NSERC Canadian Network for Aquatic Ecosystem Services

Theme 2, Project 2.2

Effects of operational harvesting practices on hydrological and biological indicators of aquatic ecosystem services in northern hardwoods of central Ontario.

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Abstract

While forestry impacts on aquatic ecosystem services (AES) have been widely studied, few studies have examined impacts under operational selective-harvesting procedures. This study examines the effects of ongoing forest management activities on AES in northern hardwood forest headwater catchments in central Ontario. The following research questions are being addressed:

1. Does operational selective-harvesting impact AES in terms of stream hydrology and aquatic ecology?
2. Can benthic community structure be used as an indicator of selective-harvesting impacts on AES in northern hardwoods? And
3. Does the response of benthic community structure to selective-harvesting change with harvesting intensity and catchment scale in this landscape?

This study hopes to understand any potential impacts forest management activities may have on the hydrological and biological qualities of headwater streams in central Ontario. This study may find a correlation between the quality of AES and forest management activities. This project hopes to also identify key macroinvertebrate species that can serve as indicators of impacts of forest management activities on AES.

Keywords: Selective-harvesting, operational procedures, benthic community structure, streamflow response, headwaters, central Ontario

Geographic Location: Griffin Lakes Watershed, Sault Ste. Marie, Ontario, Canada

How does your project link to Canadian aquatic ecosystem services?

Understanding the effects of forest harvesting on aquatic ecosystem services is an important aspect of forest management. While forestry impacts on AES have been widely studied, few studies have examined impacts under operational selective-harvesting procedures.