



APPENDIX C1 - Summary

Lake Memphremagog Fish Contamination and Environmental Justice

The Vermont DEC 2021 Vermont Per- and Polyfluoroalkyl Substances (PFAS) Study Surface Water, Fish Tissue, and Wastewater Treatment Facility Effluent Monitoring Report revealed significant quantities of PFAS and mainly PFOS in the flesh of fish observed in the Lake Memphremagog basin but also in other waterways in Vermont, and particularly also in the Winooski River.

One of the major contaminants is this family of PFAS made up of thousands of molecules of which only a limited number are subject to evaluation and control. NEWSVT and Vermont studies have revealed that PFAS are rarely removed in municipal wastewater treatment plants such as those in Newport.

Even, some of the PFAS which are the most toxic see their concentration increase through the degradation of precursors in some municipal wastewater treatment plants. We assess that significant quantities of PFAS could have been discharged into Lake Memphremagog at the Newport WWTF effluent.

This overdose of PFAS from the Coventry site is added to the PFAS from municipal wastewater, and from soil drainage during rains and snow melt. Although low in concentration in Lake Memphremagog, the 2021 Vermont study found significant bioaccumulation in the flesh of all fish evaluated. Would levels of PFOS, one of the most toxic PFAS molecules, reach a threshold that would make human consumption of these fish risky?

As for fish from the Lake Memphremagog basin, the concentration of PFOS was on average close to 1500 ng/kg of wet flesh, which is high. Some of these species being edible, such as yellow perch and brown bullhead, does their human consumption represent risks? And if so, what would be the consumption limits to avoid health risks? PFOS is recognized as toxic, and also carcinogenic. By comparing the concentration of 1500 ng/kg with some standards of Vermont, we were able to summarily deduce a certain level of danger from the consumption of the fish which were the subject of the study.

Thus, for Vermont, a liquid is considered dangerous if the sum of PFOA and PFOS exceeds 20 ng/L. Also, for drinking water consumption, Vermont's regulation is that the sum of five PFAS including PFOA and PFOS must not exceed 20 ng/L. For the fish observed, PFOA not having been detected, only PFOS will be included in the comparison. With an average concentration of 1477 ng/kg PFOS in fish flesh, this is 74 times higher than 20 ng/L. And for a portion of 150 g, that would be 222 ng PFOS so 11 times more than 20 ng/L.

Should Lake Memphremagog see its fish even more contaminated by significant inputs of PFAS from leachate generated by waste coming from municipalities in Vermont outside our lake basin and even from other states?

In 2022, the state of Vermont adopted No. 154. An act relating to environmental justice in Vermont (S148). Here is an extract on the environmental burden that must be equitably distributed:

(3) **“Environmental justice”** means all individuals are afforded equitable access to and distribution of environmental benefits; **equitable distribution of environmental burdens**; and fair and equitable treatment and meaningful participation in decision-making processes, including the development, implementation, and enforcement of environmental laws, regulations, and policies.

OVERDOSE of leachate at Newport WWTF due to inputs of solid waste from outside the Lake Memphremagog basin contribute to MORE PFAS into Lake Memphremagog and EXTRA PFOS fish tissue contamination. Does that constitute a NOT « equitable distribution of environmental BURDENS »?

MCI objectives are simple and clear:

to have Newport WWTF removed «forever» from the NEWSVT Coventry list of leachate destinations even after treatment and have the leachate’s final destination out of Lake Memphremagog basin «forever».

What is the state of Vermont's position on MCI's request to completely ban the disposal of raw, pretreated or treated leachate from the NEWSVT Coventry site to the Newport WWTF or elsewhere in the Lake Memphremagog basin?