



AYK SUSTAINABLE SALMON INITIATIVE

Project Synopsis

KUSKOKWIM RIVER WATERSHED



(ADF&G Staff)

KUSKOKWIM RIVER SALMON POPULATION ESTIMATES

PROJECT 310

PRINCIPAL INVESTIGATOR

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of Fish and Game*

RESEARCH PERIOD

May 2003 -
November 2004

BUDGET

\$197,593.00

HOW MANY SALMON IN THE KUSKOKWIM RIVER?

Kuskokwim River is the second largest river in Alaska, supporting one of the state's largest subsistence fisheries. It is remote and geographically diverse, and different salmon species of multiple stocks run at overlapping timings. These factors make it difficult to forecast run abundance, monitor actual abundance in season, or have sufficient knowledge of run timing differences among stocks. Due to such constraints, it is difficult for fisheries managers to allow for selective harvest of abundant stocks while protecting less abundant stocks.

OUR OBJECTIVES

Continue earlier projects that use mark-recapture techniques to estimate abundance of sockeye, chum, and coho salmon in the Kuskokwim River. This involves tagging fish at a downstream site, releasing them, and recapturing them farther upriver.

Estimate the total population, run timing, and average travel speed by examining proportion of the tagged fish in the group caught upriver.

HOW WE DID IT

We had two opportunities to estimate population size using mark-recapture techniques. The first was between Kalskag and recovery at Aniak, about 27 river kilometers apart. The second was between Kalskag/Aniak and

RESEARCH

FRAMEWORK:

SALMON LIFE CYCLE –
PRIORITY #2

SNAPSHOT

Mark-recapture techniques were used to provide timely information about the runs of sockeye, chum, and coho salmon in the Kuskokwim River.

This project furthered earlier efforts to better understand this river's salmon stock abundance, run timing, and average speeds.



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recovery at upstream escapement projects. At Kalskag and Aniak, we used fish wheels set on both sides of the river, and drift gillnets in the center of the river, to capture mixed stocks of salmon during the salmon run period, from early June to early September. We inserted spaghetti tags into the captured fish along with a secondary mark. At recovery sites, we examined a proportion of the tagged fish.

WHAT WE DISCOVERED

We were able to estimate abundances of sockeye, chum, and coho salmon; however, we believe that the estimates are inaccurate and unreliable based on harvest and escapement information. We were not able to tag and recover well-mixed stocks. Furthermore, crowding during tagging does appear to increase the chance of recapture of sockeye and chum salmon. We also found that upstream stocks of chum and coho salmon migrated earlier in the season than lower-river stocks.

PRODUCTS AND OUTREACH

Our results were made available to fisheries managers during the field season, and published in an ADF&G technical report.

WHAT'S NEXT?

We will continue to improve mark-recapture techniques, especially capturing and recovering well-mixed salmon stocks. We plan to relocate the Kalskag site farther downstream and omit the Aniak site, increase tagging efforts on gillnets, reduce crowding of the fish wheels while tagging, establish another upstream collection site, and fit radio transmitters to sockeye salmon. We hope these modifications will improve accuracy of mark-recapture salmon abundance estimates.

***AYK SSI Mission:** To collaboratively develop and implement a comprehensive research plan to understand the causes of the declines and recoveries of AYK salmon.*

ARCTIC-YUKON-KUSKOKWIM SUSTAINABLE SALMON INITIATIVE

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