

Legislative Report
Chilkoot River Sonar

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INTRODUCTION

Salmon escapement enumeration has been conducted at a weir located on the Chilkoot River downstream from Chilkoot Lake since 1976. The information gathered at this facility has been used successfully by management and research sections of the Commercial Fisheries Division to manage the sockeye salmon stocks originating in this system. However, concerns voiced by the general public for the welfare of the migrating salmon stimulated interest in the use of sonar for escapement enumeration.

The objective of the 1988 Legislative intent was to investigate the feasibility of using sonar as a means of enumerating the escapement. If the use of sonar proved unfeasible the Department was instructed to "increase the open hours at the weir".

This report is a summary of the activities that were conducted in response to this legislative intent.

Sonar fish counters

Experiments were conducted with sonar fish counters at the Chilkoot Weir on July 8-9, 1984. These experiments were performed by representatives of the Biosonics Corporation of Seattle at the request of the Chilkoot Indian Association. A Biosonics dopler sonar unit was installed at an opening in the weir to allow visual counts to be compared with the sonar counts. The results of the experiment showed that this site was not suited for sonar use due to background noise created by turbulence in the river. The sonar counts represented approximately 30% of the visual count; however, the percentage was inconsistent which precluded use of a visual:sonar ratio for future expansion to an estimated escapement.

The site selected in the 1988 Legislative intent proposal has the problem of low velocity which allows the fish to mill. Fish milling in the sonar beam result in multiple counts and overestimates of the escapement. The remainder of the river courses through a turbulent boulder-strewn channel. This turbulence would affect the sonar in the same manner as experienced during the 1984 experiments by the Biosonics Corp. team.

Open Hours

During the 1988 salmon season the Department hired an additional employee to assist with weir operations. This employee assisted the regular work crew with escapement enumeration, sampling and weir maintenance. The presence of this additional employee improved the efficiency of the weir

operations and enhanced the timely movement of fish through the weir.

Summary

There do not appear to have been any developments in sonar technology, since the 1984 test in the Chilkoot River that would enable sonar to be used in turbulent waters or sites where milling occurs. Therefore, sonar was not used in the Chilkoot River during the 1988 salmon season.

A weir, by nature, is a structure that is intended to control the movement of salmon. This controlled movement is necessary to allow the species and numbers of fish passing through the weir to be accurately identified. Unfortunately, the perception created for those unfamiliar with weir operations is that the fish are being delayed unnecessarily and this delay is harmful to the salmon. The truth of the matter is that sockeye salmon, after reaching the spawning grounds, require a month or more of "ripening" before spawning can take place.

Chilkoot Weir is believed to be the most efficiently operated salmon weir in Southeast Alaska, if not in the entire state. Sockeye salmon returns to Chilkoot Lake in the last 9 years have been excellent, providing returns to Lynn Canal of up to 321,580 (1983). In all years except 1978, escapement goals to Chilkoot Lake have been met and its contribution to the Lynn Canal sockeye harvest has been substantial.

Following the construction of Chilkoot Weir, returns of sockeye salmon to Chilkoot Lake and the Lynn Canal fishery have been good to excellent, precluding any evidence that the weir has had any detrimental effects on this stock.