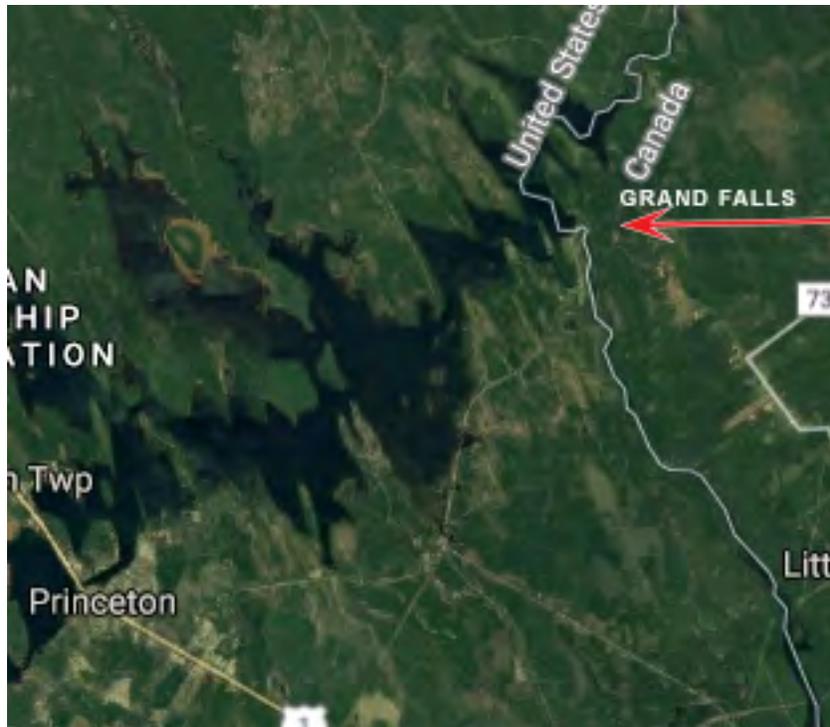


Grand Falls

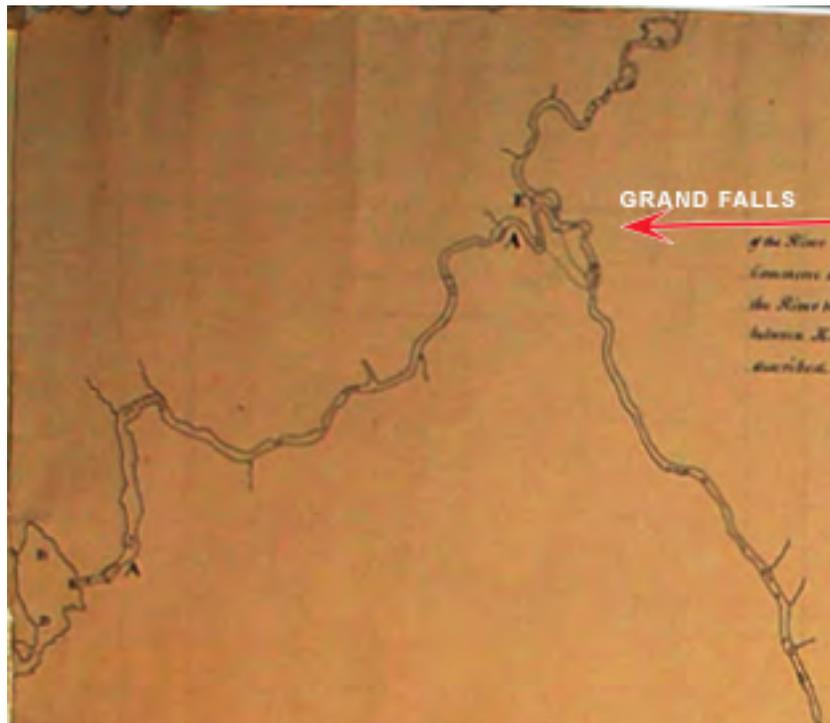
Grand Falls is at the upper end of the main stem where the East and West branches of the Schoodic River meet. This is also the location of an ancestral village site where the Passamaquoddy fished for sustenance.



Map showing the island located at the fork of the St Croix River at Grand Falls. This is a small section of a surveyor's map of St Croix River made in 1836 by William Anson



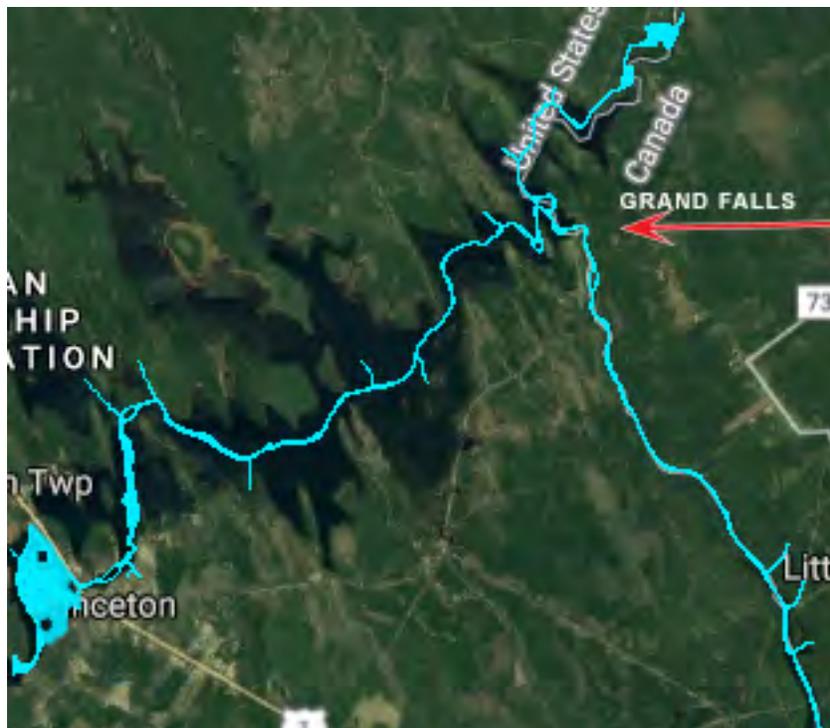
Air photo of the Grand Falls Flowage.



*Small section of a 1817 map of St Croix River area.
Showing the river before the Grand Falls dam was built ¹*



1817 map with blue river overlay



*1817 river overlaid on top of air photo.
Shows flooded land in the Grand Falls Flowage*

*About 6,000 total acres were flooded.
3,000 acres flooded at Indian Township*

- 1902 A detailed profile survey was done of the main stem of the St Croix River.² The profile shows continuous elevations of the river and shows that Grand Falls had two distinct sets of falls (upper and lower). The upper pitch was about 1,200 feet long with a drop of 15.5 feet and the lower pitch was about 600 feet long with a drop of about 10 feet. Domtar calculated the pitch a little differently.³ In an IJC hearing both of the falls were described as “gradual” pitches and were white water “rapids extending over a considerable length of the river”.⁴
- 1909 January 11, Boundary Waters Treaty between Great Britain and the United States of America.⁵ The treaty established the International Joint Commission (IJC) with the jurisdictional, investigative and administrative powers to carry out the aims of the treaty.⁶ It is responsible for overseeing and regulating boundary water resources (including jurisdiction over fishway operations, see 1915 and 1923 below).
- 1913 State of Maine allows St Croix Paper Co to flood Indian Township for the construction of the Grand Falls Dam.
- 1914 Construction began on the Grand Falls Power Dam.



- 1914 Verbal agreement between Maine Fisheries and St. Croix Paper Co. not to construct a fish way at Grand Falls. Instead, as a trade-off, the paper company would only have to pay \$5,000 for the construction of a fish screen to be built up-river at West Grand Lake. Screen would block Landlocked Salmon from escaping downstream.
- 1915 Construction finished on the Grand Falls Dam projects:
- Large main dam is about 1,100 feet long and 48 feet high. Built bank to bank across the main stem of the river and across the international border, just below the forks of the river.
 - Dam floods a total of about 6,000 acres, creating the impound known as the Grand Falls Flowage. The fork of the river and some islands near the fork are now under water. The flowage mostly floods the West Branch of the river.
 - Dam floods about 3,000 acres of Passamaquoddy land on the Indian Township Reservation.
 - The Grand Falls Flowage water is diverted to flow down through a man-made canal into a hydroelectric power generating plant. There is also a smaller dam built at the end of the canal upstream of the hydro turbine facility
 - No fish way built even though one was expected, promised and required (see below).⁷

1915 June 15, the IJC met in Calais, Maine. The IJC did expect a fish way be built at the new Grand Falls Dam and learned that no fish way was actually built. Developers told IJC that they would construct a fish way “right away”. There was lots of discussion at the hearing on fish passage and why a fish way was not built. There was also concern that no fish way would result in permanent injury to the fishery and the fishing industry.

At the meeting Mr. Cockburn made the following statement “*We expected to have a fish way constructed by this time, and we are sorry for the delay, and we will not allow it to continue longer.*” After insisting that a fish way be built right away the engineer for the St Croix Paper Co, Mr Whittier said “*I understand that as soon as the fishery authorities decide on what kind of fishway they want it will be built right away.*”⁸ **No fishway was built at Grand Falls until 1965.**

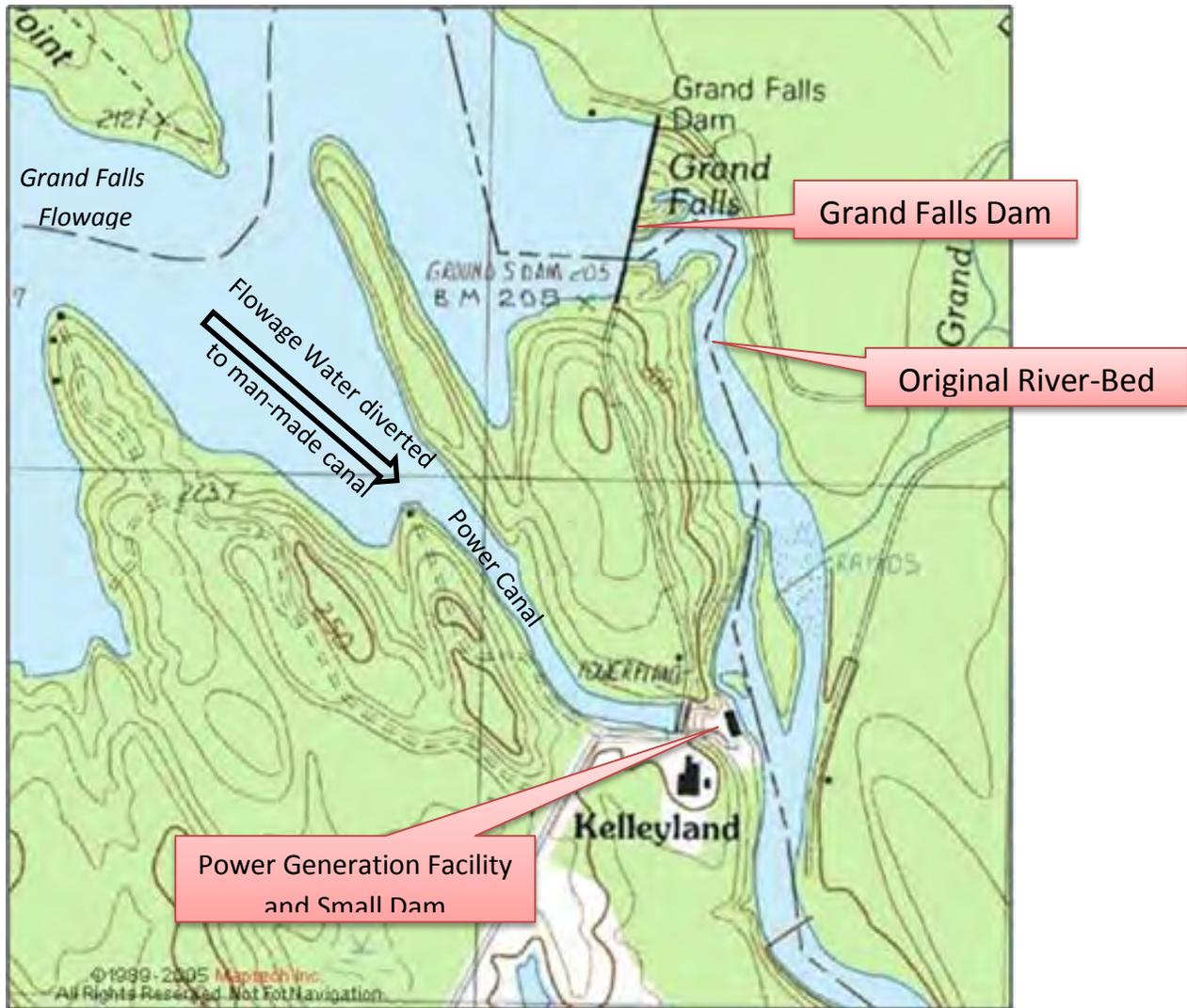
Below are some facts about Grand Falls from the 1915 IJC meeting:

The river was about 100 feet wide where the Grand Falls dam was built.

St Croix Paper Co. diverted the river water through the canal and build a power generating facility at the canal because the slope of the natural riverbed at Grand Falls was not steep enough to build a power generation facility in the natural riverbed (where the big dam is located). This gradual slope of the main channel of the riverbed was the reason why the power canal was constructed. The engineers said that the canal was designed to divert and deliver a sufficient head of water from the river into the new power plant. ⁹

1915 November 9, the IJC issued an order of approval permitting the St Croix Paper Co to operate the Grand Falls dam, previously built without a fish way. The IJC did not wish to override the verbal fish way trade-off agreement between Maine Fisheries and St. Croix Paper Company. The IJC also assigned surveillance to an advisory and managing board named the International St Croix River Board of Control.¹⁰

The IJC issued an opinion that the companies that built the Grand Falls Dams and canal did so without proper authorization from the United States Congress. Congressional approval is needed to “legalize it within the United States Territory.” ¹¹ The IJC said the dam works were “illegal” but approved the whole project anyways, after the fact.



1923 August 3, The IJC held a hearing in St Andrews in the Matter of the Application of the Commissioner of the Inland Fisheries and Game for the State of Maine for the Erection and Repair of Fishways in the St Croix River. Commissioner of IF&G, Willis E. Parsons was present at the hearing.¹²

Mr. Calder, an inspector of fisheries for New Brunswick, testified at the hearing as representative of the fisheries branch of the Dept. of Marine and Fisheries. Calder stated that Maine Commissioner Parsons, of IF&G... *“has entered into an agreement with the State of Maine authorities under which the St Croix Pulp and Paper Co. have assisted the State of Maine to the extent of some \$5,000 in the erection of a screen across the outlet from Grand Lake which enters into the St Croix River.”*

Calder continued: *“In consideration of the St Croix Pulp and Paper Co paying some \$5,000 toward that, the State of Maine authorities have relieved the St Croix Pulp and Paper Co from their obligation to install a fishway in the Grand Falls Dam. That screen is erected for the purpose of keeping fish from going down into the St Croix River.”*

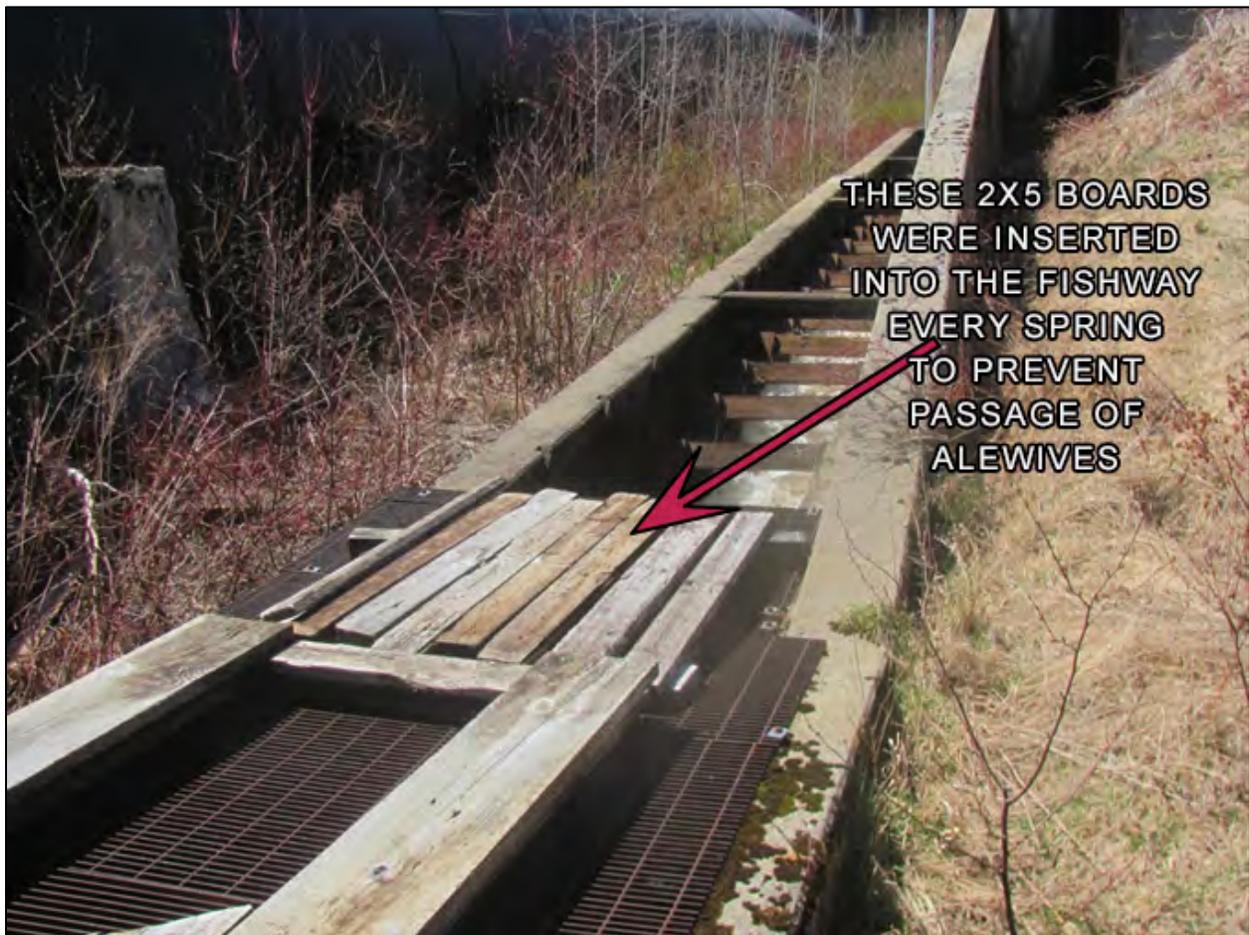
Calder Continued: *In all fairness I must submit that I consider that an unfair diversion of fish.*

- 1923 Mr. Parsons, Maine Commissioner of Inland Fisheries requested the International Joint Commission to confirm his contention that the IJC did not have jurisdiction over fishways on dams regulated by the IJC on the St. Croix River. After a hearing, in which Mr. Parsons participated on behalf of Maine, the IJC unanimously rejected this interpretation and held that it did have jurisdiction pursuant to Article III of the 1909 Boundary Waters Treaty between Canada and America. The IJC Order required the dam owner to obtain agreement of Maine and Canada to plans for construction or repair of the fishways and to submit those plans to the IJC for approval in advance of construction or repair. Further, the IJC "recommended that the said fishways should be operated under an International Board of Control."¹³
- 1963 Federal funding of \$195,402 was provided to the State of Maine through the Accelerated Public Works Program for construction of fish ways at Woodland ¹⁴ and Grand Falls Dams ¹⁵ to provide upstream passage to Atlantic Salmon, Alewives, and American Shad. These funds were administered under the Federal Aid in Sports Fish Restoration program regulations. The grant agreement included a 25 year agreement between the Maine and the dam owner to operate and maintain the fish ways with an option for an additional 25 year renewal. ¹⁶
- 1965 June, new denil fishways officially opened at the Grand Falls and Woodland Dams.¹⁷ The new fish way was built at the Grand Falls Canal Powerhouse. Prior to 1965 Grand Falls Dam had no fishway (no fishway for 50 years).
- 1965 Alewives continue to be stocked by the State of Maine into the St Croix River at Grand Falls Flowage.¹⁸
- 1989 The 25 year lease for the operation and maintenance of the Woodland and Grand Falls fish way expired and was not renewed.¹⁹
- 1991 The Grand Falls fish way was blocked by Maine government.²⁰

- 1995 Woodland and Grand Falls fish ways blocked to alewife by Maine Law. Alewife runs in the St Croix begin to crash.

Although no evidence linking sea-run alewife as a threat to the bass fishery sports fishery interests began a campaign to rid the watershed of sea-run alewives. Lacking proper information Maine lawmakers and tribal leaders believed this invented hype. ²¹

- 2002 St Croix River sea-run alewife count plummeted down to 900 returning adult fish. The counting of sea-run alewives takes place at the Milltown dam fish way. The drop in numbers of alewives was the result of Maine blocking off fish passage in the fish ways at the Woodland and Grand Falls dams. *(see photo below of the boards used to block fish passage at Grand Falls)*



These are the tongue and groove boards used to block sea-run alewife passage at Grand Falls dam for many years. These boards (shown laying down and not in use) were slid down and stacked into a vertical slot inside the fish way. The stacked boards would create a dam and hydraulic drop inside the fish way that would be too high for sea-run alewife to jump over. Photo taken 2013

- 2011 Largemouth Bass caught in West Branch of St Croix. Maine changes law, placing no bag limit on Largemouth Bass in Grand Falls Flowage, Big Lake, Long Lake, Lewey Lake and the St Croix River.²²
- 2013 April 10 – LD 72 St. Croix Alewife bill Sent to Maine State Governor. This proposed law would provide that, by May 1, 2013, the Commissioner of Marine Resources and the Commissioner of Inland Fisheries and Wildlife must ensure the fish ways on the Woodland Dam and the Grand Falls Dam located on the St. Croix River are configured or operated in a manner that allows the unconstrained passage of river herring.
- 2013 April 23, LD 72 bill becomes law without the signature of Governor. Grand Falls fishway was opened to sea-run alewife passage. ²³
- 2013 June 5th, Schoodic River Statement of Cooperation signed at the ceremony/celebration conducted on the bank of the Grand Falls canal near the fishway that has been blocked. The Statement of Cooperation was signed by the USFWS, BIA, EPA, NOAA, and Passamaquoddy Tribe.²⁴
- 2014 Wodland Pulp begins working with the tribal Environmental Department personnel for tracking fish and studying fish passage at the Woodland and Grand Falls dams.
- 2016 August, countless thousands of juvenile alewives are killed from surge tanks blowing water out from the top of the surge tanks. Juvenile fish entrained inside tanks get blown out onto the roof and all over the ground along with water. This happens when pressure is relieved at the Power Generating Facility at the Grand Falls Canal.²⁵
- 2017 July, video confirmation of sea-run alewife passing through the Grand Falls fishway into the Grand Falls Flowage.
- 2018 Almost 10,000 sea-run alewives counted passing through the Grand Falls fishway into Grand Falls Flowage.²⁶

¹ Map from Maine Memory Network website, a Maine Historical Society Website at <https://www.mainememory.net/artifact/8560/zoom>

² St. Croix Paper Co, Profile showing surface of water in St. Croix River from the foot at Sprague's Falls to the head of Grand Falls, from an actual survey made in the winter of 1902, by D. F. Maxwell M.E.I.C. , profile drawn on a 25.5 ft. long graph paper showing the elevation of the riverbed.

³ Domtar Industries Inc, St Croix River document about dams and flows, 2012, page 5 says that The Grand Falls upper pitch drops 13.1 ft. and the lower pitch drops 12.8 ft.

⁴ Hearings and Arguments in ReApplications of the St Croix Water Power Company and the Spragues Falls Manufacturing Company Limited, IJC, Calais, Maine, Tuesday June 15, 1915, page 29

⁵ Boundary Waters Treaty, International Joint Commission web site at http://www.ijc.org/en/_BWT

⁶ Historical Perspectives of Resource Development Branch Activities in Restoring Anadromous Fishes to the St. Croix River, New Brunswick-Maine, by T.L. Marshall, December, 1976, Internal Report series no. Mar/I-76-2, Freshwater and Anadromous Division, Resource Branch, Fisheries and Marine Service, Department of Fisheries and the Environment, Halifax, Nova Scotia

⁷ Hearings and Arguments in ReApplications of the St Croix Water Power Company and the Spragues Falls Manufacturing Company Limited, IJC, Calais, Maine, Tuesday June 15, 1915

⁸ Hearings and Arguments in ReApplications of the St Croix Water Power Company and the Spragues Falls Manufacturing Company Limited, IJC, Calais, Maine, Tuesday June 15, 1915

⁹ Hearings and Arguments in ReApplications of the St Croix Water Power Company and the Spragues Falls Manufacturing Company Limited, IJC, Calais, Maine, Tuesday June 15, 1915

¹⁰ Historical Perspectives of Resource Development Branch Activities in Restoring Anadromous Fishes to the St. Croix River, New Brunswick-Maine, by T.L. Marshall, December, 1976, Internal Report series no. Mar/I-76-2, Freshwater and Anadromous Division, Resource Branch, Fisheries and Marine Service, Department of Fisheries and the Environment, Halifax, Nova Scotia, page 4

¹¹ International Joint Commission Order and Opinion in the Matter of The Applications of the St. Croix Water Power Company and the Sprague's Falls Manufacturing Company, Limited, for approval of a dam and power canal and the obstruction, diversion, and use of the waters of the St. Croix River at Grand Falls in the State of Maine and the Province of New Brunswick, Filed January 29, 1915, Decided November 9, 1915, Washington Government Printing Office, 1916. Page 7. (On page 9 the IJC said the works were "illegal") but the IJC approved the whole project anyways, after the fact.

¹² St Croix River Watershed Legal and Treaty Documents, May 2, 2016, Paul Bisulca and Charles O. Verrill Jr., Esq, Transcripts of the 1923 IJC Hearing.

¹³ Subsequently, the IJC's recommendation was addressed in a 1925 exchange of a Diplomatic Note ("Note Verbale") between the United States and Canada.' The Note implicitly acknowledges that the IJC properly asserted jurisdiction over the Grand Falls Dam fishways and provides that the two Governments "have agreed" that the jurisdiction of the International Board, established as a subsidiary by the IJC, "be extended to include the supervision of the operation of fishways "now or hereafter constructed on that portion of the St. Croix River that forms the international boundary." Such supervision is to include the "duty" of ensuring "a sufficient flow of water through the fishways." Each government also noted that it had instructed its member of the Board to "exercise" supervision in conjunction with the other country's member.

In sum, the IJC maintained control over the design, construction and repair offishways at the Grand Falls Dam, and its recommendation that the Board of Control have control over the operation of the fishways was approved by agreement of the United States and Canada as reflected in the Note Verbale. And, as noted, that agreement on the IJC's jurisdiction applies to "supervision of the operation" of fishways "now or hereafter constructed" on the St. Croix boundary waters. The language in bold print is an unambiguous statement of the intent of the Governments of Canada and the United States that the IJC, through its affiliate, has supervisory power over the operation of all fishways on St. Croix River dams in the boundary waters "now and hereafter."

The Note Verbale is an agreement between the United States and Canada that implicitly accepts the assertion of jurisdiction over fishways on dams on the St. Croix River (over the objection of Maine) in the 1923 Order and implements the recommendation of the IJC concerning ongoing oversight of the operation of the fishways through its Board.

Memorandum from Chuck Verrill, The Role of the 1925 Diplomatic Note in the Interpretation of the Boundary Waters Treaty, Revised April 25, 2016, page 1,

¹⁴ The Woodland and Grandfalls fishway projects were financed and conducted at the same time. Total cost was estimated to be \$279,553.

¹⁵ The following specifications for the fishway at the Grand Falls Power Dam are from a document produced by Woodland Pulp LLC entitled "Woodland Mill Fish Passage Facilities Specifications" dated 11-5-13.

Constructed 1964-65. Construction launched May 26, 1964. Construction contract awarded to Norman E. Jackson Inc. of Pittsfield, Maine for \$ 112,282.12. Project estimated at 50 foot rise (dam height), 600 ft. fishway length and containing 890 cubic yards of concrete. Three funding sources financed the project: The U.S. Accelerated Public Works Program (70%), St Croix Paper Co. (27%) and the Maine Department of Fish & Game (3%).

The Woodland and Grandfalls fishway projects were financed and conducted at the same time. Total cost was estimated to be \$279,553.

600 ft. long, 4 ft. wide Denil Fishway. Concrete with wooden baffles constructed 1964-65. Original baffle design 2'-4" clear spacing between each, modified to 2'-7 1/2" (2' 8") increasing velocity and flow up to 20%. This produces extra attraction flow but could increase fish effort.

Pool Measurements are outside wall measure. Normal Tailwater EL 151.8 , normal Headwater El. 203.2 – 51.4 foot rise over 600 feet.

Pool #1 entrance 12' 6 " wide by 20 ft. long With rounded pipe sections to increase jetting

Pool #2 7'6" wide x 16' long

Pool #3 7'6" wide x 16' long

Pool #4 11' 0" x 17' 6"

Pool #5 10' 6" x 11' 0"

Pool #6 7'6" wide x 16' long

Pool #7 7'6" wide x 17' long

Exit 4 ft. wide inside area, 8 ft. wide outside area (2 ft. concrete walls) x 10' long.

Baffles 4' 3" wide with 2'4" open slot and 11 1/2" ends. 6'0" height.

Entrance has bank lead and no distracting eddies.

Theoretical attraction flow requirement of 3% of turbine discharge would be 81 cfs. At normal operating head velocity was determined to be 28 cfs. Supplemental supply system of about 25 cfs discharges to Pool 1.

Restriction installed in entrance could increase velocity from 2 ft./sec measured in 1983 to the 4 – 6 ft./sec range.

Rounding of entrance here and at Woodland would allow jet to project further without increasing velocity or flow requirements

Small pools in system all about the same size- 320 cubic feet at average flow conditions and 380 cubic feet at high flow. This range allows holding of between 1600 and 1700 lbs of fish, 3200 to 3800 alewives (0.5 lbs

each average). At a 30minute residence over a 12 hour day , fishway capacity would be between 75,000 and 90,000 fish per day.

¹⁶ Case Study on Potential Loss of a State's Eligibility to Participate in a Federal Aid Program: Anadromous Alewife Passage at St Croix River Fishways in Maine, by Ron Essig, Federal Aid Division, Region 5, December 4, 2002

¹⁷ Historical Perspectives of Resource Development Branch Activities in Restoring Anadromous Fishes to the St. Croix River, New Brunswick-Maine, by T.L. Marshall, December, 1976, Internal Report series no. Mar/I-76-2, Freshwater and Anadromous Division, Resource Branch, Fisheries and Marine Service, Department of Fisheries and the Environment, Halifax, Nova Scotia (pg 13)

¹⁸ Historical Perspectives of Resource Development Branch Activities in Restoring Anadromous Fishes to the St. Croix River, New Brunswick-Maine, by T.L. Marshall, December, 1976, Internal Report series no. Mar/I-76-2, Freshwater and Anadromous Division, Resource Branch, Fisheries and Marine Service, Department of Fisheries and the Environment, Halifax, Nova Scotia (pg 13)

¹⁹ Case Study on Potential Loss of a State's Eligibility to Participate in a Federal Aid Program: Anadromous Alewife Passage at St Croix River Fishways in Maine, by Ron Essig, Federal Aid Division, Region 5, December 4, 2002

²⁰ The Quoddy Report, Two Hundred Years of Ecological Change in the Outer Bay of Fundy, Quoddy Rivers and Their Fish, St Croix River: A History of Human Impacts, pg 10, December 2002, Conservation Council of New Brunswick, 180 St John Street, Fredericton, NB.

²¹ Since the mid 1800's well organized and well-funded urban based affluent sportsmen have been able to influence legislative and fishery management policies in the St Croix River Valley to benefit sports fishing interests. Their spending and infusion of sporting tourist capital created economic opportunities on many levels (local, state and provincial). In addition to benefiting local merchants, and hotel proprietors, the treasuries of Maine and NB also profited by selling licenses to sportsmen. See Anglers, Fishers, and the St Croix River, Conflict in a Canadian-American Borderland, 1867-1900, Neil S. Forkey, Forest & Conservation History, Vol 37, No 4, October 1993, p179-187

²² Time line of the discovery of largemouth bass on Grand Falls Flowage (West Branch of St. Croix River), email from Tribal Wildlife Biologist, John Sewell, 2017

²³ LD 72 available at <https://schoodicriverkeepers.com/wp-content/uploads/2018/08/LD72.pdf>

²⁴ Statement of Cooperation on the internet at: <https://schoodicriverkeepers.com/wp-content/uploads/2018/08/Schoodic-River-Statement-of-Cooperation.pdf>

Picture of the Signing Ceremony for the Statement of Cooperation at:
http://www.wabanaki.com/wabanaki_new/images/Signing%20Ceremony%206-5-13.jpg

²⁵ Sipayik Environmental Dept documented dead juvenile alewife fish all around the ground near the stacks.

²⁶ Electronic tube counter installed by Passamaquoddy Ecology Program, Sipayik Environmental Department.