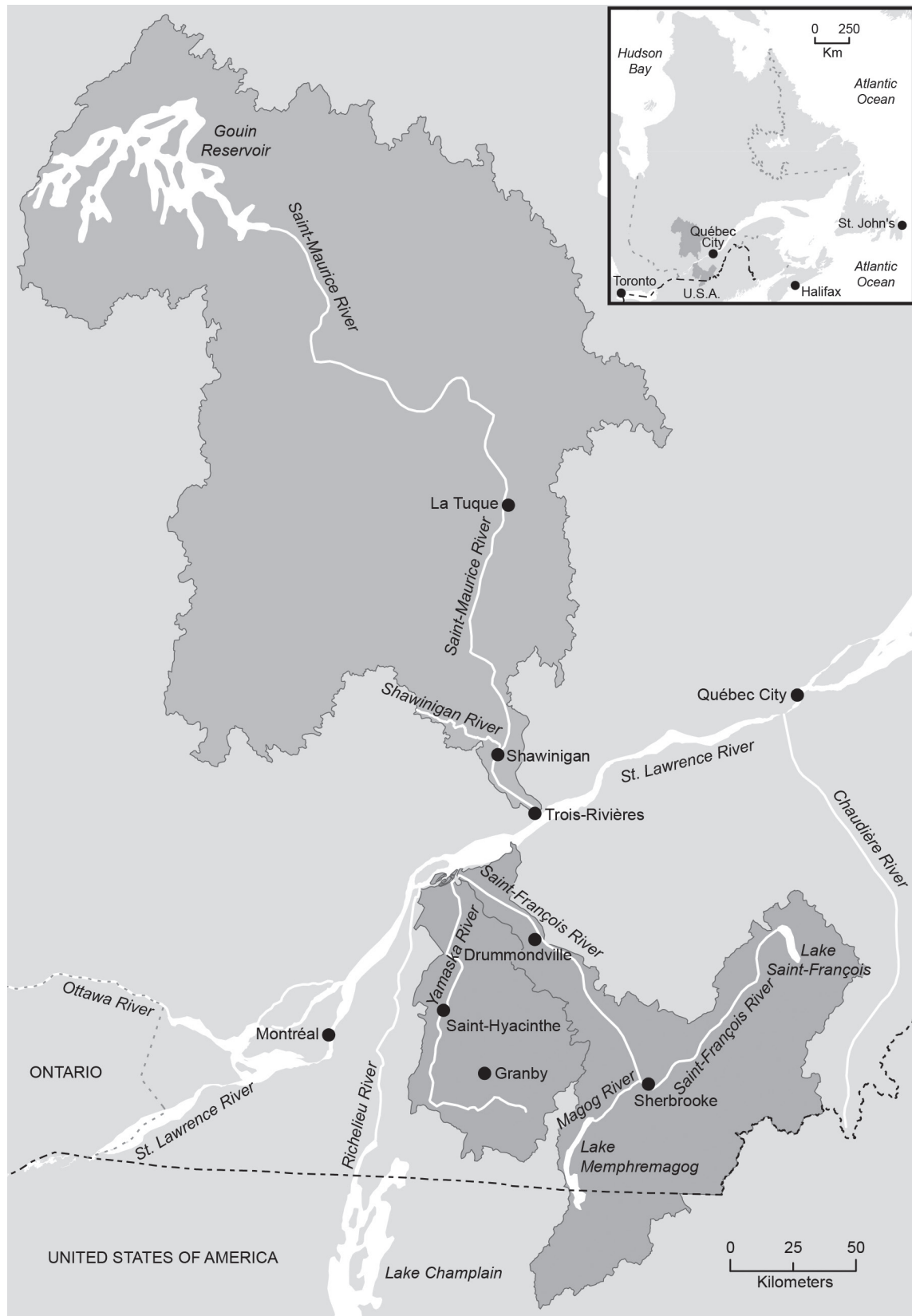
*When it created the Water Purification Board in 1961, the Quebec government intended to proceed with a major reorganization of the municipal wastewater treatment and drinking water systems throughout the province. In the following decades, the Department of Municipal Affairs and Environment developed a series of programs and policies for the treatment of wastewater. If water pollution then appeared as a national problem and the subject of a consensual definition, neighbouring communities were facing specific problems that government policies tended to obscure. Our analysis of six municipalities (Drummondville, Sherbrooke, Saint-Hyacinthe, Granby, Trois-Rivières, and Shawinigan) located in three river basins (Saint-François, Yamaska, and Saint-Maurice), each with its own topography and hydrology, population, and industrial growth, and political and cultural history, reveals precisely how communities articulated their different understandings of pollution problems, as well as their distinct definitions of nuisance and means of coping with pollution. By identifying, at the local level, multiple representations of pollution phenomena and practices put forward to decontaminate water, we shed light on the difficulties surrounding the implementation of water treatment infrastructure in municipalities across Quebec between 1945 and 1980.*

*À partir de 1961, avec la création de la Régie d'épuration des eaux, l'État québécois entreprend de procéder à une réorganisation majeure des systèmes de traitement des eaux usées et d'approvisionnement en eau potable dans les municipalités de la province. Au cours des décennies qui vont suivre, les ministères des Affaires municipales et de l'Environnement mettent au point une série de programmes et de politiques pour améliorer la qualité des eaux usées. Si l'enjeu de la pollution des eaux semble faire consensus à l'échelle provinciale et même, être l'objet d'une définition commune, il demeure que les communautés riveraines sont aux prises avec des problèmes particuliers que les politiques gouvernementales tendent à occulter. Notre analyse de six municipalités (Drummondville, Sherbrooke, Saint-Hyacinthe, Granby,*

*Trois-Rivières et Shawinigan) sises sur les rives de trois rivières (Saint-François, Yamaska and Saint-Maurice), formant différents milieux au regard tant de la topographie et de l'hydrologie que de la croissance démographique et industrielle, révèle précisément que les modalités de prise en charge du phénomène de la pollution laissent transparaître des appréhensions spécifiques de la nuisance et des moyens de l'éradiquer. En identifiant, à l'échelle locale, les multiples représentations des phénomènes de pollution et les pratiques conséquemment mises de l'avant pour procéder à la décontamination de l'eau, nous jetons un éclairage sur les difficultés entourant l'implantation des infrastructures de traitement des eaux à travers le Québec entre 1945 et 1980.*

When it created the Water Purification Board in 1961, the Quebec government intended to proceed with a major reorganization of the municipal drinking water and wastewater treatment system throughout the province. Water pollution appeared as a national problem and the subject of a consensual definition, but regional debates constrained the successful implementation of a provincial policy for water sanitation across Quebec municipalities. Indeed, the many programs and millions of dollars invested in municipal infrastructure from 1961 to the late 1970s brought about only a very small improvement. In 1984, six years after the Department of Environment launched the Quebec Water Purification Program with seven billion dollars to invest over a seven-year period, only 6.2 per cent of the province's population benefitted from wastewater treatment facilities. Improvement materialized in the following decade.<sup>1</sup>

Our analysis of six medium-sized municipalities (Drummondville and Sherbrooke, Saint-Hyacinthe and Granby, Trois-Rivières and Shawinigan) located in three river basins (Saint-François, Yamaska, and Saint-Maurice) (figure 1)—each with its own geography and hydrology, population growth (table 1), and history of industrial development and riverine relationships—reveals that communities articulated their own specific understandings of what constituted a nuisance and means of coping with



Philippe Desautels, Centre interuniversitaire d'études québécoises.

Figure 1: The three river basins and their principal riverine municipalities.

*Table 1: Urban population of the six municipalities, 1951–1981*

	Shawinigan	Trois-Rivières	Sherbrooke	Drummondville	Saint-Hyacinthe	Granby
1951	26,903	46,074	50,543	14,341	20,236	21,989
1956	28,597	50,483	58,668	26,284	20,439	27,095
1961	32,169	53,477	66,554	27,909	22,354	31,463
1966	30,777	57,540	75,690	29,216	23,781	34,349
1971	27,792	55,869	80,711	31,813	24,562	34,385
1976	24,921	52,518	76,804	29,286	37,500	37,132
1981	23,011	50,466	74,075	27,347	38,246	38,069

Sources: *Census of Canada* (1951, 1961, 1971, 1981), *Annuaire du Québec* (1956, 1966, 1976)

water pollution. Because of these specificities, the definitions, problems, and challenges of pollution varied according to the scale at which it was considered, and local approaches to water pollution sometimes clashed with the practices that the provincial government attempted to implement across Quebec. Among other things, provincial institutions often sought regional coordination to establish wastewater treatment facilities, but rarely succeeded in the face of conflicting definitions of water nuisance and competing riverine uses.

Several authors have examined water pollution and river decontamination policies in the second half of the twentieth century,<sup>2</sup> but rarely have they addressed inter-institutional relations between levels of government for the effective implementation of water management infrastructure. The study of local dissent and debates generated at the regional level over water pollution can, however, enable us to understand how these shaped the definition of a nuisance and facilitated (or did not) the implementation of national interventions,<sup>3</sup> as well as the scope and limits of the policies of higher levels of government.<sup>4</sup> Moreover, while the historiography tends to focus on large urban centres, whose interventions tended to substitute for policies adopted at higher levels of government because of their greater population densities and the larger fiscal resources, the study of medium-sized municipalities can illuminate other processes that are influenced by factors such as regional competition, histories of riverine interactions, and the local valuation of environmental amenities.<sup>5</sup> It can also illustrate the contribution of smaller municipalities to the political debate at higher levels of government.

Our analysis relies primarily on municipal archives and the regional press to present water pollution as a social phenomenon. Although the degree of water contamination can be measured using criteria such as the concentration of fecal coliforms, suspended solids, and biological oxygen demand, pollution remains a social phenomenon, as degrees of acceptability depend on a society's culture.<sup>6</sup> In this regard, pollution may be subject to conflicting definitions, according to the identification of different point sources, responsibilities, and causal mechanisms. What matters here is not so much to determine the cause or degree of pollution as to understand how an urban population seized the problem of pollution and sought to solve

it. Thus, our analysis focuses on questions such as: which practices did local actors find responsible for contaminating water, what level of contamination was readily accepted by a population, how did municipalities and local populations react when confronted with a polluted river, and how was consensus on the identification and remediation of pollution achieved?

By identifying, at the local level, representations of water pollution and practices put forward to prevent contamination, the article sheds light on the difficulties surrounding the establishment of water treatment infrastructure in municipalities across Quebec between 1945 and 1980. We examine how, as the institutions successively responsible for water pollution in Quebec attempted to cement certain representations of the pollution problem, the actors in different municipalities took up this phenomenon, and how that repeatedly challenged the national approach.

### *Coping with Water Pollution across Quebec*

The provincial government formally recognized the problem of water pollution in Quebec in August 1956, when it passed the act respecting the pollution of water. The preamble of the act declared “the contamination of river and lake water” to be “a serious danger to public health,”<sup>7</sup> thereby framing the problem in sanitary terms. In the wake of the adoption of the act, the government appointed the Review Committee on Water Pollution to “inquire into the extent and nature and causes of current contamination of waters in the public domain.” It further reinforced the sanitary perspective the following year when the minister of health, Arthur Leclerc, required the ministry's engineering division to investigate the safety of the Saint-François, Yamaska, and Saint-Charles Rivers.<sup>8</sup>

The contamination of drinking water had been within the purview of the provincial health service since the late nineteenth century, but outside the realm of sanitary experts and urban reformists, the population had expressed little concern over such issues.<sup>9</sup> In the aftermath of the Second World War, however, as wildlife biologists and sport anglers began witnessing the impact of water pollution on the aquatic fauna, Gustave Prévost, the head of the Biological Office of the Department of Tourism, Hunting, and Fisheries, set up a pollution control unit to study the effect

of industrial waste on fish populations.<sup>10</sup> The Quebec Federation of Fish and Game Associations (which comprised 125 clubs) formed an Anti-Pollution League in 1954 to demand governmental investigations into the contamination of rivers. That same year, it funded a study on the water quality of the Ottawa River by Professor Lucien Piché of the Institut de Chimie, University of Montreal, and a year later it mandated the Institut's director, Claude Allard, to study the Châteauguay and Saint-François Rivers, as well as Lake Saint-Louis.<sup>11</sup>

The studies by Piché, Allard, and the Biological Office underlined the impact of pollution caused by local industries on sport fishing. Following governmental initiatives in 1956 and 1957, however, the terms of the debate drifted away from these concerns, and issues surrounding water contamination would be addressed only as a public health problem. Admittedly, engineers had so far focused on municipal waterworks and sewage systems, and the engineering division of the Department of Health had started to develop its own expertise on industrial pollution in 1953, when it needed to specify whether swimming in certain water bodies was advisable.<sup>12</sup> Yet, other initiatives contributed to consolidating a sanitary perspective on the problem of water contamination, and cast urban infrastructure as the immediate cause of, and the only solution for, pollution.

Following a socio-sanitary crisis in 1958—the occurrence of a polio epidemic in several cities in Quebec—Leclerc reshuffled the moribund Review Committee on Water Pollution and appointed Gustave Prévost as its head.<sup>13</sup> This appointment did not, however, anchor the definition of water quality problems as a wildlife issue, which would have been in line with Prévost's previous position in the Department of Tourism, Hunting, and Fisheries. On the contrary, Gustave Prévost had recently argued that "the most serious issue is the threat to public health."<sup>14</sup> Prévost's first move, as head of the Review Committee, was to undertake a study mission at the Ontario Water Resources Commission.

Created to combat water pollution throughout the province in 1956, the Ontario commission primarily targeted domestic sewage waters, and built municipal treatment plants that it initially managed before transferring the responsibility to the municipalities.<sup>15</sup> It provided a framework for the newly elected Quebec Liberal government in its dealings with water pollution<sup>16</sup> when, in the spring of 1961, the government sanctioned the act to remedy the pollution of waters and replaced the Review Committee with the Water Purification Board,<sup>17</sup> with Gustave Prévost as its first president. The Water Purification Board had legal powers and centralized prerogatives formerly shared among public administration entities such as the Department of Health and the Public Utilities Board; all projects dealing with water conduits, sewer mains and wastewater treatment were now the responsibility of the Water Purification Board.<sup>18</sup> Furthermore, the board, whose mandate also included raising public awareness, framed the terms of the debate by using a designation whereby stakeholders and the media discussed the issue of water purification, not the problem of water pollution: the goal was not to

decontaminate rivers whose water was of unsatisfactory quality, but to stop the actors responsible for the contamination of water—and more specifically, municipal services—from dumping their waste in the river.

While the Water Purification Board organized regional meetings to inform municipal councils and manufacturers about the benefits of individual and collective participation in a water purification campaign at the regional level, in practice, provincial policies focused on municipalities. The problem of water pollution was further limited to its municipal source in 1964, when the Department of Municipal Affairs replaced the Water Purification Board with the Quebec Water Board.<sup>19</sup> The mandate of the new board included responsibilities related to water supply so as to simplify procedures for municipal governments in their dealings with the provincial government when they addressed water-related issues. The board implemented stricter regulations and forced cities to build water treatment plants—fifty-three plants had been built over the previous three years, and eighty-seven were under construction—and urged municipalities to acquire waterworks owned by private companies for the operation of a municipal water system.

Thus, municipalities and their infrastructure were key elements of the provincial government's approach to the problem of water pollution and its resolution. The existence of a federal subsidy program that enabled Ontario municipalities to acquire water treatment plants had certainly encouraged the Quebec Liberal government to orient its efforts in that direction. Groups such as the Quebec Chamber of Commerce and the Union of Quebec Municipalities, each of which had its own committee on water treatment, also supported the provincial government's initiatives in that direction, although the union expressed concerns about "an application of the law that was so rigid as to force municipalities to engage into immediate spending beyond their means."<sup>20</sup> For many municipalities, however, these initiatives were welcome, because their centralizing thrust ended the proliferation of governmental services responsible for water matters.<sup>21</sup>

Yet certain issues remained unresolved and debated at the local level. Fish and game clubs were still mobilized around issues of river quality and the health of the aquatic wildlife, and continued to press the provincial government to protect rivers and regulate industrial effluents. Municipalities forced to clean up their wastewater before discharging it into rivers remained dubious about the significance of their involvement when industries continued to pour in contaminants upstream. While, in previous decades, debates on the industrial or urban origins of river contamination had prevented the identification of liable practices and the implementation of remedial actions, municipalities were now the ones bearing the onus of river pollution.

Oppositions between municipalities and industries were one aspect of a larger debate surrounding the coordination of river users and uses throughout drainage basins. Given the conflicts along rivers over the control of effluents and access to clean water, the Department of Municipal Affairs, through the Water



Board, urged municipalities to collaborate, willingly or not. In that respect, the water pollution problem meshed with larger issues of regional governance. Other initiatives at the time aimed to consolidate municipalities, in form and in fact. The provincial government undertook institutional reforms to resolve a fiscal crisis for municipalities facing an imbalance between their revenues and expenses. This problem was related to the large number of municipalities in Quebec (1,672 in 1960)<sup>22</sup> and an uneven redistribution of resources from one region to the next. One solution to this problem was to bring together municipalities to facilitate the sharing of financial and technical resources. Some forms of regional institutions were created to take over certain services, such as public transit or police forces, but amalgamation, annexation, and supra-municipal regionalization gained little success.<sup>23</sup>

Conservation of the water resource was one of many sectors wherein an intermediate level of government was needed to overcome the fragmented approaches in effect up until then. To justify its interventionism in that domain across Quebec, the provincial government invoked the situation of the Island of Montreal, where the city centre, constantly at odds with the suburbs, had been postponing the building of a wastewater treatment plant, an intervention deemed necessary by the Provincial Health Service since 1930.<sup>24</sup> The creation of supra-municipal agencies seemed the key to solving the urgent problems of large urban centres—the situation in Quebec City was similar to the one around Montreal—and provided a model for water supply and treatment that the board sought to extend throughout the province. Starting in 1968, under the board's guidelines, consulting engineering firms conducted regional studies to assess the benefits of pooling waterworks and sewage services and "to plan the equipment required for the disposal of wastewater on a territorial scale in the most economical way possible."<sup>25</sup>

Thus, another dimension of the problem of water pollution was the need to arbitrate divergent interests among the multiple riverine stakeholders for decisions on the financing and location of sanitary infrastructure. When the Water Board undertook a survey of the principal rivers in Quebec, it inscribed water resources in integrated schemes around drainage basins and identified municipalities and industries that needed to work together for the treatment and supply of a shared resource.<sup>26</sup> In many cases, however, local dynamics prevented the implementation of these solutions.

### ***Local Controversies over Water Nuisances and River Uses***

The provincial government's representation of water pollution emphasized the sanitary consequences of contaminated rivers and municipalities' responsibility to treat domestic effluents to prevent river contamination and its impact on human health. In line with other governmental policies of the time, municipalities were encouraged to form voluntary groupings to plan the construction of wastewater treatment plants and the coordination of

users at a regional level. These elements composed the national outlook on water contamination and its solution. However, riparian actors articulated rationales wherein problems of water pollution at the local, regional, and national scales were addressed in different terms.<sup>27</sup>

### ***Sherbrooke and Drummondville on the Saint-François River***

Water pollution policies at the provincial level evolved alongside controversy over the state of the Saint-François River, as illustrated by the sheer number of studies dedicated to that watercourse.<sup>28</sup> From the 1950s on, fish and game clubs in the Eastern Townships enjoined the provincial government to prevent cities and industries from discharging untreated effluents that compromised the success of their restocking activities.<sup>29</sup> Among the local clubs that made up the Quebec Federation of Fish and Game Associations and its Anti-Pollution League, the Drummondville Fish and Game Club and the Eastern Townships Association of Fish and Game Clubs were vocal ones that led the federation to adopt a resolution at its annual congress to undertake studies on the pollution of rivers in Quebec.<sup>30</sup> The resulting study by Professor Allard in 1956 concluded that the Saint-François, "the most polluted river studied to date in the Province of Quebec,"<sup>31</sup> was used as "the main sewer by all riparian municipalities,"<sup>32</sup> and at the same time identified three pulp and paper mills within a radius of sixty kilometres as the main causes of industrial pollution. Professor Allard recommended that the river be cleaned up and that industries and municipalities collaborate to "correct this deplorable state of pollution."<sup>33</sup>

Yet, when governmental authorities addressed the problem of water pollution, their sanitary approach downplayed recreational and ecological issues and encouraged an exclusive focus on municipal infrastructure to overcome the pollution of the Saint-François River. In particular, they presented bacteriological pollution from domestic sewage as more insidious and hence more menacing than industrial pollution; the latter "may give a bad taste and bad smell in water, but did not contribute to increasing significantly the proportion of bacteria." Moreover, municipalities that dumped their wastewater in the river were invited to "proceed with the treatment of their sewage ... if an improvement in the situation was sought."<sup>34</sup> Municipalities that blamed industries for the negative impact of their effluents on the quality of the drinking water that they tapped from the river were asked to instead consider the contribution of neighbouring municipalities to the contamination of the Saint-François, especially after the provincial Department of Health released its annual survey on municipal drinking water systems.

As consumers of potable water and producers of wastewater, certain riverine communities were doubly affected by this perspective, because the provincial government required them to acquire infrastructure for water distribution and purification. This was the case for the City of Drummondville, the second-largest urban centre on the Saint-François River. In 1949, following a series of damning annual surveys by the provincial Public

Hygiene Unit on the quality of the city's drinking water, city council asked the Department of Health for a study on bacterial pollution caused by upstream municipalities.<sup>35</sup> It repeated its request in 1956 after the city's physician required the closure of the municipal beach. That same year, the Canadian Celanese Company closed a beach that it had placed at the disposal of its workers.<sup>36</sup> Both beaches were upstream from the water intake of the city's filtration plant. At the request of the Review Committee on Water Pollution, the Sanitary Engineering Division of the Department of Health finally investigated the state of the Saint-François River in 1957. The study encompassed the entire river basin to determine the contribution of all municipalities to river pollution and their ability to supply clean water for domestic consumption. It identified thirteen municipalities that dumped their wastewater into the Saint-François, and nineteen others that dumped into one of its tributaries.<sup>37</sup> The study proposed banning recreational activities on the Saint-François immediately downstream from sewage discharge, but this was the sole recommendation that did not address the priority of the government: the water intake location.<sup>38</sup>

Citizens of Drummondville were upset by the fact that their municipality was required to constantly upgrade its drinking water treatment plant and acquire installations to treat its domestic effluents while cities and industries upstream continued to dump their waste into the river.<sup>39</sup> The mayor of Drummondville, Marcel Marier, threatened to take legal action against the pulp mills, but to little avail. The pulp and paper industry replied by commissioning an independent expert whose study on the discharge of wastewater in the Saint-François stressed the danger of bacteriological pollution from municipal sewage and concluded that effluents from the mills had a minimal impact on water quality, thanks to the turbidity caused by their dams.<sup>40</sup>

Meanwhile, citizens of Drummondville went after the City of Sherbrooke, the regional urban centre and the largest municipality on the Saint-François, for the thirty-four of its sewers flowed directly into the river, and the eleven others that did so indirectly via a tributary, the Magog River. Professor Allard had already identified Sherbrooke as the largest producer of municipal sewage in his 1956 study and had highlighted Sherbrooke's capacity to treat its wastewater, given its size and financial resources. With the support of city council, citizens of Drummondville set up the Eastern Townships Anti-Pollution Regional Committee to "define the means to be adopted to stop pollution," and petitioned the City of Sherbrooke to build a wastewater treatment plant.<sup>41</sup>

The City of Sherbrooke remained deaf to the calls of the committee because it did not want to use the Saint-François River to supply its population with drinking water. Sherbrooke's mayor, Armand Nadeau, was fully cognizant of the fact that other municipalities used the Saint-François for water supply, but remarked only upon the high costs associated with wastewater treatment.<sup>42</sup> For the citizens of Drummondville, it was the proximity of Sherbrooke's population to alternative water streams for the enjoyment of swimming and fishing activities

that explained their relative indifference to the polluted state of the Saint-François.<sup>43</sup> Indeed, Sherbrooke's urban river was the Magog River, a tributary of the Saint-François, from which the city tapped its potable water and along which the urban territory expanded rapidly after the Second World War. Both in terms of supplying its citizens with drinking water and providing them with amenities, Sherbrooke was focused on the Magog River and scarcely considered amending its uses of the Saint-François River.

At that time, however, the City of Drummondville was undertaking the second expansion of its water treatment plant in seven years and seeking the collaboration of stakeholders across the drainage basin to restore the quality of Saint-François River. These initiatives followed a survey of the Saint-François by the Water Board in 1968, which concluded that "corrections should not be made only by the riverine population of the Saint-François River, but by those responsible for the pollution throughout the drainage basin."<sup>44</sup> For the board, the major riverine actors needed to acknowledge their contribution to the pollution of the Saint-François and to the implementation of remedial actions.<sup>45</sup> The board therefore specifically targeted discharges from paper mills along the stretch of the river between the towns of East Angus and Windsor<sup>46</sup> and established a timetable for the construction of municipal sewage treatment plants (1970–1976) and industrial wastewater treatment plants (1970–1974).

Following these interventions by the board, the Drummondville Chamber of Commerce presided over the formation of the Committee for the Remediation of the Saint-François River, in order "to give back to the population its rivers, from the point of view of both leisure and economic activity."<sup>47</sup> Fourteen municipalities joined the committee. Moreover, regional planners envisioned the establishment of tourist sites along the Saint-François River. According to them, the river was one of the few natural attractions in a region whose landscape had been denuded and flattened by nearly two centuries of colonization. The Drummondville Chamber of Commerce and Mayor Marier asked the provincial government for a section of shoreline downstream from the city to "give the banks a certain recreational and touristic vocation."<sup>48</sup>

When a 1973 white paper on regional planning further insisted on the recreational vocation of the Saint-François, the committee claimed that the pollution of the river compromised the future of the tourist industry around Drummondville.<sup>49</sup> For the Sherbrooke City Council, however, the economic prosperity of the region was not to be conflated or compared with that of a particular city. Despite pressures for the decontamination of the river and control of domestic sewage, the Sherbrooke City Council recognized that "sanitation of the St. Francis River brings some improvement to the lives of citizens of Sherbrooke, but they would benefit more from the sanitation of the Magog River, even if one considers only the perspective of leisure."<sup>50</sup> It elected to install recreational infrastructure along the Magog River, where the expansion of Sherbrooke had taken place

through a series of land annexations since 1947.<sup>51</sup> To that effect, it set up the Committee on Health and Improvement of the Magog River, a para-municipal organization, in 1975 to create a recreational area on the riverside.<sup>52</sup> The city was following in the footsteps of a citizen initiative, the Movement for Environmental Protection, formed by citizens, as well as professors and students of the University of Sherbrooke, to develop a “popular river” along the Magog.

Only once Sherbrooke’s demographics and frontiers extended to the point of embracing the shores of the Saint-François did the city manifest a willingness to treat its effluents and consider the construction of a wastewater treatment plant for the urban community. The provincial government’s regionalization policy of the 1970s had resulted in Sherbrooke supplying water to neighbouring municipalities along the Saint-François River: Fleurimont (1970), Ascot Township (1971), and Rock Forest (1973),<sup>53</sup> thereby moving Sherbrooke’s main axis of growth away from the Magog River.<sup>54</sup> The new designation of the para-municipal organization, the Committee on Health and Improvement of the Magog and Saint-François Rivers, illustrated this shift, wherein the contamination of the Saint-François was henceforth the focus of attention of the municipal council and citizens of Sherbrooke.<sup>55</sup>

### *Saint-Hyacinthe and Granby on the Yamaska River*

After initially approaching the Saint-François River as its main “laboratory” for tackling problems of water pollution in Quebec, the provincial government situated the Yamaska River at the heart of its water policies from the late 1960s on.<sup>56</sup> The Yamaska River was less densely populated than the Saint-François River, and few heavy industries dotted its course. However, it ran across an agricultural region that was intensifying its production in the second half of twentieth century. Moreover, manufacturers in light industries such as textile or agri-food production had increased their use of the river for waste disposal. Governmental policies called upon riverine municipalities to modify their wastewater treatment facilities, yet neglected other potential contaminants emanating from these sources.

Because of its geographical position on the last portion of the river before it reached the Saint-Lawrence, and because it was the largest urban centre in the drainage basin, the City of Saint-Hyacinthe was notably concerned by the water quality of the Yamaska. Twice it appealed to the Department of Health to prevent upstream municipalities from dumping their sewage into the river: once in 1947, when Saint-Damase planned to implement a sewer system, and again in 1955, when Douville planned to expand its sewer system and dump its wastewater near the water intake of Saint-Hyacinthe’s filtration plant.<sup>57</sup> The plant’s superintendent, Jean Blanchard, warned the Saint-Hyacinthe City Council that “as no sewers are disinfected, they are a constant threat from a bacteriological point of view, affect the taste, smell, and colour of the river water, and cause additional expenses to treat this water.”<sup>58</sup> In both cases, the response of the

Department of Health was the same: the filtration plant countered the slight increase in pollution and ensured a water supply of satisfactory quality.<sup>59</sup> Like Drummondville, Saint-Hyacinthe had to rely on its infrastructure and seek the cooperation of neighbouring towns to avoid contamination of its drinking water.

Granby, the second-largest urban centre on the Yamaska River, was also concerned by wastewater discharges into the Yamaska, which had been dammed to form Lake Boivin, its drinking water reserve.<sup>60</sup> During periods of low water, the proliferation of algae in the lake affected the quality of the water that Granby pumped to supply its citizens and industries. The algae found its nutrients in discharges from the town of Waterloo and runoff from agricultural activities.<sup>61</sup> In a context of rising residential and industrial demand, the availability of clean water from the Yamaska became a popular concern and an electoral issue during the municipal election of 1964. Three years after the mayoral election of Paul-O. Trépanier under the slogan “It’s time to change water,”<sup>62</sup> the city alleviated the demand for drinking water by implementing measures put forward two decades earlier: raising the level of the lake and digging another reservoir of 260 million gallons.<sup>63</sup>

While the two municipalities complained about the poor quality of the water upstream from their intake, they themselves were also responsible for contaminating the Yamaska. Indeed, a preliminary report produced in 1960 by the Sanitary Engineering Division of the Department of Health revealed that portions of the Yamaska immediately downstream from Saint-Hyacinthe and Granby were “polluted to the point of causing nuisances.”<sup>64</sup>

For the Sanitary Engineering Division, as for the Water Purification Board, municipal discharges were the main source of contamination of the Yamaska River, and wastewater treatment the solution to the pollution problem.<sup>65</sup> The City of Saint-Hyacinthe took steps in that direction and hired a consulting engineering firm in 1965 to study the wastewater situation on and around its territory, but worried that the creation of a regional body, as envisioned by the board, might cause conflicts with neighbouring municipalities on a number of issues, especially the question of cost allocation.<sup>66</sup> The mayor of Saint-Hyacinthe, Grégoire Girard, and the Department of Municipal Affairs thus perceived municipal merger as a means of expediting the construction of a treatment plant.<sup>67</sup> As for Granby, whose municipal sewers drained directly into the Yamaska, the Water Branch of the Department of Natural Resources recommended that it figure among the highest priorities for the construction of a collecting sewer and wastewater treatment plant.<sup>68</sup>

Efforts to counter the dumping of municipal wastewater into the river suffered from the statutory impotence of the Water Board and its successor, the Environmental Protection Services.<sup>69</sup> That was the conclusion reached by one scientist at the National Institute of Scientific Research, who linked the difficulties of the Environmental Protection Services to “its role as a standard-setter and not that of an architect governing the implementation of equipment.”<sup>70</sup> The Environmental Protection Services felt these



difficulties keenly when it came to the financing of wastewater treatment plants and the inception of construction projects. Its authority was further undermined when municipalities opposed each other or confronted the provincial government, especially over matters concerning the devolution of responsibilities for the source of river contamination and the residual authority to manage the infrastructure needed for decontamination. For example, when the Environmental Protection Services issued an order requiring Saint-Hyacinthe to undertake the construction of a regional intercepting sewer in 1976, the municipality appealed to the Quebec Municipal Commission, invoking the inadequacy of the provincial government's contribution to the financing of construction.<sup>71</sup> Representatives of Saint-Hyacinthe, Granby, and other municipalities claimed that the statutory subsidies provided to assist municipalities in the decontamination of the river basin were inadequate, and that, "[given] the magnitude of [the] task," it amounted to "a provincial responsibility in the same way as for other public services."<sup>72</sup> They also argued that the number of municipalities asked to contribute to the decontamination of the river was too small when one considered all the municipalities implicated. According to them, rural municipalities contributed to the pollution of the Yamaska as much as any urban centre, especially because of agricultural runoff, yet little was demanded of them.<sup>73</sup>

Difficulties in obtaining cooperation among river users became more complex when the provincial government attempted to coordinate its departmental interventions for the integrated management of the Yamaska River. Following a study on the hydro-electric development of the upper Yamaska River produced for the Department of Natural Resources,<sup>74</sup> an order-in-council of 3 July 1968, declared the Yamaska River basin a "special area for water management." Thereafter, the Quebec Planning Office developed a river basin management plan for the Yamaska (Plan Yamaska).<sup>75</sup> The office attempted to reconcile all users and uses of the Yamaska at the scale of the basin, starting with provincial government departments: Natural Resources for flow regulation and flood protection, Lands and Forests for reforestation and protection of the river banks, Agriculture for land drainage and irrigation, Tourism, Fishing, and Hunting for recreational activities, and Municipal Affairs (including the Quebec Water Board and the Environmental Protection Services) for water supply and wastewater treatment.

Through this pilot project, the Quebec Planning Office articulated a model that it wished to export across the province for the "rational management" of rivers. Its goal was to stimulate the socioeconomic development of large municipalities on any given river basin, and water pollution was only one of several dimensions that river users were required to consider. In line with the guidelines of the Water Board, the plan addressed urban municipalities, but at the expense of rural areas.<sup>76</sup>

However, the Yamaska River ran in a region at the forefront of the intensification of agricultural production in Quebec, and it was particularly affected by fertilizer runoff and animal waste. In the early 1970s, the local press regularly reported cases

of pig slurry spills in the river.<sup>77</sup> In 1977, inspectors from the Environmental Protection Services took a pig farmer to court for dumping manure directly into the Yamaska. Despite the fact that the Saint-Hyacinthe District Superior Court found the producer guilty,<sup>78</sup> the use of the river as a manure disposal pit exposed many shortcomings in the monitoring of agricultural waste. This situation resulted in part from the difficult interdepartmental management of the Plan Yamaska. For example, the Department of Agriculture made the drainage of agricultural land a priority, and runoff actually increased, despite measures by the Department of Lands and Forests, such as the reforestation of riverbanks, to reduce the impact of agricultural activities on the river. The department's priority of increasing agricultural production had little to do with the Plan Yamaska in terms of impact on water quality, in addition to nullifying attempts by the Department of Lands and Forests to control soil erosion and sediment runoff.<sup>79</sup>

Furthermore, agricultural waste was not the sole contaminant that governmental policies neglected and that deterred urban municipalities from establishing wastewater treatment facilities.<sup>80</sup> Heavily present in many towns along the Yamaska River, textile manufacturers were often accused of discharging dyes in the river, especially after episodes of "red water crisis."<sup>81</sup> A first episode deprived the people of Saint-Hyacinthe of drinking water for eleven days in 1972, and subsequent episodes offered the local press and the mayor of Saint-Hyacinthe, Pierre-André Hamel, opportunities to criticize the Environmental Protection Services for its inability to find the source of the contaminant, highlight its "incompetence" and "negligence," and even describe its performance as "absolutely pathetic."<sup>82</sup> The Environmental Protection Services suspected a carpet factory in Acton Vale, the Peerless Rug Company, of dumping dyes and detergents into the Black River, a tributary of the Yamaska, ten kilometres upstream from Saint-Hyacinthe, but could not establish "a link of judicial value between the company and the substance that affected the filtration plant in Saint-Hyacinthe."<sup>83</sup> Furthermore, it argued that it was impossible to identify substances in the water without the cooperation of the nearly 175 industrial plants operating upstream from Saint-Hyacinthe.

Thus, the production of one large territory around the Yamaska through an integrated scheme of river basin management brought together municipal and provincial governmental institutions with different leverage—rural and urban municipalities, and provincial government agencies and departments. They not only had to reconcile their activities and uses of the Yamaska River, but also their understanding of who was responsible for the causes of water pollution, as the alternate singling out of contaminants of domestic, industrial, and agricultural origin thwarted riverine relations.

### *Shawinigan and Trois-Rivières on the Saint-Maurice River*

While the provision of drinking water for domestic use became the most pressing issue around the Saint-François and

Yamaska Rivers, debates on the contamination of the Saint-Maurice River revolved mainly around recreational uses. A lower urban density around the Saint-Maurice meant that a smaller volume of municipal effluents was discharged into the river than into the Saint-François or the Yamaska. Debates on drinking water quality were all the more attenuated by the fair distance that separated the riverine municipalities, as was the need for regional cooperation to coordinate the uses of the Saint-Maurice or to construct wastewater treatment facilities for downstream municipalities.

For industrialists and politicians alike, the flow of the Saint-Maurice sufficed to dilute the pollution load of effluents, despite the fact that heavy industry punctuated the course of the river.<sup>84</sup> For example, Shawinigan, arguably the cradle of the second industrial revolution in Canada, housed an aluminum smelter and electrochemical plants whose effluents included phenolic compounds, lime, and various heavy metals. Moreover, the Saint-Maurice, just like the Saint-François, was well endowed with pulp and paper mills; the Canadian International Paper in La Tuque, the Laurentide in Grand'Mère, the Belgo in Shawinigan, and the Wagayamack and St. Lawrence Paper in Trois-Rivières put the Saint-Maurice River at risk, both from industrial effluents and log driving activities. The river presented a high degree of contamination from "black liquor"—a residue from manufacturing processes containing sodium hydroxide, lime, sulphide, and organic acids—and suspended solids from decomposed logs. Yet, in the two decades following the Piché and Allard studies of 1955 and 1956, the Saint-Maurice remained impervious to the controversy generated by those studies, as the policies selected by the provincial government to address the problems were related to the safety of drinking water and the treatment of domestic wastewater.

Rather than having "to filter and treat the water of the river," most riverine cities opted not to draw their supply from the Saint-Maurice. Thus, in Shawinigan, issues around a safe water intake stirred up city council meetings against the municipality of Grand'Mère, located upstream, but less to denounce the discharge of its effluent into the Saint-Maurice than to assert the right to pump water from a lake on its territory.<sup>85</sup> The occasional complaint was heard from two municipalities downstream from Shawinigan. In Baie-de-Shawinigan, residents denounced the odours emanating from the Shawinigan River, a tributary of the Saint-Maurice bordered by the Belgo pulp and paper mill and the electrochemical plants of Canadian Industries Limited and DuPont Company.<sup>86</sup> However, as Shawinigan had provided the village with drinking water since 1921 for the very reason that Shawinigan's sewage poured into the Shawinigan River upstream from the village's water intake, such recriminations were ineffectual.<sup>87</sup> For its part, Shawinigan-Sud, also connected to the aqueduct of the City of Shawinigan, prohibited access to the municipal beach and advised against swimming in the Saint-Maurice in 1950.<sup>88</sup>

Unlike these isolated disputes, which did not translate into sustained public mobilizations, the recreational use of the

Saint-Maurice did stir up controversy. In Shawinigan, journalists complained that the sole occupants of the riverbanks around the city were the lime deposits from industrial wastewater. They also condemned the indifference and cowardice of people "who couldn't care less about water pollution," which illustrates that the population exhibited a degree of tolerance by continuing to swim in the river.<sup>89</sup> Located on Melville Island, facing the city, the Shawinigan Swimming Club found itself facing water whose quality was deteriorating, "which made swimming in the waters of the river dangerous for its members."<sup>90</sup> Yet, in 1961, the club had been reorganized to found a corporation that could raise the money needed to build a swimming pool for its members. Located on a beach on Melville Island, the "pool" was a swimming area set up in the middle of the Saint-Maurice River.<sup>91</sup>

At this latitude of the Saint-Maurice River, the main contaminant was not a tiny fecal coliform, but rather the four-foot logs driven down the river by the hundreds of millions. As far as the members of the St. Maurice Boating Club in Shawinigan were concerned, the St. Maurice River Boom and Driving Company prevented the normal practice of navigation on the river. The company stopped its activities to allow for the two weeks of the International Classic—a canoe race between La Tuque and Trois-Rivières—but otherwise, logs crowded the river. A water body some one hundred kilometres long between La Tuque and Shawinigan, the river was an attraction for the members of the St. Maurice Boating Club, who demanded that the Boom and Driving Company mark off a log-free channel throughout the boating season. Thanks to the growing popularity of power boating, yacht clubs in Shawinigan and the neighbouring towns of Grand'Mère and La Tuque secured the Boom and Driving Company's promise to cease its activities during summer weekends, but no more.<sup>92</sup>

The situation was different in Trois-Rivières, whose supply of water from the Saint-Maurice River had been a source of difficulties since the beginning of the twentieth century.<sup>93</sup> Located at the confluence of the Saint-Lawrence, the portion of the Saint-Maurice facing Trois-Rivières was the recipient of its sewage, as well as that of Cap-de-la-Madeleine, the neighbouring town on the other bank. In 1946, the City of Trois-Rivières contemplated getting all its water through tubular Layne wells drilled by International Water Supply. After a wave of drilling, it ceased pumping its water from the Saint-Maurice and using chlorine in its water.<sup>94</sup> However, after reaching 90 per cent in 1946, the proportion of water supplied by wells fell below the 50 per cent mark in the mid-1950s, and Trois-Rivières resumed pumping drinking water from the Saint-Maurice. After the discovery of impurities—*crenithrix* bacteria—in the wells, the city acknowledged having to abandon this alternative mode of supply and build a new treatment plant to purify the water pumped from the Saint-Maurice.<sup>95</sup> The plant began its operation the same year that the Water Purification Board was created. Yet the cities of Trois-Rivières and Cap-de-la-Madeleine continued to install sewers on the shores of the Saint-Maurice, including two in the open "that spread a foul and suffocating smell."<sup>96</sup> Trois-Rivières

did not reconsider the workings of its own sewage system and its discharge into the Saint-Maurice River, but in January 1962, the city council asked the board to investigate the sewers of Shawinigan Chemicals, an electrochemical company established upstream on the shore of the Saint-Maurice, and those of Shawinigan and Grand'Mère, because Trois-Rivières had to use large quantities of chemical products at its filtration plant to fight the "impurities found in the raw water."

While the population tolerated unpalatable, heavily chlorinated drinking water altered by industrial and municipal effluents, public discontent became manifest when the river's recreational uses were compromised. In the summer of 1962, the City of Trois-Rivières opened a municipal beach on Saint-Quentin Island, at the confluence of the Saint-Maurice and Saint-Lawrence rivers, for its residents and those of Cap-de-la-Madeleine.<sup>97</sup> Since acquiring the island in 1947, the city had set up a beach, and the St. Maurice Yacht Club had built a marina to accommodate the growing number of outboards. In 1966, rashes and earaches among young children led a biologist from the Centre for University Studies in Trois-Rivières, Guy Vaillancourt, to warn against the dangers of swimming in the Saint-Maurice. He sampled the river to assess its degree of contamination and found an *E. coli* concentration of twice the threshold value.<sup>98</sup> Because these results jeopardized the use of the municipal beach, the city council decided to use chlorinating rooms for wastewater treatment to make bathing safe again. The following summer, however, the Committee for the Development, Purification, and Water Protection of the Mauricie, chaired by Vaillancourt, found that water contamination at the Saint-Quentin Island beach reached five times the standards set by the Department of Health. According to Vaillancourt, and much to the annoyance of the mayor of Trois-Rivières, René Matteau, the chlorination rooms were ineffective.<sup>99</sup>

Debates on the safety of the water for swimming resumed annually between Vaillancourt and the city's mayor (or its engineers).<sup>100</sup> The city contemplated redirecting its sewage to the Saint-Lawrence to protect the swimmers of the Saint-Maurice, but did not proceed. Then, in 1970, the city obtained a loan for the construction of a new interceptor, but the council decided to divert the money to construct storm sewers connected to the existing system. For the general manager of Trois-Rivières, water pollution of the Saint-Maurice River was due to upstream municipalities and the discharge from their industrial and domestic sewers.<sup>101</sup> Moreover, he expressed satisfaction about the workings of chlorinating rooms located at the outlet of the main sewers. In the summer of 1971, Professor Vaillancourt once again demonstrated the presence of *E. coli* beyond the permissible standards, but the director of the city's recreation department dismissed these warnings. The beach on Saint-Quentin Island remained accessible, but the people of Trois-Rivières abandoned it and frequented the city's swimming pools instead.<sup>102</sup> Finally, in 1973, the recreation department did not assign any lifeguards to Saint-Quentin Island and posted signs warning the population that swimming at the site was not

recommended.<sup>103</sup> That same year, the provincial Environmental Protection Services ordered the City of Trois-Rivières to push back its water intake in the Saint-Maurice River without delay.<sup>104</sup>

Despite the intensive industrial activity around the Saint-Maurice River and the concomitant pollution load, a systematic study of the river and its water was undertaken only in 1973, when the Environmental Protection Services launched the second phase of the Quebec river survey initiated by the Water Board in 1968.<sup>105</sup> Conducted to "qualify and quantify all sources of pollution and analyze their effects on the quality of water throughout the river basin," the survey identified the sources of domestic and industrial pollution in Trois-Rivières, Shawinigan, Grand'Mère, and La Tuque, with sampling stations located upstream and downstream from those municipalities. Biologists, who were asked to assess "the self-purifying power of the river,"<sup>106</sup> and to determine how "water quality conditions the presence of recreational development," found that the flow of the river no longer eliminated compounds discharged by pulp and paper mills or restored oxygen mobilized by decomposing organic matter.<sup>107</sup> Yet, as late as 1980, a representative of the Department of the Environment was still able to claim that "the Saint-Maurice will regenerate itself with pure water from the north."<sup>108</sup> Thus, the self-cleansing power of the river to mitigate the risks associated with recreational water use remained firmly anchored in the representations of the Saint-Maurice, while filtration plants palliated the lack of water treatment facilities for municipal and industrial effluents.

### *Conclusion*

Two years after its creation in 1973, the Environmental Protection Services had its budget slashed by the Liberal government, thereby limiting the effectiveness of its interventions against water pollution across the province. Moreover, in conjunction with the federal government, it focused its efforts on municipal effluents discharged into the Saint-Lawrence River, thereby neglecting the contamination of urban streams throughout the province except for in the large urban communities of Montreal, Quebec City, and Hull.<sup>109</sup> Industrial effluents, it claimed, could not be remedied systematically because of the difficulty of accurately identifying the point source of contamination. Following the election of a new provincial government in 1976, the designation of separate departments for municipal and environmental affairs was an opportunity to boost the earlier efforts of the defunct Water Board with the launching of the Quebec Water Purification Program in 1978.

The lack of fiscal resources and political will was not the only problem preventing the construction of municipal wastewater treatment facilities. The six riverine communities studied in this article all faced water contamination, but they did not react homogeneously to the provincial government's initiatives. Although water pollution emerged as a public problem more or less simultaneously throughout the province, the identification of its causes and remedies raised locally specific issues that inhibited the implementation of a single solution.

Local debates illustrated the limited effectiveness of provincial policies and the inability—or lack of inclination—of political authorities to capture the political dynamics in regional settings. Inter-municipal and intergovernmental relations also revealed people's perceptions of the scope and intensity of environmental damage and health threats, and consequently how the phenomenon of pollution was understood and defined. The regionalization that the provincial government started to implement from the 1960s on may have facilitated the workings of the Quebec Water Purification Program, since municipalities were now sharing administrative institutions to arbitrate competing interests. Moreover, by expanding the fluvial space affected by the presence of contaminants, these institutions extended the number of community members called upon to react to the alteration of the riverine environment, and provided a forum for the articulation of a common understanding of pollution problems. They also erased the advantages offered by access to alternative watercourses for environmental amenities and drinking water supply for populations that discharged their untreated effluents into rivers yet remained unaffected by their deteriorating water quality. These factors contributed to the local articulation of what represented a nuisance and were decisive for the three rivers studied, where stakeholders' inability to reach agreement on what needed to be done first to address water pollution rendered the treatment of wastewater downstream of questionable value. Unlike these medium-size municipalities, large urban centres had to deal with smaller suburbs, but rarely did they have to negotiate with neighbours of similar size or equivalent political strength.

While governmental initiatives appear to have ignored the perception of a nuisance and its acceptability for specific communities, local debates did inform water pollution policies at the provincial level. Far from strictly constituting a national phenomenon, pollution was a local reality whose dimensions were measured according to a community's extent across the river drainage basin and its mobilizing capacity, the number and political strength of stakeholders involved in the negotiations surrounding the installation of wastewater treatment facilities, the type of contaminants to be considered and the acceptable level of contamination, the availability of an alternative water body, and the type of riverine uses to be abandoned. All these elements shaped the space of contestation and contamination. Along with the consolidation of regional governments to arbitrate diverging interests and the amalgamation of municipalities that enlarged the population and territory to be served by the river, they contributed to a reformulation of what constituted a nuisance for the provincial government.

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