

## INTRODUCTION

The intent of this annotated bibliography was to identify projects throughout Alaska that address the effectiveness of the current Alaska Forest Resources and Practices Act (FRPA) in protecting fish habitat and water quality. The Act requires protection of ten components:

- A.) channel morphology,
- B.) clean spawning gravels,
- C.) food sources,
- D.) large woody debris,
- E.) nutrient cycling,
- F.) stream bank stability,
- G.) stream flow,
- H.) sunlight,
- I.) water quality,
- J.) water temperature.

Very little research has been conducted specifically to evaluate the effectiveness of FRPA. Therefore, this review takes a broader approach and identifies projects that contribute to knowledge of the ten fish habitat and water quality components and the impact of forest management practices on these components. We expanded the literature search beyond Alaskan projects to provide additional information contributing to a general understanding of aquatic ecosystems and the impacts of forest management upon them.

The literature search focused on recent (i.e. the last ~10-15 years) publications, although older documents are included. We used several sources to identify pertinent literature, including:

- direct contact with individuals conducting relevant research in Alaska and individuals with personal libraries on these topics;
- an internet search using the Google<sup>®</sup> search engine;
- an on-line search of the table of contents and abstracts of peer-reviewed journals that regularly publish articles related to the fish habitat and water quality variables identified in FRPA (e.g. Canadian Journal of Forest Research, Earth Surface Processes and Landforms, Journal of the North American Benthological Society, Transactions of the American Fisheries Society);
- an electronic key word search (see the next paragraph) of Goldmine, the electronic library catalog of the University of Alaska Fairbanks, to identify relevant gray literature (e.g. agency reports, University of Alaska dissertations and theses) of projects conducted in Alaska;
- an electronic key word search of the following article databases available through Rasmuson library at the University of Alaska Fairbanks to identify additional Alaska-related peer-reviewed and gray literature: Academic Search Premier, Alaska/Polar Periodical Index, Aquatic Sciences and Fisheries abstracts, Arctic & Antarctic Regions, Cambridge Scientific abstracts, Fish and Fisheries Worldwide abstracts, and Water Resources.

We used the following key words, singly or in various combinations, when conducting key word searches of electronic databases and the internet: Alaska, Alaska Forest Resources and Practices Act, anadromous, bank stability, benthic, benthos, boreal, buffer strip, channel migration, channel morphology, clear cut, clearcut, CWD, erosion, fish, fish habitat, fish passage, forest management, forestry, FRPA, invertebrate drift, large woody debris, logging, logging roads, LWD, macroinvertebrate, nutrient cycling, redd(s), riparian, riparian buffer, roads, salmon, sedimentation, spawning gravels, stream flow, sunlight, timber harvest, water quality, and water temperature.

This annotated bibliography has two main sections, which are further divided into several subsections. The first main section contains citations and abstracts of work conducted in Alaska, and is divided into four subsections (Figure 1):

- FRPA Region I—Coastal Sitka Spruce/Hemlock Forest;
- FRPA Region II—Interior Spruce/Hardwood Forest, South of the Alaska Range;
- FRPA Region III—Interior Spruce Hardwood Forest, North and West of the Alaska Range;
- Alaska General—State-wide references and references in which the location of the study area was not identified.

The second main section contains citations and abstracts of work that was conducted outside Alaska, or which is general in nature (e.g. topical literature reviews), or lacks the identification of a study area in the abstract. This second section is divided into four subsections:

- Canada,
- Lower 48 States,
- International—Other Than Canada,
- Miscellaneous.

Each abstract is identified as being an author abstract, an electronic abstract, or a compiler abstract. Author abstracts were copied verbatim from journal articles and reports that were available to us, or from electronic abstracts that were posted on websites of individual peer-reviewed journals. In a few instances, a report did not contain an abstract, but a summary, introduction, or conclusions section contained information that was adequate for summarizing the described project. In these cases, the appropriate sections were copied verbatim and labeled as an author abstract as well. Electronic abstracts are those which were obtained from the electronic key word search of the article databases identified above. From experience, we knew that many of these abstracts were not complete author abstracts, so we did not want to identify them as such. Compiler abstracts are those that were written by the compilers of this bibliography for those reports that did not contain an abstract or a suitable introduction, summary, or conclusions section.

At the end of each citation, the letter designations of the FRPA fish habitat and water quality component(s) (A-J) that are discussed in the article or report are identified in parentheses. In addition, we added a variable (K) to identify articles relevant to the discussion of forest management impacts on fish habitat and water quality that do not specifically identify one of the ten FRPA components. For example, articles discussing forest harvest-related landslides or

sediment production from forest roads are important in a discussion of forestry impacts on water quality, but the abstracted articles may not specifically address landslides or forest road erosion in the context of water quality. The variable K was used only if an article or report did not specifically address any of the 10 fish habitat and water quality variables identified in FRPA. Refer to the first paragraph for the letter designations of the FRPA variables.

Appendix A is intended to assist readers of this bibliography with locating specific references. The Appendix lists all of the references contained in this bibliography in alphabetical order, identifies in which bibliography section the reference is located, and identifies which FRPA variables are discussed in each reference.

This review is intended to complement the bibliographies compiled during the reviews of the FRPA riparian standards for FRPA regions II and III. This review references those bibliographies, although some of the individual references included in them also appear in this bibliography.

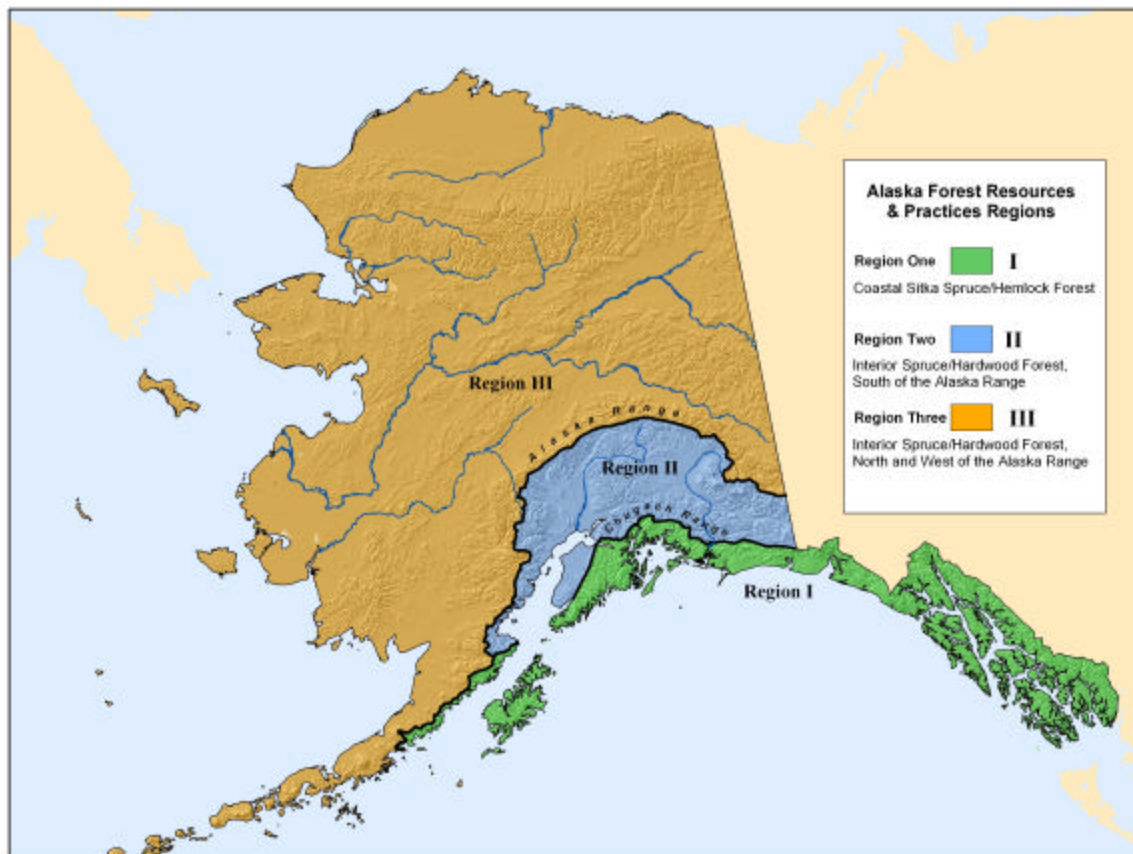


Figure 1. Alaska Forest Resources and Practices Act management regions.

