

Alaska Ocean Observing System 101

Anchorage, Alaska

**Molly McCammon, Director
Alaska Ocean Observing System
(AOOS)**

***A Regional Observing System
within the Integrated Ocean Observing System***

www.aoot.org

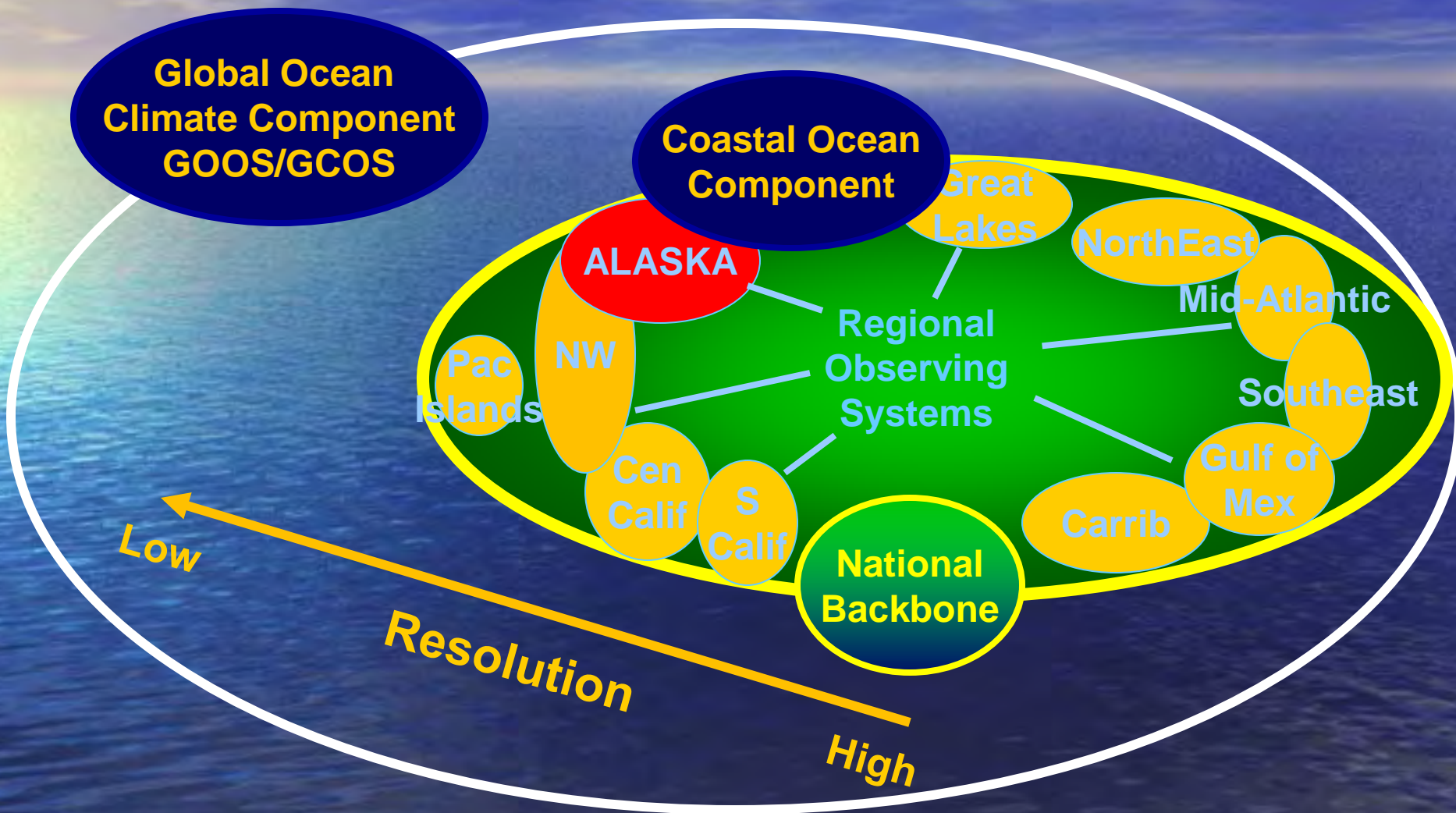
IOOS (National) Vision & Goals

VISION: *To better detect, assess & predict effects of large-scale changes in oceans on coastal ecosystems, resources & human populations by seamlessly linking observations, models & data, in order to:*

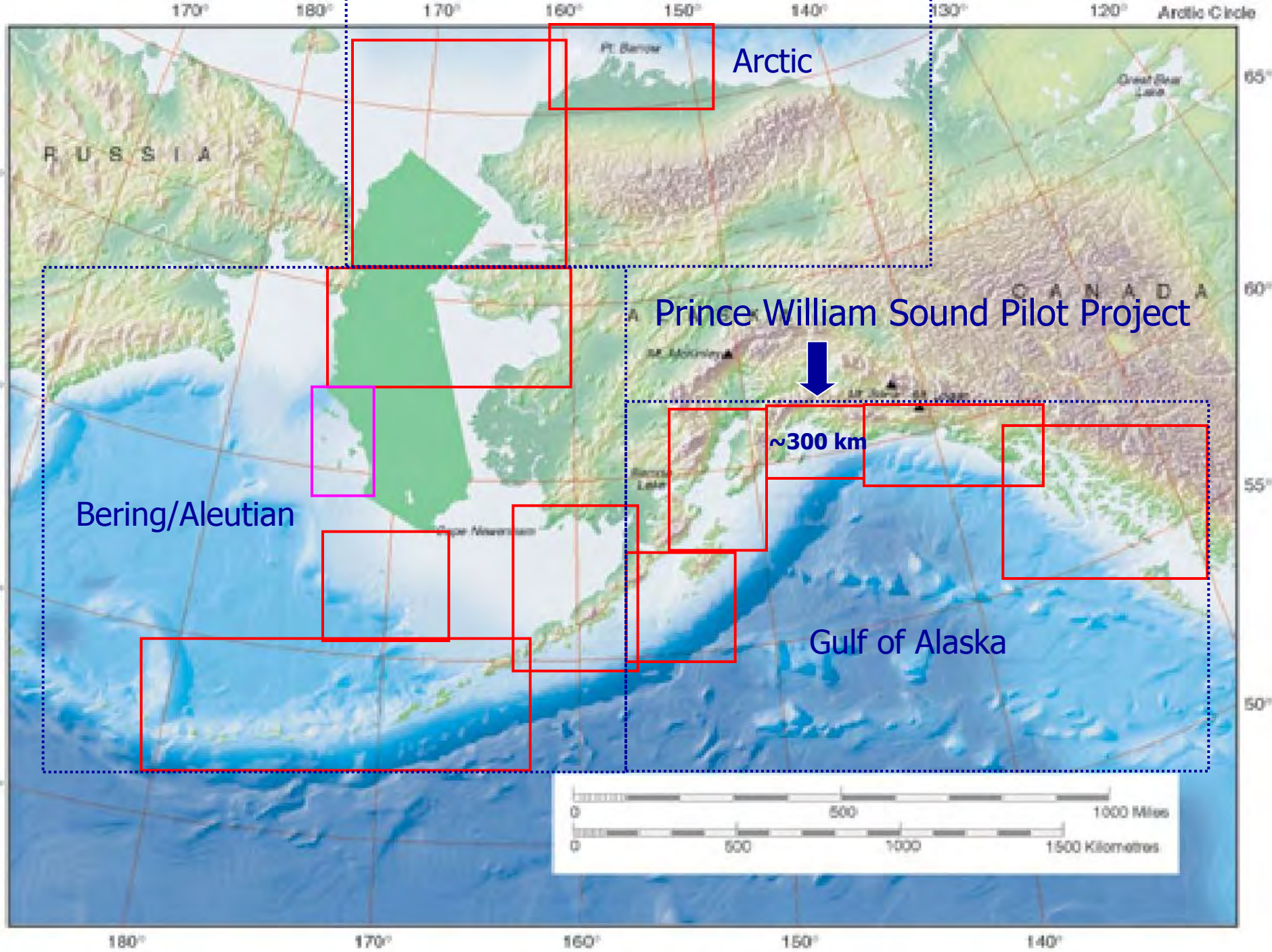
- Improve prediction of climate change impacts
- Improve safety & efficiency of marine operations
- More effectively protect & restore healthy coastal ecosystems
- Sustain marine resources
- Mitigate effects of natural hazards
- Reduce public health risks
- Improve national security

(adapted from: An Integrated and Sustained Ocean Observing System, Ocean.US 2002)

U.S. IOOS Multi-Scale System







AOOS is User-Driven

Stakeholder concerns

Climate change impacts

Increased coastal erosion

Changing marine ecosystems

Unstable sea ice and uncertain freeze/thaw dates

Fewer subsistence resources

More shipping = more oil spill potential

Changing sea state: more fog, storms, winds, waves

Information Products Needed

Nowcasts
Warnings & bulletins

Forecasts
Weekly, monthly & seasonal outlooks

Futurecasts
Scenarios & projections

Observations

Satellites

Fixed platforms

Ships

Drifters

Floats

AUVs

Data Management Integration & Analysis

Standards

Data discovery

Data transport

Online browsing

Data archive

Outcomes:
Meeting Societal Goals

AOOS: Partnership of Industry, Government, Non-Profits and Academia

(not a complete listing)

- **Industry/Stakeholders**

Fishing companies	Recreation
Fishermen	Aquaculture/mariculture
Shipping – marine navigation	Tourism
Oil services	Value-added research
Subsistence users	

- **Government**

State: fisheries, water quality, seafood, coastal managers
Federal: resource managers, researchers, search & rescue, oil spill response
Local: coastal cities, boroughs and ports
Tribal: Alaska Native communities

- **Non-Profits**

North Pacific Research Board
Prince William Sound Science Center/OSRI
Barrow Arctic Science Consortium
Alaska SeaLife Center
Alaska Native Science Commission

- **Academia**

University of Alaska
Others

AOOS Founding Board Members

- **State**

- Fish and Game
- Environ Conservation
- Natural Resources

- **Research**

- Univ of AK
- Sea Grant
- AK SeaLife Center
- Prince William Sound Science Center/Oil Spill Recovery Inst.
- US Arctic Research Commission
- North Pacific Research Board
- Barrow Arctic Science Consortium
- NOAA AK Fisheries Science Center

- **Federal**

- USGS
- NOAA
- Coast Guard
- BOERME (MMS)

- **Other**

- Marine Exchange of Alaska

2009-2010 AOOS Officers

Chair – Denby Lloyd, Cmsr. ADF&G

Vice-chair – Glenn Sheehan, BASC

Secretary – Ed Page, Marine Exchange

Treasurer – Doug Demaster, NOAA

Ex officio to EXCOM – Ian Dutton,
ASLC

AOOS Stakeholder needs: inform key regional themes

based upon 100+ meetings & interviews

Safe marine operations

- Improved, real-time ocean conditions and forecasts
- Real-time sea ice conditions (thickness, extent, movement) and forecasts
- Improved search and rescue
- Oil spill response

Fisheries, changing marine ecosystems

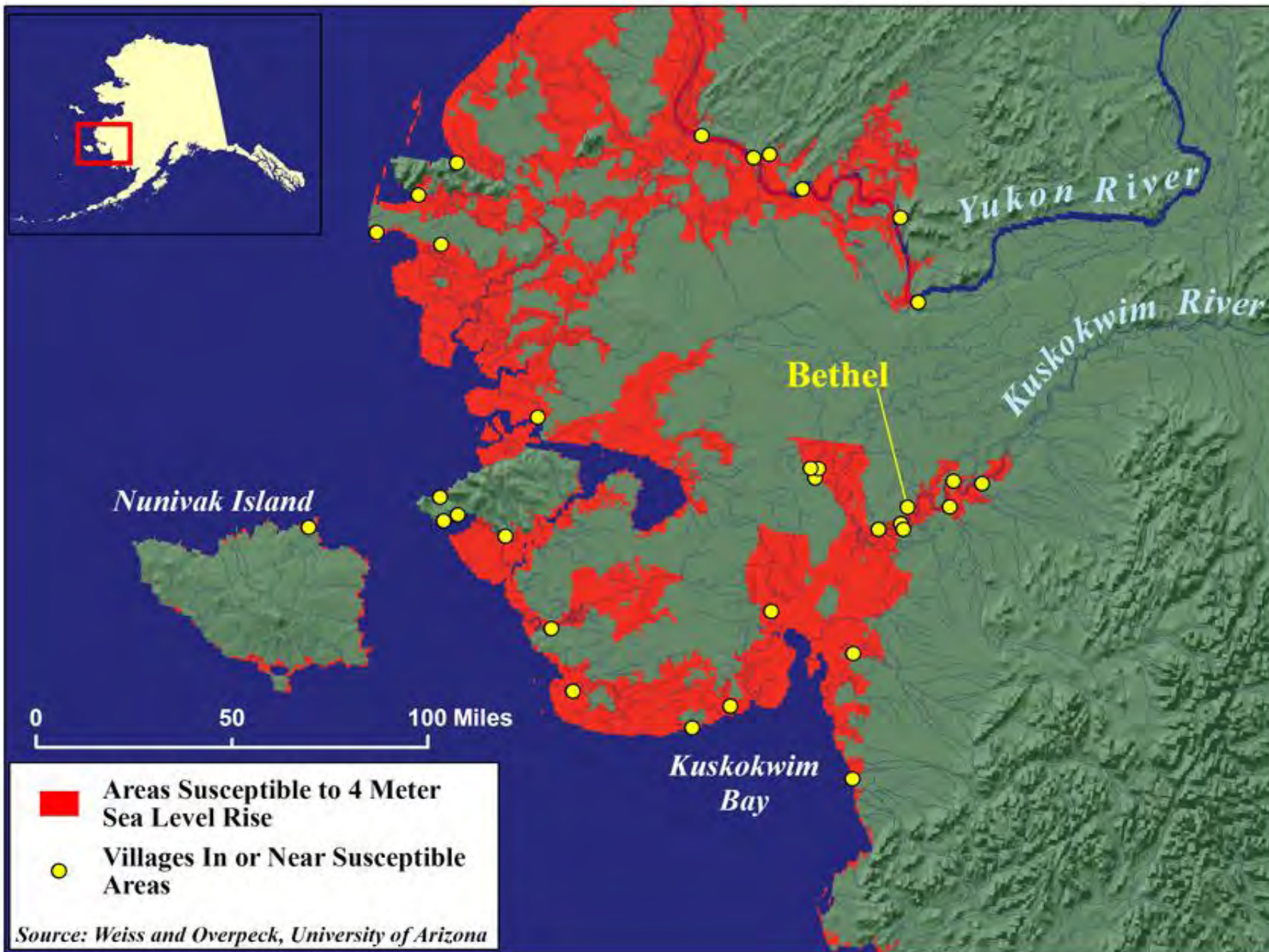
- Climate change impacts
- Ocean temperature, salinity, chemistry – including acidification
- Changes to food webs
- Impacts to commercial & subsistence uses

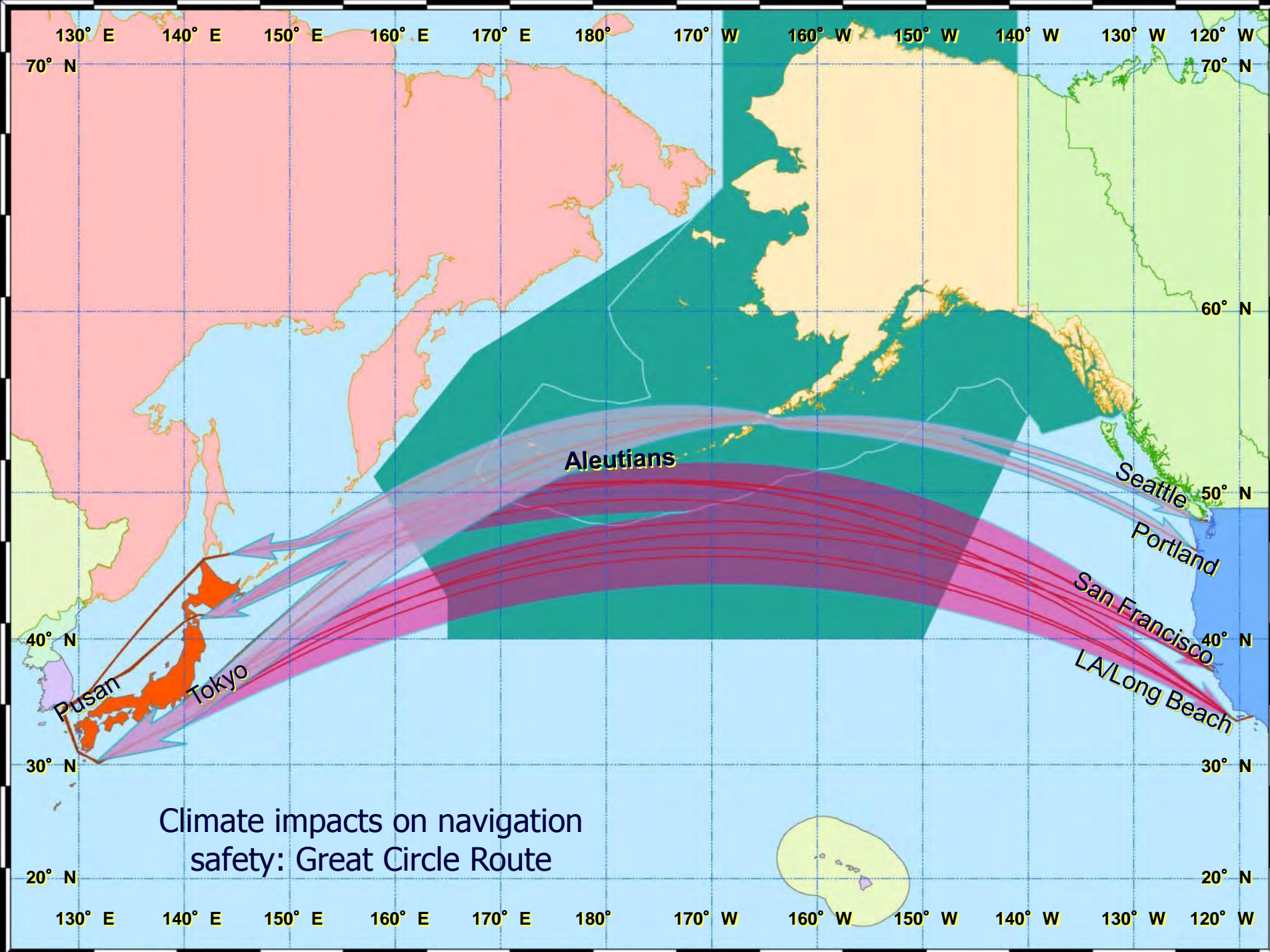
Natural hazard mitigation

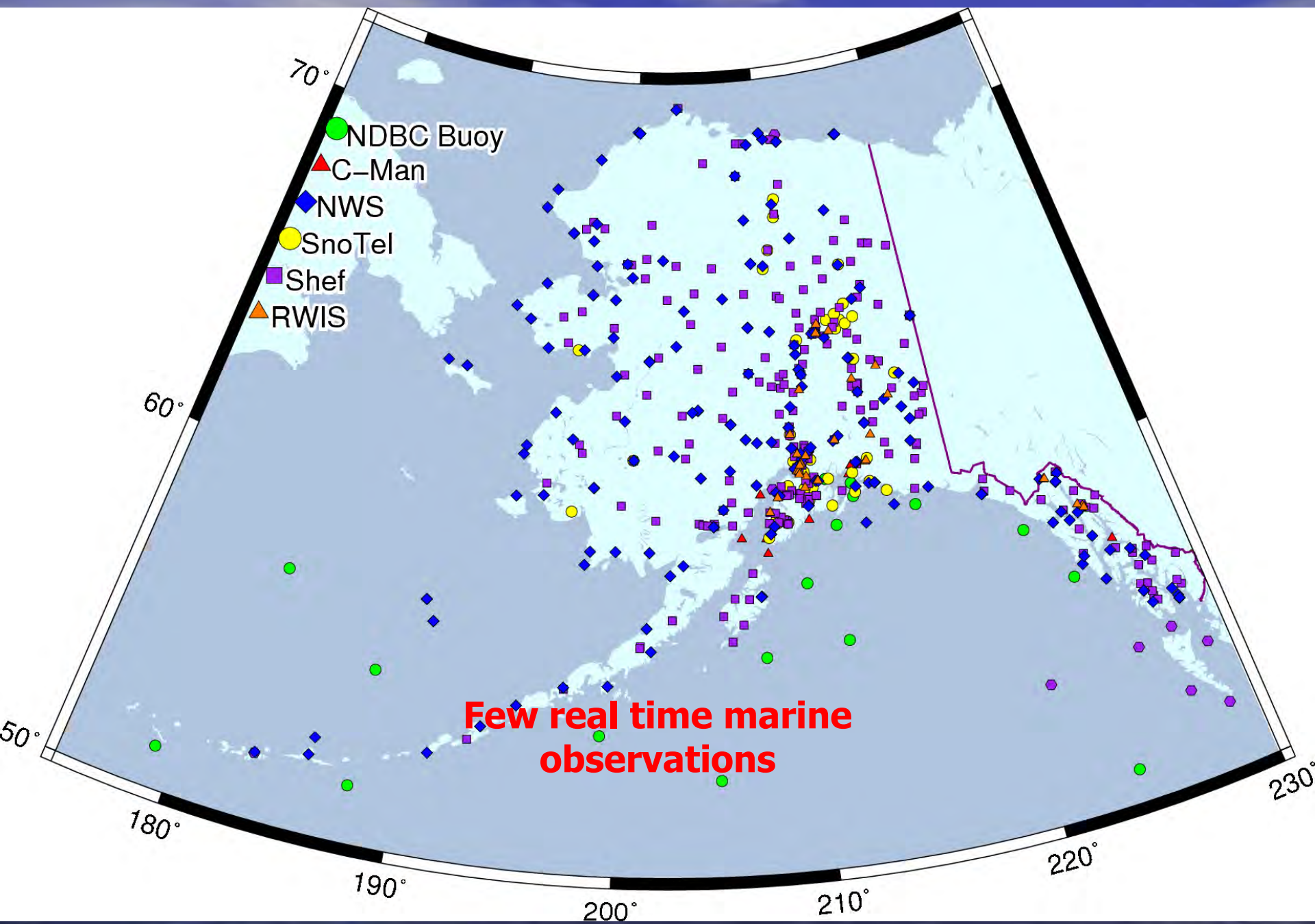
- Coastal erosion impacts
- Wave height & direction and storm surge modeling
- Landfast and sea ice conditions

Climate change trends and impacts

- Changing ocean conditions – nowcasts and forecasts
- Changing sea ice
- Changes to freshwater input
- Changes to sea ice thickness, extent, freeze-up and break-up







A satellite map of the North Atlantic and Arctic regions. The landmasses of North America, Europe, and Asia are visible in shades of green and brown. The surrounding oceans are dark blue. Overlaid on the map are hundreds of small blue dots, which represent survey locations and temporary deployments. These dots are densely clustered in the North Atlantic, particularly around the British Isles and the Labrador Current, and are also spread across the Arctic Ocean and the Bering Sea. The text "But many surveys and temporary deployments" is overlaid in white at the bottom center of the map.

But many surveys and temporary deployments

AOOS VISION: Statewide Strategy

- Increase observation capacity in state:
 - Identify gaps in national backbone to meet larger, more statewide and national needs
 - Develop strategy to fill in gaps – influence federal agency budgets
 - Integrate obs that cross agency missions & disciplines
- Integrate data and provide information products for stakeholders
- Provide coordination/collaboration focal point



AOOS Arctic Vision: Users

- Coastal communities
- AK Native populations
- Subsistence use
- Offshore oil & gas
- Shipping & navigation
- Tourism
- Resource managers
- Research community



Arctic VISION: Information Products

- Open water ocean conditions: nowcasts/forecasts
- Ecosystem assessments: marine mammals, fisheries
- Sea ice forecasts
- Coastal erosion predictions
- Climate change trends and impacts
- Ocean acidification