MEMORANDUM

State of Alaska

TO: Frank Van Hulle, Regional Supervisor
Paul Kissner, Fishery Biologist
Division of Sport Fish
Juneau

DATE: February 21, 1986

FILE NO:

TELEPHONE NO: 747-5355

SUBJECT: Chinook Stocking
Redoubt Lake

FROM: Art Schmidt
Fishery Biologist
Division of Sport Fish
Department of Fish and Game
Sitka

On February 19 I attended a meeting with Charlie Holstine and Dan Logan of the U.S. Forest Service, Bruce Bachen of NSRAA, and Dave Barto and John McNair of F.R.E.D. The purpose of the meeting was to discuss the proposal to stock chinook into Redoubt Lake in conjunction with the lake fertilization project. Pros and cons of the proposal were discussed.

Bruce Bachen expressed the opinion that the value of Redoubt really is in the potential sockeye production capacity and stated that information available now should be evaluated to determine how successfully fertilization is increasing production. He also stated that the Indian River study being conducted by John McNair is a most important study concerning rearing chinook in river systems. Bruce stated that Ted Meyers has expressed a concern for exposing chinook to IHN especially when sockeye and chinook are spawning at the same time in the system. I believe Pathology Section needs to make a decision on this topic. It should either be approved or disapproved prior to anyone planting chinook into the lake.

Dave Barto presented information based on one year of sampling that shows a greatly increased length and weight of age 2 sockeye smolt and an increase in size of age 1 sockeye smolt. Plankton production has evidently increased also, but an analysis of how much has not been made. The plankton species composition has not changed significantly and Bosmina is still the dominant form. Dave said that a hydroacoustic survey of Redoubt indicates about 650,000 rearing fish in the lake. I don't believe species composition has been determined. Estimation of emigrant smolt population numbers has not been successful to date. Dave has revised the smolt capture apparatus and hopefully will get good information this year.

The U.S. Forest Service is now facing some potential budget cuts and are trying to evalute what is the best course of action for their money spent on fisheries programs.

I believe we have to address evaluation of what is now being produced from Redoubt Lake prior to planting another rearing species into the lake. An evaluation of sockeye and smolt numbers is an important consideration in evaluation of fertilization success. I have enclosed a copy of the 1979 Policy and Guidelines for Lake Fertilization in case you don't have one.

After talking to Jeff Koenings yesterday, I understand the experimental value of trying to determine how successfully chinook will rear and grow in lake systems which have cladoceran zooplankton rather than the larger copepod zooplankton. If chinook could do well without copepod zooplankton, a serious parasitic problem (Diphyllobothrium) would be eliminated. I believe this experimental evaluation would be better conducted on a smaller system with better controls on the evaluation process. The proposed stocking of chinook into Eliza Lake seems to fit this study scheme, although I haven't seen an operational plan.

Redoubt Lake now has a potential egg deposition of 13-14 million sockeye eggs and over 7 million coho eggs based on weir data. These are significant numbers. If lake fertilization is indeed providing an enhanced food supply, we should see better growth and survival along with shift in age-class structure of these smolt. Work done in 1974 shows rearing coho occur throughout the lake; there are no areas I know of where rearing species do not exist.

If I can be of any further assistance in evaluating the project proposal or operational plan, I will be happy to do so.

Attachment: Van Hulle
Kissner

Memo cc: Koenings
Haddix
Barto
McNair