



# The North Pacific Research Board

---

Supporting peer-reviewed scientific research in the Gulf of Alaska, Bering Sea/Aleutian Islands, and Chukchi/Beaufort Seas that informs effective management and sustainable use of marine resources.

---

Denby Lloyd, Executive Director  
Matt Baker, Science Director  
Jo-Ann Mellish, Senior Program Manager

# BACKGROUND

- NPRB was created by Congress, with a 20-member Board
- Funds are derived from the Dinkum Sands settlement which decided ownership of submerged lands in the Beaufort Sea
- Annual funds are 20% of the interest from the Environmental Improvement and Restoration Fund
- Funds are provided through NOAA with approval from the US Secretary of Commerce

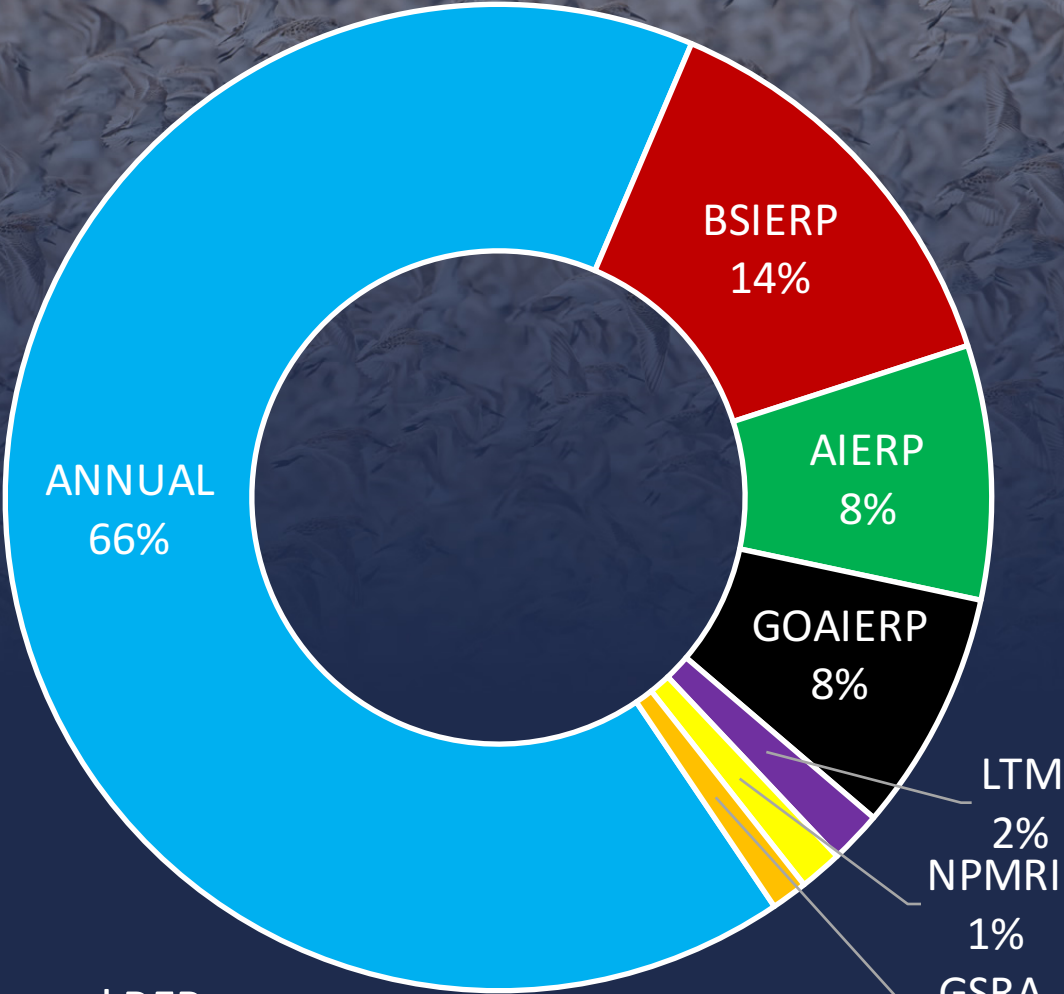


# MISSION

- Building a clear understanding of North Pacific, Bering Sea and Arctic Ocean ecosystems that enables effective management and sustainable use of marine resources
- Priority on cooperative research designed to address pressing fishery management or marine ecosystem information needs



# RESEARCH PROGRAMS



Annual RFP  
Integrated Ecosystem Research (IERP)  
Long Term Monitoring (LTM)  
Graduate Student Research Awards (GSRA)



# CORE PROGRAM

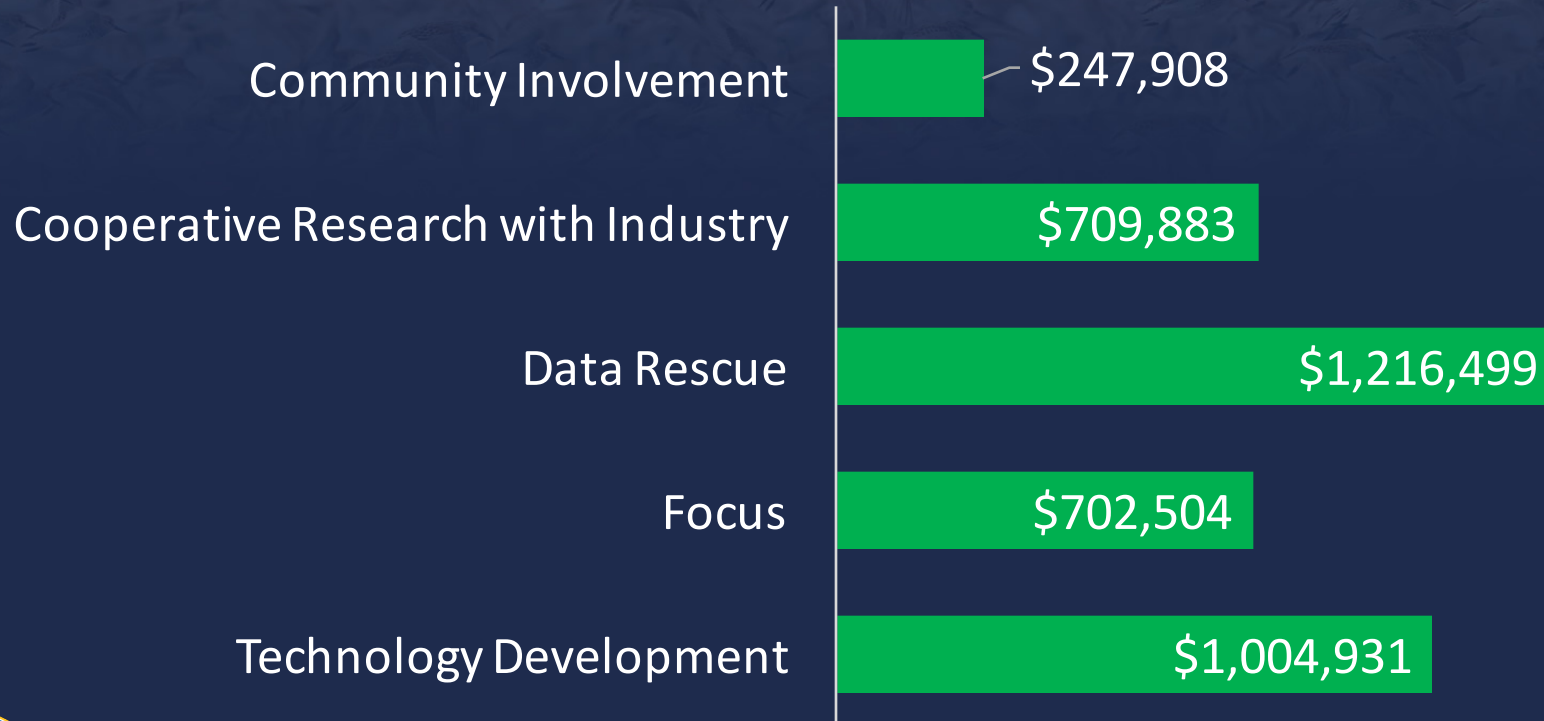
- Currently annual RFP
- Target funding \$4.5 million
- 1-5 year studies
- 638 projects funded
- 90 active projects



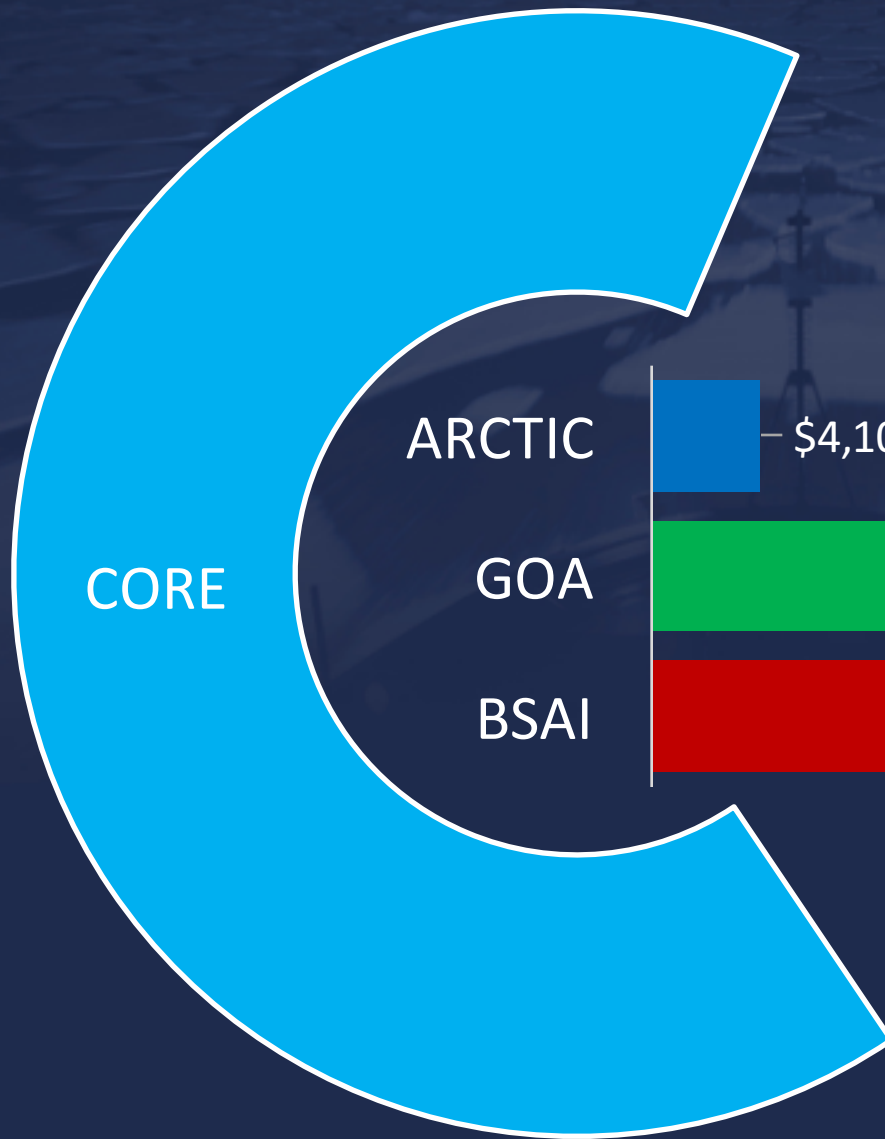
# THEMES



# THEMES



# CORE PROGRAM

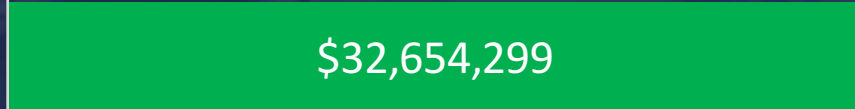


ARCTIC



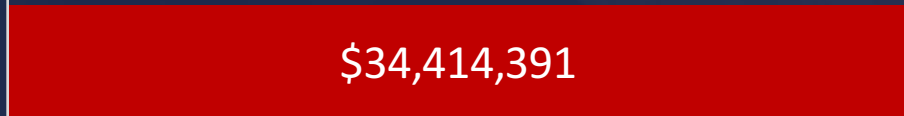
\$4,105,919

GOA



\$32,654,299

BSAI



\$34,414,391





Bering Sea flatfish age, growth and maturity modeling

Thomas Helser, NOAA AFSC

Qualitative approached for blue king crab management

Patrick McDonald, University of Washington

Bowhead whale source levels

Aaron Thode, UC San Diego

Migration and carry-over effects in Arctic seabirds

Alexander Kitaysky, University of Alaska Fairbanks

Removing invasive *Didemnum vexillum*

Ian Davidson, Smithsonian

CORE  
PROGRAM  
2016

22 projects  
\$4.1 million



# *Bering Sea* PROJECT

2009-2012

\$52 million partnership with National Science Foundation

## Integrated Ecosystems

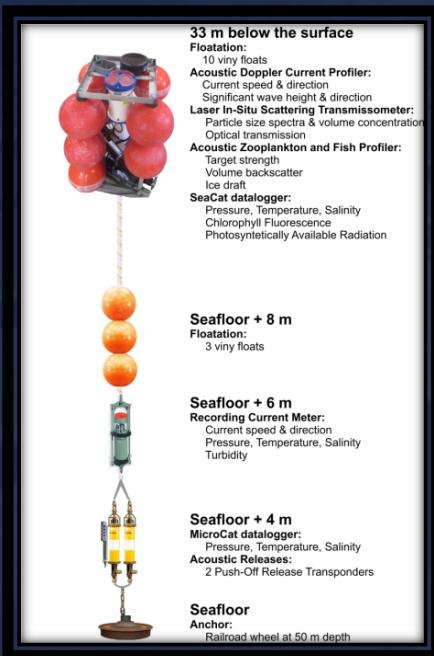
# GULF of ALASKA PROJECT



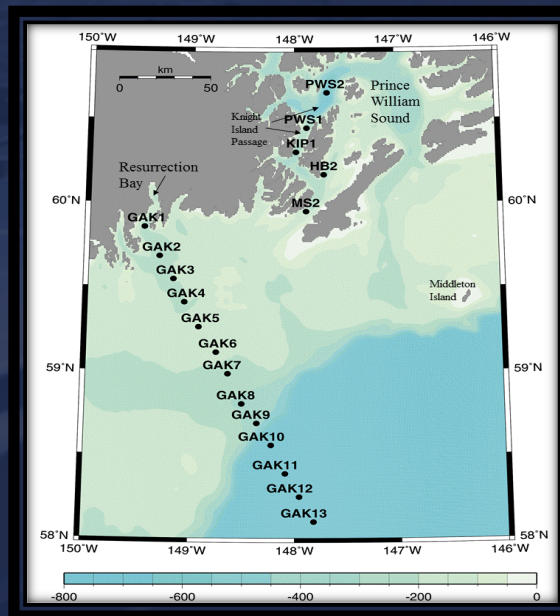
2010-2014

\$18 million partnership with NOAA Alaska Fisheries Science Center





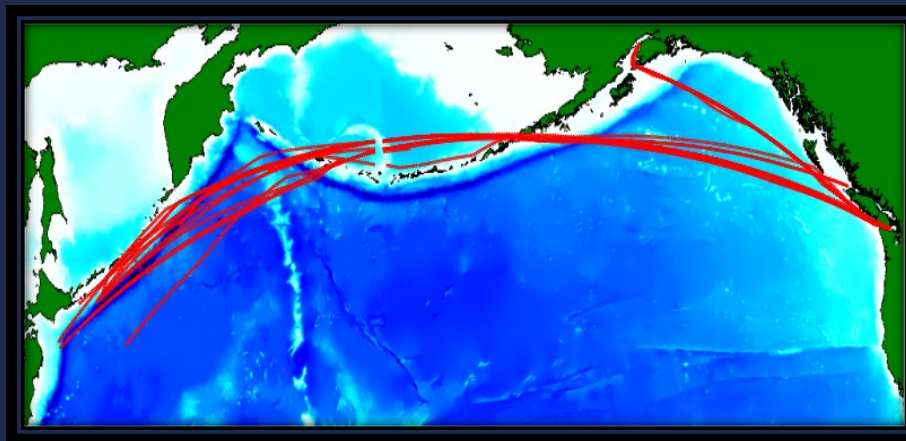
Chukchi Mooring



GOA Seward Line

# LONG TERM MONITORING

- New in 2014
- 5-year projects
- \$1.9 million funded
- Potential to renew



North Pacific Continuous Plankton Recorder



A poster for the 2016 Graduate Student Research Awards. The top half has a teal background with a silhouette of a person in a lab coat working with equipment. The year '2016' is prominently displayed in white, with the North Pacific Research Board logo integrated into the '0'. Below this, a red banner contains the text 'GRADUATE STUDENT RESEARCH AWARDS'. Underneath, in yellow, is the phrase 'PURSUING MARINE RESEARCH IN THE NORTH PACIFIC'. At the bottom, another red banner features the text 'OPPORTUNITY AWAITS' and a paragraph of details. A vertical photo credit 'Photo: Chantelle Rose' is on the right side of the teal area.

2016



GRADUATE STUDENT  
RESEARCH AWARDS

PURSUING MARINE RESEARCH  
IN THE NORTH PACIFIC

Photo: Chantelle Rose

OPPORTUNITY AWAITS

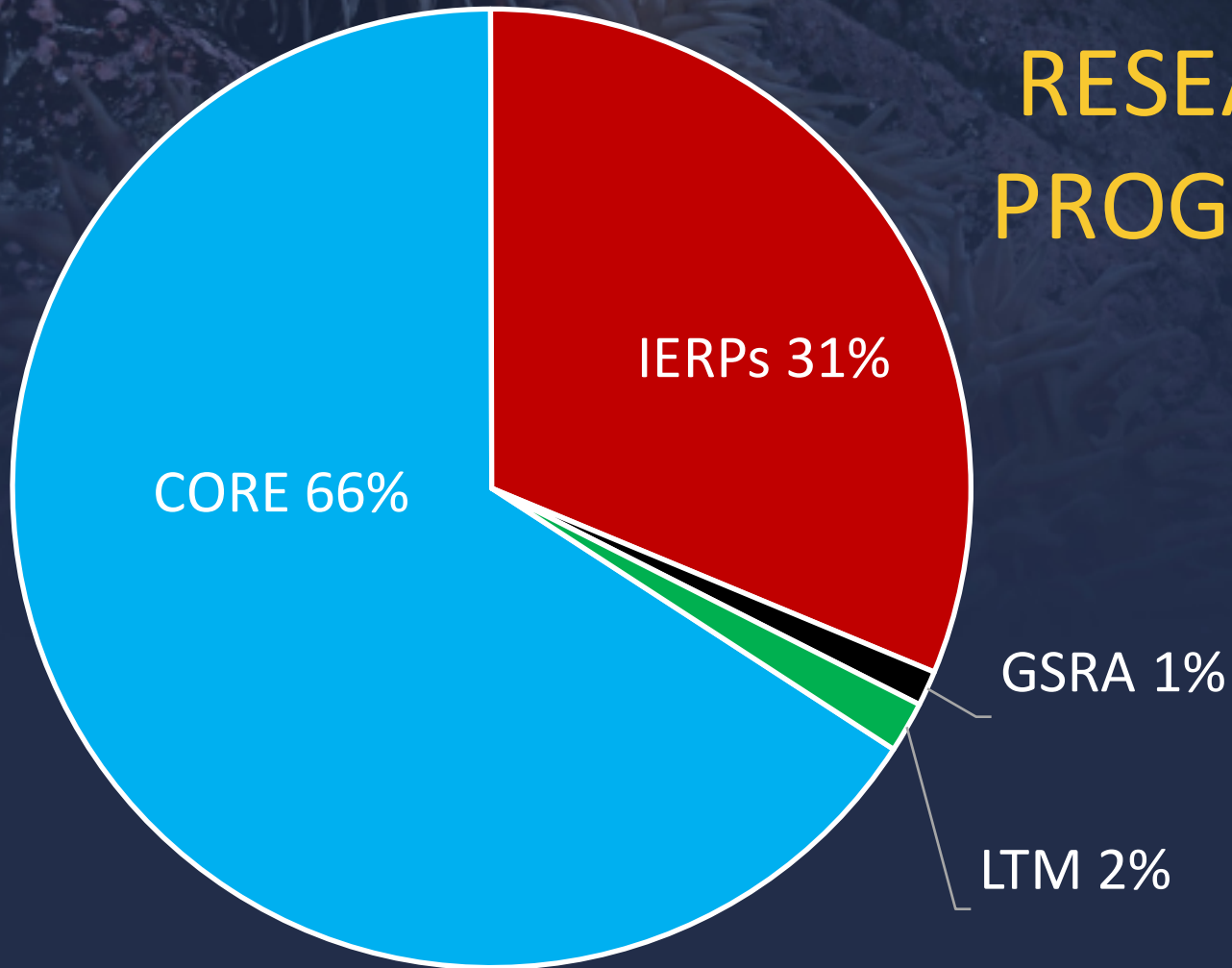
The **North Pacific Research Board** will be selecting six or more qualified master's or doctoral students for awards of \$25,000 each. Awards will be given to support research that informs effective management and sustainable use of marine resources in the Gulf of Alaska, Bering Sea/Aleutian Islands, and Chukchi/Beaufort Seas.

# GRADUATE STUDENT RESEARCH AWARDS

2008-2016  
56 students  
\$1.3 million



# RESEARCH PROGRAMS



# LARGE MARINE ECOSYSTEM

ARCTIC

\$15,246,087

GOA

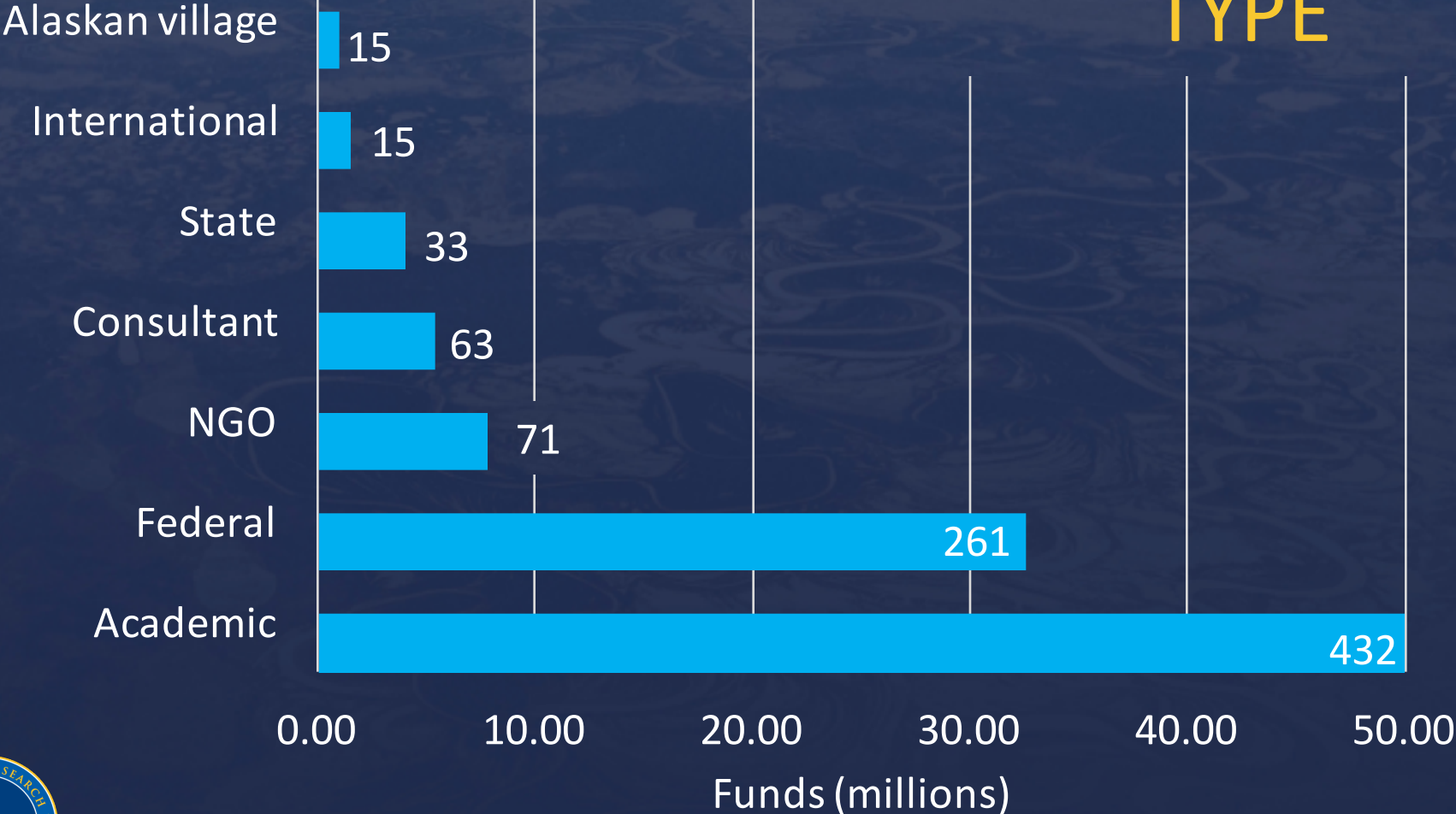
\$42,198,638

BSAI

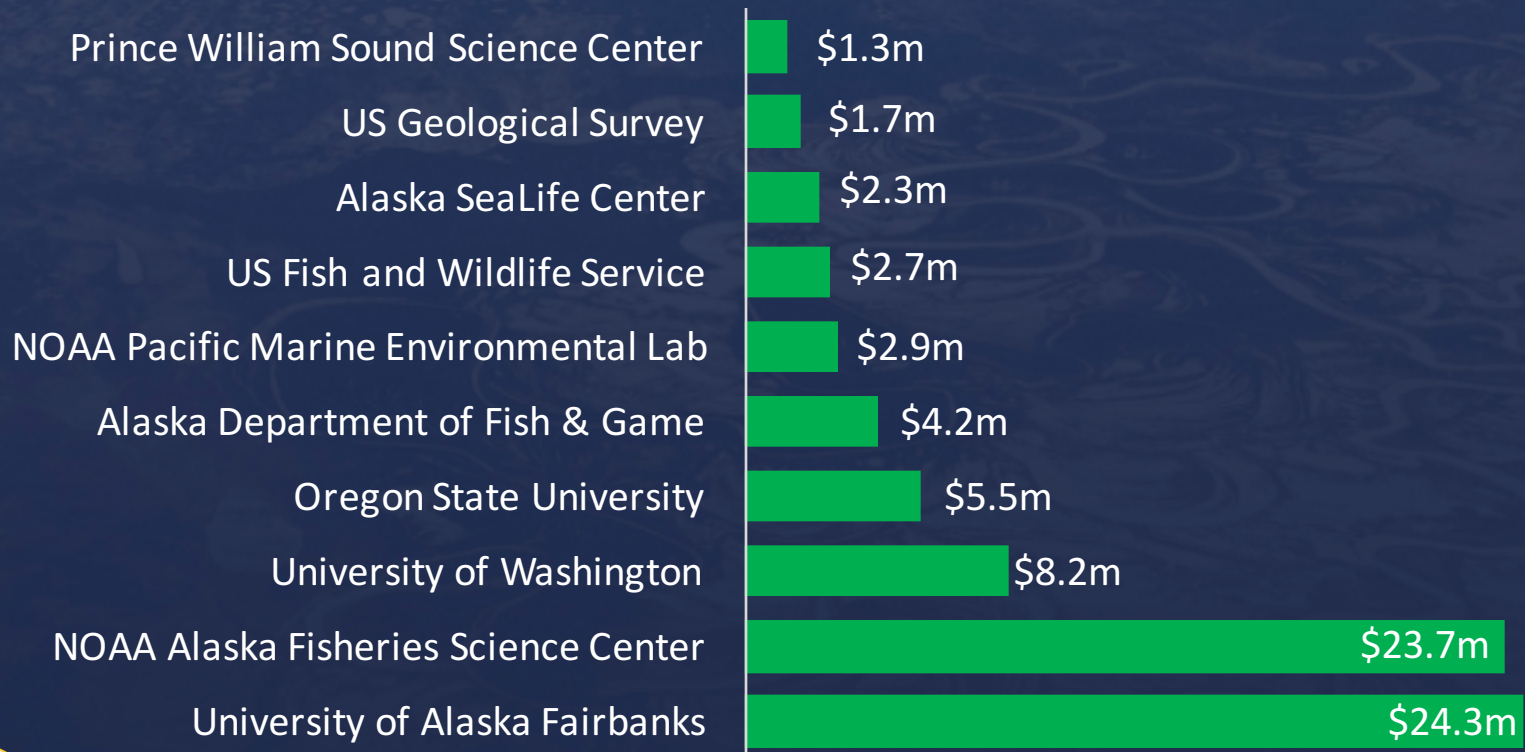
\$48,057,323



# INSTITUTION TYPE

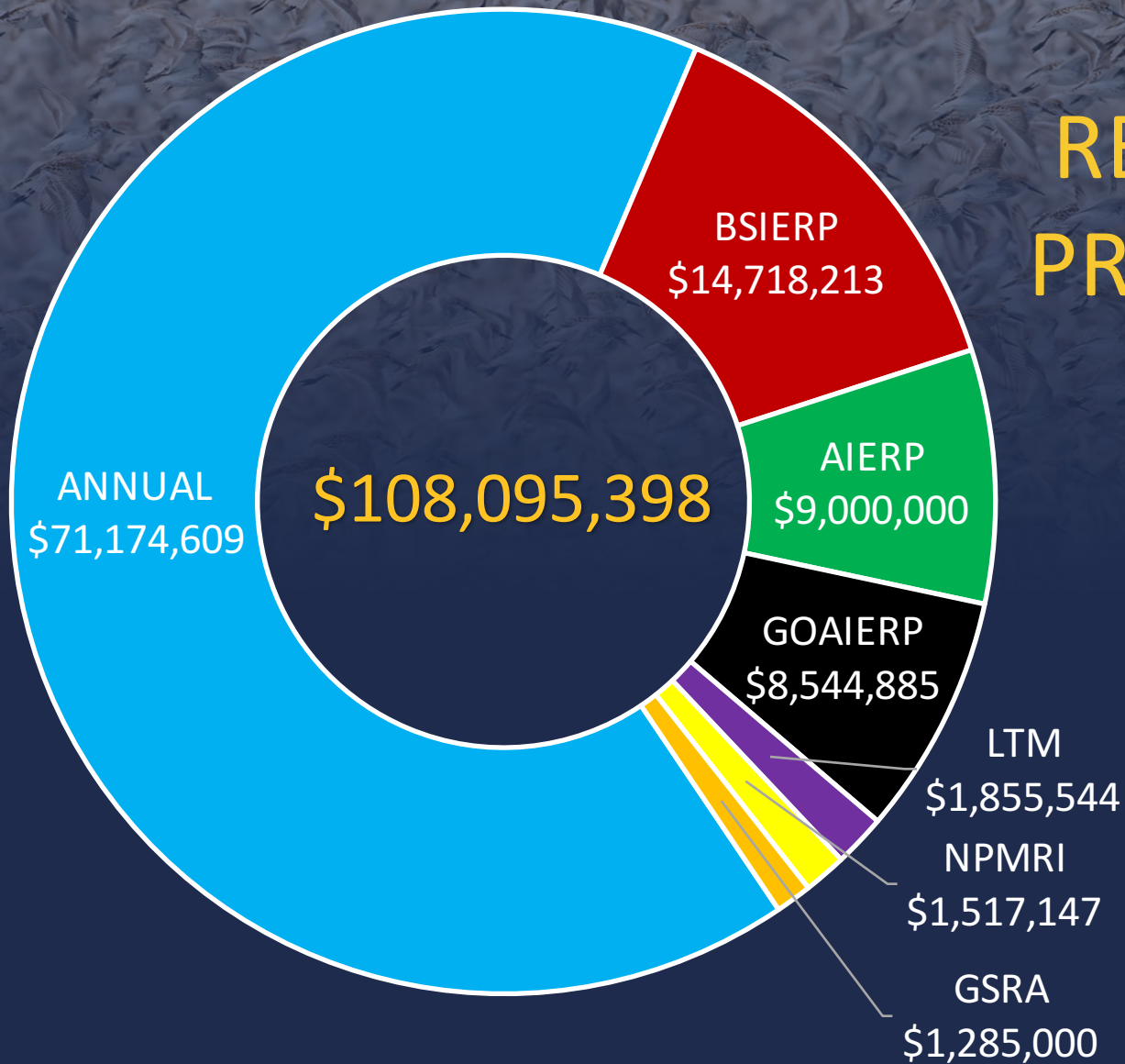


# TOP FUNDED ORGANIZATIONS





# RESEARCH PROGRAMS





# Integrated Ecosystem Research Program

2016-2021

\$16 million partnership with:

Bureau of Ocean Energy Management

Collaborative Alaskan Arctic Studies Program

Office of Naval Research Marine Mammal & Biology Program

How do physical and biological processes in the northern Bering Sea and Chukchi Sea influence distribution, abundance, and life history of species critical to ecosystem structure and species important to subsistence harvest?



Bigelow Laboratory for Ocean Sciences  
Huntington Consulting  
Oregon State University  
NOAA AFSC, PMEL  
North Slope Borough  
Northwest Arctic Borough  
Kawerak, Inc.  
University of Alaska Fairbanks  
University of Washington  
US Fish & Wildlife Service

NORTH PACIFIC RESEARCH BOARD  
*Arctic  
Program*

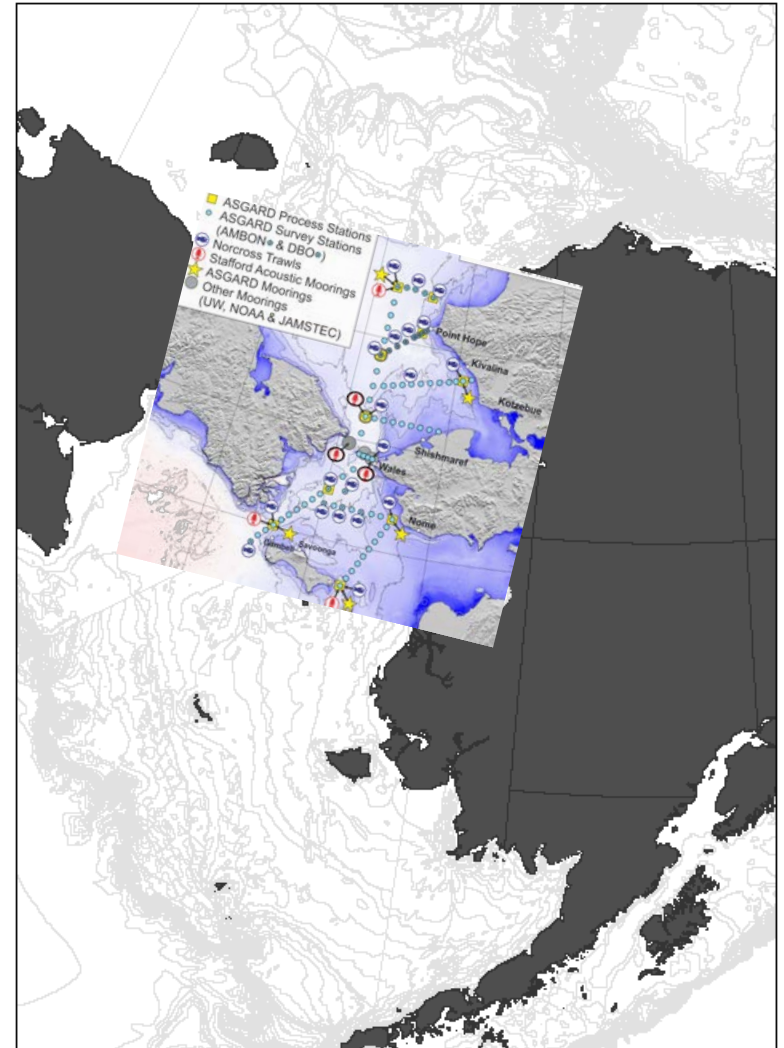
- Spring process studies of oceanography and lower trophic levels in the northern Bering and southern Chukchi
- Summer and fall oceanography, lower trophic levels, fish and seabirds in the Chukchi, from Bering Strait to Barrow
- Year-round oceanographic and marine mammal acoustic moorings
- Social science team to explore changing patterns of access to subsistence resources and food security



## Spring Dynamics

Process studies of oceanography and lower trophic levels in the northern Bering and southern Chukchi

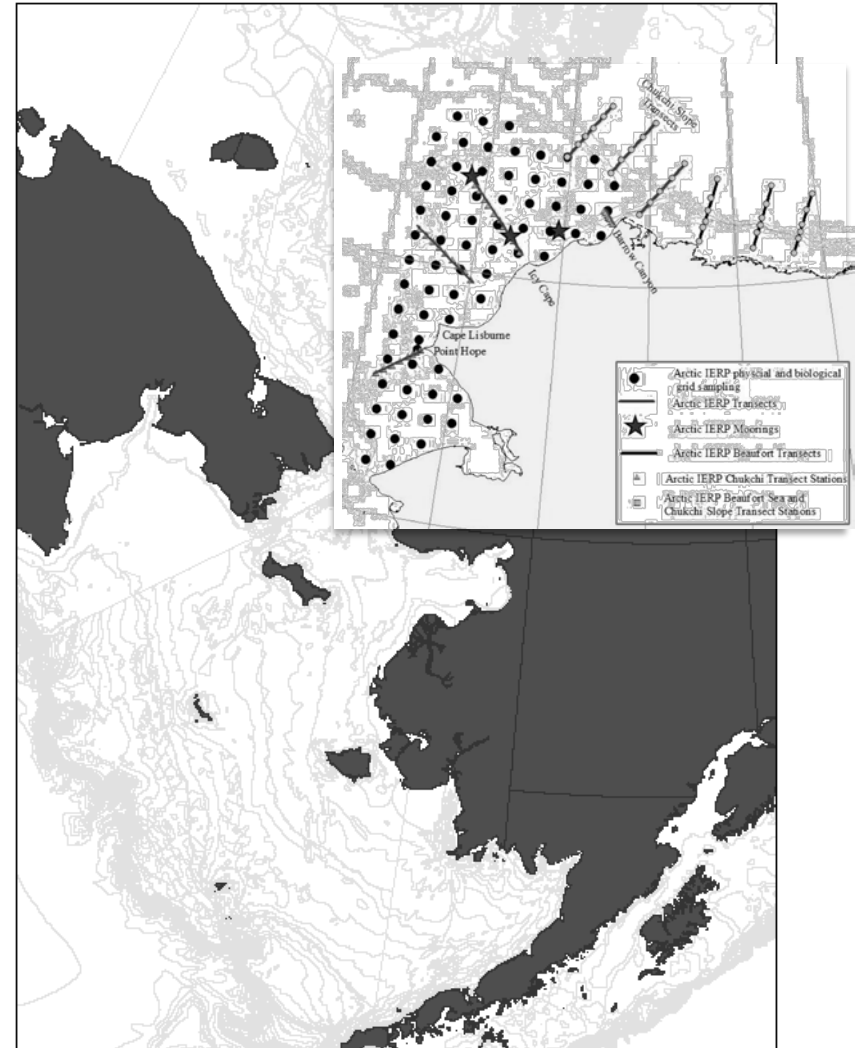
- Focus on the period of spring sea ice retreat
- Collect measurements to parameterize a model of carbon flow on pelagic-benthic coupling
- Provide insight to mechanisms that drive summer and fall seasonal observations in the Chukchi Sea



# Summer and Fall Dynamics

Oceanography, lower trophic levels, fish and seabirds in the Chukchi, from Bering Strait to Barrow

- Focus on summertime observations over the Chukchi Sea shelf
- Oceanographic measurements
- Fish sampling using acoustics, surface and midwater trawls, and demersal beam trawls to quantify the abundance and distribution of demersal and pelagic fishes
- Leverage existing time series data
- International collaboration



# SCIENCE PLAN

The NPRB Science Plan serves as the main reference document for the scientific direction and research priorities of the organization. This document lays out the mission, scientific foundations, research themes, methodological approaches, partnerships, and policies and procedures.

North Pacific  
Research Board

## Science Plan



Building a clear understanding of the North Pacific, Bering Sea, and Arctic Ocean ecosystems that enables effective management and sustainable use of marine resources.



# SCIENCE PLAN UPDATE

The revision will focus on the following areas:

- Review vision, mission, supporting goals
- Review approaches (e.g., monitoring, process studies, retrospective, modeling)
- Review and update status of knowledge in each research theme
- Review approaches to outreach, communications and information sharing
- Update statistics on funding allocations, past projects and accomplishments
- Update standards for coordination and partnerships with other entities
- Update standards and procedures (e.g., proposal submission, review, COI)
- Update guidelines for data and meta-data submission, data management, reporting
- Update issues and research needs in each research theme
- Update approaches to integrated ecosystem research and long term monitoring
- Update approaches to human dimensions and social science
- Update approaches to community involvement and cooperative research
- Identify and detail potential new research themes and relevant phenomena



# RESEARCH PRIORITIES

Research Priorities are determined through:

- Review of identified NPFMC priorities
- Direct solicitation of priorities from specific management agencies
- Solicitation from the research community and industry through an online portal for suggestions (June-August)





# RESEARCH PRIORITIES

Research Priorities are determined through:

- Review of identified NPFMC priorities
- Direct solicitation of priorities from specific management agencies
- Solicitation from the research community and industry through an online portal for suggestions (June-August)

Priorities informed through the NPFMC and other entities and individuals include:

- North Pacific anomalous warming
- Development and application of new quantitative assessment approaches
- Estimation of life history parameters to improve stock assessment
- Analyses of selectivity survey design to inform estimates of catchability
- Assessment of data poor stocks
- Depleted and declining marine mammal populations
- Development of new tools, models, and frameworks to understand and predict implications of policy and management decisions
- Monitoring from industrial platforms, infrastructure or vessels
- Data management



# CURRENT RESEARCH THEMES

- Oceanography/Lower Trophic Levels
- Fish Habitat
- Fish and Invertebrates
- Marine Mammals
- Seabirds
- Human Dimensions
- Other Prominent Issues
- Technology Development
- Cooperative Research with Industry
- Community Involvement



# CURRENT RESEARCH THEMES

- Oceanography/Lower Trophic Levels
- Fish Habitat
- Fish and Invertebrates
- Marine Mammals
- Seabirds
- Human Dimensions
- Other Prominent Issues
- Technology Development
- Cooperative Research with Industry
- Community Involvement

# POTENTIAL REVISED RESEARCH THEMES

- Monitoring
- Habitat
- Ecosystems
- Population assessment
- Fishery management
- Protected Species
- Human Dimensions
- Other Prominent Issues
- Technology Development
- Cooperative Research with Industry
- Community Involvement



# COMMUNICATIONS & OUTREACH

- Required of all projects
- Enhanced by in-house Staff
- Alaska Marine Science Symposium
- Sponsorship of scientific meetings





Board and Staff (Kodiak 2015)

