

# AOR

## Arctic Ocean Review Final Report

Executive Summary with Recommendations

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**PAME**  
Protection of the Arctic Marine Environment



ARCTIC COUNCIL

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# AOR

ARCTIC OCEAN REVIEW  
PROJECT  
2009-2013

## **Final Report**

## **Executive Summary with Recommendations**





## Executive Summary

Arctic marine areas are vital components in the regulation of global climate and an important source of nutrition, income and cultural identity for Arctic peoples and communities.

Existing and new research and observations indicate sustained alterations in the Arctic, in particular marine ecosystems. As emphasized in many Arctic Council reports and Declarations, the Arctic marine environment continues to experience significant changes, along with numerous accompanying social and economic changes.

In 2012 alone, a new minimum for the extent of Arctic sea ice was set in September, eclipsing the dramatic previous new low set only five years before in 2007; the sea surface temperature on the ice margins continued to exceed the long-term average; the Greenland ice sheet experienced melting over some 97 per cent of its expanse in a single day; and massive phytoplankton blooms were measured below the Arctic summer sea ice, an indication that biological production may be lower than originally estimated. The reduction in sea ice extent bears emphasis:



the last six years, 2007-2012, have produced the “six lowest sea ice minimum extents since satellite observations began in 1979” (Perovich et al. 2012).

Growing interest in the Arctic marine environment with respect to industrial development, shipping, oil and gas activities, commercial fishing, tourism and other marine activities, has an effect on the marine environment itself. These activities also have potential effects on the livelihoods of local inhabitants and indigenous communities, with both positive and negative consequences. Increased activity brings increased risk of adverse impact, whether through incremental or cumulative pressures from additional pollution loads or from acute accidental events.

An extensive framework of international, regional and national instruments, measures and arrangements already applies in Arctic marine areas. The Arctic states are committed to responsible governance for the conservation and sustainable use of the Arctic marine environment, and are taking practical steps to implement and strengthen these instruments, measures and arrangements as access to, and use of, Arctic marine areas increase.

The Arctic Council is an important forum that enables the Arctic states to keep abreast of changing circumstances in Arctic marine areas and to continue to take cooperative action. This cooperation includes collaborative research and assessments, collection and timely exchange of information, scientific data and analyses, and encouraging other competent entities, such as the International Maritime Organization, to strengthen existing instruments and develop new instruments.

Arctic Council Ministers initiated the Arctic Ocean Review (AOR) project in 2009 under the leadership of the PAME working group to provide guidance to the Council on possible ways to strengthen governance, and to achieve desired environmental, economic and socio-cultural outcomes in the Arctic through a cooperative, coordinated and integrated approach to the management of activities in the Arctic marine environment. Consistent with the Arctic Marine Strategic Plan (AMSP 2004), the AOR project constitutes a periodic review of potential opportunities and options to strengthen global and regional instruments, measures and arrangements in order to manage activities in the Arctic marine environment within respective sectors.

The AOR project reviewed instruments, measures and arrangements in two phases. The AOR Phase I Report (AOR-I), tabled with Arctic Council Ministers in 2011,

identified international and regional instruments relevant to the management of activities in the Arctic marine environment. Building on the AOR-I, this AOR Final Report, by agreement of the Arctic states, focuses on three cross-cutting themes: *Indigenous Peoples and Cultures* (Ch.2), *Ecosystem-based Management* (Ch. 7) and *Arctic Marine Science* (Ch.8). In addition, four sectors are examined: *Arctic Marine Operations and Shipping* (Ch.3), *Marine Living Resources* (Ch.4), *Arctic Offshore Oil and Gas* (Ch.5), and *Arctic Marine Pollution* (Ch.6). Arctic marine tourism is discussed in Chapter 3 on *Arctic Marine Operations and Shipping*.

These cross-cutting and sectoral chapters analyze some, but not all, instruments to identify opportunities and tools that Arctic states could use to strengthen governance for the conservation and sustainable use of the Arctic marine environment. Each chapter identifies opportunities for consideration of the Arctic Council. While numerous opportunities are identified, these do not necessarily constitute a comprehensive, all-inclusive list. Key recommendations for consideration by the Arctic Council appear in Chapter 9. These recommendations were developed by considering the full range of opportunities for action that appear at the end of each chapter and, from that broader range of opportunities, the selection and modification of the most important and timely actions.

Notably, this AOR Final Report acknowledges the important role that Permanent Participants and other Arctic residents must play to identify and promote effective management models that enable inclusion of traditional and local knowledge, as well as the engagement of Arctic communities in decision-making processes for marine development and sustainable resource management.

In addition, the AOR Final Report recognizes that continued scientific cooperation and coordination are essential components in the effective management of activities in the Arctic marine environment. Increasing linkages among relevant scientific organizations, improving infrastructure and research platforms, and facilitating the gathering and exchange of information under relevant agreements will be necessary to inform ecosystem approaches to management.

Ecosystem-based management (EBM) provides a coordinated and integrated approach, and has been recognized to achieve all four goals of the Arctic Marine Strategic Plan (AMSP 2004), namely: reduce and prevent pollution in the Arctic marine environment; conserve



Arctic marine biodiversity and ecosystem functions; promote the health and prosperity of all Arctic inhabitants; and advance sustainable Arctic marine resource use.

The AOR Final Report recognizes that some types of opportunities, for example those related to knowledge development and dissemination, are qualitatively different from actions to amend or create new legal instruments. Similarly, institutional coordination, investments in infrastructure, and improved instrument implementation and compliance efforts, also require qualitatively different processes and means to implement. Highlighting this range of functional options allows policy makers to tailor each opportunity to the problem it is designed to address. The five functional categories observed in this AOR Final Report are:

- ✓ *Coordination across Institutions*
- ✓ *Cooperation on Knowledge*
- ✓ *Adjusting Existing Instruments*
- ✓ *Improving Implementation and Compliance; and*
- ✓ *Investing in Infrastructure.*

five opportunities for cooperative actions recur across chapters:

- ✓ Finalizing and implementing the Polar Code;
- ✓ Addressing Special, Protected or Critical Areas;
- ✓ Better monitoring of the Arctic marine environment;
- ✓ Increasing understanding of the Cumulative Effects; and
- ✓ Implementing Ecosystem-based Management to address stressors in an integrated manner.

The recommendations of this AOR Final Report are outlined below:

## Recommendations

The following recommendations are considered important actions in light of the dynamic changes occurring in the Arctic marine environment.

### *Chapter 2: Indigenous Peoples and Cultures*

- (1) The Arctic states in cooperation with the Arctic Council should assist, as appropriate, the Permanent Participants with the documentation of current and historical a) timing and geographical extent of local uses of the marine environment, and b) levels of traditional marine resources harvests, taking into

account the differing documentation needs and capacities of Arctic states.

- (2) The Arctic states should work with Arctic residents to identify and promote effective models for enabling inclusion of traditional knowledge and input into decision-making processes for marine development and sustainable resource management.

### *Chapter 3: Arctic Marine Operations and Shipping*

- (3) The Arctic states should support work at the IMO and other international organizations with recognized competence to promote and advance safe, secure, reliable and environmentally sound shipping, including through: timely completion and implementation of the Polar Code; efforts regarding training requirements for officers and crew of ships operating in polar waters; adoption as appropriate of ship routing and reporting measures (including vessel traffic services); and discussions regarding enhancement of weather and ice forecasting and nautical charts to aid navigation. Arctic states should also encourage ratification to enable entry into force and implementation of the Ballast Water Management Convention and research into ballast water management systems that are effective in colder settings of polar regions.
- (4) Arctic states should explore the possibility of developing voluntary guidelines and, if appropriate, best practices in implementing such guidelines for sustainable tourism. Moreover, that the role the cruise industry plays in facilitating tourism in the region and the impacts of this industry on Arctic peoples, ecosystems and the environment should be acknowledged. The Arctic Council should also give consideration towards the development of a broader sustainable tourism initiative.
- (5) Arctic states should explore, within an appropriate time after the mandatory Polar Code has been adopted, collaborative approaches to encourage effective implementation of any future related IMO measures for the Arctic, including the possible development at IMO of port state control guidelines and/or initiatives within existing port state arrangements.
- (6) Arctic states should support ongoing work at the IMO to address black carbon emissions from international shipping in Arctic waters including considering amendments to MARPOL or other IMO instrument.



- (7) Arctic states could consider approaches, including at IMO, to address safety and environmental concerns with respect to other types of vessels that, due to their size, routes, and nature of activity, may not be subject to the Polar Code.

#### **Chapter 4: Marine Living Resources**

##### **Part A: Fisheries Resources**

- (8) Fisheries resources should be managed in accordance with the law of the sea, relevant fisheries agreements and modern principles of fisheries management, including the precautionary and ecosystem approaches, also being mindful of the interests of the indigenous peoples of the Arctic.
- (9) Fisheries resources should be managed based on the best scientific knowledge available, and necessary scientific understanding should be enhanced, including on changes in fish stocks.
- (10) Fisheries resources in areas beyond national jurisdiction should be managed based on cooperation in accordance with international law to ensure long term sustainability of fish stocks and ecosystems.

##### **Part B: Marine Mammals and Seabirds**

- (11) The Arctic Council should increase collaboration with IMO, IWC and NAMMCO for information sharing and cooperation between their respective working groups and sub-groups on cetacean-related issues such as ocean noise and ship strikes and consider Ecosystem-based Management (EBM). Additionally, Arctic states should consider taking more proactive efforts in the IMO, IWC and NAMMCO on these issues such as by contributing to the IWC ship strike database.
- (12) Arctic states, to the extent practicable, should continue to create and/or share seabird and marine mammal density and distribution maps, including through common databases such as the National Oceanic and Atmospheric Administration (NOAA) CetMap for Cetaceans (<http://cetsound.noaa.gov/index.html>) and CAFF's CBird online tools for timely tracking of seabird populations ([www.caff.is/seabirds-cbird/seabird-information-network](http://www.caff.is/seabirds-cbird/seabird-information-network)).
- (13) Arctic states should advance conservation of Arctic marine ecosystems by considering management measures in ecologically significant areas of the Arctic Ocean that Arctic states might pursue at the

IMO, building on the results of the AMSA Recommendation II(D) Report on Specially Designated Arctic Marine Areas.

#### **Chapter 5: Arctic Offshore Oil and Gas**

- (14) The Arctic Council should urge its members to support, as appropriate, efforts in the ISO and other processes to develop standards relevant to Arctic oil and gas operations.
- (15) Arctic states should move toward circumpolar policy harmonization in discrete sectors such as, e.g., environmental monitoring based on existing studies such as the Arctic Council's Arctic Offshore Oil and Gas Guidelines and the EPPR Recommended Prevention Practices report.
- (16) Arctic Council should promote interactions with the appropriate international treaty bodies on offshore oil and gas issues that address for example discharges, oil spill preparedness and response, and environmental monitoring. This could include coordinating information exchange on reporting, monitoring, assessment and/or other requirements under relevant entities, encouraging inclusion of science and traditional knowledge, and keeping abreast of Arctic-specific developments relevant to the appropriate instruments.
- (17) Arctic states should further engage industry and regulator involvement, as appropriate, in PAME and EPPR initiatives on offshore oil and gas activity by utilizing existing industry forums, or by convening an Arctic-specific oil and gas dialog for industry and contractor groups.

#### **Chapter 6: Arctic Marine Pollution**

- (18) Arctic states should continue to identify, monitor and assess the combined effects of multiple stressors – inter alia climate change, ocean acidification, shipping, living marine resource use, regional and long-range pollution, and offshore oil and gas exploration and extraction – on Arctic marine species and ecosystems. Support the ongoing work under EBM, AMAP and CAFF including the initiative "Adaptation Actions for a Changing Arctic" to achieve this endeavor and strengthen the link between the current known status and future management of Arctic marine species and ecosystems.



(19) Arctic states should reaffirm the importance of their engagement in the UNFCCC to reduce global greenhouse gas emissions as a matter of urgency, recognizing the significant potential threats posed to Arctic marine ecosystems and Arctic biodiversity from climate change and ocean acidification identified by AMAP and CAFF. Arctic states should also increase their leadership role in the study of ocean acidification in Arctic waters

### **Chapter 7: Ecosystem-based Management in the Arctic**

(20) Arctic states should recognize, in accordance with the recommendations from the Arctic Council EBM Expert Group and the PAME lead Ecosystem Approach expert group, the importance of the following elements when implementing marine Ecosystem-based Management in the Arctic Council Working Groups: identification of the ecosystem, description of the ecosystem, setting ecological objectives, assessing the ecosystem, valuing the ecosystem and managing human activities.

(21) The Arctic Council should promote common understanding and the mutual exchange of lessons learned by periodically convening Arctic Council-wide meetings on EBM to:

- ✓ share knowledge and experiences with respect to management and science across Large Marine Ecosystems; and
- ✓ review information on integrated assessments.

### **Chapter 8: Arctic Marine Science**

(22) The Arctic states should promote coordination and collaboration in providing for access to marine

scientific research in their marine areas, and the Arctic states should consider developing an Arctic science instrument, inter alia, to facilitate marine scientific cooperation and promote data sharing

(23) The Arctic Council could consider directing its working groups to collaborate to developing a list of research gaps and priorities, taking into account the knowledge and process needs for the Arctic EBM intersessional document as well as key global and regional instruments.

(24) The Arctic states should improve scientific cooperation and coordination by increasing linkages with relevant organizations, sharing infrastructure and platforms, and facilitating the gathering and exchange of information under relevant agreements. The improvements could be supported by:

- ✓ developing a network map that identifies the relationships of research/science organizations and governance organizations to Arctic-relevant instruments;
- ✓ building on science, local and traditional knowledge, and other information gathered to fulfill reporting or assessment obligations;
- ✓ informing ecosystem based management approaches;
- ✓ improving communication between science and policy arms of existing treaties; and, moving toward coordinated assessment, monitoring, and reporting, where appropriate; and
- ✓ improving data and information management, interoperability and accessibility through mechanisms such as the Arctic Spatial Data Infrastructure and the Sustained Arctic Operating Network (SAON).

Note to Reader: The descriptions in this report of international law, including as reflected in the 1982 Law of the Sea Convention, as well as other instruments, measures, and arrangements, are not intended to constitute interpretations by the Arctic Council, its working groups, or Arctic states.











# PAME

Protection of the Arctic Marine Environment

Borgir, Nordurslod / 600 Akureyri / ICELAND

Tel: +354 461 1355 / Fax: +354 462 3390

Email: [pame@pame.is](mailto:pame@pame.is) / Homepage: [www.pame.is](http://www.pame.is)