



# AYK SUSTAINABLE SALMON INITIATIVE

## *Project Synopsis*

### NORTON SOUND AREA



(Ben Williams)

# WORK-IN-PROGRESS NOME RIVER COHO SALMON ABUNDANCE AND SURVIVAL

## PROJECT 721

### PRINCIPAL INVESTIGATOR

Charlie F. Lean  
*Norton Sound  
Economic Development  
Corporation*

### CONTRIBUTING ORGANIZATION

*LGL Alaska Research  
Associates, Inc.*

### RESEARCH PERIOD

May 2007 -  
March 2010

### BUDGET

\$350,536.00

### COHO SALMON NURSERIES

The need to incorporate ecosystem factors into escapement goals and harvest management is receiving increased attention. The relationship between coho salmon smolt abundance and freshwater rearing habitat documented outside of western Alaska has led to a greater use of ecosystem-based management in those areas. If habitat similarly affects Norton Sound coho salmon, using habitat estimates to generate adult production potential (in the form of escapement ranges) in that region may be a cost-effective way to determine management goals.

### OUR OBJECTIVES

Estimate Nome River smolt abundance for three years, and combine this data with life history information to estimate the numbers of adult spawners necessary to produce the smolt abundances.

Determine whether fluctuating adult returns from 2001 to 2006 have correlated with changes in smolt abundance and body condition from 2004 to 2009.

Estimate coho salmon marine survival from 2005 to 2008 to better understand the relative roles of freshwater and marine factors.

### HOW WE WILL DO IT

We will capture juvenile coho salmon with two fyke nets about one kilometer apart on the lower Nome River.

### RESEARCH

#### FRAMEWORK:

SALMON LIFE CYCLE –  
PRIORITIES #1 AND #2

### SNAPSHOT

This project, a continuation of ongoing work, will collect information on the influence of rearing habitat on coho salmon abundance in the Nome River. Researchers will estimate Nome River smolt abundance for another three years (making a total of six years) and combine that data with life history information, historic adult returns, and marine survival estimates to produce an ecosystem-based management model for western Alaska coho salmon.



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Fish from the upper net will be given a temporary fin clip; the proportion of these clips in the overall catch at the lower net will yield a population estimate of smolts emigrating from the river. Random samples of smolts will be taken daily for length measurements, and weekly for weight and age analysis. Throughout the sampling season (May through July), we will implant coded wire tags in smolts and clip their adipose fins. The proportion of adults that return the following year with these tags will be used to generate marine survival estimates of the smolt run from the year before.

## REPORT COMPLETION

September 2010

*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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