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Marine Research Access in the Arctic Ocean: Background for Potential Guidelines in a Changing Arctic

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Scientists seeking to work in the Arctic Ocean have long faced physical and geopolitical constraints on access to its waters and its continental shelf. This was true before the UN Convention on the Law of the Sea (the "LOS Convention") entered into force in 1994 and it is true in 2010 as the scientific community builds on accomplishments and collaborative efforts of the 2007-2009 International Polar Year.

Two major factors affecting Arctic Ocean access have undergone substantial change in the last decade: the geopolitics of confirming rights over the extended continental shelf under the LOS Convention, and major reductions in Arctic Ocean summer ice extent, greatly increasing the area of open water accessible to surface vessels and, potentially, for resource extraction. At the same time, technological innovations, such as increasing use of autonomous sensor platforms, are beginning to transform environmental research in extreme environments. These developments render it timely to consider what adjustments and innovations can improve the procedures currently governing access to the Arctic Ocean for marine scientific research.

This White Paper has four aims:

A) To provide background on current practice for marine scientific research (MSR) access to the Arctic Ocean, definitions of MSR, and the potential for more restricted access to the Arctic continental shelf;
B) To introduce IPY-related initiatives for improved research access to the Arctic;
C) To propose possible fora in which to pursue more formalized access for MSR and to outline the need for further work and communication; and
D) To initiate a discourse within the international research community that can lead to the development of plausible scenarios for future research access, and in a collaborative setting to develop consensus and promote fair access for scientific research purposes.

With these four steps, this White Paper lays the groundwork for the next phase of our project, to be covered in a subsequent document: proposing a set of guidelines that will improve the reliability of access to the Arctic Ocean for scientific research, clarify access for scientific research there after extended continental shelves have been delineated, enhance the protection of national interests for Arctic Ocean coastal States, and promote the growth of trust amongst

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scientists, government authorities and local residents necessary for scientific research to proceed. Ideally, the non-binding guidelines to emerge from this project can serve as the foundation for any legally binding arrangement or more formal MOU that might be deemed necessary in the future.

A) Background on Current Practice, Definitions of MSR and the potential for more restricted access to the Arctic Continental Shelf

1) Current Practice

Each of the five Arctic Ocean littoral states now follows some variation of the rules set out in Part XIII of the LOS Convention that require scientists to obtain coastal state permission before conducting MSR in its territorial sea, exclusive economic zone (EEZ) or on its continental shelf. Under "normal circumstances," consent for access to the EEZ or shelf may not be unreasonably delayed or denied (LOS Art. 246) if the scientists seeking permission - through the appropriate government body, e.g. the Office of Ocean and Polar Affairs, U.S. Department of State - follow procedures established by the coastal state and otherwise comply with the requirements of Part XIII, e.g., that the research is to be for peaceful purposes and to increase scientific knowledge of the marine environment for the benefit of all mankind. By way of example, Norway's procedures (Norway 2009, § 9) reference application forms which in turn are based on the Draft Standard Forms developed by the United Nations Division of Ocean Affairs and Law of the Sea pursuant to Part XIII of the Convention (UN 1991).

In April 2009 the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO) Advisory Body of Experts on the Law of the Sea (ABE-LOS) published survey results regarding MSR permissions requested and granted by all coastal states from 1998-2002 (Tirpak 2009-a, 2009-b, 2009-c). The results for the five Arctic Ocean littoral states (all waters, not just the Arctic Ocean) appear in Table 1.

Table 1: MSR permission requests received and approved by Arctic littoral states (all waters)

1998-2002 MSR Permissions*	Canada	Denmark	Norway	Russian Federation	United States
Requests received annually	103	200	68	106	70
Percent Approved	98%	95%	99%	78%	100%

*Statistics shown are for **all** adjoining waters of each state, not just for the Arctic Ocean. Figures for the Arctic Ocean only are not separately published.
Source: Tirpak 2009-a, IOC Survey of the Practice of States with Respect to Part XIII LOS Convention

The survey results help considerably to address the lack of basic information regarding MSR practices generally noted by scholars and scientists studying MSR permitting processes (Wegelein 2005, Knauss/Katsourous 1986). Nonetheless, anecdotal reports indicate a growing concern specific to the Arctic about declining reliability of MSR access to the Arctic Ocean (IARC 2009, Macnab 2007).

2) What is Marine Scientific Research?

The LOS Convention does not define "Marine Scientific Research." Several states take the view that, at a minimum, hydrographic surveys are excluded from the permission requirements of Part XIII (though other regulatory regimes may apply). This view is based on the distinction between "marine scientific research and hydrographic surveys" in Article 21 of the Convention, under which the coastal state may adopt laws and regulations regarding innocent passage through its territorial sea.

The U.S. Department of State considers that activities not amounting to Marine Scientific Research (MSR) include:

> "prospecting for and exploration of natural resources; hydrographic surveys (for enhancing the safety of navigation); military activities including military surveys; environmental monitoring and assessment of marine pollution pursuant to section 4 of Part XII of the Convention; the collection of marine meteorological data and other routine ocean observations, including through the voluntary ocean observation programs of the Joint IOC-WMO Technical Commission on Oceanography and Marine Meteorology (JCOMM) and the Argo program; and activities related to submerged wrecks or objects of an archeological and historical nature." (U.S. Department of State, 2010)

The activities listed above and not considered to be MSR, while not subject to the consent requirements referenced in part A.1 above, are subject to other legal regimes. Roach proposes "marine data collection" as an umbrella term without legal content "under which to consider the various activities for which the law of the sea does provide varying regimes depending on the maritime zone involved." (Roach 2009)

It is beyond the purview of this paper to discuss in detail possible definitions of MSR. The second MSR White Paper will address the pros and cons of defining MSR more specifically for any MSR access regime that might develop for the Arctic Ocean. For this paper, we simply highlight the fact that, as sea ice diminishes and vessel traffic and industrial activities increase in the Arctic Ocean (PAME 2009), surveying and operational information needs will increase and will require reliance on methods such as deployment of ice-tethered, autonomous sensor packages (Proshutinsky et al., 2005) that, in other oceans, may not be considered classic hydrography. Along these lines, we hope to focus future discussion on activities that are directly relevant for or part of research campaigns - such as hydrographic surveys, environmental monitoring and assessment of marine pollution, collection of marine meteorological data and other routine ocean observations, and archeological and historical studies - and to more fully articulate the different legal regimes that may apply to MSR and other kinds of "marine data collection" in the Arctic. (Roach 2009)

3) Potential for more restricted access to the Central Arctic Ocean: Shelf v. Water Column v. "the Area"

All five Arctic Ocean littoral states are actively seeking to confirm, or have had confirmed, their rights over their extended continental shelves under the process spelled out in Article 76 of the LOS Convention. Those rights comprise the exclusive right to explore and exploit the living and non-living resources of the seabed and subfloor, and sedentary species (LOS Art. 77). The confirmation of extended continental shelf rights has the potential to further restrict research access in the Arctic Ocean. Macnab has speculated that, when the process is completed - potentially decades from now - only a small portion of the Arctic Ocean will remain open to all states for MSR under the high seas freedoms guaranteed by Convention. That portion would include only the Arctic Ocean seabed and ocean floor and subsoil thereof that remains beyond the limits of national jurisdiction. However, under LOS Art. 257, seaward of the EEZ MSR would still be allowed in the water column and, presumably, on the sea ice. The Central Arctic Ocean is already surrounded by an "unbroken band" of 200 nm EEZs (Macnab 2007).

What does this mean for scientists seeking permission for MSR in the Arctic Ocean? Coastal states may regulate MSR access to both the water column and the continental shelf within their exclusive economic zones (EEZ), typically 200 nm from the baselines from which the breadth of their territorial sea is measured. Seaward of the EEZ all states regardless of geographic location, as well as competent international organizations, have the high seas freedom, in keeping with the Convention and coastal state regulations, "to conduct marine scientific research *in the water column* beyond the limits of the exclusive economic zone." (LOS Art. 257, emphasis added). Seaward of the EEZ, on the continental shelf - as opposed to the water column - , in principle coastal states may withhold consent only for those parts of the shelf that they have designated in advance for actual or imminent exploitation or detailed exploratory operations (LOS Art. 246 [6]). However, this provision offers no practical hurdle to a state designating much or all of its continental shelf as being part of this exploration/exploitation area and thus more restricted for MSR acccess. Finally, all states have the right to conduct MSR in "the Area", which the Convention defines as "the seabed and ocean floor and subsoil thereof beyond the limits of national jurisdiction," i.e. not included or delineated as the continental shelf of the coastal state.

In confirming their extended continental shelf rights, all five states are abiding by the relevant procedures prescribed in the LOS Convention. Norway received final Recommendations from the Commission on the Limits of the Continental Shelf (CLCS) in 2009. The Russian Federation, building on its initial submission in 2001, plans to submit additional data as the Commission requested in its interim Recommendation. Canada and Denmark/Greenland have until 2013 and 2014, respectively, to initiate the submission process at the CLCS. The United States will not be able to submit data to the CLCS unless it accedes to the Convention.

Even if the limits of all five states' continental shelves are not finally determined for another two or three decades, the scientific community is well advised to prepare in advance for what will be eventual control of the Arctic littoral states over significant portions of the Arctic continental shelf.

B) The Arctic Council and IPY-related discussion of access to the Arctic for research purposes

The International Polar Year 2007-2009 generated an unprecedented level of international cooperation and coordinated activities in Arctic marine scientific research, and increased interest in access issues. A scoping report prepared for the Arctic Council, *Maximizing the Legacy of the IPY*, and presented to the Arctic Council in April 2009 highlighted "*access to study areas and infrastructure*" as one of the four areas for follow-up actions (AC-SAO 2009-b, emphasis added). This italicized language regarding access is repeated verbatim in the Arctic Council's April 2009 Tromsø Declaration, a document circulated widely in policy circles, as one component the Council supports under "continued international coordination to maximize the legacy of the IPY."

Subsequently, the SAOs discussed the scoping study recommendations at their November 2009 meeting in Copenhagen. The final report of that meeting references two statements relevant to the scoping study and the question of study access to the Arctic (accesss generally; the Arctic Ocean was not specified as such):

1) The SAOs observed that "*Action in some recommended areas, such as enhancing access to study areas and maintaining infrastructure, needs to be pursued nationally and in the bodies that deal with these issues*. Funding is a national responsibility." (AC-SAO 2009-a, emphasis added). Notably, the SAO did not identify any such bodies.
2) The SAOs also took the following "Decision: SAOs agreed that the Arctic Council would continue to contribute to the legacy of IPY by asking the working groups to make use of the most up-to-date research results in ongoing assessment processes, as well as through contributions to, *inter alia*, SAON. SAOs agreed to support a joint Arctic Council/ATCM workshop in June 2010 in conjunction with the Oslo IPY Conference to further discuss IPY legacy issues." (AC-SAO 2009-a)

Close cooperation between the Arctic Council and the Antarctic Treaty Consultative Meeting on post-IPY projects, such as the June 2010 IPY meeting noted above, was suggested in the Final Report of the SAO's 2007 meeting (in Narvik, Norway) as well. There the IPY Joint Committee 6th session in October 2007 Quebec was reported to have "asked that the Arctic Council continue to help with access to areas in the Arctic for research." AC-SAO 2007, 14.

C) Possible fora in which to pursue improved access for Arctic MSR; The need for further work and communication

The SAO observations reported above, that post-IPY follow-up on access issues is best pursued nationally and in relevant bodies dealing with such issues, indicates the need for coordinated, complementary organization on this and related issues.

Independent next steps should include:

1) The Arctic research community reviewing and possibly amending or revising the issues and goals identified in this White Paper, based on discussions and feedback solicited, e.g., at scientific working group meetings or international conferences and through other appropriate channels. As one example, the Polar Research Board of the U.S. National Research Council has discussed the possibility of a 2010 workshop on access impediments to research in the Arctic and related issues (Polar Research Board 2009). Similar opportunities in other countries should be identified and publicized.

2) Identifying bodies (e.g. Intergovernmental Oceanographic Commission - IOC, International Arctic Science Committee/Arctic Ocean Sciences Board – IASC/AOSB, International Arctic Buoy Program - IABP, International Study of Arctic Change – ISAC, Sustained Arctic Observing Networks – SAON, and others) and national authorities interested in improving access to the Arctic Ocean for MSR, and appropriate contacts in each of them (respecting that some bodies will not want to engage in access-related activities that might be considered political).

3) Collecting information on related initiatives for MSR access that these national entities and relevant bodies have undertaken, whether successful or unsuccessful. A study of reasons for failed initiatives may also prove useful.

4) Working with experts within international bodies that have successfully developed guidelines and ensured access for marine research in other geographic settings (e.g., Joint IOC/WMO Technical Commission for Oceanography and Marine Meteorology) to explore how such models could be applied to the Arctic.

5) Reviewing and potentially revising definitions of key activities related to marine scientific and operational research in light of recent technological and scientific advances.

Arctic research has a long history of strong international collaboration and coordination, with all Arctic coastal states strongly reaffirming this tradition during the recent IPY. All Arctic coastal states have much to gain from joint agreements and further initiatives towards improved scientific access in a rapidly changing Arctic. Further work along the lines described above can help ensure safe operations and marine activities in Arctic Ocean environments.

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