

# AMAP/EU-PolarNet Stakeholder Workshop on Research Needs on Arctic Ecosystems and Ecosystem Services

Riga, Latvia, 20 September 2016

## Background

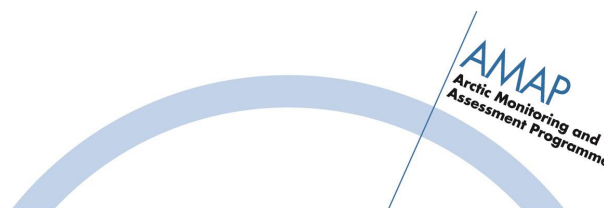
The Arctic Council Working Group the Arctic Monitoring and Assessment Programme (AMAP) and the EU Horizon 2020 Coordination and Support Action EU-PolarNet will co-convene a Stakeholder Workshop on Research Needs on Arctic Ecosystems and Ecosystem Services in association with a scientific session at the Annual Science Conference of the International Council for the Exploration of the Sea (ICES). AMAP has coordinated monitoring and assessment activities in the Arctic for over 25 years and EU-PolarNet is a five-year project with the ultimate objective of developing an Integrated European Polar Research Programme (including also the Antarctic) together with an implementation plan based on extensive consultations with scientists, governments, businesses and other relevant stakeholders.

AMAP, as a partner in EU-PolarNet, is responsible for promoting trans-Atlantic research activities between EU countries and the USA and Canada and, as one aspect of this, to hold stakeholder workshops to determine common research needs that can be provided as input to the central EU-PolarNet requirement of developing an Integrated European Polar Research Programme together with an implementation plan. An important aspect of EU-PolarNet is connecting science with society under which dialogue and cooperation with relevant Arctic stakeholders will ensure their input to the formulation of this research programme. AMAP will organize four annual stakeholder workshops to identify and formulate key Arctic research needs over the next five years. The second workshop will be held on 20 September 2016 in Riga, Latvia in association with the ICES Annual Science Conference. The central theme of this workshop is research needs for a better understanding of Arctic marine ecosystems and ecosystem services, especially living marine resources, and the factors that influence their functioning, from oceanographic and biogeochemical processes to the many human uses of this area, including fisheries and shipping, in the light of the many changes occurring in the Arctic associated with climate change.

There are many challenges affecting Arctic marine ecosystems, from the rapidly changing climate to the increase in human activities. These challenges are being addressed in three Arctic regions in the ongoing Arctic Council project Adaptation Actions for a Changing Arctic (AACCA). However, opportunities are also arising as the Arctic is opening up to new activities. Papers will cover such topics as:

- Arctic marine ecosystems and their living marine resources, including fish, marine mammals, benthos, etc., and their vulnerability to increased human activities and climate change;
- Arctic oceanographic processes affecting ecosystems and fisheries and the influence of ongoing changes in the cryosphere on these processes;
- Influence of biogeochemical processes, including ocean acidification, on Arctic ecosystems and their living resources;
- Influence of human activities (for example, shipping, oil and gas extraction, tourism) on Arctic ecosystems

In addition to the presentation of the results of research, papers will lead into an identification of gaps in knowledge that need to be explored or related new issues that require research.



## Format of the event

The stakeholder workshop will be part of a full-day event, which will begin with a morning scientific session entitled "AMAP/EU-PolarNet/ICES Session on Arctic Ecosystem Services: Challenges and Opportunities" which is Theme Session P of the ICES Annual Science Conference. Based on the scientific presentations in this session, the AMAP/EU-PolarNet Stakeholder Workshop on Research Needs on Arctic Ecosystems and Ecosystem Services will be held in the afternoon, with participants representing not only scientists and the research community but also various other stakeholders with interests associated with Arctic marine ecosystem services, including fisheries, shipping, and tourism.

As this workshop is associated with the ICES Annual Science Conference, registration is required via <http://www.ices.dk/news-and-events/asc/ASC2016/Pages/Registration.aspx> together with a one-day conference fee of 90 Euros.

The draft agenda for the stakeholder workshop and a list of the titles of scientific presentations at ICES Theme Session P are attached.

Further information on this event may be obtained from:

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# MEETING AGENDA

<b>Conference Date</b>	20 September 2016
<b>Conference Location</b>	Radisson Blu Hotel Latvija, Elizabetes 55, Riga, Latvia
<b>Theme session P: Arctic Ecosystem Services: Challenges and Opportunities (Co-sponsored by AMAP, EU-PolarNet, and ICES)</b> Co-Chairs: Candace Nachman (USA), Susanne Kortsch (Norway)	
Room Beta 2	
<b>Time</b>	
10:00 – 13:00	Theme Session P: Arctic Ecosystem Services: Challenges and Opportunities (see attachment)
13:00 – 15:00	<b>Lunch</b>
<b>AMAP/EU-PolarNet Stakeholder Workshop on Research Needs on Arctic Ecosystems and Ecosystem Services</b> Co-Chairs: Candace Nachman (USA), Susanne Kortsch (Norway)	
Room XX	
<b>Time</b>	
14:00 – 14:30	<b>Opening and welcome</b> <i>Lars-Otto Reiersen, AMAP Executive Secretary</i> <b>Context of the workshop: Research needs defined for EU-PolarNet work</b> <i>Nicole Biebow, AWI, Project Manager EU-PolarNet</i> <b>Aims and outcome of the workshop</b> <i>Janet Pawlak, AMAP Secretariat – Rapporteur</i>
14:30 – 15:30	<b>Summary of research needs from morning session</b> <i>Candace Nachman, NOAA National Marine Fisheries Service, USA</i> <b>Research needs on climate-related changes in the Arctic Ocean and cryosphere</b> <i>Paul Wassmann, University of Tromsø</i> <b>Research needs for Arctic ecosystems and biodiversity</b> <i>Victor Smetacek, Alfred Wegener Institute</i> <b>Discussion</b>
15:30 – 16:30	<b>Need for monitoring in Arctic Ocean: contaminants, climate, acidification</b> <i>Lars-Otto Reiersen, AMAP Executive Secretary</i> <b>Needs for interdisciplinary Arctic state and process studies</b> <i>Richard Rivkin, Memorial University of Newfoundland</i> <b>New research challenge: Litter/plastics in the Arctic Marine Environment</b> <i>Tina Schoolmeester, GRID Arendal</i> <b>Discussion</b>
16:30 – 17:00	<b>Coffee Break</b>
17:00 – 17:45	<b>Panel discussion – Research needs for Arctic Marine Ecosystems</b>
17:45 – 18:00	<b>Final remarks and closing of meeting</b>

# Theme session P

Arctic ecosystem services: challenges and opportunities (co-sponsored by AMAP and EU-PolarNet)

Conveners: Candace Nachman (USA) Susanne Kortsch (Norway)

Tuesday 20 September 2016, 10:00-13:00, Beta 2

## Tuesday 20 September 2016

10:00	<b>Introduction</b>
10:05	<b>CM Code:</b> P:450 <b>Title:</b> Modelling spatio-temporal variation of surface hydrography in an Arctic shelf sea <b>Authors:</b> Jussi Mäkinen, Jarno Vanhatalo <b>Keywords:</b> Spatio-temporal, Arctic shelf sea, surface hydrography, Bayesian inference, uncertainty <b>Presentation type:</b> Oral
10:15	<b>CM Code:</b> P:502 <b>Title:</b> Structure and resilience of the benthic food web across the Canadian Arctic Ocean and the Chukchi sea. <b>Authors:</b> Noémie Friscourt, Christian Nozais Philippe Archambault <b>Keywords:</b> Canadian Arctic; Chukchi sea; Benthos; Stable isotopes; Ice Proxy; IP25; Trophic structure; Resilience. <b>Presentation type:</b> Oral
10:25	<b>CM Code:</b> P:433 <b>Title:</b> Regional heterogeneity in climate change impacts on the living marine resources of the Arctic. <b>Authors:</b> Anne B. Hollowed, Wei Cheng, Harald Loeng, Elizabeth Logerwell, Franz Mueter, and James Reist <b>Keywords:</b> Climate change, ocean temperature, projections, commercial fisheries, vulnerability <b>Presentation type:</b> Oral
10:35	<b>CM Code:</b> P:178 <b>Title:</b> Cod response to past and current warm phases in the seas of Iceland, a time series analysis <b>Authors:</b> Marcos Llope, Niall McGinty, Joël Durant, Leif C. Stige, Guðrún Marteinsdóttir, Nils Chr. Stenseth <b>Keywords:</b> Arctic cod, regime shifts, trophic control, thresholds <b>Presentation type:</b> Oral
10:45	<b>CM Code:</b> P:644 <b>Title:</b> Climate change impacts on the ecosystem services of Arctic cod ( <i>Boreogadus saida</i> ) <b>Authors:</b> Benjamin J. Laurel, Benjamin J. Laurel, Louise A. Copeman <b>Keywords:</b> Climate change–Thermal sensitivity–Polar cod–Lipids–Bioenergetics–Biogeography <b>Presentation type:</b> Oral
10:55	<b>CM Code:</b> P:129 <b>Title:</b> Pink salmon as sentinels for climate change in the Arctic <b>Authors:</b> Ed Farley, Wess Strasburger, Jeanette Gann, Kris Ciciel (presented by Candace Nachman) <b>Keywords:</b> Pink salmon, Arctic, Integrated Ecosystem Surveys <b>Presentation type:</b> Oral
11:05	<b>CM Code:</b> P:248 <b>Title:</b> A Bioeconomic Model of Ocean Acidification Challenges in the Baffin Bay/Davis Straight Shrimp Fishery <b>Authors:</b> Brooks A. Kaiser <b>Keywords:</b> Baffin Bay/Davis Straight Shrimp Fishery; Ocean Acidification; Bio-economic modelling <b>Presentation type:</b> Oral
11:15	<b>CM Code:</b> P:268 <b>Title:</b> Socio-economic impacts of ocean acidification and warming on Barents Sea Cod <b>Authors:</b> Martina H. Stiasny, Martin Hänzel, Catriona Clemmesen, Flemming Dahlke, Felix H. Mittermayer, Martin Quaas, Thorsten Reusch, Daniela Storch, Rudi Voss <b>Keywords:</b> Atlantic cod, ocean acidification, climate change, early life stages, recruitment <b>Presentation type:</b> Oral
11:35	<b>CM Code:</b> P:647 <b>Title:</b> SYMBIOSES: a practical risk management tool to integrate fisheries and hydrocarbon activities in the Lofotens and Barents Sea, Norway <b>Authors:</b> Daniel Howell, Jolynn Caroll Frode Vikebo <b>Keywords:</b> ecosystem, fisheries, oil, oil spill, integrated management <b>Presentation type:</b> Oral
11:45	<b>CM Code:</b> P:280 <b>Title:</b> Towards quantitative oil spill risk assessment in the Arctic sea areas <b>Authors:</b> Maisa Nevalainen, Inari Helle Jarno Helle <b>Keywords:</b> Arctic, oil spill, food web, functional groups, uncertainty, risk assessment <b>Presentation type:</b> Oral
11:55	<b>CM Code:</b> P:445 <b>Title:</b> Benthic non-indigenous species in ports of the Canadian Arctic: risks associated with global warming and shipping activity <b>Authors:</b> Kimberly Howland, Jessica Goldsmit, Philippe Archambault, David Barber, Guillem Chust, George Liu, Jennifer Lukovich, Chris McKindsey, Ernesto Villarino <b>Keywords:</b> shipping, climate change, benthic invertebrates, nonindigenous species, species distribution modelling <b>Presentation type:</b> Oral

12:05	<p><b>CM Code:</b> P:559  <b>Title:</b> Unique insights from historical fisheries survey logbooks in the Arctic  <b>Authors:</b> John K. Pinnegar, Bryony L. Townhill, Georg H. Engelhard  <b>Keywords:</b> archive, survey, Svalbard, cod, capelin, climate change  <b>Presentation type:</b> Oral</p>
12:15	<p><b>CM Code:</b> P:405  <b>Title:</b> The Missing Middle: The Need for International Collaboration to Fill Gaps in Central Arctic Ocean Science  <b>Authors:</b> Henry P. Huntington, Thomas Van Pelt, Hyoung Chul Shin  <b>Keywords:</b> Central Arctic Ocean, fisheries, food web, international collaboration, ecology  <b>Presentation type:</b> Oral</p>
12:25	<p><b>CM Code:</b> P:624  <b>Title:</b> Ballast water of domestic ships as a pathway for the introduction of non-indigenous mesozooplankton in coastal Nunavik, Canada  <b>Authors:</b> Pascal Tremblay , Pascal Tremblay 1, André Rochon1 , Gesche Winkler 1, Kimberly Howland 2, Nathalie Simard3, Sarah Bailey 4  <b>Keywords:</b> Ballast water discharge ; Non-indigenous species ; Mesozooplankton ; Canadian Arctic ; Deception Bay ; Port of Quebec ; Domestic vessels, Voluntary ballast water exchange ; Strait of Belle Isle ; Strait of Jacques Cartier  <b>Presentation type:</b> Poster</p>
12:30	<p><b>CM Code:</b> P:122  <b>Title:</b> An overview of the adequacy of Arctic sea basin data  <b>Authors:</b> Belinda J. Kater, Nathalie Steins, Martine J. van den Heuvel-Greve, Peter Thijssse, CJ Beegle-Krause, Oscar Bos, Bart Grasmeyer, Le Griffin, Eline van Onselen, Harriet van Overzee, Gerjan Piet, Andrea Sneekes, Arjan Tuijnder, Pepijn de Vries, Jan Tjalling van der Wal  <b>Keywords:</b> Arctic Sea, marine, data, fisheries, offshore wind farms, marine protected areas, climate change, river input, bathymetry, alien species, oil spills, coasts  <b>Presentation type:</b> Poster</p>
12:35	<p><b>CM Code:</b> P:556  <b>Title:</b> Trophodynamics of Atlantic cod (<i>Gadus morhua</i>) on the Greenland continental shelf 2006-2010 and Spitsbergen 2010  <b>Authors:</b> Karl-Michael Werner, Sophia Kochalski, Jerome Chladek, Corinna Schendel, Heino O. Fock  <b>Keywords:</b> Greenland, Spitsbergen, trophodynamics, climate change  <b>Presentation type:</b> Poster</p>
12:40	Discussion
13:00	End of session