



AYK SUSTAINABLE SALMON INITIATIVE

Project Synopsis

KUSKOKWIM RIVER WATERSHED



(ADF&G Staff)

PROJECT 801

PRINCIPAL INVESTIGATOR

Doug B. Molyneux
*Alaska Department
of Fish and Game*

CONTRIBUTING ORGANIZATIONS

Bue Consulting, LLC

*Kuskokwim Native
Association*

RESEARCH PERIOD

May 2008 -
March 2011

BUDGET

\$723,876.00

WORK-IN-PROGRESS KUSKOKWIM RIVER COHO SALMON INVESTIGATION

WHERE DO COHO SALMON SPAWN?

Coho salmon are the most commercially valuable salmon species returning to the Kuskokwim River. Recent fluctuations in both run abundance and commercial markets dictates the need for fishery managers to better understand the dynamics of Kuskokwim River coho salmon stocks. Our current understanding of the variation in abundance of Kuskokwim River coho salmon comes from a discontinuous time-series of in-river commercial catch and effort data, subsistence harvest estimates, test fishery catch rates, tributary weir counts, and mark-recapture estimates of abundance. Total abundance estimates are necessary as a context from which to focus genetic baseline collections: interpret the impacts of climatic shift, changes in ocean productivity, impacts of interception fisheries, and changes in management practices. The project builds on numerous existing platforms, and incorporates unique partnerships.

OUR OBJECTIVES

Determine whether current in-river harvest patterns have stock-specific effects on Kuskokwim River coho salmon, and whether alternative harvest patterns could affect coho salmon catch and stock structure, or serve as management tools in times of conservation need.

Determine whether there is an even distribution of spawning coho salmon throughout the Kuskokwim River drainage, or whether there are discreet sub-areas that

RESEARCH

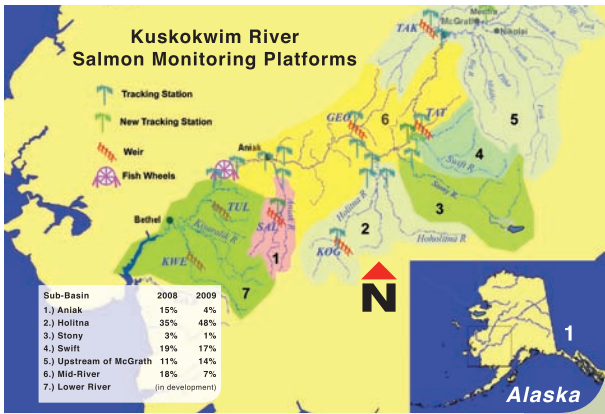
FRAMEWORK:

SALMON LIFE CYCLE –
PRIORITY #2

SNAPSHOT

This project will use radiotelemetry and mark-recapture studies to describe the spawning distribution of Kuskokwim River coho and estimate historical adult run abundance from 1981 to 2009.

Results will be used to analyze patterns in historical variations in abundance and characterize the spawner-recruitment relationship.



Distribution of spawning coho salmon in various sub-basins of the Kuskokwim River in 2008 and 2009. (Molyneux, ADF&G)



(ADF&G Staff)

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

BERING SEA FISHERMEN'S ASSOCIATION
 110 W. 15TH AVENUE
 ANCHORAGE, AK 99501
 (907) 279-6519

support a disproportionate fraction of spawning coho salmon.

Determine whether adult coho salmon abundance in the Kuskokwim River drainage has demonstrated any periodic changes over the past 20 to 25 years, and determine whether there is a relationship between adult-run abundance and subsequent returns as a mechanism for explaining changes in abundance.

HOW WE WILL DO IT

We plan to use simultaneous mark-recapture and radiotelemetry studies to characterize adult stock-specific run timing and to estimate abundance. We will use radiotelemetry to determine the percentage of coho salmon spawning escapement going six sub-areas upstream of the tagging site located near Kalskag, with an extrapolation for a seventh area consisting of downstream tributaries. We will develop a statistical model to reconstruct total historical abundance of adult coho salmon from approximately 1981 to 2009. We will then use these estimates to assess patterns of variation in total abundance, and to describe the spawner-recruitment relationship. In addition, aerial tracking surveys will be conducted along the mainstem Kuskokwim River, and in major tributaries, to help determine the fate of all radio-tagged fish.

REPORT COMPLETION

May 2011