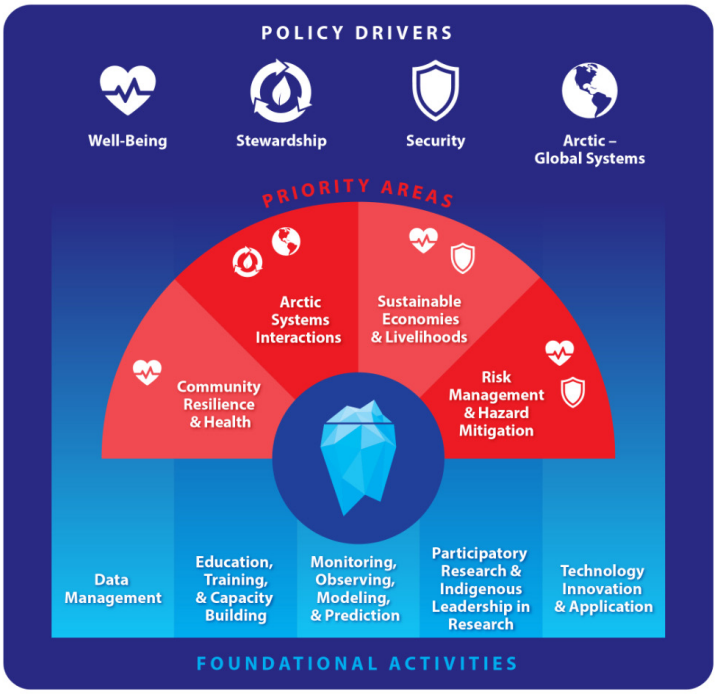
May 19, 2022

Dear Reader,

The U.S. Interagency Arctic Research Policy Committee (IARPC) brings together leaders from 18 federal agencies to address emerging research questions in the U.S. Arctic. The Bureau of Ocean Energy Management (BOEM) and the IARPC share a common goal: to understand and support resilience in the Arctic for the next generation. To that end, BOEM was deeply involved in developing the committee's 2022-2026 Arctic Research Plan (ARP), released late last year, as well as the previous 2017-2021 plan, for which I served as the Department of the Interior's (DOI's) IARPC principal. The new plan provides a bold vision for federal agencies to make progress nimbly and collaboratively on our common goals. The breadth of BOEM's Environmental Studies Program over the last 50 years makes the bureau a good collaborator in the types of discussions that the IARPC community is going to have in the next five years.



The 2022-2026 Arctic Research Plan presents four thematic goals to address critical areas for which an interagency approach can accelerate progress. It does not attempt to address all federally-funded research in the Arctic.

Because of Alaska, the United States is a member of a small but important cadre of countries who can call themselves Arctic Nations, and as such the United States has held two rotations as Chair of the Arctic Council (1998-2000, 2015-2017). Given Alaska's unique location, BOEM adopted a very collaborative bureau-wide approach involving its headquarters and Alaska offices and other DOI bureaus to address its varied responsibilities in the Arctic. These include energy security, environmental stewardship, sustainable development, promoting collaboration with the other Arctic nations and Indigenous communities, and supporting and promoting scientific research.

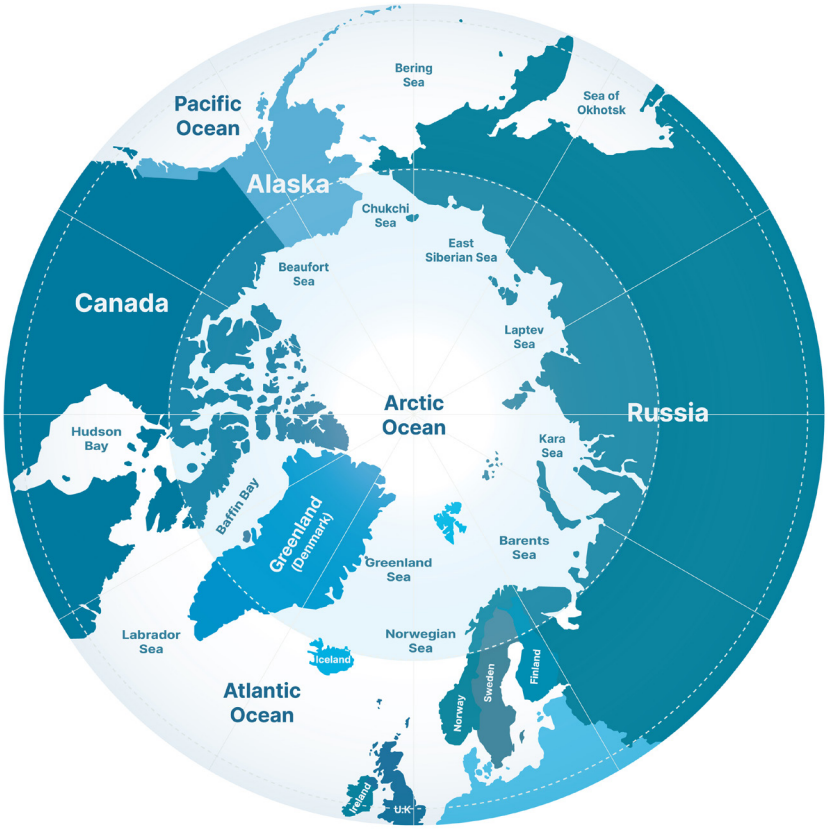
BOEM is responsible for managing resources on the U.S. Outer Continental Shelf (OCS), including in federal waters surrounding Alaska, and is required under the Outer Continental Shelf Lands Act (OCSLA) to conduct an extensive suite of physical, biological, and social science research in the region to inform decisions on energy and non-energy mineral development.

SHARED INTERESTS BETWEEN BOEM AND IARPC

BOEM, an active IARPC member, coordinated with the White House Office of Science and Technology Policy (OSTP) and other agencies to engage the broader scientific community and

general public to obtain their comments in 2020 and 2021 for the 2022-2026 plan. BOEM has a unique opportunity bring its expertise to the table and shape applied Arctic research, according to Cathy Coon, science and policy adviser to BOEM's Alaska office. In the new plan, BOEM co-leads four collaboration teams: Marine Ecosystems, Coastal Resilience, Technology, and Data Management. A team structure strengthens research and develops tools to increase understanding of interdependent social, natural, and built systems in the Arctic while making information available to local Alaskan communities, notes Dr. Christina Bonsell, a marine ecologist in BOEM's Alaska office.

Further, Dr. Jonathan Blythe, data manager in BOEM's Division of Environmental Sciences, says that sharing data across and between federal agencies, the state, communities, and stakeholders will be foundational for addressing U.S. Federal research priorities in the Arctic.



Arctic Council member nations: Canada, Denmark, Finland, Iceland, Norway, Sweden, Russian Federation, and the United States.

This Science Note highlights several completed BOEM research projects from the 2017-2021 plan that are available to inform decisions or overlap with the new ARP.

BOEM AND THE RESEARCH IMPERATIVE

The Arctic crosses multiple countries totaling four million people globally—less than one percent of the world's population, according to the Arctic Council, the leading intergovernmental forum promoting cooperation in the Arctic. Yet changes in the Arctic can have much broader impact on the health and well-being of everything on this planet. BOEM's work with IARPC provides pathways to strengthen relationships not only within the United States but also with international organizations including the Arctic Council, offers Laura Strickler in BOEM's Office of Strategic Policy and International Affairs.

Because the region is remote and has a small population, people often ask why the Arctic is important to the rest of the world, why conduct research, and how the knowledge gained is relevant to their lives. As an Arctic Nation, the United States is invested in better understanding changes in the Arctic and their effects on citizens' well-being, environmental stewardship, national security, and fundamental science.

The new **Arctic Research Plan 2022-2026** outlines priority research goals that will address four areas: (1) community resilience and health, (2) Arctic systems interactions, (3) sustainable economies

and livelihoods, and (4) risk management and hazard mitigation.

The following are several examples of BOEM projects that align with these four priorities and also overlap with the performance elements in the previous Arctic Research Plan (2017-2021).

1. **Community Resilience and Health:** Since 2016, BOEM has supported the Local Environmental Observer **(LEO)** Network in collaboration with the Alaska Native Tribal Health Consortium. The LEO Network is a group of local observers and topic experts who share knowledge about unusual animal, environmental, and weather events across the circumpolar north. The LEO network connects observers within Arctic communities, researchers, and topical experts to share observations, raise awareness, and understand environmental anomalies. Observations help describe connections between climate change, environmental impacts, and health effects. Observations are available in a searchable database. LEO network personnel discuss observations on monthly on-line webinars; the network publishes observations through the *Northern Climate Observer* newsletter and a summary of recent relevant observations in the quarterly *One Health*. The network has been so successful that there is now a Circumpolar LEO in the making.

With LEO, you can connect with others in your community, share observations, raise awareness, and find answers about significant environmental events. (Screengrab of the LEO network video).

2. **Arctic Systems Interactions:** This term refers to a broad concept to enhance our ability to observe, understand, predict, and project the Arctic's dynamic interconnected systems and their links to the Earth system. BOEM seeks to improve its understanding of the nearshore Beaufort Sea in relation to both sea ice and **physical oceanography** across seasons. We collect oceanographic and sea ice data to improve models, develop protocols to map **landfast ice**, and analyze the impacts of storms and other physical variables during this time of rapid change. Physical collections of data improve modeling. We also study the overload of rivers onto the landfast ice in both the Chukchi and Beaufort seas to quantify temporal and spatial limits of landfast ice and identify trends. In other studies, scientists deploying portable sensors have measured wave energy propagation into sea ice to determine the contribution to landfast ice breakout events, when the landfast ice detaches because of warm weather and winds. We have used low-cost satellite-tracked ice drifters to monitor the motion of the ice pack and develop new information on the fate of landfast ice in the Chukchi and Beaufort seas.

3. **Provide Sustainable Economies and Livelihoods by Respecting Indigenous Knowledge and Cultures:** Bridging the previous and new ARP, BOEM has renewed its **long-term study** of subsistence whaling activities on Cross Island, a barrier island on Alaska's Beaufort Sea coast, to learn the extent to which noise produced by the Liberty oil and gas development in the Beaufort affects the east-to-west migration of bowhead whales. Whalers are concerned that noise associated with construction activities and vessel and aircraft traffic at the Liberty site will cause bowheads to change their traditional migration routes past Cross Island. This could result in lower harvests than usual, more difficulties in whaling, and negatively affect cultural practices,

sharing networks, and important community celebrations where bowhead is primarily served to elders and other residents. The project team is incorporating Inupiaq traditional and local knowledge, will hire local residents to provide research assistance whenever practicable, and will provide appropriate honoraria to project participants. The study builds upon prior research to document the effects of oil and gas development at the Northstar facility on Cross Island subsistence conducted between 2001 and 2012 under the Arctic Nearshore Impact Monitoring in Development Area **(ANIMIDA)** project and its continuation **(cANIMIDA)**.

4. **Risk Management and Hazard Mitigation:** The Arctic Research Plan 2022-2026 notes that hazards and risks cannot be effectively addressed by one entity alone. Resilience, hazard mitigation, and disaster management expertise are found across many federal agencies and at many levels. Through collaborative research activities, stakeholders can make real progress in managing risk—from minimizing risk to increasing protection and mitigation, response, and recovery. BOEM is undertaking an **inventory and analysis** of submerged and coastal historic properties, including potential historic shipwreck and aircraft wreck sites for the Alaska OCS. This information will help inform environmental impact assessments and mitigation of potential impacts to resources.

One final example of the need for converging multidisciplinary research is the highly successful Arctic Integrated Ecosystem Research Program **(AIERP)**. The AIERP linked observations of changes in ocean physics and chemistry to significant changes observed throughout the biological ecosystem, from plankton and marine invertebrates to fish, seabirds, and marine mammals. In this project, the North Pacific Research Board (NPRB), a non-federal entity, is collaborating with IARPC members, a regional Alaska government entity, individual Alaska communities, and private industry to address complex changes in Arctic marine ecosystems. The NPRB cooperated with BOEM, the Office of Naval Research's Marine Mammals and Biology Program, and the North Slope Borough/Shell Baseline Studies Program to design and fund a multidisciplinary research program. The National Oceanic and Atmospheric Administration, the National Science Foundation, and the U.S. Fish and Wildlife Service provided generous in-kind support. Arctic community members discussed food security in the context of environmental change and other drivers, including socioeconomics and policy. Similar future collaborations will continue to improve our understanding and support for resilience in the Arctic for the next generation.

*IARPC was created under the **Arctic Research and Policy Act of 1984 (ARPA)**. For additional information, please visit the **IARPC** website, BOEM's **Environmental Program website**, and the Special Edition of BOEM **Ocean Science Journal** on the previous U.S. Chairmanship of the Arctic Council.*

In summary, BOEM capitalizes on building and sustaining relationships through innovative partnerships forged via IARPC Collaborations on the study of rapid changes in Arctic marine ecosystems.

Sincerely,

William Y. Brown
BOEM Chief Environmental Officer