

Harmful Algal Blooms in the Warming Chukchi Sea

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Research Expedition Details

Dates: July 19 – August 15, 2022

Departs from: Nome, AK

Returns to: Nome, AK

Research Area Location: Northern Bering, Chukchi,

Western Beaufort Seas

Vessel: R/V Norseman II

Research website: N/A

Project supported by: National Science Foundation

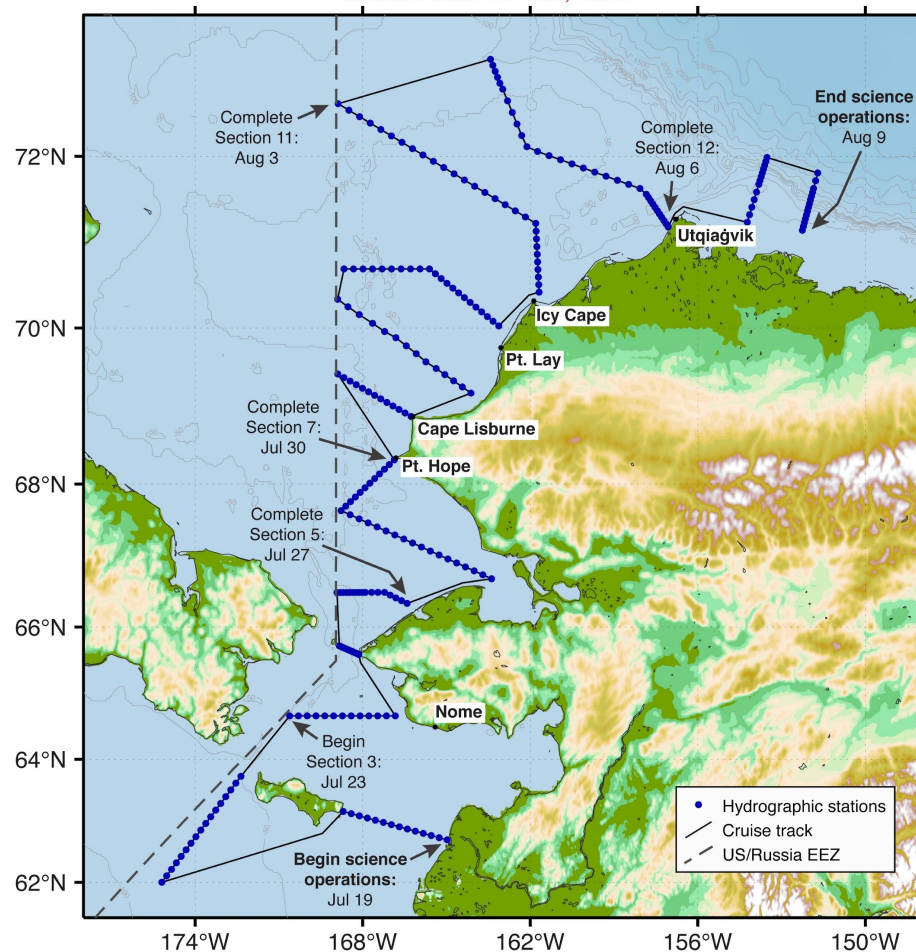
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2022 HABs cruise Leg 1

Nome to Nome: 19 July - 15 August, 2022

Version date: 27 Jan, 2022



Key Scientific Questions & Motivations

- How extensive are harmful algal bloom (HAB) cell/cyst distributions on the shelf?
- What are their origins and dynamics, and how long have they been in the region?

The hypothesis is that HABs in Alaskan Arctic waters are not only advected from the south through Bering Strait but are now originating locally on the Chukchi shelf due to warming temperatures, circulation features, and water mass structure that influence bloom magnitude, duration, toxicity, and recurrence.

Key Activities & Data to be collected

Measurements include:

- CTD casts
- water sampling from the rosette (nutrients; chlorophyll; Pseudo-nitzschia and Alexandrium abundance; salinity)
- net tows for phytoplankton
- van Veen grabs
- sediment cores (multi-cores, gravity cores)
- underway sampling of surface seawater (including Imaging Flow Cytobot)
- plankton emergence trap incubations

Implications & Broader Impacts

HABS are an emerging threat to human and ecosystem health in the Alaskan Arctic. The research being carried out in this program will significantly expand our knowledge of HABS in the region which will be communicated to stakeholders to help support sustainability and public health.