

Jillian Lightbown

Examining the relationship between water quality and land use in the North Saskatchewan River basin

Jillian Lightbown¹, Maria Cavaco¹, Craig A. Emmerton^{2,3}, Hannah Holzer¹, Cristina Buendia-Fores², Faye Wyatt², Maya Bhatia¹

¹Department of Earth and Atmospheric Sciences, University of Alberta, Edmonton, Alberta

²Alberta Environment and Parks, Government of Alberta, Edmonton, Alberta

³Department of Biological Sciences, University of Alberta, Edmonton, Alberta

Word count limit: 150

Current word count: 143

As anthropogenic activities force an increase in urbanization, need for agriculture, and shifts in climate regimes, land use and land cover are changing. As a result, runoff draining into streams and rivers which traverse through these landscapes are affected, with concomitant effects on downstream water quality. In order to assess this impact my research looks at the relationship between microbial communities, water chemistry, and land use in the North Saskatchewan river (NSR) basin, the drinking water source for the city of Edmonton. To investigate this relationship samples for over 40 water chemistry parameters and microbial community composition were taken from 93 NSR tributary streams in the summers of 2019, 2020, and 2021 spanning the full range of land types present in the basin. Understanding this relationship will provide insight into the impact of land use change on the water quality of nearby rivers.