

INTRODUCTION

The Region III Forest Practices Riparian Management Committee Literature Review and Annotated Bibliography compiles published research relevant to riparian management issues in interior Alaska. Region III covers the boreal forest in Alaska north of the Alaska Range. At present, most commercial forest activity in Region III occurs in the Tanana River basin, with a small amount of commercial harvesting in the Kuskokwim River basin. Commercial operations could occur in other areas in the future.

The Alaska Forest Resources and Practices Act (AS 41.17) governs forestry operations on state, municipal, and private land. The Act is designed to protect fish habitat and water quality, while ensuring that management standards are workable for landowners and operators. The Act sets standards for riparian area management. On public land in Region III, harvesting may not occur within 100 feet of an anadromous or high value resident fish water body unless adequate protection remains for the fish habitat. On private land, harvesting within 100 feet of an anadromous or high-value resident fish water body must be located and designed primarily to protect fish habitat and surface water quality from significant adverse effects. Regulations that accompany the Act (11 AAC 95) establish best management practices for harvesting, roading, and reforestation.

The Act also specifies that the management intent for riparian areas is to maintain ten habitat components:

- a short- and long-term source of large woody debris,
- stream bank stability,
- channel morphology,
- water temperatures,
- stream flows,
- water quality,
- adequate nutrient cycling,
- food sources,
- clean spawning gravels, and
- sunlight.

In 1997, the Alaska Board of Forestry asked the Department of Natural Resources and the Department of Fish and Game to review the riparian management standards for Interior Alaska (Region III). The departments convened an interdisciplinary committee to do the science and technical review. The committee included fisheries biologists, hydrologists, and forest ecologists geomorphologists, foresters, soil scientists with scientific knowledge about Alaskan fisheries, riparian habitats, aquatic ecosystems, and interactions between forest practices, fish habitat, and water quality, and experienced field staff from the agencies. This group, the Region III Riparian Management Committee was charged with developing a waterbody classification system for interior Alaska, reviewing the existing riparian management standards, and if needed, recommending changes to the standards. The Board recognized that research from interior Alaska is scarce, and asked the Committee to review relevant literature from local research and from other areas as part of the review of riparian management standards.

The Committee identified seven key topics that merited literature review:

- Bank stability
- Large woody debris
- Permafrost and silty soils
- Winter fish use of glacial streams
- Fish use of upwellings
- Buffer function and design
- Ice Thickness and Ice Bridges

Volunteers from the Committee conducted a broad search of publications on each topic. References for publications relevant to conditions in Region III were collected and annotated, and an introduction compiled for each section. The bibliographies and introductions were submitted to the full committee for review and editing. This document compiles the seven review topics.

Questions about this document may be directed to the DNR Division of Forestry, Forest Practices Program Manager, 555 W 7th Avenue, Anchorage, AK 99501 (907-269-8473) or the ADF&G Habitat & Restoration Division, Forest Practices Coordinator, P.O. Box 25526, Juneau, AK 99802-5526 (907-465-1852).