

2014/2/SSGIEA03 The ICES/AMAP/CAFF/PAME Workshop on Integrated Ecosystem Assessment (IEA) for the Central Arctic Ocean (WKICA), chaired by Hein Rune Skjoldal, Norway, Phillip Mundy, USA, Alexander Klepikov, Russia, and Reidar Hindrum, Norway will be established and will meet 28–29 May 2015 in Bergen, Norway to:

- a) Consider the purpose and scope of an Integrated Ecosystem Assessment (IEA) for the Central Arctic Ocean.
- b) Review the data and information available from past and on-going monitoring and research that could be used in and inform the conduct of an IEA.
- c) Consider the geographical scope for a Central Arctic Ocean IEA, in particular the relationships to the ‘up-stream’ Atlantic (Barents Sea and Fram Strait) and Pacific (Bering Strait and Chukchi Sea) gateways.
- d) Consider the thematic scope of an IEA, e.g. impacts from climate variability and change, contaminants and pollution, shipping, and fisheries.
- e) Suggest practical steps for initiating and carrying out an IEA for the Central Arctic Ocean.

WKICA will report by 29 June 2015 (via SSGIEA) for the attention of SCICOM and ACOM.

Supporting information

Priority	Arctic research is a priority area for ICES from the perspective of better understanding ecological processes and human impacts in this ecosystem. WKICA aims to scope and further develop Integrated Ecosystem Assessments for the Central Arctic Ocean, as a step towards implementing the ecosystem approach.
Scientific justification	<p>Integrated Ecosystem Assessment (IEA) is a core element of the Ecosystem Approach to management (EA). The large basins of the Central Arctic Ocean (CAO) have been identified as a Large Marine Ecosystem, and there is a need now to consider whether an IEA should be carried out for this LME. The CAO is part of the Arctic Mediterranean Sea and is openly connected to the deep basins of the Nordic Seas through the deep Fram Strait. Atlantic water flows into the CAO through the Fram Strait and the Barents Sea, while Pacific Water flows up through the shallow Bering Strait and the Chukchi Sea. These inflows have decisive roles for the circulation and ice conditions in the CAO, and the conditions in the CAO again influence the climate and climate variability in the northern North Atlantic and North Pacific. Better understanding of the role of the CAO in the hemispherical and global climate systems will contribute to better understanding of climate and ecosystem variability in the core ICES area in the North Atlantic as well as in the Bering Sea and Gulf of Alaska in the North Pacific.</p> <p>The sea ice in the Arctic Ocean is diminishing both in area and thickness and the sea ice habitat is threatened by global climate change. Sea ice flora and fauna (e.g. ice amphipods) are to large extent endemic to the Arctic Ocean and there is a need to assess the current and future impacts of climate variability and change on this unique biota. The drifting pack ice is also the summer habitat of many polar bears from subpopulations around the CAO (e.g. Barents, Kara, Laptev, Chukchi, Southern and Northern Beaufort subpopulations) which move with the retreating ice into the Arctic Ocean in summer. Climate change represents a threat to these polar bear subpopulations.</p>

	<p>There are stocks of polar cod (<i>Boreogadus saida</i>) around the periphery of the CAO with probable spill-over and dispersal under the ice in the CAO. There is also likely to be a relatively large stock of Arctic cod (<i>Arctogadus glacialis</i>) in the Canada Basin of the Arctic Ocean. There is currently an interest by the coastal Arctic states to clarify the prospects of future Arctic fisheries under climate change. Polar and Arctic cod along with ice amphipods and other ice fauna are the food base for ringed seals, beluga whales, narwhals and polar bears which use the drift ice of the CAO in summer. The peripheral area of the drift ice of the CAO is also used by seabirds, notably ivory and Ross's gulls. There is a need to assess the current situation and likely impacts by climate variability and change for the sea ice and pelagic parts of the CAO ecosystem.</p> <p>Contaminants are entering the Arctic through air and water. Climate variability and change will affect the physical and biological transport pathways of contaminants (ref AMAP 'pathway' report from 2002) and their biological effects in the CAO as well as in adjacent and linked ecosystems (e.g. the Barents and Greenland seas). An IEA may include assessment of the current and future pollution status in the CAO. Arctic marine shipping is also an activity that may be included in an IEA for the CAO.</p>
Resource requirements	Assistance of the Secretariat in exchanging information to potential participants.
Participants	The Group is expected to be attended by some 20–25 members and guests.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to advisory committees	There are no direct linkages with the advisory committees.
Linkages to other committees or groups	Linkages should be established to the other IEA groups (WGIAB, WGINOSE; WGIBAR, WGEAWESS; WGNARS) and the Arctic Fisheries Working group (AFWG).
Linkages to other organizations	The work of this group is a joint effort with AMAP, PAME, CAFF.