

15 May 2013

**Terms of Reference
for
Second Meeting of Scientific Experts on Fish Stocks in the Arctic Ocean

Tromsø, Norway
October, 2013**

Following discussions at the meeting in Oslo 22 June 2010, where senior officials of the coastal States stressed the need for further scientific research on fish stocks and their ecosystems in the Arctic Ocean, a Meeting of Scientific Experts on Fish Stocks in the Arctic Ocean was held in Anchorage 15-17 June, 2011. At a meeting including scientists, managers, and policymakers convened in Washington, D.C. on 29 April- 1 May 2013 it was agreed that the Institute of Marine Research, Norway should host a second scientific workshop in Tromsø, Norway in late October 2013.

The Anchorage workshop addressed current information on fish stocks, reviewed ongoing and planned scientific activities, identified current information gaps and options to address them, and set priorities in regard to identified research requirements. The workshop also discussed opportunities and impediments to further cooperation. Though commercial fishing in the central Arctic Ocean was not imminent then or at the present, there remains a need for further scientific research on the state and nature of living marine resources and their ecosystems. There is also a need to increase our understanding of the impact of climate change on Arctic ecosystems in general.

The 2013 meeting of senior officials of the central Arctic Ocean coastal states in Washington D.C. determined that the chief objective of a second workshop of scientific experts will be to examine the data and monitoring requirements for providing answers to questions about the status of Arctic living marine resources with particular focus on the central Arctic Ocean region. A series of questions pertaining to any possible movement of fish stocks of commercial interest into the high seas in the Central Arctic Ocean were developed to assist the discussion (see appendix 1).

The purpose of these supplementary Terms of Reference, supplementing the Terms of Reference agreed before the 2011 Anchorage meeting, is to describe the issues which the scientific experts are requested to consider in a second workshop. With the need for continuity in mind, the October 2013 workshop will follow up on the Anchorage workshop by revisiting the issues raised at the first workshop, with special emphasis on further discussion of the research priorities. In particular, the workshop will address this priority item from the Anchorage meeting:

- Establish baseline conditions and define information needs for to monitoring changes in baseline conditions which might influence patterns of distribution and abundance of finfish in the Arctic Ocean. This is viewed as a high-priority requirement.

- Briefly review current programmes for monitoring critical environmental parameters and patterns of distribution and abundance of plankton, fish, invertebrate and marine mammals in the Arctic.
 - Evaluate survey design and sampling protocols and develop recommendations to ensure methodological, temporal and spatial consistency.
 - Discuss and, as appropriate evaluate, the survey design and sampling protocols of a survey program for the central Arctic Ocean to monitor the distribution and abundance of finfish and shellfish stocks of potential commercial importance.
- Evaluate the outcome of relevant recent scientific meetings, such as the ICES/PICES workshop in St. Petersburg in May 2013, and discuss strategies to communicate outcomes regarding implications of climate change on management of living marine resources in the Arctic context.
 - Consider meetings and other fora for future scientific cooperation.

This workshop will constitute an initial, necessary step for science to be able to respond to the overarching questions regarding the likelihood and significance of commercial fish and shellfish stocks moving into the Central Arctic Ocean. Subsequent workshops will address other priority issues, including questions relating to modeling of ecosystem properties.

Participants at the workshop will include fishery and ecosystem scientists from the coastal states of the central Arctic Ocean, as well as others with relevant scientific expertise who are associated with the International Council for the Exploration of the Sea (ICES), the North Pacific Marine Science Organization (PICES), and other similar organizations. When deciding on participation to the workshop, the governments of the Arctic coastal states should consider including, as appropriate, local and indigenous perspectives.

The scientific experts will report back to their respective Governments, who will decide on further steps to be taken.

Appendix 1: Thematic Questions Relevant to the Workshop

- What fishes exist in the Central Arctic Ocean and what is their role in the structure, function, resistance and resilience of the Arctic marine ecosystems and their biota?
- What fishes are present in the marginal shelf areas within the waters under national jurisdictions of the respective Arctic countries and which of these may colonize, move, or become straddling stocks between such waters and the high seas?
- What fishes present in the waters under the jurisdiction of the Arctic countries are currently straddling stocks and what reliance do these have on processes, habitats or elements within the high seas of the Central Arctic Ocean?
- What biological conditions must exist in the Central Arctic Ocean to underpin and support commercial exploitation and do these now exist?
- What information and monitoring data exist to inform decision-making regarding sustainable, potential fisheries in the Central Arctic Ocean?
- What gaps exist in this information base? What is required in the short, medium and long term in order to develop the information particularly from the perspective of establishing early warnings of negative effects of potential commercial fishing on Arctic ecosystems, critical habitats therein, or at risk sensitive biota?
- What individual and joint projects should be initiated by the Arctic coastal states in which geographical areas and over what time frame, in order to develop the information needed and monitor the changing state of the Central Arctic Ocean, and develop understanding of the changing ecosystem therein?