

Apr 23, 2022

To: Forestry Maps via Form and e-mail to <forestrymaps@novascotia.ca>

From David Patriquin Prof of Biology, Dalhousie University (retired)

Re: Harvests LU099960C, LU099961B, LU068578A near Bridgewater and in the Petite Riviere watershed/home of endangered Atlantic Whitefish

Much concern has been raised about these harvests announced on Feb 10th, 2022 (with today as the final day for comments) because of the threat to the endangered Atlantic Whitefish, and potentially also to the water supply for Bridgewater. I agree with the perspective that harvests LU099961B, LU068578A in particular should not be approved because of their close proximity to Minamkeak Lake. LU099960C drains into Millipsigate Lake which is also in this watershed above the dam, and should likewise not be approved. The risks to this species are simply too high.

In particular I am concerned that increased access as a result of logging activities and construction of roads could result in introduction of smallmouth bass and/or chain pickerel, so far kept out of these lakes. Either would be the death knell for this population.

I am also concerned about the possible marginal status of Minamkeak Lake as habitat for the endangered Atlantic Whitefish. In particular I note from data cited in Ginn et al., 2008*, inserted below, that there was very low dissolved oxygen at the bottom of this lake. As it stands these three lakes are not deep, but they are deep enough to stratify, and that cold water is likely very important for the Atlantic Whitefish. Ginn et al., observed a 'climate warming signal' in all 3 lakes (based on historical diatom assemblages). The value 1 mg/L at the bottom of Minamkeak Lake in 2004/5 was well below limits for cold water fish. That also raises concerns that it may at times go anaerobic, triggering release of phosphorous and thereby accelerate eutrophication. Climate warming worsens the problem because oxygen solubility decreases with increasing temperature. Forestry operations could only make this situation worse, e.g. by diverting and allowing more warming of waters in stream flows by roads or along off-road vehicle tracks.

Table 1. Mean physical and chemical data recorded for the three Atlantic whitefish study lakes (2004/2005), Nova Scotia, Canada

	Hebb Mill	Milipsigate	Minamkeak
pH	6.1	6.3	7.4
Total phosphorus (TP) ($\mu\text{g L}^{-1}$)	7.5	10.2	11.2
Surface area (ha)	431.0	335.8	788.6
Maximum depth (m)	15.0	16.0	16.0
Total organic carbon (TOC) ($\mu\text{g L}^{-1}$)	3.8	3.6	3.0
Dissolved O ₂ (surface) (mg L^{-1})	7.9	8.6	8.6
Dissolved O ₂ (bottom) (mg L^{-1})	5.2	4.4	1.0

BRIAN K. GINN, LAURA C. GRACEa, BRIAN F. CUMMING and JOHN P. SMOL. 2008

Tracking anthropogenic- and climatic-related environmental changes in the remaining habitat lakes of the endangered Atlantic whitefish (*Coregonus huntsmani*) using palaeolimnological techniques *Aquatic Conserv. Mar. Freshw. Ecosyst.* 18: 1217–1226

On a more hopeful note, Ginn et al., 2008 did not observe an Acid Rain signal, commenting that “Contrary to initial concerns, these only remaining habitats of the Atlantic whitefish have not yet been affected by acidic precipitation”. Please note the “not yet” comment, however. Because of the the bedrock and surficial geology (“poorly weathered metamorphic bedrock belonging to the Halifax Formation of the Meguma Group, with shallow soils derived from glacial till “), one would suspect that the area could be susceptible to acid rain induced acidification. Limnologists in NS have published several papers in the last decade showing that the lakes in our more poorly buffered landscapes continue to acidify under current levels of acid rain, and DNR/L&F/NRR research illustrates that logging can contribute to further acidification**

**Please see “On Salmon and Soils, An Update” at <http://nsforestnotes.ca/current-issues/calcium-depletion/update/> (Post on Nova Scotia Forest Notes, Feb 21, 2022) for the pertinent literature.

Perhaps with the new regulations related to the Lahey Report etc., these risks are 'minimal'. But because we are dealing with the last of a species, it is simply not worth taking the risk of approving these harvests, however minimal the risks might be.

I appreciate your consideration of these comments

– *David Patriquin*

cc:

- Premier Tim Houston:
premier@novascotia.ca

- Minister Tory Rushton:
(Dept of Natural Resources & Renewables)
mindnr@novascotia.ca

- George Buranyi
Bridgewater Watershed Protection Alliance

PostScript: I copied these comments into a text file, without the inserted table above, and then pasted them into the Submit Comments form for LU099960 c. I did this twice, with the same result: “Error Posting Form”. I then wrote this in the form: “Comments were submitted to forestrymaps@novascotia.ca as this form would not take them, apparently because of the length (if this goes through)”

This shorter comment did go through. Beginning on Jun. 4, 2021, Forestry Maps has prefaced all New Harvest notices that go out to subscribers by email with the comment “only emails submitted using the comment function on the Harvest Plans Map Viewer will be considered during the harvest plan review process.”

So Please Harvest Maps, acknowledge receipt of this e-mail and confirm that the comments will be considered. Thanks. - *David P*