Entrainment Vulnerability of Bull Trout and Burbot at the Mica Dam (Kinbasket Reservoir, BC). E. G. Martins\*1, L. F. G. Gutowsky1, P. M. Harrison, M. Langford3, D. Zhu3, D. A. Patterson4,A. Leake5, M. Power2, and S. J. Cooke1 ([egmartins@gmail.com](mailto:egmartins@gmail.com); presentation)

1Carleton University, Department of Biology

2University of Waterloo, Department of Biology

3University of Alberta, Department of Civil and Environmental Engineer

4Fisheries and Oceans Canada

5BC Hydro

Fish entrainment occurs when individuals are displaced from reservoirs to downstream waters by way of water diversion through turbines or other water release structures. We used two years of acoustic telemetry data on adult bull trout (*Salvelinus confluentus*) and burbot (*Lota lota*) tagged in Kinbasket Reservoir (British Columbia) to investigate entrainment vulnerability and rates through Mica Dam. Our results revealed that 1) bull trout used the forebay more intensively and are potentially more vulnerable to entrainment than burbot; 2) entrainment vulnerability varied with water depth for both species, increasing as occupancy and intake depths converge as a result of seasonal drawdowns in the reservoir; and 3) both forebay use and entrainment varied on a seasonal basis (higher in the fall and winter). Entrainment rates over the two years of study were 6.7% for bull trout and 1.9% for burbot. We will also present preliminary results on a parallel study using acoustic telemetry to investigate fine-scale movement behaviour of bull trout and burbot in the vicinity (within 500 m) of the Mica Dam powerhouse. The fine-scale movement data will be integrated with modeled intake-induced flow data and will help us understand how the fish behave in relation to the flow field. Collectively, the results of these studies will help develop operational guidelines to reduce adult bull trout and burbot entrainment.