BOEM
Bureau of Ocean Energy Management

FACT SHEET

Arctic Environmental Research

The Bureau of Ocean Energy Management's (BOEM) Environmental Studies Program (ESP) develops, funds and manages scientific research on the marine, coastal, and human environments to inform the Federal offshore oil and gas leasing program. Since the ESP's launch in 1973, it has funded more than $1 billion nationwide, with more than $475 million dedicated to research in coastal Alaska, producing more than 1,000 study reports and peer-reviewed publications. These studies have provided information for use in 25 different lease sales, generating nearly $9.5 billion for the U.S. Treasury.

The ESP currently manages more than 50 ongoing study projects in Alaska, in disciplines such as protected and endangered species; physical oceanography; fate and effects of pollutants; wildlife biology; subsistence, and traditional knowledge studies; and economic forecasting. Completed study reports are available on ESPIS, the ESP Information System.

Select Exciting Current Projects:

Aerial Survey of Marine Mammals and Unmanned Aerial System Experimentation

NOAA Photo

BOEM continues to partner with the NOAA Fisheries National Marine Mammal Lab (NMML) to conduct annual offshore line-transect aerial surveys in both the Beaufort and Chukchi Seas. This long-term (35+ year) monitoring program provides substantial information about the variable abundance and distribution of bowhead whales, gray whales, beluga whales, pacific walrus, polar bears, and bearded seals during critical seasons of their annual life history. In 2015, BOEM also partnered with NMML and the US Navy to test the ability of unmanned aerial systems to survey cetaceans as a potential means to decrease risk to personnel, increase survey efficiency, reduce survey costs, and minimize disturbance to marine wildlife. The performance of UAS relative to manned aircraft is not yet well understood and requires more research as a monitoring tool.

Arctic Marine Biodiversity Observing Network (AMBON)

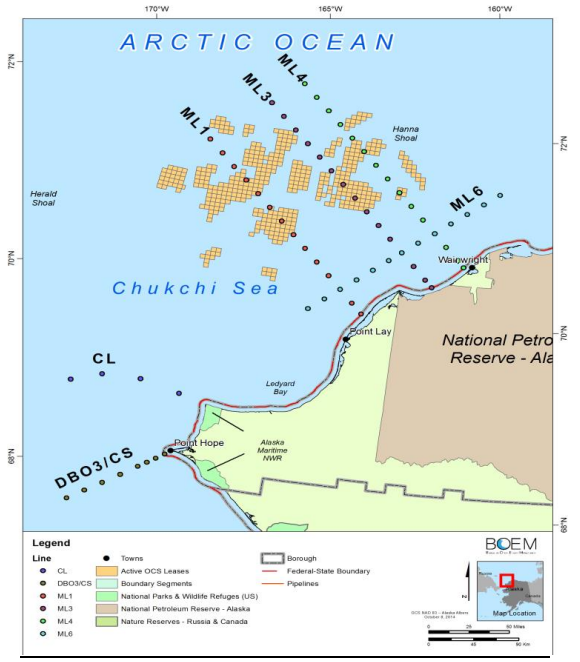

Illustration courtesy of UAF Professor Katrin Iken

As the Arctic warms and sea ice retreats, it is increasingly important to observe and monitor measures of ocean biodiversity as an indicator of ecosystem health. To that end, BOEM launched a five-year partnership study under the National Oceanographic Partnership Program (NOPP) in the Chukchi Sea with the University of Alaska Fairbanks (UAF), NOAA and industry. The

$4 million AMBON project builds on prior marine sampling strategies through distributed biological observatory (DBO) networks intended to extend gridded data collection in taxonomic and spatial coverage on the Chukchi shelf over the leased area. Notably, AMBON will add a significant new molecular component to previous biodiversity observations and will extend ongoing monitoring programs across the Chukchi Sea.

Oil Spill Detection and Mapping: Arctic Tracer Release Experiment (ARCTREX)

Photo courtesy of ARCTREX website
http://www.ims.uaf.edu/artlab/projects/ARCTREX/

In collaboration with UAF, this study will perform targeted dye release experiments at both the surface and bottom layers of the Chukchi Sea to examine applications for mapping spilled oil in Arctic waters. These experiments are designed to test available observational technologies and their capability to map a biodegradable dye plume (simulating an oil spill) and deliver real-time data to response agencies for improved tracking and containment operations.

ANIMIDA III (Arctic Nearshore Impact Monitoring in Development Area)

After three decades of leasing activities, the *Northstar* gravel island in the Beaufort Sea is the only existing facility in Alaska that produces hydrocarbons from federal offshore lease blocks. Anticipating future development, the ESP initiated a long-term monitoring program in 1985 to establish a baseline of contaminants in sediments and benthic biota at specific locations across a regional scale. ANIMIDA III is the current five year monitoring program set up to provide benchmark monitoring results for detecting changes in chemical contamination, turbidity, Boulder Patch productivity, and impacts to subsistence activities. The monitoring has been extended eastward to include the Liberty prospect.

Community-Based Monitoring

Frontline observations of ongoing climate change are made by local residents, who can readily identify abnormalities in local habitat, prey availability, species composition, and seasonal timing of ecological processes. In an effort to capture and document such observational data more efficiently, BOEM is now partnering with the Alaska Native Tribal Health Consortium to extend into North Slope Borough communities their well-established Local Environmental Observer (LEO) Network and innovative communication applications. BOEM also partners with the UAF Coastal Marine Institute and teams of community residents in Pt. Hope, Pt. Lay, Wainwright, Barrow, and Kaktovik to deploy tide gauges to acquire better annual records of variation in local sea levels. Three moorings are deployed by local boat crews in each community.

Social Indicators in Coastal Alaska: Arctic Well-Being Synthesis Study

Under BOEM contract, Steven R Braund & Associates is updating important socio-cultural and economic baseline data in coastal communities of the North Slope Borough. The goal is to measure the direction, pace, and magnitude of regional socio-economic changes, and the sense of well-being as expressed by residents in select Arctic coastal communities of Pt. Lay, Wainwright, Barrow, Nuiqsut and Kaktovik. This study will facilitate evaluation of current conditions and local trends in economic prosperity; education; the health and safety; cultural continuity and well-being; the status of indigenous rights and local control; and quality of the physical environment. The household survey, approved at both national and local levels, began in 2016.