

NPAFC

Doc. 1643

Rev.

**United States Cruise Plan for Northern Bering Sea Surface Trawl
Surveys, August - September 2016**

by

Kristin Cieciel and Edward Farley

National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Alaska Fisheries Science Center, Auke Bay Laboratories
Ted Stevens Marine Research Institute
17109 Point Lena Loop Road
Juneau, AK 99801-8626 USA

Submitted to the

NORTH PACIFIC ANADROMOUS FISH COMMISSION

by

United States of America

April 2016

THIS PAPER MAY BE CITED IN THE FOLLOWING MANNER:

Cieciel, K. and E. Farley. 2016. United States cruise plan for northern Bering Sea surface trawl surveys, August – September 2016. NPAFC Doc. 1643. 3 pp. National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), Alaska Fisheries Science Center, Auke Bay Laboratories, Ted Stevens Marine Research Institute (Available at <http://www.npafc.org>).

Northern Bering Sea Surface Trawl Survey Plan for 2016

Keywords: juvenile salmon, forage fish, northern Bering Sea, Loss of Sea Ice.

Abstract

This survey plan details the proposed sampling of juvenile salmon and forage fish in the northern Bering Sea in August-September 2016. This represents a project that includes participation from the Alaska Department of Fish and Game (ADF&G), US Fish and Wildlife, and the Alaska Fisheries Science Center, Auke Bay Laboratories (ABL), with funding provided from the AFSC Loss of Sea Ice (LOSI) Plan. This project builds upon prior surveys conducted in the northern Bering Sea and led by ABL.

Introduction

Scientists from the Alaska Fisheries Science Center's Ecosystem Monitoring and Assessment Program, will conduct a survey during late summer and fall 2016 within the northern Bering Sea. Primary objectives of the survey will be to: 1) provide information on how species distribution and marine food webs are altered by climate and seasonal ice in the northern Bering Sea (Sigler et al 2015). 2) collect biological and oceanographic information pertinent to juvenile salmon and forage fishes in the region; and 3) calibrate trawl catches with the Alaska Department of Fish and Game between large and small vessel operations. The trawl calibration is planned to be completed in 2016. 4) continue oceanographic time series sampling on the DBO2 (Distributed Biological Observatory) station line.

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 large chartered fishing vessel, R/V Cape Flattery. The vessel (R/V Alaska Endeavor) will begin 25 August 2016 in Dutch Harbor, Alaska and end on 18 September in Dutch Harbor, Alaska. The survey will include a total of 25 sea days. Trawls will be conducted on a 30 NM spaced sampling grid. (Fig. 1, 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.

Calibration of juvenile salmon abundance estimates with ADF&G 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.

Sigler, MF, KY Aydin, PL Boveng, EV Farley Jr, RA Heintz, and RR Lauth. 2015 Alaska Fisheries Science Center Loss of Sea Ice (LOSI) Plan for FY15-FY19. AFSC Processed Rep. 2015-01, 11p. Alaska Fish. Sci. Cent., NOAA Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115

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 *R/V Cape Flattery* pelagic trawl survey in the coastal Northeastern Bering Sea shelf, August 25 – September 18, 2016.

Date	Location/Activity
<u>Leg 1</u>	
Aug 25	Embark scientists and load gear at OSI, Dutch Harbor, AK
Aug 27	Depart Dutch Harbor, transit North
August 29	Arrival, sample two stations outside Norton Sound
August 30	Paired trawling with ADF&G <i>Pandalus</i> , Norton Sound
August 31-Sept 5	Proceed with Sample grid stations (Fig. 1)
Sep 6	Port call Nome, AK, crew change
<u>Leg 2</u>	
Sep 6	Port call Nome, AK, crew change
Sep 7-16	Sample grid stations in northern Bering Sea
Sep 17-18	Transit to Dutch Harbor, AK
Sep 18	Offload gear at OSI in Dutch Harbor, AK, contract ends.

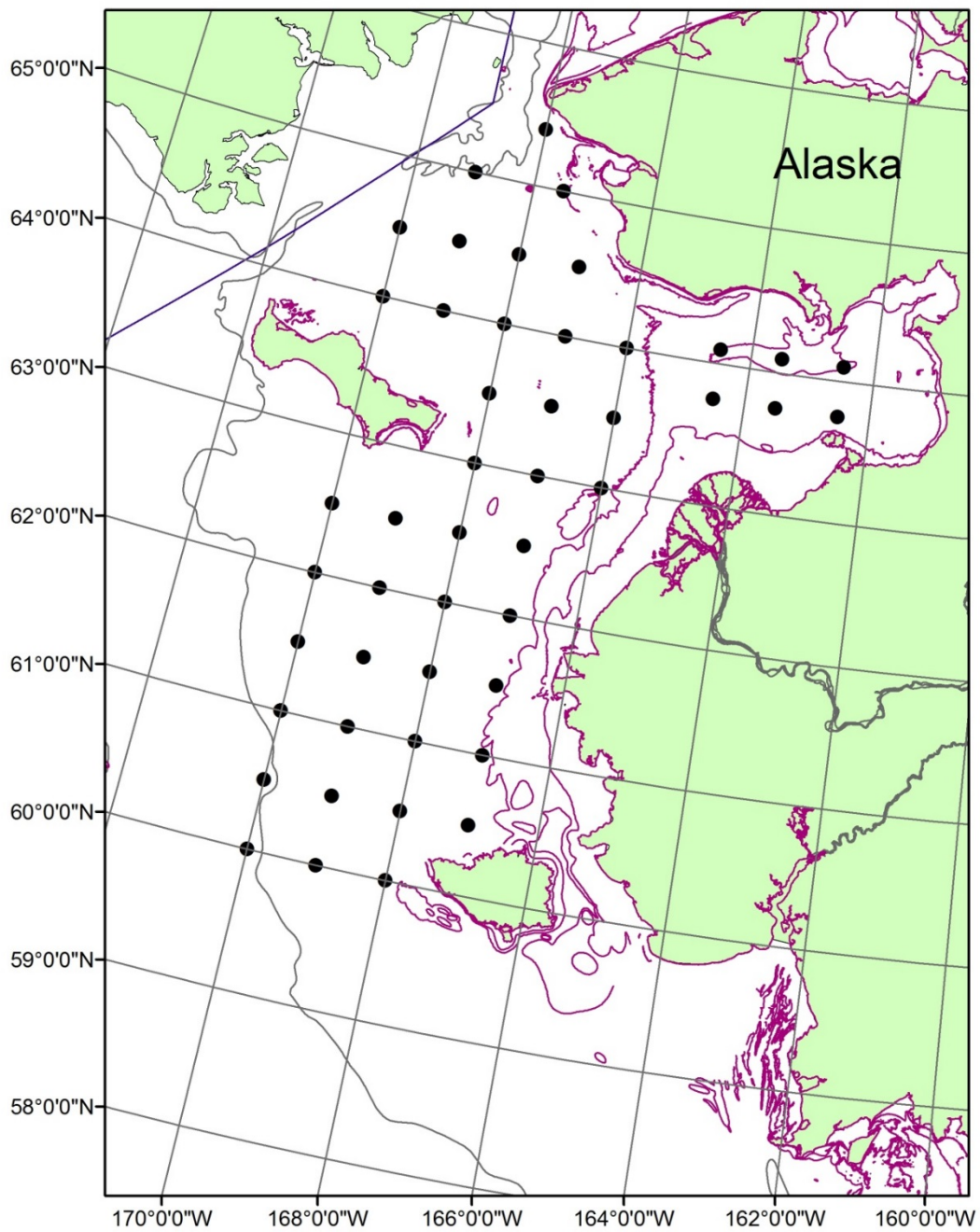


Figure 1. Proposed stations for surface trawl survey in the northern Bering Sea, conducted by R/V Cape Flattery.