

Winter stressors for fish in rivers: The effect of flow regulation



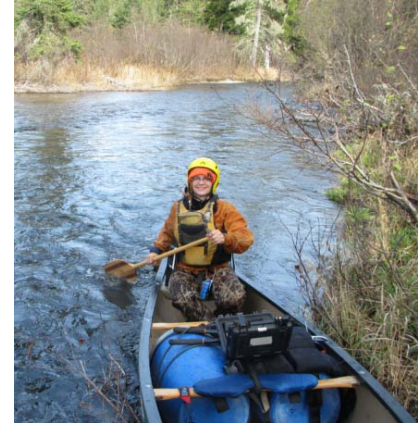
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Rationale: *Winter conditions can have significant negative effects on fish living in rivers. Regulated environments may mitigate or aggravate the negative effects that winter conditions have on fish survival. The presence of river ice, combined with water level regulation by hydroelectric generating stations, creates a poorly understood and complicated physical habitat for juvenile fish and eggs.*

Description: *Our study streams included both regulated and unregulated streams: four in Newfoundland (winter 2010-2011), three in New Brunswick (winter 2011-2012), and one in Alberta (winter 2011-2012). Winter ice conditions were observed using remote cameras at all sites and water temperatures and levels measured throughout the winter at our New Brunswick sites. Additional data were also collected by our University of New Brunswick collaborators including dissolved oxygen concentration and salmonid winter egg survival.*

Outcomes:

- *We aim to improve the understanding of the winter environment in small regulated streams and learn how it compares to that in small unregulated streams with the goal of characterizing the effect this environment may have on winter fish survival*

Benefits from this research:

Understanding how hydropower activities affect winter fish habitat will provide information on which to base new policies for the sustainable operation and management of facilities during the winter season, which is seen as survival “bottleneck” for many aquatic species.



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