

## **PAME II-2018: Agenda 8.1 and Agenda 8.4**

### **Joint Group of Experts on the Ecosystem Approach to Management**

### **Progress Report for the period autumn 2017 – autumn 2018**

*Prepared for PAME II-2018, AMAP, CAFF, and SDWG by the EA co-leads*

#### **Background**

PAME established an expert group on the Ecosystem Approach to Management (the EA-EG) in 2007. This was broadened in 2011 to become a PAME-led joint expert group with participation also of other Arctic Council working groups (AMAP, CAFF and SDWG). Norway and USA are co-lead countries for the theme 'Ecosystem Approach to management' (EA) under PAME.

The EA-EG has held 6 workshops and one conference on various aspects of the Ecosystem Approach to management (EA) in the Arctic between 2011 and 2016. Progress reports on the work have been prepared regularly. The group prepared a progress report for the 2015-2017 work plan period, and a report on 'Status of implementation of the Ecosystem Approach to management in the Arctic', by the end of the U.S. chairmanship in spring 2017.

The various reports prepared by the EA-EG as referred to above are available at the PAME webpage under the Ecosystem Approach topic.

We report here on the progress of EA work during the first part of the 2017-2019 work plan. An oral report was given to PAME I-2018 including results from the 6<sup>th</sup> EA workshop held in January 2018. We include this part also here to have a written record of the progress of the various items of the current work plan.

#### **2017-2019 Work Plan**

The EA work is part of the PAME Work Plan 2017-2019 under the item AMSP (Arctic Marine Strategic Plan) Goal 2: Conserve and protect ecosystem function and marine biodiversity to enhance resilience and the provision of ecosystem services. The EA work plan is included in Annex 1 and contains four elements:

1. Prepare guidelines addressing EA/EBM implementation in Arctic (marine) ecosystems.
2. Hold the 6<sup>th</sup> EA workshop.
3. Hold a 2<sup>nd</sup> International EA Conference.
4. Integrated Ecosystem Assessment and ICES/PICES/PAME WGICA for the central Arctic Ocean.

#### **Prepare EA guidelines**

The Arctic Council Ministers in the Iqaluit Declaration in 2015, and again in the Fairbanks Declaration in May 2017, requested and encouraged the development of practical guidelines for implementing an ecosystem approach to management in the Arctic. The request for EA guidelines was placed as the main item on the 2017-2019 work plan for the EA-EG.

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The work to develop guidelines was started with the preparation and conduct of the 6<sup>th</sup> EA workshop held in January 2018 in Seattle (see next item for more details). The outcome of the workshop was reported to PAME I-2018 in Quebec City in February where a more detailed plan of work was agreed as part of the Record of Decisions for developing guidelines for implementing EA to management in the Arctic following the six-element EA framework.

The co-leads have prepared a first draft set of guidelines based on the EA framework. The draft has been circulated to the members of the EA-EG, and a revised version was prepared based on received comments. The revised draft version is presented to PAME II-2018 and has also been sent to AMAP, CAFF, and SDWG for their review and consideration.

A session is scheduled at the Arctic Biodiversity Congress 2018 in Rovaniemi, Finland, on 11 October (10:30-12:00) – Session EBM 8: Guidelines for ecosystem approach to management across the Arctic: who, what, where and how? Here we will present the draft guidelines and have them discussed with a small panel (consisting of Vernae Angnagoobok from the Inuit Circumpolar Council, Maya Gold, Canada, John Bengtson, USA, and Cecilie von Quillfeldt, Norway).

The plan is to prepare a draft final set of EA guidelines based on comments received at the biodiversity congress and from PAME and the other AC working groups in October. This draft final set will be circulated to the relevant WGs on 1 November, to receive their feedback by 1 December 2018. Revised final draft guidelines will then be prepared and circulated to all relevant WGs (AMAP, CAFF, PAME and SDWG) 30 days before their first 2019 meetings with the aim to present them to PAME I-2019 for finalization and approval.

### **6<sup>th</sup> EA workshop, Seattle, 9-11 January 2018**

The 6<sup>th</sup> EA workshop was held at the NOAA Alaska Fisheries Science Center facility in Seattle, 9-11 January 2018. The workshop addressed two related topics:

1. Scope and start work on development of guidelines for Ecosystem Approach to management (EA) in the Arctic.
2. Review status of work on developing and doing Integrated Ecosystem Assessment (IEA) to develop best practices for Arctic IEA.

The workshop was arranged jointly with the International Council of Exploration of the Sea (ICES) as a PAME (Joint EA-EG)/ICES workshop. The report from the workshop is found at the PAME webpage (under the Ecosystem Approach topic) and at ICES as the ICES WKEAMA Report (ICES CM 2018/IEASG:01).

The workshop was prepared by a planning group with members from the EA-EG and ICES, as well as from NOAA through their IEA program. A background document with questions to guide discussions were prepared and circulated in advance of the workshop. A total of 59 persons registered for the workshop, with participants from five countries and several organizations, including indigenous organizations and communities. The program consisted of presentations and discussions in breakout groups and plenary.

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The outcome of the workshop was reflected as a set of conclusions under each of the two topics and suggested next steps. They are included in Annex 2. The conclusions and next steps were presented and noted by PAME I-2018. The conclusions and workshop minutes on the guideline issue were used when preparing the 1<sup>st</sup> draft guidelines which were circulated to the EA-EG. We will consider the other conclusions and suggested next steps in the further EA work.

### **Second International EA Conference**

PAME I-2018 decided to postpone the 2<sup>nd</sup> EA conference to 2019, under the Icelandic chairmanship, and the conference will therefore not be used as a step in the work to develop the first set of EA guidelines.

The EA co-leads have prepared a draft prospectus for the 2<sup>nd</sup> EA Conference that we will circulate and present at PAME II-2018 for eventual decision to continue planning. We are suggesting that the main topic for the conference should be scale integration, or how we deal with information at different scales, particularly at smaller and local scales, in the framework of EA implementation at the scale of Large Marine Ecosystems (LMEs). This would include aspects such as areas of heightened ecological and cultural significance (e.g. EBSAs), Marine Protected Areas (MPAs), local co-management arrangements, community monitoring, and more.

Once agreement is reached to go forward, we will establish a planning group to help draw up a program for the conference, and prepare an announcement where we invite contributions (both oral presentations and posters).

### **Integrated Ecosystem Assessment (IEA) and WGICA for the central Arctic Ocean**

Integrated Ecosystem Assessment (IEA) is a core component of the EA framework (element number 4). The work plan item is to continue emphasis on development of IEAs and to report specifically from the on-going work in the joint (ICES/PICES/PAME) working group for the central Arctic Ocean (WGICA).

IEA was one of the two main topics for the 6<sup>th</sup> EA workshop in Seattle in January (see earlier section). ICES has established several WGs to carry out IEA of regional seas, such as the Barents Sea (WGIBAR) and the Norwegian Sea (WGINOR) which are Arctic LMEs, and a steering group to coordinate the IEA work within ICES. The workshop in Seattle was carried out jointly with ICES. We were also fortunate to have strong participation in planning as well at the workshop from the IEA program within NOAA of the USA.

Three main conclusions on the IEA topic were drawn at the workshop (see Annex 2). Basically, there are many different approaches and methods in use, we are still on a steep 'learning-by-doing' curve, and we must continue to exchange and share experiences and compare across regions.

The ICES/PICES/PAME Working Group on Integrated Ecosystem Assessment for the central Arctic Ocean (WGICA) held its third meeting, hosted by Canada, in St. John's, Newfoundland, 24-26 April 2018. The report from the meeting is available (from the ICES and PAME webpages) and is presented to PAME II-2018 as a separate document under the Ecosystem Approach agenda point.

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WGICA is working on a first version of an IEA report for the central Arctic Ocean. The working title for this report is: *Integrated Ecosystem Assessment of the Central Arctic Ocean: Ecosystem Description and Vulnerability Characterization*.

The subtitle describes the two main parts of the report. The first is a description of the ecosystem with emphasis on spatial aspects (distributions, migrations, transport with currents) and trophic linkages. It will contain information on oceanography, sea ice, plankton, sea ice biota, benthos, and fish. For birds and marine mammals, we aim to describe which species are found, and where, in the central Arctic Ocean, what they are doing there, and which roles habitats in the central Arctic Ocean play for populations. The vulnerability section is a first go at describing characteristics related to vulnerability, as well as addressing spatial and temporal vulnerability to shipping (notably oil spills and disturbances).

An outline of the IEA report is given as annex 3 in the WGICA 2018 report. The aim is to have a first draft version ready by 1 October, and to a final draft by the end of this year, 2018.

### **Other activities**

#### **Outreach and communication**

One item that was identified at the 6<sup>th</sup> EA workshop was a need for more communication with Arctic communities regarding development and implementation of the EA. As a next step it was suggested to have one or more meetings in northern communities to improve communication on important aspects of the EA and IEA, such as use of TLK in IEA, involvement of Indigenous and local communities, and co-management.

The co-leads have made some initial consultations and will continue this with the aim to have some first meeting(s) to start a dialogue on this important topic.

#### **Work plan 2019-2021**

The co-leads are preparing a first draft version of a work plan for the EA topic for the next two years. Items on this plan are to arrange the 2<sup>nd</sup> EA Conference in 2019, and to have a 7<sup>th</sup> EA workshop in 2020. It is suggested to continue the ICES/PICES/PAME WGICA for another 3 years period, possibly with broadened participation from within the AC family (e.g. AMAP and CAFF).

The draft EA work plan will be discussed at the EA breakout sessions at PAME II-2018. A revised draft will be circulated to the other AC working groups for their input before finalization in early 2019.

#### **LME Fact sheets**

The PAME secretariat has prepared a set of LME fact sheets, one for each of the 18 Arctic LMEs following the revised LME map from 2013. The fact sheets provide information on species and ecological features of the Arctic LMEs. They are based largely on material put together as draft LME descriptions used as basis for the AMAP Assessment (2007-2010) of Oil and Gas Activities in the Arctic, the Arctic Marine Shipping Assessment (AMSA 2009), and the AMSA IIC report in 2013 on areas of ecologically (and culturally) heightened significance. Updated versions of the LME descriptions are now

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being edited and prepared for publication, intended as baseline reference documents in relation to assessments of impacts of climate change and human activities on Arctic marine ecosystems.

The LME fact sheets are found on the PAME webpage under the Ecosystem Approach topic (<https://pame.is/index.php/projects/ecosystem-approach/arctic-large-marine-ecosystems-lme-s>).

**Annex 1 - EA Work plan 2017-2019**

**AMSP Goal 2: *Conserve and protect ecosystem function and marine biodiversity to enhance resilience and the provision of ecosystem services.***

**BACKGROUND:**

Arctic marine ecosystems are under increasing pressure from multiple stressors including climate change, ocean acidification, long-range pollution, invasive species and increased human activities. These stressors, individual and cumulative, pose a challenge to the health and sustained viability of Arctic marine ecosystems. Stressors often exacerbate one another, leading to amplified cumulative impacts. Adding to that is the complex and trans-boundary nature of those stressors, which means that solutions often will require international and regional co-operation.

Arctic ecosystem services are of local, regional and global importance. Taking an ecosystem approach to management (EA) can enhance the resilience of marine and coastal biodiversity and help to safeguard marine ecosystems and their functions, allowing people to continue to benefit from the services that flow from healthy ecosystems.

Project/activity	Description	Lead(s) and partners
<b><i>Ecosystem Approach to Management</i></b>		
<p><b>Preparation of Guidelines for EA/EBM Implementation in the Arctic</b></p> <p><i>Continue to integrate the ecosystem approach into assessments and management recommendations through follow-up to the 2013 EBM marine-related recommendations, taking into account previous work on Large Marine Ecosystems (LMEs), and new and</i></p>	<p>1) Prepare guidelines addressing EA/EBM implementation in Arctic (marine) ecosystems (per Iqaluit declaration) following the EA Framework elements; adopt LMEs for management, describe Arctic Ecosystems, integrated ecosystem assessments, ecological objectives, and valuation of ecosystem services. EA Framework elements to receive particular attention are ecological objectives and integrated assessments.</p> <p>2) Hold 6th EA workshop in late autumn 2017/spring 2018 scoping guidelines for implementing EA in the Arctic, with a focus on Integrated Ecosystem Assessment.</p> <p>3) Hold 2nd International EA Conference 2018 on Integrated Ecosystem Assessment in the Arctic, Marine Protected Areas in Implementation of EA, and Review status of implementation EA and EA framework</p>	<p>Norway, USA, Joint EA Expert Group</p> <p>Partners: CAFF, AMAP, SDWG, WWF</p>

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<i>ongoing EA activities of cross-cutting nature.</i>	elements. Continue to promote common understandings and share knowledge and experiences on EA.	
<b>Integrated Ecosystem Assessment of the Central Arctic Ocean</b>	Continue emphasis on development of Integrated Ecosystem Assessment. Continue to report on developments within ICES1 /PICES2 /PAME Working Group on Integrated Ecosystem Assessment (WGICA) and other ICES activities, and the meetings of scientific experts on fish stocks in the central Arctic Ocean.	cross-cutting initiative in cooperation with ICES/PICES, CAFF, AMAP

## **Annex 2 - Sixth EA Workshop: Conclusions and next steps**

### **EA guidelines**

Keep it simple, flexible and inclusive – The guidelines should be written in clear and plain language and be kept as simple as possible. They should also allow the necessary flexibility for adaptive management practices in relation to different and shifting ecological, social, and cultural conditions. Furthermore, the guidelines should be inclusive to allow a participatory process in the conduct of EA to management.

1st set of guidelines – A first set of guidelines could be developed based on the 6-element EA framework at the scale of LMEs. This set of guidelines should be kept general and in accordance with the agreed definition and principles for EA. The need for scale integration should be addressed as part of the guidelines.

Further development of guidelines – Development of guidelines should proceed with the aim to produce more specific guidelines for elements of the EA framework (e.g. how to set ecological objectives, and how to carry out IEA) including the application of the principles of EA at smaller scale (e.g. local communities). The many specific views and suggestions expressed and reflected in the notes from the workshop will be kept and used for reference in the further work on the EA guidelines.

Human dimension – The human dimension should be recognized and integrated in the EA guidelines to be developed. This is to reflect that we are developing guidelines for management of coupled socio-ecological systems where humans are part of the natural ecosystems, yet exert pressures that to some extent are extrinsic to the system (e.g. climate change, long-range transport of pollutants). Methods should be careful to address for what purposes or for whom IEAs are conducted.

Communication – Communication with Arctic communities and other participants and stakeholders of an EA management system is important to increase awareness and understanding and to achieve support for more resilient and robust implementation. This is related to the principle of inclusiveness and engagement which will be reflected by the guidelines.

### **Integrated Ecosystem Assessment**

Diversity of approach and methods – There is a diversity of approaches and methods used in doing Integrated Ecosystem Assessments (IEAs). This applies among others to the roles indicators and quantitative models play, and the ways they are used. It also applies to risk assessment, management strategy evaluation, and the way human pressures and their effects in the environment are expressed and linked. However, there are also considerable commonalities, such as use of time-series for environmental conditions and biological resources (e.g. fish stocks) to express and analyse changing states in the ecosystems.

Learning by doing – In ICES and other places, we are learning by doing as we carry out IEAs. In ICES, this is done in formal working groups that meet annually to examine status and ongoing changes in regional ecosystems. Arctic council working groups or subgroups (e.g. CBMP-marine) also meet annually to assess biological ecosystem components and consider how to proceed towards full ecosystem assessment on a Pan-Arctic scale. Collectively, we are still on a learning curve as a community of IEA practitioners.

Comparisons across LMEs – We can learn more about similarities and differences in doing IEA through more detailed and in-depth comparisons of approach and methods applied in different LMEs. This should also include comparisons at different scales within and between LMEs. Such evaluations may be a step towards developing guidance on best practices for doing IEAs. Two candidate ecosystems which could be compared are the Barents Sea and the East Bering Sea LMEs, which are assessed by ICES and NOAA, respectively.

#### **Next steps**

Draft first set of EA guidelines – The two co-leads of the EA-EG will prepare a first draft set of guidelines for implementation of the EA to management of the marine Arctic, based on the outcome from the workshop and in consultation with members of the EA-EG.

Comparison of IEAs – An activity should be carried out to compare approaches and methods for doing IEAs for selected LMEs, e.g. the Barents Sea and East Bering Sea LMEs. This may require a project and be put on a future work plan for the EA-EG. However, it should be attempted to start the work as a collaboration between the EAEG, ICES, and the NOAA IEA program, with participation also of other interested parties such as OSPAR.

2nd EA conference – According to the work plan for the EA-EG, a second EA conference is scheduled for late 2018. This could preferably be delayed till early 2019. One topic for the conference will be the draft EA guidelines, and outcome of the conference will be used to adjust the draft guidelines with the aim to present them to SAOs and the ministers at the end of the Finnish chairmanship in spring 2019. A second topic for the conference can be IEA with emphasize on comparisons across LMEs and identification of best practices. A third topic may be social-ecological systems and linkages with human dimension.

New IEA working groups – Establishment of new working groups for doing IEA of more Arctic LMEs should be considered, in line with one of the EBM recommendations from Kiruna in 2013. Two candidate LMEs could be the Northern Bering-Chukchi Sea LME and the Beaufort Sea LME. Both LMEs include waters under national jurisdiction of two countries as well as international 'High Seas' waters, and both are arenas for cooperation between Indigenous Peoples organizations with co-management arrangements.

Communication – One or more meetings in northern communities should be arranged to improve communication on important aspects of the EA and IEA, such as use of TLK in IEA, involvement of Indigenous and local communities, and co-management.