NORTH PACIFIC RESEARCH BOARD

Arctic Program

Background

The Arctic Integrated Ecosystem Research Program (IERP) will invest approximately $16 million in studying marine processes in the northern Bering and Chukchi Seas in 2017-2021, beginning in the summer of 2017. The program is sponsored by North Pacific Research Board (NPRB), Collaborative Alaskan Arctic Studies Program (formerly the North Slope Borough/Shell Baseline Studies Program), Bureau of Ocean Energy Management, and the Office of Naval Research Marine Mammals and Biology Program. Generous in-kind support has been contributed by the National Oceanic and Atmospheric Administration and the University of Alaska Fairbanks.

The program will integrate observations collected during spring, summer, and fall in 2017, 2018, and 2019 to better understand how reduced Arctic sea ice and associated environmental changes influence the flow of energy through the marine ecosystem from plankton to fish, seabirds, marine mammals, and humans. Late spring and early summer sampling will occur in 2017 and 2018 aboard the R/V Sikuliaq*. Late summer and early fall sampling will occur in 2017 and 2019; a research vessel for this portion of the program has not been determined.*

Late Summer Season Cruises | 2017 & 2019 (July 31 - Oct. 5)

Who is conducting the research?

Scientists with the Alaska Fisheries Science Center, University of Alaska Fairbanks, University of Oregon, U.S. Fish and Wildlife Service, and the Pacific Marine Environmental Laboratory.

What is the objective?

To understand how climate change will affect the distribution and abundance of marine mammals, fish, seabirds, and the food they depend upon throughout the Chukchi and Beaufort seas.

What and where?

We plan to sample ocean conditions, fishes, and observe seabirds during a research survey on a to-be-determined chartered fishing vessel in the Beaufort Sea and Chukchi Sea during August to October 2017 and 2019 (Figure 1; Table 1).

How close to shore will you get?

The research will be conducted in bottom depths greater than 100 feet; the closest stations to shore are within 5 miles.

What kind of gear will be used?

Surface - A research rope trawl (150 feet across) to fish for juvenile salmon, herring, and capelin in the top 50 feet of the water column (approx. 0.05 square miles per tow);

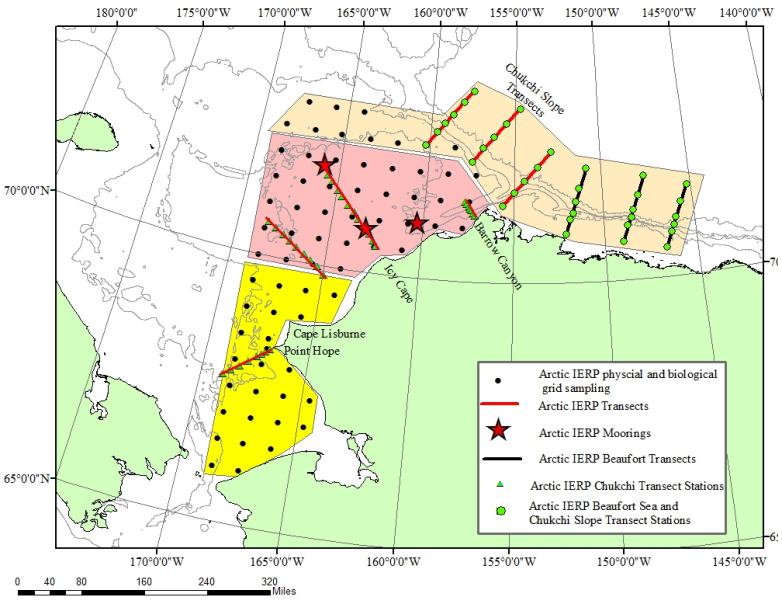

Figure 1: Station locations (black dots), transects (red and black lines) with stations (green dots and triangles), and mooring sites (red stars) that will be occupied by a to-be-determined chartered fishing vessel during August to October 2017 and 2019. Colored regions denote the areas to be sampled during Leg 1 (light brown – Aug. 8-18), Leg 2 (light pink – Aug. 24-Sept. 9), and Leg 3 (yellow – Sept. 14-30).

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Midwater - A small mesh research trawl (20 feet across) to sample age-0 Arctic cod and saffron cod in the midwater (approx. 0.003 square miles per tow); *Bottom* - A beam trawl (9 feet across) to sample the bottom for older Arctic cod, snow crab, and other invertebrates (approx. 0.0006 square miles per tow). Additionally, a Conductivity-Temperature-Depth (CTD) instrument package will sample physical parameters of the water column, and bongo net tows will collect plankton. Subsurface moorings will be deployed at three locations to measure near-bottom physical parameters throughout the year.

When can we expect to hear back from someone on results of the research?
We are working with NPRB to establish a dialogue between scientists and Arctic communities to provide information and receive feedback from communities on survey plans and results.

Table 1. Proposed Operations for the Chukchi and Beaufort Seas, Late Summer 2017 (July 31 - Oct. 5)

Leg 1 (Light Brown)	**(DAS = days at sea)**
July 31	Embark scientists in Dutch Harbor, AK
Aug. 1-2	Load gear/acoustic calibration
Aug. 3	Depart DH, transit to Beaufort Sea (5.5 DAS)
Aug. 8	Arrive east transect (147°W)
Aug. 9-14	Sample Beaufort Sea and Chukchi Slope transects (east to west)
Aug. 15-18	Sample grid stations 73°N to 72.5°N (11 stations, ice dependent)
Aug. 18-19	Transit to Nome (420 nm = evening of Aug 18; 1.8 DAS)
Aug. 20-21	Arrive Nome and exchange scientists, gear
Leg 2 (Light Pink)	
Aug. 22	Depart Nome, AK, transit to Barrow Canyon transect (430 nm; 1.8 DAS)
Aug. 24-27	Complete Barrow Canyon, mooring deployment and Icy Cape (4 DAS)
Aug. 28 - Sept. 9	Sample grid stations 72°N to 70°N (33 stations = 13 DAS), ice dependent)
Sept. 10	Transit to Nome (320 nm = evening of Sep 8; 1.3 DAS)
Sept. 11	Arrive Nome and exchange scientists, gear
Leg 3 (Yellow)	
Sept. 13	Depart Nome, AK, transit to 69°5N (320 nm; 1.3 DAS)
Sept. 14 - Sept. 30	Sample grid stations 69°5N to 66°W (25 Stations= 11 DAS); complete Cape Lisburne, Point Hope (3 DAS); other ops and weather (3 DAS)
Oct. 1	Transit to Dutch Harbor (660 nm; 2.5 DAS)
Oct. 4	Offload and end cruise
Oct. 5	Scientists depart Dutch Harbor

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