



AYK SUSTAINABLE SALMON INITIATIVE

Project Synopsis

BERING SEA-MARINE



(Greg T. Ruggerone)

WORK-IN-PROGRESS HISTORICAL ANALYSES OF ARCTIC-YUKON-KUSKOKWIM AND ASIAN CHUM SALMON

PROJECT 809

PRINCIPAL INVESTIGATOR

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of Fish and Game*

CONTRIBUTING ORGANIZATION

*Natural Resources
Consultants, Inc.*

RESEARCH PERIOD

July 2008 -
March 2011

BUDGET

\$134,106.00

CLUES FROM SALMON SCALES

Salmon scales, which have been routinely collected by management agencies to document salmon age, record the annual and seasonal growth history of salmon in ocean habitats where little direct growth information is available. Growth is a key factor affecting survival and life history characteristics of salmon. We will estimate annual and seasonal growth of Norton Sound, Kuskokwim River, and Asian chum salmon in the ocean from the mid-1960s to 2007. Growth estimates will be compared with ocean-climate shifts, trends in abundance, age-at-maturation of chum salmon, and abundance of pink salmon, a potential competitor with chum salmon for food in the ocean.

OUR OBJECTIVES

Evaluate whether changes in the abundance of pink salmon and climate change are associated with changes in growth and abundance of Norton Sound, Kuskokwim River, and Asian chum salmon.

Determine whether changes in the abundance of Asian chum salmon are associated with the growth and abundance of Norton Sound and Kuskokwim River chum salmon.

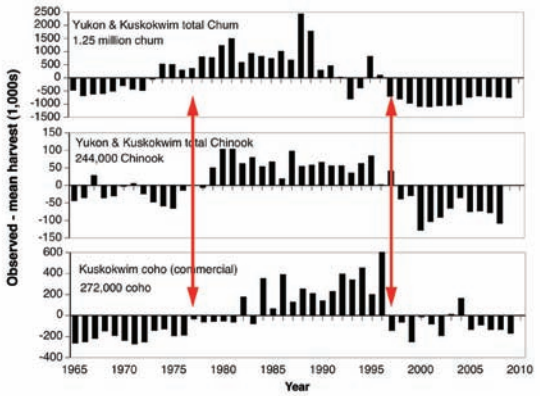
Establish whether common factors affect growth of Norton Sound, Kuskokwim River, and Asian chum salmon.

**RESEARCH
FRAMEWORK:**
SYNTHESIS &
PREDICTION –
PRIORITY #10

SNAPSHOT

Salmon scales provide an opportunity to cost-effectively collect unique growth data on salmon in the ocean.

This project uses collections of adult chum salmon scales from Unalakleet River, Kuskokwim River and Asia as a means to reconstruct growth of these salmon in the ocean during the past 40 years.



Trends in the harvests of AYK chum, Chinook, and coho salmon since 1965. Arrows show the beginning of the 1976/1977 ocean regime shift and the 1997 El Niño event that had a significant effect on salmon in western Alaska. (Ruggerone, NRC)

HOW WE WILL DO IT

Arctic-Yukon-Kuskokwim and Japanese chum salmon scales were obtained from Alaska Department of Fish and Game storage facilities and from the Japanese government. We are scanning images of the scales to a computer, and measuring seasonal (circuli) and annual scale growth from 50 fish per year per stock. These measurements will provide indices of how well these chum salmon grew during each year at sea.

REPORT COMPLETION

May 2011



(Gilk, ADF&G)

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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