NPRB Report
June 2024

Lynn Palensky, Executive Director
Dr. Matthew Baker, Science Director

NPRB report

- Coordination with the Council
- Research Priorities
- Recently Funded Research (salmon, cod, crab)
- Northern Bering Sea Integrated Ecosystem Research Program
- Fishing Industry Seat Nominations and Other News
- Chair Mezirow's Accomplishments and Departure

Pressing Fishery Management Issues

NPRB-NPFMC have developed a coordinated approach to research priorities:

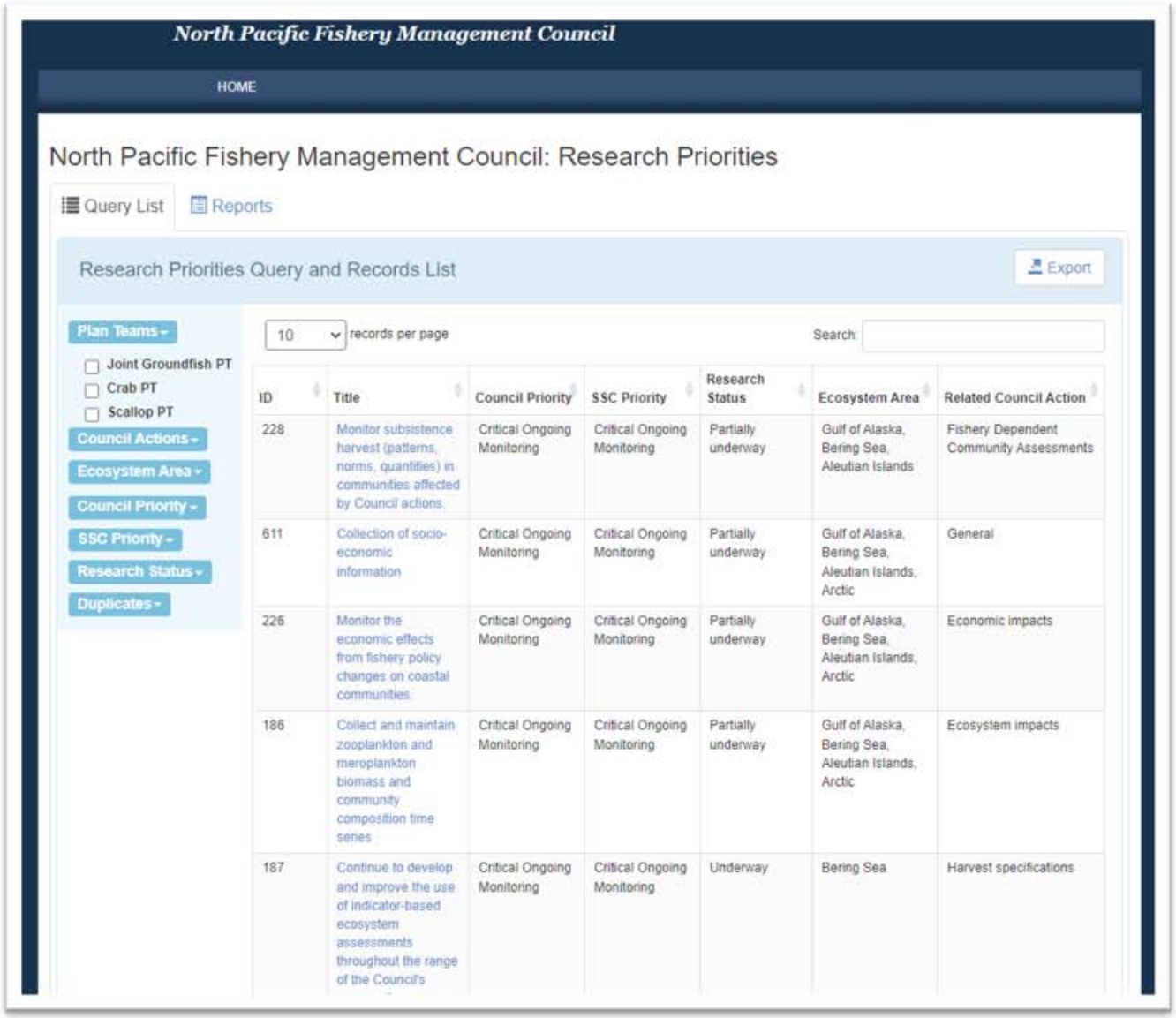
1) Identify research priorities to inform management

2) Monitor investments and related results:
- what priorities are addressed
- what information is developed through research
- how that information is applied to inform management

2021 & 2024 TOP RESEARCH PRIORITIES

2021 Top Priorities	2024 Top Priorities
Spatial distribution and movement of crabs relative to life history events and fishing	Further research to reduce western Alaska salmon bycatch in Bering Sea groundfish fisheries (808).
Conduct routine fish, crab, and oceanographic surveys in the Arctic Ocean	Quantify the magnitude of fishing gear impacts on crab and their associated benthic habitat and develop fishing gear innovations where needed (809).
Develop a framework and collect economic information	Evaluate direct marine mammal-fishery interactions (including feeding on discards and spatio-temporal trends in bycatch) and potential mitigation measures for marine mammal conservation (810).
Develop stock-specific ecosystem indicators and incorporate into stock assessments	* Examine the economic, social, and cultural effects of fisheries and fishery management policy on coastal communities over time (including impacts from fishery policy changes and Tribal citizen and Tribal Nation reliance on, participation in, and impacts of federally managed fisheries) (811).
Cooperative research efforts to supplement existing at-sea surveys that provide seasonal, species- specific information on upper trophic levels	* Develop actionable ecosystem indicators relevant to single-species stock assessments and ecosystem assessments that address climate change impacts to managed stocks (812).
Develop tools for analyzing coastal community vulnerability to fisheries management changes	* Continue to acquire basic life history information with an emphasis on improved estimates of size/age at maturity to advance understanding of the mechanisms for how maturity changes over space and through time (813).
Maturity estimates for Bering Sea and Aleutian Island crab stocks	* Increased understanding of the spatial distribution, habitat requirements, and movement of crabs relative to life history events and fishing (814).
Collection of socio-economic information	Develop predictive tools and models that evaluate the impact of multiple projected climate scenarios on managed resources to inform management options related to ecosystem production and resilience and adaptation of fishing communities (815).
Gap Analyses on loss of biological samples due to implementation of EM	Retrospective and meta- analysis regarding whether, how, when and why objectives and goals of fishery management plans are or are not achieved over time (e.g., Bmsy proxy evaluation) (816).
Norton Sound Red King Crab case study	* Norton Sound Red King Crab case study (731).
	Improve surveys in untrawlable habitat, particularly for rockfish, Atka mackerel, sculpins, and snow crab (817).
	Improve discard mortality rate estimates for scallops, crab, and groundfish stocks by gear types (818).

* RP similar on 2021 Top list Related RIDs: ≥800 = new/edited; <800 = existing priority; NXXX = public submission; other alpha-numeric = Plan Team submission


North Pacific Fishery Management Council
HOME
North Pacific Fishery Management Council: Research Priorities
Query List
Reports
Research Priorities Query and Records List
Export
Plan Teams
Joint Groundfish PT
Crab PT
Scallop PT
Council Actions
Ecosystem Area
Council Priority
SSC Priority
Research Status
Duplicates
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Title
Council Priority
SSC Priority
Research Status
Ecosystem Area
Related Council Action
228
Monitor subsistence harvest (patterns, norms, quantities) in communities affected by Council actions.
Critical Ongoing Monitoring
Critical Ongoing Monitoring
Partially underway
Gulf of Alaska, Bering Sea, Aleutian Islands
Fishery Dependent Community Assessments
611
Collection of socio-economic information
Critical Ongoing Monitoring
Critical Ongoing Monitoring
Partially underway
Gulf of Alaska, Bering Sea, Aleutian Islands, Arctic
General
226
Monitor the economic effects from fishery policy changes on coastal communities
Critical Ongoing Monitoring
Critical Ongoing Monitoring
Partially underway
Gulf of Alaska, Bering Sea, Aleutian Islands, Arctic
Economic impacts
186
Collect and maintain zooplankton and meroplankton biomass and community composition time series
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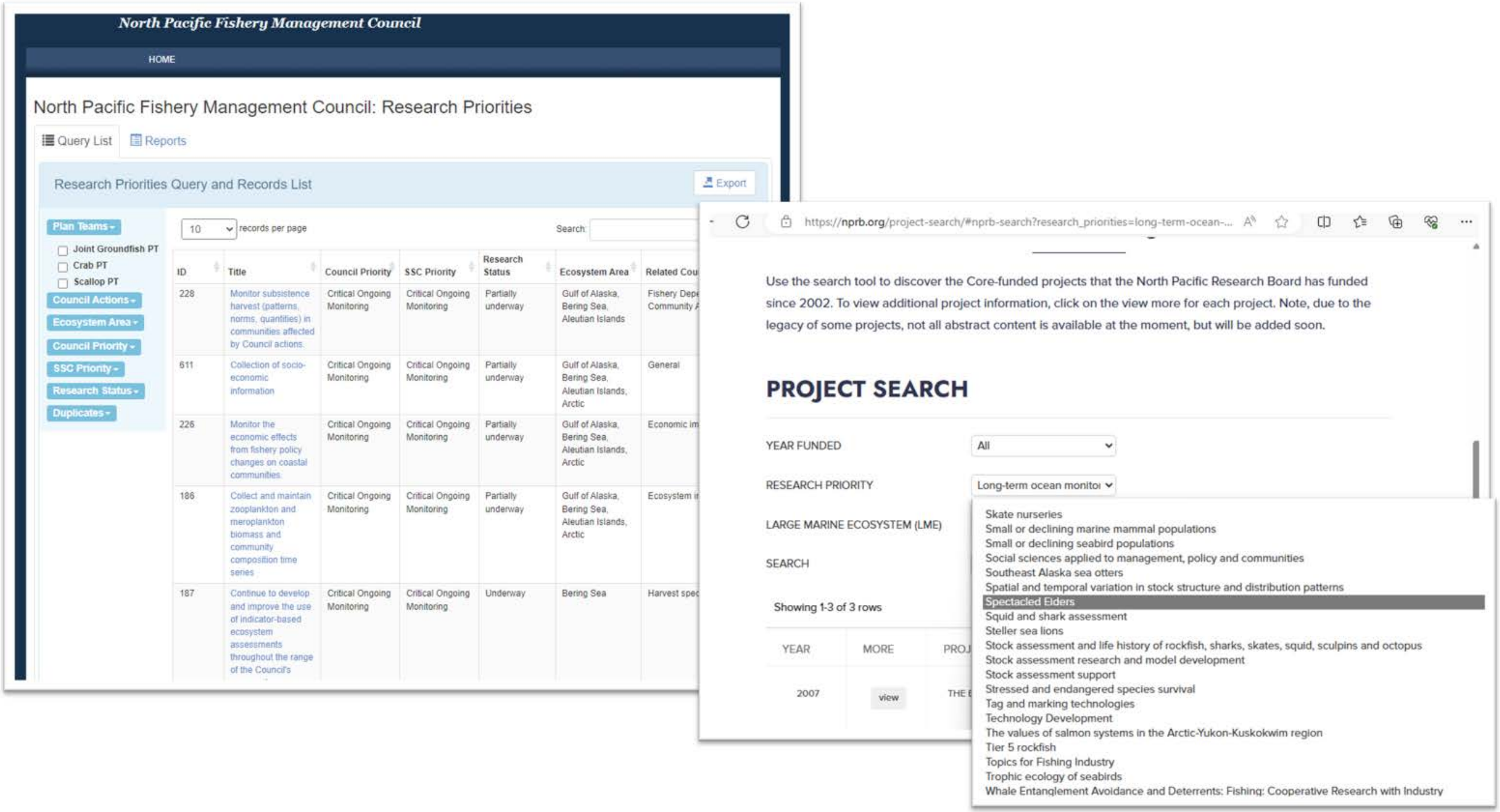
Critical Ongoing Monitoring
Partially underway
Gulf of Alaska, Bering Sea, Aleutian Islands, Arctic
Ecosystem impacts
187
Continue to develop and improve the use of indicator-based ecosystem assessments throughout the range of the Council's
Critical Ongoing Monitoring
Critical Ongoing Monitoring
Underway
Bering Sea
Harvest specifications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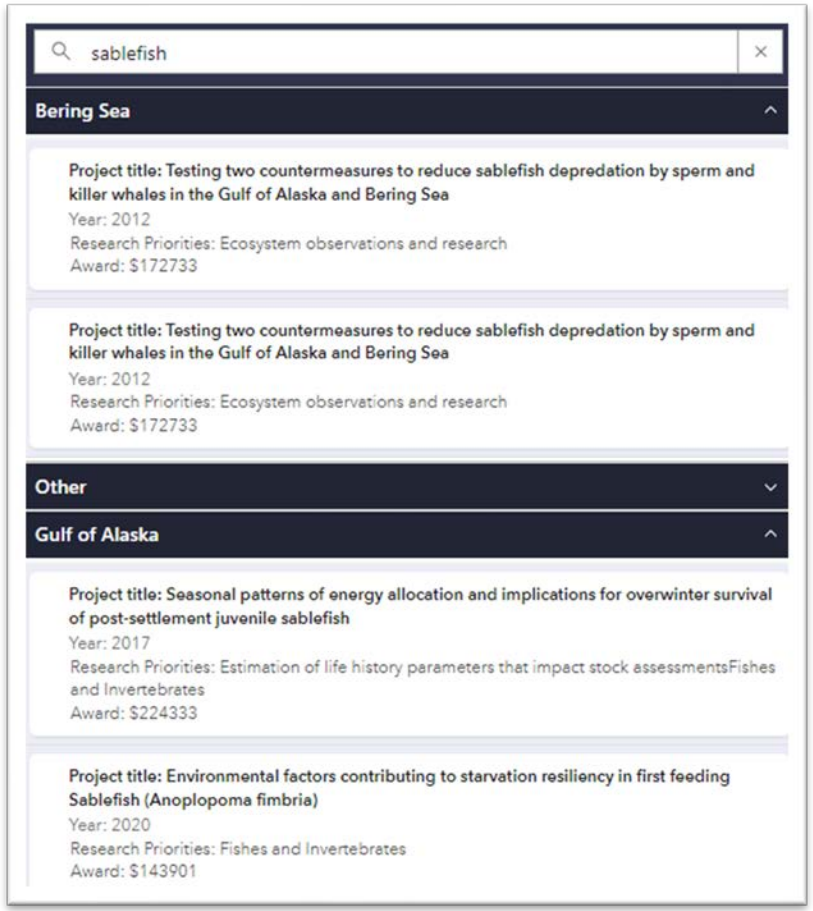
https://nprb.org/project-search/#nprb-search?research_priorities=long-term-ocean-...
Use the search tool to discover the Core-funded projects that the North Pacific Research Board has funded since 2002. To view additional project information, click on the view more for each project. Note, due to the legacy of some projects, not all abstract content is available at the moment, but will be added soon.
PROJECT SEARCH
YEAR FUNDED
All
RESEARCH PRIORITY
Long-term ocean monitor
LARGE MARINE ECOSYSTEM (LME)
SEARCH
Showing 1-3 of 3 rows
YEAR
MORE
PROJ
2007
view
THE E
Skate nurseries
Small or declining marine mammal populations
Small or declining seabird populations
Social sciences applied to management, policy and communities
Southeast Alaska sea otters
Spatial and temporal variation in stock structure and distribution patterns
Spectacled Eiders
Squid and shark assessment
Steller sea lions
Stock assessment and life history of rockfish, sharks, skates, squid, sculpins and octopus
Stock assessment research and model development
Stock assessment support
Stressed and endangered species survival
Tag and marking technologies
Technology Development
The values of salmon systems in the Arctic-Yukon-Kuskokwim region
Tier 5 rockfish
Topics for Fishing Industry
Trophic ecology of seabirds
Whale Entanglement Avoidance and Deterrents: Fishing: Cooperative Research with Industry

NPRB Research Priorities

Searchable database



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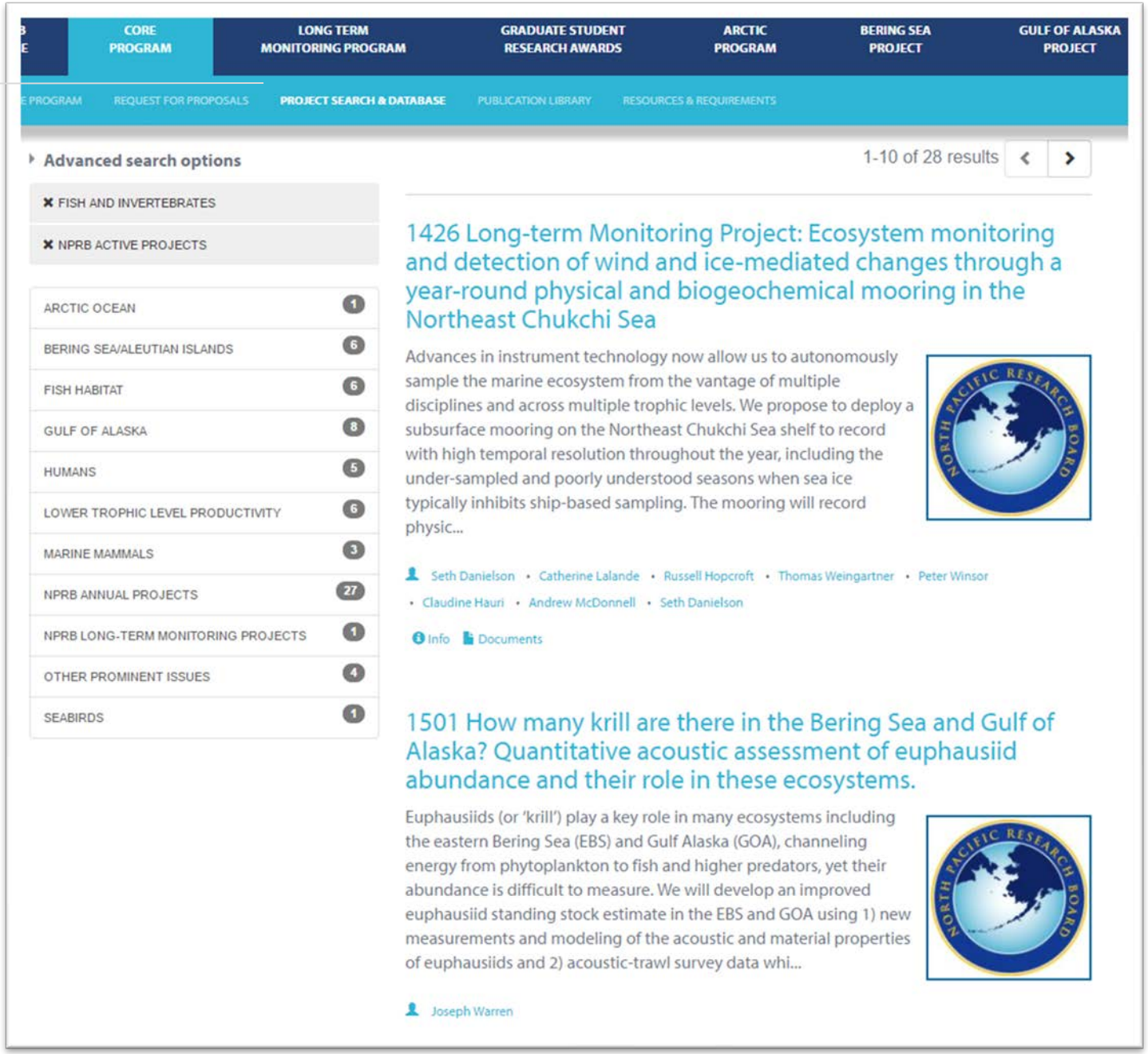

Pacific Salmon

Salmon winter ecology	NOAA-AFSC	2020-2023
Automation of scale age estimation	PWSSC	2022-2025
Engaging Yukon fishers in Chinook and Chum research*	YRDFA	2023-2026
Climate Drivers of Yukon River Chinook Productivity	ADFG	2023-2026
Decadal Study on Ecological Dynamics of Pacific Salmon	UAF	2023-2026
Marine survival of hatchery- and wild-origin sockeye salmon	NOAA-AFSC	2024-2026

Total Investments: $2.8M

Pacific Cod

Thermal effects on cod in the Gulf of Alaska*	NOAA-AFSC	2018-2022
IBM validation and enhancement	NOAA-AFSC	2018-2022
Population structure in the Aleutians	NOAA-AFSC	2019-2022
Spawning habitat in a changing Bering Sea	NOAA-AFSC	2020-2023
Passive acoustic monitoring in the Arctic	U Victoria	2022-2025
Evaluating cod response to warming*	Oregon State	2023-2025
Age validation	U Florida	2023-2026

Total Investments: $2.9M

North Pacific Crab

North Pacific crab growth	UW	2016-2019
Pribilof Islands blue king crab recruitment	UAF	2016-2019
Qualitative approaches to blue king crab management	UW	2016-2019
Tanner crab response to temperature change	NOAA-AFSC	2017-2020
Snow crab body condition	NOAA-AFSC	2020-2024
Pathology of black eye syndrome	Bigelow Lab	2021-2025
Fatty acid sampling in snow crab*	Bigelow Lab	2022-2025
Bristol Bay red king crab movement*	NOAA-AFSC	2023-2026
Bristol Bay red king crab settlement potential*	ADFG	2023-2026

Total Investments: $2.2M

Cooperative Research with Industry

Bristol Bay red king crab movement	NOAA-ADFG-BSFRF
Bristol Bay red king crab settlement potential	NOAA-ADFG-BSFRF
Bering Sea Inner Shelf: improving system understanding	NOAA-UW-APU-Alaska Seafood Cooperative

Total Investments: $1.2M

Cooperative Research with Industry

Bristol Bay red king crab movement	NOAA-ADFG-BSFRF
Bristol Bay red king crab settlement potential	NOAA-ADFG-BSFRF
Bering Sea Inner Shelf: improving system understanding	NOAA-UW-APU-Alaska Seafood Cooperative

Total Investments: $1.2M

A80 fishers target 2-3°C to maximize YFS and minimize halibut bycatch.
Platforms, moorings, and net sensors measure real-time temperature to:

- improve understanding of regional oceanography
- inform biophysical models and stock assessments
- reduce bycatch

Community Involvement

Engaging Yukon fishers in research on Chinook salmon decline	YRDFA
Climate drivers of Yukon River Chinook productivity	YRDFA-ADFG-NOAA-USGS
Bridging knowledge to inform Bering Sea Management	NOAA-BBNA-Kawerak-Bering Sea Elders
Qangyut: Gulf of AlasKa Ocean Forecast (GAKOF)	NOAA-AOOS-Chugach Resource Commission

Total Investments: $1M

Community Involvement

Engaging Yukon fishers in research on Chinook salmon decline	YRDFA
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Total Investments: $1M

Research directly addresses Bering Sea Fishery Ecosystem Plan aim to….

- promote partnerships for TK holders, scientists, and fisheries managers
- develop Indigenous Conceptual Models of the BS ecosystem
- document collaborative methods used to bridge knowledge systems to inform fisheries management

Applications to Management

Combining the Eastern Bering Sea Shelf and Slope Surveys
Age validation of Gulf of Alaska groundfishes
Resource partitioning among North Pacific flatfishes
Western Arctic continuous plankton recorder survey
Quantitative methods for ecosystem indicators

Total Investments: $1.8M

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Western Arctic continuous plankton recorder survey

Quantitative methods for ecosystem indicators

Total Investments: $1.8M

Gear comparisons will inform survey redesign efforts.

Data from paired trawling experiments will…

- produce local abundance indices
- inform gear selectivity ratios to enable to retrospective analyses
- improve understanding of migration and spatial ecology

Applications to Management

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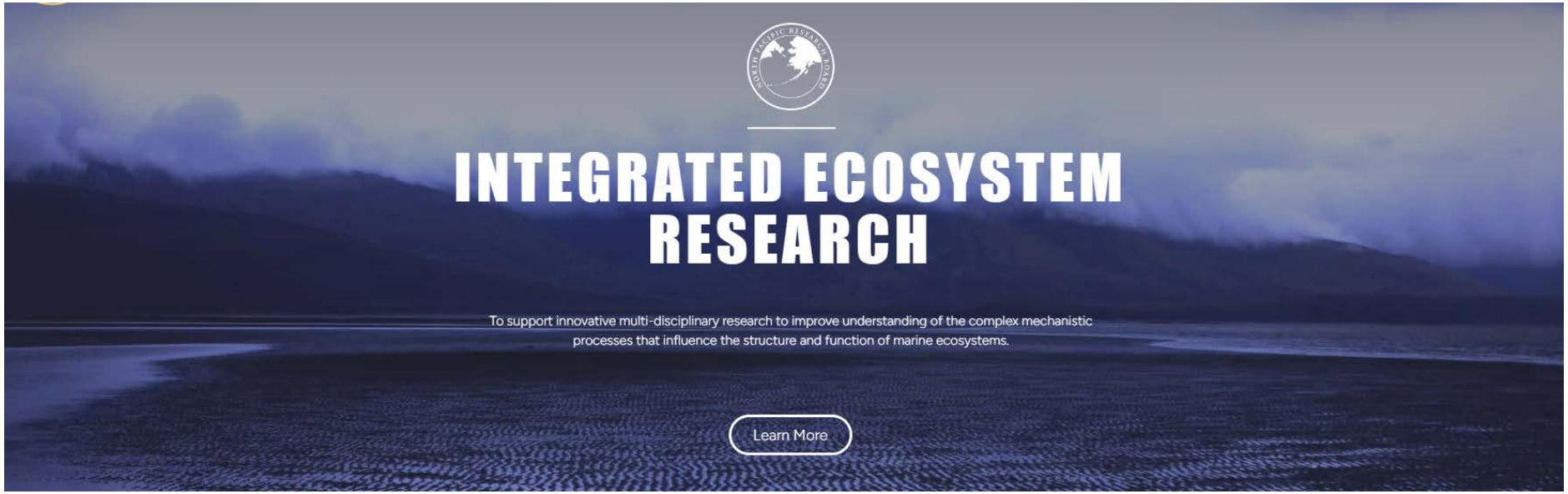
Challenges remain for incorporating ecosystem information into stock assessment models and fishery management processes.
Building on the Council's Ecosystem and Socioeconomic Profiles (ESPs), research explores methods for quantifying:

(1) direction, magnitude, and relative importance of ecosystem indicators' impacts on demographic processes like recruitment;
(2) whether relationships are stable through time.



Intent

- understand mechanistic processes that influence the structure and function of marine ecosystems
- characterize processes and interactions to improve forecasts

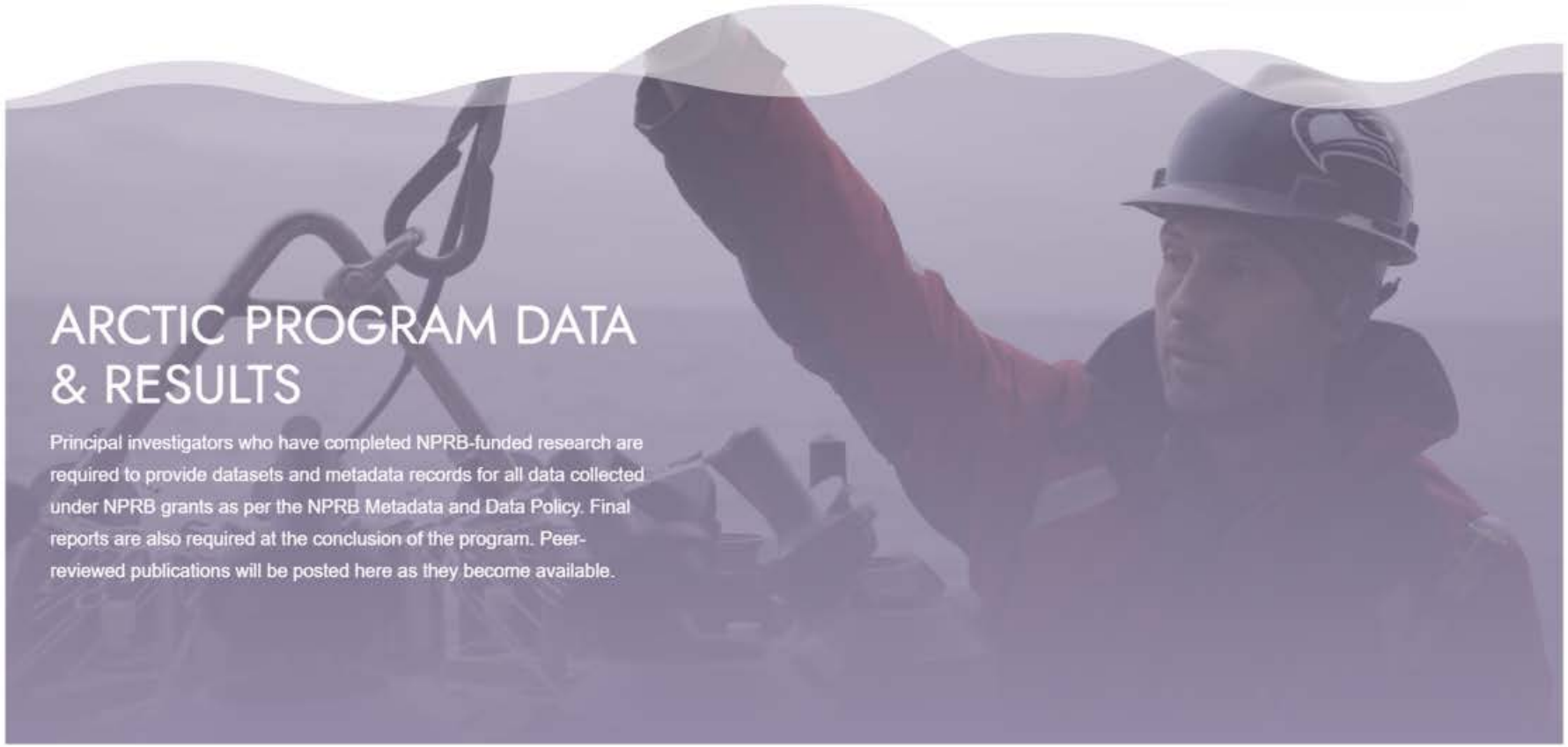
Design

- promote collaboration across disciplines (e.g., oceanography, fisheries, social science)
- promote integration across ecosystem components (e.g., physics, plankton, fishes)
- advance partnership and exchange

INTEGRATED ECOSYSTEM RESEARCH PROGRAM

NPRB aims to improve understanding of how changing environmental conditions influence physical, chemical, and biological processes in marine ecosystems.

Arctic IERP (2016-2022)



ARCTIC PROGRAM DATA & RESULTS

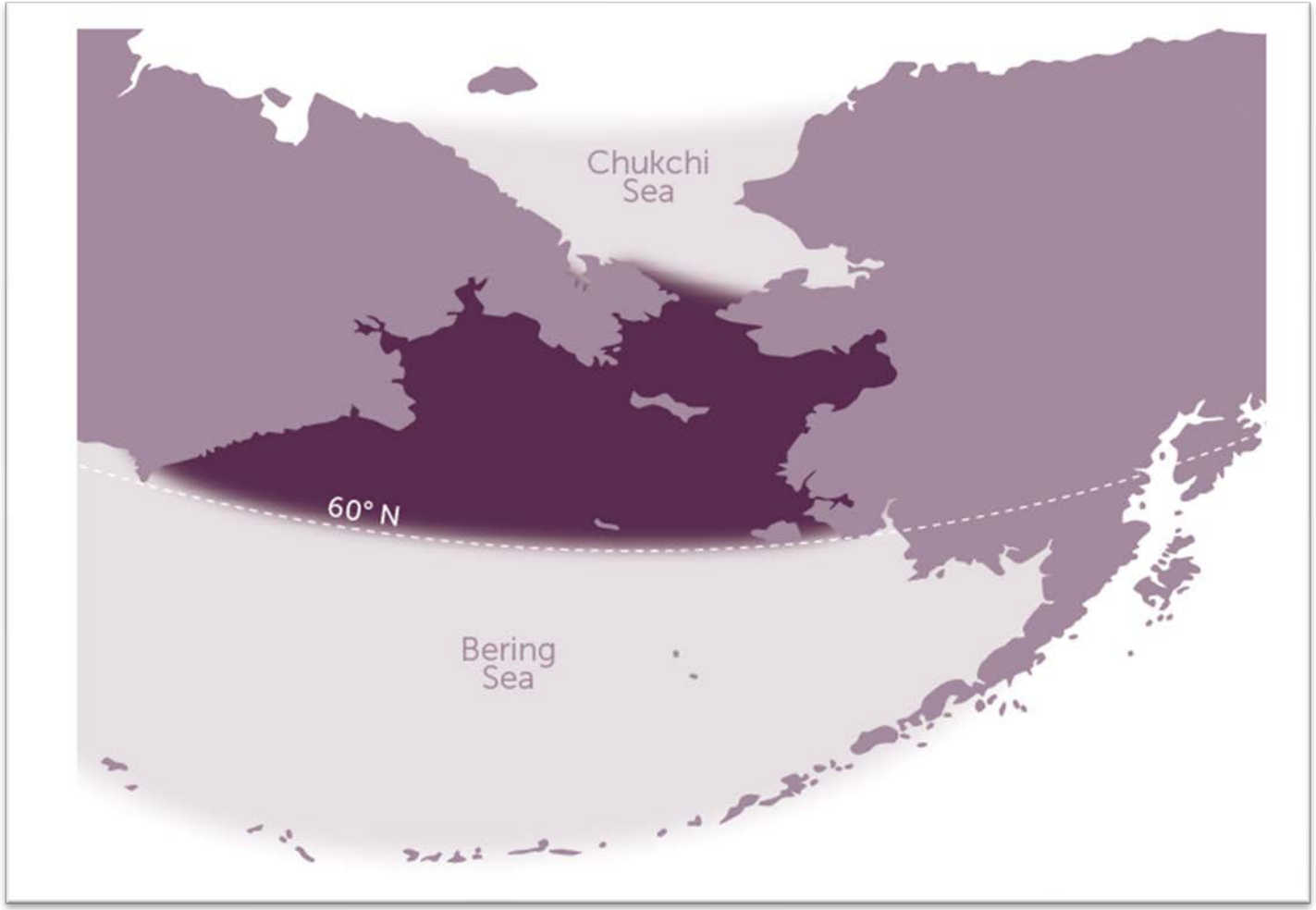
Principal investigators who have completed NPRB-funded research are required to provide datasets and metadata records for all data collected under NPRB grants as per the NPRB Metadata and Data Policy. Final reports are also required at the conclusion of the program. Peer-reviewed publications will be posted here as they become available.

INTEGRATED ECOSYSTEM RESEARCH PROGRAM

NPRB aims to improve understanding of how changing environmental conditions influence physical, chemical, and biological processes in marine ecosystems.

Northern Bering Sea IERP (2024-2030)

- Arctic IERP documented significant changes in the environment and community responses.
- NBS IERP will further investigate changing ecosystem in this region.



INTEGRATED ECOSYSTEM RESEARCH PROGRAM

NPRB aims to improve understanding of how changing environmental conditions influence physical, chemical, and biological processes in marine ecosystems.

Areas of scientific interest:

- *Influence of shifts in environment on species of commercial, ecological, and subsistence importance*
- *Implications for fisheries management, and communities that depend on these resources*

INTEGRATED ECOSYSTEM RESEARCH PROGRAM

NPRB aims to improve understanding of how changing environmental conditions influence physical, chemical, and biological processes in marine ecosystems.

ANTICIPATED TIMELINE OF ACTIVITIES

Approximately $6.5 million have been made available by NPRB for this program. NPRB anticipates additional resources from funding partners.

OCTOBER 2023
NPRB solicits pre-proposals.

OCTOBER 2024
NPRB invites full proposals with additional awards to support Indigenous partnerships.

SUMMER 2025
NPRB coordination with funding partners.

OCTOBER 2025
NPRB announces funding decisions and scope of funded research program.

2026-2031
Coordinated research, fieldwork, analysis, and outreach.

INTEGRATED ECOSYSTEM RESEARCH PROGRAM

NPRB aims to improve understanding of how changing environmental conditions influence physical, chemical, and biological processes in marine ecosystems.

Physical and Biochemical processes

- atmospheric, water mass and circulation, river discharge, and sea ice dynamics
- nutrient and biochemical loading and cycling
- ocean acidification and harmful algal blooms
- modes of primary production and energy pathways related to plankton and fish production

Fishes, invertebrates and marine birds and mammals

- species distributions, interactions, and food webs
- environment and ecosystem affects on crabs, salmon, groundfish, marine birds and mammals, and fisheries

INTEGRATED ECOSYSTEM RESEARCH PROGRAM

NPRB aims to improve understanding of how changing environmental conditions influence physical, chemical, and biological processes in marine ecosystems.

Methodological Approaches

- Earth System models and Regional Ocean models
- Food Web models and Ecosystem models
- Autonomous drifting and moored instruments, uncrewed systems
- Research cruises and aerial surveys
- Community observations
- Use of archived samples, existing surveys, and retrospective analyses

INTEGRATED ECOSYSTEM RESEARCH PROGRAM

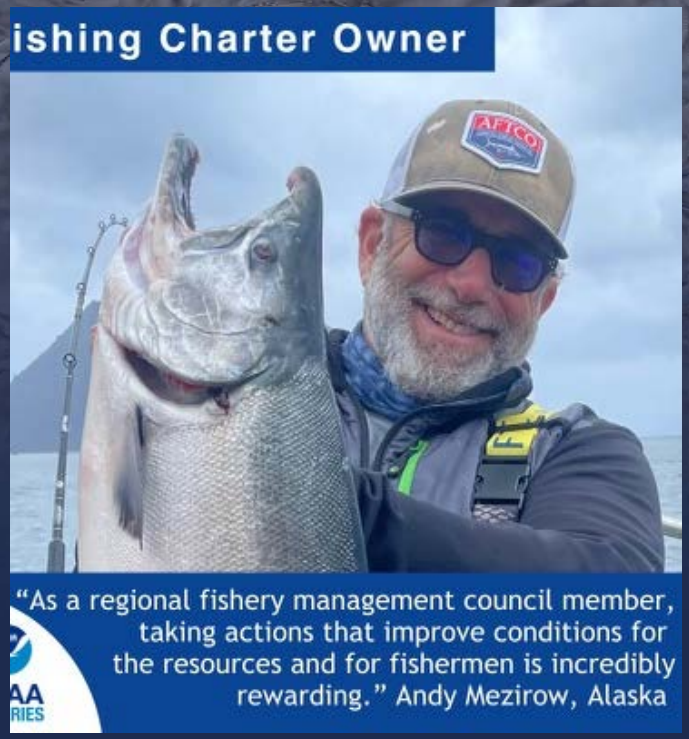
- Board to invite full proposals from subset of 13 submissions (Oct 2024)
- Full proposals due May 2025
- NPRB to engage with potential funding partners (summer 2025)
- List of interested parties
- Contact NPRB staff for more info on schedule, process, partnerships and ways to stay engaged

NPRB Announcements

1. Nominations for Fishing Industry Board Seat
   (Submit by August 1)

2. 2024 Photography Awards
   (Submit photos by Sept 2)

3. Hiring Alaska Marine Science Symposium Coordinator
   (Apply by July 1)



Andy Mezirow – Chair of NPRB
Nov 2018-August 2024

NPRB's Accomplishments under Andy Mezirow's leadership

- ✓ Approving the Northern Bering Sea Integrated Ecosystem Research Program
- ✓ Hiring a new ED & Navigating COVID
- ✓ Advancing partnerships: International Year of the Salmon and with Alaska Native interest groups and industry partners
- ✓ Working with Alaska delegates
  - ✓ adding an Alaska Native Board seat
  - ✓ increasing term limit for fishing industry seat
- ✓ Supporting's NPRB's assistance in reviewing research proposals under crab disaster funding
- ✓ **Lastly, most importantly funding $29M in marine research!**

Thank you, Andy!