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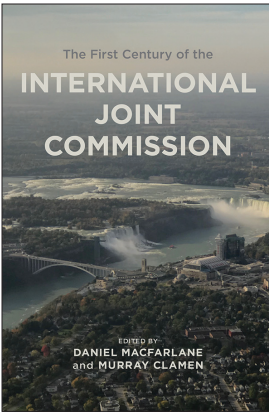
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## THE FIRST CENTURY OF THE INTERNATIONAL JOINT COMMISSION

Edited by Daniel Macfarlane and Murray Clamen

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## The International Joint Commission and Hydro-power Development on the Northeastern Borderlands, 1945–1970

*James Kenny*

As other contributors to this collection have noted, during the early Cold War the International Joint Commission (IJC) played a key role in the development of high-profile Canadian-American megaprojects on the St. Lawrence, Niagara, and Columbia Rivers. Less well known is the IJC's role in studying potential hydro projects along international waterways in the northeastern borderlands of New Brunswick and Maine.<sup>1</sup> Throughout the 1950s and '60s the IJC, working with the US Army Corps of Engineers and public and private utilities, studied the hydroelectric possibilities of the full development of the international St. John River, as well as an ambitious and novel plan to develop tidal power in Passamaquoddy Bay. While both countries supported the former IJC reference, the impetus for the tidal study came exclusively from the United States, which, at least initially, used the reference to address domestic political problems. Canadian officials, who had significant reservations about the project, eventually agreed to participate after weighing the possible consequences of a negative response for other continental projects. While the St. John River and Passamaquoddy Bay investigations were initially discrete they were eventually combined into a much more ambitious TVA-style project that would

provide electricity to New England and Maritime Canadian markets, and which proponents saw as an eastern counterpart to the Columbia River developments. Brief addition to the sentence: Although the St. John River investigation resulted in the negotiation of a draft treaty in the 1960s, the two international projects eventually came to naught, both because of concerns about their economic feasibility (especially in the case of tidal power) and environmental impact, and because of heavy lobbying by American private power utilities that opposed the federal government's role in any power development. While the IJC investigations did not result in a tangible international megaproject in northeastern North America, they did play an important role in shaping the "high modernist" orientation of New Brunswick's power utility, as well as its planning capacity, and they contributed to a more general understanding of rivers as economic units.<sup>2</sup> Moreover, the St. John-Passamaquoddy case study confirms the observations of scholars of the St. Lawrence-Niagara and Columbia developments regarding the intense politicization and partisanship of the IJC during the early Cold War era.<sup>3</sup>

## Investigating FDR's "Green Dream": The First Passamaquoddy Reference, 1948-50

The IJC's attention was drawn to the Passamaquoddy region in the late 1940s in response to an ambitious plan to generate hydroelectricity by harnessing the Bay of Fundy's tides, which are the highest in the world. Passamaquoddy Bay is an inlet located at the entrance to the Bay of Fundy through which runs the international border (see Figure 5.1). Most of the bay is located within Canada but Maine's Washington County forms the western boundary. While higher tides occur elsewhere in the Bay of Fundy, Passamaquoddy Bay's tides are significantly large, ranging from eighteen to twenty-six feet. In the early 1920s hydroelectric engineer Dexter P. Cooper, who summered at Campobello Island (located at the mouth of Passamaquoddy Bay), began promoting a plan to develop an international tidal hydroelectric project in the bay. Cooper's ambitious and expensive plan (it was to cost \$100 million) called for the damming of both the international Passamaquoddy Bay and neighbouring Cobscook

Bay, located entirely in Maine. At high tide, water from the Bay of Fundy would pass through dams at the mouth of Passamaquoddy dam and be held there until low tide, when the entrapped waters would be released through a dam into Cobscook Bay, which had been kept at the low tide level. The head resulting from the difference between the high and low tide levels would generate electricity.<sup>4</sup>

Despite the assistance of his Campobello neighbour, Franklin Delano Roosevelt (who was himself fascinated by the project), Cooper had difficulty persuading private investors of the project's feasibility. Moreover, the Canadian and New Brunswick governments, whose support was crucial, were concerned about the project's impact on the region's rich sardine and herring industries. A joint Canadian-American study concluded in 1933 that the sardine industry inside the dam would be "obliterated," but was inconclusive on the impact to the larger herring industry in the Bay of Fundy. Canadian officials were therefore unwilling to support the project. Undaunted, Cooper turned his attention to developing a smaller, all-American tidal power project on Cobscook Bay. Although both the Federal Power Commission and the Army Corps of Engineers concluded that the project was uneconomical, Cooper was able to leverage his friendship with Roosevelt, who by this time occupied the White House, for some measure of federal support. In 1935 Roosevelt made available \$10 million of Public Works Administration funds to begin construction on earthen dams and a village to house workers. However, the project was short-lived as a sceptical Congress refused to authorize further spending on Quoddy, as the project had become popularly known.<sup>5</sup>

By the late 1940s both FDR and Cooper were gone but a new generation of boosters in Maine and New England revived the two-pool international scheme. These supporters, who included Maine senators Owen Brewster and Margaret Chase Smith, emphasized the regional development benefits that would accrue from locating the project in a poverty-stricken region of Washington County. They, and local business leaders, also situated Quoddy firmly in the Cold War context, arguing that this project would provide a reliable and predictable source of electricity that could be mobilized for both military and civilian purposes. This call had particular resonance in the New England region, where the cost of electricity was

reportedly 23 per cent higher than in the rest of the country due to reliance on antiquated thermal plants and underdeveloped hydro sites.<sup>6</sup>

While appeals to American national security were perhaps convincing to some, it was ultimately old-fashioned politics that kick-started Quoddy and brought it to the attention of the IJC. Faced with heavy lobbying from Maine, and wanting to shore up support for the upcoming federal election, President Harry Truman, in 1948, promised the Maine congressional group that the United States would initiate a reference to the IJC on the matter. However, this was a diplomatically fraught promise, as Truman had not consulted Canadian officials in advance. Moreover, US State Department officials were well aware that there was significant opposition to Quoddy in Canada because of the project's potential impact on the herring and sardine fisheries (largely based on the Canadian side).<sup>7</sup> State Department officials tried to assuage these concerns by proposing that Canada join in a more "innocuous" reference, asking the IJC to determine the cost and requirements for a full-scale feasibility study of tidal power. There was little enthusiasm for the watered-down reference in Ottawa. In addition to long-standing concerns about the project's feasibility and its impact on the fisheries, External Affairs officials contended that the work proposed in the reference was of a minor nature and should be conducted at a lower level by an informal committee.<sup>8</sup> Canadian officials were also irked by the informal intervention of A. O. Stanley, chairman of the US Section of the IJC, before an official reference had been made. Pressured by Maine political and business interests, Stanley wrote a long letter to a senior External Affairs official, complaining that Canada was dragging its heels.<sup>9</sup> Stanley believed that Canadian reticence was based on a misunderstanding of the meaning of a reference under article ix of the treaty. According to Stanley, Canada had no choice but to join the reference because "under Article IX all such matters [of dispute] SHALL be so referred [to the IJC] 'for examination and report whenever *either* Government shall request that such questions or matters of difference be so referred.'" He recognized Canadian concerns about Quoddy but noted also that an investigation under article ix was non-binding (as opposed to an article x investigation).<sup>10</sup> Privately, Canadian External Affairs officials complained that the eighty-one-year-old Stanley, whom they described uncharitably as "a meddlesome old man," had no business intervening on

the question of whether or not a reference was made. However, concerned about the possible diplomatic fallout of making an official complaint, they chose to remain quiet on the issue.<sup>11</sup> The actions of Stanley and the Truman administration more generally led External Affairs minister Louis St. Laurent to confide to his cabinet colleagues that it was “regrettable that the IJC should be misused and involved in US political issues.” However, the Truman administration had backed itself into a corner and could not retreat. External Affairs ultimately agreed to join the reference, fearing that a negative response would “force the United States into a unilateral reference, and this precedent might be followed by the US government in more important cases.” Behind closed doors, though, Canadian officials made known to American diplomats their unhappiness with how Canada was “virtually forced” into participating in the reference for domestic political reasons.<sup>12</sup>

When, in October 1950, the IJC reported that, although technically possible, Quoddy’s economic feasibility would have to be assessed in a \$3.9 million comprehensive study, Canadian External Affairs officials were forced again to consider a diplomatic response to a project that did not appear to be in Canada’s interests.<sup>13</sup> Most Canadian officials were opposed to participating in another study, but they were also concerned about rejecting an American overture for a joint reference to the IJC, particularly considering that Canada had already declined to participate in two recent references. When, in the heat of another election season in 1952, the United States government formally asked Canada to participate, External Affairs Minister Pearson, after consulting all interested departments, politely declined, citing a number of factors. First, previous studies by both American and Canadian organizations had concluded that the project was uneconomical compared to other forms of electricity, especially thermal and traditional hydroelectric. Second, there was no evidence that there were markets for higher priced Quoddy power in New Brunswick or Maine, and the cost of transmitting power to “adjacent areas” was too costly. Third, there were untapped hydroelectric resources on the St. John, Pennobscot, and Kennebec Rivers that “could be developed at a rate closely paralleling increases in demand for power.” Fourth, New Brunswick needed to develop lower-cost electricity (compared to tidal power) with which it could attract industry. Finally, Pearson highlighted the potential

impact of tidal dams on the region's sardine and herring fisheries. Given these factors, Canada declined to join in a reference to the IJC, but diplomatically signaled that it was open to reconsideration if new information should emerge.<sup>14</sup>

## Columbia River in Reverse? The St. John River Reference, 1950–4

At the same time that it was trying to avoid participation in a full study of Quoddy, the Canadian government was a very active participant in another—and soon to be related—investigation of international water resources in New Brunswick and Maine: the St. John River. This large international waterway begins in Maine and winds its way briefly through Quebec and then through New Brunswick, before emptying into the Bay of Fundy at St. John. Historically, the river had been used as a source of food and a means of transportation by Indigenous Peoples and, later by European settlers and sawmill operators (who used it to transport logs). However, in the immediate postwar period state planners in New Brunswick, working through a provincial Resources Development Board (RDB), looked to the river as a potential source of hydroelectric power that could be used to attract industry to the have-not province. An RDB-commissioned study identified promising hydroelectric sites at Tobique, Beechwood, and Mactaquac. However, there were impediments to hydro development. As a “flashy river,” the St. John was subject to large seasonal fluctuations in flow and this made producing power on a “run of river” basis a questionable proposition. The creation of upriver storage in Maine or Quebec would, however, create a steady flow and thereby optimize hydro developments downstream.<sup>15</sup> Quebec was uninterested and New Brunswick's attempt to negotiate a satisfactory arrangement with its southern neighbour yielded no results.<sup>16</sup> This prompted New Brunswick premier John B. McNair, at the behest of RDB chairman H. J. Rowley, to ask the Canadian federal government to refer the question of hydroelectric development on the river to the IJC. Rowley saw the St. John reference as an eastern equivalent of the ongoing Columbia River investigations, only in reverse: while American authorities were asking for upriver storage in



British Columbia to facilitate hydro development in Washington State, up-river storage along the Maine portion of the St. John would provide hydro opportunities downstream in New Brunswick. Rowley advised McNair that “we might at this time most opportunely introduce the St. John River watershed question and balance the West against East with respect to reciprocal agreements.” Since Maine was also amenable to the investigation, in 1950 the United States joined Canada in a reference asking the IJC to investigate possible conservation and regulation projects along the upper St. John River (in Quebec and Maine) with a view to developing hydroelectric power along the “Rhine of North America.”<sup>17</sup>

The survey was carried out under the auspices of a St. John River Engineering Board (SJREB), formed in October 1950 and composed of representatives of the US Army Corps of Engineers, the US Geological Survey, and the Canadian federal Departments of Resources and Development and Public Works. Although the title of the IJC reference suggested a broad look at water resources in the St. John River basin, the SJREB acknowledged that its principal focus was identifying the river’s hydroelectric potential as well as the most promising sites for storage and generating stations. To do this the board established a working group which, in turn, created a series of sub-committees to address particular issues, most notably the location of possible sites for hydro development and “use and distribution,” which focused on projected demand for electricity in the region. These two investigations—the former led by the Corps of Engineers and the latter by Maine utilities—involved consultation and co-operation with a wide range of interests, including private and public power companies, corporations that utilized Maine and New Brunswick’s forest resources, engineering consultants, and Canadian and American government departments, including the province’s public power utility, the New Brunswick Electric Power Corporation (NBEPC).<sup>18</sup>

In 1950 the NBEPC was a small utility, dependent on thermal power and with little expertise in hydroelectricity. Indeed, the only significant hydroelectric power facility, located at Grand Falls, was privately owned by Gatineau Power, and focused on servicing the pulp and paper companies located in the northern part of the province. The NBEPC was also a conservative organization, focused on incremental growth based on demand. However, in 1948 the province began an organizational review

designed to modernize the utility and improve engineering expertise. The utility began to embrace the idea of developing the province's hydroelectric resources, and this made upriver storage an important preoccupation. The participation of utility engineers on the IJC Engineering Working Group would play an important role in the utility's modernization. Newly appointed chief engineer J. L. Feeney and a young electrical engineer, Reg Tweeddale, played a very active role in the IJC investigations. They were particularly interested in the identification of potential sites for hydro development, and they were influential in having the IJC investigation expanded, in 1952, from a consideration of upriver storage only to the entire river system above tidewater.<sup>19</sup> This provided an opportunity to mobilize the SJREB's expertise to evaluate promising sites downriver in New Brunswick, especially Beechwood, Morrill, and Hawkshaw.

The SJREB's interim report, submitted to the IJC in April 1953 after two years of study, made five major conclusions. First, demand for electricity in the St. John River basin was predicted to increase significantly over the next decade and both Maine and New Brunswick would be unable to meet this demand with existing generating facilities. Second, the most promising site for upriver storage was in the Rankin Rapids region in northern Maine, where the river's elevation was highest. The Corps of Engineers proposed the construction of a 5,900-foot-long dam, a reservoir of 48,000 acres that would inundate largely unpopulated forestlands, and a generating station with installed capacity of 230,000 kilowatts (kw). Total cost of the development was estimated to be \$80 million.<sup>20</sup> Third, while the development of generating facilities was considered "practical" on six downstream sites (two of which were on tributaries of the St. John), a \$26 million, 102,000 kw facility at Beechwood had the best cost-benefit assessment on a run-of-river basis.<sup>21</sup> Fourth, Canadian and American interests should consider cross-border interconnections and perhaps, in the long term, a regional power pool. Finally, compared to existing thermal plants, hydro development was judged to be the most economical way to meet demand for power. However, the SJREB report was ultimately cautious on the question of comprehensive river development. In assessing future demands it focused only on local consumption, putting aside any possible use at "distant load centers." Consequently, it saw little reason to assess what full development might look like. "The hydroelectric power potential

of the area under reference is so large in relation to existing and potential demand growth that it would be unrealistic to contemplate the full development of the basin at this time.”<sup>22</sup> The IJC’s interim report, issued in January 1954, reiterated this point, noting that, should conditions change, the IJC would consider firm proposals by American or Canadian interests on a case-by-case basis. If upriver storage were to be developed in the future, the two countries would have to agree on equitable compensation. However, implicitly acknowledging the delicate ongoing discussions regarding the Columbia River (where optimum storage sites were located in Canada), the IJC cautioned that any decisions on the St. John River “should not necessarily be regarded as precedents in the consideration and disposition of other headwater-benefits situations in the basin or in other river basins lying partly in Canada and partly in the United States.”<sup>23</sup>

Although the IJC’s recommendations regarding hydro development on the St. John River were very modest, the investigation had important impacts on the Canadian side of the border. The IJC’s favourable assessment of Beechwood gave the project legitimacy; the NBEPCC and the New Brunswick provincial government began construction shortly thereafter and used the IJC interim report to great effect in obtaining financing from the Canadian federal government.<sup>24</sup> At an organizational level, the IJC experience contributed greatly to the modernization of New Brunswick’s public power utility. Working closely with much more experienced counterparts in the US Army Corps of Engineers and other power utilities, young engineers, such as Reg Tweeddale, established a network of professional relationships and personal friendships that would be influential when the utility planned development of future generation projects. In later years Tweeddale commented also on how much the NBEPCC engineers learned about storage and the sequencing of large-scale hydro developments from the IJC investigation.<sup>25</sup> They were also heavily influenced by the belief—common in continental hydro-power circles at this time—that the provision of cheap power was the key to economic development. Tweeddale’s embrace of this concept can be observed in a letter to the NBEPCC chairman: “The economic salvation of the Province depends in large measure on greater production. . . . And this will only come from the most extensive use of electric power as applied to our industrial life and the development of our resources.”<sup>26</sup> The IJC experience also encouraged

NBEPC engineers to view rivers, first and foremost, through the lens of hydroelectric development. The engineers commented on other uses of the river (log drives, recreation, fishing, etc.), but these were all dismissed as of secondary importance to power development. This perception informed the utility's increasingly high-modernist approach to the river, which culminated in the 1960s in the construction of the Mactaquac hydroelectric facility.<sup>27</sup> Finally, the engineering studies clearly identified Rankin Rapids as the best site for a major upriver storage and power facility. While no immediate action was recommended, the site in northern Maine would play a key role in a new IJC investigation of Quoddy.<sup>28</sup>

## An Offer Impossible to Refuse: The Passamaquoddy Reference, 1956–61

Despite Canada's initial reluctance to participate in a full IJC study of tidal power, a small group of New England politicians and business interests continued to lobby the American government to push for a reference on Quoddy throughout the 1950–6 period. Maine senators Margaret Chase Smith and Owen Brewster, supported, notably, by their Massachusetts colleague John F. Kennedy, regularly put forward resolutions calling for federal action on the reference.<sup>29</sup> The Eisenhower administration initially showed little interest in Quoddy, but would later use it as a negotiating chip in a Senate debate over the authorization of American participation in the St. Lawrence Seaway project. Faced with a close vote, the Eisenhower administration successfully wooed seven New England senators to support the St. Lawrence development by promising funding for a full IJC study.<sup>30</sup> When, in 1956, the United States again asked Canada to participate in another IJC reference, the federal cabinet felt it had little choice but to go along. While most Canadian officials felt that the project was both uneconomical and harmful to Canadian fishing interests, they feared that the United States would proceed with a unilateral reference to the IJC, thereby establishing "an unfortunate precedent." They also worried that a negative response might have a detrimental effect on sensitive discussions regarding the Columbia and St. Lawrence developments. However, given its concerns, the Canadian government advised the United States that

it would only contribute its share of the fisheries studies (approximately \$150,000); the United States agreed to cover the \$3 million associated with the engineering and other aspects of the study.<sup>31</sup> The August 1956 reference (Docket 72) asked the IJC to determine the cost and economic feasibility of “developing the international tidal power potential of Passamaquoddy Bay in the State of Maine and the Province of New Brunswick.” Equally important, the IJC was to investigate a long-standing concern: the impact of a tidal dam on the region’s fisheries. It was also clearly stated that participation in the reference did not “imply commitment regarding the eventual construction of the project.”<sup>32</sup>

The IJC established an International Passamaquoddy Fisheries Board (IPFB), composed of three marine biologists and the owner of a sardine cannery in Eastport, Maine, to explore the controversial fisheries issue. Since the 1920s most had agreed that a tidal power project would destroy the Passamaquoddy Bay’s sardine industry, but later studies by Canadian fisheries scientists suggested that herring stocks outside the bay might also be affected by oceanographic changes caused by tidal dams. This was because the unique circulation of water in the bay created excellent feeding opportunities that drew almost all young herring in the region to Passamaquoddy.<sup>33</sup> The IPFB, however, presented a much sunnier assessment. After three years of study, it concluded that, while the proposed tidal dam would change oceanographic features within Passamaquoddy and Cobscook Bays (in particular, surface temperature would be more variable and salinities lowered), the herring fishery would be largely unaffected both inside and outside the bays. IPFB members were confident that herring could move through the dam gates when they were opened. Some fisheries inside the dam, such as haddock, winter flounder, and clams, would be negatively affected, but this would be offset by predicted increases in lobster and striped bass. The IPFB also had faith that the installation of a fish passageway would permit the continued presence of anadromous species, such as Atlantic salmon.<sup>34</sup>

An International Passamaquoddy Engineering Board (IPEB) was established to examine the project’s feasibility, including the optimum project design, the impact of Quoddy on regional and national economies in Canada and the United States, existing and projected demand for power, and the competitiveness of the cost of tidal power compared to other

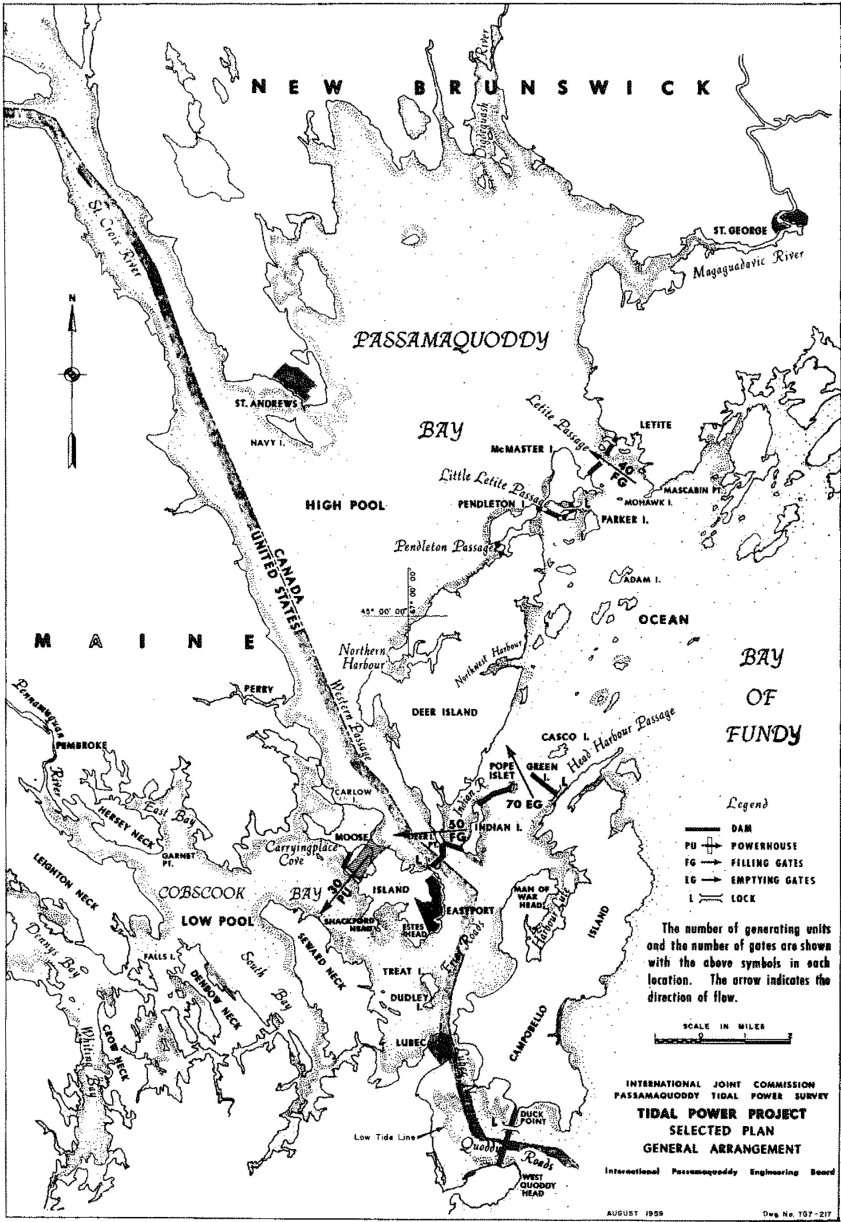


FIGURE 5.1. The two-pool Passamaquoddy tidal power project. Source: Report to the International Joint Commission by the International Passamaquoddy Engineering Board (October 1959), p. 7.

forms of power generation.<sup>35</sup> The IPEB recommended a two-pool design, similar to Cooper's original plan, with Passamaquoddy Bay as the high pool and Cobscook Bay as the low pool. The project would include 35,700 linear feet of earthen tidal dams, 90 filling gates, 4 navigation locks, and a power station containing 30 generating units producing 10,000 kw each for a maximum generating capacity of 300,000 kw and 90,000 kw of dependable power. It was estimated that the tidal project alone would produce 1.843 million kwh (kilowatt hours) annually and that the total cost of the project would be \$532.1 million, including interest during the construction phase (see Figure 5.1).<sup>36</sup> It soon became clear, though, that the tidal power complex was not economically feasible by any conventional cost-benefit calculation. To compensate, the IPEB broadened its scope of analysis to include companion projects that would provide supplemental base-load power to offset the daily change of tides, which did not always coincide with peak periods of energy consumption. The Corps of Engineers considered a number of options, including thermal generation and pumped storage (by which water entering the tidal reservoir during non-peak periods would be pumped into a larger storage basin and, later, released through turbines when required). But the most attractive option was development of hydro-power on the upper St. John River at Rankin Rapids, the site identified by the corps in its investigations earlier in the decade. The corps proposed the development of a large storage reservoir (2.8 million acre-feet of storage capacity) and generating station that would provide base load power. Taken together, Quoddy-Rankin Rapids could provide "555,000 kilowatts of dependable capacity and 3,063 million kilowatt hours of average annual generation." The Engineering Board highlighted other advantages of this hydro megaproject, which was estimated to cost \$687.7 million, including interest. Not only would upriver storage "increas[e] substantially the usefulness of the [St. John] river for downstream use" in New Brunswick, but the engineers predicted that the tidal project would create recreational benefits and also draw tourists to the region to observe this engineering wonder.<sup>37</sup>

On the key question of economic feasibility, the IPEB gave an equivocal endorsement of the Quoddy-St. John development. Contrary to previous analyses, which had found Passamaquoddy to be uneconomical, it concluded that the combined project could produce power at a competitive cost and that there would be sufficient demand in Maine and New



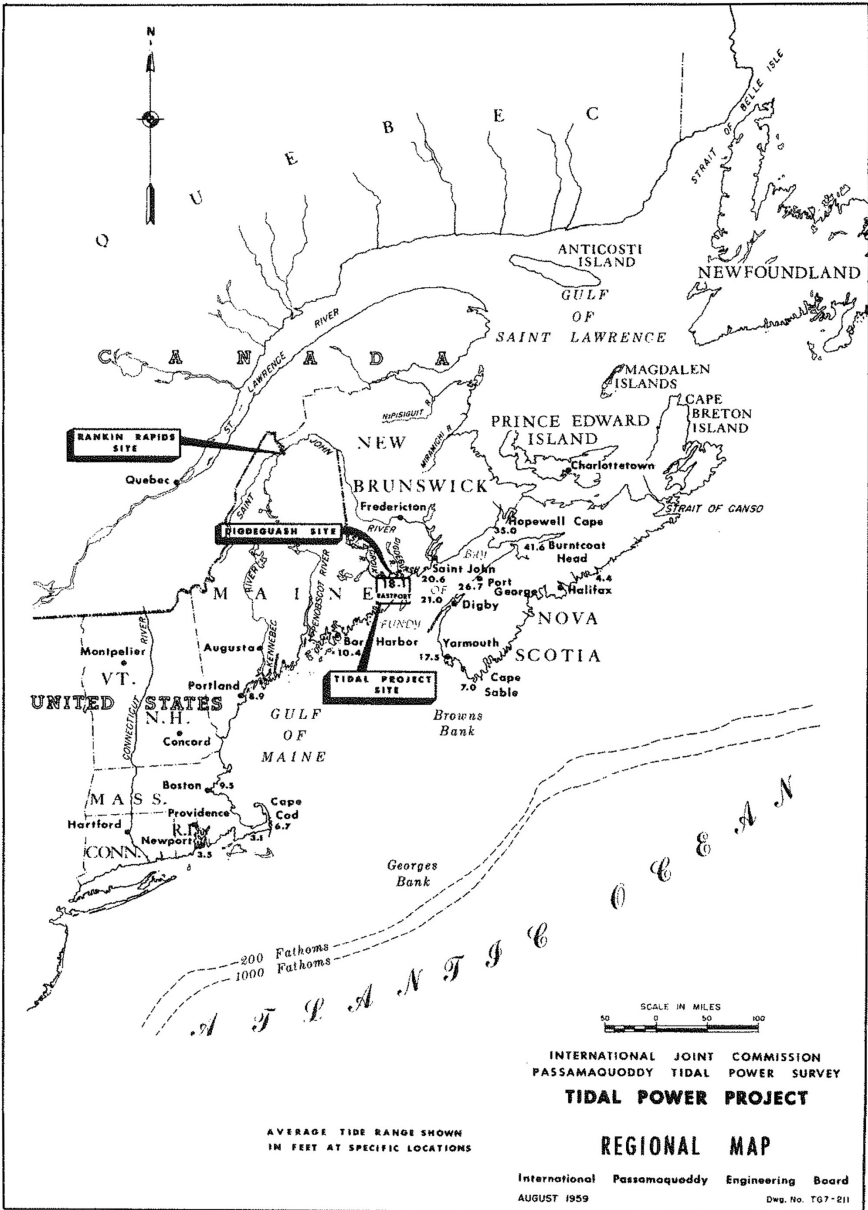


FIGURE 5.2. Location of proposed Passamaquoddy tidal and Rankin Rapids hydro developments. Source: *Report to the International Joint Commission by the International Passamaquoddy Engineering Board* (October 1959), p. 3.



Brunswick for the additional power. Despite this fact, the board found that Canadian participation in the project on a shared-cost basis could not be economically justified. However, due to a number of factors, including lower interest rates and economic spin-offs from construction, the board found that the US government was justified in pursuing the combined project entirely on its own.

The IPEB's interest in combining Quoddy with the Rankin Rapids development—and thereby going beyond its strict terms of reference—is explained in part by the personal interest in the project of retired lieutenant-general Samuel D. Sturgis, chairman of the US Section of the Engineering Board. Sturgis, former chief of the Corps of Engineers, had a long history with the project dating back to the 1930s, when he was in charge of building a village to accommodate tidal project workers (before the all-American project was canceled). In an address to the Washington County Chamber of Commerce shortly after he had been appointed to the IPEB in 1956, he referred to the tidal power project as both an engineering and a “humanitarian” challenge, emphasizing the importance of “priming the economic pump” of poor areas, such as Washington County, through public works. He recognized that in the 1930s the project had been rushed, without adequate surveys, in order to address the severe unemployment in the region. He welcomed the opportunity to conduct a more comprehensive survey and promised to “leave no stone unturned that can produce satisfactory evidence and support of the economic feasibility” of Quoddy.<sup>38</sup> In linking tidal power with the development of conventional hydro-power on the upper St. John River, the IPEB had found a way to make Quoddy more economically palatable.

The Quoddy–St. John linkage caught the imagination of Maine's tidal power proponents. Governor Edmund Muskie, who since the mid-1950s had been Quoddy's most passionate defender, saw the hydro-power project as a way to develop power and help rehabilitate two very poor regions of his state—Washington and Aroostook Counties. Others, such as Democratic congressman James Oliver, saw an opportunity to create New England's first publically funded TVA-style, multi-purpose development. “It is not difficult to envision the economic potential of the developed kilowatts of electrical energy, inherent in this project. Tens of thousands of industrial jobs in basic industry resulting from these installed kilowatts

will transform these relatively stagnant areas, economically speaking, into live, vibrant and forward-moving communities, contributing with their great productive activities to the growing and expanding economy which we, in the North American continent, must have in the last half of the 20th Century.” Quoddy–St. John was a nothing less than a project of modernity. Oliver encouraged the IJC to follow the example of international co-operation exhibited in the development of the St. Lawrence Seaway. “Put the natural resources, which Quoddy and the St. John River represent, to work, by harnessing them for use, and you . . . will have a tremendous contribution to the future survival of all of us, as free people.” Then, in a fit of Cold War rhetorical excess, he concluded: “If we allow ourselves to become bogged down in the legislative quibblings and puny economic thinking and inhibitions in this instance we shall, indeed, become more vulnerable to our communistic competition with its goal of conquest of the free world.”<sup>39</sup>

Not all New Englanders were pleased with the Engineering Board’s inclusion of Rankin Rapids in the Quoddy discussion. Preservationists were particularly concerned that the creation of the large storage dam would inundate and destroy the valley surrounding the Allagash River, a tributary of the St. John. Richard Judd has shown how, in the postwar period, the Allagash Valley was prized by outdoorspeople as one of the few areas of “wilderness” left in the eastern United States. (Of course, as Judd shows, this was not a “pristine” wilderness; although there were few people in the area, forest companies had harvested the area for a century, leaving a significant human footprint.<sup>40</sup>) As the IJC’s interest in Rankin Rapids became widely known, conservation organizations mobilized opposition to the project and, by the late 1950s, the campaign to save the Allagash became a *cause célèbre* for the modern American wilderness movement, which emphasized “the liberating effects of wildness on the human spirit” and celebrated natural rivers as symbols of “unfettered nature.” Local conservation organizations and prominent national wilderness advocates, such as Supreme Court justice William O. Douglas, who penned a book on Maine’s wilderness that highlighted the Allagash,<sup>41</sup> joined with large landowners in the region (mostly the forest products industries) against the Rankin Rapids plan and for the creation of an Allagash wilderness waterway. The US Department of Interior’s Fish and Wildlife Service

also had concerns. In a report submitted to the IPEB it concluded that the Rankin Rapids dam would, in addition to inundating a prized recreational area, eliminate some fish species (brook trout), introduce new ones (yellow perch), and destroy wildlife habitat. Because of the devastating impact of the proposed Rankin Rapids dam, it encouraged the IJC to instead consider a two-dam alternative at Big Rapids and Lincoln School, which would have a much smaller impact on the Allagash.<sup>42</sup> In arguing for the preservation of the Allagash, the Fish and Wildlife Service's report cited the projected population increase in the cities along the Eastern Seaboard over the next two decades. This expansion increased the importance of "high-quality wilderness recreation" for people looking to escape urban life. "In [the] eastern United States, this northwestern section of Maine is the only remaining wilderness area of its type . . . which can supply this demand."<sup>43</sup> It is perhaps notable that the IPEB, too, cited population expansion to justify the development of Rankin Rapids; however, where conservationists saw increased recreational requirements arising from urbanization, the engineers saw increased electrical demand. Regardless, the IPEB's final report made only passing mention of the Fish and Wildlife Service's concerns, and it contained no discussion of the Big Rapids–Lincoln School alternative.

In carrying out its investigation, the IJC made little effort at public consultation. After the studies by the Fisheries and Engineering Boards were completed, they were made public and the IJC organized a single day of public hearings in April 1960. The Quoddy–Rankin Rapids proposal was endorsed by a number of those who appeared, including the Maine congressional delegation and Sumner Pike, chairman of the Maine Governor's Committee on Quoddy. While Pike acknowledged that the Big Rapids–Lincoln site would preserve more of the Allagash, Rankin Rapids would produce more power and was therefore "the logical choice." Others appearing before the IJC disagreed. Roland Cobb, commissioner of inland fisheries for Maine, stated that he had received "over 1000 letters and telegrams" favoring Big Rapids–Lincoln. This would "preserve the Allagash for the future, and still supply enough firming power for 'Quoddy.'" James Briggs, of the Natural Resources Council and a state senator, declared himself "violently and unalterably opposed to Rankin Rapids" and questioned "why dams have to be built on all available water courses."

He also chastised the IJC for ignoring the Fish and Wildlife Service's report. Canadian representation at the hearing was small. The NBEP's Reg Tweeddale welcomed plans to develop the upper St. John River, but diplomatically avoided the Rankin Rapids–Big Rapids controversy. However, he did note that there was no Canadian interest in Quoddy, given the IPEB's conclusion that the tidal power development was uneconomical for Canada. The fisheries, too, remained a sore point for Canadian interests. Charlotte County MP Allan McLean, owner of the largest sardine operation in the world, was sceptical of the Fisheries Board's conclusion that the herring industry would be unaffected by Quoddy. "The fishing industry and the power project could not live together."<sup>44</sup>

The IJC's final report, issued two years late, in April 1961, accepted the IPEB's finding that Quoddy was technically feasible but took issue with the conclusion that the combined tidal-river hydroelectric project was economically feasible for the United States.<sup>45</sup> The commissioners pointed out "an economic fallacy in the concept of . . . a combination project"—namely that Quoddy needed Rankin Rapids to be considered feasible. All studies had shown tidal power, on its own, to be uneconomical (and by a significant margin), while the upper St. John development was assessed as having a strong cost-benefit ratio. Combining the two projects muddied the true economic worth of Quoddy.<sup>46</sup> It also revisited the costs of competitive forms of energy and found that modern thermal plants would produce a lower unit cost of power than would tidal power. However, the report did suggest that the storage-hydro development at Rankin Rapids, if publically built (and therefore qualified for lower government financing), could provide power at a lower rate than other competitors and had the added bonus of enhancing downriver developments. The commissioners acknowledged that other factors could be considered in assessing the project's feasibility, such as "the conservation of fossil fuel resources and the provision of employment opportunities in economically depressed areas," but that Quoddy was not feasible using conventional economic practices. Tidal power, they concluded, should be viewed "as a long range possibility having better prospects when other less costly energy resources available in the area are exhausted."<sup>47</sup>

## Friends in High Places: Ignoring the IJC and Revisiting Quoddy, 1961–5

But Quoddy still had high-profile supporters. As early as 1952, during his first Senate campaign, John F. Kennedy had championed the project. As president, he remained enthusiastic, seeing the hydroelectric project as strategically important for New England and as a symbol of “our greater scientific society.” “Man only needs to exercise his ingenuity,” he stated in 1963, “to convert the ocean’s surge into a national asset.”<sup>48</sup> So it is not surprising that the new president immediately asked his interior secretary, Stewart Udall, to reconsider the IJC’s negative feasibility assessment in May 1961, taking into consideration “what changes in fuel, engineering and financing cost might result in making the project economically feasible.” Udall, also a fervent Quoddy believer, reported, in July 1963, that the combined Quoddy–St. John River development was both “desirable and economically feasible,” provided that the project was enlarged significantly.<sup>49</sup> Originally conceived by the IJC as a project servicing Maine and New Brunswick, Quoddy–St. John was now conceptualized as a \$670 million regional power supply for a New England–Maritime power grid (now possible due to developments in electrical transmission). The capacity of the Quoddy facility was to be increased from 300,000 kw to 1 million kw and would now provide peaking power only for between one and three hours per day. An expanded hydro development on the St. John River, to which Quoddy would be connected, would provide base load power during off-peak periods. The revised plan also addressed the public concerns that the Rankin Rapids development would inundate the Allagash River Valley by choosing a new high dam site at Dickey, not far from Big Rapids, that would be complemented with a re-regulating dam downstream at Lincoln School.<sup>50</sup> Moreover, both Quoddy and Dickey-Lincoln were to be developed as TVA-style, multi-purpose developments, with recreational facilities (it was predicted that tourists would flock to the region to observe this “engineering marvel”) and flood control capacity on the St. John River, which would enhance the value of downstream power facilities in New Brunswick. The revised project’s economic feasibility was also calculated using non-unconventional cost-benefit factors, including recreational and regional development benefits,<sup>51</sup> and utilizing a hundred-year

amortization period.<sup>52</sup> Kennedy liked what he heard and, in short order, instructed Udall and the Corps of Engineers to conduct more detailed engineering studies in preparation for the project's construction. He also asked the State Department to approach Canada regarding the negotiation of a St. John River treaty.

Udall's report gave new life to Quoddy. Supporters, including the interior secretary and Edmund Muskie, who was now a US senator, took every opportunity to highlight the project's benefits. As a multi-purpose megaproject on international waters, Quoddy-Dickey would be built and managed by public authorities as a TVA-style project, the first in New England. "It's time the people of the United States invested in a New England project," Udall told reporters.<sup>53</sup> More importantly, the project would generate much-needed employment in two very poor regions. Kennedy, too, took every opportunity to promote the project. Indeed, just weeks before his assassination he flew over Quoddy with reporters in tow, to inspect the site.<sup>54</sup> Over the next two years, the Department of the Interior and the US Army Corps of Engineers conducted further economic, geological, and engineering studies through a Passamaquoddy-Saint John River Study Committee. In August 1964 the committee confirmed the findings contained in Udall's 1963 report and encouraged the quick authorization of both Dickey-Lincoln and Quoddy.<sup>55</sup>

However, within a year the tidal development was dead. With the assassination of President Kennedy in November 1963, Quoddy lost its most influential supporter. His successor, Lyndon Johnson, did not have the same history with or attachment to the project, and he found it easy to cancel when rising interest rates and costs again raised feasibility questions in the mid-1960s. Moreover, New England private power interests launched a concerted—and effective—campaign against the publically funded Quoddy-St. John scheme, arguing that they could provide power more efficiently and that Udall had overestimated Quoddy's benefits and underestimated its costs.<sup>56</sup> Udall argued otherwise, contending in April 1965 that the United States needed to be a leader in tidal power development; the project's uniqueness meant that it should not be "put on the procrustean bed of regular water projects. It should be considered as a separate, unique, project with rules of its own as far as cost-benefit ratio is concerned because a tidal project will have a perpetual life."<sup>57</sup> However,

by August 1965, the interior secretary had to admit defeat, concluding in a report to President Johnson that, under existing conditions, Quoddy was no longer economically feasible.<sup>58</sup>

However, the proposed development on the upper St. John River remained attractive. In July 1965 Johnson announced his support for Dickey-Lincoln and shortly thereafter Congress authorized the project in the 1965 Flood Control Act and allocated funds to the Corps of Engineers to begin design of the project. Also, the State Department initiated formal negotiations with Canada for an international St. John River treaty.<sup>59</sup> Negotiations were fairly far advanced before they were abandoned due to changing circumstances in the United States. In response to intense lobbying against public power at Dickey-Lincoln by a coalition of private power companies and representatives from oil- and coal-producing states, Congress cancelled funding for the project in 1967.<sup>60</sup>

Canadian interests in Ottawa and Fredericton watched the ongoing American debates over Quoddy–St. John in the 1960s with great interest. From the outset, Canadian officials had been reluctant to participate in the IJC reference, as they saw few advantages to Quoddy. The power generated would be too expensive for the New Brunswick market (something the 1961 IJC report confirmed) and there were other hydroelectric opportunities to exploit on the Canadian part of the St. John River, such as Mactaquac (which was completed in 1968). Moreover, others argued that, if Canada was going to pursue tidal power, all-Canadian sites with higher tides on the Bay of Fundy might be more promising. Finally, few Canadian fishers were comforted by the IJC Fisheries Board’s conclusion that the impact of tidal dams on herring would be minimal. (One fish processor noted that the “power project has been a verdict of death hanging over the sardine industry for the last 40 years.”) Nevertheless, the New Brunswick government was intrigued by the linkage of Quoddy with the development of storage and power dams on the upper St. John River. By the early 1960s, the NBEPCC was planning the development of a number of hydro facilities on the St. John River. A federal-provincial study of the river, conducted during the 1958–60 period, concluded that upstream storage would be beneficial but not crucial to the NBEPCC’s hydro development plans.<sup>61</sup>

However, the real prize associated with Quoddy–St. John, especially after it was reinvented by Udall, was integration into a northeastern North



American transmission grid. While the NBEPCC had originally focused on meeting consumer and industrial demand within the province, in the mid-1960s utility managers began to consider export markets as the path for growth. A continental power grid in the Northeast was therefore very desirable.<sup>62</sup> Consequently, NBEPCC's Reg Tweeddale encouraged federal External Affairs officials to be receptive to American overtures to open St. John River treaty negotiations and to not be publically dismissive of Quoddy. While the province had little interest in tidal power, it was willing to support American construction if it also led to the full development of the St. John River and the creation of an international power grid.<sup>63</sup> A federal Department of Trade and Commerce official also cautioned his colleagues on a Sub-committee on the Passamaquoddy Project to tread carefully on the issue as it was but "one element of a vast power picture of tremendous importance to the economic as well as political relations between both countries. Repercussions from Passamaquoddy would be felt in Quebec and Labrador."<sup>64</sup> As we have noted already, Quoddy was eventually found to be uneconomical but, until that point, it remained a delicate issue in continental power politics.

## Conclusion

While the IJC's postwar investigations of Passamaquoddy tidal power and the St. John River did not result in international megaprojects, such as the St. Lawrence Seaway or the Columbia River hydro developments, they are nonetheless significant. First, the interest in these very different projects reflects a continental, if not global, concern for developing the electrical potential of waterways during the early Cold War, a period when Western governments worried about access to power for both strategic and consumer purposes. The St. John River—and, later, St. John–Quoddy—offered the possibility of a northeastern complement to the planned developments in the Pacific Northwest. Quoddy also had its own caché in the Cold War context: supporters, such as President Kennedy, believed that the successful completion of the project would demonstrate American scientific and engineering supremacy. Second, the Quoddy case, like the Columbia and St. Lawrence investigations taking place at the same time, demonstrates the degree to which the IJC had become politicized during this era. Disparate



cross-border issues were linked at the level of domestic politics and diplomacy. Although the Canadian government had determined early on that it had little to gain from the tidal power proposal, both the Truman and Eisenhower administrations used the promise of an IJC reference as a political bargaining chip to win support from New Englanders. Concerned that a negative response to American overtures for a Quoddy reference would negatively impact other continental water projects, Canadian officials felt that they had little choice but to participate. Third, the IJC studies also had a profound impact on the electrical power regime in New Brunswick. Emboldened by their experience working shoulder-to-shoulder on these investigations with North America's leading electrical engineers (such as the US Army Corps of Engineers) and public power organizations (such as the American Public Power Association), the NBEPCC developed both engineering expertise and a vision for itself. Between 1950 and 1970, the public utility grew dramatically and became the dominant actor in Maritime power generation. The St. John River investigation, in particular, also informed the organization's increasingly high-modernist view of both the river and hydroelectric megaprojects, manifested most clearly in the Mactaquac project. Finally, in both cases, the IJC contributed to a conceptualization of the waterways, first and foremost, as potential sources of power. Engineering expertise was dispatched to understand how power production could be optimized and engineering problems overcome. The waterways were understood in terms of the cost of power they could produce and the direct and indirect benefits they could contribute to local and national economies. The fact that both projects were to be located in poor regions on both sides of the border only heightened this emphasis on economic impact. In the economic calculation of waterway value, "nature" was often de-emphasized. This is perhaps best illustrated in the International Passamaquoddy Engineering Board's choice of the Rankin Rapids dam site—which would flood the Allagash Valley—because of its superior storage and hydro-generation potential.<sup>65</sup> Thus, while there are few physical testaments to its work in the Northeast during the 1945–70 period, the IJC nonetheless played an important role in shaping the ways in which utilities viewed both themselves and the natural environment.

## Notes

- 1 On the more high-profile developments on the St. Lawrence and Columbia Rivers, see, for instance, Daniel Macfarlane, *Negotiating a River: Canada, the US, and the Creation of the St. Lawrence Seaway* (Vancouver: UBC Press, 2014), and Barbara Cosens, ed., *The Columbia River Treaty Revisited: Transboundary River Governance in the Face of Uncertainty* (Corvallis, OR: Oregon State University Press, 2012).
- 2 The IJC's role in investigating international waterways in northeastern North America during the postwar era has not been explored in any detail. The St. John River reference is discussed briefly in R. A. Young, "Planning for Power: The New Brunswick Electric Power Commission in the 1950s," *Acadiensis* 12, no. 1 (Autumn 1982): 73–99; Andrew G. Secord, "Megaprojects in Maritime Canada: A Case Study of the New Brunswick Electric Power Commission" (PhD thesis, University of Sussex, 1992); and James L. Kenny and Andrew Secord, "Public Power for Industry: A Re-examination of the New Brunswick Case, 1940–1960," *Acadiensis* 30, no. 2 (Spring 2001): 84–108. An earlier reference to the IJC regarding the construction of a dam on the St. John River at Grand Falls is briefly examined in Christopher S. Beach, "Electrification and Underdevelopment in New Brunswick: The Grand Falls Project, 1896–1930," *Acadiensis* 23, no. 1 (Autumn 1993): 60–85.
- 3 Macfarlane, *Negotiating a River*; Daniel Macfarlane, "Dam the Consequences: Hydropolitics, Nationalism, and the Niagara-St. Lawrence Projects," in *Border Flows: A Century of the Canadian-American Water Relationship*, ed. Lynne Heasley and Daniel Macfarlane (Calgary: University of Calgary Press, 2016), 123–50; Jeremy Mouat, "The Columbia Exchange: A Canadian Perspective on the Negotiation of the Columbia River Treaty, 1944–1964," in Cosens, ed., *The Columbia Treaty Revisited*, 14–42.
- 4 LAC, RG20 Vol.865 File 42-9 Water Use Policy/ Projects – Passamaquoddy Tidal Project, "The Passamaquoddy Tidal Power Project," 29 May 1948.
- 5 Walter E. Lowrie, "Roosevelt and the Passamaquoddy Bay Tidal Power Project," *The Historian* 31, no. 1 (November 1968): 64–89.
- 6 PANB Flemming Papers RS415 N4g Passamaquoddy Engineering Board, The Campaign for the Passamaquoddy Tidal Power Survey (Some Decisive Work); LAC, RG25 Vol 4275 File 10011-40 FP Vol. 2 Memorandum: Passamaquoddy Tidal Power Project, 22 January 1953.
- 7 LAC, RG25 Vol 4275 File 10011-40 FP Vol. 2 Memorandum: Passamaquoddy Tidal Power Project, 22 January 1953. A. G. Huntsman, "Tidal Power and the Fisheries," LAC RG25 Col. 4724 File 1011-40 Pt. 1 Passamaquoddy Tidal Project, 1948–50.
- 8 LAC, External Affairs RG25 Vol. 4274 File 10011-40 Pt. 1 Passamaquoddy Tidal Project, 1948–50, Memorandum for Cabinet: Passamaquoddy Tidal Power Project by Louis S. St. Laurent, 8 October 1948; PANB Flemming Papers RS415 N4g Passamaquoddy Engineering Board, The Campaign for the Passamaquoddy Tidal Power Survey (Some Decisive Work).
- 9 A Democrat from Kentucky, Stanley had served as governor and in both the US House of Representatives and Senate before being appointed to the IJC by Republican president Herbert Hoover in 1930. Although his position on the IJC was in theory

- non-partisan, it seems that he was in contact with Democratic politicians from Maine. On the political nature of IJC appointments, see William R. Willoughby, “The Appointment and Removal of Members of the International Joint Commission,” *Canadian Public Administration* 12, no. 3 (Sept. 1969): 411–26.
- 10 LAC RG25 Vol. 4724 File 1011-40 Pt. 1 Passamaquoddy Tidal Project, 1948–50 A. O. Stanley to Kenneth Burbridge, 24 August 1948. In an appended document entitled “Construction of Article IX,” Stanley provided a lengthy interpretation of the distinction between articles ix and x of the Boundary Waters Treaty.
  - 11 LAC RG25 Vol. 4724 File 1011-40 Pt. 1 Passamaquoddy Tidal Project, 1948–50, Memorandum for Mr. Eberts: Senator Stanley and the Passamaquoddy Question, 30 August 1948. On the historical use of article ix references, especially the tendency of the US and Canadian governments to accede to one another’s requests for such investigations, see William R. Willoughby, “Expectations and Experience,” in *The International Joint Commission Seventy Years On*, ed. Robert Spencer, John Kirton, and Kim Richard Nossal (Toronto: Centre for International Studies University of Toronto, 1981), 24–42.
  - 12 LAC, External Affairs RG25 Vol. 4274 File 10011-40 Pt. 1 Passamaquoddy Tidal Project, 1948–50, Memorandum for Cabinet: Passamaquoddy Tidal Power Project by Louis S. St. Laurent, 8 October 1948; PANB Flemming Papers RS415 N4g Passamaquoddy Engineering Board, The Campaign for the Passamaquoddy Tidal Power Survey (Some Decisive Work).
  - 13 LAC, External Affairs RG25 Vol. 4275 File 10011-40 FP Vol. 2 Pt. 2 Report of the IJC on an International Passamaquoddy Tidal Power Project. A subsequent review conducted by the US Army Corps of Engineers concluded that the investigation would cost \$3 million.
  - 14 Long concerned about the sardine fisheries inside the bay, Canadian fisheries scientists now worried that the impact could also be felt more widely. Recent studies indicated that the majority of young herring “hatched in neighbouring areas, enter Passamaquoddy Bay, remain there for the first year of their life to take advantage of especially favourable food conditions (only a relatively small portion being taken as sardines), and . . . [later] move outside the bays to form the basis of the large herring industry.” LAC, External Affairs RG25 Vol. 4275 File 10011-40 FP Vol. 2 pt. 2 Note No. 66, 11 March 1953; Minutes of Interdepartmental Meeting on the Passamaquoddy Tidal Power Project, 23 January 1953; Stewart Bates to Under-Secretary of State, External Affairs, 26 January 1953.
  - 15 PANB RS415 High John Flemming Papers N4e3, “Storage on and regulation of the Saint John River: The interest of the Province of New Brunswick in the above, as submitted to the International Joint Commission at Ottawa,” 4 October 1950, p.6. In contrast to run-of-river hydroelectricity, which relies almost exclusively on the natural elevation and flow of the river to produce electricity, conventional hydroelectricity involves the construction of large storage dams that impound and then release water in a controlled manner through turbines to generate electricity. These storage dams often result in the large-scale flooding of lands and habitats.

- 16 PANB RS414 F4a2, H. J. Rowley to J. B. McNair, 15 October 1946; Kenny and Secord, "Public Power for Industry," 94–5.
- 17 PANB RS414 F4a2, McNair Papers, H. J. Rowley to J. McNair, 10 April 1946; PANB RS414 C11, McNair to Louis St. Laurent, 8 December 1948.
- 18 Robert Andrew Young, "Development, Planning and Participation in New Brunswick: 1945–1975" (DPhil thesis, Oxford University, 1979), 131–3.
- 19 *Ibid.*, 133; International Joint Commission, *Interim Report to the Governments of the United States and Canada on the Water Resources of the Saint John River Basin (Docket 63)*, 27 January 1954, 1–2.
- 20 PANB RS 415, N4-e-3-IJC, Saint John River Engineering Board, "Water Resources of the Saint John River Basin: Quebec – Maine – New Brunswick. Interim Report to the International Joint Commission Under the Reference of 7 July 1952" (6 April 1953), 58, 98. The Rankin Rapids site was considered so ideal that the corps did not survey other upriver storage sites, although it did assess storage potential on some tributaries of the St. John River.
- 21 *Ibid.*, 117. The ISJREB considered these facilities as discrete run-of-river basis projects and did not consider how upriver storage at Rankin Rapids would impact generating capacity.
- 22 *Ibid.*, 113–14.
- 23 International Joint Commission, "Interim Report on the Water Resources of the Saint John River Basin, Quebec, Maine and New Brunswick," 27 January 1954, 5–6. Nevertheless, Reg Tweeddale recalled in later years that A. G. L. McNaughton, chair of the Canadian Section of the IJC, was very anxious to negotiate a deal for Eastern Canada similar to what was being proposed on the Columbia to mitigate criticism of the Western proposal and "to show that the formula was fair." PANB, interview of R. E. Tweeddale by David Folster, 15 January 2000, Transcript 1, p.7.
- 24 Kenny and Secord, "Public Power for Industry," 103–5; Young, "Planning for Power."
- 25 Reg Tweeddale, interview by Janet Toole, October 2000, transcript, MC 2923, PANB; Kenny and Secord, "Engineering Modernity," 8.
- 26 Tweeddale to J. L. Feeny, 30 July 1951, cited in Young, "Development, Planning and Participation," 134.
- 27 James L. Kenny and Andrew Secord, "Engineering Modernity: Hydroelectric Development in New Brunswick, 1945–1970," *Acadiensis* 39, no. 1 (Winter/Spring 2010): 3–26. Originally conceived by James C. Scott, "high modernism" refers to an ideology, which was particularly influential between 1930 and 1970, that emphasized scientific and bureaucratic planning to control and shape the natural environment and society in order to achieve social and economic progress. See James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven, CT: Yale University Press, 1998). High modernism has been widely used by scholars to describe the technocratic, bureaucratic, and political consensus surrounding hydroelectric megaprojects in Canada and elsewhere. For example, see Daniel Macfarlane, "Negotiating High Modernism: The St. Lawrence Seaway and Power

- Project,” in *Made Modern: Science and Technology in Canadian History*, ed. Edward Jones-Imhotep and Tina Adcock (Vancouver: UBC Press, 2018), and 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.
- 28 Throughout the 1950s and '60s, A. G. L. McNaughton, chairman of the Canadian Section of the IJC, was a strong advocate for the full development of the St. John River. He saw it as a natural complement to the proposed Columbia River projects. See, for instance, NARA College Park RG59 File 611.42311/11-354, Minutes of IJC Semi-annual Meeting, Ottawa, ON, 8 October 1954; Tweeddale, interview by David Folster, tape 1, p. 7.
  - 29 Report of the Committee on Foreign Affairs on S.J. Res. 12A, Resolution requesting the Secretary of State to Arrange for the IJC, US and Canada, to Conduct a Survey of the Proposed Passamaquoddy Tidal Project, 14 July 1955.
  - 30 “Passamaquoddy Revival Part of Seaway Deal,” *Boston Herald*, 22 January 1954.
  - 31 LAC, RG2 Acc 90-91/154 Box 100 File W-10-8 Water Resources and Development – Passamaquoddy Tidal Power Project, 1953-59, “Memorandum to Cabinet: Passamaquoddy Tidal Power Project,” 19 March 1956.
  - 32 *Report of the International Joint Commission on the International Passamaquoddy Tidal Project*, April 1961, 1–2.
  - 33 LAC RG25 Col. 4724 File 1011-40 Pt. 1 Passamaquoddy Tidal Project, 1948–50, A. G. Huntsman, “Tidal Power and the Fisheries.”
  - 34 *Report of the International Joint Commission United States and Canada on the Passamaquoddy Tidal Power Project*, April 1961, Section C, 16–17.
  - 35 The Engineering Board subsequently established an Engineering Committee to oversee detailed studies conducted largely by the US Corps of Engineers, the US Federal Power Commission, and various Canadian government agencies.
  - 36 The International Joint Commission Tidal Power Project, Washington-Ottawa, April 1961, Section B Investigation of the International Engineering Board, 7–8.
  - 37 The International Joint Commission Passamaquoddy Tidal Power Project, Washington-Ottawa, April 1961, Section B Investigation of the International Engineering Board, 9–14.
  - 38 PANB H.J. Flemming Fonds RS 415 N4g Passamaquoddy Engineering Project Remarks by Lt. Gen Samuel D. Sturgis, Jr ... Before the Washington County Chamber of Commerce, Eastport, Me, 7 December 1956.
  - 39 PANB H.J. Flemming Fonds RS 415 N4g Passamaquoddy Engineering Project Statement of Hon. James C. Oliver ... for Submission to the International Joint Commission (undated).
  - 40 Richard W. Judd, “‘A Last Chance for Wilderness’: Defining the Allagash Wilderness Waterway, 1959–1966,” *Maine History* 40, no. 1 (Spring 2001): 1–20; Judd and Christopher S. Beach, *Natural States: The Environmental Imagination in Maine, Oregon, and the Nation* (Washington, DC: Resources for the Future, 2003), ch. 3.

- 41 William O. Douglas, *My Wilderness: East to Katahdin* (Garden City, NY: Doubleday, 1961). On Douglas's role in American conservation, see Adam O. Sowards, *The Environmental Justice: William O. Douglas and American Conservation* (Corvallis: Oregon State University Press, 2009).
- 42 The alternative location was identified in the report of the New England-New York Inter-Agency Committee in 1956. It called for the construction of a high dam at Big Rapids, located upstream from the Allagash, and a low dam at Lincoln School, downriver from Rankin Rapids. NARA Boston RG22 Box 13 Project Files Rankin Rapids, 1959–68, John S. Gottschalk to Gen S. D. Sturgis, Jr., 1 October 1959; US Department of the Interior Fish and Wildlife Service, "Substantiating Data for A Report on Fish and Wildlife Resources in Relation to the Rankin Rapids Dam and Reservoir, St. John River, Maine," September 1959.
- 43 NARA Boston RG22 Box 13 Project Files Rankin Rapids, 1959–68, "Substantiating Data for A Report on Fish and Wildlife Resources in Relation to the Rankin Rapids Dam and Reservoir, St. John River, Maine," September 1959, 32–4.
- 44 *Report of the International Joint Commission on the Passamaquoddy Tidal Power Project*, Washington-Ottawa, April 1961, 18; NARA Boston RG22 Box 13 Project Files Rankin Rapids, 1959–68, Mark Abelson (acting chairman, Northeast Field Committee, Department of Interior) to John B. Bennett, 26 April 1960; Edwin H. Robinson to Supervisor, Concord Area Office, 25 April 1960.
- 45 *Report of the International Joint Commission on the Passamaquoddy Tidal Power Project*, Washington-Ottawa, April 1961, 19–20. The IPEB re-examined the Big Rapids–Lincoln site and concluded that, while it would reduce inundation of the Allagash Valley, the alternative site would produce less power than Rankin Rapids and cost 20 per cent more.
- 46 *Report of the International Joint Commission on the Passamaquoddy Tidal Power Project*, Washington-Ottawa, April 1961, 26–7. The IJC final report paid more attention to concerns about the Rankin Rapids site than did the IPEB report. Nevertheless, when discussing St. John River developments, it focused on Rankin Rapids.
- 47 *Report of the International Joint Commission on the Passamaquoddy Tidal Power Project*, Washington-Ottawa, April 1961, 17–30 and 35.
- 48 John F. Kennedy, "Remarks in Response to a Report on the Passamaquoddy Tidal Power Project," 16 July 1963, John F. Kennedy Presidential Library and Museum, <https://www.jfklibrary.org/asset-viewer/archives/JFKWHA/1963/JFKWHA-206-002/JFKWHA-206-002>; on Kennedy's earlier support, see NARA College Park RG59 A1 5388 Box 3, St. John River Treaty Negotiations Sen. Edmund Muskie's Letter to Maine, June 1961.
- 49 Stung by the IJC's "harsh" handling of the IPEB's report, the Corps of Engineers eagerly participated in the review. NARA Boston RG77 Box 59 1517-08 Passamaquoddy Tidal Power BGen, Seymour A. Potter, Jr. to Lt. Gen. S. D. Sturgis, Jr., USA (Rtd.) 18 May 1961.
- 50 By this time, the federal Department of Interior and Maine state government, encouraged by well-organized preservationist organizations, were also considering

- a number of options to preserve the Allagash region. Eventually, in 1966, the state established the Allagash Wilderness Waterway.
- 51 The counties in which these developments would be located—Washington and Aroostook—were among the poorest regions in Maine.
  - 52 Quoddy’s feasibility was also improved by the planned use of a more efficient turbine that was to be used at the world’s only tidal power facility, in LaRance, France. Stewart Udall, Secretary Department of the Interior, *The International Passamaquoddy Tidal Power Project and Upper Saint John River Hydroelectric Power Development: Report to President John F. Kennedy*, July 1963, 8–11.
  - 53 “Quoddy Sound Project, Udall Informs Maine,” *Lewiston-Auburn Sun*, 3 August 1963. The project was to be built by the US Army Corps of Engineers and operated by the Federal Power Commission.
  - 54 “President Going All Out to Back Quoddy,” *Portland Press Herald*, 18 October 1963.
  - 55 Passamaquoddy-Saint John River Study Committee, *Supplement to July 1963 Report The International Passamaquoddy Tidal Power Project and Upper Saint John River Hydroelectric Power Development*, August 1964.
  - 56 Canada’s Consulate General in Boston reported regularly on the efforts by private power companies to discredit Quoddy–St. John. See, for instance, LAC RG20 Vol. 865 File 42-9 Water Use Policy/ Projects – Passamaquoddy Tidal Project, Consulate General, Boston to Under-secretary of State, External Affairs, 7 February 1964. This report included a copy of a card, entitled “Electrifacts of Interest to You,” that the Boston Edison Company sent to its customers and in which the utility outlined its objections to Quoddy. See also, “Passamaquoddy’s cost estimates ebb and flow,” *Engineering News Record*, 17 October 1963.
  - 57 LAC, RG20 Vol. 865 File 42-9 Water Use Policy/ Projects – Passamaquoddy Tidal Project Telex – Canadian Embassy in Washington to External, 2 April 1965.
  - 58 Stewart L. Udall, Secretary US Department of the Interior, *Report to President Lyndon B. Johnson, Conservation of the Natural Resources of New England The Passamaquoddy Tidal Power Project and Upper Saint John River Hydroelectric Development*, July 1965, 6–7.
  - 59 Using the Columbia River Treaty as a model, negotiators crafted a draft agreement that would see the United States and Canada share downstream benefits of upriver storage on a 50/50 basis, and a commitment was made to create a Maritime–New England power grid.
  - 60 NARA Boston RG77 Box 59 File 1517-08 Passamaquoddy Tidal Power, John Wm Leslie to David O. Wilkinson, 8 October 1971. Despite the lack of appropriation, Dickey-Lincoln remained a congressionally “authorized project.”
  - 61 *Effects of Storage on Power Generation in New Brunswick, Report of the Saint John River Board* (Fredericton, NB: Queen’s Printer, June 1960). The American section of the IPEB watched this investigation closely. One member lamented that the report’s calculation of downstream benefits from Rankin Rapids storage was “disappointingly low.” NARA Boston RG77 Box 70-28/15/10-5, Letter to Lt. Gen. Sturgis, 19 April 1961.

- 62 Andrew G. Secord, "NB Power 1967–72: Constructing the Export Dream," *Journal of New Brunswick Studies* 10 (Fall 2018): 3–20.
- 63 LAC RG20 Vol. 865 File 42-9, Water Use Policy and Projects Passamaquoddy Tidal Project, USA Division to Mr. Ritchie re: Talk with Mr. Reginald Tweeddale, November 1963; LAC RG20 Vol. 865 File 42-10 Water Use Policy and Projects – St. John River, NB Minutes of a Meeting with Reg Tweeddale, General Manager NBEP, 17 November 1964.
- 64 LAC RG20 Vol. 865 File 42-9, Water Use Policy/ Projects – Passamaquoddy Tidal Project, Meeting of the Sub-Committee on the Passamaquoddy Project, 19 November 1964.
- 65 Muskie would continue to champion both Quoddy and Dickey-Lincoln; indeed, in the midst of the energy crisis in the 1970s both projects would again be given federal consideration. Quoddy was again found economically unfeasible and Dickey-Lincoln again fell victim to a strong private power lobby and a stricter environmental assessment regime, which highlighted negative ecological costs associated with the flooding of the upper St John River Valley.