

# MEMORANDUM

State of Alaska

*June 1980*

TO: Bob Wilbur  
Aquaculture Harvest Coordinator  
Commercial Fisheries  
Juneau

DATE: August 12, 1980

FILE NO:

TELEPHONE NO: 747-6688, 747-5355

FROM: Bob DeJong, Commercial Fisheries  
Art Schmidt, Sport Fish Division  
Area Management Biologists  
Sitka

SUBJECT: Evaluation of Redoubt Lake  
for Lake Fertilization

113-41-43

We offer the following comments pertaining to the evaluation of Redoubt Lake for lake fertilization as per your instructions in your April 15 memo.

- (1) Increased sockeye production to Redoubt Lake may contribute to a mixed stock fishery targeted on sockeye in the Necker and Redfish Bay area located on the southwest side of Baranof Island. In past years a limited sockeye fishery has occurred south of Aspid Cape to primarily harvest sockeye from Redfish Bay and Necker Bay. Fishermen fishing on the capes in this area may be harvesting mixed stocks of which some may be Redoubt sockeye. Increased production to Redoubt Lake would not complicate management of the Redfish and Necker Bay fishery.

Sockeye production would contribute to fisheries targeting on other species, in particular pink salmon, mainly in the Sitka Sound and Salisbury Sound areas. Purse seine fisheries have occurred in these areas in recent years to harvest surplus pinks. I would suspect the incidental sockeye harvest to be slight.

An escapement goal could be developed and managed for but this would entail either installing a weir at the outlet or using counting towers.

- (2) Attached is a map depicting a terminal area near Redoubt Lake where surplus sockeye returns could be harvested. Possibly some harvest would occur on other salmon species in the terminal area but this would be slight and would not jeopardize those stocks. Redoubt Lake is an overwintering area for Dolly Varden so seining in the terminal area for sockeye could gill large numbers of Dolly Varden.
- (3) Angler utilization of the outlet will be closed to within 300 feet of a weir. This will affect a small number of legal freshwater fishermen. Most anglers who fish in this area are illegally snagging sockeye in freshwater.

- (4) This summer the USFS has constructed a counting tower at the lake's outlet to enumerate salmon returns. As of August 3, 48,596 sockeye, 259 chum, 51 pink, 39 coho and 14,291 Dolly Varden have been enumerated. The sockeye counts continue to be high after August 3 and it is expected that several thousand more sockeye will be counted before the project terminates. A tower count is attached for your information.

In 1963 the ADF&G enumerated 16,733 sockeye by means of counting towers at the outlet. Jim Parker felt this figure was minimal because sample counts consist of only those salmon actually seen during daylight hours.

The Fish and Wildlife Service conducted a weir at the outlet in 1953, 1954, and 1955. The results of their weir counts are as follows:

<u>YEAR</u>	<u>REDS</u>	<u>COHOS</u>	<u>PINKS</u>	<u>CHUM</u>
1953	22,900	6,500	800	125
1954	21,100	2,900	5	21
1955	22,800	1,500	734	76

Fertilization of Redoubt Lake would increase production, but by how much is unknown. The current zooplankton population in Redoubt Lake are very unstable. If fertilization takes the proper path through the food web with resulting increases in copepod and cladocera populations an increased food base for rearing sockeye would hopefully result.

- (5) Other user related problems include obtaining permission from the Native Corporation to put a weir or counting tower at the lower outlet. Also, according to the Forest Service, the lower outlet location used in past years for weirs and counting towers is identified as an important archaeological and historical site and any new structures, including weirs or counting towers, may be prohibited. It may be possible to avoid these conflicts by constructing a weir in the upper portion of the outlet which is closer to the lake. This land is not conveyed as Native or historical land. The site is deep and cost of establishing a permanent or temporary weir at this site will be expensive.

Overall we support this fertilization project.

cc: Don Stewart  
Dave Cantillon