

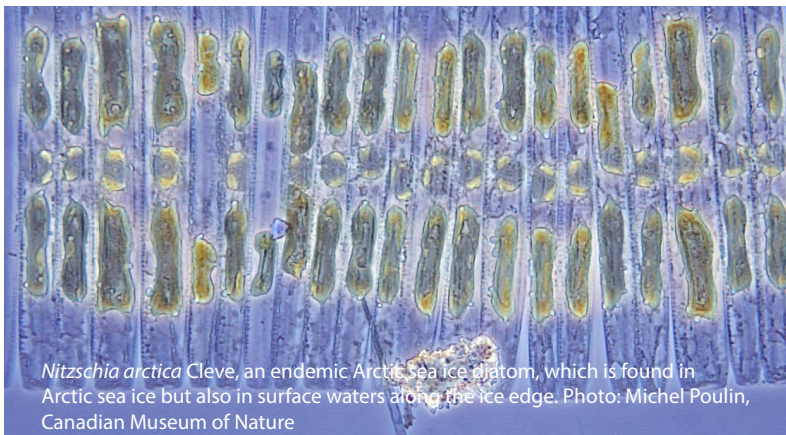
# Arctic Marine Biodiversity Monitoring Plan Implementation: Canada, 2014



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 Norway and Russia.



*Nitzschia arctica* Cleve, an endemic Arctic sea ice diatom, which is found in Arctic sea ice but also in surface waters along the ice edge. Photo: Michel Poulin, Canadian Museum of Nature

## Top CBMP Marine Priorities in 2015

- Continue collecting, discovering, rescuing, aggregating and integrating existing Arctic marine biodiversity datasets to establish baselines; and contribute to the [Arctic Biodiversity Data Service](#).
- Begin reporting on the best indicators of change building on existing monitoring and observation programs – start editing *State of the Arctic Marine Biodiversity* report
- Continue to explore ways to utilize Traditional Ecological Knowledge
- Encourage participating countries 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., 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

Responsible resource development and sound environmental stewardship depend on a scientifically defensible knowledge base. [Fisheries and Oceans Canada \(DFO\)](#) leads Canada's participation in the Marine Plan, which supports [Canada's Arctic Foreign Policy](#), the [Northern Strategy](#), and priorities identified by northerners. The Marine Plan makes use of existing science and traditional knowledge on marine mammals, seabirds, fish, plankton, benthos and sea-ice biota, and is closely tied to national conservation and ecosystem-based management practices, such as those applied in the [Tarium Nirjutait Marine Protected Area](#), in the Inuvialuit Settlement Region.

The CBMP-Marine Plan also contributes to DFO's efforts to protect corals and sponges in Baffin Bay and to identify ecologically and biologically sensitive areas (EBSAs) within and outside of our Exclusive Economic Zone. All CBMP plans (Marine, Terrestrial, Freshwater and Coastal) are contributing to the [Canadian High Arctic Research Station's](#) science initiatives.

The Marine Plan shares common indicators with the [Canadian Northern Contaminants Program \(NCP\)](#), which examines contaminant levels, trends and effects in marine ecosystems, and conducts annual monitoring of key focal ecosystem components.

# Marine Expert Network Summary of 2014 Achievements

## Sea Ice Biota (contact: [Michel Poulin](#))

- Ongoing validation of species nomenclature of ice algae (and phytoplankton)
- Published numerous papers including chapter on biodiversity and biogeography of lower trophic taxa; large omega-3 rich, pelagic diatoms under Arctic sea ice; biological and physical processes affecting sea ice, under-ice algae and dimethylsulphoniopropionate in spring

## Plankton (contact: [Connie Lovejoy](#))

- Extended coverage on taxonomic makeup and distribution of microbes; analyzed archived specimens
- Conducted literature searches for phytoplankton species records; contributed to zooplankton distribution maps
- Tested indicator species, species ratios, suitable for monitoring change
- Created teaching materials concerning microbial plankton diversity and ecology
- Produced primary publications

## Benthos (contact: [Philippe Archambault](#))

- Established benthic monitoring sites in an area closed to fishing
- Assessed abundance and species richness for areas near bird colonies
- Assessed diversity and abundance of organisms
- Explored deep cold water coral and sponge
- Predicting high risk aquatic invasive species and geographic locations
- Contributed to chapters of the UN World Oceans Assessment and to the ArcticNet Integrated Regional Impact Study

## Fish (contact: [Kevin Hedges](#))

- Rescued legacy data on marine fishes; aggregated existing data on fish species distributions
- Surveyed benthic and pelagic marine fish biodiversity
- Examined genetic population structure, movement and habitat use, food web structure and predator-prey interactions
- Assessed interannual variability in Arctic Cod biomass distribution
- Co-authored manuscripts regarding environmental and biotic trends, fish ecology
- Contributed to assessments of Marine Protected Areas, and Ecologically and Biologically Significant Areas

## Seabirds (contact: [Amie Black](#))

- Conducted at-sea surveys; surveyed nesting eiders to determine population trends and habitat use
- Studied foraging behaviour of Thick-billed Murres
- Collected Thick-billed Murre and Northern Fulmar eggs for contaminants analysis
- Monitored seabird populations
- Investigating distribution and habitat use of Ivory Gulls
- Contributed to Circumpolar Flyway of CAFF's [Arctic Migratory Birds Initiative](#)

## Marine Mammals (contact: [Steve Ferguson](#))

- Rescued data on historical marine mammal surveys and catch statistics
- Initiated beluga harvest history database
- Identified format for integrating marine mammal abundance data with the [ABDS](#)
- Developed community-based monitoring program in Nunavut for ice seals
- Archiving and disseminating historical marine mammal tissue samples and database
- Summarized catches on abundance and biological parameters of harp and hooded seals, and assessed NW Atlantic harp seals
- Submitted manuscript summarizing historical marine mammal (narwhal, beluga, bowhead, walrus, seals) abundances
- Published marine mammal paper for Arctic Biodiversity Assessment (ABA); paper on the impact of poor ice on mortality of NW Atlantic harp seals
- Conducted polar bear population surveys; assessed body condition
- Collected and disseminated samples for polar bear diet, contaminants, genetics and health studies

## General

- Participated in implementation, led by DFO and supported by other departments, academia, Inuit organizations, and wildlife management boards
- Funded Canadian participation: \$48K
- Produced [Canadian Arctic Marine Biodiversity Plan 2014-2017](#), with contributions from each contact above
- Provided secretariat support

## For more information

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