Arctic Ocean Governance Workshop

Summary Report

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About This Report

This report synthesizes insights from a two-day workshop hosted by the Belfer Center's Arctic Initiative at the Harvard Kennedy School on November 6-7, 2025. The workshop brought together experts from environmental, technical, academic, policy, and legal fields, as well as representatives of Arctic Indigenous communities, to consider current and likely future threats to biodiversity in the Arctic Ocean arising from climate change and the prospect of increasing industrial activity that may occur as the region continues to grow warmer. Participants reviewed efforts to address these challenges at the local, national, and circumpolar levels with a view to deriving "lessons learned" from such efforts and determining how successful initiatives might be scaled up or adapted for use in other parts of the Arctic.

To facilitate a free flow of ideas, the workshop took place under the Chatham House Rule. We did not seek to reach consensus amongst participants on the issues being discussed; this report is simply an overview of notable ideas, issues, and questions that emerged from the discussion. A separate report lays out recommendations, inspired by the workshop discussions, for policymakers and practitioners concerned with the Arctic Ocean and its biodiversity.

The Belfer Center gratefully acknowledges the support and partnership provided by a number of environmental organizations and Arctic Indigenous groups who contributed to the organization of the workshop.

Background

The Arctic Ocean plays a vital role for our planet, providing life-support functions on which all humans depend. Its sea ice regulates global temperatures, drives ocean currents, influences weather patterns, sustains vibrant fisheries, and supports a remarkable web of life, from tiny invertebrates to massive bowhead whales. The Arctic Ocean supports a variety of people, including Indigenous communities whose lifeways and traditions have developed in close connection with this environment.

Its essential role is threatened by dramatic, climate-driven changes, including atmospheric and ocean warming, reductions in sea ice coverage and thickness, ocean acidification, declining salinity, and changes in the distribution and abundance of marine life. New industrial activity may further strain the Arctic's marine ecosystems.

To protect Arctic Ocean biodiversity, reducing global carbon emissions remains critical. Regionally, measures such as establishing conservation areas and precautionary restrictions on industrial activities are essential. Progress at the regional level has been limited: as of 2022, only 5% of Arctic marine areas were protected,[1] highlighting the urgent need for action.

1 CAFF/PAME. 2022. Status and Trends for Arctic Conservation Measures. Conservation of Arctic Flora and Fauna and Protection of the Arctic Marine Environment. Akureyri, Iceland, p. 9.

Workshop participants discussed climate-related challenges to Arctic marine conservation, as well as geopolitical challenges to international cooperation, science, and stewardship. Against this sobering backdrop, participants shared information about current trends in science, policy, and resource development; perspectives on what may work in marine conservation; ideas on how leadership gaps may be filled; and specific measures that practitioners in the conservation community can pursue.

Key Discussion Themes

Workshop participants identified opportunities at local, national, and circumpolar scales to accelerate conservation of the Arctic Ocean's unique ecological values. Through discussions and presentations, the following themes emerged as central to Arctic Ocean governance:

- An ambitious vision is needed for the conservation of Arctic marine ecosystems and biodiversity.
- Ecological connectivity is an essential part of area-based conservation.
- Dynamic, adaptive management is required to respond effectively to impacts of climate change, the seasonality of Arctic systems and species, and the emergence of new threats.
- The entry into force of the Agreement on Marine Biological Diversity in Areas Beyond National Jurisdiction (BBNJ Agreement) offers a new tool to safeguard Arctic marine ecosystems in the Central Arctic Ocean.
- The precautionary principle, recently applied to fishing in the central Arctic Ocean, now must also be applied to other industrial activities.
- Indigenous leadership and governance, along with the integration of Indigenous knowledge and Western science, are essential for effective conservation and management.
- Broad engagement of civil society is required for buy-in and durability.
- Engagement of Russia at some level on Arctic Ocean stewardship will be essential.

An ambitious vision is needed for the conservation of Arctic marine ecosystems and biodiversity.

Several large-scale marine conservation initiatives were examined as models for replication across the circumpolar Arctic. One of these grew out of a partnership between the Qikiqtani Inuit Association (QIA) in Nunavut and the Government of Canada. Known as SINAA, this initiative will designate 989,879 km^2 of marine and terrestrial ecosystems as conservation areas, an area larger than British Columbia and twice the size of California. The effort, which is supported through the "Project Finance for Permanence," was finalized in November 2025 and sets a high bar for other Arctic states to emulate. The SINAA case demonstrates the power of an ambitious vision for ecological integrity to galvanize cooperation among Inuit leaders and residents, governments, and the conservation and philanthropic communities. SINAA builds on previous successes in the Canadian Arctic, such as the designation in 2024 of Tuvaijuittuq Marine Protected Area (319,411 km^2), which is contributing to ecosystem conservation in the region of the Arctic where multiyear sea ice persists.

Similar levels of coordination action and sustained commitment are urgently needed to meet the Global Biodiversity Framework target of protecting 30 percent of ocean areas by 2030. Expanding conservation across the Arctic can be accelerated with the help of ArcNet, the first ocean-scale analysis of Arctic biodiversity. Through ArcNet, World Wildlife Fund (WWF) has identified a network of priority areas to conserve marine life and the important functions of the region's unique and interconnected ecosystems. Grounded in rigorous scientific analysis, ArcNet provides a practical blueprint to guide action by governments, marine stakeholders, and Indigenous Peoples. It remains an underutilized tool that can enable broader participation, expand knowledge, and integrate changing conditions into conservation planning.

Ecological connectivity is an essential part of area-based conservation.

While protected areas comprise a central piece of an Arctic marine conservation strategy, other measures are needed to ensure ecological connectivity between these areas in the Arctic, particularly as industrial activities increasingly overlap with wildlife habitat.

Ship traffic in the Arctic is increasing through some of the world's most important marine mammal migration corridors. Workshop participants pointed to existing tools available through the International Maritime Organization (IMO) that could be more fully implemented and expanded throughout the Arctic, such as the use of Routing Measures and areas to be avoided. Additionally, more rigorous compliance with the Polar Code and addressing gaps in the Polar Code, are greatly needed to prevent further degradation of the Arctic marine environment in the face of increasing ship traffic.

In the Bering Strait, the IMO approved the designation of Routing Measures and Areas To Be Avoided. However, the Diomede Islands remain outside of any protective measure and are therefore vulnerable to risks posed by growing ship traffic. Conservation and Indigenous organizations should encourage the U.S. Coast Guard to establish an Area to be Avoided (ATBA) around Little Diomede and actively advocate for Russia to take similar protective measures around Big Diomede.

Protection of ecological corridors also must be complemented by management measures that address known industrial impacts on Arctic marine life, such as underwater noise, which cannot be limited to a singular location. Approaches include creating large buffer zones to reduce transboundary exposure, implementing speed restrictions, adjusting shipping routes, and enforcing improved ship design.

Dynamic, adaptive management is required to respond effectively to impacts of climate change, the seasonality of Arctic systems and species, and the emergence of new threats.

There is a growing need in the Arctic for dynamic management—the ability to adapt conservation measures to account for shifting species distributions and changing habitats

driven by climate change. Conservation groups, Indigenous organizations, and scientists can use emerging technologies to support and implement dynamic marine conservation. A key example is Arctic Watch, developed by the Marine Exchange of Alaska, which operates a comprehensive vessel tracking and monitoring program to enhance maritime safety and environmental protection. The program integrates real-time information from Indigenous observers and scientists, including small watercraft activity and migrating whale movements. This allows for active management of marine traffic to prevent ship strikes on whales or disruption of subsistence hunting. Arctic Watch is being piloted in the Bering Strait and surrounding Arctic waters, yet its development is constrained by limited funding.

Workshop participants also pointed to a provision of the Polar Code which could strengthen the potential for dynamic management if effectively implemented. Chapter 11 of the Polar Code requires consideration of Arctic conditions such as weather and ice coverage during voyage planning, but it provides insufficient guidance on biodiversity aspects of the marine environment. Integrating biodiversity data into voyage planning under the provision of the Polar Code could help reduce harm to marine life by vessel traffic. This could be done in partnership with Indigenous communities, and programs that exist in Inuit Nunangat including the Enhanced Maritime Situational Awareness and the Indigenous Marine Coordinator programs supported by Transport Canada.

More scientific research and monitoring is needed on Arctic whales and other mammals, both to fill knowledge gaps and support dynamic management of key migration routes for these species. Dynamic management measures could include slow steaming and rerouting vessels to avoid wildlife migrations. These voyage planning tools could be included in international, national, and regional governance frameworks. They also may be introduced as voluntary operational measures available to mariners on the bridge, through industry-led initiatives and other collaborative partnerships including with Indigenous peoples.

Discussions emphasized a need to engage the shipping industry on developing these tools and practices that incorporate ecological and biodiversity data into voyage planning. Collisions with whales can result in physical damage to vessels, such as bent propeller blades or temporary loss of steering. Avoiding these incidents, which incur costly repairs and may put the crew at risk in Arctic waters, should provide incentives for integrating biodiversity data into ships' operational plans.

The entry into force of the Agreement on Marine Biological Diversity in Areas Beyond National Jurisdiction (BBNJ Agreement) offers a new tool to safeguard Arctic marine ecosystems in the Central Arctic Ocean.

Although some commercial sectors are attempting to make greater use of the Arctic Ocean, much of the high seas area remains largely free from direct industrial pressures. Workshop participants, meeting shortly before the entry into force of the Agreement on Marine Biological Diversity in Areas Beyond National Jurisdiction (BBNJ Agreement), noted the important opportunity the treaty offers to maximize ecosystem health and protection

in advance of exploitative activities. The BBNJ Agreement includes provisions for area-based management measures through existing legal, subregional, or sectoral institutions, frameworks, and relevant bodies; capacity development; and technology transfer, particularly between Arctic states and Indigenous Peoples, and potentially through the Agreement's provisions for Strategic Environmental Assessments.

Workshop participants discussed ways to use this new treaty to advance conservation and marine stewardship in the Arctic. They pointed out that because not all Arctic states have ratified the BBNJ Agreement, pursuing other regional actions and governance mechanisms that engage all Arctic states is important in this window before additional industrial activity begins in the Arctic Ocean. In shoring up transboundary cooperation, Arctic states can lay critical groundwork for the treaty's implementation in their region by supporting existing governance bodies such as the Arctic Council, International Maritime Organization, and implementation of the Central Arctic Ocean Fisheries Agreement (CAOFA).

Additionally, in building a foundation for BBNJ implementation in the Arctic high seas area, states can coordinate on both Arctic Ocean science and policy through their participation in organizations such as the International Council for Exploration of the Sea (ICES), the North Pacific Marine Science Organization (PICES), and the Arctic Council's working group Protection of the Marine Environment (PAME). Furthermore, these organizations will also need to create mechanisms for effective information sharing amongst each other and with the BBNJ's Science and Technical Body.

As the BBNJ legal infrastructure develops, it will be critical for states to encourage International Frameworks and Bodies (IFBs) and relevant global and regional bodies to contribute information, assessments and expertise relevant to the BBNJ process. For example, states can urge the International Maritime Organization (IMO) to assess current and future shipping activities and their environmental impacts in the CAO; coordinate with IMO on the establishment of Particular Sensitive Sea Areas (PSSAs) in the Arctic, or at minimum use PSSA guidelines as reference points for Arctic BBNJ related management and conservation measures. In this connection, workshop participants recognized the need for PSSA guidelines to be updated in light of the entry into force of the BBNJ Agreement.

Another key suggestion from workshop participants included the need to advance a Strategic Environmental Assessment (SEA) for the Arctic Ocean. The marine conservation community could encourage Arctic states to undertake a pan-Arctic SEA (covering both areas within and beyond national jurisdiction) to account for transboundary impacts on and the interconnectedness of marine ecosystems. Such an approach could initiate a coordinated, multinational, multi-organizational effort that will utilize and leverage comprehensive work now underway in the Central Arctic Ocean, known as the on Integrated Ecosystem Assessment (IEA). The group's additional information on ecosystem threats should also be used to prescribe measures to enhance protection and reduce risk.

The BBNJ Agreement provides a mechanism for states to conduct SEAs, evaluating all activities with a potential impact in the high seas. The IMO could take a first step toward this process by conducting an Environmental Impact Assessment for trans-polar shipping. Because shipping along the proposed transpolar route would likely impact marine biodiversity in the CAO, the impact assessment could provide the needed impetus for cooperation between the IMO and the BBNJ implementing body. In short, integrating these efforts and fostering collaboration between the IMO and the BBNJ COP is essential to effectively and comprehensively protect and preserve the CAO marine ecosystem.

Finally, all workshop participants agreed on the necessity that implantation of the BBNJ Agreement implementation ensures active representation and engagement of Arctic Indigenous Peoples (IPs).

The precautionary principle, recently applied to fishing in the Central Arctic Ocean, must also be applied to other industrial activities.

Despite the significant climate change impacts already being experienced in the marine environment, the opportunity still exists to put in place the best standards and practices to guide future human activities in the central Arctic Ocean.

The Central Arctic Ocean Fisheries Agreement (CAOFA) highlights the value of pausing industrial activity when there is insufficient knowledge of the marine ecosystem before allowing resource use to proceed. Workshop discussions reflected broad agreement that, given the limited understanding of potential ecosystem impacts and the risk that these extractive industries could cause irreversible damage to the Central Arctic Ocean ecosystem, few risks should be taken.

Some workshop participants recommended pursuing a pause on new and expanding industrial activities in the Central Arctic Ocean by seeking agreement among nations to delay transpolar commercial shipping, potential seabed mining, and other human activities that could adversely affect the ecosystems of the Central Arctic Ocean. States could then use this precautionary pause to advance risk-reduction measures and strengthen the scientific foundation needed to inform future decision-making regarding industrial activities in the Central Arctic Ocean, including through targeted research and sustained monitoring. Workshop participants discussed the need to include Arctic Indigenous Peoples in the design and implementation of precautionary measures and management frameworks.

Workshop participants also highlighted a range of precautionary management measures available through the IMO that could significantly strengthen marine protection. These included:

- **Increasing the coverage of Emission Control Areas (ECAs).** ECAs reduce the impact of black carbon, nitrogen oxide (NOx), and sulfur oxide (SOx) on the marine environment and human health. Drawing on the success of existing ECAs in Norway, Canada, Denmark, and Iceland, new and/or expanded ECAs should be advanced in the Arctic. A first stage is to provide information, create relevant partnerships, and develop support for the ECAs in Alaska.
- **Amending the International Convention on the Prevention of Pollution from Ships (MARPOL Convention) to eliminate aging single-hulled tankers.** Russia continues to operate dozens of aging single-hulled tankers throughout the Arctic and its Far Eastern maritime provinces, raising the risk of pollution events. Revisions to Annex I of the MARPOL Convention could eliminate remaining exemptions that allow the operation of single-hull tankers with a deadweight of up to 5,000 tons, built before 1996; extend the double-hull or alternative approved construction requirements to tankers with a deadweight of less than 600 tons; and revoke states' ability to grant exemptions for single-hull tankers carrying heavy grade oil.
- **Ending the provision, currently in effect until July 2029, that allows Arctic nations to grant waivers or issue exemptions to vessels from the ban on using and carrying for use of heavy fuel oils (HFO) in Arctic waters.**
- **Initiating an Environmental Impact Assessment (EIA) for a trans-polar shipping route.**Although there is currently no transpolar shipping across the Arctic Ocean, significant potential for such a route exists. Following the precautionary principle, workshop participants suggested that the IMO conduct an EIA for any future trans-polar shipping route. With the ratification of the Agreement on Biodiversity Beyond National Jurisdiction (BBNJ Agreement), any EIA would need to coordinate with the governing body of the BBNJ Agreement.
- **Updating Particularly Sensitive Sea Area Guidelines (PSSAs).** Through the IMO, member states may identify marine areas where ecosystems are vulnerable to the impacts of shipping. In addition to designating PSSAs, member states must also develop legally binding associated protective measures (APMs) tailored to each site. APMs may include mandatory or voluntary ship routing systems, IMO-designated ship reporting systems, pilotage regimes, discharge prohibitions, and voluntary speed reduction measures. While no PSSAs have yet been designated in areas beyond national jurisdiction (ABNJ), such as the Central Arctic Ocean, the guidelines do not explicitly prohibit such designation. PSSAs and other IMO area-based management tools (ABMT) tools can complement and reinforce the designation process under the newly ratified BBNJ Agreement. Both frameworks can protect the same areas while addressing different threats, since the IMO's mandate is limited to shipping-related impacts. Workshop participants noted that, given this evolving landscape, now is the right time to review and update the PSSA guidelines to strengthen their legal foundation, enhance their effectiveness, and ensure alignment with the upcoming entry into force of the BBNJ Agreement as well as global biodiversity and climate targets.

Integrating Indigenous leadership and knowledge and Western science and management approaches remains a key component of effective conservation and management.

Discussions frequently referenced the United Nations Declaration on the Rights of Indigenous Peoples and highlighted the obligation of states to seek Free, Prior and Informed Consent for legislative measures that affect Indigenous communities. Participants featured examples of Indigenous leadership in area-based marine conservation (such as SINAA), as well as in the negotiation of the Central Arctic Ocean Fisheries Agreement and its ongoing implementation (the Beaufort Sea "slowdown" was mentioned as a model of cooperation among fisheries scientists, the Canadian Coast Guard and Indigenous leadership to reduce the risk of ship-whale collisions by implementing speed limits).

One presenter observed that a combination of "bottom-up" approaches (joint planning with communities at the earliest stages of projects) with "top down" directives (from government or funding entities) can be helpful to motivate stakeholders to work together effectively in order to meet external established timelines.

Significant progress has been made in bridging Indigenous and Western science, and participants highlighted several models that could be replicated across the Arctic:

- In the shipping sector, local expertise could be utilized to strengthen and support Arctic pilotage and navigation. Canada and Greenland have programs to involve Indigenous experts in training others for Arctic search and rescue teams. Greenland offers lessons in the restriction of large cruise ships from visiting Indigenous subsistence areas.
- Indigenous Guardian programs now underway in Canada and Greenland demonstrate the benefits of cooperation for all parties involved when government agencies and Indigenous communities work together, for example in establishing, managing and monitoring protected areas.
- The Alaska Arctic Observing and Knowledge Network has a track record of coordinating Indigenous-led observations on the natural environment. This program could be a model for other Arctic communities, and, depending on the interest of network participants, could be integrated into management and conservation activities for example, by contributing to Arctic Watch, guiding future area-based marine protections, or other resource management processes.

Broad engagement of civil society is required for buy-in and durability of Arctic conservation measures.

Throughout the workshop, the role of civil society—particularly NGOs and Indigenous organizations—emerged as a key driver of Arctic conservation. Examples include the High Seas Alliance's advocacy in advancing the BBNJ agreement; WWF's creation of a large-

scale Arctic Ocean biodiversity database; Ocean Conservancy's leadership in supporting the Central Arctic Ocean Fisheries Agreement; and the Qikiqtani Inuit Association's vision and action in establishing expansive new protected areas. Ensuring the long-term effectiveness of these measures will require engaging the full range of civil society, particularly given the U.S. leadership's retreat from environmental initiatives and the near absence of Russia from key conservation forums. Workshop participants highlighted a need to:

- Provide capacity building and financial support for Indigenous Peoples organizations, whose leadership is more important than ever in light of the withdrawal of both the United States and Russia from key Arctic conservation forums.
- Restart the creation of an Arctic Harbor Safety Committee in Alaska to allow communities, agencies, and the industry to work together on improving conservation and maritime safety in the Bering Strait and adjacent waters.
- Develop a shared communications strategy and messaging for conserving the Arctic Ocean.
- Support the participation of early-career leaders, conservationists, and scientists in governance, policy and conservation initiatives.

Successful Arctic Ocean governance will require some level of engagement with Russia.

Workshop participants recognized the critical role of Russia in Arctic science and conservation, and identified themes which should be prioritized for reviving cooperation as soon as the timing is appropriate:

- Considering the steady increase of ship traffic in the Bering Strait, the renewal of joint contingency planning for oil spills and related incidents between the U.S. Coast Guard and Marine Rescue Service is extremely needed.
- Implementation of the Arctic Agreement on Search and Rescue Agreement and the Arctic Marine Oil Pollution Agreement should be fully revived with Russian participation.
- Science remains a valuable and valid forum for cooperation between the West and Russia. The forthcoming International Polar Year is an opportunity for Arctic scientists, including Russians, to develop a transboundary initiative.
- Arctic Council chairs should be encouraged to permit in-person meetings of working groups, including Russian participants.