

# MEMORANDUM

# State of Alaska

DEPARTMENT OF FISH AND GAME

TO: Tom Kron  
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Department of Fish and Game

THRU: Brad Sele  
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FROM: Department of Fish and Game

DATE: November 4, 1986

FILE NO.:

TELEPHONE NO.: Turner Lake Update

SUBJECT:

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The Turner Lake study group met in June, July and October to discuss various enhancement alternatives. This memo is to inform you about our progress.

## Goals

1. The study group goal is to write a summary report detailing all aspects of the Turner Lake project. Included would be concerns, options and cost projections for a variety of enhancement possibilities.
2. The Turner Lake project goal is to provide a significant number of enhanced sockeye salmon for the Taku gillnet fishery.

## Management Concerns

1. Commercial Fisheries' management concerns involve their ability to manage large numbers of enhanced sockeye in Taku Inlet without impacting Canadian stocks.
2. The unknown return timing of transplanted enhanced fish may complicate wild catches. Presently no clear preferred return timing for this Turner stock has been determined.
3. A maximum allowable catch rate of 50% has been proposed, which raises the possibility of large numbers of sockeyes not being harvested. The tide flat in front of Turner Lake complicates any effective terminal harvest.
4. An increased catch sampling effort for enhanced CWT'd sockeye would be necessary. A 50% sample rate may be a goal.
5. Another concern was our ability to coded wire tag adequate numbers of emigrating smolt (55,000) and accurately estimate total smolt numbers. The FRED Division has the expertise to tag and enumerate the smolts.

Fish Ladder Pivotal Issue

The project hinges on a major decision point: a large fishpass into Turner Lake. Generally, options are to:

1. Develop a self sustaining run.

The self sustaining run could eventually be managed as a wild run once aspects currently unknown, such as in-lake survival rates and return timing, are determined.

2. Become an annual fry stocking project.

Annual stocking saves the huge initial capital investment but ensures artificial eggtakes either from wild stock or a developed broodsource for Turner Lake.

Major Options

With a Fish Pass:

1. Remote eggtakes (3-15 million eggs annually) would occur for five years. Eggs would be incubated in a separate central incubation facility (CIF) and fry stocked into Turner Lake. Emigrating smolt would be coded wire tagged for at least five years. Ideally, the fish pass would be completed when the first adults return. Commercial catches would be sampled for five years to estimate contributions. Sockeye escapement from the fishery would enter the lake via the fishpass and spawn naturally. A self sustaining run should develop.
2. The second option is an extension of #1. We would have an additional five more years of remote wild eggtakes and fry stocking to supplement the production from the fish spawning naturally in Turner Lake.
3. The third option would be identical to #2, except the additional eggtakes would not be from the wild. Eggs would be taken from fish which had entered Turner Lake and were held in net pens to ripen in the lake.

Without a Fish Pass:

1. We would conduct 10 years of remote eggtakes and subsequent annual fry stocking into Turner Lake. Then, we could develop a separate broodstock at a facility for more efficient eggtakes and independence from wild stocks. All adult sockeye escaping the Taku fishery and entering the outlet stream would be available for personal use. These fish would probably not ripen below Turner Lake falls so an eggtake there is not possible.

2. Continuing annual remote eggtakes.

All five options have these steps in common:

1. Initial remote eggtakes for five years.
2. Central incubation facility.
3. Smolt CWT tagging operation for at least five years.
4. Adult CWT recovery from the Taku gillnet fishery for five years.

#### Unknown Variables

1. Return timing to fishery of transplanted stock. We don't know what effects the geographical displacement will have on returning adults.
2. Effective spawning capacity of the lake. Group consensus is that we cannot accurately assess this aspect before the project begins.
3. Fry to smolt survival rates. A wide variation in rates exists from other sockeye stocking projects (5% to 40%).
4. Smolt to adult survival rates. A similar wide variation has been shown.

#### Highlights

1. Jev Shelton, a local gillnetter leader who attended the last meeting, said the project should be "all or nothing". He implied that Department caution in developing the site was bureaucratic foot dragging.
2. Preferred broodstock will probably be Chilkoote or Chilkat stock since these are large consistent returns. Those two plus Crescent and Speel Lakes were sampled for pathology concerns this fall. Results are pending.
3. Forest Service personnel are very interested in possibly building the fishpass to Turner, if the project is approved and requires the fishpass.
4. Sport Fish personnel do not want cohos entering the lake through the fishpass. Very few adult cohos should be in the Taku Inlet when the sockeye return, according to catch statistics. The fishpass is being designed to control coho access to the lake during the sockeye run and then can be closed once the sockeyes have entered the lake.
5. A separate building site at Snettisham is currently the favored place for a sockeye central incubation facility. No short term rearing would occur there.

6. We might short term rear the sockeye fry in Turner Lake to increase in lake survival rates.

To conclude, we are making progress sorting out possibilities and options for Turner Lake. An interim report will be assembled for review about mid December and a more complete second draft will be available in mid April.

cc: Bob Burkett  
Harold Heinkel  
Don Ingledue  
Gary Sanders