

BC Journal of Ecosystems and Management

Volume 10 - Issue 2

Published by FORREX Forum for Research and Extension in Natural Resources

Abstract

Detecting effects of upper basin riparian harvesting at downstream reaches using stream indicators

Lisa J. Nordin, David A. Maloney, and John F. Rex

Stream evaluation field data from 44 basins in the Bowron River watershed were used in combination with results from GIS spatial analysis to investigate whether impacts from logging the riparian zone of upperbasin streams could be detected at downstream sites. The field data included responses to stream indicator questions taken from the BC Ministry of Forests and Range's Riparian Management Routine Effectiveness Evaluation (RMREE). The evaluation included questions associated with the following stream indicators: (1) channel bed condition, (2) channel bank condition, (3) in-stream large woody debris processes, (4) channel morphology, (5) aquatic connectivity, (6) fish cover, (7) moss, (8) fine sediment, and (9) aquatic invertebrates. This study examined the negative responses to these indicator questions in relation to the amount of upstream riparian harvesting that took place in each basin. Evaluated reaches that had been harvested to the stream bank were not significantly different from sample reaches with streamside buffers when both groups had harvested upstream riparian areas. Negative responses increased significantly at 30% upstream riparian harvest. Sites were grouped by this threshold (low/high) and compared to nonharvested sites to examine negative responses for each indicator. In discussing the results, we explore the potential role of recovery of harvested drainages, negative responses in the non-harvested group, elevation, soil erodibility, in-stream large woody debris processes, and aquatic invertebrate diversity (which may subsequently impact food and habitat supply for fish). The results support the best management practice of leaving a no-harvest riparian reserve on all small streams in order to mitigate downstream impacts.

Download Full [PDF](#) Article (842 KB)[print this page](#)  [email this page](#) [previous page](#)  [top of page](#) 