(Bruce Murray)

NOME RIVER WATERSHED HABITAT RESTORATION FRAMEWORK

PROJECT 439

PRINCIPAL INVESTIGATOR

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CONTRIBUTING ORGANIZATIONS

Kawerak, Inc.

LGL Alaska Research Associates, Inc.

RESEARCH PERIOD

May 2004 - June 2005

BUDGET

$142,978.00

FOCUS ON SALMON HABITAT

Placer mining and road construction are known to have altered stream habitat and watershed processes in a number of western Alaska streams with the potential for detrimental effects on freshwater survival and production of salmon. The extent of these effects on western Alaskan watersheds and salmon populations has not yet been evaluated. A first step towards such an assessment involves developing a framework to determine the present condition of salmon habitat, and to identify appropriate measures to restore salmon habitats and watershed processes altered by historic land uses.

OUR OBJECTIVES

Identify high priority areas within the Nome River watershed with high potential for habitat restoration that will benefit salmon populations.

Provide restoration designs for these sites where there is a high likelihood of success, and develop a habitat restoration framework for western Alaska based on the testing of that framework's effectiveness in the Nome River watershed.

HOW WE DID IT

We conducted an overview assessment of the Nome River watershed where we identified the Nome River watershed boundaries and sub-basins; estimated stream discharges; compiled overview information sheets for each sub-basin; and prioritized them for habitat assessments. In 2004, we conducted field assessments in which we recorded

RESEARCH FRAMEWORK:
SALMON LIFE CYCLE – *PRIORITY #2*

SNAPSHOT

A habitat assessment and restoration framework was developed for the Nome River watershed. Researchers identified high priority areas, conducted field assessments, and prepared restoration designs for six preferred sites.

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fish distribution and habitat use, stream habitat and channel condition, and sediment sources. We also documented each measured habitat unit and significant features with digital photos. After analysis, we prepared restoration designs for six sites within high priority reaches where we determined that there is a high likelihood of success.

WHAT WE DISCOVERED

Our habitat assessment and restoration framework appeared to accurately describe the Nome River current fish habitat condition. However, the frequency of poor ratings for most cover types suggests that the rating scheme may need to be readjusted in some western Alaska watersheds. Similarly, the high incidence of poor ratings for pool frequency and percent pools suggests we might need to refine the decision criteria. We characterized the river mainstem and tributaries as moderately disturbed with evidence of sediment in pools and riffles decreasing pool frequency and negatively impacting rearing and spawning habitat. In general, ongoing mining activities and vehicle trails in the tributaries are impeding their natural recovery and contributing to increased sedimentation downstream.

PRODUCTS AND OUTREACH

Our habitat assessment and restoration framework is available as a model for use by fisheries managers and natural resource agencies.

WHAT'S NEXT?

Our assessment and framework approach is widely applicable. However, the protocols will need to be adapted to specific landscapes. We expect that adjustments will be necessary to habitat assessment criteria and the rating scheme for various cover types. We recommend that reference reach surveys be conducted to develop a database of channel and habitat characteristics for western Alaska streams.

AYK SSI Mission: *To collaboratively develop and implement a comprehensive research plan to understand the causes of the declines and recoveries of AYK salmon.*

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