(Deborah Mercy)

WORK-IN-PROGRESS
JUVENILE SALMON DISPERSAL: DRIFTER BASED VIEW

PROJECT 711

PRINCIPAL INVESTIGATOR

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RESEARCH PERIOD

November 2007 - December 2010

BUDGET

$330,205.00

YOUNG SALMON GO WITH THE FLOW

The numbers of Chinook and chum salmon returning to the Arctic-Yukon-Kuskokwim region have shown remarkable variability from year to year. Although the causes for this are not known, evidence indicates that ocean conditions may be responsible, especially during the first few months that juveniles enter saltwater. While a variety of ocean-related phenomena can affect salmon survival during their early marine life stage, nearshore currents are critical in the transport and dispersal of juveniles. Restoration and conservation strategies for Bering Sea salmon stocks require understanding the migratory routes and the shelf habitats salmon use during their early marine life.

OUR OBJECTIVES

Increase understanding of the nearshore circulation field that connects Kuskokwim Bay and northern Bristol Bay with the adjacent Bering Sea shelf.

Examine the seasonal character of these currents, especially during the summer and fall, and investigate how they are affected by winds and freshwater discharge.

Use historical Bering Sea wind data sets to hindcast likely salmon transport pathways.

HOW WE WILL DO IT

We plan to deploy clusters of three to four satellite-tracked drifters in lower Kuskokwim Bay at

RESEARCH FRAMEWORK:
SALMON LIFE CYCLE – *PRIORITY #1*

SNAPSHOT

This project will use satellite-tracked drifters to map nearshore currents in Kuskokwim Bay and northern Bristol Bay.

Seasonal effects of winds and freshwater discharge will be analyzed in order to better understand the role of these currents in transporting juvenile salmon.

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approximately 12-day intervals between mid-May and mid-August over two years. Drifter positions and ocean temperatures will be determined by satellite GPS fixes once or twice per hour. Prior work indicates that we will receive at least 30 positions per day, which is sufficient to resolve tidal motions. We will use forecast wind fields generated by the National Center for Environmental Prediction. Wind predictions are available on a 2.5 degree grid with 6-hourly resolution.

REPORT COMPLETION

February 2011

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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