

APPENDIX D

**STATUS REPORT AND WATER QUALITY AND FISH HABITAT
EFFECTIVENESS MONITORING**

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USDA FOREST SERVICE

**ALASKA REGION
PACIFIC NORTHWEST RESEARCH STATION**



STATUS REPORT ON WATER QUALITY AND FISH HABITAT EFFECTIVENESS MONITORING

The Effectiveness Monitoring Team was established in fiscal year 1994 under the Anadromous Fish Habitat Assessment Plan prepared by the Alaska Region and Pacific Northwest Research Station. The Team's primary mission was to formulate recommendations for monitoring the effectiveness of measures used on the Tongass National Forest to protect water quality and fish habitat. Details on the team membership and their recommendations are contained in a summary dated April 12, 1994.

In response to the Team's recommendations, the Tongass Forest Supervisors approved a forest-wide effectiveness-monitoring strategy, which was transmitted to the Regional Forester on April 22, 1994 (enclosure 2). That Strategy identified six broad issues that the Forest Supervisors will address in their monitoring programs over several years, and specified two of these issues as priorities. The Strategy also identified several specific projects to be carried out in FY 1994 to address these priority issues.

Each Forest Supervisor also prepared and submitted to the Regional Forester a set of workplans for the FY 1994 projects: Chatham Area April 22, 1994; Stikine Area, May 2, 1994; and Ketchikan Area May 12, 1994. These three Area-specific documents, plus the forest-wide strategy they carry out, constitute the "coordinated FY 1994 effectiveness monitoring program" called for in the Anadromous Fish Habitat Assessment Plan.

The program is comprised of 13 different studies. One study is being conducted on all three Areas of the Tongass, and another is being conducted on two Areas. Detailed descriptions of each study are contained in the workplans; brief description and the status of each study is provided below.

Stability and Effectiveness of Stream Buffers: All three Areas of the Tongass are participating in a two-part, multi-year study of no-cut buffers required by the Tongass Timber Reform Act for all class I streams (essentially those in which salmon reside) and class II streams (those with nonmigratory fish but no salmon) that flow directly into class I streams. Part I of this study examines the incidence of windthrow in these buffers and the factors related to it. Considerable work has been done to develop and field-test protocols and data-collection forms for this part of the study. Some data have been collected at sites on all three Areas, and more buffers will be sampled before the end of calendar year (CY) 1994. Although further data collection and analysis are necessary before findings can be reported, the sites monitored to date vary widely in the amount and patterns of windthrow. An interim report is expected by the spring of 1995.

Part II is a rigorous examination of the effectiveness of Reform Act stream buffers in maintaining fish habitat quality. Some sites have been sampled on each Area of the Tongass, primarily for baseline data. More sampling is needed before any meaningful analysis can be done. The recent postponement of several proposed timber sales has slowed progress on this study because fewer sites are available for comparing conditions before and after timber harvest. Methods and protocols will be evaluated after the end of this field season. Interim findings are expected by next spring.

Effectiveness of Yarding Practices at Minimizing Soil Disturbance: The Ketchikan and Stikine Areas are participating in this study, which examines the extent to which current yarding practices meet soil quality standards. Data gathered have been on most sites on the Ketchikan Area. This work should be completed by the end of CY 1994. Analysis and reporting will follow shortly thereafter.

Landslide Frequency and Mitigation: The Juneau Forestry Sciences Laboratory is working with the Ketchikan Area to study comparative frequency of landslides in old-growth, second-growth, and clearcut sites that resulted from a major storm on Prince of Wales Island last October. Laboratory scientists are also working with the Chatham Area to examine the effectiveness of landslide mitigation measures in preventing delivery of debris to streams. Finally, the Juneau Laboratory is coordinating the development of the two studies to ensure consistency between them. Considerable work has been done to develop study protocols and forms, and some data have been collected on both Areas. Results are not available to date pending additional sampling and analysis.

Road Drainage Structures Operations and Maintenance: The Chatham Area is studying the effectiveness of road erosion control, drainage design, and maintenance practices related to fish passage, sediment reduction, and stability of stream channels. Some data have been collected, with more scheduled for this fall. Preliminary results are expected by the end of CY 1994. Protocols will be evaluated after this field season to ensure consistency with the following two studies being conducted on the Stikine Area.

Fish Passage at Road Culverts: The Stikine Area is conducting a rigorous study of the extent to which fish can pass through road culverts. The study is related to one portion of the Chatham Area study described above. Considerable data have been gathered, and they are currently being analyzed. No results are available yet, pending further analysis. Protocols will be reviewed after this field season to ensure compatibility with the related Chatham Area study.

Effects of Road-Maintenance Activities on Sedimentation: The Stikine Area is studying the effectiveness of road-maintenance practices in minimizing adverse effects on water quality and fish habitat. Considerable work has been done this year in developing the protocols and field-testing the data-collection forms. Several sites have been sampled. Data analysis is ongoing and must be completed before results can be reported. Protocols will be reviewed by next field season to ensure compatibility with the related portion of the Chatham Area study discussed above.

Disturbance of Sideslopes in Class III Stream Channels: The Stikine Area is conducting a pilot study of the effectiveness of timber harvest Best Management Practices, such as split-yarding, directional falling, and log suspension in preventing disturbance of channel sideslopes in class III streams. Although such headwaters and tributaries do not contain fish, they affect the quality of downstream fish habitat. Consequently, the Reform Act requires implementing best management practices near class III streams, rather than no-cut buffer strips. The pre-harvest and some post harvest sampling have been completed. Results are unavailable pending completion of data analysis. Protocols will be reviewed after this field season to ensure compatibility with the related Ketchikan Area study discussed below.

Effectiveness of Class III Stream Prescriptions in Minimizing Sediment Delivery to Fish Streams: The Ketchikan Area is also conducting a pilot study of the effectiveness of class III procedures, focusing on soil disturbance as an indicator of sediment potential, and on woody debris volume. Some transects have been established. Several methods are also being tested to evaluate effects of timber harvesting along class III streams on downstream fish habitat. Results will be analyzed and a preliminary report prepared this winter. Methods and protocols will also be reviewed to ensure compatibility with the related Stikine Area study discussed above.

Effectiveness of Buffering Class III Streams with V-notched Channels: The Ketchikan Area is studying the effects on soil disturbance and windthrow of applying no-cut buffers along class III streams that have v-notched channels. Sites have been established, and pre-harvest sampling completed. Post-harvest sampling will be finished by the end of this field season. Preliminary findings will be reported this winter.

Assessing Cumulative Watershed Effects by Using Macroinvertebrates as Indicators of Stream Health: The Ketchikan Area is conducting a pilot study of cumulative effects at the Old Franks Creek watershed

as part of the Area's watershed analysis effort under the Anadromous Fish Habitat Assessment Plan. Macroinvertebrates have been sampled extensively, with more sampling expected before the end of this field season. Results will be reported this winter, and sampling repeated next year. Macroinvertebrate sampling may be expanded if the technique proves to be useful.

Effects of Woodwaste Road Construction on Stream Water Quality: The Stikine Area is conducting a study of the effects on water quality of using sawmill woodwastes as road-construction material. The study began in 1992, as required by the permit allowing the experimental road-construction project. Sampling is still being conducted, with data analysis to be done this fall.

Effects of Selective Harvest on Mass Wasting: Scientists from the Juneau Forestry Sciences Laboratory are comparing the effects of clearcut and shelterwood harvest on slope stability and on existing silvicultural and hydrological conditions at Alvin Bay, in conjunction with the Stikine Area. Baseline data collection has continued this year. The cancellation of the long-term timber sale contract with the Alaska Pulp Corporation, under which the timber harvesting was to be conducted, has slowed progress on this study.