

Effects of hydro-electric dam ramping rate regimes on fish growth, condition and habitat use



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Rationale: Anthropogenic alteration of river systems through the operation of hydro-electric dams can result in negative impacts on downstream fish populations. Understanding these impacts and their causal mechanisms is an important first step to designing management schemes which minimize detrimental effects on resident fish communities.

Description: Sampling will be conducted on the Batchawana and Magpie Rivers near Sault Ste. Marie, ON. The Batchawana River was chosen as an environmental control for the Magpie River, on which a 15MW dam operates. Ramping restrictions on the Magpie River were lifted in 2004 as part of an ongoing collaboration between DFO, MNR and Brookfield Renewable Power. Specimens of four abundant fish species (Slimy Sculpin, Longnose Dace, Brook Trout and Trout Perch), which exhibit a range of habitat preferences and life history strategies, were collected by backpack electrofishing. Differences in the growth rates, thermal habitat use and condition factors of fish will be investigated with regards to river and ramping rate regime.

Outcomes :

- Quantification of the effects of hydro-electric dam ramping regimes on fish growth rates, habitat use and condition factor

Benefits from this research: As the hydro-electric sector continues to develop, it will remain essential to minimize detrimental effects on fish populations, while ensuring the viability of the industry. The results of this study will inform the design of government regulations and industry management strategies to achieve this aim.



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