



Arctic Research and Monitoring Workshop

Toward a Strategy for the Chukchi and Beaufort Seas

Executive Summary

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The Alaska Ocean Observing System (AOOS) and the North Pacific Research Board (NPRB) sponsored a one-day workshop on Arctic Research and Monitoring with the goal of sharing information and promoting collaboration among the many entities with increasing activities in marine research and monitoring in the Alaska maritime Arctic (Chukchi and Beaufort Seas), including the oil and gas industry, local, state and federal agencies, and non-governmental and academic organizations. This workshop was an initial step by AOOS and NPRB toward the longer term development of a more comprehensive monitoring and assessment plan, through which each participating organization can focus on projects to meet their particular goals while contributing to a larger data sharing and integration effort. 145 individuals from more than 60 organizations attended the workshop.

More information is available at:

<http://www.aos.org/meetings/meetings.htm>



Challenges

A variety of projects dating back to the late 19th century have amassed a large body of information about and knowledge of the area, and programs motivated by a range of issues continue to study it. The overall approach, however, remains unsystematic, and the supporting data are largely un-integrated and not easily available. At least four major interacting forces indicate that a more organized strategy for research and monitoring efforts in the U.S. maritime Arctic is needed:

- a. **Climate Change.** The physical manifestations of climate change in the Chukchi, Beaufort and surrounding regions appear to be larger, earlier, and more consequential than those in many other regions and are having fundamental impacts on other components of the environment that will require significant adaptation by virtually all trophic levels in the ecosystem.
- b. **Economic activities.** Significantly increased maritime activity is likely in the region, notably continued oil and gas exploration, research in support of permitting, and probable future production. All will likely lead to increased vessel traffic in the region, with associated impacts.
- c. **National Policy.** The U.S. Arctic Region Policy, updated in 2009, discusses and directs implementation measures in national and homeland security, international governance, boundary issues, international scientific cooperation, maritime transportation, economic issues including energy, and environmental protection and conservation that will require increased federal attention to, and actions in, the Chukchi and Beaufort Seas.
- d. **Cumulative Impacts.** All of the expected changes will inevitably have a significant impact on the way of life and culture of the local population; the major concern is that the combination of activities may create unmitigable impacts on subsistence activities.

Needs, Issues and Immediate Actions

Workshop participants were generally in agreement that current knowledge about the region is far from adequate for sound decision making and concurred on the major information and data needs:

- a sound baseline of environmental and ecological conditions on which to base decisions and anticipate likely impacts;
- better understanding of key interactions, both natural and human related; and
- better reporting and forecasts on conditions which impact human activity.

Specific and relatively new coordination mechanisms that could support information and improve collaboration in the immediate future include:

- the AOOS Alaska Marine Information System (AMIS), which is collaborating with the North Slope Science Initiative (NSSI) to develop a common project tracking data base and with the Geographical Information Network for Alaska (GINA) to better support both terrestrial and marine users.
- the NOAA Integrated Service Plan, developed by its Alaska Regional Collaboration Team (ARCTic); and
- the USGS Alaska Regional Science Officer.

Baselines, Syntheses, Processes, and Models

A cursory review of three recent efforts to compile available baseline information on the region indicates some immediate inadequacies, including the lack of long time series (year round and in particular winter data) and some specific trophic, process, and geographic gaps. In the longer term, these documents should be systematically synthesized and evaluated for information gaps, and additional historical data should be mined.

One promising opportunity for improving our baseline knowledge and process understanding is offered by the likely arrival of the Alaska Region Research Vessel within 3–4 years, which could support a series of cruises concentrated on the U.S. Arctic. These efforts should be accompanied by process studies and modeling to enable projections of future conditions and be nested within ongoing global and arctic wide programs.

Organization and Process

The systematic, coordinated effort envisaged by the workshop participants is likely to require the establishment of an oversight committee, scientific steering committee, and specific working groups as needed. AOOS is one possible candidate to coordinate this effort.

Recommendations

Short-term:

Continue communication among workshop participants using existing entities (AMIS, GINA, NSSI, ARCTic, USGS regional science officer) to further coordination, planning, and data sharing; and

Jump-start the process by focusing on several short-term initiatives, including increased information gathering on whale migration patterns and noise issues; increased information on ocean circulation and currents in order to inform possible oil spill trajectories, as well as ecosystem changes; identifying ecological “hot spots”; and further analysis of possible oil and gas operations.

Longer-term:

Explore development of an interagency oversight group and science steering committee to oversee working groups for the following tasks:

- Systematically synthesize existing information on the region and mine historic data; and
- Develop plans to use existing and expected logistics assets to fill geographic, time series, trophic process, and modeling gaps in our knowledge of the region identified by science steering committee.