



ALBERTA INNOVATES

Research and Innovation Project – Knowledge Transfer Summary

Project Title: Nutrient Objectives for Small Streams in Agricultural Watersheds of Alberta
Project No: 2338
Project Lead: Greg Piorkowski, Alberta Agriculture and Forestry
Partners: Alberta Innovates, Alberta Agriculture and Forestry, University of Alberta, Agriculture and Agrifood Canada, Alberta Environment and Parks, Intensive Livestock Working Group
Status: Ongoing

Project Summary:

Reducing nutrient loss from agricultural landscapes remains a priority in many of Alberta's watersheds, with a particular emphasis on phosphorus (e.g. Bow Phosphorus Management Plan). However, nutrient objectives for streams are lacking, which limits the definition of targets and end-points for agricultural watershed management programs. This research project addresses this knowledge gap by deriving regionally-applicable nutrient objectives for the Grassland and Parkland natural regions of Alberta that are based on the response of aquatic ecosystem structure, as it relates to algal growth and composition, and function, with respect to stream metabolism and nutrient attenuation, to nutrient enrichment. Regional nutrient objectives will be compared against site-specific nutrient objectives derived through in-stream water quality modelling in two watersheds undergoing management practice change to compare the relative value of generalized versus site-specific nutrient objectives as management targets. The achievability of the regional and site-specific nutrient objectives by implementation of agricultural beneficial management practices (BMPs) will be assessed in the two watershed management scenarios using watershed-scale simulations combined with a farm economic model to estimate the cost to producers of meeting the derived objectives.

Outcomes:

None available.

Links:

[http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/irr16339](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/irr16339)

Alberta Innovates Contact:

Dallas Johnson

dallas.johnson@albertainnovates.ca

