



# AYK SUSTAINABLE SALMON INITIATIVE

## *Project Synopsis*

### **NORTON SOUND AREA**



*(Colin K. Harris)*

## **PATTERNS AND TRENDS IN SUBSISTENCE SALMON HARVESTS, NORTON SOUND AND PORT CLARENCE**

# **PROJECT 401**

### **PRINCIPAL INVESTIGATOR**

James Magdanz  
*Alaska Department  
of Fish and Game*

### **CONTRIBUTING ORGANIZATION**

*Kawerak, Inc.*

### **RESEARCH PERIOD**

July 2004 -  
August 2005

### **BUDGET**

\$117,000.00

### **HOW CAN WE BEST ESTIMATE AND PREDICT SUBSISTENCE SALMON HARVESTS?**

Estimating and predicting wild food harvests in rural Alaska presents many challenges. The best estimates come from household surveys. But surveys are expensive and time-consuming, and every year some households and even entire communities cannot be surveyed. To compare harvests from year to year, we must expand each year's reported harvests to account for "missing" households and communities. Different types of households and different communities have very different salmon harvest patterns. Exploring existing harvest data, as this project did, is one way to better understand how differences among households and communities might affect estimates of salmon harvests. This also can help researchers build computer models to predict future subsistence salmon harvests.

### **OUR OBJECTIVES**

Analyze the survey data collected from ten communities in the Norton Sound/Port Clarence area from 1994 to 2003.

Increase understanding of the subsistence salmon harvest at the household level.

Verify the data from previous surveys, collect additional information on household characteristics, and merge it all into one dataset.

Separate households in this dataset into different categories and compare harvest patterns among the categories.

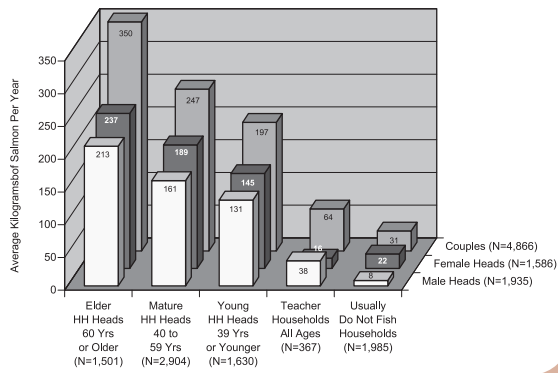
**RESEARCH  
FRAMEWORK:**  
HUMAN SYSTEMS –  
PRIORITY #5

### **SNAPSHOT**

Annual subsistence salmon harvest data collected from 1994 to 2003 in 10 Norton Sound communities were merged, reviewed, cleaned, and supplemented with additional household information.

Researchers then explored patterns and trends in households' subsistence salmon harvests, seeking to better understand what influences households' salmon harvests.

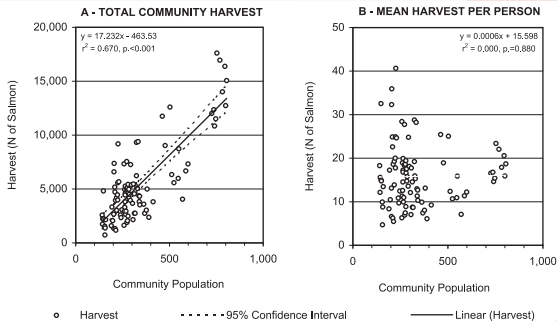
**NORTON SOUND**



Association of estimated household subsistence salmon harvests with household social type (age and gender of household heads) in 10 Norton Sound–Port Clarence area communities, 1994–2003. (Magdanz, ADF&G)



Annual household subsistence salmon harvest surveys were conducted in 10 communities (solid circles) during 1994–2003. (Magdanz, ADF&G)



Association of estimated total community salmon harvests (A) and estimated mean salmon harvests per person (B) with community populations in 10 Norton Sound–Port Clarence area communities, 1994–2003. (Magdanz, 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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## HOW WE DID IT

First, we reviewed the surveys for consistency in naming of variables and content from year-to-year, and collated all the yearly surveys into one database. Next, we collected additional information from households and key respondents in the study communities to verify the household identification numbers from the surveys, and gather more information such as household head ages, social characteristics, and major changes. We used all of the accumulated data to investigate the contributions of different types of households to the total harvest.

## WHAT WE DISCOVERED

Overall, the subsistence salmon harvest declined over the study period, with greater declines occurring in the first half. The downward trend in harvests was more pronounced in growing communities than in shrinking ones. Each year about 23% of the households harvested 70% of the salmon. Consistently, most of these were the same households, yet there were many unpredictable households in every community. Harvests increased with the age of the household heads, and decreased when household heads were single, especially single males. Neither commercial fishing retention nor major family events seemed to affect harvest levels.

## PRODUCTS AND OUTREACH

We have published our findings in an Alaska Department of Fish and Game technical paper. Our database is available for use by qualified researchers who are able to maintain the confidentiality of the data.

## WHAT'S NEXT?

Subsequent AYK SSI projects are attempting to model salmon harvest in the region.