

Arctic Marine Biodiversity Monitoring Plan USA, 2013 Implementation



The [Arctic Marine Biodiversity Monitoring Plan](#) (CBMP-Marine Plan) is the first of four pan-Arctic, long-term, integrated biodiversity monitoring plans produced by the Conservation of Arctic Flora and Fauna (CAFF)'s Circumpolar Biodiversity Monitoring Program. Approved by the Arctic Council in 2011, the Marine Plan integrates existing circumpolar monitoring datasets and models to improve the detection and understanding of changes in Arctic marine biodiversity, and informs policy and management responses to these changes.

Development of the plan was co-led by Norway and the United States and was the result of extensive discussions and consultations involving experts from Arctic coastal nations, Permanent Participants and other Arctic Council working groups. The plan identifies eight Arctic Marine Areas (AMAs) and Focal Ecosystem Components (FECs) to monitor at various trophic levels using specific methodologies, parameters, indicators and sampling designs drawn from existing monitoring capacity (programs), best practices and data.

The CBMP-Marine Plan is designed to provide comprehensive and timely circumpolar information on Arctic marine biodiversity to decision makers. Its implementation is currently co-led by Greenland and Norway.



Sampling benthic ecosystem in the Chukchi Sea during a RUSALCA expedition. Photo: Bodil Bluhm

Top CBMP Marine Priorities in 2013

- Continue collecting, discovering, rescuing, aggregating and integrating existing Arctic marine biodiversity datasets to establish baselines; and contribute to the [Arctic Biodiversity Data Service \(ABDS\)](#)
- Continue to identify and begin reporting on the best indicators of change building on existing monitoring and observation programs
- Continue to explore ways to utilize Traditional Ecological Knowledge
- Encourage participating states to follow up on the CBMP Marine plan by contributing to the monitoring of the plan's focal ecosystem components, indicators, and the analyzing of existing datasets
- Continue to contribute to international and national initiatives, e.g., the annual NOAA Arctic Report Card, Convention on Biological Diversity, Global Biodiversity Outlook, Group on Earth Observations Biodiversity Observing Network, and others.
- Improve and stabilize funding for full participation by all Arctic Council coastal states and Permanent Participants
- Promote the relevance and importance of the CBMP-Marine Plan

Links with National Priorities

The [United States Interagency Arctic Research Policy Committee \(IARPC\)](#) is charged with developing five-year plans for U.S. government funded research in the region.

For the years 2013-2017 The IARPC objectives that match those of the CBMP Marine Plan are:

- Sea ice and marine ecosystem studies
- Observing systems

The U.S.A. will pursue four activities that contribute to the CBMP Marine Plan. They are:

1. Develop a framework of observations and modeling to support forecasting of sea ice extent
2. Identify and study sites in the Beaufort and Chukchi Seas and the contiguous Arctic Ocean where climate feedbacks are active
3. Complete deployment of a Distributed Biological Observatory (DBO) in the U.S. and neighboring Arctic Ocean to create long-term data sets on biological physical and chemical variability and ecosystem response
4. Develop integrated ecosystem processes research in the Beaufort, Chukchi and East Siberian Seas as well as parts of the East Siberian and Pacific Arctic Ocean.

Marine Expert Network Summary of 2013 Achievements

Benthos

In 2013, field work has been carried out in the Chukchi Sea within the Distributed Biological Observatory (the CBMP sentinel stations in U.S. waters). The U.S. Benthic group is pursuing a joint US-Canada Trans-boundary program in the Beaufort Sea. Dr. Iken of the [Benthic Expert Network](#) contributed to the 2013 [Arctic Report Card](#) and will be a participant in the upcoming [RUSALCA](#) synthesis.

Contact: [Dr. Katrin Iken](#)

Plankton

In 2013, the Plankton Expert Network consolidated zooplankton data, with data continuing to be consolidated. Maps of species locations were produced. Prediction probability modeling of zooplankton species in the Arctic was initiated. These data will be put into the [AOOS website](#) in preparation for transfer to the [ABDS](#). Meta-zooplankton species list, which is a legacy of CoML maps, are underway and the genetic library is growing. Parallel efforts are underway for the Pacific Arctic AMA by other funding agencies/industry (several students are working in this activity).

Contact: [Dr. Russell Hopcroft](#)

Sea Ice Biota

At present, no sea ice biota monitoring is taking place in the Arctic. Accumulation of sympagic macrofauna data has progressed considerably. A comprehensive list based on published and unpublished data will be available. The U.S. representative to the [Sea Ice Biota Expert Network](#) has started a compilation of sea ice meiofauna data. Metadata and raw data reside in a single data base at present. In the future the data will be linked to regions of fast ice, drift ice, multi-year ice and annual ice. A goal will be to gather data from gaps in the high Arctic, and a standardization of monitoring approaches is being pursued. In 2013 sampling campaigns off of Barrow, Alaska, U.S.A. collected sea ice biota data which will be analysed. Dr. Bluhm contributed sea ice biota information to the 2013 [Arctic Report Card](#). In addition, University of Alaska student projects on components of ice biota were funded. Various proposals on sea ice biota diversity and time series are pending as are publications on ice biota-related questions.

Contact: [Dr. Bodil Bluhm](#)

Fish

The U.S. continued as a co-lead of the [Fish Expert Network](#). Species composition and distribution data were collected and baseline distributions were determined for the first 100 species out of approximately 245. Data sharing agreements were established. Dr. Mecklenburg published the [pan-Arctic species list of marine and diadromous fishes](#) and contributed to the 2013 [Arctic Report Card](#). Information from traditional knowledge on marine fishes is being gathered. Data are being entered into the Pacific Arctic data Node ([RUSALCA](#)) on the [AOOS website](#) for future CBMP-Marine use.

Contact: [Dr. Catherine Mecklenburg](#)

Seabird

CAFF's [CBird Expert Group](#) acts as the CBMP Marine Seabird Network. Work is ongoing to develop several research projects and strategies to better understand changes in seabird populations.

Contact: [Dr. David Irons](#)

Marine Mammals

Work in 2013 focused on tracking marine mammal information from NOAA, FWS, Alaska State Fish and Game and native communities. In addition abundance estimates are being assessed. Future parameters include harvest, body condition and health information. [Additional information found here](#) and on the [Marine Mammal Expert Network](#) site.

Contact: [Dr. Rosa Meehan](#) and [Dr. Peter Thomas](#)

General

- NOAA will continue to lead the U.S. delegation to the CBMP-Marine Plan in 2014
- NOAA and the Marine Mammal Commission will continue to fund U.S. experts to attend CBMP working group meetings and to process data.
- Baseline distributions of species within each network will be refined.
- The U.S. will continue to fund data management and aggregation for submission to the [ABDS](#).
- The U.S. will continue to coordinate U.S. activities to work with other Arctic country scientists from the expert networks.
- The U.S. will work towards development a Pan-Arctic Atlas of species range extent and changes through space and time.

For more information

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