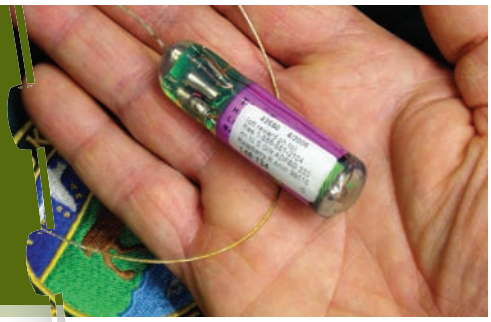
KUSKOKWIM RIVER WATERSHED



(Doug B. Molyneaux)

KUSKOKWIM RIVER SOCKEYE SALMON INVESTIGATIONS

PROJECT 618

PRINCIPAL INVESTIGATOR

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Alaska Department of Fish and Game

CONTRIBUTING ORGANIZATION

Natural Resources Consultants, Inc.

RESEARCH PERIOD

May 2006 - September 2008

BUDGET

$445,730.00

SOCKEYE SALMON FUNDAMENTALS

Sockeye salmon are popular among Kuskokwim River subsistence fishers and there is growing harvest interest among commercial fishers and processors. But the number of sockeye salmon that return to the river each year is relatively low when compared to chum or coho salmon, and their basic biology and ecology has largely been a mystery.

OUR OBJECTIVES

Find out where Kuskokwim River sockeye salmon spawn, and whether there were differences in run timing among sockeye salmon bound for different spawning areas.

Determine where the juveniles of these river-type sockeye salmon were rearing and whether their rearing areas change as they got older.

Examine the growth rates of juvenile sockeye salmon, both river- and lake-type fish, among various Kuskokwim River tributaries to see how they compare with sockeye salmon from other locations around Alaska.

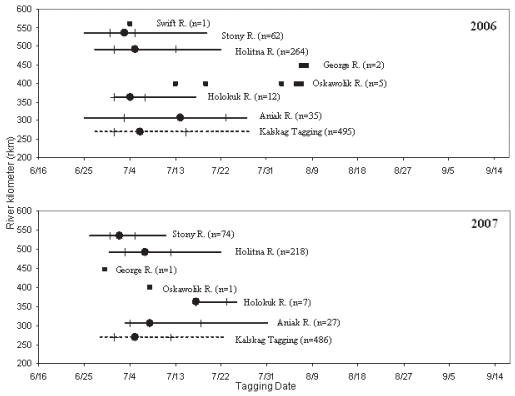
HOW WE DID IT

Specially built fish wheels outfitted with live boxes were used to capture adult sockeye salmon from the mainstem Kuskokwim River near Kalskag in 2006 and 2007. We inserted radio transmitters into the fish, released them back to the river, and then tracked the fish to their final spawning destination.

RESEARCH FRAMEWORK:
SALMON LIFE CYCLE – *PRIORITIES #2 AND #4*

SNAPSHOT

Aspects of the freshwater ecology of Kuskokwim River sockeye salmon were determined using radio telemetry, collection of juvenile fish, and analysis of fish scales. Results show that the Kuskokwim River sockeye salmon run is dominated by river-type fish that spawn and rear in streams, rather than the lake-type fish that are more common elsewhere in Alaska.



Stock specific run timing for radio-tagged Kuskokwim River sockeye salmon in 2006 and 2007, including median, quartile, 10th percentile, and 90th percentile dates. (Liller, ADF&G)

(Jay Baumer)

(Ted Wittenberger)

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
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We also used beach seines to collect and measure juvenile sockeye salmon in the Kogrukluk and lower Holitna rivers from three habitat types: mainstem, side channel with flowing water, and slackwater slough. Scales from adult sockeye salmon were collected and measured to compare growth rates between locations, and with locations outside of the Kuskokwim River.

WHAT WE DISCOVERED

Three major spawning locations were identified: Holitna, Stony, and Aniak rivers. The Holitna and Aniak river fish are "river-type" sockeye salmon, while most of Stony River fish follow the "lake-type" life history strategy. Fish from these three major spawning "stocks" migrate through the lower Kuskokwim River at about the same time. Whether taken early or late in the run, harvest should have about the same mix of these three stocks with a low probability of selective harvest of one stock over another. We found that slough habitat is especially important to the juvenile river-type sockeye salmon in the Holitna River during their early freshwater life (spring).

PRODUCTS AND OUTREACH

We presented our findings at regional meetings and one national meeting. We also conducted community meetings and school visits in Kuskokwim River villages and were featured in a newspaper article and a radio news segment. A technical report is in development.

WHAT'S NEXT?

Fishery managers should establish a goal for the number of spawning sockeye salmon at Kogrukluk River weir, as an index of for sockeye salmon in the Holitna drainage. Similarly, it would be helpful to monitor the annual number of sockeye salmon spawning in Telaquana Lake as an index for lake-type fish in the Stony River drainage. Finally, genetic analysis should be done of sockeye salmon harvested in the lower Kuskokwim River to determine the stock composition.