

The Alaska Harmful Algal Bloom Network: Meeting the Complex Challenges Presented by HABs in Alaska

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Alaska Ocean Observing System

HABs in the Northeast Pacific
May 23, 2024



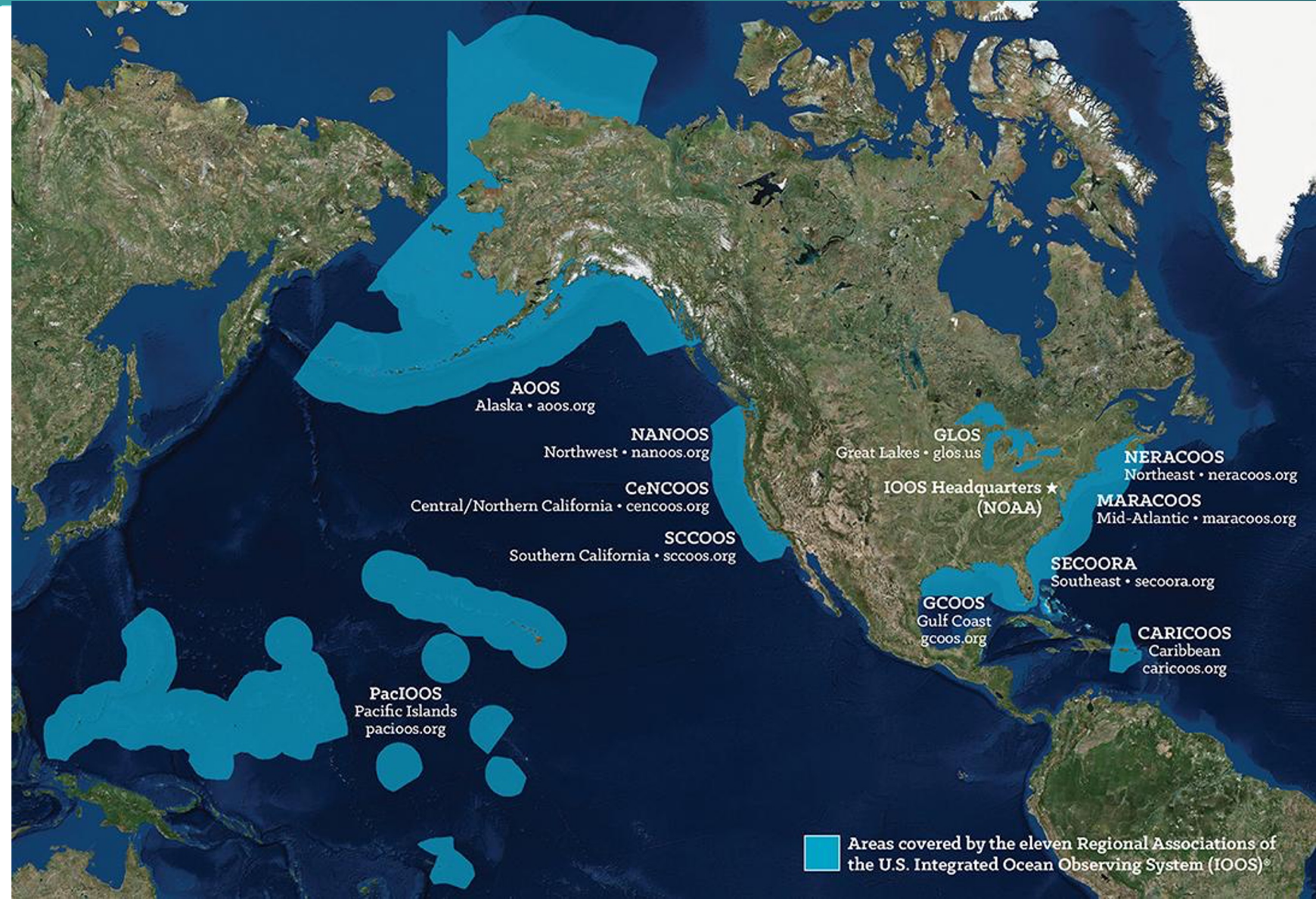
What is AOOS?

AOOS

1 of 11 regional programs of NOAA's Integrated Ocean Observing System

Mission:

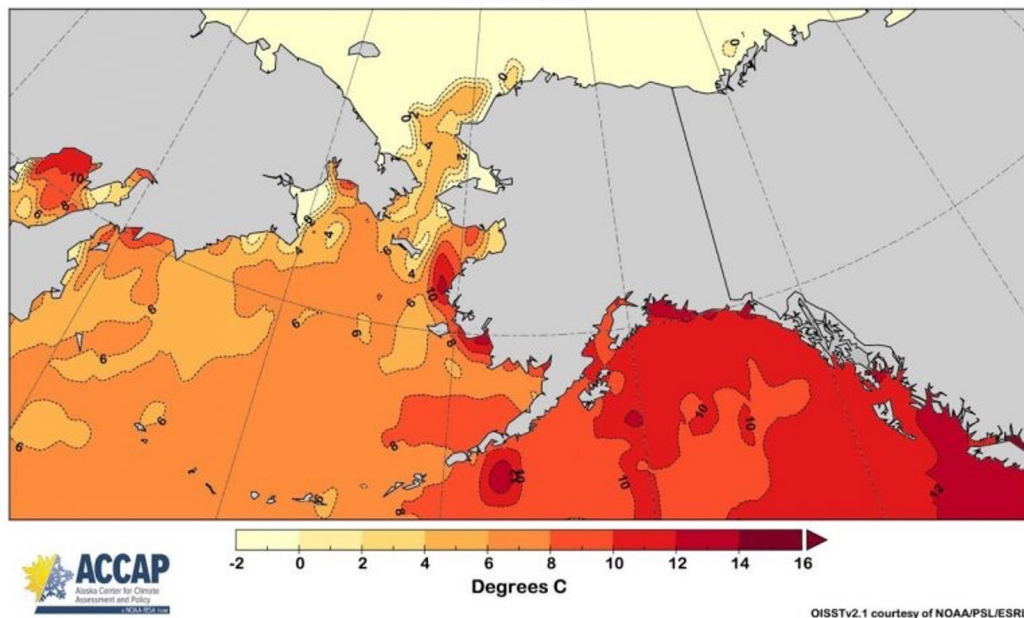
- Fill gaps in ocean observations
- Facilitate partnerships
- Serve data



PSP Fatality, 2020

Blue mussels: 11,200 $\mu\text{g}/100\text{g}$
Snail: 287 $\mu\text{g}/100\text{g}$

Average Sea Surface Temperature
June 12-18, 2020



Alaska News

Person dies of paralytic shellfish poisoning after eating snails and mussels from Dutch Harbor beach

✍ Author: [Tess Williams](#) ⌚ Updated: July 16, 2020 📅 Published July 15, 2020

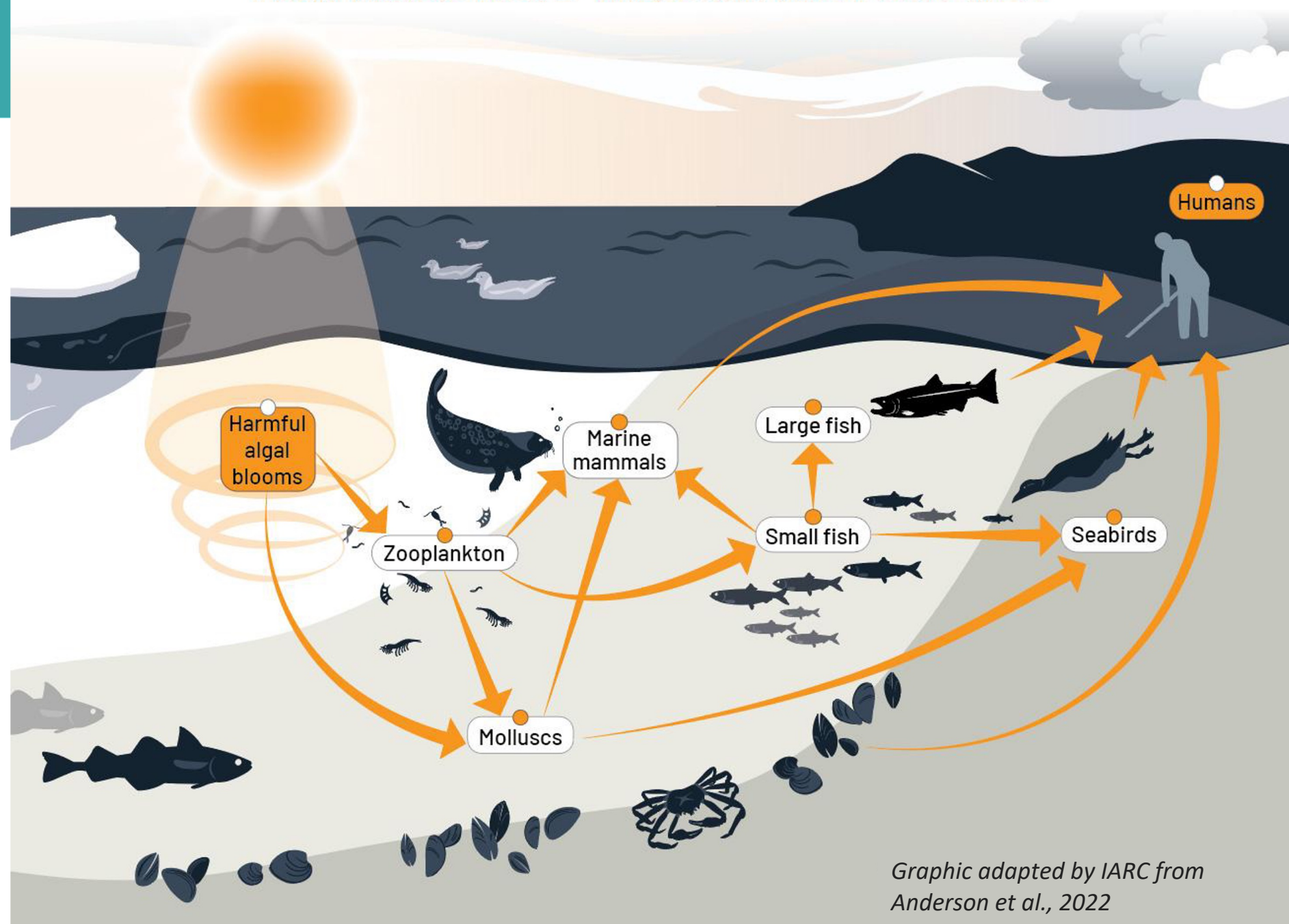


Since 1993: 132 PSP cases from 79 outbreaks, 5 deaths
Primarily in the Gulf of Alaska
Epi bulletin: https://epi.alaska.gov/bulletins/docs/b2022_05.pdf

From HABs to Humans

- HAB toxins can take several routes to humans
- Impact food safety
- Could impact the health of the animals
- Food security issue!

How HABs MOVE THROUGH THE FOOD WEB



Graphic adapted by IARC from
Anderson et al., 2022

Minimizing Risks to Food Safety/Security

Needs 3 approaches used simultaneously

I. Monitoring of algae

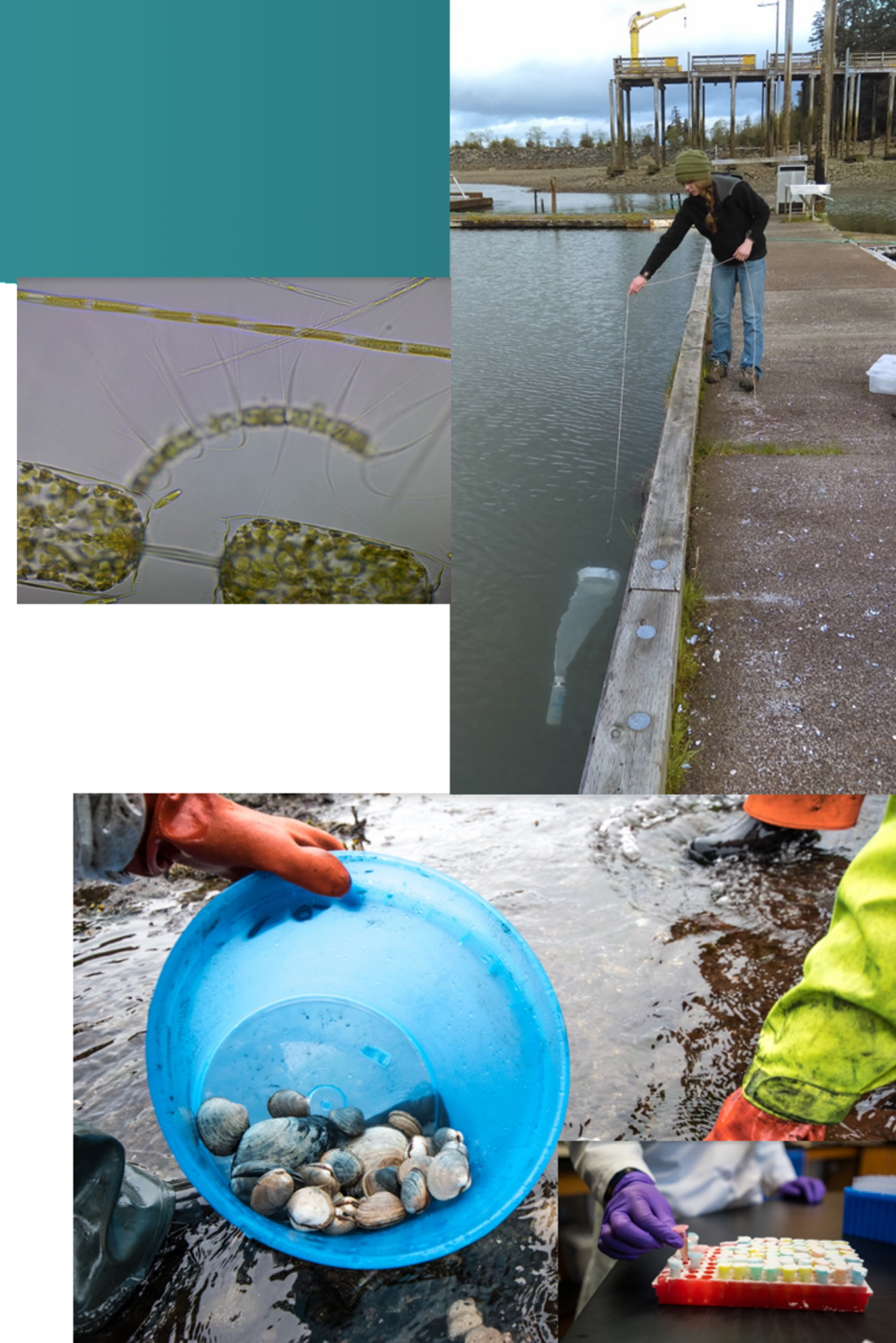
- What organisms are in the water?
- Simple, great for understanding bloom dynamics
- Cannot determine safety of food items

II. Toxin testing

- Sample different organisms (food items and other species in ecosystem)
- Requires labs and advanced techniques (PSP)
- Can aid in food safety decision if results are rapid
- Also helpful in HAB research

III. Communication/Outreach

- I. Very important to increase awareness
- II. Can limit impacts of toxins by modifying behavior





Grace Ellwanger, KANA



The Alaska Harmful Algal Bloom Network

Alaska Harmful Algal Bloom Network

- AHAB Network formed in 2017
- Platform to communicate and support HAB monitoring, research and outreach across Alaska
- Strength of the network comes from our members who contribute to a shared goal



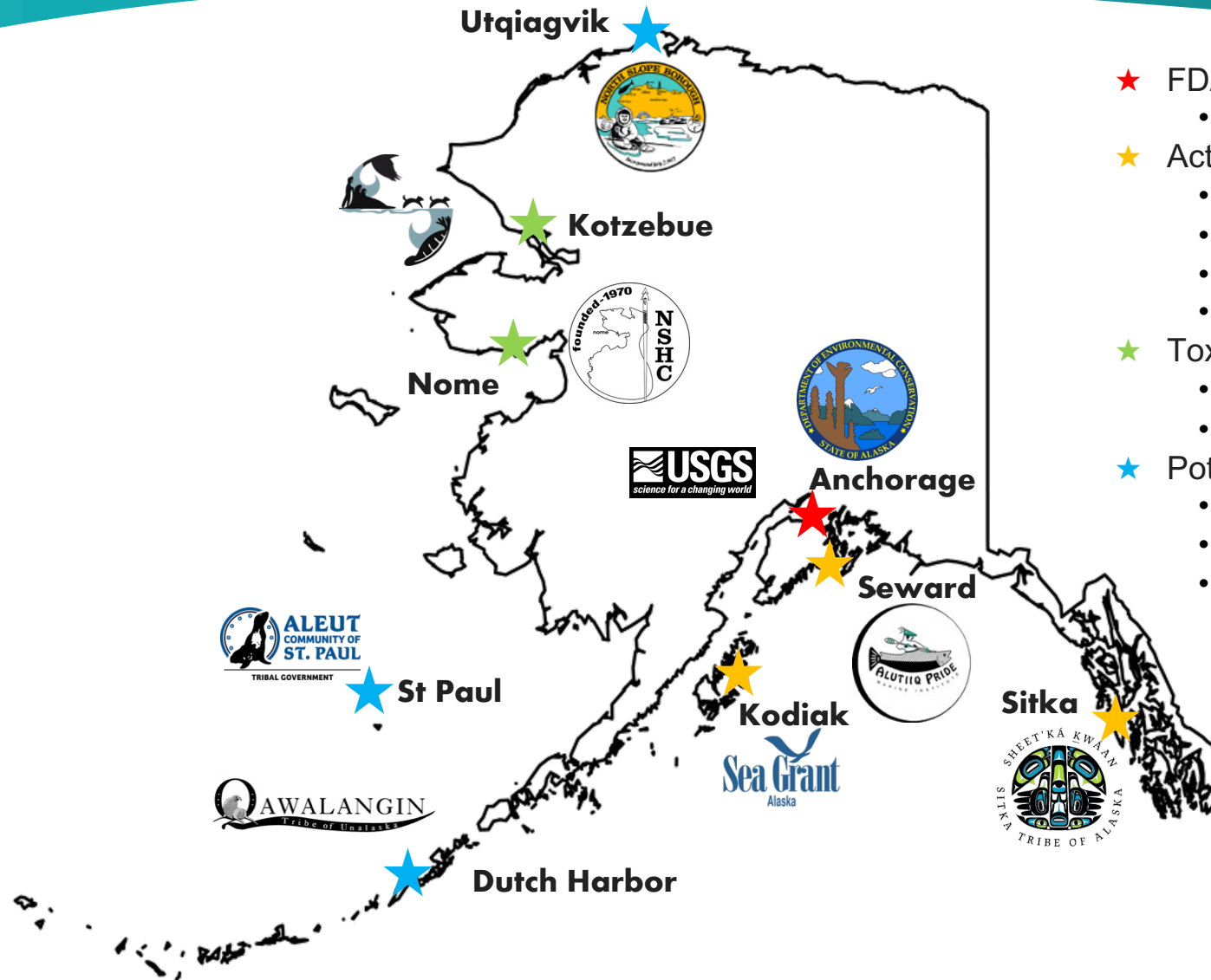
AOOS



Network Members and HAB Monitors

SEATOR	Woods Hole Oceanographic Institute	University of Alaska Anchorage
Sitka Tribe of Alaska	Alaska Dept of Health and Social Services	Aleutian Pribilof Islands Association
KBNERR	Alaska Dept of Environmental Conservation	Chugach Regional Resources Commission
Knik Tribe	Alaska Dept of Fish and Game	Seldovia Village Tribe
Alutiiq Pride Marine Institute	NOAA WARRN-West Lab	Native Village of Port Graham
Kodiak Area Native Association	Alaska Fisheries Science Center	Sun'aq Tribe of Kodiak
Alaska Sea Grant	North Pacific Research Board	Community members of Utqiagvik
Qawalangin Tribe of Unalaska	US Arctic Research Commission	Alaska Conservation Foundation
Aleut Community of St Paul	US Fish and Wildlife Service	Applied Research in Environmental Sciences
Norton Sound Health Corporation	US Forest Service	Center for Alaskan Coastal Studies
Native Village of Kotzebue	Agency for Toxic Substances and Disease Registry	Coastal Observation and Seabird Survey Team
North Slope Borough	Alaska Pacific University	Prince William Sound Stewardship Foundation
USGS Alaska Science Center	Columbia University	Axiom Data Science
NCCOS	University of Alaska Fairbanks	
Alaska Veterinary Pathology Services		

HAB Toxin Labs in Alaska



- ★ FDA-approved labs for food safety
 - DEC Environmental Health Lab
- ★ Active toxin-testing
 - Sitka Tribe of Alaska
 - Alutiiq Pride Marine Institute
 - Alaska Sea Grant (Kodiak)
 - USGS Alaska Science Center
- ★ Toxin testing being developed or considered
 - Norton Sound Health Corporation
 - Native Village of Kotzebue
- ★ Potential future toxin testing locations
 - Qawalangin Tribe of Unalaska
 - Aleut Community of St. Paul Island
 - North Slope Borough

Commonly tested species



Ongoing Work

- Monitoring and toxin sampling efforts are increasing
- New technologies being employed (e.g. Imaging Flow CytoBot (IFCB) and satellites)
- Funding for coastal communities critical





The Eye on Alaska's Coasts and Oceans

Thank you
AHAB Network Members
Community Monitors

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