

INTRODUCTION

The Region II Forest Practices Riparian Management Science and Technical Committee Literature Review and Annotated Bibliography compiles published research relevant to riparian management issues in the boreal and transitional forests of southcentral Alaska. Region II covers the Matanuska and Susitna valleys, the non-coastal part of the Copper River Basin, the western Kenai Peninsula, and the west side of Cook Inlet north of Mt. Douglas. Commercial forest activity has occurred throughout Region II. The most extensive operations have been salvage operations in areas infested by spruce bark beetle on the Kenai Peninsula and in the Copper River Basin.

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 II, harvesting may not occur within 100 feet of an anadromous or high value resident fish water body. 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 2003, the Department of Natural Resources Division of Forestry and Office of Habitat Management and Permitting, under the aegis of the Alaska Board of Forestry, began a review of the riparian management standards for Region II. The departments convened an interdisciplinary committee to do the science and technical review. The committee included fisheries biologists, hydrologists, and forest ecologists, foresters, and soil scientists with scientific knowledge about Alaskan fisheries, riparian habitats, aquatic and forest ecosystems, and interactions between forest practices, fish habitat, and water quality. The group also included experienced field staff from the agencies. This group, the Region II Science & Technical 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 southcentral Alaska is limited, and asked the Committee to review literature from southcentral Alaska and relevant research from other areas as part of the review of riparian management standards.

The Committee considered the annotated bibliography compiled for Region III (Interior Alaska) and identified ten key topics that merited additional literature review for Region II:

- Overwintering and spawning ecology of fishes in cold climates
- Fish use in glacial waters
- Fluvial processes with special emphasis on glacial rivers
- Slope stability in Region II
- Temperature effects in brownwater streams
- Effects of beetle epidemics and harvesting on stream flow
- The use of winter roads in forest practices, and the relationship with ATV use
- Riparian area function and management in headwaters and small streams
- Riparian area function and management in lakes
- Revegetation in Alaska using native plants and Soils in riparian areas/wetlands and interpretations for use

Volunteers from the Committee conducted a broad search of publications on each topic. References for publications relevant to conditions in Region II 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 ten review topics.

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