

Mountain Village Fall Season Salmon Drift Gillnet Test Fishery

Contract URE-02-03

2003 Report

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Abstract

The Mountain Village Fall Season Gillnet Test fishery acts as an index for Fall chum and coho salmon on the lower Yukon River. The project provides information to the Alaska Department of Fish and Game pertaining to migration timing, run composition and relative abundance of the two species. The fish are gill netted at specific locations at pre-determined times, the fish are then identified by species and ASL information is collected. The test fish ultimately die, and are distributed to the community. The information gathered is transmitted, via fax, to the department.

Project objectives

Provide the Alaska Department of Fish and Game (ADF&G) with fall chum and coho salmon migration timing, run composition and relative abundance at sites on the lower Yukon River.

Project details

The Yukon River supports substantial populations of fall chum salmon. Fall chum salmon are extremely important for subsistence use, and also are harvested commercially throughout the Yukon in years of good abundance. The Alaska Department of Fish and Game monitors postseason escapement in several spawning streams, which is an important management tool, but does not address inseason information. Assessing the strength and migration of the return within the season enables managers to make immediate decisions. Collecting data on all components of the return enables managers to spread the harvest out and minimize potential over-harvest on any single component.

ADF&G is currently implementing a conservative management strategy wherein they look for assurances not only that overall run strength is healthy but also that each of the main run components, the upper Yukon and Canadian mainstem and Tanana River stocks, are healthy.

The Pilot Station sonar and some test-netting near the mouth of the first three quarters of the run are usually the main gauges of run strength between the time when the fish enter the river and the time they reach their spawning grounds or terminal fisheries.

The best way to assess inriver run strength is to have as many different management devices as practical. When combined, the assessments made by each device provide a more complete and reliable picture of run strength for managers to use. The Mountain Village Test Fishery has proven itself in this role and has made valuable contributions to the difficult task of inseason, inriver run strength assessment and migration timing. The test fishery has the added benefit of monitoring run passage after the ADF&G's test nets and main river sonar have ceased operation in late August. Preliminary analysis shows the Mountain Village Test Fishery catch results directly correlate with passage at the Pilot Station sonar. This correlation enables the test fishery results to be used as a crosscheck of the sonar's passage estimates and vice-versa thus further increasing managers' confidence in run assessments, and adds an alternative counting method should the sonar become unavailable.

According to ADF&G, catch rates traditionally correlate accurately with Pilot Station sonar, approximately 50 miles upriver, projections for both fall chum and coho. This project began operating in 1995 with 60 days of operation (7/28 through 9/14 and 9/22 through 10/2). Catches of both fall chum and coho dwindled to

less than a few fish per day by the middle of September. The 1996 through 2000 operations have mirrored similarly the 1995 quality by showing consistency with ADF&G estimates. The test fishery shows evidence of great success to providing a management device that is tested and reliable.

This test fishery examines stocks after they enter the Yukon River mainstem before reaching the Pilot Station sonar. This information is forwarded daily to ADF&G management staff in Emmonak and Fairbanks. Daily catch results (time, length of drift, number of fish caught) are analyzed by ADF&G to compute a daily Catch-Per-Unit-Effort (CPUE). Fishing effort and timing is determined by ADF&G staff preseason and modified inseason as necessary and prudent.

There is critical interaction between habitat management and fisheries management. Many habitat alterations do not directly extirpate populations, but instead reduce survival rates so as to reduce sustainable exploitation rates (Upstream: Salmon and Society in the Pacific Northwest, NAP, 1996). Enhancing wild stocks is the ultimate objective.

The 2003 season

In cooperation with ADF&G and the Asa'carsarmiut Tribal Council (ATC), BSFA managed the continuation of the test fishery, which began monitoring fall chum and coho entry into the Yukon River in 1995.

BSFA contracted with the ATC to manage hiring and payment of local residents who worked with ADF&G and BSFA staff in these studies. Residents were hired as professional fishermen and their expertise was essential in assessing and analyzing the various parameters of the test fishery. Data from the test fishery were faxed daily to ADF&G offices. These data and a summary are reported by ADF&G in the Annual Management Report, Yukon Area.

The first day of this project was July 17, 2003 and ran through September 10, 2003. Fifty-six test fishing days were completed. No test fishing days were missed during the 2003 season.

Three local fishermen were hired by ATC to collect the 2003 data: Mr. Vincent Beans, Mr. Raphael Beans and Mr. Bernhard Joe. All three are established subsistence and commercial fishermen, and have fished on the Yukon River all their lives

BSFA conducted one site visit during the month of August 2003. The BSFA Biologist noted the following:

The fisherman and his hand did an excellent job. Mr. Beans did comment that the USFWS only made one visit at the beginning of the season, which he thought might not have been enough. The small amount of contact with the fishermen, and yearly turnover, may result in not having as consistent a set of data as perennial fishermen may provide.

Methods

Test Fishing

Three, 20 minute drifts were conducted, at three specific locations, each day with a 23 fathom gillnet provided by BSFA. Daily catch results (time, length of drift, number of fish caught) were analyzed and calculated to compute a daily CPUE. The information was forwarded to the ADF&G management staff in Emmonak.

Age-Sex-Length Sampling

Test fishermen were instructed to collect sample scales, and collect sex and length information. The sampling design sampled for one or two consecutive days followed by several days without sampling. Three pulse samples were collected; one for each third of the run. Sample sizes were selected that will result in a 95% confidence interval estimate for age composition (Bromaghin 1993). Sex was determined by visually

examining external morphology by keying on the kype development, roundness of the belly and the presence/absence of an ovipositor. Mid-eye to fork length was measured to the nearest millimeter.

All data was recorded in field books. The scales were sent to ADF&G and aged post season, and the data will be analyzed to estimate the age-sex-length composition of the chum and coho salmon spawning populations.

Regardless of the method utilized, the overall objective of escapement assessment in the Yukon Area is to estimate abundance (or often indices of relative abundance), timing, and distribution of spawning salmon populations throughout the drainage (ADF&G 1998 Management Report). These projects directly contribute to supporting escapement assessment.

Salmon retained by this project was donated to the local residents.

Results

Approximately 332 fall chum and 362 coho salmon were caught in the Mountain Village test nets this fall.

The fall chum salmon cumulative CPUE ended at 5.04. The coho salmon cumulative CPUE was 5.49

Summary

Better data leads to better management. Better management, in turn, should lend itself to maximum sustained yield numbers and currently the benefit would be realized in restoration of these suffering stocks. This project is a proven management tool for Yukon River stocks. Over a period of many years the test fishery has validated Pilot Station sonar by correlation of data collected at the field sites. Age, sex and length data will provide valuable information on the stocks upon final analysis. Comparable CPUE information continues to be an important annual contribution of the project to overall management of Yukon River chum salmon.

While this and other projects undeniably lead to increased monitoring of escapement there are long-lasting benefits to participating communities and residents that provide a stage of ownership to aide in management of local salmon stocks. Local traditions are respected by providing elders with extra fish. The appreciation of each participant's contributed expertise and the safety of the crewmembers is of foremost importance. During the project it is expected that each crew member pay attention to maintaining the current health and integrity of spawning grounds, rearing areas and migration corridors to the best of the participant's abilities. For example, this project maintains strict guidelines established by management to risk no effect on the area of involvement.

BSFA wishes to thank the ATC for locally managing the test fishery. Special recognition goes out to Mr. Vincent Beans, Mr. Raphael Beans, Mr. Bernhard Joe and their crewmembers for participating in the test fish project and contributing to the data collection.

Thanks go out to the Yukon River Panel for providing the funding to continue this important research.

Literature Cited

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