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Discussion Summary of the International Symposium "The Future Design of the Arctic Ocean Legal Order"

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SESSION ONE: ACTORS IN THE ARCTIC OCEAN LEGAL ORDER-MAKING

Framework on Multilateralism in the Arctic

Remarks began with a discussion regarding the framework on multilateralism in Arctic international relations characterised by the American Arctic strategy. Several scholars agreed that that this approach is perhaps not characteristically American, but rather an emerging tactic shared by many Arctic countries to meet the growing challenges of the region. It was noted that this "all hands on deck" approach to finding solutions to the most pressing Arctic issues should not be limited to resources within the region, but rather that the Arctic countries should look outside of the region to build coalitions with those who have the resources needed for the Arctic today. For example, an ecosystem approach to management of the Arctic marine environment requires a data-intensive knowledge base to underpin the vast management of the Arctic marine environment and necessarily includes data from non-Arctic States as well as non-governmental actors. It was generally agreed that while this collaborative approach is difficult to construct, it is necessary to form the most complete understanding and thus complete management system for the Arctic marine environment. Discussants responded with the concept that in the post-Ukraine and Syria relationship between Russia and the United States, the shift in power during the US chairmanship of the Arctic Council towards Arctic multilateralism is only at the beginning stages, but has not yet prevailed.

Arctic State Actors

Discussants represented several of the Arctic Ocean coastal States including Russia, Canada, Norway and the United States. From the Canadian perspective, there was a discussion on the potential for a new direction for Canada's Arctic policy with the recent change in government. Where the previous Harper government treated the Arctic as a useful tool for developing Canadian power, there was a general sentiment shared that all are looking with interest at the coming shift in Canadian Arctic strategy. It was

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acknowledged that while Canada is very much in a new way-finding moment with their Arctic strategy and interests, and that while Canada will always consider the US their premier Arctic partner, there are some similarities between Canadian and Russian Arctic interests.

From the Norwegian perspective, the long-standing relationship between Norway and Russia was discussed. As Norway is a small state with a big and powerful neighbor to consider, Russia has always had a powerful influence on the Norwegian Arctic policy. In recent years, issues have emerged surrounding oil and gas in the Barents Sea boundary where oil production could potentially move further north as ice recedes. On the issue of the continental shelf and Svalbard, it is simultaneously a matter of cooperation and dispute. Historically, Norway and Russia have had good joint management of shared interest and resources. Currently from the Norwegian perspective, Norway has accepted maritime zones in the Norwegian Submission to the Commission on the Limits of the Continental Shelf (CLCS). Norway has been active in settling boundaries with both Russia and Denmark (Greenland). One current issue for Norway is that of equal access to economic in the 1920 Spitsbergen Treaty provisions. This issue is also of interest to Japan who was an original party to the treaty in 1920.

Following these remarks, there was a specific discussion regarding the Polar Code and speculation that there are Russian efforts to demonstrate new limits which would require that the transport of natural resources through Russian waters could only be carried by Russian flagged ships. This concept is of particular interest to Japan because of their energy security interests in the shipping of Liquid Natural Gas (LNG) in tankers from Yamal to Asia. There was concern that despite the newly approved Polar Code in the Japanese Parliament, such restrictive shipping legislation by Russia belies the strength of the Polar Code. However, Russian specialists could not substantiate such restrictive legislation as a fact, and in fact the Polar Code is currently being internalized in Russia to harmonize with this new international agreement. However, it was revealed that while perhaps many Russian specialists do believe that the Polar Code is too liberal, there are internal technical regulations being adjusted for safety but there is no mention of the status of flagships. It was further affirmed by others that the Polar could does not regulate the contents of what is transported, thus it cannot comment on the flag of a ship based on its contents.

Continuing along the lines of clarification on Russian Arctic Policy, a question was asked regarding the applicability of Article 234 (UNCLOS, 1982) to the Northern Sea Route (NSR) should these ice-covered areas become predominantly open water due to climate

change induced sea ice melt. In response, Russian scholars explained that in Russia the dominant school of thought is that in fact the Arctic will experience an upcoming cooling down effect, allowing scholars and policy-makers to believe that the NSR will not become predominantly ice-free and thus will maintain the applicability of Article 234. Furthermore, it was emphasised that a legal definition of the area is distinct from the year-by-year changes to the environment. But in fact the legal definition of an ice-covered area should correspond to the territory of the Arctic Ocean as under Article 234. Until this issue is further defined by the UNCLOS, this issue should be subject to debate. A strong counterpoint was made to the general Russian position on climate change, arguing that it is not fruitful to argue over matters such as the anthropogenic occurrence of climate change explicitly proved by the Intergovernmental Panel on Climate Change (IPCC).

Observer States to the Arctic Council

A brief discussion unfolded regarding the Arctic Council, particularly acknowledging that the varied and nuanced ways that the "Observer Issue" in the Arctic Council is of great importance. It was acknowledged that this issue is of importance to the current chairmanship under the US, and will continue to be in the upcoming Finnish Chairmanship. Furthermore, developments to be discussed later in the symposium will specifically address the changes happening in the Arctic Council policy-shaping process due to the involvement of Observer States, hinting at the fact that the Arctic Council is shifting to the role of a kind of institution and not just a forum. Furthermore, there was commentary regarding the newly developing yet not fully realized relationship of the Arctic Council and it's the expanding structure with the Arctic Economic Council and the Coastguard Forum. A parallel was example was given from the development of the Madrid Protocol from the establishment of the Antarctic Treaty, suggesting that perhaps the relationship between these three Arctic entities will gain in governance structure as they develop.

SESSION TWO: FORUM FOR THE ARCTIC ORDER LEGAL ORDER MAKING

Arctic Council Permanent Participants and Observer States

The main discussion following the session on the Forum for the Arctic Order Legal Order Making began with a question from the audience regarding the future role of indigenous peoples as Permanent Participants (PPs) to the Arctic Council (AC) considering the increased presence of AC Observer States. A theme developed from this line of questioning to consider the role of Indigenous Peoples not just in the AC, but also in other Arctic-related fora such as the IMO and the Central Arctic Ocean (CAO) fisheries negotiations process. The discussion on indigenous peoples' role in the Arctic inspired a greater conversation about the role of non-state actors in general in various Arctic fora and included comments and questions on scientific cooperation, marine ecosystem management, and continental shelf expansion.

The discussion on indigenous peoples in the Arctic Council revolved around the fact that as the Arctic Council expands there is concern over what will happen to the role of PPs? Many maintain that PPs have a greater presence than Observer States and that Arctic Council decisions are shaped by the participation of PPs. To make the point, everyone was reminded of the seating arrangement in Arctic Council meetings where PPs sit alongside the eight Arctic States, while Observers sit behind. In fact, the discussion revealed that the seating arrangement was much discussed in the 2013 Swedish chairmanship of the Arctic Council where it was decided that in order to preserve the role of PPs as the number of Observer States increased that the seating arrangement showing deference to PPs over Observers was necessary. It was also noted that PPs play an important role of preserving historical knowledge in the Arctic Council as the position of Senior Arctic Officials (SAOs) representing Arctic States rotates quickly whereas some PP positions have been maintained since the inception of the Arctic Council. Furthermore, because the Arctic Council decision-making process utilizes a consensus-based approach, the PPs have the opportunity to participate actively in all AC decisions, even if the outcome does not transparently reveal the direct influence of the decision makers because of the more fluid process.

However, it was brought up that discussants didn't touch upon the issue of true political power for indigenous peoples. The point was made that indigenous peoples lack political power in the Arctic and have historically lacked appropriate representation in the Arctic from the establishment of the AC. The point was further elaborated by pointing out that the people for whom the laws will be convenient make laws, and in the case of the Arctic

indigenous peoples are often underrepresented in the making of laws. It was argued that Arctic indigenous peoples are not given fair representation in the Arctic Council or otherwise and thus do not wield true political power.

The Role for Indigenous People in Arctic Fora Outside of the Arctic Council

A further question was raised regarding the representation of indigenous peoples in other Arctic fora such as the negotiation process for Future Fisheries in the CAO and the IMO where there is not a specific role identified for indigenous representation. Regarding the CAO fisheries process, indigenous peoples are included in the in their national delegations in some instances. It was noted that the CAO future fisheries development is a high seas fisheries discussion, and while Arctic indigenous peoples are engaged in their coastal fisheries, they are not explicitly included in the high seas fisheries negotiation process of the CAO. However, as scientific data is gathered for the development the CAO discussions, traditional knowledge could play a critical role in development the scientific knowledge required for establishing sustainable fisheries in the CAO. Additionally, in line with State actors involved in the CAO A5+5 process, indigenous peoples do not want to see future fisheries (illegal or legal) damage their traditional fisheries.

The discussion on indigenous representation in the CAO process brought up further questions regarding the possibility for inviting more States who may be interested in a final treaty that could be negotiated as a result of the CAO Future Fisheries A5+5 process. It was noted that according to the current "stepwise approach" of the CAO Future Fisheries negotiation, there is no present intention to invite additional parties even if a Regional Fisheries Management Organisation (RFMO) is negotiated. The 1995 Fish Stocks Agreement was presented as the guiding legal reference the future development the CAO process. The tension between inclusion and exclusion of both indigenous peoples and other potentially interested States happens frequently in international negotiations. As one discussant pointed out, choosing inclusion means to be controlled and regulated, thus, many prefer to not be included. In fact, to be excluded is usually characterised as desirable. However, the challenge remains how to secure inclusion for potential problems. An example was made of the Antarctic Treaty System where a country wishing to participate must make a demonstration of real interest through scientific investment. In the interest of inclusion as a way to ensure protection for potential problems, an example was made for the Arctic regarding fishing in the "donut hole." In this case a fishing vessel flagged to the Faroe Islands an invitation to participate in a fisheries agreement would be sent to both the Faroe Islands and Denmark. As a

fisheries expert remarked, recent fisheries agreements are generally quite open in terms of participation of newcomers.

Central Arctic Ocean Fisheries

Discussants questioned if thinking of the CAO only in terms of fisheries was too limited of a scope. As one participant pointed out, the "carving up" of the Central Arctic Ocean was not something that was considered until the question of fisheries for the arose. Considering this, discussants wondered if it is too limiting to only be considering fisheries for the Central Arctic Ocean. Another discussant asserted that the Arctic Ocean must be legally treated as any other ocean, without a sense of provision for special interests.

The last discussion point in this session focused on the role of the Arctic Council Task Force on Arctic Marine Cooperation to establish an ecosystem approach to fisheries. It was discussed that such an approach for this Task Force is theoretically possible by working across sectors and zones in order to take an integrated approach to marine ecosystems. One way to do this would be to consolidate management authorities that effect marine management and take a very top-down approach. However, it was noted, this is unlikely and probably not viewed as desirable for States interests. A cross-sector, holistic approach is emerging across all sectors to provide input and advice. A vision for the future could be to see the Arctic Council acting more in the way that it did with PAME's work on the Polar Code to the IMO wherein the AC could become the body that surveys all sectors and provides input on global mechanisms (such as the IMO). Thus, the AC could take on the role of providing advice on the broader ecosystem impacts of which other Arctic-interested international fora should be aware. Thus, Arctic regional cooperation could make more progress towards a more integrated approach to management.

A final a technical question emerged which was very interesting but perhaps at this point too theoretical for a substantial answer regarding the A5+5 process and the transfer of technology clause under the LOS Convention with one participant questioning if there is a potential conflict in this regard.

SESSION THREE: REGIONALISM WITHIN UNIVERSALISM

The issue of regionalism within universalism in the context of the Arctic Council and the United Nations raises some striking challenges to the future of the Arctic Council. Many discussants wondered what further steps should be taken in the Arctic Council's effort to maintain primary dominance in the discussion of Arctic Governance and whether or not the AC can maintain the capacity to take such steps in a manner that is both timely and precise. The Arctic Council is strengthening, as many have said, by shifting from a policy-shaping to a policy-making forum, and the newly negotiated legal instrument under the auspices of the Arctic Council, the Arctic Scientific Cooperation Agreement symbolises this shift very well.

The Role of the United Nations in the Arctic

Building on the theme of Regionalism within Universalism, a general discussion began regarding the applicability of the United Nations in Arctic affairs and the direction of the Arctic Council. One discussant brought up the role of the Sixth Committee of the United Nations to raise Arctic issues in the UN General Assembly (UNGA). It was explained that such suggestions by European governments and especially from Germany for UN involvement in the Arctic have been made in the UNGA. The results of such suggestions was that the appropriate platform for UN Arctic engagement should be through the Sixth Committee, acknowledging that the Arctic Council is not a legal committee and thus the UN must deal with legal issues in the Arctic. For example, the UN is already involved in the Arctic through extended continental shelf submissions to the Commission on the Limits of the Continental Shelf (CLCS). This legal involvement of the UN in the Arctic raises the question for the Arctic Council as it expands in its capacity from that of a policy shaping to policy making forum, which raises the question about what should legally be discussed at the UN level, and what should be discussed at the Arctic Council level?

The point was made that in the Arctic there are special areas of application for the UN structure and special areas for the Arctic Council structure, which is why there are universal and regional aspects on the issue of the Arctic Ocean. Indeed, as discussed previously in the symposium, the interpretation of Article 234 of UNCLOS applied to the current situation of melting coastal sea-ice highlights this relationship very well. It was argued that the power of the UN lies in its ability to make compromises and mutually agreed decisions. The UN system helps supersedes regional tensions between states.

Beyond the applicability of UNCLOS in the Arctic, further UN involvement in the region could be raised within the context of other treaties, such as the Paris Agreement or the

Convention on Biodiversity, which would then necessarily involve the UN in the Arctic. In this case, there may be some issues similar to the UN dealing with Antarctic matters such as the long protest of Malaysia on the Antarctic Treaty over the issue of common heritage for mankind. The example of Malaysia and the Antarctic Treaty prompted one discussant to make a comparison between Antarctic development and Arctic development in what was characterised as an "accommodation phase." Over the fifteen years the Antarctic Treaty grew to accommodate the interests of the international community. It was argued in the discussion that the Arctic is now in such an accommodation phase, as the eight Arctic States remain committed to UNCLOS as the valid entity within the Arctic Ocean. As such, the Arctic now faces the issue of how to accommodate the needs of the international community regarding the Arctic high seas in the Arctic Areas Beyond National Jurisdiction (ABNJ). Thus, the vitality of the Arctic Council could be undermined if they fail to accommodate the international community on the issue of the high seas.

One discussant brought the discussion about Arctic Council and the United Nation into a matter of scale by explaining that the UN structure provides a high-level roadmap for concrete regional cooperation at the Arctic Council task-force level. For instance, the UNCLOS creates a roadmap for jurisdiction between coastal states, which provides a clear map for what can be achieved on a regional basis. At a regional level, genuine interests and technical issues can be worked out most effectively at a bi-lateral or multi-lateral level; while at a larger level, global decisions can accomplish a great deal in terms of legitimacy. Therefore, in the Arctic each matter must be considered for the optimal level of cooperation. Thus, perhaps pluralism is the answer to universalism or regionalism.

The New Arctic Scientific Cooperation Agreement

Turning towards the specific aspects of the new Arctic Scientific Cooperation Agreement, a discussant raised the point that one of the biggest legal issues in Arctic Science is the lack of definition around Marine Scientific Research (MSR) because there is a lapse between the principle that all states have a right to MSR and the fact that some MSR is linked to the exercise of sovereign rights over living and non-living resources. In the latter case, there is often a post-research commercial value attained by the research, transferring the MSR to the category of bio-prospecting which could then fall under the right of the coastal state. Discussants wondered how the newly negotiated Scientific Agreement addressed the issue of State shared ecosystem with a mixture of different purposes for scientific research. Through the discussion, it was determined that the new agreement does not address these issues around the definition of MSR, and furthermore, that such

controversial issues that are UNCLOS-related, such as the definition of MSR leading to commercial benefits, are all left to be worked out through UNCLOS. Instead, what the agreement tries to promote and enhance is the cooperation between countries that previously has hindered scientific research. A discussant went on to explain that MSR cooperation is needed in the Arctic especially where an extra step is required beyond UNCLOS to promote international cooperation.

As a legally binding agreement negotiated under the auspices of the Arctic Council, the Arctic Scientific Cooperation Agreement stands as an interesting case study for how Observer's to the Arctic Council are integrated into the agreement-making process. Many observers feel limited in their capacity to express their ideas and wishes in the Arctic Council meeting format where engagement for subsidiary bodies is limited. Thus, it was discussed during this symposium whether or not Japan was able to engage in the process of forming the Scientific Cooperation Agreement and whether or not evidence of observer engagement could be discerned in the final product, and furthermore if the new agreement actually promotes cooperation among Arctic states with non-Arctic States since the treaty will not be binding on non-Arctic States? That is to say, does this agreement actually matter for non-Arctic states? As the final language on the new agreement has not yet been publicized, the answers to these questions are still somewhat vague, yet definitively positive in terms of non-Arctic engagement in ways that are both striking and subtle. This new agreement is the first time an agreement negotiated under the auspices of the Arctic Council has referred to Arctic Council Observer states. Discussants learned that although Observer states were not permitted to voice their opinion in the negotiation room, they felt that their presence there was meaningful and that the outcome reflected and acknowledgement of the non-Arctic state perspective. Indeed, Observer states felt listened to by the Arctic States in the process, even without the formal ability to openly negotiate in the process. Furthermore, discussants were encouraged to look for the Article on cooperation with non-parties when the final agreement is publically released.

Discussants also learned that that the new Scientific Cooperation Agreement can indeed be seen as meaningful to Observer states although it is not legally binding for non-Arctic States. Although the non-arctic states cannot invoke the new agreement, there is an indirect link in the agreement that non-arctic states can use in their bilateral or trilateral relationships with Arctic states, which should have a good influence on how the promotion of scientific activities for all countries. The new agreement is a ministerial-level agreement with all Arctic states parties committed to facilitating and promoting Marine Science Research in the Arctic (and especially in the Russian designated area).

There is great optimism that by empowering Arctic state governments, meaningful change for scientific cooperation can be made on the ground.

From this discussion, participants concluded that Observer eyes and presence in the agreement-making process helps to define roles and capabilities of all the actors, and thus we should not underestimate the capability of what appear to be limited roles of Observers to the Arctic Council.

Data Exchange

The need for greater cooperation regarding shared access to Arctic scientific data is very important to the development of a "whole Arctic" scientific understanding in order to properly manage and create policy that is sensitive to the Arctic ecosystem. The development of an Arctic Scientific Cooperation Agreement is particularly relevant for scientists wishing to collaborate with and conduct science in Russia. Discussants with experience in Arctic data collection shared that while agreements between individuals around the Arctic is often an effective way to share and collect data, historically it has been very challenging to access original data from Russia without going directly to a Russian institution in person. Many discussants were eager to understand the process of collecting Russian data in marine science research. And while no one in the room could comment personally on this experience, discussants learned that there is need to help scientists accelerate the process of data exchange with access to clean data. An issue lies in the fact that each Arctic country manages their data access differently. In Russia it can be equally challenging for someone on the other side of the world to access Russian data as it is for Russian researchers within their own institution. Also, it is difficult to receive clean, organized data from the United States because the lacks a platform to promote aggregated data. One discussant suggested that a centre for the promotion of data exchange would be a great help to Arctic Scientists.

The issue of data exchange has many legal aspects to it and it is not unique to the Arctic. The Antarctic Treaty System also struggles with effective data exchange and their remains a weak legal obligation to share and cooperate with data access exchange. As one discussant observed, law often prohibits access to data; for instance, in Russia, some scientific data is protected by Russian legislation that makes it a secret of the State. While the new agreement does not establish a centre for the promotion of a platform for data exchange, it is hoped that this new agreement will help states lay the foundation for greater cooperation and data exchange.

An example was shared from a fisheries standpoint as an analogy for data sharing for the purpose of ecosystem management and fish stock assessment. In this case, there are many legally binding examples of the submission of data and sharing, which control for data type and accuracy. In these exchanges, it is necessary to define the quality and quantity of the data, which is then submitted by the State to a data clearing-house or Regional Fisheries Management Organization (RFMO). In these agreements, there are mechanisms for maintaining confidentiality and protecting sensitive data, and this level of sharing operates at a high level of obligation for data sharing, not simply as an agreement between scientists.

Inclusion of Permanent Participants in Arctic Council Agreements

The discussion closed with a final question on the participation of Permanent Participants in the decision making process of the new agreement. Discussants learned that in the new agreement there is an article on traditional knowledge that was based on a substantial input from Permanent Participants, although there were few represented at the negotiations. The Arctic Council process of including Indigenous Peoples at the decision-making table reveals a new phase of norm making in the direction of how to integrate input from Indigenous Peoples. This is different than the usual process in international law where Indigenous Peoples are members of the state, where it is expected that their view should be integrated as such. Discussants learned that in Russia, this process of integration has historically not been as clear as it is in some other countries, and that in future it will be an important step for Russia to adopt a domestic structure for Indigenous Peoples to participate in the law-making process.

SESSION FOUR: ECOSYSTEM APPROACHES

Marine Protected Areas and International Collaboration

Understanding the role of Marine Protected Areas (MPAs) and Large Marine Ecosystems (LMEs) in the ecosystem approach to management is highly relevant to the theme of the future legal order of the Arctic Ocean. In the course of discussion, it was evident that greater understanding on legal status, general application, and overlapping international frameworks is necessary regarding an ecosystem approach to management in the Arctic Ocean.

The discussion began with a reflection on the collaboration between the Arctic Council and the International Council for the Exploration of the Sea (ICES) through the joint Working Group on Integrated Ecosystem Assessment for the Central Arctic Ocean (WGICA). One discussant noted that one area of international collaboration which the eight Arctic states seem to be coalescing around is attaining knowledge for sound data to underpin the work of the Arctic Council. In pursuit of this goal, there is a willingness among Arctic sates to engage with non-Arctic States to build capacity and knowledge. Yet, not all Arctic states feel comfortable with bringing non-Arctic States into the dialogue on equal footing, making other non-Arctic Council collaborations even more important so that collaboration on a more even level can be achieved. Thus, engagement with ICES is probably a favorable relationship for non-Arctic states.

The last meeting of the WGICA was in May of 2016 in Copenhagen, with the next one planned for May of 2017 in Seattle. Discussants learned that non-Arctic states were permitted to give input, but not allowed to attend the Copenhagen meeting. Japanese representatives received a draft report of the meeting for which many country's scientists participated (including Norway, Canada, Denmark and the US). At the meeting, it was determined to divide the Central Arctic Ocean into two regions because the Atlantic and Pacific sides have such different characteristics. From this, the two smaller groups within the WGICA will make an assessment report comprising both regions. In the course of the discussion, the purpose and use of the WGICA findings was questioned. It was explained that the purpose of the WGICA meetings is to synthesize scientific understanding of the Central Arctic Ocean in order to move forward.

The discussion turned towards questions about the structure and relationship between OSPAR (the Oslo and Paris Conventions to protect the marine environment of the North-East Atlantic) and the development of Arctic MPAs. The example was given of OSPAR as an effective coordinating body. OSPAR has taken on the role of initiator, while still

respecting other competent bodies and known for their transparent approach and willingness to work with any organization with any interest. From the OSPAR perspective, States can act jointly, indeed, under OSPAR 192, 194 and 197 there is an obligation to protect the environment, allowing states to act jointly in order to achieve this goal. Furthermore, as discussions on the Area Beyond National Jurisdiction (ABNJ) move forward in the UN, there are many questions about the development of high seas MPAs in the Arctic. These questions are freshly developing, and while interesting and relevant to this symposium, there were few conclusions on the matter.

Perception of Marine Protected Areas

A very popular theme during this discussion was the perception of MPAs. As one discussant noted, MPAs seem to be chronically misunderstood in both their scope and application and thus engender a feeling of mistrust. This is even a problem that the UN has attempted to address, which some feel has brought more confusion than a clear solution. This observation about the perception of MPAs led several discussants to question whether there ought to be a new set of terms to identify different levels of marine protection. This line of questioning presents MPAs as a possible "wedge" issue, where the labeling of something impedes its progress (e.g. Global Warming vs. Climate Change). Discussants questioned if MPAs are in need of some sort of rebranding. Many felt that the use of the word "protected" is problematic as it connotes a very narrow definition of acceptable use. One suggestion was to use Marine Research Areas, instead of Marine Protected Areas. Another suggested the need to convey MPAs as areas with "multiple-use zones." It was also suggested that the term "Flexible Use Zones" would be more appropriate in Alaska where MPAs have been notoriously misunderstood and general equivocated with fisheries and oil production closure.

Examples such as OSPAR and CCAMLR (Convention for the Conservation of Antarctic Living Marine Resources) were brought up as successful mechanisms for mandating sustainable use of a marine area. CCAMLR presents an interesting example because it is where the concept of MPAs originated. Under CCAMLR, the Antarctic Convergence is used as a specific ecosystem boundary. Currently in the Arctic there are multiple boundaries used which are both ecological and jurisdictional. In this framework of multiple boundaries, there are not just ecological dependencies but also jurisdictional dependencies between uses, and thus the need for building capacity to regulate and manage impacts in related ways. Thinking of MPAs as Marine Research Areas could reveal the possibility to form a network of connected institutions to connect funding between operators in the ocean to assess the impact of industries.

Legal Status of Large Marine Ecosystems

Regarding Arctic ecosystem management, the question of scale was paramount. Discussants questioned how to gage the appropriate scale for management in the Arctic, finding that scale is often directly related to the information available for a certain area. For instance, in a geographic area where much is known, it may be more appropriate to have a management tool smaller than an LME. But where much data is required for a lesser-known area, a larger tool may be more appropriate. This discussion brought up further questions about the structure and application of an LME; one discussant questioned how an LME overlaps with other international frameworks. It was explained that LMEs are not a legal framework, but rather a geographic designation based on underlying large marine characteristics that are purely scientifically defined. The places where LMEs have been used within legally binding instruments are for management of a particular area. For further clarification, an LME and an Ecologically or Biologically Significant Marine Area (EBSA) are still just scientific concepts, while an MPA is a legal concept. Some people confuse LMEs as becoming legal, or that an EBSA is almost equivalent to an MPA. In fact, one might use an EBSA to establish an MPA. However, the LME concept has existed for a long time and has been used in many different ways, but it is not a legal framework. For instance, the Bay of Bengal LME project was used to promote small-scale fisheries in the area. On this point, the issue was raised as to whether or not science could be used in the context of legal interpretation and thus be integrated into an LME? However, LMEs are not yet broad enough to be used as anything other than state practice.

Fisheries Management

Discussing the ecosystem management approach in the Arctic is significantly tied to the discussion on future fisheries in the Central Arctic Ocean. These discussions in the A5+5 process present a unique case in fisheries negotiations because in this instance science is coming before the fishery. Historically, it is always the fishery that comes first, which then necessitates scientific research in order to understand the sustainability of the fish stock. Thus, usually fishermen are not considering an LME in order to establish feasibility for fisheries. The general practice has been that fishermen follow fish stocks and have an economic incentive to find good fish stocks even before scientists. For example, Japan previously had a quota for fishing in the US and Russian zones of the "donut hole," which was a particularly strong area in the 1970s and 1980s, however, the "donut hole" dried up in the 1990s and fishermen moved elsewhere. The Arctic provides a unique opportunity for the prevention of Illegal, Unreported and Unregulated (IUU) fishing and scientific

activities to becomes established before fishing begins. This is very different than how sub-Arctic and Pacific fisheries have evolved. Another discussant echoed that what is exciting about the Central Arctic Ocean fisheries discussion is that the precautionary approach is being exercised. For example, on a very local level the North Pacific Research Board has for the past two years integrated an approach to understanding their Arctic ecosystems and what is happening as they change—acknowledging that a response to climate change and the human dimension must be included in their outcomes.

Discussants also learned that science on fisheries usually sets a goal to understand the sustainable level of control based on the production of the stock. To reach the maximum sustainable yield level, the number of fish and how much they reproduce is assessed. This is a single-species approach based on the biomass of a particular fish like Pollack or salmon. However, this approach does not meet the requirements of an ecosystem approach to management because the carrying capacity of any fish changes as the climate and ecosystem change. If the climate is favorable, the carrying capacity of the stock increases, and vice versa. For instance, if pollock are eating plankton, and the plankton levels fluctuate, that results in a change for the pollock stock. In the ecosystem approach to management, it is necessary to know other species that are related to the target species in order to evaluate the sustainability of the stock, because species are interdependent. Fisheries science is expanding in this direction, and there is now a large amount of data available in order to establish sustainable catch limits.

Regarding the development in methods for evaluating sustainable yield levels for fish stocks, it was questioned whether or not Japanese scientists consider these conservation methods based on scientific research at the policy level? Discussants learned that the Japanese fishing agency was active in the Bering Sea until 2004. In this region, the biological information is very abundant from Russia, the US and other parties. However, there is very little information about top tier predators in the Bering Sea, and there is no funding for any such kind of survey. It was implied that perhaps a funding plan could be discussed at the 2016 Arctic Circle meeting in Iceland.

CCAMLR: A Comparison for Fisheries Management

When discussing the future of Ecosystem management in the Arctic, it is natural to draw comparisons with the CCAMLR in the Antarctic. Discussants learned about the framework for establishing an MPA and the CCAMLR Adaptive Management Approach. To establish an MPA there are is a four-step process beginning with 1.) Identifying the management goal; 2.) Building a management plan based on the goal; 3.) Creating a

monitoring program based on the management plan, which could include criteria for assessing progress; and 4.) Establishing a periodic review process based on the monitoring program. Based on the review process, recommendations for improvement or changes to the MPA can then be made. This structure creates a continuous cycle for identifying the goal and making adjustments to the structure until the goal is achieved. The Adaptive Management Approach is based in accepting the inherent uncertainty of the scientific data, recognizing that all stakeholders must be involved, and includes all countries, people and occupations. For further reference on this structure, see the CCAMLR Conservation Measure 91-04, General Framework for the establishment of CCAMLR Marine Protected Areas.

SESSION FIVE: PANEL DISCUSSION ON FUTURE RESEARCH DEVELOPMENT

The last segment of the discussion focused on the future work and structure of the Polar Cooperation Research Centre. Under the Arctic Challenge for Sustainability (ArCS), the PCRC is part of a five-year program from 2015 to 2020. The first symposium hosted by the PCRC had a very broad overview, and now this second symposium has a more focused objective. In 2017 the PCRC is planning to host two workshops: the first will address a review of the US chairmanship of the Arctic Council and prospects for the new Finnish chairmanship; the second workshop will focus on the role of non-Arctic states in the Arctic Ocean legal norm-making. Thus far in PCRC activities, experts have been invited from Arctic states. However, for the second workshop the PCRC will also invite non-Arctic actors from Asia and Europe. The role of this last discussion is to solicit advice and recommendations from participants for the future work of the PCRC.

Future Inclusion of Indigenous Perspective in Japanese Arctic Discussion

To begin with, there was a general comment about how to involve indigenous people in PCRC symposiums. In general, Japanese people tend to ignore sensitivity around the issue of indigenous engagement, but the PCRC would like to be more proactive in including the indigenous perspective in these kinds of meetings which are based on the legal examination of Arctic issues from the international law perspective. The PCRC invites suggestions and recommendations for how to improve in this matter.

Further Collaboration between Arctic Natural and Social Scientists

Following the theme of engaging policy makers after the presentation on the Arctic Futures Initiative (AFI), discussants connected the concept of "decision support" with the role of ArCS to Japanese policy makers. There was a question about what concrete methods could be used to integrate the decision support process. In response to this, the perspective was shared that the connection between natural sciences and social sciences can be utilised more. Natural science can support what is happening in the Arctic, and social science can transform these observations into policy-based actions. It is imperative that ArCS capitalize on their potential for collaboration between natural science and social science, and symposium like these are the starting point for these important crossover conversations to take place because they create the opportunity for genuine dialogue. Many participants echoed the sentiment that this symposium engendered a very natural and real platform for candid sharing and collaboration.

Japan's Arctic policy is designed to contribute more to international society with respect to Arctic issues. There is opportunity for Japanese government and scientists to contribute more to Arctic issues, and for Japan to be more proactive, especially in the Arctic Council.

The theme of cooperation between social and natural sciences on Arctic issues was clearly important to many symposium attendants. It was expressed that this connection is important to all Arctic relevant countries and thus Arctic states should also be attendance at the second PCRC workshop planned for 2017 on the role of non-Arctic states in the Arctic Ocean legal norm-making. Following this idea, a discussant shared the idea that future symposium should include a panel discussion with natural scientists and social scientists that have worked on a shared project and can inform others on that process. Building on this collaborative theme, a proposal for future symposium was made to include something like an editorial process for groups to prepare some conclusions and proposals as outcomes of the discussions during the symposium. If this is done, the symposium outcomes can be shared with researchers around the world and give a shared vision of the future all symposium participants.