

**Oral Testimony** to Joint Standing Committee on Marine Resources  
LD 800, An Act To Prevent Passage of Alewives through the Grand Falls Dam on the St. Croix River  
by Theodore Willis, PhD  
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Co-Chair Baker, Co-Chair Johnson and other Members of the Joint Standing Committee on Marine Resources, thank you for this opportunity. My name is Theodore Willis and I am here to speak against LD 800. I am an adjunct research scientist at the University of Southern Maine. I am also an Environmental Planner II with the Passamaquoddy - Pleasant Point. Of most importance to this proceeding, I wrote the document *St. Croix River Alewife – Smallmouth Bass Interaction Study* which appears in Two Reports on Alewives in the St. Croix River, released in 2006. I also wrote the peer reviewed publications *How Policy, Politics, and Science Shaped a 25-Year Conflict over Alewife in the St. Croix River, New Brunswick-Maine*, printed in the conference proceedings for the American Fisheries Society Symposium Challenges for Diadromous Fishes in a Dynamic Global Environment and the 2013 article *Tracking cod diet preference over a century in the northern Gulf of Maine: historic data and modern analysis in Marine Ecology Progress Series*, an article that analyzes groundfish diet data from the St. Croix River estuary and Passamaquoddy Bay.

My first point is a question: If the Grand Lake Stream Guides Association is concerned about the Spednic Lake smallmouth bass population why is this law focused on Grand Falls fishway? Spednic Lake is 34 miles away from Grand Falls Dam and there are 42 mi<sup>2</sup> of habitat between Grand Falls Dam and West Grand Lake. Spednic and West Grand have their own fishways. The closure of Grand Falls Dam fishway in 1991, and subsequent crash in the alewife population to 900 adults, demonstrated clearly that those 34 miles and access to Lewey, Long and Big Lakes is necessary to maintain a stable alewife population in the St. Croix River. If

GLSGA is trying to protect Big Lake as well then the question becomes from what? Smallmouth bass in Big Lake did not grow any less when alewife were present. An unnecessary buffer is not worth driving a native species locally extinct for a second time.

GLSGA insists that physical factors had nothing to do with the alewife crash in Spednic Lake. However, eighty-five percent of the people who lived around Spednic Lake in 1973 were convinced that water level management was to blame for troubles in the smallmouth bass and landlocked salmon fisheries. Drawdowns during June exceeded two vertical feet in 1969 - 1971, 1978 - 1979, and 1981- 1983. During the summer months of 1978 there was drought, twice as much rain fell as normal in 1981 and the summer air temperature was 1.5 F degrees below normal in 1982. Any, or likely all contributed to poor smallmouth bass recruitment. Incidentally, alewife were already in Spednic Lake by 1972 when IFW detected them in a fisheries survey.

GLSGA insists that alewife never had access to the upper watershed of the St. Croix River. First hand observations by Patrick Campbell in 1792, before any dams were built in the mainstem, indicated that alewives could get over Salmon Falls. The physical survey of Grand Falls by engineer D.F. Maxwell from 1902 shows Grand Falls as a long rapids, not a waterfall. Searun alewife are native to the St. Croix and should not be confused with landlocked alewife. Landlocked alewife were brought into Maine by IFW in 1966 as forage for landlocked salmon. It is of little wonder that a bait bucket introduction of landlocked alewives took place after the searun alewife were excluded from the upper St. Croix.

Finally, we should all think about what it means to have something dear to us taken away, essentially legislated illegal as has happened to the Passamaquoddy with this issue. Alewife are

quite literally part of the Passamaquoddy belief system. Imagine if someone told you that parts of your belief system were illegal and would be allowed to disappear. Children and teenagers will make the case that their daddy's fishery is in jeopardy if LD800 is not passed, but the reality is that every lake in the St. Croix watershed has smallmouth bass in it. Close down Grand Falls Fishway again and the alewife will go extinct in the St. Croix for a second time. The difference is this time we will have made that decision knowingly and knowing better.

## Written Testimony

The Grand Lake Stream Guides Association has come out swinging this time over alewife access to lakes above Grand Falls Dam near Kellyland, ME. The GLSGA is asking the 127<sup>th</sup> legislature to reverse what the 126<sup>th</sup> accomplished just two years before. Open access for alewife, a native herring-like fish that spawns in lakes and is common to coastal rivers and streams in Maine, passed and went into law without Governor LePage's signature just two years ago. LD72, An Act To Open the St. Croix River to River Herring, rescinded a 1995 law that closed the fish ladders at Grand Falls and Woodland Dam on the St. Croix River. The 1995 law was a reaction to a second attempt at recovering alewife in the St. Croix drainage that happened to occur at the same time as an unprecedented crash in the smallmouth bass population of Spednic Lake, located in Vanceboro. The GLSGA squarely blames the alewife for the smallmouth bass fishery collapse and has, over 33 years, maintained closures in the watershed with the help of IFW. The GLSGA fended off two attempts to reopen the St. Croix, one in 2001 and a second in 2008.

Fueled with funds from a raffle that gave away a camp in Grand Lake Stream, and with lawyers to back them, the GLSGA is wasting no time getting out their side of the story. Alewife caused the crash of the Spednic Lake smallmouth bass population in the early 1980s. Alewife were never native to waters above Milltown, Me, where Salmon Falls is located. Fluctuating water levels and cold wet years had nothing to do with lost year classes of smallmouth bass. Let's consider the tenets of their argument one at a time.

But first, let's ask a basic geographic question: if the GLSGA is concerned about alewife destroying the Spednic lake fishery, again, then why are they asking the legislature to close the fishway at Grand Falls Dam? Why was Woodland Dam fishway closed from 1995 to 2013? Spednic Lake is 34 miles away from Grand Falls Dam and there are 42 mi<sup>2</sup> of habitat between Grand Falls Dam and West Grand Lake. Spednic Lake has its own dam and fish way, as does West Grand Lake. Is it because GLSGA believes smallmouth bass in Big Lake are at risk as well? My analysis of IFW data on Big Lake smallmouth bass showed that they grew better in years when alewife were present in the lake (Willis, TV. 2009. *How Policy, Politics, and Science Shaped a 25-Year Conflict over Alewife in the St. Croix River, New Brunswick-Maine*. In: Haro A et al. (eds) Challenges for Diadromous Fishes in a Dynamic Global Environment, Book 69. American Fisheries Society, Bethesda). Big Lake didn't even enter into the GLSGA anti-alewife argument until 2005. Why drive a native species to local extinction for the peace of mind in a 34 mile buffer? The closure of Grand Falls Dam fishway in 1991, and subsequent crash in the alewife population, demonstrated clearly that those 34 miles and access to Lewey, Long and Big Lakes are necessary to maintain a stable alewife population in the St. Croix River.

It is an undisputed fact that the smallmouth bass population in Spednic Lake was on the verge of collapse at the same time fishway construction was completed at Milltown Dam in St. Stephen, NB. GLSGA guides first noticed problems with their fishery in 1983, which they described as lunkers but no little fish. A joint New Brunswick/Maine snorkel study confirmed that 7" to 15" smallmouth bass were absent from the lake. Anywhere else the first suspects would have been weather followed by lake management. The guides swear that neither of these factored into what happened. An attitude field survey of the St. Croix River was conducted in 1973 as part of the IJC Spednic Lake Regulation Study. In it the researchers report:

“There is nearly unanimous feeling among the local townspeople and resident camp owners that the Georgia-Pacific Corporation and its predecessor, St. Croix Paper Company, have been insensitive to their interests in the operation of the Vanceboro Dam. All of the camp owners and local residents surveyed were unanimous that better stabilization of water levels on Spednic Lake is needed to improve access to the camps and to enhance fisheries. Approximately 85 percent felt that the fluctuations have contributed to the decline of the smallmouth bass and salmon populations in the lake and 75 percent reported serious erosion problems resulting from high water, particularly in the spring.” Report on Spednic Lake Regulation Study. St. Croix River Basin Maine and New Brunswick. International St. Croix River Board of Control. 1975

Camp owners in the 1970s were aware and vocally complained about the state of the smallmouth bass fishery and its relation to water levels. The report highlights changes of less than two feet as contributing to stability in the population, however, lake elevation changes during the month of June were greater than 2 ft. in 1969 - 1971, 1978 - 1979, and 1981- 1983. Ironically, when interviewers reported that the smallmouth bass fishing was improving in 1973, after several years of stable lake levels, there were already alewife in Spednic Lake according to the IFW fishery survey of 1972.

Weather was likely a factor in the smallmouth bass declines as well, based on several wet and cold events in the late 1970s and early 1980s. In 1978 there was a drought in the area with only 3 inches of rain between June and August, compared to 11 inches on average between 1977 and 1996. In 1981 it rained 22 inches in the summer months, twice the average. In 1982 and 1984 rainfall was 2.8 inches above average as well. The summer air temperature was 1.5 degrees below average in 1982 and 2.4 degrees below average in 1986, the first year of the Spednic snorkel survey. The latitude of waters in the upper St. Croix match the northern limit of smallmouth bass in their native Midwest. The combination of cold and wet, particularly in 1981 and 1982, along with lake level drops of 2 -3 vertical feet during the smallmouth bass spawning season in those same years would have been enough to cause year class failures not noted until 1983 and 1984.

GLSGA insists that alewife never had access to the upper watershed of the St. Croix River. Originally this claim limited the alewife distribution to Grand Falls. After Passamaquoddis

discovered the original Grand Falls survey map by engineer D.F. Maxwell from 1902 in the Domtar archives the line of exclusion moved to Salmon Falls at Milltown. Ed Bassett and Lee Sochasky, in their 2013 testimony for LD72, put forth many credible arguments that rebut the claims in the Whitman Report of 2013 sponsored by the GLSGA. Of particular interest is the account of Patrick Campbell from 1792 who wrote of Salmon Falls:

“Next day after my arrival, I went to see what is called the falls of the Scudiac but they were no more than rapids, the water being hemmed in between rocks into a narrow space, which turns it into froth. In these whirlpools, a considerable number of Salmon, Herring or Gasparoes are caught in the season with scoop nets, which the fisher dips into the body of the eddies and caves of the rocks, where the water is in such a froth as to prevent the fish from seeing it; here he ranges it about until he feels a fish touch either the hoop, bag, or pole, and scoops it up.” Campbell, Patrick. 1792. Travels in the Interior Inhabited Parts of North America in the Years 1791 and 1792. Edinburgh, Scotland.

Campbell’s written account of what Salmon Falls looked like pre-dam and his report of fish making their way up those falls is worth far more as evidence of passage than Whitman or myself stating our estimates for how fast alewives can swim or speculating about whether the falls were passable with different iterations of Milltown Dam on top of them.

The 1870 Maine Commissioner of Fisheries report to the Governor and Executive Council (Atkins 1870) devotes three pages specifically to St. Croix fishways and fish passage between Calais and East Grand Lake, including descriptions of alewife passage at Vanceboro.

“Chepedneck [Spednic] Lake is an exceedingly irregular sheet of water, about twenty miles in length. It contains a vast area of spawning ground for alewives, and a few years of open fishways would bring them back again somewhat after the fashion of olden times.” Atkins, Charles G. 1870. Fourth Report of the Commissioner of Fisheries of the State of Maine for the Year 1870. Augusta, Maine.

Also, “In June or July last, a man fishing for suckers with a small dip-net just below this dam [Vanceboro], dipped up an alewife.” Not only did alewife have access to the upper St. Croix in living memory of Atkins interviews, but alewife were making the journey to Vanceboro before Grand Falls Dam was built in 1912 without a fishway. And the JCRPFWC of Canada and the United States 1897 corroborates the observations of the two previous reports:

“None of the falls and rapids on the St. Croix River were sufficiently high and abrupt, in their natural condition, to prevent the ascent of the anadromous fishes.” Joint Commission Relative to the Preservation of the Fisheries in Waters Contiguous to Canada and the United States. 1897. Ottawa, Ontario.

It was indisputable to the people who lived during that time that alewife ascended the St. Croix at least as far as Mud Lake below East Grand Lake.

Finally, GLSGA asserts that alewife could not have accessed the whole watershed because overfishing was occurring by 1811, well before Union Dam was built, when inhabitants

of Baring petitioned for relief from dams in the river. GLSGA argues that the population could not have been as large as the 23 million alewife predicted by DMR if it was overfished so quickly. That number is an estimate at carrying capacity, i.e. the believed max that could occupy the watershed. Alewife are density dependent, that is only so many will reproduce in an area before they start negatively affecting each other's growth. It is likely that the population size was smaller than carrying capacity. The closures in 1987, 1991 and 1995 clearly demonstrated the alewife's sensitivity to accessible habitat. The wing dams shown in Whitman's Fig. 18 in Addendum 3 to "An Investigative - Research Study of the St. Croix River An Engineers Perspective", built around 1802, would have severely reduced the number of anadromous fish that could pass upstream. Dams also concentrated fish and made them easier to catch as fish returning to spawn piled up under the dam. The combination of fishing and dams would have made the St. Croix alewife population that much more vulnerable to exploitation.

In conclusion, LD800 Ought Not to Pass. GLSGA assertions are based on anecdotal observation backed by cherry-picked information from publications scattered through history. Rather than continue to facilitate the Maine State Legislature driving a native species locally extinct, GLSGA should petition for assistance in improving the infrastructure and advertising services in Grand Lake Stream and Forrest City. If GLSGA were to seek ways to create opportunity rather than suppress the rights of other users of the St. Croix River watershed the rising tide might provide more economic opportunity for everyone in Rep. Turner's district.