

**United States Cruise Plan for Northern Bering Sea Surface Trawl  
Surveys, August - September 2015**

by

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# Northern Bering Sea Surface Trawl Survey Plan for 2014

**Keywords:** juvenile salmon, Chinook Salmon Research Initiative, northern Bering Sea

## Abstract

This survey plan details the proposed sampling of juvenile salmon in the northern Bering Sea in August-September 2015. This represents the second year of a three-year collaborative project between Alaska Department of Fish and Game and Alaska Fisheries Science Center, Auke Bay Laboratories (ABL), with funding from the State of Alaska Chinook Salmon Research Initiative. This project builds upon prior juvenile salmon surveys conducted in the northern Bering Sea and led by ABL.

## Introduction

Scientists from Alaska Department of Fish and Game (ADF&G) and the Alaska Fisheries Science Center's Ecosystem Monitoring and Assessment Program, will conduct a joint survey during late summer and fall 2015 within the northern Bering Sea. The survey is conducted as part of the State of Alaska Chinook Salmon Research Initiative and will employ two vessels with overlapping survey timing. Primary objectives of the survey will be to: 1) collect biological and oceanographic information pertinent to juvenile salmon in the region; and 2) calibrate trawl catches between large and small vessel operations. The trawl calibration is planned to continue through 2016.. The ultimate goal of this project is to develop a smaller trawl/smaller vessel alternative to the established large vessel surveys, which may be more economically viable for annual, long-term monitoring of juvenile salmon in the eastern Bering Sea.

## Survey

Pelagic trawl surveys will collect information on salmon, other pelagic fish, and oceanographic conditions in the northern Bering Sea shelf (north of 60N), including locations within Norton Sound and the Bering Sea Strait aboard a larger chartered fishing vessel, *F/V Alaska Endeavor*, and ADF&G's *R/V Pandalus*. The smaller vessel (*R/V Pandalus*) survey will begin 8 August 2014 through 23 August 2014, and again 25 August 2014 through 3 September 2014, out of Nome, Alaska. The larger vessel (*F/V Alaska Endeavor*) will begin 28 August 2014 in Dutch Harbor, Alaska and end on 21 September in Dutch Harbor, Alaska. The smaller and larger vessel surveys will include a total of 26 and 25 sea days, respectively. Trawls will be conducted on 20 and 30 nmi sampling grids for the smaller and larger vessels, respectively. (Fig. 1, 2; Table 1)

Fish samples will be collected using a midwater rope trawl. At most stations, the net will be towed at or near the surface for 30 minutes at speeds between 3.5 and 5 kts. All fish

species will be counted and standard biological measurements including length and weight will be taken from subsamples of each species. Additionally, biological and physical oceanographic data will be collected at each trawl station sampled by the *F/V Alaska Endeavor*.

Calibration of juvenile salmon abundance estimates among the two survey platforms will be accomplished using two techniques: 1) direct comparison of abundance estimates for areas sampled by both vessels; 2) side-by-side paired trawl estimates of catch and fishing power, similar to Murphy et al. (2003) and Wertheimer et al. (2008).

### **References**

- Murphy, J, O Temnykh, and T Azumaya. 2003. Trawl Comparisons and Fishing Power Corrections for the *F/V Northwest Explorer*, *R/V TINRO*, and *R/V Kaiyo Maru* During the 2002 BASIS Survey. (NPAFC Doc. No. 677) 25 p. NMFS, Alaska Fisheries Science Center, Auke Bay Laboratory, Juneau, AK, USA; Pacific Fisheries Research Centre (TINRO-Centre), Vladivostok, Russia; and Hokkaido National Fisheries Research Institute, Fisheries Research Agency, Kushiro, Japan.
- Wertheimer, AC, JA Orsi, EA Fergusson, and MV Sturdevant. 2008. Paired comparisons of juvenile salmon catches between two research vessels fishing Nordic 264 surface trawls in southeastern Alaska, July 2007. NPAFC Doc. 1112. 17 pp.

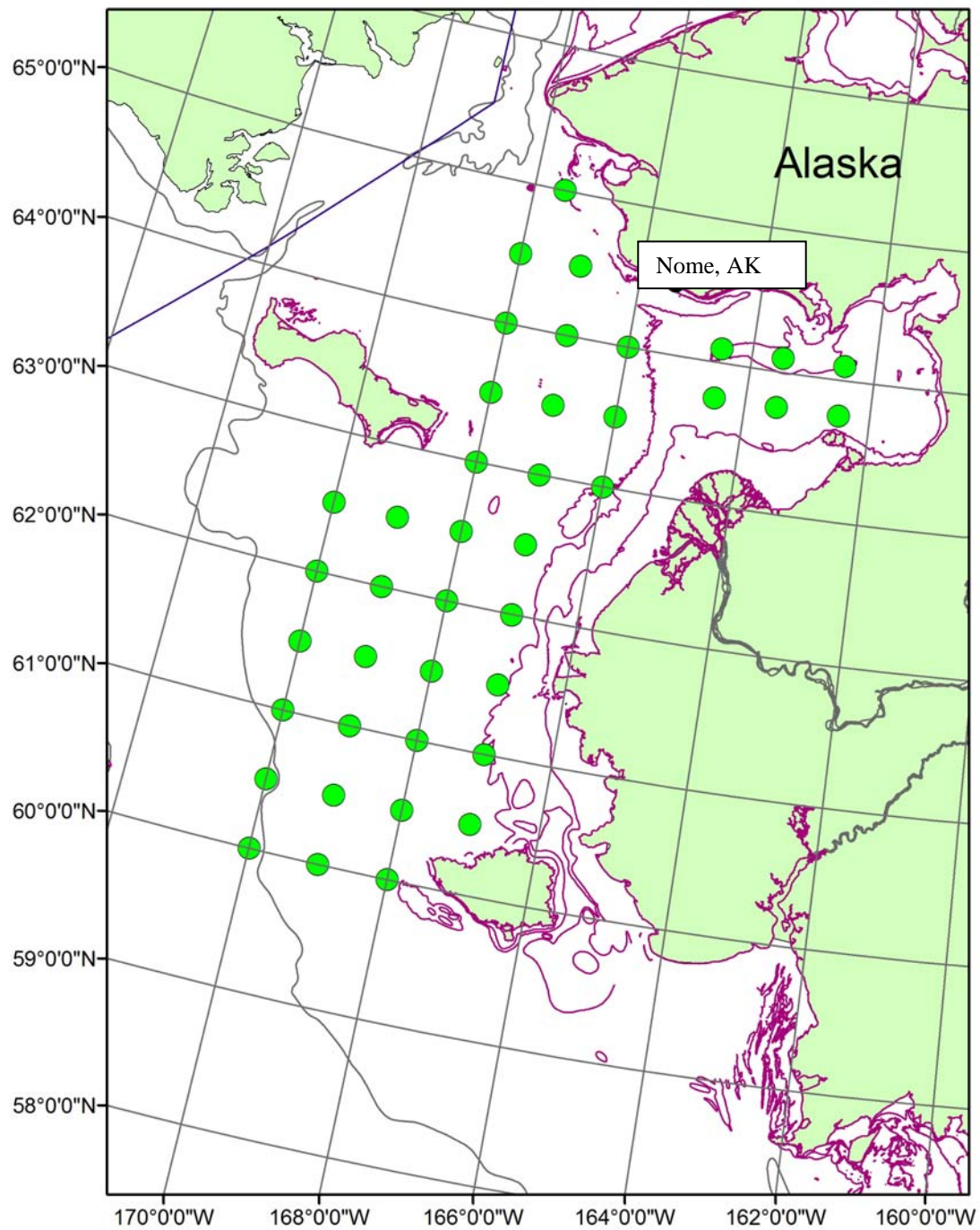
**Table 1.** Tentative cruise itinerary for the joint surface trawl surveys in the northern Bering Sea.

*F/V Alaska Endeavor*

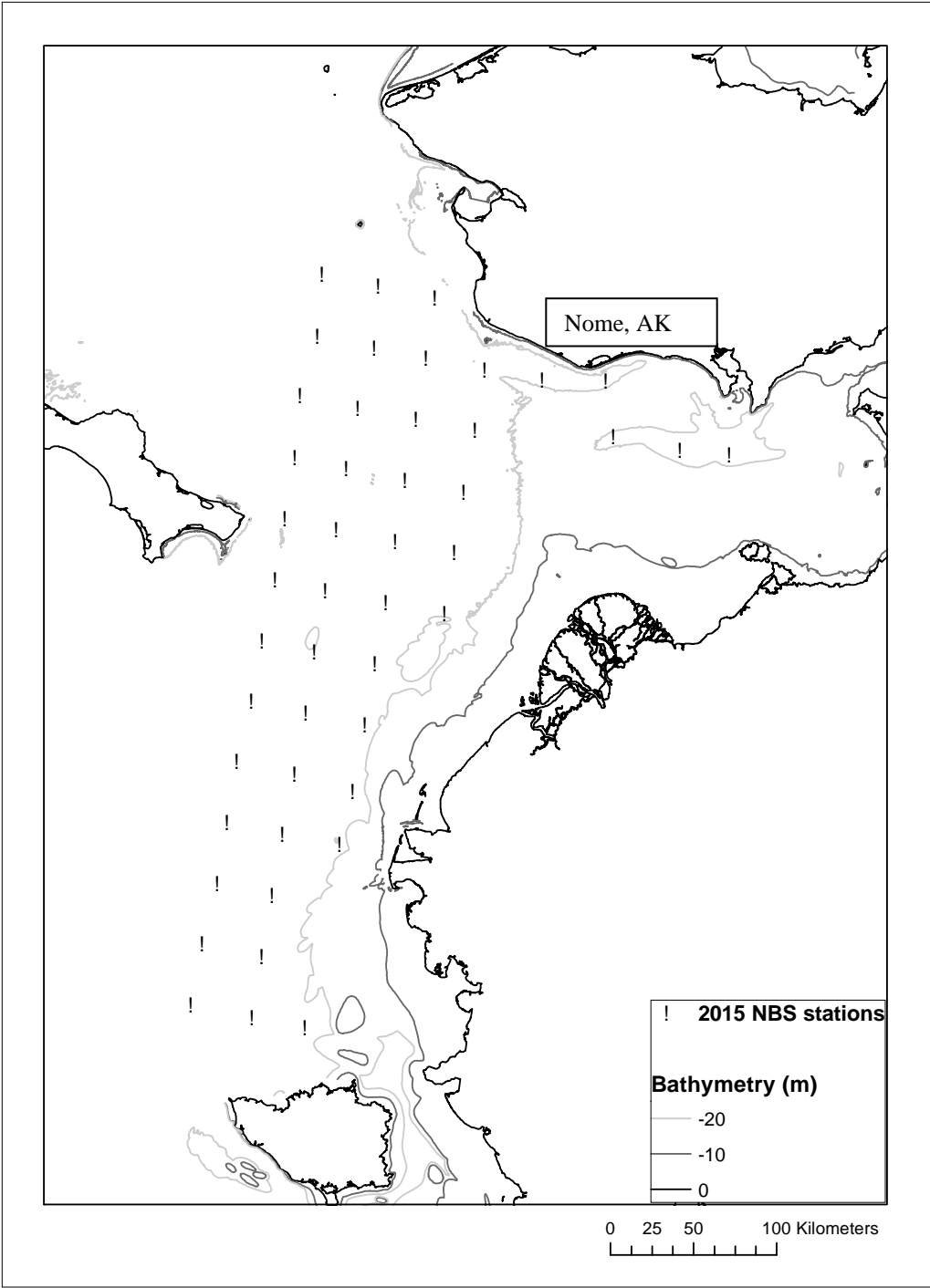
Date	Location/Activity
<b>LEG 1</b>	
Aug 28-29	Embark scientific party/Load Gear (Dutch Harbor, AK)
Aug 30-31	Transit to Norton Sound
Sep 1-2	Complete paired trawling with <i>R/V Pandalus</i>
Sep 3-8	Sample Northern Bering Sea grid stations (Fig. 1)
Sep 8	Inport Nome, AK, crew change
<b>LEG 2</b>	
Sep 8	Depart Nome, AK
Sep 8-20	Sample Northern Bering Sea grid stations (Fig. 1)
Sep 20-21	Transit to Dutch Harbor, AK
Sep 22	Inport Dutch Harbor, AK, offload gear

*R/V Pandalus*

Date	Location/Activity
<b>LEG 1</b>	
Aug 7-8	Embark scientific party/Load Gear (Nome, AK)
Aug 8-23	Sample Northern Bering Sea grid stations (Fig. 2)
Aug 23-25	Inport Nome, AK, crew change
<b>LEG 2</b>	
Aug 25-31	Sample Northern Bering Sea grid stations (Fig. 2)
Sep 1-2	Complete paired trawling with <i>F/V Alaska Endeavor</i>
Sep 3	Inport Nome, AK, offload gear



**Figure 1 Proposed stations for surface trawl survey in the northern Bering Sea, conducted by F/V Alaskan Endeavor.**



**Figure 2 Proposed stations for surface trawl survey in the northern Bering Sea, conducted by R/V Pandalus.**