HydroNet Project Title: Morphodynamics of a hydropeaking system: Geomorphic and Ecologic change along the Kananaskis River

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Rationale: *Understanding dam induced physical habitat changes can be improved through consideration of not only flow alterations but also geomorphic and ecological adjustments. This study utilizes an interdisciplinary approach to understand river dynamics.*

Description: *The 1955 damming of the Kananaskis River provides a unique opportunity to assess changes in channel morphology associated with dams. This river now experiences a hydro-peaking flow regime. In contrast to most dam-influenced systems, sediments sources were not affected therefore changes in channel morphology can be attributed to the altered flow regime. This study assesses the reach scale morphological change on the Kananaskis which has occurred since 1958. We also considered the role of riparian vegetation and ice dynamics in modulating these channel changes. We also identify distribution of depths and pool characteristics at multiple sites downstream of the dam to understand ecologically relevant channel changes. Historic aerial photos, airborne remote sensing techniques and modeling were used to characterize the changes in the Kananaskis as a result of flow alteration.*

Outcomes :

- Development of methods to assess and quantify channel change associated with river damming
- Quantification of role of altered flow regime and riparian vegetation on channel width adjustments
- Production of water depth maps derived from aerial photos

Benefits from this research

This study developed and combined efficient methods of assessing river dynamics at the basin scale. Use of similar methods can improve our ability to assess and predict changes to rivers in response to the construction of dams.