Assessment of the winter condition of Atlantic salmon parr and pre-smolts experiencing hydropeaking flows.

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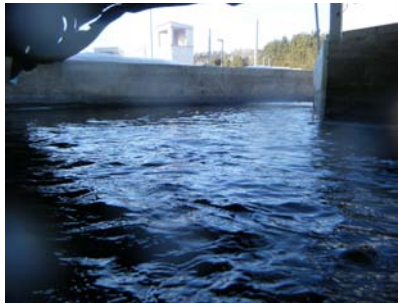

Rationale: Winter conditions for Atlantic salmon parr are demanding. For many overwintering stream fishes, winter represents the period when significant energy reserves (i.e. lipids) are depleted. In many regulated rivers, winter hydropeaking flows representing 2-50 times the base flow are realized on a daily basis. The combination of limited physiological capacity and environmental stressors associated with hydropeaking flows may impose limiting conditions for the survival and development of overwintering Atlantic salmon parr. We test the hypothesis that hydropeaking flows affect overwintering condition of Atlantic salmon by designing an experimental setup that will have hydropeaking flow regimes in large outdoor tanks with natural substrate and habitat.

Description: Altantic salmon parr were collected from the Tobique River (regulated river) and transported to large outdoor tanks at the Mactaquac Biodiversity Centre that have hydropeaking flow regimes, similar to many hydropeaking facilities. The overwintering conditions of Atlantic salmon is monitored by assessing changes in condition factor (K), fat content (using Bioimpedance Analysis), and smoltification.

Outcomes:

- Provide new knowledge on the overwintering condition and smoltification success of Atlantic salmon in hydropeaking rivers.

Benefits from this research: The information gained from this experiment will broaden the knowledge of the hydropeaking effects on Alantic salmon and can also be used in management decisions on flow regulation in rivers with Atlantic salmon parr.

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