

Moving Towards the Next Phase of Monitoring after the *Exxon Valdez* Oil Spill: A New Integrated Program

Kris Holderied
NOAA Kasitsna Bay Laboratory
Center for Coastal Fisheries and Habitat Research



...science serving coastal communities

EVOS Trustee Council FY12 RFP

- **Long-term Monitoring of Marine Conditions and Injured Resources and Services**
 - **Integrated, multidisciplinary 5 year program, \$11.9M, 24 PIs**
 - **Team Lead:** Alaska Ocean Observing System - Molly McCammon
 - **Science Lead:** NOAA Kasitsna Bay Laboratory - Kris Holderied
 - **Admin Lead:** Prince William Sound Science Center - Nancy Bird
- **Prince William Sound Herring Research and Monitoring Program**
 - **5 year, \$5.6M program - process studies, monitoring, modeling**
 - **Team Lead:** Prince William Sound Science Center - Scott Pegau



Exxon Valdez Oil Spill
Trustee Council

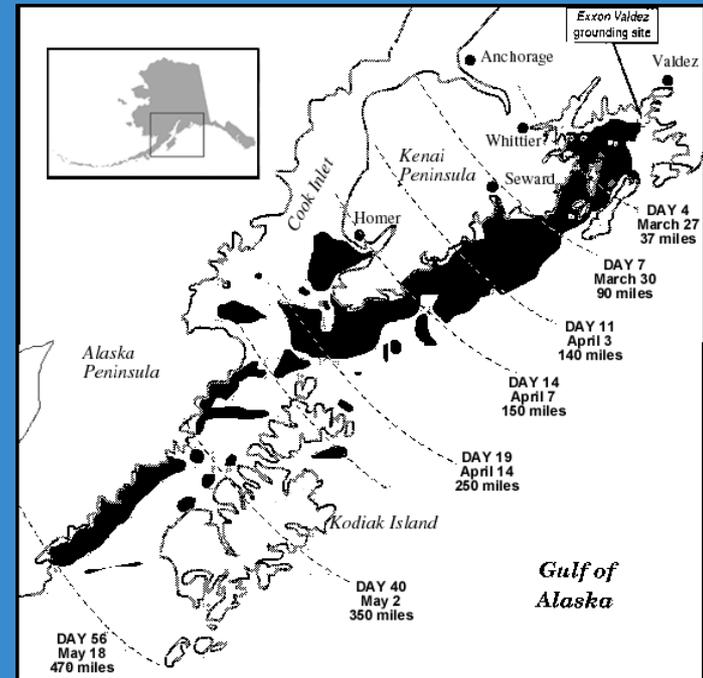


Kasitsna Bay
Laboratory



Approach / Philosophy

- Maintain existing time series in spill-affected region
- Address management needs
- Sustainable monitoring program
- Multiple geographic areas
- **LEVERAGE** other efforts
 - monitoring & data management efforts (NPS is key partner!)
 - collaboration with PWS Herring Program
- **FUND** data management & synthesis – integral to program
 - data access & integration of multidisciplinary data
 - products - visualizations, decision support, outreach
 - “learn what’s in the data that we don’t know yet”
- Provide training opportunity for young scientists



Long-term Monitoring Program Components



NOAA



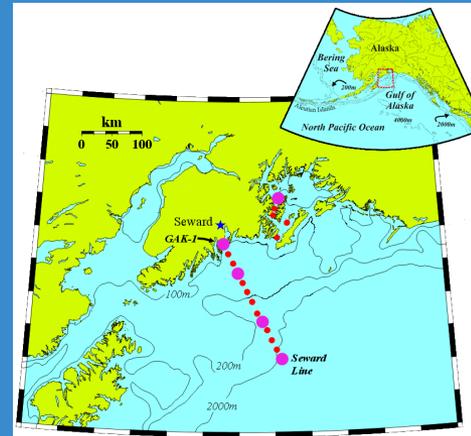
NOAA

• Thematic

- **Environmental Drivers** – oceanography, plankton
- **Benthic** – intertidal invertebrates/algae, sea otters, seabirds
- **Pelagic** – whales, seabirds, forage fish
- **Lingering Oil** – sediments, sea otters/harlequin ducks

• Geographic

- **Prince William Sound**
- **Outer Kenai Coast**
- **Lower Cook Inlet**



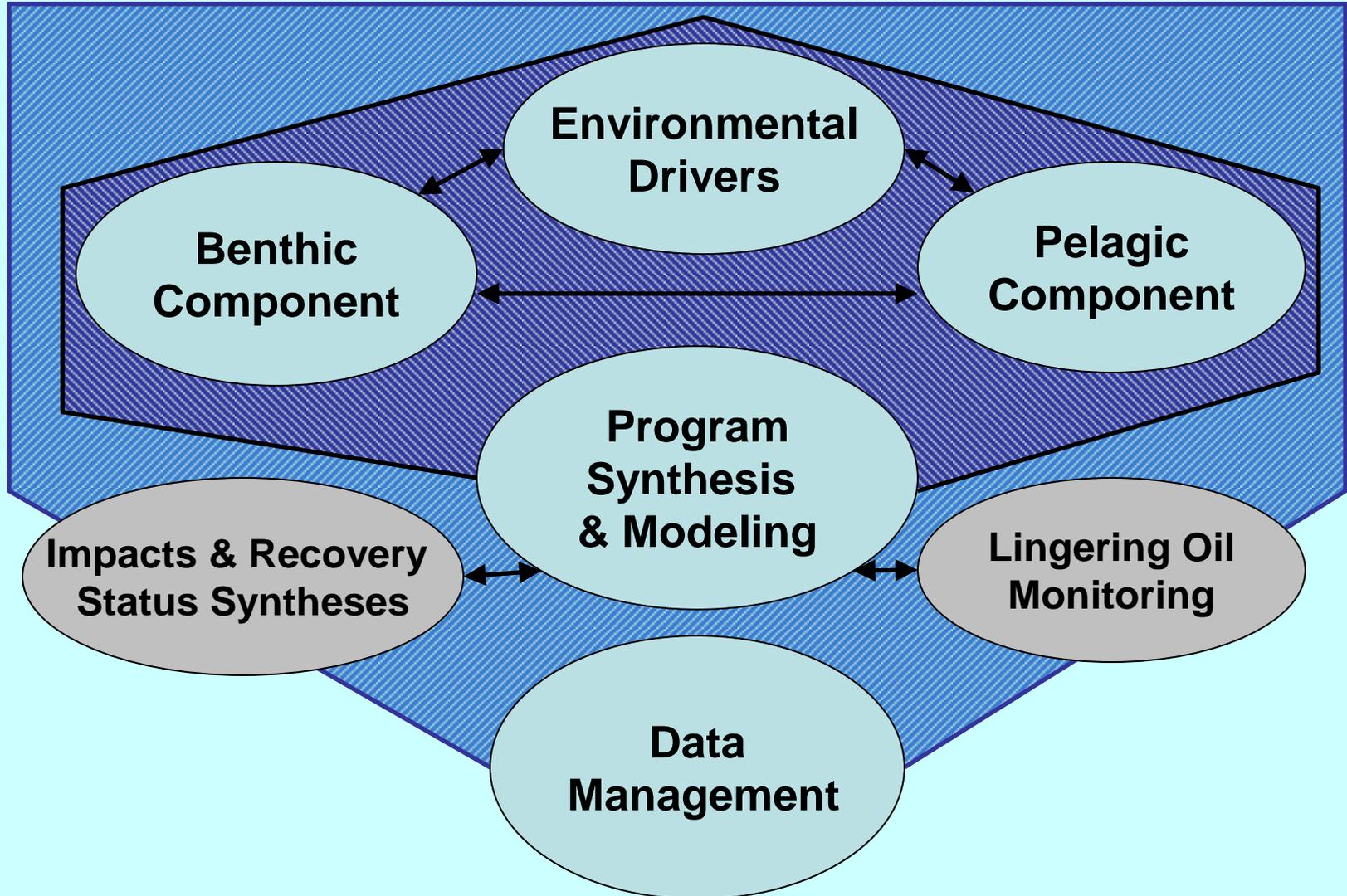
EagleWingTours

• Programmatic

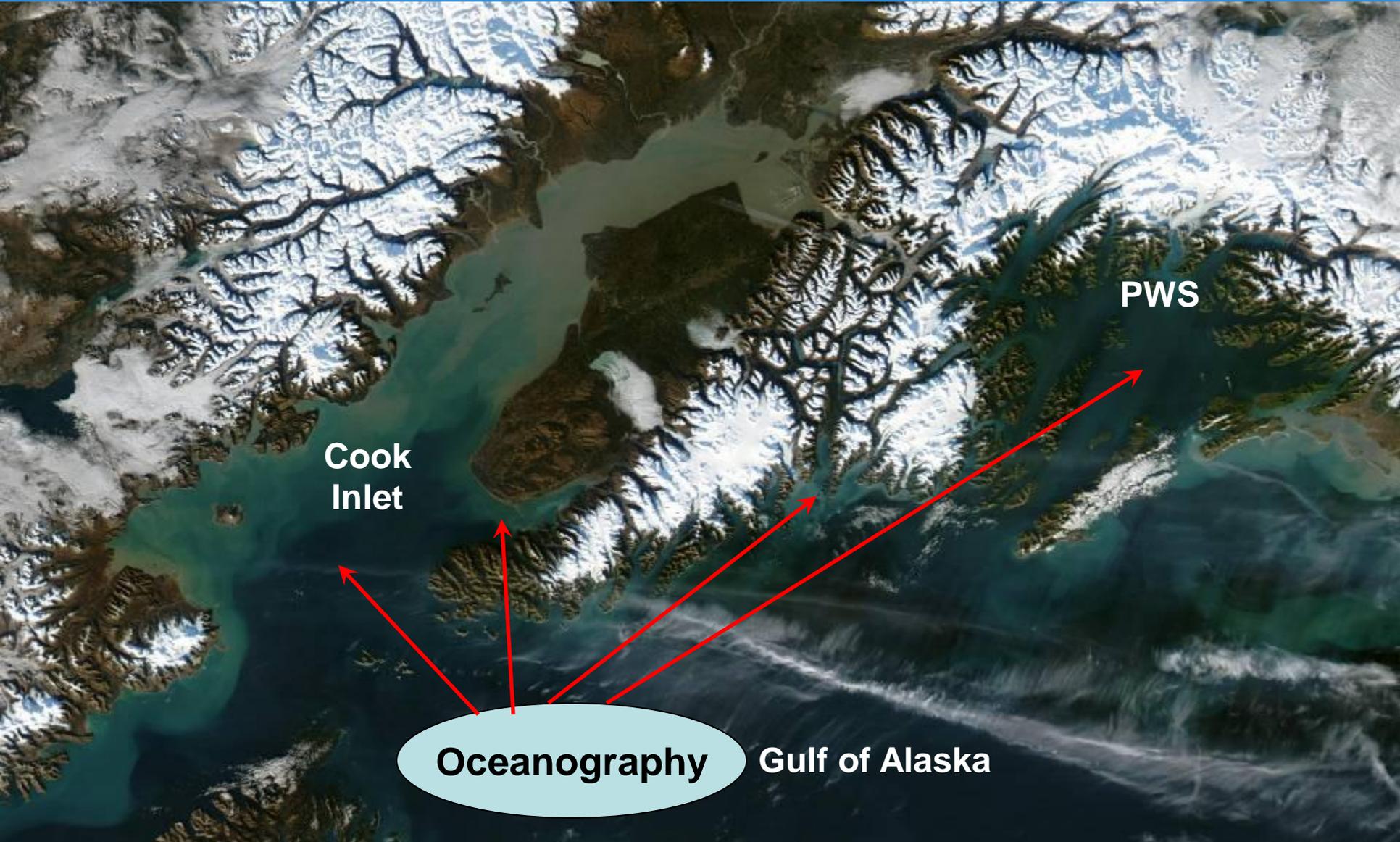
- **Integrated program management, administration, outreach**
- **Data management and services**
- **Synthesis - LTM program/ EVOS impacts & recovery status**

Long-term Monitoring Team

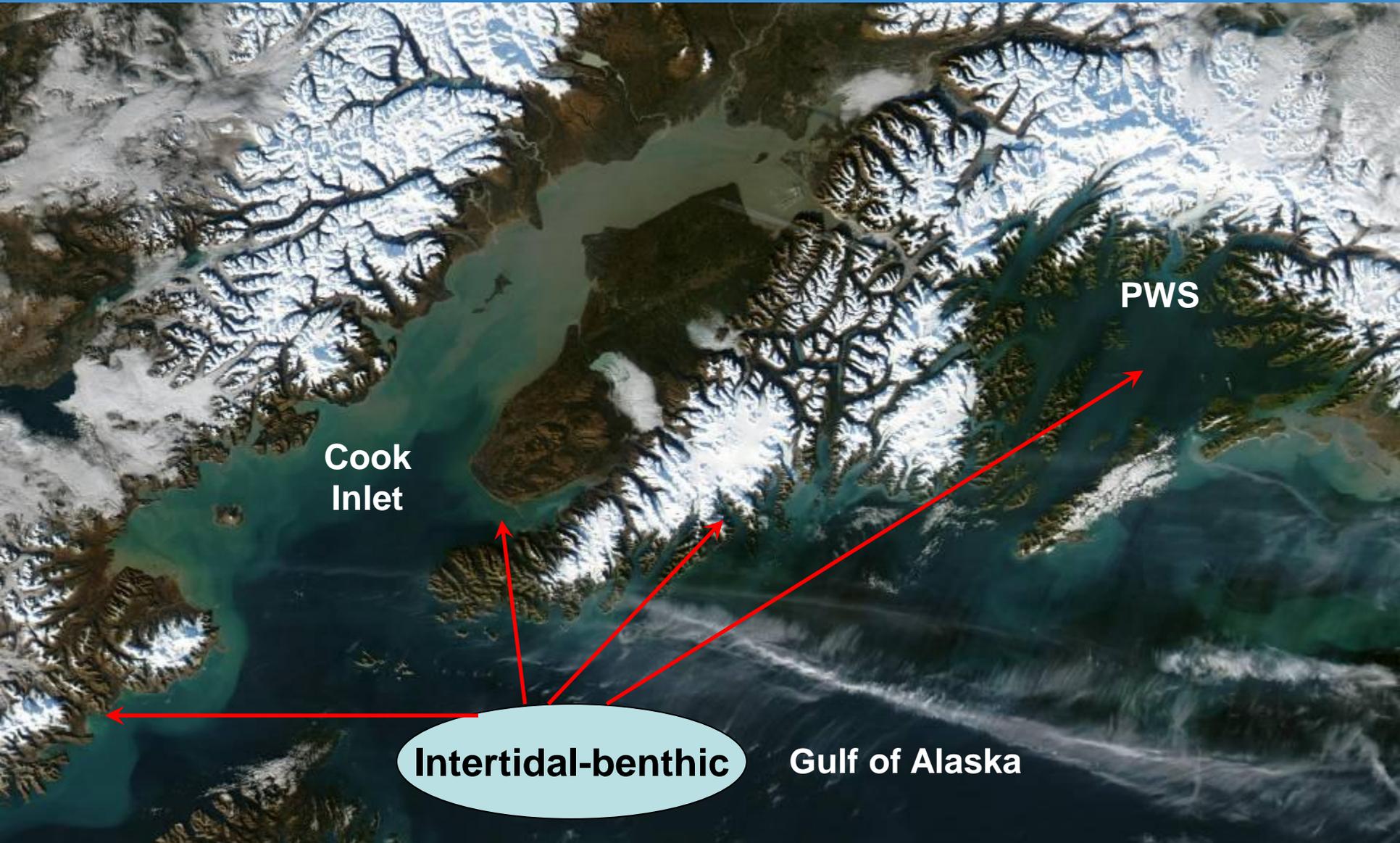
PROGRAM MANAGEMENT AND ADMINISTRATION



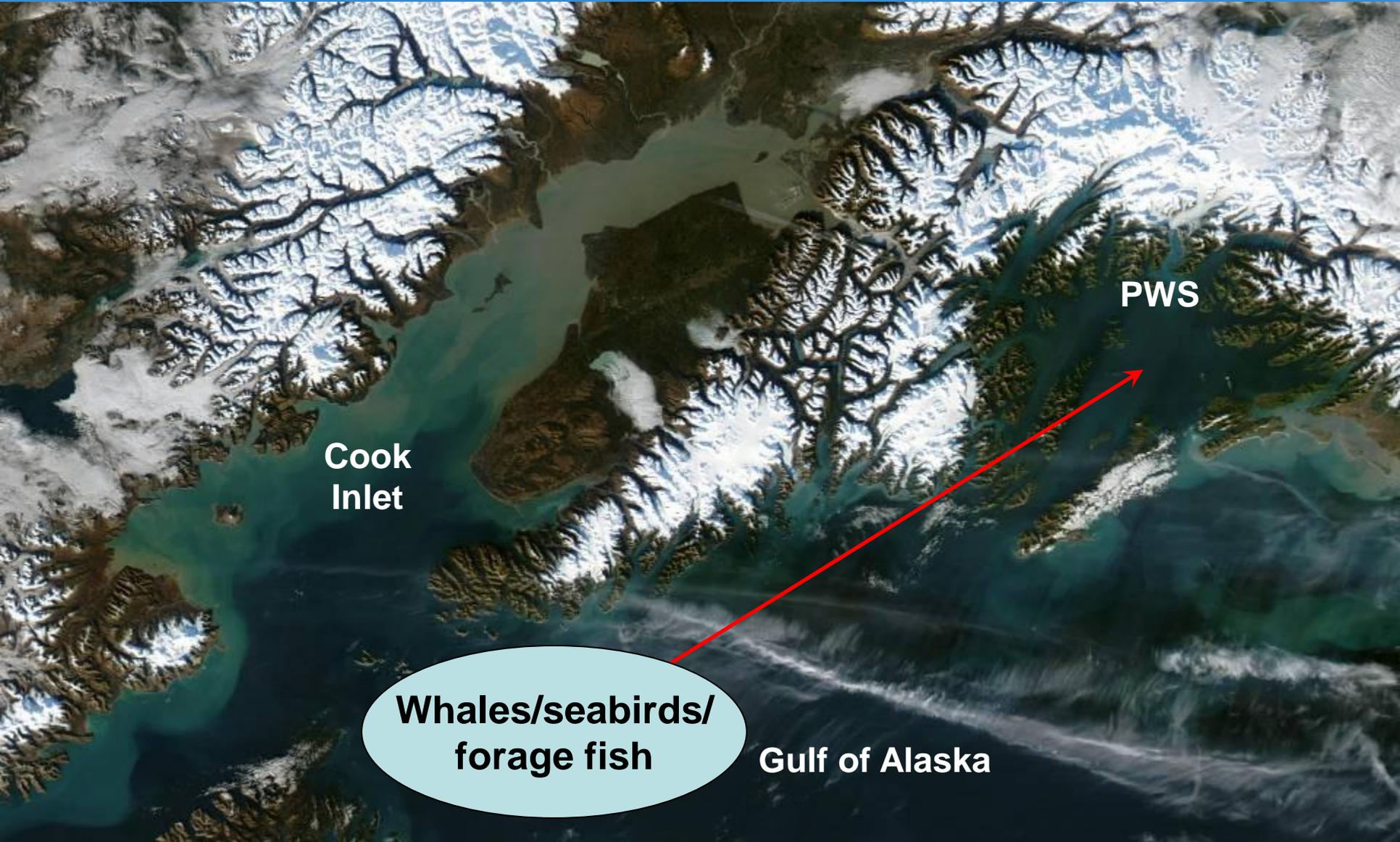
Long-term Monitoring Sites



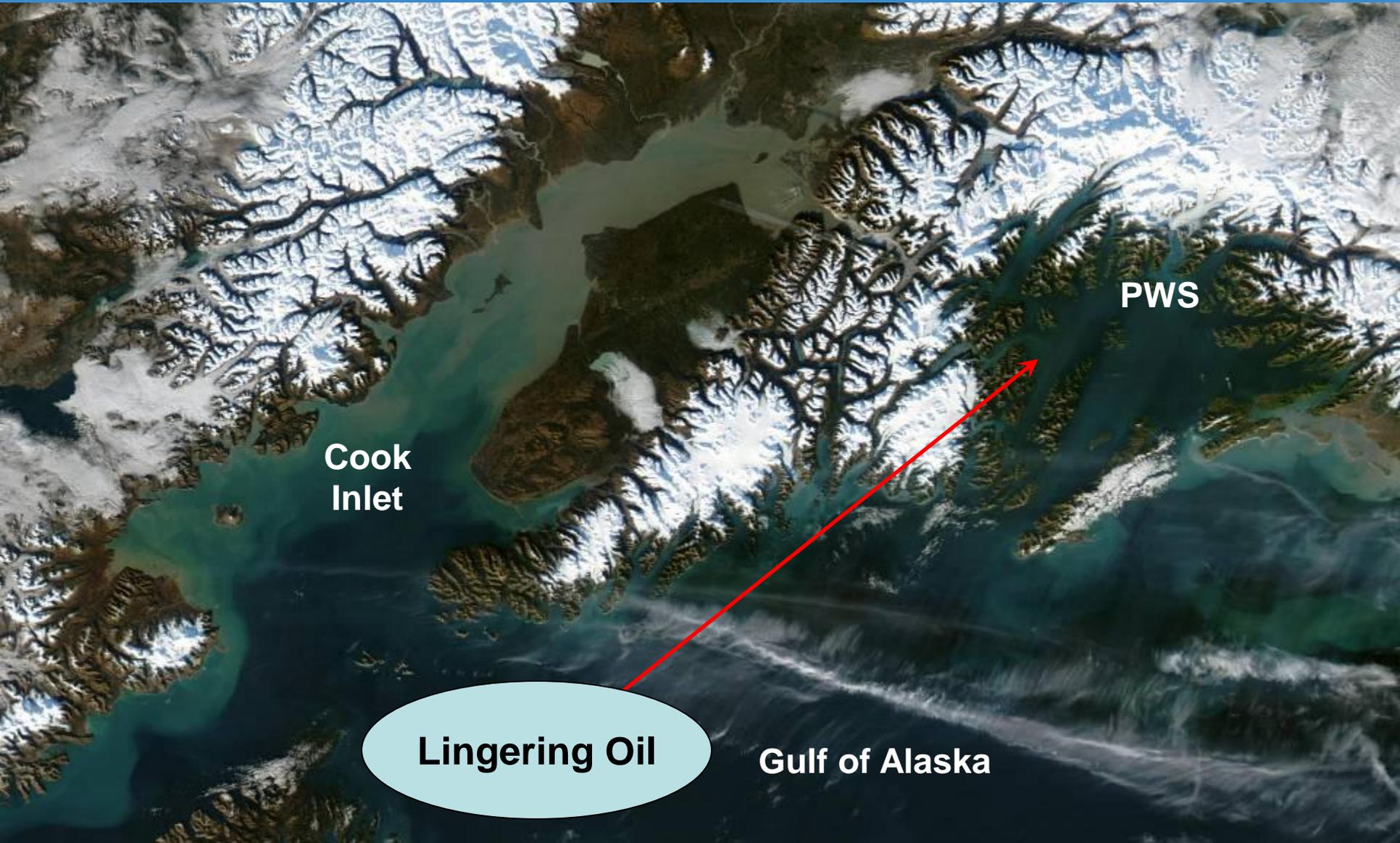
Long-term Monitoring Sites



Long-term Monitoring Sites



Long-term Monitoring Sites



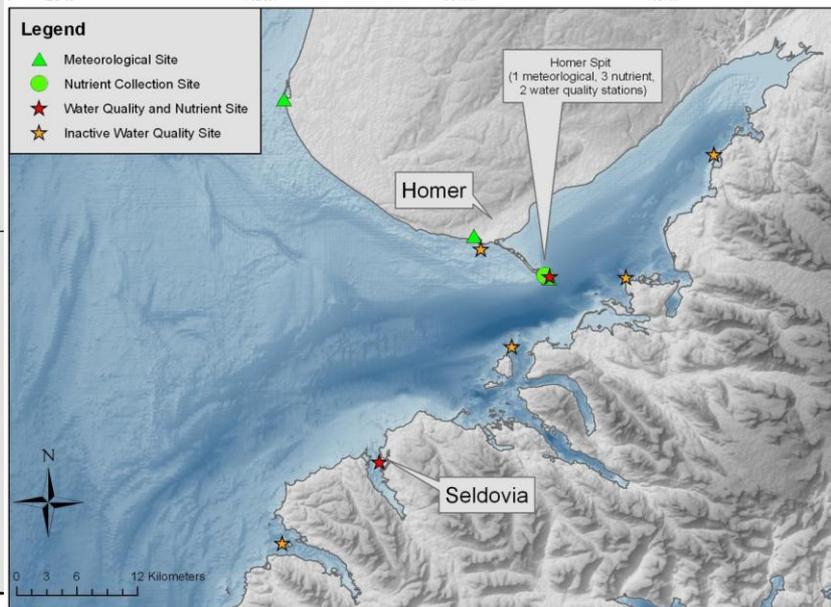
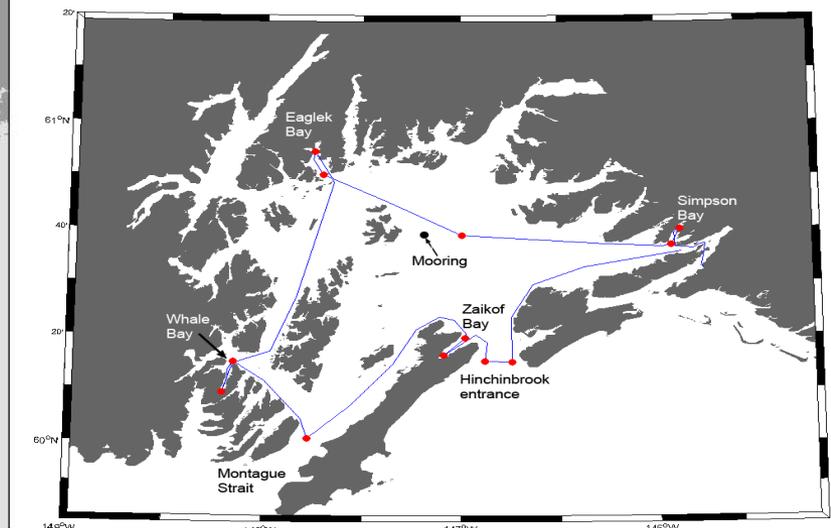
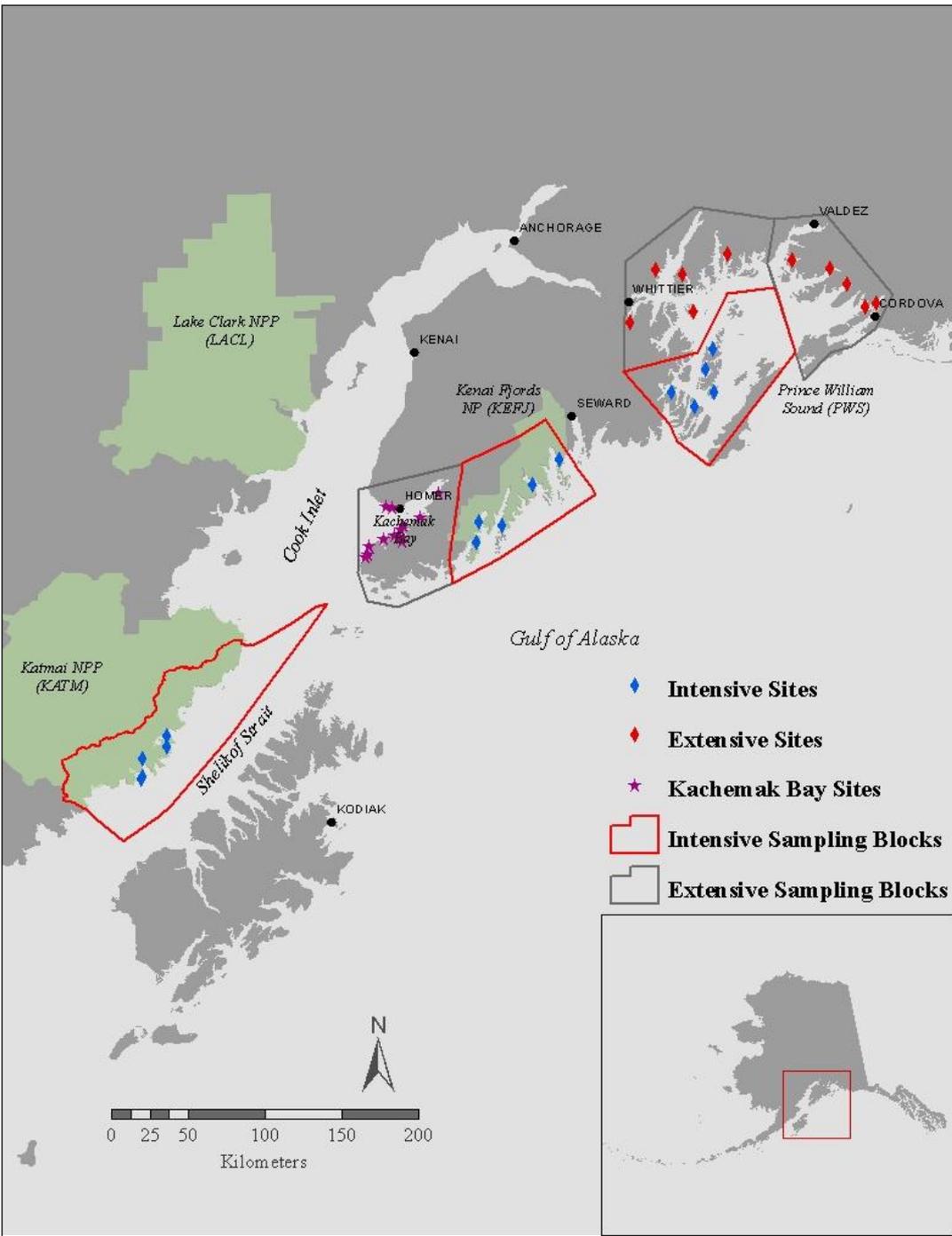
Cook Inlet

PWS

Lingerin Oil

Gulf of Alaska

Monitoring Sites



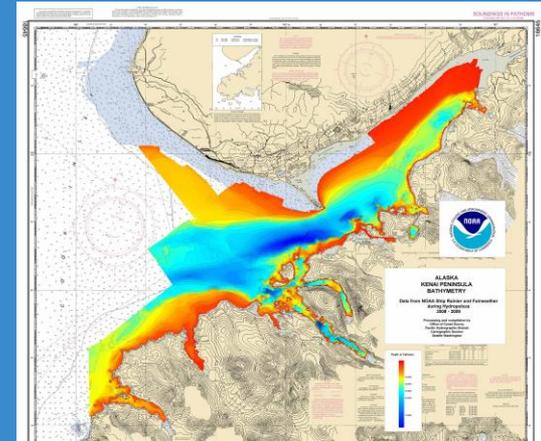
Integration Across Disciplines

Cross-cutting Questions

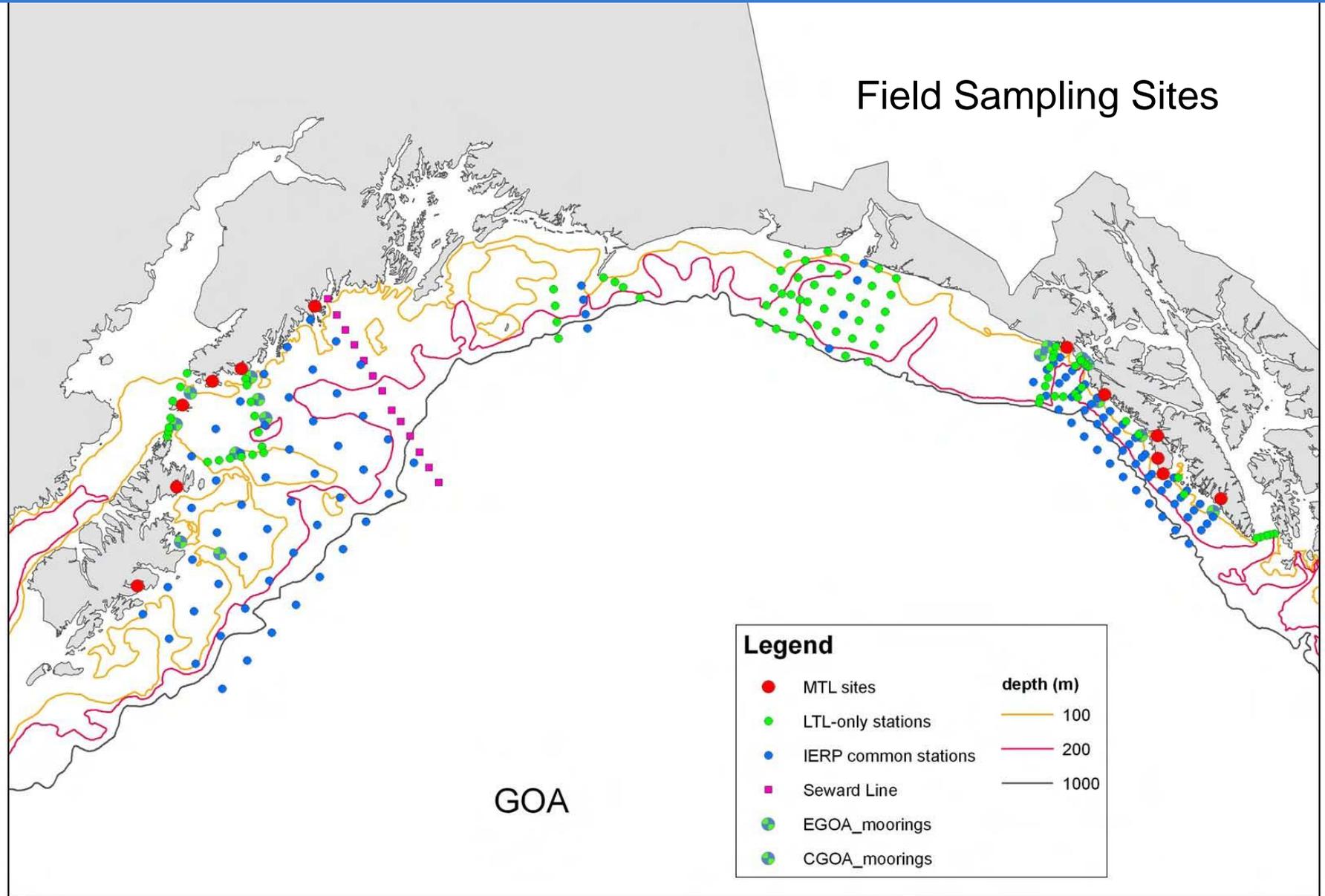
- Are changes in oceanographic conditions in the outer Gulf of Alaska shelf mirrored in the near-shore marine environment and population trends of injured (recovering and recovered) resources?
- Is herring and forage fish overwintering success tied to spring and summer productivity and seasonal or year-to-year differences in the zooplankton community?
- Are variations in seabird abundance and distribution associated with zooplankton stocks and/or oceanographic conditions?

Linkages to Other Programs

- **National Park Service**
 - SWAN Inventory & Monitoring
- **NOAA**
 - Weather, tides, currents, fisheries, mapping
- **US Fish and Wildlife Service**
 - Sea otter monitoring
- **Kachemak Bay National Estuarine Research Reserve**
 - System-Wide Monitoring Program
- **North Pacific Research Board**
 - Gulf of Alaska Integrated Ecosystem Research Program



North Pacific Research Board Gulf of Alaska Integrated Ecosystem Research Program



Program Management and Science Coordination/ Synthesis

- Molly McCammon – Alaska Ocean Observing System (Lead PI)
- Nancy Bird – Prince William Sound Science Center (Administrative Lead)
- Kris Holderied – NOAA Kasitsna Bay Laboratory (Science Lead & Environmental Drivers)
- Tuula Hollmen – Alaska Sea Life Center (Conceptual Ecological Modeling)
- Rob Bochenek – Axiom/AOOS (Data Management Lead)
- Matt Jones – National Center for Ecological Assessment & Synthesis (Synthesis)

Environmental Drivers Component

- Tom Weingartner – University of Alaska Fairbanks (Component Lead)
- Sonia Batten – Sir Alister Hardy Foundation for Ocean Science
- Rob Campbell – Prince William Sound Science Center
- Angela Doroff – ADF&G Kachemak Bay Research Reserve
- Russell Hopcroft – University of Alaska Fairbanks

Pelagic Component

- Jeep Rice – NOAA/NMFS Auke Bay Laboratory (Component Lead)
- Mary Ann Bishop – Prince William Sound Science Center
- David Irons – USFWS Alaska Region
- Craig Matkin – North Gulf Oceanic Society
- John Moran – NOAA/NMFS Auke Bay Laboratory
- John Piatt – USGS Alaska Science Center

Benthic Component

- Brenda Ballachey – USGS Alaska Science Center (Component Lead)
- James Bodkin – USGS Alaska Science Center
- Heather Coletti – National Park Service, SW Alaska Inventory & Monitoring Network
- Thomas Dean, Coastal Resources Associates, Inc
- Brenda Konar – University of Alaska Fairbanks
- Katrin Iken – University of Alaska Fairbanks

Lingering Oil Component

- Mark Carls – NOAA/NMFS Auke Bay Laboratory
- Brenda Ballachey - USGS Alaska Science Center

**Principal
Investigators**

Thanks!



Kris Holderied
NOAA Kasitsna Bay Laboratory
Kris.Holderied@noaa.gov
907-235-4004