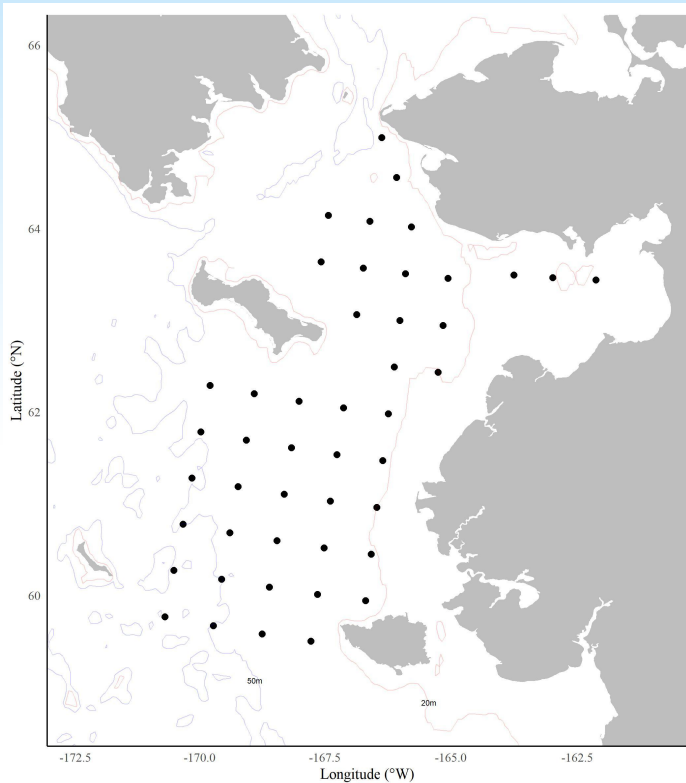




## Northern Bering Sea Ecosystem and Surface Trawl Survey

September 2 - 26, 2024



The 2024 Northern Bering Sea Ecosystem and Surface Trawl survey is a multi-disciplinary research survey by the Alaska Fisheries Science Center (AFSC), the Alaska Sustainable Salmon Fund (AKSSF), Alaska Department of Fish and Game (ADF&G), the University of Alaska, U.S. Fish and Wildlife Service (USFWS), and the Pacific Marine Environmental Laboratory.

Objectives of the survey were to collect information on: 1) physical and biological oceanographic conditions, 2) phytoplankton community composition and the presence of harmful algal bloom (HAB) species and toxins, 3) distribution, abundance, and size of salmon and other pelagic fish species with surface trawl operations, 4) diet, condition, and trophic ecology of fish, 5) environmental DNA and genetic origin of salmon, 6) ecology of juvenile snow crab and yellowfin sole with benthic grab and beam trawl operations, 7) distribution and abundance of seabirds, and 8) salmon shark migration.

The loss of Arctic sea ice and warming climate conditions are altering ecosystem processes within the NBS. These conditions are more conducive for larger and recurrent HABs as well as increases in HAB toxins in food webs that may impact wildlife health. Large-scale shifts in species distributions within the eastern Bering Sea, including Pacific cod and pollock, are altering the predation and competition pressures within the NBS. Stomach fullness and energy content of several species have declined with warming temperature in the NBS. Data and specimens collected during this survey are used to provide insight into these and other ecosystem processes in the NBS.

The abundance of snow crab in the eastern Bering Sea declined sharply between 2019 and 2021, with a reduction of 55% in adult males and 70% in adult females. The juvenile stage has experienced a greater decline with a reduction of 96% and 99% of the juvenile male and female crab abundance, respectively. Snow crab data and specimens collected on this survey provide insight into the impact of sea ice extent and ocean temperature on the survival of juvenile snow crab and quality (energy content) of their prey.

The Arctic-Yukon-Kuskokwim (AYK) Region has experienced unprecedented run failures for Chinook, chum, and coho salmon. All salmon directed gillnet fisheries within the Yukon River have been severely restricted in recent years, leading to extreme food security and social, cultural, and economic hardships by communities within Alaska and the Yukon Territory. Data and specimens collected during this survey provide insight into the marine ecology and survival of Yukon River salmon stocks, and are used to guide pre-season assessment and management strategies for Yukon River salmon.

*See timetable and station map on back*

## Northern Bering Sea Surface Trawl and Ecosystem Survey Schedule

Survey mobilization in Dutch Harbor	September 2nd
Mid-survey port call in Nome	September 15th
Demobilization in Dutch Harbor	September 26th

### How do you plan to communicate research results? (e.g., outreach document, webstory, radio interview, community meeting, etc.)

- A community outreach presentation will be given after the survey.
- The status of juvenile Yukon River Chinook and chum salmon will be presented at regional salmon fisheries meetings and the US/Canada Yukon River Joint Technical Committee and Yukon River Panel meetings.
- Ecosystem considerations chapters will be provided to the North Pacific Fisheries Management Council (NPFMC) on the abundance of juvenile Chinook, pink, and chum salmon, the biomass of forage fish, and the distribution, abundance, and lipid levels of zooplankton.



U.S. Secretary of Commerce  
**Gina Raimondo**

Administrator of National Oceanic  
and Atmospheric Administration  
performing the duties of the  
Undersecretary of Commerce  
**Benjamin Friedman**

Assistant Administrator for Fisheries  
(acting)  
**Paul Doremus**

**March 2021**  
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National Marine  
Fisheries Service  
1315 East-West Highway  
SSMC 3, F/SF, Room 13362  
Silver Spring, MD 20910



### Survey contacts:

**AFSC:** Jim Murphy [Jim.Murphy@noaa.gov](mailto:Jim.Murphy@noaa.gov), Dan Cooper [Dan.Cooper@noaa.gov](mailto:Dan.Cooper@noaa.gov), and Ed Farley [Ed.Farley@noaa.gov](mailto:Ed.Farley@noaa.gov)  
**ADF&G:** Sabrina Garcia [Sabrina.Garcia@Alaska.gov](mailto:Sabrina.Garcia@Alaska.gov) and Katie Howard [Kathrine.Howard@Alaska.gov](mailto:Kathrine.Howard@Alaska.gov)