



Arctic Council COP25 side event on ocean acidification – release

Arctic Council to host side event at COP25

Arctic States, Permanent Participants, and Working Groups take the topic of ocean acidification, and the Council's knowledge base on the issue to Madrid

The Arctic Council will host a side event on ocean acidification at the upcoming United Nations Climate Change Conference (COP25) in Madrid, Spain. The briefing for COP25 delegates and accredited journalists brings together acidification experts from the Arctic Monitoring and Assessment Programme, the Intergovernmental Panel on Climate Change, the East China Normal University / Norwegian Institute for Water Research, the Plymouth Marine Laboratory, and the Inuit Circumpolar Council. The Icelandic Minister for the Environment will open the lunchtime side event, held in the Cryosphere Pavilion on 9 December 2019.

The acidity of the world's oceans is likely rising faster than at any time during the past 55 million years. Some of the fastest rates of ocean acidification are occurring in the Arctic, which can have severe implications for the ecosystem and the people and communities dependent on these. The eight Arctic States, Indigenous organizations that have Permanent Participant status in the Arctic

Council, and the Council's Working Groups have therefore decided to bring the issue to a global arena – in the form of a COP25 side event themed “All Aboard! Tackling Polar Ocean Acidification”.

“The Arctic Council has facilitated strong cooperation on projects related to ocean acidification and its Arctic Monitoring and Assessment Programme has produced comprehensive circumpolar assessments, which include both state-of-the-art scientific knowledge as well as traditional knowledge and local knowledge. We therefore saw a strong potential in bringing our knowledge base on this topic to the COP25”, says Ambassador Einar Gunnarsson, Chair of the Senior Arctic Officials.

The Arctic is experiencing a fast rate of ocean acidification as cold water absorbs more carbon dioxide. In addition, dilution of sea water by river run-off and ice melt, as well as the inflow of naturally low pH waters from the Pacific, contribute further to decreasing pH levels in the Arctic Ocean.

“The Arctic Monitoring and Assessment Programme's Arctic Ocean Acidification 2013 and 2018 reports show that Arctic marine ecosystems are highly likely to undergo significant changes as a result of ocean acidification. Changes to lower-level organisms such as shellfish could have cascading effects through the food chain. This will have direct and indirect effects on Arctic marine life and is likely to affect the availability and quality of marine based food resources for both Arctic and non-Arctic societies”, explains Rolf Rødven, executive secretary of the Arctic Monitoring and Assessment Programme (AMAP).

One of the questions that the Arctic Council's COP25 side event aims to discuss in Madrid on 9 December is: how should we employ scientific knowledge that scientists have accumulated in recent decades, and address ecosystem impacts? The event is co-organized with AMAP and brings four subject experts to the panel that will approach ocean acidification from different angles:

- Ko Barrett, Vice-Chair of the Intergovernmental Panel on Climate Change;
- Prof. Richard Bellerby, Director of the SKLEC-NIVA Centre for Marine and Coastal Research, East China Normal University, Shanghai, China, and Lead researcher at the Norwegian Institute for Water Research;
- Dr. Helen Findlay, Biological oceanographer at Plymouth Marine Laboratory; and
- Lisa Koperqualuk, Vice President of International Affairs for the Inuit Circumpolar Council Canada.

“I am very happy with the high-level panel that will address the issue at the upcoming COP25, and that all of the Arctic States could agree on a joint side event on ocean acidification. On behalf of the Icelandic Chairmanship, we are also particularly pleased to welcome Iceland's Minister for the Environment and natural resources, HE. Mr. Guðmundur Ingi Guðbrandsson, for the opening remarks”, states Ambassador Einar Gunnarsson.

The 1,5-hour side event (13:00-14:30) will take place in the Cryosphere Pavilion, located in the Blue Zone of the COP25. It is accessible to all accredited delegates and media attending the COP25 and will also be live streamed.

Media interested in attending the side event are encouraged to reach out to the Arctic Council Secretariat (media@arctic-council.org) prior to the event for further information and interview opportunities.

Arctic Council COP25 side event on ocean acidification – Agendas

Agenda side event

Date: 9 December 13:00-14:30

Location: Cryosphere Pavilion, Blue Zone, COP25 Madrid

Opening remarks

Icelandic Minister for the Environment and Natural Resources,

HE. Mr. Guðmundur Ingi Guðbrandsson

Expert Panel

- **Ko Barrett**, Vice-Chair of the Intergovernmental Panel on Climate Change: The IPCC Special Report on the Ocean and Cryosphere.
- **Prof. Richard Bellerby**, Director of the SKLEC-NIVA Centre for Marine and Coastal Research, East China Normal University, China, and Lead researcher at the Norwegian Institute for Water Research, Norway: Key findings of the AMAP Arctic Ocean Acidification report
- **Dr. Helen Findlay**, Biological oceanographer at Plymouth Marine Laboratory: The impacts of ocean acidification on Arctic species and ecosystems
- **Lisa Koperqualuk**, Vice President of International Affairs for the Inuit Circumpolar Council Canada: The effects of ocean acidification on Inuit communities

Outlook

Dr. Rolf Rødven, Executive Secretary of the Arctic Monitoring and Assessment Programme (AMAP): Summary of key points from presentations and overview of ongoing and upcoming work by AMAP related to ocean acidification

Moderator: Ambassador Stefán Skjaldarson, Arctic Council Chairmanship Iceland

Agenda press conference

Date: 7 December 14:00-14:30

Location: UNFCCC press conference room MOCHA

- **Jon Petter Gintal**, Section Leader International Affairs, Saami Parliament
- **Prof. Richard Bellerby**, Director of the SKLEC-NIVA Centre for Marine and Coastal Research, East China Normal University, China, Lead researcher at the Norwegian Institute for Water Research, Norway: Key findings of the AMAP Arctic Ocean Acidification report
- **Dr. Rolf Rødven**, Executive Secretary of the Arctic Monitoring and Assessment Programme (AMAP)

Moderator: Heidi Sevestre, International Cryosphere Climate Initiative

Arctic Council COP25 side event on ocean acidification – Speakers

HE. Mr. Guðmundur Ingi Guðbrandsson

Vita

Guðmundur Ingi Guðbrandsson took office as Minister for the Environment and Natural Resources on November 30 2017 for the Left-Green Party. Guðmundur Ingi was born on March 28 1977. He holds a BSc degree in Biology from the University of Iceland and a master's degree in Environmental Management from Yale University. He was the CEO at Landvernd – Icelandic Environment Association from 2011 – 2017. He also worked for the University of Iceland carrying out research in ecology and environmental sciences, and for the Soil Conservation Service of Iceland in the fields of global studies and research. Since 2006, Guðmundur Ingi has been a guest lecturer at the University of Iceland, the Agricultural University of Iceland and the University Centre of the Westfjords. He has also worked as a park ranger almost every summer for the last few years. Guðmundur Ingi was one of the founders of the Icelandic Society for Environmental Scientists. He was the society's first president, in 2007-2010. Currently, Guðmundur Ingi serves as the Chair of the Fulbright Alumni Association in Iceland.

Ko Barrett

Vita

For over fifteen years, Ms. Barrett has represented the U.S. on delegations charged with negotiating and adopting scientific assessments undertaken by the Intergovernmental Panel on Climate Change (IPCC). She is widely recognized as an expert on climate policy, particularly on issues related to climate impacts and ways to help society to adapt. She has won multiple awards for her contributions to both NOAA and the nation, notably the U.S. Department of State Meritorious Honor Award in 2011, the NOAA Administrator's Award in 2010, and in 2007, she shared in the Nobel Peace Prize granted to members of the IPCC.

Prior to joining NOAA in 2005, Ms. Barrett was the Director of the Global Climate Change program at USAID, overseeing climate activities in over 40 countries. While at USAID, she initiated its Vulnerability and Adaptation Program.

Ms. Barrett has a B.S. degree in Environmental Science and was named Distinguished University Scholar as well as Distinguished Research Scholar through Sigma Xi Scientific Research Society from the University of North Carolina in Asheville.

Prof Richard Bellerby

Vita

Prof. Richard Bellerby is Director of the SKLEC-NIVA Centre for Marine and Coastal Research, East China Normal University, Shanghai, China and Lead researcher at the Norwegian Institute for Water Research, Bergen, Norway. With a background as a biogeochemist, he researches the interplay between climate and ocean change, marine ecosystems and ecosystem services with a increasing

focus on socioecology. He is leader of the Arctic Monitoring Assessment Programme and Scientific Committee on Antarctic Research Ocean Acidification working groups, Scientific Steering Committee member on the Integrating Climate and Ecosystem Dynamics in the Southern Ocean programme, co-lead of the IMBeR-Future Earth Coasts Continental Margins Working Group, and Executive Committee member on the Global Ocean Acidification Observing Network.

Abstract: Key findings of the AMAP Arctic Ocean Acidification report

Ocean acidification, resulting from changes in ocean chemistry induced by increasing seawater carbon dioxide concentrations, is one of the increasing challenges to marine organisms, ecosystems and biogeochemical cycling. Some of the fastest rates of ocean acidification currently observed are in the Arctic Ocean, with important physiological and geochemical thresholds already surpassed. Projections indicate that large parts of the Arctic Ocean are undergoing marine carbonate system changes that will incur significant shifts in ecological status over the coming decades unless global carbon emissions are drastically curtailed. These changes in water chemistry and biology will have significant socio-ecological and economic consequences at the local to global level. This presentation is an introduction to the latest science relating to Arctic ocean acidification, biological responses and social consequences. We will also deliver the main recommendations from the summary for policymakers evaluated from the recent Arctic Monitoring and Assessment Programme Ocean Acidification Report

Dr Helen Findlay

Vita

Dr. Helen Findlay is a biological oceanographer at Plymouth Marine Laboratory, UK, who uses a combination of experimental, observational and modelling tools to investigate the impacts of climate change and ocean acidification on marine organisms and ecosystem functioning, with a particular focus in Arctic regions. She has been researching OA since 2006 and has published >40 peer-review publications related to the topic. She is currently a member of the Executive Council for the Global Ocean Acidification Observing Network (GOA-ON) and lead coordinator for the North East Atlantic Ocean Acidification (NEA-OA) regional hub of GOA-ON.

Abstract: The impacts of ocean acidification on Arctic species and ecosystems

The Arctic Ocean is one of the regions where ocean acidification is occurring most rapidly. The fast rate and complicated multi-stressor environment, combined with the species-specific and often location-specific response to ocean acidification, make it difficult to predict organism response. However, this presentation will discuss examples of potential winners and losers within the Arctic and the subsequent consequences for Arctic ecosystems, as highlighted in the AMAP Arctic Ocean Acidification Review (2018), which are likely to be sufficiently altered under high CO₂ scenarios.

Lisa Koperqualuk

Lisa Qiluqqi Koperqualuk was born in Puvirnituk on the eastern shore of Hudson Bay in Northern Quebec (Nunavik). She has a Bachelor of Arts in Political Science from Concordia University, Montreal; and a Master's degree in Anthropology from Laval University, Quebec City. Her areas of interest include Inuit political and community development, education, justice (particularly Inuit customary law), the northern environment, and the Inuit culture and language.

Lisa was elected as Vice-President of Inuit Circumpolar Council (Canada) in 2018. Lisa's experience at Makivvik Corporation as Communications Officer during seven years gave her an understanding of Inuit self-determination, political and economic development. She represented Makivvik in a number of regional, national and international forums such as ICC Conferences in Kuujuaq 2002 and Barrow 2006 (as delegate), as well as the United Nations Permanent Forum on Indigenous issues. She participated in the Arctic Governance Task Force of the University of Washington, whose school of International Relations collaborated with Makivvik. She also joined the Coordination Autochtone Francophone, an international body of French speaking Indigenous peoples, for two years. Her experience at the Federation of the Cooperatives of Northern Quebec (FCNO) for three years also brought a keen awareness of the importance of greater economic and political autonomy in Inuit Nunangat.

As the co-founder and former president of Saturviit Inuit Women's Association of Nunavik, the issues of social-justice concerning Inuit women and children lead her to spearhead a study looking into the Inuit women's situation in Nunavik based on their perspective. The Resfore Hope and Peace report raised issues expressed by Inuit women of Nunavik on housing needs, education and employment, violence and abuse and the justice system in Nunavik.

Lisa is a member of the Kativik Environmental Quality Commission (KEQC) since 2010, an independent decision-making body responsible for evaluating and reviewing development projects in Nunavik. KEQC was created by virtue of the James Bay and Northern Quebec Agreement (JBNQA), governed by section 23 of the JBNQA and the Environmental Quality Act of Quebec. She is part of the Research Team, since July 2017, of the National Inquiry into Missing and Murdered Indigenous Women and Girls, a part-time position.

Rolf Rødven

Vita

Rolf Rødven (PhD, MBA) is executive secretary of the Arctic Monitoring and Assessment Program (AMAP). AMAP is organized as a working group to the Arctic Council, responsible for monitoring and assessing the state of the Arctic region with respect to pollution and climate change issues, and their impacts on ecosystems and human health. Rødven holds a PhD in the Northern Populations and Ecosystems program at UiT – the Arctic University of Norway, focusing on ecology of reindeer, as well as an MBA in strategic leadership and finance, focusing on leading organizational change in professional organizations. He is author of several scientific papers on Arctic ecology often related to impacts of climatic change, in systems ranging from seaweed and agriculture to seals, moose and reindeer. He previous positions include research director and director at the Norwegian Institute of Agricultural and Environmental research – Northern department, research director at the Norwegian Institute of Bioeconomic research, as section leader at UiT – the Arctic University of Norway, as well as leading positions in environmental management.

Arctic Council COP25 side event on ocean acidification – Ocean acidification background

Key Findings: AMAP's Arctic Ocean Acidification Assessment 2018

Summary For Policymakers

Why This Is Important

Oceans around the world are acidifying, primarily due to absorption of carbon dioxide from the atmosphere. Ocean acidification — commonly defined as an ongoing decrease in pH of seawater — poses a threat to marine organisms, ecosystems and human societies that depend upon them.

Biological and Socio-Economic Responses

The Arctic and subarctic regions are home to important and valuable fisheries. They yield a tenth of the global commercial catch, and subsistence fisheries provide vital nutritional and cultural services to Arctic residents.

The biological effects of ocean acidification are difficult to assess, especially because this process is taking place at the same time as other major changes, such as ocean warming, oxygen depletion and, at high latitudes, sea ice loss. Human activities are causing a range of impacts in addition to ocean acidification, which complicate biological responses to the latter. A wide range of direct and indirect effects of acidification have been observed, some negative and some positive. Some species will have an advantage while others will be disadvantaged, possibly to the point of local extinction. Ocean acidification may threaten fisheries, both directly, by altering the growth, development or behavior of marine life, and indirectly, by altering food webs and predator-prey relationships. The future effects of ocean acidification will not be uniform, nor can they be reliably predicted. Nonetheless, ocean acidification, alongside other ecosystem stressors, is likely to affect the abundance and distribution of fish stocks and marine animals of commercial and cultural importance to communities in the Arctic and beyond.

Norwegian Kelp and Sea Urchins

Models project that harvest yields of sea urchins may decline sevenfold over the next 30 years. While warmer sea temperatures are the main driver, acidification is also a factor. Both drivers affect sea urchins, a major predator of kelp, mainly during their larval and juvenile stages. Kelp is heavily impacted by sea urchins along the coast of northern Norway. Although acidification may have weakly positive impacts on kelp growth, it is unlikely to allow full recovery of the kelp forest off northern Norway over the next 30 years unless combined with a rigorous urchin cull.

Barents Sea Cod

Ocean acidification could result in increased mortality and reduced catch, greatly increasing the risk of fishery collapse, compared to the risk from ocean warming alone. The stock may be able to support only a much smaller fishing industry. Even with the best adaptation efforts, the fishery may be at risk of collapse by the end of the century. Good fisheries management can help reduce this risk and aid fish stock adaptation to a changing environment.

Greenland Shrimp Fishery

Northern shrimp appear to be relatively resilient to the direct effects of ocean acidification, although indirect effects could be more significant. For example, changes to shrimp predators could affect shrimp numbers, while acidification could affect market demand for the product owing to degraded flavor. Nevertheless, there are high levels of uncertainty at all stages of analysis, from the rate of acidification, to its biological, ecological and economic impacts.

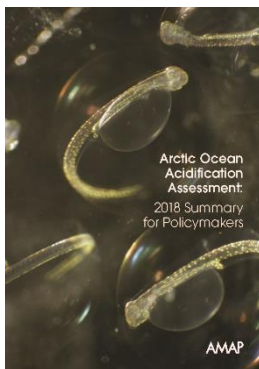
Alaska's Fishery Sector

Mollusks are likely to be the organisms most affected by ocean acidification. This will result in cascading effects through the food chain, affecting predators such as walrus, seals and humans. A review of the red king crab fishery in Bristol Bay found that acidification is expected to cause a long-term decline in the harvest, with southern Alaska facing the greater risk due to many factors including its dependence on susceptible species for nutrition and income. These changes will affect both highly productive commercial fisheries and traditional subsistence ways of life.

Arctic Cod in the Western Canadian Arctic

Arctic cod (or polar cod) is a key forage species in the food web that supports the region's Indigenous communities. Potential changes in the availability of Arctic cod are of great relevance to local communities, and there is already evidence of its distribution shifting northward as the Arctic Ocean warms. The abundance of Arctic cod could decline, while other forage species, such as capelin and sandlance, are likely to migrate northward into the region. A decrease in Arctic cod abundance could affect its predators, including culturally important species hunted by Inuit, such as ringed seals and beluga.

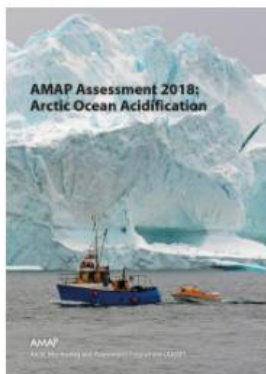
Further reading



AMAP Arctic Ocean Acidification Assessment 2018: Summary for Policy-Makers

AMAP, 2019. Arctic Ocean Acidification Assessment 2018: Summary for Policy-Makers. Arctic Monitoring and Assessment Programme (AMAP), Oslo, Norway. 16 p

[View and download document here](#)



AMAP Assessment 2018: Arctic Ocean Acidification

AMAP, 2018. AMAP Assessment 2018: Arctic Ocean Acidification. Arctic Monitoring and Assessment Programme (AMAP), Tromsø, Norway. vi+187pp

[View and download document here](#)

Arctic Council COP25 side event on ocean acidification – Media resources

Quotes

“The acidity of the world’s oceans is rising likely faster than at any time during the past 55 million years, not least in the Arctic. Our oceans connect countries and continents – all of us. We must all go abroad and tackle the challenges ahead of us.” - HE. Mr. Guðmundur Ingi Guðbrandsson, Icelandic Minister for the Environment and Natural Resources,

“The Arctic Council has facilitated strong cooperation on projects related to ocean acidification and its Arctic Monitoring and Assessment Programme has produced comprehensive circumpolar assessments, which include both state-of-the-art scientific knowledge as well as traditional knowledge and local knowledge. We therefore saw a strong potential in bringing our knowledge base on this topic to the COP25.” – Ambassador Einar Gunnarsson, Chair of the Senior Arctic Officials

“The Arctic Monitoring and Assessment Programme’s Arctic Ocean Acidification 2013 and 2018 reports show that Arctic marine ecosystems are highly likely to undergo significant changes as a result of ocean acidification. Changes to lower-level organisms such as shellfish could have cascading effects through the food chain. This will have direct and indirect effects on Arctic marine life and is likely to affect the availability and quality of marine based food resources for both Arctic and non-Arctic societies.” – Rolf Rødven, executive secretary of the Arctic Monitoring and Assessment Programme

Images

Pictures for media use are available for download on [Flickr](#)

Hashtags

#COP25 | #COP25Arctic | #IceArctic | #COP25CryospherePavilion | #oceanacidification

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Arctic Council COP25 side event on ocean acidification – Background information organizers

The Arctic Council

Established in 1996, the Arctic Council is at the forefront of Arctic cooperation. In its first 23 years it has become the most important body for promoting a positive agenda and coordinating joint action on all vital issues in the region. The Council is presently developing a strategic plan, the first of its kind for the Council as a whole that will guide the Council's activities into the future.

The Arctic Council focuses on issues of sustainable development and environmental protection in the Arctic.

Ministerial meetings take place biennially and mark the end of one Arctic Council Chairmanship and the beginning of another. Iceland began its two-year term at the Ministerial meeting in Rovaniemi, Finland in May 2019, resuming the Chairmanship from Finland. In 2021, Iceland will pass the Chairmanship to Russia.

The eight Arctic States are Canada, the Kingdom of Denmark, Finland, Iceland, Norway, the Russian Federation, Sweden, and the United States.

The six indigenous Permanent Participant organizations are the [Aleut International Association](#), [the Arctic Athabaskan Council](#), [the Gwich'in Council International](#), [the Inuit Circumpolar Council](#), [the Saami Council](#), and RAIPON – the Russian Association of Indigenous People of the North.

The six Working Groups of the Arctic Council are:

- [ACAP \(Arctic Contaminants Action Program\)](#)
- [AMAP \(Arctic Monitoring and Assessment Programme\)](#)
- [CAFF \(Conservation of Arctic Flora and Fauna\)](#)
- [EPPR \(Emergency Prevention, Preparedness, and Response\)](#)
- [PAME \(Protection of the Arctic Marine Environment\)](#)
- [SDWG \(Sustainable Development Working Group\)](#)

The Arctic Council currently has 39 Observers. Observer status is open to non-Arctic states, inter-governmental and inter-parliamentary organizations, and non-governmental organizations.

www.arctic-council.org

The Icelandic Chairmanship of the Arctic Council

Together towards a sustainable future - the theme of the Arctic Council Chairmanship program for 2019-2021 reflects Iceland's commitment to the principle of sustainable development and refers to the necessity of close cooperation between the states and peoples of the region and beyond. With sustainable development as an overarching theme, Iceland will highlight four priorities: The Arctic Marine Environment, Climate and Green Energy Solutions, People and Communities of the Arctic, and a Stronger Arctic Council.

Read Iceland's [Chairmanship program here](#).
Visit the [Icelandic Ministry for Foreign Affairs website](#).

The Arctic Monitoring and Assessment Programme

The Arctic Monitoring and Assessment Programme is one of six Working Groups of the Arctic Council.

AMAP is mandated:

- To monitor and assess the status of the Arctic region with respect to pollution and climate change issues.
- To document levels and trends, pathways and processes, and effects on ecosystems and humans, and propose actions to reduce associated threats for consideration by governments.
- To produce sound science-based, policy-relevant assessments and public outreach products to inform policy and decision-making processes.

AMAP's work is directed by the Ministers of the Arctic Council and their Senior Arctic Officials, who have requested AMAP to also support international processes that work to reduce the global threats from contaminants and climate change. These include the UN Framework Convention on Climate Change, UNEP's Stockholm Convention on Persistent Organic Pollutants and Minimata Convention on mercury, and the United Nation's Economic Commission for Europe (UN ECE) Convention on Long-range Transboundary Air Pollution.

Since its establishment in 1991, AMAP has produced a series of high-quality reports and related communication products that detail the status of the Arctic with respect to climate and pollution issues and that include policy-relevant science-based advice to the Arctic Council and governments.

www.amap.no