

# Long Term Planning for Joint Program of Scientific Research and Monitoring Central Arctic Ocean and Adjacent Seas, JPSRM CAO

Report to Pacific Arctic Group Pacific Arctic Group (PAG) Fall Meeting  
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**Note that text is hyperlinked to additional sources of information to keep this report short.**

## Summary

A program of scientific research and monitoring, JPSRM, similar in spirit and organizational approach to the Distributed Biological Observatory, DBO, is in the earliest stage of planning, since April 2015. Under JPSRM nations and institutions working in the arctic would have the opportunity to collaborate on assembling the coherent body of physical, chemical and biological observations and analyses that is essential to support the diplomatic process that is exploring the potential for controlling fishing in the extraterritorial waters of the central arctic. A first step toward implementation has been taken in the initiation this month of an ICES work group on integrated ecosystem assessment of the central Arctic Ocean, WGICA.

## Narrative

The subjects of the report are consistent with the PAG Objective, “ To identify gaps in knowledge and priority research needs across the Pacific Arctic Region and seek means to implement programs and activities that address them.”

The need for the JPSRM CAO was identified at the [Third Meeting](#) of Scientific Experts on Fish Stocks in the Central Arctic Ocean (April 2015). The series of meetings on arctic fish stocks supports international discussions on controlling fishing in the extraterritorial waters of the high arctic, which are known as the central Arctic Ocean. Scientists at the meeting were from Canada, China, Iceland, Japan, Korea, Norway, Russia and the United States. Significant [gaps in knowledge were identified](#) to be lack of quantitative estimates of abundance and distribution in the extraterritorial waters of the central Arctic Ocean and the adjacent territorial waters that are ecologically linked. In addition to observations on individual species that may be subject to harvest (species of interest), ecosystem-based fisheries management, EBFM, requires information to inform understandings of trophodynamics and biophysics. Trophodynamics refers to the interactions of the species of interest with predators and prey species and the food webs in which they function. Biophysics describes the chemical and physical drivers of biological production.

The arctic coastal states concluded [an agreement on control of fishing in the central Arctic Ocean](#) in July 2015. At the GLACIER arctic summit in Anchorage, Alaska (August 2015), US Ambassador David Balton announced on behalf of the United States the intention to expand the reach of the present Agreement by entering into negotiations with all interested nations later in the year. Amb. Balton further announced that the US plans to support the negotiations with a program of scientific research,

including making estimates of fish biomass. The National Oceanic and Atmospheric Administration, NOAA, would be responsible for making biomass estimates and the National Aeronautics and Space Administration, NASA, would administer the research program.

Given the ecosystem-level information requirements and the logistical challenges posed by the objectives of JPSRM, international coordination and cooperation are not only prudent, but essential to the success of JPSRM. Fortunately multiple international efforts that can enable JPSRM have been underway for some time. Within the Arctic Council, the [joint ecosystem approach expert group, EA-EG](#), of the working groups PAME, CAFF and AMAP have fostered an interdisciplinary and international dialog on information requirements for implementing the ecosystem approach to management, including EBFM. The dialog culminated in a workshop on Integrated Ecosystem Assessment, IEA, for the central Arctic Ocean (WKICA) organized by the International Council for the Exploration of the Sea, ICES, and sponsored jointly by PAME, CAFF and AMAP. Based on [the findings of WKICA](#), ICES has initiated a working group (WGICA) to develop the IEA further.

The formation of WGICA creates an international forum on integrated ecosystem in the central arctic that can unite and focus the efforts of Pacific and Atlantic nations. Opportunities for participation in research and monitoring are expected to be available to scientists of all the nations that participate in PAG and ICES. The first meeting of the WGICA is scheduled for May 2016.

### **Recent Developments**

Barbeaux, S., Chris Lunsford et al. (Proposal for longline survey fishing on the Chukchi Plateau.

Carmen David , Benjamin Lange, Thomas Krumpfen, Fokje Schaafsma, Jan Andries van Franeker, Hauke Flores (2015) Under-ice distribution of polar cod *Boreogadus saida* in the central Arctic Ocean and their association with sea-ice habitat properties. Polar Biology pp 1-14 First online: 28 August 2015.