

Physical habitat and invertebrate communities below a hydropeaking dam: Examining progressive downstream change



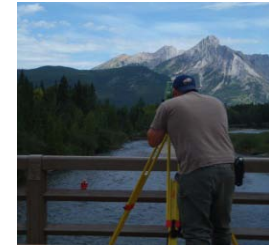
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Rationale: *Hydropeaking power operations result in the most extreme daily flow alterations when compared to other hydropower operations. Such flow regimes have been identified as harmful to fish and invertebrate life. However, studies explicitly examining the short term changes in physical habitat and the progressive downstream attenuation of peak flood flows are lacking.*

Description: *Seven study sites were chosen along the Kananaskis River, spanning a distance from immediately below a hydropeaking dam to approximately 35km further downstream. At each site, depth and velocities were measured, and bed mobility was determined by tracer rocks. Quantitative changes in these variables will be used to systematically determine changes in fish habitat between high and low flow releases at short and greater distances downstream from the hydropeaking facility. Additionally, four sites were chosen on the regulated river for benthic invertebrate sampling with four control sites on a non-regulated reference river. This will help determine how changing food sources at progressively further distances from the dam may also be affecting fish populations.*

Outcomes:

- A greater understanding of specific physical changes in the short term variability between low and high flow hydropeaking releases, and how these changes differ downstream.
- Quantitative understanding on how invertebrates fair at short (~2km) to long (~35km) distances below a hydropeaking dam.

Benefits from this research: *Understanding how physical habitats downstream of hydropeaking dams change, and what this means to invertebrate communities will help better management techniques.*



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