

UAA Environment & Natural Resources Institute (ENRI)

“Ecological Impacts of Stream Fords”

FY03 Grant Award: \$36,592

Project Match: \$24,414



Description and Purpose:

All-terrain vehicle (ATV) stream fords (i.e., shallow water crossings) are very common on the Alaskan landscape, occurring haphazardly wherever backcountry routes meet streams. Because of this, permits and best management practices (BMPs) are nonexistent (and would be impossible to enforce) and a reliable assessment of the number and location of ATV fords is not possible. It is likely that fords cause significant sedimentation in some areas of Alaska, but little or no research has addressed this. The few studies published to date have found increased

sedimentation in association with fords (e.g. Hinckley et al. 1984, Brown 1994), but these were conducted in arid environments with precipitation, geology, and vegetation so different from Alaska's that extrapolation is not meaningful. The primary objective of this study was to measure the extent to which ATV fords contribute to stream sedimentation.

The secondary objective of this study was to further examine the influence of sedimentation on stream biota. The Fine Sediment Biotic Index (FSBI), newly designed to detect stream impacts due to fine sediment in the northwestern contiguous United States, was tested as a cost-effective, sedimentation-specific tool for detecting biological impairment (Relyea et al. 2000). FSBI was selected for use in this study because it showed remarkable taxonomic overlap with Alaskan stream fauna and because it has shown sensitivity to suspended sediment levels during preliminary work conducted by ENRI. However, further testing was needed to determine the efficacy of this index in Alaskan streams. If effective, FSBI will be useful for measuring the intensity and duration of sedimentation on stream biota and for the testing of forestry and mining BMPs. Further analysis examined the influence of sedimentation on the food base available to salmonids in terms of macroinvertebrate biomass, abundance, and body size.

Project goals included determining:

- 1) the extent that ATV stream fords influence local bedload and suspended sediment in streams,
- 2) the distance of sediment transport downstream of ATV fords,
- 3) the efficacy of a biotic index designed specifically for the detection of sedimentation,
- 4) the impact of ATV fords on salmonid food resources, and
- 5) provide information regarding results to the professional community and the public.

Evaluation of Environmental Benefits:

Benefits were gauged by the information gained regarding sediment patterns in relation to ATV fords, the efficacy of FSBI in Alaskan streams, and the impact of sedimentation on salmonid food. Since public education is important in mitigating the impacts of ATV fords, project success and



environmental benefits were also assessed by the number of outreach opportunities provided, the number of volunteers and partner groups that participated, and the dissemination of information at professional meetings and to the public.

Deliverables:

- Final project report
- A status report for the outreach activities accomplished through June 30, 2003
- Approved amendments to the ENRI's QAPP

Project Contacts:

Grantee Project Manager:

Daniel Rinella, Researcher
University of Alaska Anchorage
Environment and Natural Resources Institute
707 A Street, Suite 101
Anchorage, AK 99501
phone: 257-2734 fax: 257-2707
Email: andjr@uaa.alaska.edu

ADEC Project Manager:

Timothy Stevens
ADEC/AWQ/NPS
555 Cordova Street
Anchorage, AK 99501
Phone: 269-7515 fax:269-7508
Email: tim_stevens@dec.state.ak.us