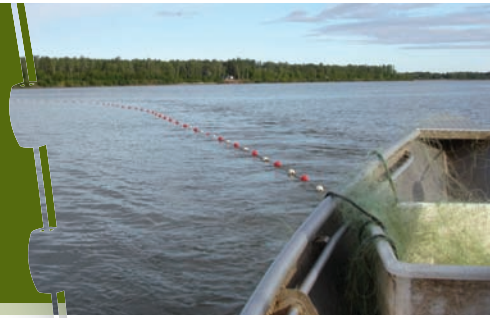




AYK SUSTAINABLE SALMON INITIATIVE

Project Synopsis

KUSKOKWIM RIVER WATERSHED



(USFWS Staff)

PROJECT 810

PRINCIPAL INVESTIGATOR

Penny A. Crane
*United States Fish and
Wildlife Service*

RESEARCH PERIOD

June 2008 -
March 2011

BUDGET

\$247,677.00

WORK-IN-PROGRESS KUSKOKWIM RIVER COHO SALMON GENETICS

UNDERSTANDING UPPER RIVER STOCKS

Coho salmon are the second most abundant salmon in the Kuskokwim River watershed and provide the largest commercial harvests, making them a mainstay to the ecology and economy of the region. Coho salmon in the Kuskokwim River are subdivided into two genetic groups: one comprising salmon spawning from the river mouth to, and including the Takotna River; and one of populations upstream of the Takotna River. Although the number of stock assessment projects monitoring coho salmon escapement and abundance has increased greatly since the 1990s, there are no assessment projects operating on populations representative of the genetic diversity group upstream of the Takotna River. Mixed-stock analysis uses genetic characters to estimate the stock components of mixtures given the underlying frequency of genetic characters in stocks contributing to the mixture. Maintenance of biocomplexity of salmon stocks is critical to sustaining salmon productivity.

OUR OBJECTIVES

Determine the relative contribution of three stocks of coho salmon to fish sampled from the Bethel Test Fishery.

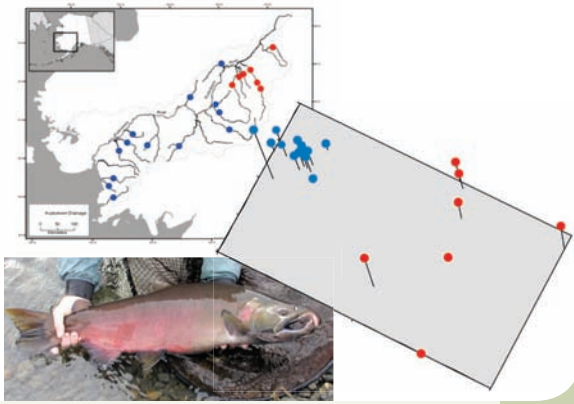
Determine if run timing of coho salmon at the Bethel Test Fishery is stock-specific.

Determine if relative contributions of the stocks of coho salmon vary among years.

**RESEARCH
FRAMEWORK:**
SYNTHESIS &
PREDICTION –
PRIORITY #9

SNAPSHOT

This project will collect samples from coho salmon at the Bethel Test Fishery. Genetic analysis will be used to estimate the relative contributions of three Kuskokwim River stocks to the Bethel Test Fishery samples and determine if stock contributions vary within and among years.



Large genetic differences exist between coho salmon spawning in the upper Kuskokwim River (orange) and lower Kuskokwim River (blue). (Crane, USFWS)

HOW WE WILL DO IT

We will collect fin clips from up to 50 coho salmon per day at the Bethel Test Fishery, and up to 400 fish for each District W1 fishery opening, if the commercial fishing season extends beyond the dates for the Bethel Test Fishery. Collections will be achieved for the 2008, 2009 and 2010 seasons. We will provide basic abundance and run timing information for coho salmon spawning in the upper Kuskokwim watershed by conducting genetic analysis on microsatellite DNA extracted from these samples.

If the commercial fishing season extends beyond the dates for the Bethel Test Fishery, up to 400 fish for each District W1 fishery opening will be sampled at fish processors in Bethel.

REPORT COMPLETION

June 2011



Sequencer (lower right) used to visualize coho salmon genotypes (upper left). (Crane, USFWS)

***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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