



# AYK SUSTAINABLE SALMON INITIATIVE

## Project Synopsis

### YUKON RIVER WATERSHED



(Amy Russel)

# PROJECT 622

### PRINCIPAL INVESTIGATOR

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*Yukon River Drainage  
Fisheries Association*

### CONTRIBUTING ORGANIZATION

*Alaska Department  
of Fish and Game*

### RESEARCH PERIOD

May 2006 -  
April 2009

### BUDGET

\$202,445.00

### LOCAL AND TRADITIONAL KNOWLEDGE

Between 1997 and 2002, sharp declines in Yukon River salmon abundance caused severe hardships for fishery-dependent communities. For some of the people most affected by fishery management systems, technological advances and statistical constructions are not the only ways to understand or evaluate fish and wildlife populations. Alaska Native fishers from the Yukon River have long relied on their elders' observations of environmental conditions and the behavior of other animals to guide them in preparation for the arrival of the salmon. These "natural indicators," or empirical observations that correlate with the return of the salmon, are culturally important aspects of salmon fishing in the Yukon River drainage.

### OUR OBJECTIVES

Document local and traditional ecological knowledge of Chinook, summer, and fall chum salmon in five Yukon River communities.

Promote capacity building in local communities and tribal and non-profit organizations.

### HOW WE DID IT

From 2006 to 2009, we conducted interviews with 61 local experts in the Yup'ik communities of Hooper Bay, Emmonak, and St. Mary's and the Athabaskan communities of Grayling and Kaltag. We collected information on natural indicators and other methods

### RESEARCH

#### FRAMEWORK:

SALMON LIFE CYCLE –  
PRIORITIES #2 AND #4

### SNAPSHOT

This project documented local and traditional ecological knowledge regarding salmon runs in five Yukon River communities.

Respondents described the natural indicators they use to gain information about salmon run timing, abundance, and fish size. Salmon habitat and resource use areas in four of the five communities were also mapped.



(Catherine Moncrieff)



(Tori Evans)

used for anticipating salmon returns. We also collected information about current and historical harvest and use patterns, and salmon relative abundance and population trends, as understood locally. We created maps with interview respondents to identify important salmon habitat areas and resource use sites and compiled these maps and spatial data into a GIS database. We consulted with local village assemblies in developing and implementing the project and trained local tribal entities in the use and applications of the maps and research results.

## WHAT WE DISCOVERED

Natural indicators are used in each of the five villages. Some indicators are unique to one village. Others, such as snow levels or the arrival of geese, are prevalent in multiple communities. The upriver communities of Kaltag and Grayling have a higher predominance of natural indicators that fall into the “flora and fauna” categories, whereas the lower river communities lean more heavily toward the “marine environment and weather” categories. We found that fishers implicitly separate their observations of natural phenomena into either causal or correlative indicators. In each village, participants repeatedly stated that things are changing and the natural indicators they have used for generations are becoming less predictable or less reliable.

## PRODUCTS AND OUTREACH

We developed a GIS database containing mapping data for all the communities except for St. Mary’s, whose residents declined to participate in this part of the study. We were able to present and discuss our results and the maps in four of the five communities.

## WHAT’S NEXT?

Respondents clearly recognized relationships between weather, animals, plant growth, and salmon run timing and abundance that could inform scientific studies into the mechanisms underlying these observations. Examples of further research include the relationships between salmon abundance and snowfall, water levels, and lamprey populations.

*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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