WILDLIFE PROJECT

HELM CREEK FISH-WAY FLUMES

South Tongass National Forest

Ketchikan Ranger District

Prepared by [signature] Date 5-5-66

Revised by [signature] Date 6-15-66

Reviewed by _____ Date _____

Approved by [signature] Date 6/15/66
acting (District Ranger)

Approved by [signature] Date 6/23/66
(Forest Supervisor)

WILDLIFE PROJECT

HELM CREEK FISH-WAY FLUMES

Location

Helm Bay is located on the west shore of west Behm Canal. Helm Creek flows into Helm Bay along the northeast shore about 4.5 miles from the entrance.

Introduction

Helm Creek has a length of .3 of a mile in the intertidal zone and then approximately 1.2 miles upstream to Helm Lake, which is about 1.2 miles long and .3 miles wide. This lake is precipitation fed from the slopes of the mountain to the north.

The lake supports a good population of Cutthroat and Dolly Varden trout, also a small run of Steelhead. The stream and lake areas also provide spawning grounds for four species of Salmon, i.e., Pink, Red, Chum, and Silvers.

It is known from actual count records that this stream has been utilized by runs of Red Salmon (Sockeye), alone, of over 10,000.

Beaver dams in the creek and at the outlet of the lake have been a hazard to the migration of Salmon from salt water to the lake, this hazard in direct proportion to the extent of beaver activity in the creek.

Description of Project

An on-the-ground survey was made 4/21/65 to determine the project materials needed and to estimate the man hours needed to accomplish the project. Initial work on the project was accomplished during the week of May 9, 1965. All project materials were flown into Helm Lake in a Gruman Goose by Alaska Coastal Ellis Airlines. The men were transported by Webber Air, to Helm Lake Monday morning and picked up Friday afternoon.

In essence, the project consisted of installing two salmon passage flumes in two major beaver dams; and channel clearing to permit the stream flow to be concentrated into the original main stream bed. The flumes were constructed of 2 inch cedar plank. The installation and design are shown on the enclosed photos. The materials were pre-cut to the best advantage and assembled on the site.

The flumes were placed through the dams at an angle to permit the upstream end to be completely submerged below the surface and approximately 2 inches of water to flow out the downstream end. The outlet of the flume was placed such that the height of the apron was between 18" and 24" above the level of the pool below the dam. An apron was built on the end of the flume to facilitate easier entrance of fish into the flume and the angle of the flume to provide water of increasing depth as fish swim upstream. The flumes are secured in the dam by four steel posts driven alongside the flume, two at each end.

The upstream end of the flume is rendered beaver-proof by means of a wire mesh lane, extending approximately fifteen feet upstream from the flume. This wire lane is constructed such that it is beaver-tight from the end of the flume to the end of the lane. A wire bottom was built into the lane secured by hog rings. The wire lane is held in place using posts driven into the pond bottom and a cross member secured to the tops of the posts. A lane width of approximately $2\frac{1}{2}$ feet was used, this is wide enough to prevent the beaver from working mud through the wire and into the flume. Past records indicate that beaver will not swim into a wire lane of that width to plug up the end of the flume.

Pictures of the finished flumes are as follows:

A-1 flume and dam at lake outlet--normal water
A-2 flume and dam at lake outlet--extreme low water
B-1 flume and dam approximately 1000 ft. downstream--normal water
B-2 & 3 flume and dam approximately 1000 ft. downstream--extreme low water
C-1 channel clearing operations--normal water

Along with the installation of the two flumes, this project included clearing the channel of old beaver dams and natural log barriers. The old dams were removed with the aid of dynamite and the old logs and windfalls were removed using a chainsaw and chainsaw powered winch. The majority of the channel clearing was within the first 2500 feet from the lake outlet.

The project was completed in 5 days by 3 men plus an additional 6 hours by one man getting materials together and preparations made.

Summary

The effectiveness of the project is not yet known. We inspected the project during the fall of 1965, but due to the extreme dry season, the fish runs had not been able to leave the salt water at that time. Another inspection was made during May, 1966, to

determine if there had been additional beaver activity and whether possibly another flume would be needed. At this time, no beaver activity was noted in the stream. The dam with flume approximately 1000 feet downstream from the lake outlet had broken during a period of high run-off during the winter and had not been repaired. The flume in the dam at the outlet of the lake was functioning very well.

The very small population of beaver, which apparently is confining its activities to the outlet end of the lake, can probably be attributed to some trapping pressure during the winter and more probably to predation by wolves during the winter.

It is felt that the flume approach to fish passage through beaver dams will solve the problems of fish migration through a stable slow moving stream of this type that is being utilized by beaver. The flume permits access by fish and yet permits the beaver to maintain the desired pool level.

Observations of this project will be carried on during the fall of 1966 to determine its effectiveness and utility.

LAKE AND STREAM INVENTORY FORM

Name: Helm Lake

Catalog no.: 101-90-80

USGS map: Ketchikan C-6

Former no(s).: WR 55, K58

Latitude: 55° 39' 04"

Drainage area: 8 mi²

Longitude: 131° 58' 09"

No. lakes in system: 1

Location description: Cleveland Peninsula, Helm Bay

SIZE AND ELEVATION OF LAKES IN SYSTEM:

Lake Identification	Helm Lake							
Size	200							
Elevation	<100							

LENGTH AND GRADIENTS OF STREAMS IN SYSTEM:

Stream Identification	IT2 → Helm							
Length	1.5							
Gradient	66.6							
		(5%)	(1%)	(70%)	(4%)			

SPECIES OF FISH PRESENT: Pink, chum, coho, red, dolly varden possible steelhead, excellent cutthroat & rainbow

SPAWNING DATA:

Species	Red	Pink		
Escapement	'56 - 5000	'71 - 4000		
Timing	late-September, October			

PROMINENT PHYSICAL FEATURES OF STREAM: blowdown logjam at mouth of lake

LAND USE OF AREA: none in immediate area; history of land logging and mining