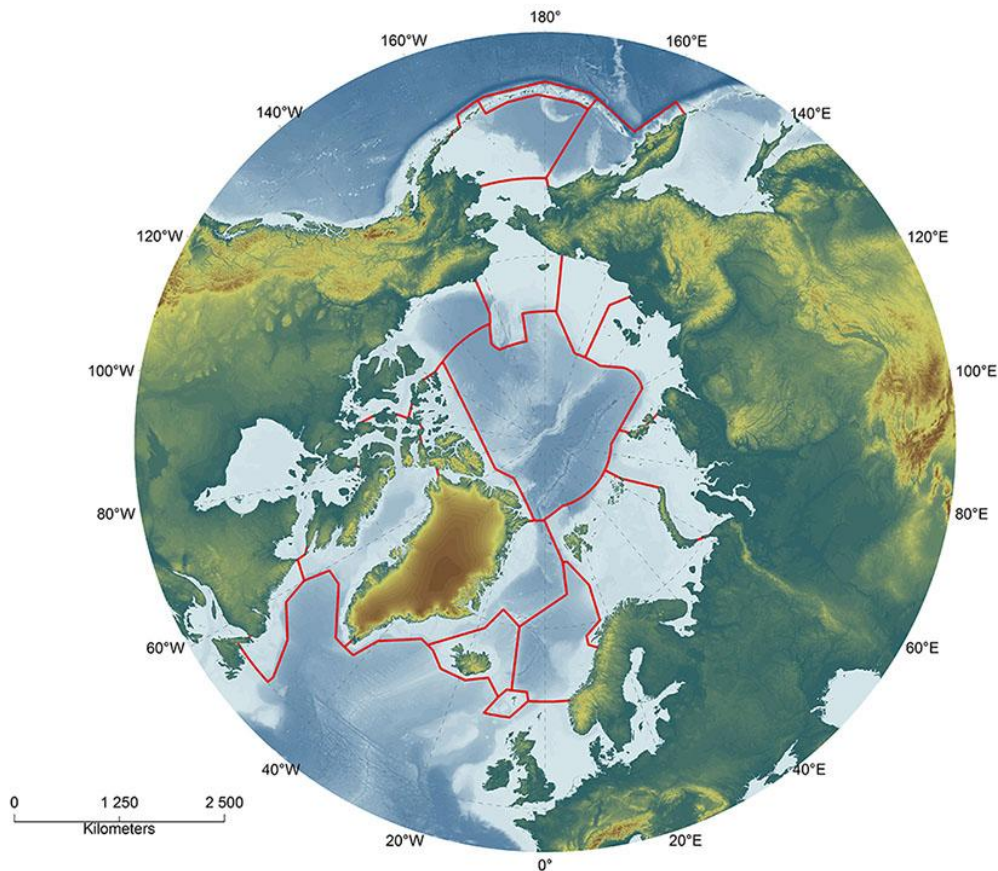


# PAME-led Joint Group of Experts on the Ecosystem Approach to Management

## Terms of Reference

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Map of the 18 Arctic Large Marine Ecosystems (LMEs)

## Background

The Arctic Council (AC) adopted in 2004 the Arctic Marine Strategic Plan (AMSP) which had the ecosystem approach to management (EA) as a core principle. One of the strategic actions (7.4.1) was to identify the Large Marine Ecosystems (LMEs) of the Arctic, and PAME developed a working map of 17 Arctic LMEs which was adopted by the Arctic Council in 2006. The map was revised during the 2011-2013 period to include 18 Arctic LMEs. [The revised map](#) was approved by the Arctic Council in May 2013.

PAME established in 2007 an expert group (EG) on the Ecosystem Approach to marine management (EA, or the equivalent term Ecosystem-based management, EBM) co-lead by the USA and Norway with work activities identified in PAMEs biennial work plans. The revision of the Arctic LME map was done under this EG.

With reference to the PAME Work Plan 2011-2013 and the EA work, PAME was given the mandate to broaden the scope and membership of its EA EG. PAME extended its invitation to the other Arctic Council working groups dealing with marine-related issues to participate in this work in 2011. The rationale for extending the PAME EA-EG was based on increased emphasis on the EA as the foundation of the Arctic Council's work and the essential need to apply the EA to manage Arctic marine-related issues. PAME agreed in 2011 to a Terms of Reference for the EA-EG as a basis for the Work Plan for 2011-2013. The EA Work Plan was revised as part of the PAME Work Plan for 2013-2015.

In addition to revision of the LME map, the EA-EG has produced an EA concept paper and considered various aspects of Integrated Ecosystem Assessment (IEA) as a key component of the EA. The EA-EG has arranged four workshops as part of its work (Tromsø, Norway, January 2011; Stockholm, Sweden, March 2012; Reykjavik, Iceland, June 2013; and Vancouver, Canada, June 2014). Reports from these workshops as well as progress reports on the EA work are available at the PAME webpage (<http://pame.is/index.php/projects/ecosystem-approach>).

The Arctic Council established in 2011 an Expert Group on Ecosystem-based Management (EBM) which delivered their report back to ministers at the meeting in 2013. One of the recommendations of the EBM Expert Group which was adopted by the Arctic Council in May 2013 in Kiruna was to: *"Identify a lead to assure coordination of a common approach to the work of the Arctic Council on EBM in the Arctic and ensure appropriate reporting of progress to the Senior Arctic Officials"*.

The revised ToR for the EA-EG is developed in response to this and other marine-specific recommendations of the EBM Expert Group (refer to Annex I). The joint EA-EG with participation of relevant AC working groups is well suited to serve as a coordination mechanism to facilitate exchange of information and experiences gained and to ensure a common and coordinated approach to the implementation of the EA by Arctic states, involving other relevant stakeholders as appropriate. Generally, the joint EA-EG will deal with issues related to the implementation of the EA based on the identified LMEs, recognizing the need to integrate across different spatial scales, both smaller and larger.

### Tasks of the EA Expert Group

The members of the EA expert group are nominated by AC member states, working groups and permanent participants.

The EA expert group will consider scientific and technical aspects related to the implementation of the EA to the management of the Arctic LMEs and contribute to ongoing Arctic Council projects of relevance.

The EA concept paper describes a framework for implementation of the EA with 6 main elements:

1. identify the ecosystem (LMEs),
2. describe the ecosystem,
3. set ecological objectives,
4. assess the ecosystem (Integrated Ecosystem Assessment - IEA),
5. value the ecosystem, and
6. manage human activities in an adaptive manner.

This framework and elements frame the scope of work for the EA-EG. The main focus of the work will be on elements 3 (ecological objectives), 4 (IEA), and 5 (valuation).

Regarding the first element, *identify the ecosystem*, we have completed the assigned task of identifying the Arctic LMEs, which form the starting point for management and management cooperation in the case of transboundary LMEs. However, significant ongoing issues related to integration and differentiation of spatial scales will need to be addressed. For example is the important matter of how to integrate issues and results of work at the scale of LMEs to address the larger, pan-Arctic scale, and *vice versa*.

Regarding the second element, *describe the ecosystem*, there is a large body of information and many descriptions of the Arctic marine ecosystems including the recent Arctic Biodiversity Assessment (ABA) by CAFF. As part of the Assessment of Oil and Gas Activities in the Arctic (OGA), AMAP has produced extensive descriptions of each of the Arctic LMEs including detailed information on species of fish, birds and mammals. There is a need to consider and clarify how existing and emerging descriptions of Arctic marine ecosystems can be applied in the context of the EA, for instance in relation to conducting IEAs.

The third element, *setting ecological objectives*, provides an important component of the EA, defining in practical terms sustainability in relation to the extent of human use of natural resources and associated environmental impacts. There is a need to compare ongoing efforts to set regional and national ecological objectives in order to support development of transboundary ecological objectives. The work of the International Council for Exploration of the Sea (ICES) is expected to make important contributions to identifying and applying ecological objectives in the EA.

The fourth element, *assess the ecosystem, or Integrated Ecosystem Assessment (IEA)*, is essential to implement EA. There is a need to continue work to better understand regional and national approaches to the basic methodology for conducting an IEA, as well as promoting and facilitating the actual production of IEAs for the various Arctic LMEs. The state of development toward IEA is quite different across the Arctic, being reasonably well developed in some of the boreal and sub-Arctic areas where there are large fisheries (e.g. Barents and Bering seas), and being less well developed in some of the high Arctic LMEs (e.g. Beaufort and Kara seas) that lack large fisheries. A specific issue to consider is the relationship of IEA to other types of environmental assessments, such as Environmental Impact Assessments (EIAs), and how such assessments can support the work on IEA for specific LMEs. A related issue is how to coordinate and integrate across assessments carried out for various purposes both outside the Arctic Council (e.g. fish stock assessments) and by working groups inside the

Arctic Council (e.g. AMAP AACA-C project). Collaboration with ICES will be sought to further advance international understandings on IEA.

The fifth element, *valuing ecosystem goods and services*, provides an essential link between the natural ecosystem (of which man is part) and the human subsystem with its cultural, social and economic aspects. There is a need to further develop and use methodology for valuing ecosystem services and to integrate this aspect into IEA in its fully integrated form (including socio-economic information from societal drivers to response).

The final element, the *adaptive management of human activities* that is implemented by the Arctic States, needs ultimately to be based on comprehensive IEAs on the geographic scale of LMEs, which may require transboundary cooperation. IEAs identify management actions and interventions that are necessary to achieve the overarching goals of sustainable use of resources and conservation of biodiversity that are expressed by operational ecological objectives. Adaptive management of human activities requires practical scientific advice based on the outcome of the IEA process. Such practical scientific advice serves as the basis for decision-making that allow managers to achieve specific management objectives in an ecosystem context. ICES has a long history of providing scientific advice to management in an international context, making it a relevant and important partner for the work on this topic.

The issues and needs identified above for the 6 elements of implementation of the EA will form the basis for the more detailed work plans for the EA-EG to be developed by PAME in collaboration with the other Arctic Council working groups as relevant.

These may include:

- ✓ List/assess the elements of monitoring needed in EA
- ✓ Contribute to development of ecological objectives as part of the EA.
- ✓ Consider issues of scale in EA such as linking the specific ecosystem (LME) scale with the wider pan-Arctic (and global) scale(s).
- ✓ Contribute to the revision of the Arctic Marine Strategic Plan (AMSP).
- ✓ Develop areas of cooperation on EA and IEA with ICES.
- ✓ Support development of a bibliographic resource that identified key works in EA and IEA.
- ✓ Support development of a network of experts (community of practice) working to implement EA in the Arctic.
- ✓ Report to PAME WG about status, progress, any obstacles and if necessary propose adjustments to the process
- ✓ Adjust the project according to decisions made by PAME WG
- ✓ Convening of workshops

### **EA Expert Group co-chairs**

The EA co-chairs are nominated for the period as defined by the EA work plan (2013-2015).

The co-chairs are the principal individuals who guide the EA work, follow-up on the decisions made by PAME WG, including development of EA work plans. The co-chairs call and chair EA meetings and workshops. The co-chairs are primarily responsible for the conduct of EA work, developing an equitable division of work among EA expert group members.

A list of members of the expert group which needs updating is attached in Annex II.

## Annex I – EBM Expert Group Recommendations (2013)-PAME response Jan 2014

[NEEDS UPDATING]

### POLICY AND IMPLEMENTATION

Advancing further EBM efforts across the Arctic will build upon existing EBM implementation and involve transboundary and sub-national or regional arrangements, integrated approaches, shared goals, and consideration of traditional knowledge as appropriate. The Expert Group on Arctic EBM recommends the following actions:

- ✓ *Develop an overarching Arctic EBM goal, derived from established Arctic Council goals and visions, and provide guidance on how to develop and operationalize objectives supporting this goal.*

PAME RESPONSE: This is not an appropriate task for the Ecosystem-Approach Experts Group / PAME working alone. Must be collaborative.

- ✓ *Explore ways in which Arctic States can cooperate to advance conservation and management of biologically, ecologically, and culturally significant areas.*

PAME RESPONSE: Already addressing this with PAME's work on LMEs. In addition, workshop on EBSA coming up through the CBD.

- ✓ *Develop and adopt a policy and best practices for incorporating traditional knowledge into EBM activities as appropriate.*

PAME RESPONSE: Seems like a better fit for SDWG, but PAME is of course exploring this within its work.

- ✓ *Encourage initiatives between two or more Arctic States to advance implementation of EBM in the Arctic and demonstrate how knowledge is collected, shared, processed and used to contribute to EBM in the Arctic.*

PAME RESPONSE: The Ecosystem-Approach Experts Group has its fourth workshop coming up in spring for the Beaufort LME. Also there is the pilot study of the Norwegian-Russian joint management of the Barents.

- ✓ *Review, update and adjust the Observed Best Practices in Ecosystem-based Ocean Management in the Arctic, endorsed by the 2009 Arctic Council Ministerial, to be applicable to all environments, including marine, coastal and terrestrial.*

PAME RESPONSE: Appropriate task for PAME, with terrestrial extension covered by CAFF.

### INSTITUTIONAL

Recognizing the important ongoing EBM work within the Arctic Council, particularly in the marine environment, sustaining and strengthening EBM will require building greater coordination and integration capacity across the Arctic Council and taking steps to further advance EBM in terrestrial environments. The Expert Group on Arctic EBM recommends the following actions:

- ✓ *Identify a lead to assure coordination of a common approach to the work of the Arctic Council on EBM in the Arctic and ensure appropriate reporting of progress to the Senior Arctic Officials.*

PAME RESPONSE: This makes sense as an assignment for the Ecosystem-Approach Expert Group, which could collect info from the states and assess whether there is a need for common guidelines.

- ✓ *Institute periodic Arctic Council reviews of EBM in the Arctic to exchange information on integrated ecosystem assessment and management experiences, including highlighting examples from Arctic States.*

PAME RESPONSE: This reporting could be funneled through the Ecosystem-Approach Expert Group, with PAME focused on marine and CAFF/AMAP focused on terrestrial.

## SCIENCE AND INFORMATION

Advancing Arctic EBM will require the identification of important coastal, marine, and terrestrial areas, improved data comparability and compatibility, enhanced information exchange and monitoring, and improvements in the development and use of integrated ecosystem assessments. In order to achieve this, the Expert Group on Arctic EBM recommends the following actions:

- ✓ *Encourage the use of the revised map of 17 Large Marine Ecosystems as the oceans management unit to implement EBM in the Arctic; and explore the development of terrestrial assessment units (landscape equivalents to LMEs) based upon ecological criteria or existing eco-regions.*

PAME RESPONSE: The revised map has been delivered with 18 Arctic LMEs; next step is to encourage use by AMAP and CAFF and use the revised map as a basis for work.

- ✓ *Identify biologically, ecologically, and culturally significant areas in the coastal, marine and terrestrial environments, and consider EBM-related needs for these areas. Identify the coastal, marine and terrestrial areas most vulnerable to human impacts.*

PAME RESPONSE: Ties in with the second bullet. The AMSA IIC is done, and someone is needed to take over the terrestrial and, to a lesser extent, coastal sections.

- ✓ *Assess the value of significant Arctic ecosystem services relevant to the well-being of local communities and regional economies and ecosystem services, and those of particular global significance.*

PAME RESPONSE: This is mostly appropriate for SDWG. The AACA will address this goal as well.

- ✓ *Enhance access to, and use of, the multidisciplinary data required for the implementation of EBM by building upon ongoing work in the Arctic Council to contribute to an Arctic Council data portal.*

PAME RESPONSE: As part of the next bullet, PAME is looking into the data issue for the Barents, Beaufort, etc.... the regional level. There are many obstacles. In many ways, the AC is already addressing this with its existing data portals, and gathering experience from smaller-scale portals rather than plunging in to making a huge one is wise.

- ✓ *Exchange information and experiences with integrated ecosystem assessments of ecosystem status, trends and pressures for coastal, marine, and terrestrial areas and provide guidance on approaches for integrating existing assessments.*

PAME RESPONSE: This is the focal activity of the Ecosystem-Approach Expert Group.

**Annex II - Nominated experts by Member States, PPs and working groups 2013-2015**

[LIST NEEDS UPDATING]

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