FISHERIES RESEARCH INSTITUTE
College of Fisheries
University of Washington
Seattle, Washington 98195

EFFECTS OF LOG DUMPING AND RAFTING IN SOUTHEAST ALASKA

PLAN OF FIELD OPERATIONS FOR 1972

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Approved

Assistant Director

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by

Bruce Pease

BACKGROUND

Presently most of the commercial timber in Southeast Alaska is transported over water to the available mill sites. The transportation of logs over water involves putting the logs into the waters of large rivers and estuaries, where they are rafted and stored before being towed to mill sites. Very little is known about the effects of these log handling activities on the estuarine environments of Southeast Alaska.

Subjective observations have shown that beds of organic debris are often formed under log dumping and storage sites (Ellis, 1970). Ellis also observed varying degrees of depletion in the numbers of large marine benthic organisms in some of the log handling areas. To date no detailed measurements have been made concerning the water quality or number and type of benthic organisms in log handling areas of Southeast Alaska. Also the effects of periodic grounding by the log rafts on top of intertidal organisms has not been studied.

The Pacific Northwest Pollution Control Council has recently evaluated the environmental impact of log dumping in public waters and made some recommendations for minimizing the environmental effects. These recommendations have been criticized by industry representatives as being based on limited scientific data. It is necessary to know more about the environmental impact of the present log handling procedures before alternative procedures can be rationally decided upon. Therefore, the U.S. Forest Service has provided funds for this study by the Fisheries Research Institute in an effort to collect more data concerning the present situation in Southeast Alaska.

FIELD PLAN

The first part of the study, June 28 through mid-August, will be conducted at two log dumping and rafting sites and a dry storage area in Thorne Bay, Alaska. The sampling at Thorne Bay will be carried out from a 16' Boston Whaler equipped with a sampling winch. Sampling procedures and techniques will be developed and perfected at Thorne Bay. The research vessel Malka will arrive in mid-August, and the last few weeks of the study will be spent aboard the Malka collecting data at other nearby logging sites in Southeast Alaska.

The additional sites will be selected to include both active and inactive dumping and rafting sites so that immediate and residual environmental

effects may be evaluated. Nearshore and intertidal rafting sites will be compared with control sites at each location by means of a grid system of sampling stations. At each station water samples will be collected with a van Doren bottle, a bottom sample will be collected with a van Veen grab, and the current speed will be measured with a Gurley current meter. The water samples will be analyzed to measure B.O.D., D.O., temperature, salinity, hydrogen sulfide, tannin and lignin. The bottom samples will be collected to determine the kinds and relative abundance of the small benthic organisms, and nature of the substrate.

Observations by SCUBA will also be made along transects established at each site. Divers will identify and enumerate the large benthic organisms and will take core samples with sections of clear plastic pipe to determine the depth of the debris layers.

Further studies will be conducted during the Fall and Winter in laboratories at the University of Washington to determine the leaching rates of log sections and the toxicity of leachates to test organisms. Sections of young and old growth hemlock, spruce, and cedar logs will be transported to Seattle for this purpose.

PERSONNEL ASSIGNMENTS AND RESPONSIBILITIES

Dr. Ernest O. Salo will be the principal investigator.

Mr. Richard W. Tyler will be project leader in charge of planning, field work, and report preparation.

Mr. Bruce Pease, graduate student at the College of Fisheries, will be responsible for field work, data collection and processing.

The summer field crew will consist of two additional students from the College of Fisheries to aid in data collection.

EQUIPMENT

Vessels: University of Washington Research Vessel Malka, and 16' Boston Whaler supplied by the U. S. Forest Service.

Water sampler: van Doren bottle

Bottom sampler: van Veen grab

Current meter: modified Gurley stream current meter

Corer: 3' length of 2" diameter transparent rigid plastic pipe

Hach manometric device for measuring B.O.D.

Azide modification of the Winkler Titration Method for D.O.

Hydrometer kit for measuring salinity

TCA 43602 Y thermometers

Hach kits for measuring concentrations of Hydrogen Sulfide, tannin and lignin.

Sextant

FIELD RECORDS

Field data will be recorded in waterproof notebooks and will be transferred to respective forms daily in loose leaf bound notebooks.

COMMUNICATIONS

Thorne Bay Logging Camp maintains short wave radio contact with Ketchikan Pulp Mill. Urgent messages may be relayed by telephone through Ketchikan Pulp Mill to Thorne Bay. Mail is delivered daily to Thorne Bay from Ketchikan on an unscheduled basis.