

MOVING NATURES: Mobility and the Environment in Canadian History Edited by Ben Bradley, Jay Young, and Colin M. Coates

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Creating the St. Lawrence Seaway: Mobility and a Modern Megaproject

Daniel Macfarlane

An engineering marvel and the largest combined navigation and power project of its kind in the world, the St. Lawrence Seaway and Power Project was a definitive Canadian transportation megaproject. Built cooperatively by Canada and the United States between 1954 and 1959, the seaway runs almost three hundred kilometres from Montreal to Lake Erie. It features a deep canal system, fifteen locks, hydroelectric development facilities, and four dams. In conformity with a high modernist vision of technology, progress, and transportation, the St. Lawrence River had to be remade to fit modern conceptions of mobility. As anthropologist James C. Scott has explained, high modernism is the hubristic belief in the ability of scientific and technological progress to allow modern states to harness, control, and order nature—and society—to make it legible, maximizing utility and efficiency. Engineers sought to rectify the “errors” in the river, to allow inland deep-channel navigation for vessels from across the world and harness its waters to produce hydroelectricity. Experts believed nature was something to be

conquered, corrected, and improved. Wider spatial changes associated with the project would create a more ordered, centralized society. Not even entire towns should be allowed to stand in the way of progress.

This chapter draws from the Canadian experience of the seaway in order to underline the environmental implications and unintended consequences of a high modernist mobility regime. The massive re-shaping of the St. Lawrence riverine basin and connected water- and land-based transportation networks could be achieved only on a high modernist scale. The St. Lawrence project both enabled and remade numerous conceptions and forms of mobilities, some intersecting, others contradictory.

Rapid Changes: Altering the St. Lawrence's Waterscapes and Landscapes

The St. Lawrence River drains a vast basin of more than 1.3 million square kilometres, including the Great Lakes, the largest combined body of fresh water in the world. Before running to the Atlantic Ocean via Quebec, the St. Lawrence forms the border between Canada and the United States—or, between Ontario and New York, to be more precise. The third-longest river in North America, the St. Lawrence has long served as a major transportation artery. First Nations peoples have lived along the river for centuries and initial waves of European settlement in Canada used its basin as a focal point for travel, trade, and defence. Since the early nineteenth century, shallow canals improved navigation by bypassing rapids and other natural obstacles along the St. Lawrence. Discussions of a binational deep waterway had begun during the late nineteenth century, and plans for hydroelectric development had soon followed. In the early twentieth century, the value of a seaway and power project for defence and industrial growth led to transborder agreements that ultimately failed to receive the assent of the U.S. Senate. But after the end of World War II, the economic and defence benefits—particularly the ability to move newly discovered Ungava iron ore deposits from northern Quebec to Great Lakes steel mills—sparked further interest. After the United States forestalled

Ottawa's attempt at an all-Canadian seaway, Canada reluctantly acquiesced to a joint seaway and power project in 1954.

The St. Lawrence undertaking was a complex and highly integrated navigation, power, and water-control project on a scale much larger than previous transportation improvements along the river. The project created approximately 110 kilometres of channels and locks, rerouted others, and required many more kilometres of cofferdams and dikes. Construction cost more than US\$1 billion: \$470.3 million split between Canada (\$336.5 million) and the United States (\$133.8 million) for navigation aspects, and \$300 million each on hydro works. In excess of 210 million cubic yards of earth and rock—more than twice that of the Suez Canal—were moved through extensive digging, cutting, blasting, and drilling, using a litany of specialized equipment and enormous machines.

The bilateral, transborder nature of the undertaking meant that multiple levels of government bureaucracy and joint boards were responsible for the project. Both federal governments had jurisdiction over the seaway part of the dual navigation/hydro project. The U.S. Army Corps of Engineers and Canada's St. Lawrence Seaway Authority (SLSA), under the supervision of the St. Lawrence Seaway Development Corporation, handled construction of navigation works. The Province of Ontario and the State of New York were responsible for hydro installations through their respective utility commissions, the Hydro-Electric Power Authority of Ontario (HEPCO, or Ontario Hydro) and the Power Authority of the State of New York (PASNY). Governments on both sides of the border contracted out actual construction to private companies (which tended to form conglomerates in order to bid on the huge contracts) and the bilateral Joint Board of Engineers oversaw such work.

Given the project's magnitude, its completion on schedule was an amazing feat. The St. Lawrence project required three new dams in addition to the pre-existing Beauharnois power dam just west of Montreal. The Moses-Saunders powerhouse, a gravity power dam with thirty-two generator units, was a Canadian-American bilateral project. The Iroquois control dam regulated water levels on Lake Ontario and the St. Lawrence River and, along with the Long Sault dam upstream

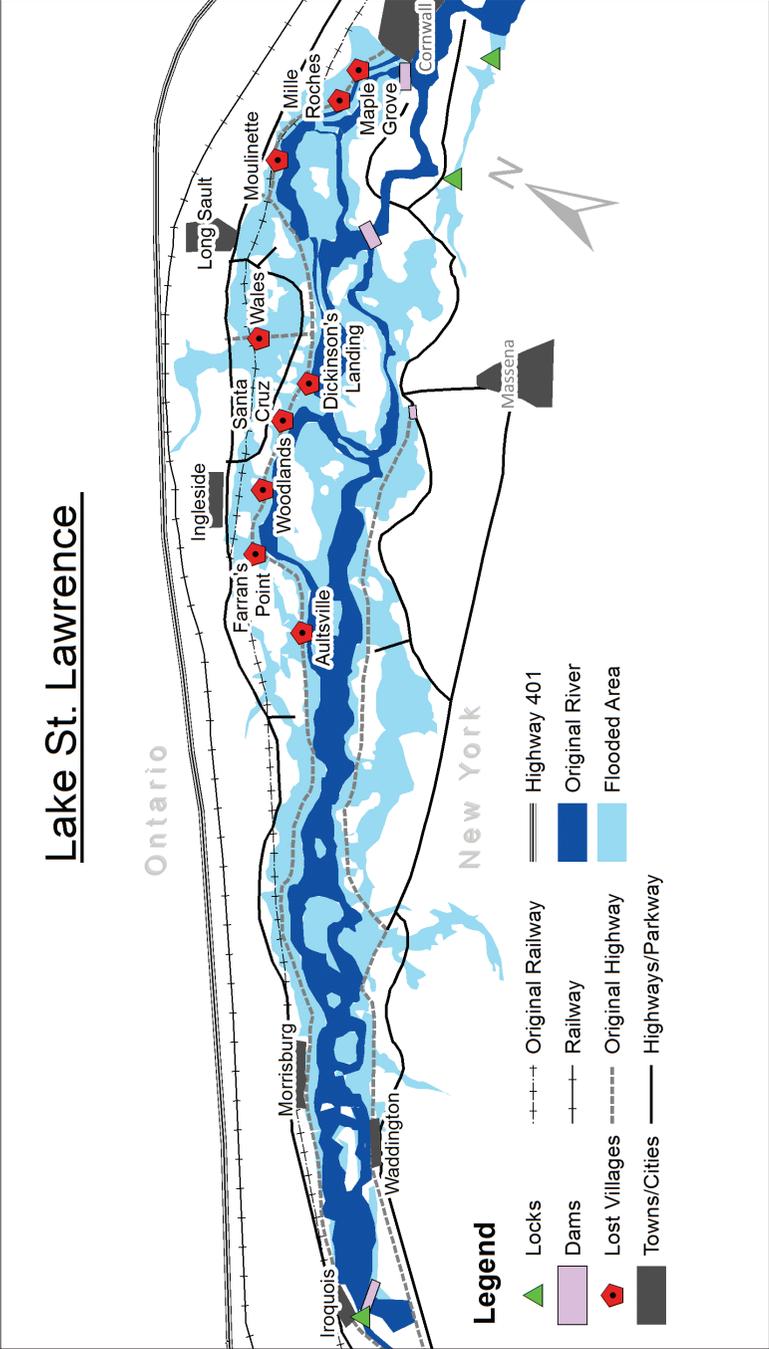


FIGURE 5.1. Lake St. Lawrence and the Lost Villages. Map by author.

from the Moses-Saunders dam, helped raise and control water levels in order to create Lake St. Lawrence. This constructed body of water, more than six kilometres across at its widest, inundated some twenty thousand acres of land on the Canadian side, between the towns of Cornwall and Iroquois, as well as eighteen thousand acres on the American shore.

The creation of Lake St. Lawrence, which served as the reservoir for the Moses-Saunders hydroelectric dam while also deepening the water for navigation, required the largest rehabilitation project in Canadian history. Towns, infrastructure, and people were moved, replaced by water and memories of these “Lost Villages.” From west of Cornwall to Iroquois, on the Canadian side of the International Rapids Section (IRS), the scale of relocation was massive: more than two hundred farms, nine villages and three hamlets, eighteen cemeteries, around one thousand cottages, and more than one hundred kilometres of the main east–west highway and railway. In order to avoid navigation and other difficulties on the new lake, HEPCO had to move, raze, or flatten *everything*, including trees.¹ HEPCO compensated those it relocated and performed an enormous public relations effort. Numerous people along “the Front,” as locals referred to the area, chose to transport their houses via special vehicles to new communities—Ingleside and Long Sault—that had been created west of Cornwall and farther north of the St. Lawrence to house the displaced residents. Two communities, Iroquois and Morrisburg, were just shifted north.

The perceived ability to master nature and order society extended to the planning of the towns that replaced the Lost Villages. HEPCO designed the new model “modern” towns based on the latest planning principles: homes with basements; street systems of curvilinear roads instead of a grid pattern; and modern sewer, water, and hydro facilities.² By reorganizing spatial and physical environments and providing more efficient access to services, planners sought to improve the lives of residents. The people of the upper St. Lawrence Valley were repeatedly told by government and industrial officials that their region would become “the greatest industrial area in the Dominion of Canada.”³ To these decision makers, spatial change and increased efficiency promised to



FIGURE 5.2. Moses-Saunders dam under construction, c. 1956. Courtesy of Ontario Power Generation.

simplify political and economic structures while also enhancing their control of the community and region.

As with other high modernist projects, resettlement was a key part of the seaway undertaking. Resettlement allowed politicians and planners to reorganize scattered riverfront communities in a more rational manner by consolidating a string of small villages and hamlets, which had evolved since the early nineteenth century, into central towns. These hubristic efforts sought to make the landscape “legible” through simplification, abstraction, and standardization by privileging scientific and bureaucratic expertise over local knowledge and tradition. Decision makers used technological expertise to control nature and employ it to extend government power through the reordering of society. As a state-building exercise controlled by centralized bureaucracies

aiming to reorder the natural environment for the sake of progress, and in turn attempting to organize and regulate Canadian society, the St. Lawrence scheme certainly reflects key elements of high modernism.⁴

High modernist planning was more flexible and responsive in North America during the early Cold War era than in authoritarian states. Moreover, particular forms of Canadian nationalism and conceptions of water, environment, and society infused the project.⁵ Tina Loo and Meg Stanley have convincingly shown there was actually an intimate engagement with place in Canadian postwar dam-building efforts, a high modernist local knowledge defined by detailed and intimate awareness of specific environmental locales.⁶ In short, we see what I call *negotiated* high modernism: lacking the centralized and autocratic authority to simply impose schemes without some measure of consent from civil society and other parts of the state, the Canadian and American governments—at both federal and state/provincial levels—repeatedly had to negotiate and legitimize themselves and their high modernist vision of the St. Lawrence in relation to the specificity of particular natural environments and the societies they aimed to control.

Manipulating Mobility: Waterways and Highways

The rehabilitation of communities surrounding the St. Lawrence Seaway and Power Project presented an opportunity to change the patterns and scales of mobility so that residents could better participate in centralized societal, industrial, and governmental economic systems. In other words, government planners redesigned the towns with increased mobility—albeit of a certain kind—in mind. The original plans that HEPCO created for the displaced communities (designed by University of Toronto professor Kent Barker) underwent significant revision in response to local desires, but the final result still reflected a high modernist ethos underpinned by governmental and expert aims. Centrality and efficiency of movement were key concepts guiding the new settlements. A long and narrow system of towns spread along the waterfront made way for new towns with curved streets, crescents, and walkways—all designed to slow traffic and reduce the number of streets

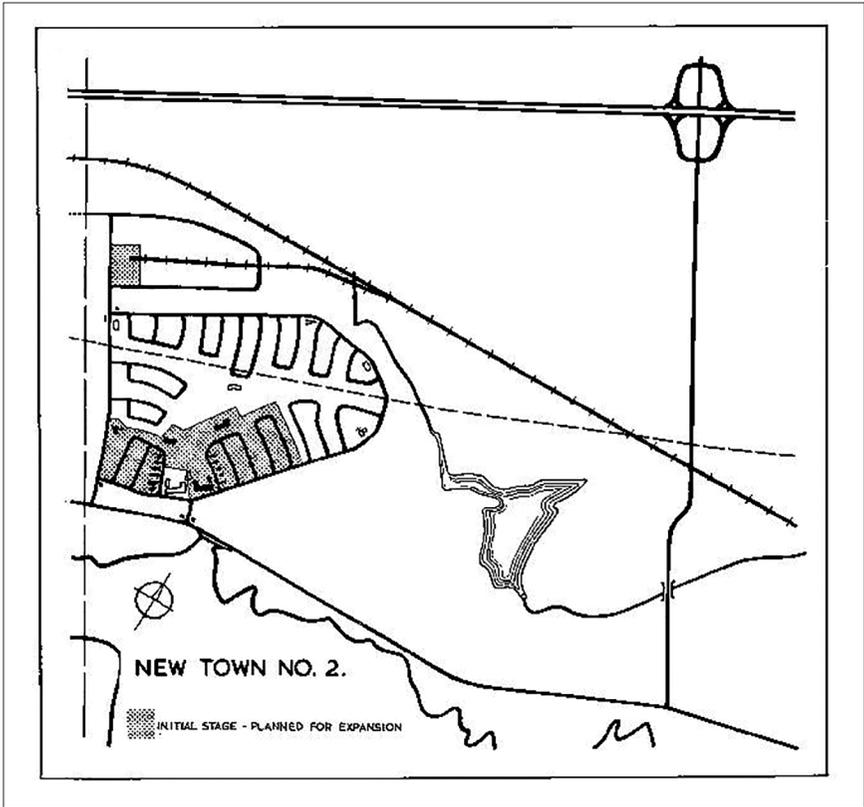


FIGURE 5.3. Plans for New Town No. 2 (Long Sault). Courtesy of Ontario Power Generation.

and intersections pedestrians had to cross. As Joy Parr has shown in her unique study of New Iroquois, changing pedestrian mobility altered sensory experience.⁷ Planners grouped together major services and amenities, such as grocery and retail stores, in centralized plazas and strip malls (new developments during the postwar era) and located schools, churches, and parks to maximize access for all residents.⁸ Decision makers believed that the improvement of street design and the relocation of highways and railroads on the edge of town would increase safety, compared with the former highways that ran directly through the downtowns.

The Ontario government sought to democratize riverfront access and, at least in theory, residents did have greater access to the water after construction was completed. Almost the entire waterfront on the Ontario side of the IRS became parkland (though much of this was unsightly mud flats) or was owned by Ontario Hydro, which prohibited building along the water's edge because of a concern for rising water levels. Yet, in other ways, aquatic access diminished. The new towns of Iroquois and Long Sault were built much farther back from the shore than their predecessors. Aside from two islands and a few other isolated pockets, private residences on the waterfront were forbidden.⁹ In many cases, including lands along the Long Sault Parkway, displaced residents as well as the general public had to pay fees to use the parkway.¹⁰

Despite the lofty intentions of democratizing riverside access, the St. Lawrence project was an imperialist and colonizing project that followed the logic of industrial capitalism. Reconfiguring the environment implicitly carried with it ideas about reshaping social and economic structures, as agricultural land would be converted to what the Canadian and American governments considered to be more modern purposes: creating the head of water sufficient to produce hydro power and allow deep-draft navigation.

Imperialist ambitions became even more apparent in the treatment of the First Nations groups in the way of the seaway. The Kahnawake Mohawk community, located on the south shore of the St. Lawrence across from Montreal, had historically developed their transportation, economic, and social networks around access to the river. With the seaway, the community suddenly found itself severed from the river, both physically and metaphorically, as the new navigation channel cut through the shoreline. The transnational Akwesasne Mohawks, situated astride the Ontario-Quebec-U.S. border, lost less land than did their downstream counterparts, but parts of the reserve were similarly taken for bridges and canals and the surrounding landscape was reshaped by dredging and spoil disposal. Members of the two reserves were treated as second-class citizens in comparison to the Lost Villagers. Reserve land ownership tenure also made it easier for the government to take property. At the same time, the Akwesasne and Kahnawake showed less deference to authority than did the Lost Villagers and did not



FIGURE 5.4. St. Lawrence Seaway channel at Kahnawake with Montreal in the background, c. 1960. Courtesy of Library and Archives Canada.

passively accept the state's demands. The seaway experience marked a major turning point in the history of the Mohawk relationship to the Canadian state.¹¹

The paramount motivation behind the seaway lay more with the mobility of goods than people. In fact, the project exacerbated a shift in personal mobility from water-based modes to other transportation alternatives that could move goods at and across much larger scales. The Canadian state prioritized the movement of bulk cargo across the continent and globe over small-scale, recreational trips on the river. Residents of flooded communities lost their beloved fourteen-foot canals and their ease of access to the river.¹² The loss of these canals hurt local industry and small-scale and personal economic enterprises, as well as social and recreation opportunities. After the project's

completion, boaters could navigate with ease the former rapids sites in the IRS, as a placid Lake St. Lawrence had subsumed the cataracts. However, the need to transit the locks (at Iroquois, boats under twenty feet can generally go through the control dam rather than the lock) and the channels set off for seaway ships impeded the ability of recreational users to move significant distances on the river. Along with the significant cost and the lower priority assigned to pleasure boat use of the locks, commercial shipping trumped the mobility demands of recreational users.

The international border thickened for local travellers following completion of the project. People found it much more difficult to cross the riverine international boundary without a motor vehicle or a private watercraft. To encourage automobile travel, the ferries that had previously plied the river crossing were replaced by bridges, and one of the bridges eventually removed pedestrian access. Even car users faced significant driving distances to one of the new high-level spans if they were not lucky enough to be located near the two bridges that now traversed the IRS. Travellers faced bridge tolls and eventually required official transborder documentation such as passports. Changes to personal mobility related to the seaway, then, allowed the state better control and surveillance of the movements of its citizens, as border crossings were now rigorously enforced compared to previous decades. This thickening of the border has become even more pronounced in the post-9/11 era.

Although the project altered the capabilities of water-based transportation, it also reordered rails, roads, and other infrastructure. With completion of the project, Ontario designed a new route for King's Highway 2, a road that had connected the communities of the north shore along the St. Lawrence for centuries and was the major highway between Toronto and Montreal. The province also used the opportunity provided by the seaway construction and dislocation of Highway 2 to begin extending Highway 401, a major limited-access autoroute between Windsor and the Ontario-Quebec border. People now channelled onto the modern freeway instead of journeying to urban centres along perilously narrow yet rustic thoroughfares such as old Highway 2. Government planners, following North American



FIGURE 5.5. Old road into Aultsville near the former intersection with Highway 2.
Photo by author.

postwar transportation trends, explicitly aimed to orient daily mobility in the region towards private automobiles. This process transformed the rhythms of life along the St. Lawrence. The new towns increasingly served as bedroom communities to larger centres such as Cornwall, with attendant changes to the character and structure of the smaller communities. A growth in auto traffic may have led to an increased potential for tourists, but the freeway also meant that the new communities along the river could be more easily bypassed and ignored.

Economically and socially, the Lost Villagers were reoriented away from the river towards metropolitan centres whereas Great Lakes–St. Lawrence port cities were conceptualized as directly connected to each other and foreign ports. This shift favoured large-scale transport via deep-draft vessels for resources such as iron ore from Ungava, steel produced in Hamilton and other Great Lakes factory cities, and wheat and other agricultural crops from western North America. As Timothy Heinmiller has argued, the St. Lawrence was reconceived, changing from a “river” to a “seaway”—or, more evocatively, a “marine super-highway.”¹³ The seaway, mirroring Highway 401 to its north, enabled traffic to move at consistently higher speeds, by restricting access and crossings as well as by isolating passengers and freight from the surrounding environment. Through law and the creation of modified channels and currents, planners facilitated the speeding up of east–west travel along the river at the expense of localized movements and travel across the border.

By changing the nature and scale of transportation routes, the seaway project and its related infrastructure modifications altered life in the region. Rhetoric and ambitious prognostications predicted that all inhabitants along the St. Lawrence would gain from its transformation. The seaway may have benefitted some groups, namely big industry and the state, but it also negatively affected many of those who lived along the St. Lawrence. While some settlements that remained along the St. Lawrence made economic gains during the construction phase and afterwards, much of the anticipated long-term prosperity in the area failed to materialize. Predictions made during the 1950s that the seaway would be of insufficient depth and proportions to handle future traffic were proven correct.¹⁴ Locks had been designed too small

to accommodate the larger vessels used for cross-oceanic container shipping, a burgeoning global phenomenon at the time. It had taken a half century for a successful bilateral agreement on the seaway, and the enormous cost of building new locks and deeper channels was politically prohibitive, if not impossible. From its inception, then, the seaway was somewhat obsolete, facilitating movement mostly within the Great Lakes–St. Lawrence system, compared to the grand visions of transoceanic shipping that its boosters had proclaimed over the decades.

Seaway Change: Environmental Consequences of Manipulating Mobility

The engineering prowess and brute force used to radically reconfigure a riparian landscape may have made the seaway seem like a human-made artifact, but in reality its transformation forged a new hybrid environmental system: the seaway, like all infrastructures of mobility, was both artificial and natural, a technology and an environment.¹⁵ As such, this transportation network has had enormous environmental repercussions since the 1950s. Water flowing downriver became more polluted after the creation of the seaway. Along with pollution caused directly by construction, large amounts of decomposing plant life released mercury into the water, and water released methane into the air. Submerged infrastructure also leached various types of toxins, such as oil and fertilizer, and other contaminants. Building the St. Lawrence Seaway and Power Project reconfigured the local ecosystem and disrupted its aquaculture by restricting the mobility of certain species. Biologist Richard Carignan even contends that the project created three separate channels or ecosystems along the river around Montreal, in contrast to the unified habitat that had existed before construction began.¹⁶ Dams blocked the movement of eels, which could no longer traverse the length of the river until authorities added eel ladders to the Moses-Saunders dam in 1974 and Beauharnois dam in 1994. Planners did give brief consideration to fishways at the beginning of project construction in the mid-1950s. In fact, the *Dominion Fisheries Act* required all dams to provide a fishway, subject to the responsible minister's interpretation. Nonetheless, the federal Department of Lands and Forests



FIGURE 5.6. St. Lawrence Seaway at Montreal. Courtesy of Library and Archives Canada.

decided to forego a fishway because of the greater cost of modifying dams along the St. Lawrence and the “general inefficiency” for the “presumed purpose.”¹⁷

Changes to the river led to other negative consequences for fish. Extensive dredging affected spawning and feeding grounds. Modified water flow and currents also transformed fish habitats, and the intimate relationship between the river and experienced fishermen and boatmen along the Front. Here, the St. Lawrence flowed no longer as a river, but as a lake. Although the greater surface area of the new Lake St. Lawrence led to a significant increase in the number of species living in the nearshore aquatic habitat, water levels were shallow and subject to frequent fluctuations of up to three metres caused by seasonal factors and dam operation.¹⁸

The long-term impact on wildlife is difficult to determine and largely based on anecdotal evidence. A relative lack of baselines and empirical evidence on pre-seaway conditions complicates our understanding of the situation, but some exceptions exist. In the two years before construction began, botanists from the Canadian Department of Agriculture studied plant life on the Canadian side of the St. Lawrence Valley. Reflecting the standardizing and synoptic aspects of the state’s high modernist logic, as well as the belief that progress justified environmental sacrifices, they predicted that the St. Lawrence project was unlikely to eliminate any unique species, particularly as the IRS “contained no species of specific floristic interest.”¹⁹ In the decades since the seaway opened for traffic, many elements of its local ecosystem have recovered and new species have thrived, testifying to the resiliency of nature.²⁰ For example, while some species of birds suffered, duck populations seem to have increased because of more conducive shoreline environment.

The disposal of spoil from construction and dredging also had an impact on various species’ access to the river. Although it is a challenge to track all dumping locations given the magnitude of the project and the various agencies involved, the bulk of the spoil seems to have become part of dikes and shorelines or been dumped on the river bottom. Construction firms used spoil to build the Cornwall dike on the river’s north shore and the Laprairie dike on the south shore.

Engineering blueprints show that other spoil sites included raised areas beside the Snell and Iroquois locks, the south shore opposite the Iroquois dam, and various underwater disposal sites such as the area between Sparrowhawk Point and Toussaint Island.²¹ But in some cases, firms also discarded material without much thought. In places such as Kahnawake and Iroquois, marine clay spoil proved a nuisance because it was more expensive and problematic to build upon. At Iroquois, contractors dumped spoil from nearby excavations on the former townsite, thereby saving the abandoned area from inundation by putting it above the new waterline. However, since this fill was marine clay, the former townsite along the riverfront was turned into parkland and an airport, giving the appearance that the town had not had to move at all.

Another prominent concern is that the ballast water from ocean-going vessels travelling through the seaway introduced invasive marine species, which have taken advantage of increased global mobility.²² These introduced organisms can wreak environmental and economic damage. Zebra mussels are among the most prominent examples because of their mass population explosion throughout the Great Lakes basin and their propensity to gather en masse on, and clog, water and power plant intakes. Other foreign species started ecological domino effects. Concerned governments or agencies apparently overlooked the possibility that the seaway could enable the infiltration of invasive species, despite the fact that exotic organisms had been known to move throughout the Great Lakes following construction of the Welland Canal. Of the more than 180 invasive species that have infiltrated the Great Lakes–St. Lawrence basin since the early nineteenth century, experts estimate that about one-third have arrived since the seaway’s opening in 1959.²³ However, recent research has complicated our understanding of invasive species and their links to ecological change. Some of the species that scientists have labelled as “invasive,” such as sea lamprey, may either predate the seaway or be native to the Great Lakes.²⁴ Moreover, invasive species were not an inevitable result of the seaway. For example, invasive species enter the seaway mainly via ships’ ballast water; if action had been taken earlier to regulate foreign vessels, many of these invasions might have been prevented. At any rate,

the seaway tended to circumscribe the mobility of native species while increasing the fluidity of foreign species.

In spite of high modernism's drive for domination, natural forces had a significant influence on the construction and operation of the seaway. Since canals require water for operation, location is based on local geography (many canal systems do lead away from their water supply, but in doing so require greater time, effort, and expenditure). In this regard, canals are more dependent on the environments in which they exist than are other transportation modes such as railways and highways. Seasonality was a key consideration, which is not surprising for a water-based route flowing through a northern country. As Ken Cruikshank underlines in his chapter on the Intercolonial Railway, the St. Lawrence ices over during colder months. From the earliest contemplations of a St. Lawrence project, winter ice formation—particularly frazil ice—had concerned engineers.²⁵ During the 1950s, ice seemed to be the one natural force that experts feared was beyond their ability to control. They worried that ice jams would form at the dams or in the river, causing floods, damage, and reduced power production. Ice also restricted the movement of ships. But these icy challenges only inspired these engineers to work harder to subdue such natural forces.²⁶ Engineers experimented with dam designs, altered river flows and temperatures, brought in icebreaking ships, and created booms in order to alter ice formation patterns. Since the seaway's opening, technological advances such as bubblers have lengthened the shipping season to the point that the seaway is now closed for only about three months, starting at the end of December. Yet environmentalists are concerned about the environmental damage, claiming that practices to extend the navigability season lead to shoreline scarring and other negative consequences for the ecosystem.²⁷

Conclusion: A Mixed Mobility Legacy

The St. Lawrence Seaway and Power Project has a mixed legacy. As demonstrated in 2009 by the subdued fiftieth anniversary of the seaway's opening, the St. Lawrence project is uncelebrated in the Canadian imagination, particularly when compared to other national

transportation megaprojects. This likely stems from the abandonment of the all-Canadian plan for a joint bilateral seaway, the failure of the deep waterway to live up to expectations of bulk cargo traffic, and its social and environmental consequences. Advocates of seaway expansion contend that the lower emissions and fossil fuel consumption of bulk water transportation make it environmentally friendlier than alternatives such as road and rail.²⁸ Perhaps significant fossil fuel and transportation paradigm shifts in the future will make the seaway more attractive than alternative modes. Even though seaway traffic did not meet the lofty prognostications, it is important to acknowledge that it did function largely as the experts had planned, and much of the environmental damage was considered a necessary side effect of reaping the megaproject's benefits. The hydroelectric-generation side of the project generally fulfilled expectations and aided Ontario's industrial expansion.

A canal was an old technology by the mid-twentieth century, an apparently odd fit with the futuristic and progressive outlook associated with high modernist megaprojects. Though canals may have seemed in some ways anachronistic by this time, the seaway's deepwater route could simultaneously combine romantic Canadian nationalist ideas about the St. Lawrence with progressive ideas about technology, transportation, sovereignty, and the conquering of nature. Moreover, larger canals built during the past century were often associated with technological advancement because they enabled the passage of massive modern vessels; contributed to the movement of iron ore, steel, and other goods fundamental to industrial capitalism; and fuelled hydro dams that produced the electricity necessary for the high modernist vision.

A hubristic reordering of nature and infrastructure dominated visions of the St. Lawrence Seaway and Power Project. Key to this vision was a transformation of the nature and scale of water-based and land-based mobility. This chapter has attempted to show the environmental implications and high modernist ironies of manipulating mobility along the seaway. The inherent contradiction of a high modernist canal's attempt to dominate the very nature on which it depends makes the seaway a fascinating case study of mobility and environment in Canadian history. By creating new transportation networks attuned to Cold War

and industrial capitalist imperatives, the seaway improved water mobility for certain interests and sectors while impairing movement for many who had lived on and traditionally used the St. Lawrence River. One of the greatest ironies was that, for all the claims of progress and innovation, the seaway canal system became an anachronistic technological artifact soon after it was completed. In many ways, those that the St. Lawrence Seaway and Power Project promised to help—those who lived along the river—were the ones who paid the cost.

Notes

- 1 While this razing was undoubtedly a pragmatic consideration, Tina Loo argues that a key aspect of modernity was a rejection of the past, symbolized by the removal of buildings and infrastructure in areas to be flooded as part of hydroelectric projects. The relocation of buildings and resettlement and consolidation of communities was also part of the Arrow Lakes project in British Columbia during the postwar years. Tina Loo, "People in the Way: Modernity, Environment, and Society on the Arrow Lakes," *BC Studies*, nos. 142–143 (2004): 177–80.
- 2 "International Rapids Section—St. Lawrence River, General Plan Showing Proposed Communities," 1954, Office of the Secretary, Box 1-3 (00272-00335), Hydro-Electric Power Commission of Ontario Records, Toronto (hereafter HEPCO).
- 3 "St. Lawrence Rehabilitation: Meeting at Osnabruck, 23 November 1954," SPP series, HEPCO.
- 4 Graeme Wynn characterizes the St. Lawrence project as the epitome of a Canadian high modernist project. Graeme Wynn, *Canada and Arctic North America: An Environmental History* (Santa Barbara: ABC-CLIO, 2006), 284.
- 5 James Murton, "Creating Order: The Liberals, the Landowners, and the Draining of Sumas Lake, British Columbia," *Environmental History* 13, no. 1 (2008): 96, 104; Matthew Farish and P. Whitney Lackenbauer, "High Modernism in the Arctic: Planning Frobisher Bay and Inuvik," *Journal of Historical Geography* 35, no. 3 (2009): 517–44; Tina Loo, "High Modernism and the Nature of Canada" (presentation, York University, Toronto, 5 March 2012); Loo, "People in the Way"; Tina Loo and Meg Stanley, "An Environmental History of Progress: Damming the Peace and Columbia Rivers," *Canadian Historical Review* 92, no. 3 (2011): 399–427; James L. Kenny and Andrew G. Secord, "Engineering Modernity: Hydroelectric Development in New Brunswick, 1945–1970," *Acadiensis* 34, no. 1 (2010): 3–26; Philip Van Huizen, "Building a Green Dam: Environmental Modernism and the Canadian-American Libby Dam

- Project,” *Pacific Historical Review* 79, no. 3 (2010): 418–53.
- 6 Loo and Stanley, “Environmental History of Progress,” 406. Murton suggests that studies of state attempts to organize society and the environment need to take into account the “state-ideas,” which are the “historically specific discursive and ideological formations” that develop in conjunction with the state structure. Farish and Lackenbauer argue in their study of Canadian Arctic planning that the high modernist concept needs to be more precisely attuned to the complexities of history and geography. Murton, “Creating Order,” 96, 104; Farish and Lackenbauer, “High Modernism,” 519.
 - 7 Joy Parr, *Sensing Changes: Technologies, Environments, and the Everyday, 1953–2003* (Vancouver: UBC Press, 2009).
 - 8 “Memorandum to Holden: Land Acquisition—St. Lawrence Project, 3 March 1959,” 91.123, HEPCO; “International Rapids Section—St. Lawrence River, General Plan Showing Proposed Communities, 1954,” Office of the Secretary, box 1-3 (00272-00335), HEPCO; “New Town No. 1—Initial Stage—Planned for Expansion,” n.d., Office of the Secretary, box 1-3 (00272-00335), HEPCO.
 - 9 Bonnie Clarke, interview by author, 15 June 2011.
 - 10 Jim Brownell, interview by author, Lost Villages Historical Society, 16 May 2011; David Hill, interview by author, Lost Villages Historical Society, 22 June 2011.
 - 11 “Assessment of Shoreline Erosion and Marshland Recession Downstream of the St. Lawrence Power Project,” joint report by HEPCO and PASNY, March 1983, St. Lawrence Power Application, Correspondence C. McGrath, 68-3-1:2, International Joint Commission (Canadian Section) Archives, Ottawa (hereafter IJC Archives); Stephanie K. Phillips, “The Kahnawake Mohawks and the St. Lawrence Seaway” (MA thesis, McGill University, 2000); Omar Z. Ghobashy, *The Caughnawaga Indians and the St. Lawrence Seaway* (New York: Devin-Adair, 1961).
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 - 14 In 1998 the federal government turned over operational management of its portion of the seaway to a not-for-profit corporation, the St. Lawrence Seaway Management Corporation (SLSMC), while retaining ownership of infrastructure and regulatory powers. The SLSMC oversees seaway operations in tandem with the American Saint Lawrence Seaway Development Corporation.

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