Report of the Second Meeting of the Provisional Scientific Coordinating Group under the Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean

1-3 March 2022

Convened Virtually

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List of Acronyms and Abbreviations

CAO:	Central Arctic Ocean
COP:	Conference of the Parties
DOI:	Digital Object Identifier
EU:	European Union
FiSCAO:	Scientific Experts on Fish Stocks in the Central Arctic Ocean
ICC AK:	Inuit Circumpolar Council Alaska
ICES:	International Council for the Exploration of the Sea
JPSRM:	Joint Program of Scientific Research and Monitoring
NOAA:	National Oceanic and Atmospheric Administration
PAME:	Protection of the Arctic Marine Environment
PICES:	North Pacific Marine Science Organization
PSCG:	Provisional Scientific Coordinating Group
ToRs:	Terms of Reference

Executive Summary

Delegations from Canada, the People's Republic of China, the Kingdom of Denmark in respect of the Faroe Islands and Greenland, the European Union (EU), Iceland, Japan, the Republic of Korea, the Kingdom of Norway, and the United States of America met virtually March 1-3, 2022, for the second meeting of the Provisional Scientific Coordinating Group (PSCG) to continue discussions and progress to ensure the Parties can meet the milestones in Article 4 of the *Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean* ("the Agreement") related to the Joint Program of Scientific Research and Monitoring (JPSRM). The meeting was hosted by the United States. Although invited, the Russian Federation did not send any delegates to the meeting. Representatives of the International Council for the Exploration of the Sea (ICES), the North Pacific Marine Science Organization (PICES), and the Arctic Council's Protection of the Arctic Marine Environment (PAME) Working Group also attended the first two days of the meeting. Ms. Candace Nachman (United States) served as the provisional Chair for the meeting.

The topics of discussion at the second PSCG meeting included: what is the JPSRM; the questions to be answered through implementation of the JPSRM; development of a data sharing protocol for the JPSRM; a review of the latest draft PSCG rules of procedure; and development of requests and recommendations to the COP.

The meeting delegates agreed that the JPSRM is a science plan, and the science plan and associated implementation strategies are what must be established by the June 2023 deadline. This led to discussion among the delegates about what efforts would constitute the JPSRM. Some delegates recommended that the JPSRM needs to include joint objectives and not just be a collection of national programs. Other delegates stressed the importance of including the work of the national programs in surrounding ecosystems given that few countries are currently sending expeditions to the Agreement Area. There was also a suggestion to employ a holistic, ecosystem approach and to consider objectives beyond fish abundance, such as the impacts of climate change on the entire food web, including Indigenous communities and local communities, and other activities occurring in the Arctic, such as vessel traffic and commercial fishing.

The United States presented a proposal regarding the scientific questions identified in the reports from the meetings between 2011 and 2017 of Scientific Experts on Fish Stocks in the Central Arctic Ocean (FiSCAO) prior to the signing of the Agreement. The proposal included a summary of the process the United States used to engage with the Inuit Circumpolar Council Alaska (ICC AK) since summer 2021 to incorporate Indigenous Knowledge in the questions to be answered through implementation of the JPSRM. The United States shared the questions and updates or additions made following the engagements with ICC AK.

The delegates broke into five groups to discuss the proposed list of key JPSRM questions and to answer the following discussion questions (although breakout group participants were not limited to only answering these questions):

- Are the four main questions identified during previous science meetings still relevant?
- Are additional science and Indigenous knowledge data/parameters needed? If yes, what are they?

- What process do we use to answer the questions in time to meet the Agreement deadlines?

In plenary, the groups reviewed the main discussion points from the breakout groups. Some common themes that emerged included: the original FiSCAO questions continue to be relevant, and there is not a lot of desire for major revisions, but there is a need to consider the recent rapid rate of change occurring in the region; a need to create categories of priority questions to answer as some were more basic research-type questions while others were more qualitative- or operational-type questions; the need to prioritize the questions specific to the objectives of the Agreement; the need to leverage existing resources and programs already working to answer some of these questions; and, to ensure Indigenous Knowledge and local knowledge are taken into account in developing the questions and programs that will answer these questions. Regarding the last theme, one breakout group suggested creating a glossary of terms and a common understanding of definitions. Regarding process and next steps, many delegates agreed that the work could not be accomplished by only meeting once every one to two years. There was general agreement to propose to the COP establishing a working group that would focus on finalizing the mapping and monitoring components of the JPSRM.

The United States presented a proposal shared with meeting participants ahead of time regarding the data sharing protocol. The report of the fifth FiSCAO meeting held in 2017 contained a proposed data policy for consideration with recommendations for how to develop data sharing protocols. Coordinated multi-national mapping and monitoring programs will require the establishment of an agreement on a data management policy and protocols that permit the sharing of monitoring and research data related to the JPSRM. This policy could be modeled after a number of other international data management policies.

The delegates broke into five breakout groups to discuss the following questions (although breakout group participants were not limited to only answering these questions):

- Are the next steps identified during previous science meetings still relevant?
- Are additional data and knowledge sharing protocol requirements needed? If yes, what are they?
- Do we agree that a distributed management system makes the most sense?
- What are the necessary steps to finalize a data sharing protocol for approval by the COP?

In plenary, the groups reviewed the main discussion points from the breakout groups. There was robust discussion within the breakout groups about whether it is best to use a centralized or distributed database. Many of the groups noted the pros and cons of both approaches. Several participants noted the importance of including data in the database that is relevant to answering the questions identified in the JPSRM. As a compromise among different views, there was general support for a hybrid framework that recognized a centralized system for data collected specifically in response to the JPSRM and a distributed system for relevant, accessible data collected and voluntarily provided by national and multinational programs.

Many participants also noted the existence of numerous Arctic databases already, so it is important not to recreate or start from scratch when other efforts can be leveraged. A few other issues noted about what type of database to create included: the difference between hosting data and sharing data (what is public versus private among the Parties), version control of data if data are duplicated between a centralized database and distributed national or organizational databases, the fact that different types

of data have different data storage needs, and that data sovereignty could be a limiting factor for distributed systems.

There was also discussion about how scientific data and Indigenous Knowledge are collected, compiled, accessed, managed, shared, and archived and that this needs to be a consideration in the data sharing protocol. ICC representatives shared examples of existing data sharing and management practices when working with Indigenous Knowledge, and these should be examined when developing the JPSRM data sharing protocol. The issue of confidentiality needs to be considered when discussing how to share and disseminate Indigenous Knowledge data, not just science data.

Regarding the next steps and how to move forward, there was general agreement that the PSCG should propose to the COP to establish a data sharing protocol working group to commence immediately and operate between full PSCG meetings in order to meet the June 2023 deadline.

Ms. Nadia Bouffard, provisional Chair of the COP, shared initial remarks and direction to the PSCG delegates to guide their discussion of the PSCG rules of procedure. Ms. Bouffard noted the current schedule for completing the COP rules of procedure and noted that additional changes to the PSCG rules of procedure would be needed once some outstanding issues with the COP rules are resolved. She suggested aligning the PSCG rules as much as possible with the COP rules. Ms. Bouffard also said she would suggest to the COP not to approve the PSCG rules of procedure until the body approves the COP rules of procedure.

The PSCG delegates reviewed the entire rules of procedure document and inserted edits throughout the document. The meeting participants did not reach agreement on previously bracketed text. Given the ongoing discussions within the COP rules of procedure drafting team regarding observers, the PSCG Chair recommended skipping discussion of certain sections of the PSCG rules of procedure document related to the invitation of observers.

The PSCG meeting delegates discussed several recommendations for the COP as next steps towards establishing the JPSRM and associated data sharing protocol. The recommendations and requests formulated by the delegates included both immediate needs and longer-term requests. Meeting delegates agreed that the COP should approve the recommendations contained in the immediate needs section at a spring virtual meeting of the COP to allow the working groups to get underway as soon as possible in order to meet the June 2023 deadlines with a request for the COP to approve or act upon the longer-term requests at the November 2022 in-person COP meeting.

1. Introduction

Delegations from Canada, the People's Republic of China, the Kingdom of Denmark in respect of the Faroe Islands and Greenland, the European Union (EU), Iceland, Japan, the Republic of Korea, the Kingdom of Norway, and the United States of America met virtually March 1-3, 2022, for the second meeting of the Provisional Scientific Coordinating Group (PSCG) to continue discussions and progress to ensure the Parties can meet the milestones in Article 4 of the *Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean* ("the Agreement") related to the Joint Program of Scientific Research and Monitoring (JPSRM). The meeting was hosted by the United States. Although invited, the Russian Federation did not send any delegates to the meeting. Representatives of the International Council for the Exploration of the Sea (ICES), the North Pacific Marine Science Organization (PICES), and the Arctic Council's Protection of the Arctic Marine Environment (PAME) Working Group also attended the first two days of the meeting. Ms. Candace Nachman (United States) served as the provisional Chair for the meeting.

The meeting followed the first PSCG meeting of February 11-13, 2020, hosted by the EU in Ispra, Italy and the June 15-16, 2021, virtual Preparatory Conference of the Signatories to the Agreement.

The meeting opened with welcoming remarks from Dr. Kelly Kryc, U.S. National Oceanic and Atmospheric Administration (NOAA) Deputy Assistant Secretary for International Fisheries and NOAA Arctic Lead, Dr. Cisco Werner, NOAA National Marine Fisheries Service Chief Science Advisor & Director of Scientific Programs, and Ms. Nadia Bouffard, Provisional Chair of the Conference of the Parties (COP). All three stressed the importance of the science to inform future decisions by the COP regarding potential future sustainable fisheries in the High Seas portion of the Central Arctic Ocean (CAO) and the short timeframe in which to complete the work outlined in Article 4 of the Agreement.

The provisional PSCG meeting Chair ("Chair") reviewed the milestones contained in Article 4 of the Agreement. In accordance with Article 11 of the Agreement, the Agreement entered into force on June 25, 2021, 30 days after ratification of the Agreement by all 10 Signatories. Article 4 states the Parties agree to establish, within two years of the entry into force of the Agreement, a JPSRM with the aim of improving the understanding of the ecosystems of the Agreement Area and, in particular, of determining whether fish stocks might exist in the Agreement Area now or in the future that could be harvested on a sustainable basis and the possible impacts of such fisheries on the ecosystem in the Agreement Area. Additionally, Article 4 requires the adoption of a data sharing protocol as part of the JPSRM within two years of entry into force of the Agreement. Therefore, the Parties need to establish both the JPSRM and finalize the associated data sharing protocol by June 25, 2023.

The topics of discussion at the second PSCG meeting included: what is the JPSRM; the questions to be answered through implementation of the JPSRM; development of a data sharing protocol for the JPSRM; a review of the latest draft PSCG rules of procedure; and development of requests and recommendations to the COP.

This report summarizes the discussions and decisions of the second PSCG meeting in relation to the agenda (Annex 1). A full list of meeting attendees is available in Annex 2.

2. Establishing the Joint Program of Scientific Research and Monitoring

The Chair opened this agenda item by ensuring there is common understanding about what the JPSRM is and what must be established within two years of entry into force of the Agreement per Article 4 paragraph 2. The meeting delegates agreed that the JPSRM is a science plan, and the science plan and associated implementation strategies are what must be established by the June 2023 deadline.

This led to discussion among the delegates about what efforts would constitute the JPSRM. Some delegates recommended that the JPSRM needs to include joint objectives and not just be a collection of national programs. Other delegates stressed the importance of including the work of the national programs in surrounding ecosystems given that few countries are currently sending expeditions to the Agreement Area. Delegates also noted the necessary connections between national programs and joint programs set up specifically to respond to the objectives of the Agreement and the opportunity that exists to identify gaps in national programs and to fill those gaps with the JPSRM. Delegates also noted the need for use of platforms for national programs to contribute to the JPSRM. One delegation also noted that it would be helpful to include guiding principles and mechanisms in the JPSRM so that it can allow for synergistic efforts and also help with funding decisions.

There was also a suggestion to employ a holistic, ecosystem approach and to consider objectives beyond fish abundance, such as the impacts of climate change on the entire food web, including Indigenous communities and local communities, and other activities occurring in the Arctic, such as vessel traffic and commercial fishing. Some delegates also shared views about considering the impacts of commercial fishing and other human activities on Indigenous communities and local communities.

The United States presented a proposal regarding the scientific questions identified in the reports from the meetings between 2011 and 2017 of Scientific Experts on Fish Stocks in the Central Arctic Ocean (FiSCAO) prior to the signing of the Agreement. The proposal included a summary of the process the United States used to engage with the Inuit Circumpolar Council Alaska (ICC AK) since summer 2021 to incorporate Indigenous Knowledge in the questions to be answered through implementation of the JPSRM. The United States stated the goal of the engagement with ICC AK and the discussions at this meeting are to ensure all delegates agree we are asking the right questions (i.e., are there any gaps) and that we ensure the questions include perspectives of all knowledge systems. A lot has changed in the Arctic since the questions were first developed in the mid-2010s, and Indigenous Knowledge was not included in many of those earlier FiSCAO meetings. Therefore, the United States worked directly with ICC AK to identify gaps in the original questions. The United States proposal regarding next steps towards establishing the JPSRM presented at the meeting is included in this report as Annex 3.

The United States shared the questions and updates or additions made following the engagements with ICC AK. Changes made by the United States from how questions appeared in previous FiSCAO reports are noted in bold text below. The questions are:

1. What are the distributions of species with a potential for future commercial harvests in the Central Arctic Ocean?
    a. What fish species are currently present in the high seas?
    b. Do fishable concentrations of commercial species exist in the high seas?

c. What are their distributions and abundance patterns?
d. What are their local life-history strategies, habitat associations, and demographic patterns?
e. Do these strategies, associations, or patterns differ among regions of the Arctic?

2. What other information is needed to provide advice necessary for future sustainable harvests of commercial fish stocks and maintenance of dependent ecosystem components?
   a. What are the trophic linkages among fishes and between fishes and other taxonomic groups (i.e., quantify food webs **identifying keystone forage species**)?
   b. How do fish species abundances and distributions vary as a function of climate variability, **including declining sea ice and biogeochemical changes**?
   c. Can the species be harvested sustainably with respect to both target fish stocks and dependent parts of the ecosystem? If not, what are the prospects for the development of fisheries in the future?
3. What are the likely key ecological linkages between potentially harvestable fish stocks of the central Arctic Ocean and the adjacent shelf ecosystems**, including Indigenous communities**?
   a. What are the connections between fish in the High Seas and those in the adjacent regions?
   b. What are the mechanisms that establish and maintain these linkages?
   c. How might fisheries in the High Seas affect adjacent and congruent portions of the shelf ecosystems, including fish stocks, fishable invertebrates (crabs, shrimp, mollusks), marine mammals, birds, and fisheries-dependent communities (which include those communities that are dependent on subsistence harvests of fish, invertebrates, and mammals)?
   d. **What is the potential for bycatch (marine mammals, seabirds, and keystone fish species) under different types of commercial fishing gear, and how will this be monitored?**
4. Over the next 10-30 years, what changes in fish populations, dependent species and the supporting ecosystems may occur in the central Arctic Ocean and the adjacent shelf ecosystems?
   a. Who are the winners and losers in the next 10-30 years?
   b. What changes in production and key linkages are expected in the coming 10-30 years?
   c. What northward population expansions are expected in the next 10-30 years?
   d. What are the anticipated impacts of changes in ocean acidification in the next 10-30 years?
   e. **How will increased human activity in the region, including ship noise, industrial noise, and pollution, affect fish populations and ecosystem health in the next 10-30 years?**
   f. **How will increased fishing activity affect migratory and wide-ranging marine mammals and the Indigenous and local communities that depend upon these species to sustain their ways of living?**
5. **How can Traditional Ecological Knowledge inform ecological baselines?**

Although question 5 was a new addition in the proposal shared with delegates ahead of the meeting, the United States offered an even newer version of question 5 during the presentation of the proposal. The updated language for question 5 as shared during the meeting read as follows: "**How will the**

monitoring process be set up and what types of data be collected to ensure that Indigenous observations and monitoring systems are supported in establishing the baseline data?"

The United States closed its presentation with a set of proposed future milestones and schedule for the PSCG:

- Spring 2022 PSCG (i.e., this second PSCG meeting)
    - Review scientific questions and add Indigenous Knowledge
- Fall 2022 PSCG meeting (Proposed)
    - With agreement on the guiding questions at this meeting, it is proposed that a fall 2022 meeting focus on finalizing the JPSRM 1-3 year mapping requirements in the CAO and Atlantic and Pacific gateways and a concurrent monitoring program.
    - The JPSRM would consider multiple tiers for priority mapping and monitoring to recognize the likelihood for inconsistent resources (vessels and funding).
    - Finalize an agreement on a data management policy and protocols that permit the sharing of monitoring and research data from the JPSRM.
- Spring 2023 PSCG meeting (Proposed)
    - Finalize cost and infrastructure (e.g., vessels) sharing program requirements to implement the JPSRM under multiple funding scenarios as outcomes from the Fall 2022 PSCG meeting.
    - Focus on prioritizing key indicators of ecosystem change and triggers of productivity that lead to requirements for exploratory fishing.

Following the presentation of the United States' proposal, the delegates asked clarifying questions and shared some initial reactions and feedback. Some delegations expressed concern of going back to the beginning if we do not utilize the work that occurred at the FiSCAO meetings and the first PSCG meeting. There was general agreement not to start from scratch but to revisit these questions based on changes in the region and to ensure all knowledge systems are included in the development of the questions that will guide implementation of the JPSRM. One delegate also commented on the need to also include local knowledge, not just Indigenous Knowledge, in order to be consistent with the Agreement, which calls for the inclusion of Indigenous and local knowledge (Article 4 paragraph 4).

There was also some discussion around the two different proposed wordings for the new question 5 in the United States proposal and the altered version shared in the oral presentation. The United States updated the language in this question to focus on how to take monitoring processes and identify types of data to ensure that Indigenous data are supported and established as part of the baseline. Some delegates noted that the question was not a research question but rather a question related to implementation. Several delegations pointed out that the research questions should focus on what needs to be known instead of how to achieve this knowledge (i.e., methodology).

The delegates also asked questions and shared initial reactions to the new question 3d about bycatch. Some delegates felt it was not appropriate to include bycatch in a research question because it is a management issue not a scientific research issue. The United States explained the rationale for including this question in the proposal, indicating that their understanding related to bycatch is in the context of monitoring bycatch and how the ecosystem is monitored. Another delegation followed up indicating the need for the JPSRM to identify linkage of species, possible impacts of fishing to harvest species, and

potential impacts for other species (bycatch) into the surveys. One delegate shared a link to a United Nations Food and Agriculture Organization report titled "*Ecosystem approach to fisheries implementation monitoring tool*" (https://www.fao.org/publications/card/en/c/CB3669EN/) as a useful reference for discussions of the PSCG that provides a framework for ecosystem-based fisheries management.

The delegates broke into five groups to discuss the proposed list of key JPSRM questions and to answer the following discussion questions (although breakout group participants were not limited to only answering these questions):

- Are the four main questions identified during previous science meetings still relevant?
- Are additional science and Indigenous knowledge data/parameters needed? If yes, what are they?
- What process do we use to answer the questions in time to meet the Agreement deadlines?

In plenary, the groups reviewed the main discussion points from the breakout groups. Some common themes that emerged included: the original FiSCAO questions continue to be relevant, and there is not a lot of desire for major revisions, but there is a need to consider the recent rapid rate of change occurring in the region; a need to create categories of priority questions to answer as some were more basic research-type questions while others were more qualitative- or operational-type questions; the need to prioritize the questions specific to the objectives of the Agreement; the need to leverage existing resources and programs already working to answer some of these questions; and, to ensure Indigenous Knowledge and local knowledge are taken into account in developing the questions and programs that will answer these questions. Regarding the last theme, one breakout group suggested creating a glossary of terms and a common understanding of definitions. However, there is a lot of existing literature regarding definitions of Indigenous Knowledge and that information should be brought forward to the COP to help guide decision-making. Participants in the breakout groups also suggested wording changes to many of the overarching and sub-questions presented in the United States' proposal.

The PSCG noted it would not be possible to come to agreement in this meeting on changes to the questions based on the robust discussions and diverse viewpoints shared during both the breakout group sessions and the plenary discussions. Those updates would be made during the intersessional period and would be revisited at the next PSCG meeting. Several participants noted that updates and changes to questions are a natural part of the process, but there is a need to finalize the questions in order to establish the JPSRM and to begin moving forward with implementation of the program.

Several participants also made suggestions about looking to existing efforts such as the ICES/PICES/PAME Working Group on Integrated Ecosystem Assessment for the CAO to help guide establishment and implementation of the JPSRM. While the earlier FiSCAO meetings and the first PSCG meeting produced spreadsheets of current and planned expeditions, monitoring programs, and available vessels, there needs to be a way to keep that information current. One participant suggested a new cataloging exercise to identify existing groups with which the PSCG could collaborate.

Regarding process and next steps, many delegates agreed that the work could not be accomplished by only meeting once every one to two years. There was general agreement to propose to the COP establishing a working group that would focus on finalizing the mapping and monitoring components of

the JPSRM. Several delegates noted the importance to ensure issues and topics do not become siloed; however, given the many areas to be covered by the mapping and monitoring phases of the JPSRM and the different types of gear, etc. that would be needed, the group agreed that establishing sub-groups within the working group would be appropriate as an efficient way to manage the work. There was also discussion in plenary about ensuring Indigenous Knowledge and local knowledge are included in all topic areas of the working group and not solely discussed and considered in only one sub-group focused specifically on Indigenous Knowledge and local knowledge. The Chair reminded meeting participants that the draft PSCG rules of procedure allow for the establishment of working groups, to include external experts, including scientists, Indigenous Knowledge holders, and local knowledge holders not present at a PSCG meeting. The Chair noted it would be worth making a recommendation to the COP regarding a working group for the mapping and monitoring effort that is inclusive of external experts. The United States agreed to prepare draft Terms of Reference (ToRs) for such a working group to discuss later in the meeting.

3. Development of a Data Sharing Protocol for the JPSRM

The Chair opened this agenda item by reminding participants of the June 2023 deadline contained in Article 4 paragraph 5, which states that as part of the JPSRM, "the Parties shall adopt, within two years on the entry into force of this Agreement, a data sharing protocol and shall share relevant data, directly or through relevant scientific and technical organizations, bodies and programs, in accordance with that protocol." The United States presented a proposal shared with meeting participants ahead of time (see Annex 3) regarding the data sharing protocol. The report of the fifth FiSCAO meeting held in 2017 contained a proposed data policy for consideration[1] with recommendations for how to develop data sharing protocols. The United States' proposal builds from the report of the fifth FiSCAO meeting, which included an elaboration of next steps for the PSCG to consider for the development of a data sharing protocol for the JPSRM.

Coordinated multi-national mapping and monitoring programs will require the establishment of an agreement on a data management policy and protocols that permit the sharing of monitoring and research data related to the JPSRM. This policy could be modeled after a number of other international data management policies. Those early efforts identified current datasets and future data sources that could support the PSCG (see Appendix II of Annex 3 to this report). The United States stated one of the goals of this protocol is to combine international and Indigenous Knowledge data policies, possibly for the first time, into such a protocol document.

Some of the initial decisions points the United States noted during their presentation related to a data sharing protocol include:

- Establishing a centralized versus distributed data management system. A distributed system was encouraged during the FiSCAO meetings so that each Party to the Agreement would be responsible for the storage and maintenance of the data it collects, while software would provide search and query capabilities across the individual databases.
- Identifying levels of data sharing to separate publicly available data from protected data.
- Establishing protocols for sharing and archiving Indigenous Knowledge and observations.
- Developing a shared archive after data analysis and publication.

The United States shared some proposed next steps for the development of the data sharing protocol. These included the need to identify:

- Options for data archiving and data management of the JPSRM data after discussing data policies, a data sharing framework, and data management options with other international organizations.
- Protocols for archiving and management of Indigenous Knowledge and observations collected through the mapping and monitoring efforts.
- An existing organization to help data providers develop digital object identifiers (DOIs) if their institutional or national data archive cannot provide the service.

[1] See Appendix C in the 2018 Final Fifth FiSCAO report available online at: Fifth Meeting of Scientific Experts on Fish Stocks in the Central Arctic Ocean (noaa.gov).

- A data-hosting source accessed through a website and develop sharing protocols to test sharing of the fish observation dataset developed during the fourth FiSCAO meeting and the inventory of monitoring programs in the High Seas portion of the CAO and adjacent waters.

The United States concluded their presentation by proposing the establishment of a working group to draft agreement on a data management policy and protocols that permit the sharing of monitoring and research data from the JPSRM for review at a fall 2022 PSCG meeting. Before dividing into smaller breakout groups for discussion, a couple of delegations shared some initial reactions and feedback. One delegation reminded participants that the recommendations from the fifth FiSCAO meeting were made before the Agreement was signed and entered into force, and that it may be more appropriate to consider a centralized database given the language in Article 4 of the Agreement regarding the JPSRM. Another delegation noted the short amount of time left to develop the data sharing protocol and that perhaps a centralized database would save time to allow the PSCG to meet the deadline[2].

The delegates broke into five breakout groups to discuss the following questions (although breakout group participants were not limited to only answering these questions):

- Are the next steps identified during previous science meetings still relevant?
- Are additional data and knowledge sharing protocol requirements needed? If yes, what are they?
- Do we agree that a distributed management system makes the most sense?
- What are the necessary steps to finalize a data sharing protocol for approval by the COP?

In plenary, the groups reviewed the main discussion points from the breakout groups. There was robust discussion within the breakout groups about whether it is best to use a centralized or distributed database. Many of the groups noted the pros and cons of both approaches. Several participants noted the importance of including data in the database that is relevant to answering the questions identified in the JPSRM. As a compromise among different views, there was general support for a hybrid framework that recognized a centralized system for data collected specifically in response to the JPSRM and a distributed system for relevant, accessible data collected and voluntarily provided by national and multinational programs. Several participants also noted the costs that would be associated with establishing and maintaining a centralized database, and this will need to be considered as decisions are made about how to move forward. Some participants also noted the absence of Russia from the discussion and the views they would have about a centralized vs. distributed database.

Many participants also noted the existence of numerous Arctic databases already, so it is important not to recreate or start from scratch when other efforts can be leveraged. A few other issues noted about what type of database to create included: the difference between hosting data and sharing data (what is public versus private among the Parties), version control of data if data are duplicated between a centralized database and distributed national or organizational databases, the fact that different types of data have different data storage needs, and that data sovereignty could be a limiting factor for distributed systems. Finally, one delegation suggested an initial scoping list of issues that could be

[2] It is important to note that the Agreement only calls for the establishment of a data sharing protocol within two years of entry into force. A database can be established after that date, but it is an important part of the discussion to help guide the development of the protocol.

included in the protocol: data management standards; submission process; access requests/release; and data confidentiality rules.

There was also discussion about how scientific data and Indigenous Knowledge are collected, compiled, accessed, managed, shared, and archived and that this needs to be a consideration in the data sharing protocol. An example was given on how Indigenous Knowledge leads scientific research in the co-management of marine mammal and fish resources, which includes indicators of what is occurring with the species by looking at the stomach content to understand the food web. The requirements for the two types of data and knowledge are not always the same. ICC representatives shared examples of existing data sharing and management practices when working with Indigenous Knowledge, and these should be examined when developing the JPSRM data sharing protocol. The issue of confidentiality needs to be considered when discussing how to share and disseminate Indigenous Knowledge data, not just science data. Some of the Indigenous participants also shared perspectives about ensuring the knowledge and observations they share are not used in a way that will harm their ways of life or cultural practices.

Regarding the next steps and how to move forward, there was general agreement that the PSCG should propose to the COP to establish a data sharing protocol working group to commence immediately and operate between full PSCG meetings in order to meet the June 2023 deadline. The United States agreed to prepare draft ToRs for such a working group to discuss later in the meeting.

4. Rules of Procedure, Recommendations to the Conference of the Parties and Next Steps

The third day of the meeting focused on more administrative matters. The session began with a review and discussion of the PSCG rules of procedure before discussing the recommendations and requests the PSCG would make to the COP at its upcoming virtual meeting on May 31, 2022.

4.1 Review of PSCG Rules of Procedure

The Chair opened this session by noting that there had been many changes made to the PSCG rules of procedure since they were originally drafted at the first PSCG meeting in February 2020. These changes were made in response to the development of the rules of procedure for the COP and to ensure alignment between the two sets of rules of procedure. The purpose for reviewing the PSCG rules of procedure in this meeting was to ensure that none of the changes would in some way limit or stymie the science efforts. The meeting participants then heard some initial remarks and direction to guide the discussion from Ms. Nadia Bouffard, provisional Chair of the COP. Ms. Bouffard noted the current schedule for completing the COP rules of procedure and noted that additional changes to the PSCG rules of procedure would be needed once some outstanding issues with the COP rules are resolved. She suggested aligning the PSCG rules as much as possible with the COP rules. Ms. Bouffard also said she would suggest to the COP not to approve the PSCG rules of procedure until the body approves the COP rules of procedure.

The PSCG delegates reviewed the entire rules of procedure document and inserted edits throughout the document. The meeting participants did not reach agreement on previously bracketed text. Given the ongoing discussions within the COP rules of procedure drafting team regarding observers, the PSCG Chair recommended skipping discussion of certain sections of the PSCG rules of procedure document related to the invitation of observers. Ms. Bouffard noted that the COP rules of procedure drafting group reviewed the confidentiality requirements contained in Appendix I of the rules of procedure document. The group is making changes, but she noted that none of the changes impact the PSCG discussions on the data sharing protocol. She said a change to article 4 in that document would be that the COP, not the PSCG will approve the data sharing protocol.

4.2 Recommendations to the COP

The PSCG meeting delegates discussed several recommendations for the COP as next steps towards establishing the JPSRM and associated data sharing protocol. The recommendations and requests formulated by the delegates included both immediate needs and longer-term requests. Regarding the two requests to establish working groups related to the mapping and monitoring program and the data sharing protocol, the meeting delegates spent time collectively reviewing a proposal prepared by the United States based on the discussions held during the first two days of the meeting. The text contained below reflects the final result of those discussions. Meeting delegates agreed that the COP should approve the recommendations contained in the immediate needs section at a spring virtual meeting of the COP to allow the working groups to get underway as soon as possible in order to meet the June

2023 deadlines with a request for the COP to approve or act upon requests 5-7 below at the November 2022 in-person COP meeting.

4.2.1. Immediate Needs Requests

1. **Establish a PSCG Mapping and Monitoring Working Group (MM-WG)** to develop the mapping and monitoring plans for the JPSRM to achieve its aim, for approval by the PSCG, building on the draft plans from the 4th and 5th FiSCAO meetings and the 1st PSCG meeting and based on the questions and discussions from the 2nd PSCG meeting with the following Terms of Reference:

a. The MM-WG will consist of multiple representatives from each Party with expertise, including scientific, Indigenous and Local Knowledge, as well as appropriate external experts, of ecosystem components of the JPSRM (e.g. fish, marine mammals, oceanography, ecosystem production, birds, lower trophic level species).

b. The MM-WG will meet on a timeline determined by the working group with draft plans available for review and discussion at the Fall 2022 PSCG.

c. The MM-WG may form smaller teams to meet separately with similar objectives and products to contribute to the overall draft plans.

d. The MM-WG will focus efforts on scientific, Indigenous and Local Knowledge activities concerned with:

i. Mapping requirements in the CAO, Atlantic, and Pacific gateways.

ii. Monitoring requirements consistent with Article 4 of the Agreement.

iii. Data collection (e.g. gear type) and data format standardization.

iv. Prioritization of mapping and monitoring parameters as well as spatial and temporal sampling scales.

2. **Establish a PSCG Data Sharing Protocol Working Group (DSP-WG)** of Party representatives and appropriate external experts to develop an agreement on a data management policy and sharing protocols as part of the JPSRM, for approval by the PSCG, building on the draft plan from the 5th FiSCAO meeting and informed by the discussions during the 2nd PSCG meeting with the following Terms of Reference:

a. The DSP-WG will consist of no more than two representatives from each Party including a technical expert, and no more than two representatives from any one external group, as appropriate.

b. The DSP-WG will meet on a timeline determined by the working group with a data management policy and sharing protocols plan available for review and discussion at the Fall 2022 PSCG.

c. The DSP-WG will meet in two phases to 1) identify the framework and specific policy components to be developed and 2) identify appropriate technical requirements.

i. The DSP-WG will draft a hybrid framework that recognizes

ii. a centralized data management system collected specifically for the JPSRM and

iii. a distributed data management system for relevant accessible data collected in the JPSRM area.

d. The DSP-WG will consider other international data management policies and sharing protocols to benefit from state-of-the-art agreements already in use.

3. **Develop the Terms of Reference and other procedures for the function of the joint scientific meetings** in accordance with Article 4 paragraph 6 of the Agreement, building on the ToR and the work of the PSCG, particularly to finalize the JPSRM and develop implementation plans for the JPSRM.

4. **Call for a Fall 2022 PSCG meeting** to:

a. Finalize the JPSRM mapping requirements and monitoring program drafted by the MM-WGs.
b. Finalize an agreement on a data management policy and sharing protocols drafted by the DSP-WG.

4.2.2. Longer Term Requests

5. **Call for a Spring 2023 PSCG/succeeding body meeting** to:

a. Finalize cost and infrastructure (e.g. vessels) sharing program requirement to implement the JPSRM under multiple funding scenarios as outcomes from the Fall 2022 PSCG.
b. Focus on prioritizing key indicators of ecosystem change and triggers of productivity that lead to requirements for exploratory fishing.

6. **Discuss exploratory fishing at the November 2022 COP meeting** to provide guidance and identify issues for the PSCG to consider when taking up this topic at the proposed spring 2023 PSCG/succeeding body meeting.

7. **Identify resources and infrastructure to implement the JPSRM** when it is approved; and in the meantime, support extensions of existing monitoring programs into the CAO and the Atlantic and Pacific Gateways to collect baseline mapping information.

4.3 Next Steps

The Chair agreed to prepare a Chair's Statement to briefly summarize the discussions and results of the meeting. A copy of the final statement is attached as Annex 4. At a minimum, a list of recommendations would be prepared and circulated for the COP to consider at either the April 28, 2022, COP rules of procedure drafting team meeting or as soon thereafter as the COP is able to discuss the recommendations and requests coming out of this meeting.

The Chair asked delegations to notify her of any delegations willing to host both a fall 2022 and spring 2023 PSCG meeting.

Delegations thanked the Chair for her efforts and the United States for the proposals and documents shared in advance of the meeting.

Annex 1: Final Meeting Agenda

Meeting of the Provisional Scientific Coordinating Group under the auspices of the Agreement to Prevent Unregulated High Seas Fisheries of the Central Arctic Ocean
1 March through 3 March 2022
8:00 AM to 12:00 PM New York Time each day
AGENDA

Meeting Documents (Attached to Distribution Email)

1. Meeting Agenda
2. Draft Rules of Procedure for this meeting
3. United States Proposal for Discussion regarding Next Steps towards establishing the Joint Program of Scientific Research and Monitoring of the Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean
4. Provisional Scientific Coordinating Group Rules of Procedure Draft #5
5. Draft Confidentiality Text for Inclusion in the Conference of the Parties Rules of Procedure

<u>Tuesday, 1 March 2022</u>

8:00-8:30 Welcomes, Housekeeping and Agenda Review

- Welcome from Meeting Chair, Candace Nachman
- Welcome from Dr. Kelly Kryc, U.S. NOAA Deputy Assistant Secretary for International Fisheries and Arctic Lead, and Dr. Cisco Werner, NOAA National Marine Fisheries Service Chief Science Advisor & Director of Scientific Programs
- Welcome from Ms. Nadia Bouffard, Chair of the Conference of the Parties (TBC)
- Technical WebEx Overview, Review of Agenda and Rules of Procedure for this Meeting (Candace Nachman)

8:30-9:00 Brief Introduction of Delegations

- The head of each delegation will introduce themselves and the members of their delegations.

9:00-9:45 Review of Article 4 Milestone Requirements (Candace Nachman)

- Define Joint Program of Scientific Research and Monitoring (JPSRM)
- Review of milestones laid out in the Agreement and what that means for accomplishing our work
- Questions and Group Discussion

9:45-10:30 Establishing the Joint Program of Scientific Research and Monitoring

- Review of the United States' proposal regarding scientific questions identified in previous science meeting reports and explanation of process to ensure incorporation of all knowledge systems in the questions to be answered to meet the objectives of the Agreement (Bob Foy; 15 minutes)

- Questions and Initial Brief Group Discussion (20 minutes)
- Instructions for breakout groups (10 minutes)

10:30-10:45 Break

10:45-11:50 JPSRM Discussion Breakout Groups
- Some of the questions the breakout groups may discuss include:
  - Are the 4 main questions identified during previous science meetings still relevant?
  - Are additional science and Indigenous knowledge data/parameters needed? If yes, what are they?
  - What process do we use to answer the questions in time to meet the Agreement deadlines?

11:50-12:00 Setting the stage for Day 2 (Candace Nachman; Return to plenary)

Wednesday, 2 March 2022

8:00-8:05 Day 2 Welcome (Candace Nachman)

8:05-9:10 Plenary Report out from JPSRM Breakout Sessions and Group Discussion
- Each breakout room will have 5 minutes to share the high-level, salient points from the breakout session (40 minutes)
- Group discussion of next steps (25 minutes)

9:10-9:25 Proposal for Development of a Data Sharing Protocol for the JPSRM (Bob Foy)
- Review of United States' proposal
- Instructions for breakout groups

9:25-9:40 Break

9:40-10:40 Data Sharing Protocol Discussion Breakout Groups
- Some of the questions the breakout groups may discuss include:
  - Are the next steps identified during previous science meetings still relevant?
  - Are additional data and knowledge sharing protocol requirements needed? If yes, what are they?
  - Do we agree that a distributed data management system makes the most sense?
  - What are the necessary next steps to finalize a data sharing protocol for approval by the COP?

10:40-11:50 Plenary Report out from Data Sharing Protocol Breakout Sessions and Group Discussion

- Each breakout room will have 5 minutes to share the high-level, salient points from the breakout session (40 minutes)
- Group discussion of next steps (30 minutes)

11:50-12:00 Setting the stage for Day 3 (Candace Nachman)

Thursday, 3 March 2022

8:00-8:05 Day 3 Welcome (Candace Nachman)

8:05-9:05 Review PSCG Rules of Procedure (Group Discussion facilitated by Candace Nachman)

- Some of the changes contained in the latest draft of the Conference of the Parties (COP) Rules of Procedure impact the wording in the Rules of Procedure for the PSCG. COP Chair, Nadia Bouffard, added the relevant changes to the PSCG Rules, which appear in a new draft #5 of the PSCG Rules of Procedure.
- The Parties requested we review this new draft #5 of the PSCG Rules of Procedure for consideration during this meeting and relevant recommendations to the COP.
- Draft #5 contains tracked edits reflecting the last comments from the PSCG drafting group, and some changes flagged by the Parties during discussions on the COP Rules that, to ensure consistency in the concepts found in both sets of Rules, impact on the PSCG Rules.
- Additionally, the new appendix on confidentiality requirements attached to the COP Rules of Procedures will be of relevance to the discussions of the PSCG regarding the development of a data protocol as required by the Agreement. Although not yet final, we will consider the draft confidentiality requirements during this agenda item.

9:05-10:00 Development of Requests, Recommendations, and Questions to the COP

10:00-10:15 Break

10:15-10:50 Schedule of upcoming PSCG Meetings and Intersessional Working Group Sessions to meet Agreement milestone dates (Bob Foy)

- Dates and topics for upcoming PSCG meetings
- Potential hosts for those meetings

10:50-11:10 Discussion of Meeting Report to the COP

11:10-11:30 Concluding Remarks and Meeting Close

Annex 2: List of Meeting Participants

Party/Organization	Name	Title	Organization
Canada	Adam Burns	Director General	Fisheries Resource Management, Fisheries and Oceans Canada (DFO)
	Robert Apro	Senior Policy Advisor	International Fisheries Policy, DFO
	Alain Dupuis	Science Advisor	Environment and Biodiversity Science, DFO
	Kevin Hedges	Research Scientist	Arctic and Aquatic Research Division, DFO
	Amber Lindstedt (Day 2 only)	Deputy Director	International Fisheries Policy, DFO
	John Crump	Senior Policy Advisor	Inuit Circumpolar Council-Canada (ICC-C)
	Stephanie Meakin	Senior Science Advisor	ICC-C
	Jeremy Ellsworth	Environment and Research Coordinator	ICC-C
China	Mr. Yang Lei	Deputy Head	International Cooperation Division, Chinese Arctic and Antarctic Administration
	Mr. Long Wei	Head	International Cooperation Division, Chinese Arctic and Antarctic Administration
	Ms. Li Honglei	Deputy Head	Division of Science Programs, Chinese Arctic and Antarctic Administration
	Shi Ximu	Staff	The Department of Treaty and Law, Ministry of Foreign Affairs of P.R.China
	Yu Yong	Head	Polar Ecology Division, Polar Research Institute of China
	TANG Jianye	Professor	Shanghai Ocean University
	Tian Yongjun	Professor	Ocean University of China
	Hai Li	Associate Professor	Third Institute of Oceanography, Ministry of Natural Resources
	Guangtao Zhang	Professor	Institute of Oceanology, Chinese Academy of Sciences
Kingdom of Denmark in respect of the Faroe Islands and Greenland	Helle SIEGSTAD	Head of Department	Greenland Institute of Natural Resources
	Birgitte JACOBSEN	Chief Advisor	Ministry of Fisheries and Hunting, Greenland
	Iben Funch DØJ	Special Advisor	Ministry of Fisheries and Hunting, Greenland
European Union	Stanislovas Jonusas	Policy Officer	DG MARE, European Commission
	Roderick Harte	International Relations Officer	DG MARE, European Commission

	Pauline Snoejis Leijonmalm		Stockholm University, Sweden
	Szymon Smolinski	Assistant Professor	Department of Fisheries Resources, National Marine Fisheries Research Institute, Poland
Iceland	Anna Heiða Ólafsdóttir	Fisheries Scientist	
Japan	Kenji Taki	Principal Researcher	Japan Fisheries Research and Education Agency
	Joji Morishita	Head of Delegation, Professor	Tokyo University of Marine Science and Technology
	Mashahiro Akiyama	Assistant Director	Internal Affairs Division, Fisheries Agency
	Yoichiro Kimura	Officer	Internal Affairs Division, Fisheries Agency
Korea	Doo Nam Kim	Director	National Institute of Fisheries Science
	Hae Won Lee	Researcher	National Institute of Fisheries Science
	Kyum Joon Park	Researcher	National Institute of Fisheries Science
	Hyoung Chul Shin	Vice President	Korean Polar Research Insitute (KOPRI)
	Hyoung Sin La	Principal Research Scientist	KOPRI
Norway	Maria Fossheim	Head of Delegation, Program Director	Institute of Marine Research (IMR)
	Alf Håkon Hoel	Professor	The Arctic University of Norway (UiT)
	Randi Ingvaldsen	Senior Scientist	IMR
	Harald Gjøsæter	Senior Scientist	IMR
	Lis Jørgensen	Senior Scientist	IMR
United States	Bob Foy	Director	NOAA-Alaska Fisheries Science Center (AFSC)
	Brandon Ahmasuk		Inuit Circumpolar Council (ICC) Alaska-Kawerak
	David Allen	Program Manager	NOAA's Office of Oceanic & Atmospheric Research, Arctic Research Program
	Vernae Angnaboogok	Cultural Sustainability Advisor	ICC Alaska
	John Bengtson	Marine Mammal Laboratory Director	NOAA-AFSC
	Harry Brower, Jr.	North Slope Borough Mayor	ICC Alaska-North Slope Borough
	Cathy Coon	Science Policy Advisor- Arctic Specialist	Bureau of Ocean Energy Management
	Lauren Fields	Foreign Affairs Specialist	NOAA-NMFS Office of International Affairs, Trade, and Commerce (IATC)

	Elaina Jorgenson	Scientist	NOAA-AFSC
	Katheryn Patterson	Policy Advisor to the Deputy Assistant Secretary for International Fisheries	NOAA-NMFS IATC
	Demian Schane	Alaska Section Chief	NOAA-General Counsel
	James Stotts	President	ICC Alaska
	Sarah Wise	Scientist	NOAA-AFSC
	Mark Zimmerman	Scientist	NOAA-AFSC
	Elana Mendelsohn	Foreign Affairs Officer	Department of State Office of Marine Conservation
	Kelley Uhlig	Program Manager	NOAA OAR, ARP
	Cynthia Garcia-Eidell	Arctic Observing Fellow	NOAA OAR, ARP
	Tyler Loughran	International Fisheries Policy Fellow to the Deputy Assistant Secretary of International Fisheries	NOAA Office of the Undersecretary of Commerce for Oceans & Atmosphere
COP	Nadia Bouffard	Chair	Conference of the Parties
ICES	Mark Dickey-Collas	Chair	ICES Advisory Committee
	Ingio Martinez	Professional Officer	ICES
PAME	Jessica Nilsson	Chair	PAME
PICES	Sonia Batten	Executive Secretary	PICES
PSCG	Candace Nachman	Provisional Meeting Chair	

Annex 3: U.S. Proposal regarding establishing the JPSRM

Next steps towards establishing a Joint Program of Scientific Research and Monitoring of the Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean
Considerations for the Provisional Scientific Coordinating Group: A U.S.A. proposal for discussion.

March 2022

Table of Contents

The intent of this document is to:

I. Review milestones related to science objectives of the Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean (Agreement).
II. Propose next steps for the Provisional Scientific Coordinating Group (PSCG) to provide science recommendations regarding development of the Joint Program of Scientific Research and Monitoring (JPSRM) to the Conference of Parties in time to support Agreement deadline requirements.
III. Propose additional questions from Indigenous knowledge holders to previous scientific questions to be the basis for the JPSRM.
IV. Propose next steps for the JPSRM Data Sharing Protocol.

I. Agreement Milestones (Proposed milestones in blue)

- **2018, October 3**. Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean signed.
- **2019, April 12-13**. Arkhangelsk, Russian Federation. Conference of the CAOF Member Countries scientific experts on the Central Arctic Ocean marine bio resources stocks condition research plan and their management in the Agreement area. Researcher conference of Scientific Experts.
- **2019, May 29-30**. Ottawa, Canada. First Preparatory Meeting of Signatories to the Agreement formed the Provisional Scientific Coordinating Group (PSCG)
- **2019, November 13-14**. Yellowknife, Canada. Co-Production of Indigenous and Science Knowledge Workshop, which Signatories agreed to hold prior to first PSCG meeting.
- **2020, February 11-13**. Ispra, Italy. First meeting of the PSCG.
- **2020, June, October and December**. Virtual. Series of Round Tables hosted by Inuit Circumpolar Council-Canada regarding Inuit Engagement in the Agreement.
- **2021, June 25**. Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean entered into force.
- **2022, March 1-3**. Virtual. Second meeting of the PSCG.

- **2022. Fall**. Location TBD. Proposed third meeting of the PSCG.
- **2023. Spring**. Location TBD. Proposed fourth meeting of the PSCG.
- **2023, June 25**. Deadlines contained in Article 4 of the Agreement for establishing a JPSRM and for developing data sharing protocol.
- **2024, June 25**. Deadline contained in Article 5 of the Agreement for establish exploratory fishing conservation and management measures.

Functions of the PSCG (as established at the May 2019 Preparatory Meeting of the Signatories to the Agreement)

- Develop interim Rules of Procedure for the PSCG.
- Develop the Joint Program of Scientific Research and Monitoring (JPSRM), and, in the interim, coordinate scientific activities by the Signatories in a manner consistent with Article 4 of the Agreement.
- Develop the data sharing protocol as called for in Article 4 in the Agreement.
- Identify processes and mechanisms to incorporate indigenous and local knowledge, through the inclusion of representatives of Arctic communities, including Arctic indigenous peoples, in the work of the PSCG.
- Provide scientific advice for the development of conservation and management measures for exploratory fishing, and other interim measures, as requested by the Signatories.
- Develop quantitative indicators based, inter alia, on data collected during the mapping phase.
- Facilitate the possible exchange of samples.
- Promote cooperation by the scientific experts of the Signatories with relevant scientific and technical organizations, bodies, and programs.
- Other functions as may be assigned.

II. Proposed outcomes of the March 2022 PSCG meeting

1. Agreement on questions to guide further strategic development of the JPSRM

   Joint Program of Scientific Research and Monitoring (JPSRM)
   The Agreement Article 4 paragraph 2 states that, "The Parties agree to establish, within two years of the entry into force of this Agreement, a Joint Program of Scientific Research and Monitoring with the aim of improving their understanding of the ecosystems of the Agreement Area and, in particular, of determining whether fish stocks might exist in the Agreement Area now or in the future that could be harvested on a sustainable basis and the possible impacts of such fisheries on the ecosystems of the Agreement Area."

   As the JPSRM is developed, the goal of the PSCG is to support the Agreement objective: "to prevent unregulated fishing in the high seas portion of the central Arctic Ocean through the application of precautionary conservation and management measures as part of a long-term strategy to safeguard healthy marine ecosystems and to ensure the conservation and sustainable use of fish stocks".

   The JPSRM is a science plan that will be developed, finalized, and submitted to the COP for approval by June 2023. The JPSRM will define the data and knowledge requirements

needed to assess populations of potential commercial species and identify drivers of population productivity and likely impacts that commercial fishing would have on the surrounding ecosystem. Once approved, the JPSRM will be implemented and operationalized by the Parties. Implementation plans will require decisions on resource commitments from the Parties.

2. Agreement on future milestones and schedule of the PSCG
    a. Fall 2022 PSCG
        i. With agreement on the guiding questions at this meeting, it is proposed that the Fall 2022 meeting focus on finalizing the JPSRM 1-3 year mapping requirements in the CAO, Atlantic, and Pacific gateways and a concurrent monitoring program.
        ii. The JPSRM will consider multiple tiers for priority mapping and monitoring to recognize the likelihood for inconsistent resources (vessels and funding).
        iii. Finalize an agreement on a data management policy and protocols that permit the sharing of monitoring and research data from the JPSRM.
    b. Spring 2023 PSCG
        i. Finalize cost and infrastructure (e.g. vessels) sharing program requirement to implement the JPSRM under multiple funding scenarios as outcomes from the Fall 2022 PSCG.
        ii. Focus on prioritizing key indicators of ecosystem change and triggers of productivity that lead to requirements for exploratory fishing.

3. Recommendations and Requests to the COP
    a. Formalization of the PSCG as the science body to finalize the JPSRM and develop implementation plans for the JPSRM.
    b. In the absence of finalized and approved PSCG Rules of Procedure, call for the COP to immediately establish two informal working groups of the PSCG to:
        i. Draft a multiple tier mapping and monitoring plan based on the fourth and fifth Meeting of Scientific Experts on Fish Stocks in the Central Arctic Ocean for review at the Fall 2022 PSCG. This plan would include data collection (e.g. gear type) and data format standardization.
        ii. Draft agreement on a data management policy and protocols that permit the sharing of monitoring and research data from the JPSRM for review at the Fall 2022 PSCG.
    c. Recommend that the Parties identify resources and infrastructure to implement the JPSRM when it is approved; and in the meantime, support extensions of existing monitoring program into the CAO to collect baseline information.
    d. Request that the Parties discuss exploratory fishing at their November 2022 COP meeting to provide guidance and identify issues for the PSCG to consider when taking up this topic at the proposed spring 2023 PSCG meeting.

III. Indigenous Knowledge incorporation into scientific questions proposed

During the Fourth Meeting of Scientific Experts on Fish Stocks in the Central Arctic Ocean (see Appendix I), participants developed a list of scientific questions that need to be addressed to assess fully the potential for sustainable commercial fishing in the High Seas of the Central Arctic Ocean. At the May 2019 Preparatory Conference of the Agreement, the then Signatories,

created the PSCG to carry out the work described in Article 4 of the Agreement. At the first PSCG meeting in February 2020, the delegations reaffirmed the science questions to be answered to meet the objectives of the Agreement. However, these questions were not developed with input from local and Indigenous knowledge holders, as called for in Article 4 of the Agreement. The Agreement states the Parties "Desiring to promote the use of both scientific knowledge and indigenous and local knowledge of the living marine resources of the Arctic Ocean and the ecosystems in which they occur as a basis for fisheries conservation and management in the high seas portion of the central Arctic Ocean".

The United States' National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) therefore worked with Indigenous leaders and knowledge holders with the guidance and assistance of the Inuit Circumpolar Council-Alaska (ICC-AK) to review the science questions developed between 2015 and 2017, looking at them through the lens of both science and Indigenous knowledge systems. Instead of developing a separate list of questions or knowledge requirements to meet the Agreement, it is proposed that both science and Indigenous knowledge systems be considered together. As such, the original questions developed in 2015 appear in plain text, with additional questions and considerations based on discussions between NMFS and ICC-AK in blue text. **We ask all delegations to review the list below and come prepared to discuss the following in breakout sessions during our upcoming meeting:**

1. What are the distributions of species with a potential for future commercial harvests in the Central Arctic Ocean?
    a. What fish species are currently present in the high seas?
    b. Do fishable concentrations of commercial species exist in the high seas?
    c. What are their distributions and abundance patterns?
    d. What are their local life-history strategies, habitat associations, and demographic patterns?
    e. Do these strategies, associations, or patterns differ among regions of the Arctic?
2. What other information is needed to provide advice necessary for future sustainable harvests of commercial fish stocks and maintenance of dependent ecosystem components?
    a. What are the trophic linkages among fishes and between fishes and other taxonomic groups (i.e. quantify food webs **identifying keystone forage species**)?
    b. How do fish species abundances and distributions vary as a function of climate variability**, including declining sea ice and biogeochemical changes**?
    c. Can the species be harvested sustainably with respect to both target fish stocks and dependent parts of the ecosystem? If not, what are the prospects for the development of fisheries in the future?
3. What are the likely key ecological linkages between potentially harvestable fish stocks of the central Arctic Ocean and the adjacent shelf ecosystems **including Indigenous communities**?
    a. What are the connections between fish in the High Seas and those in the adjacent regions?
    b. What are the mechanisms that establish and maintain these linkages?
    c. How might fisheries in the High Seas affect adjacent and congruent portions of shelf ecosystems, including fish stocks, fishable invertebrates (crabs, shrimp, mollusks), marine mammals, birds, and fisheries-dependent communities (which include those

communities that are dependent on subsistence harvests of fish, invertebrates, and mammals)?

   d. What is the potential for bycatch (marine mammals, seabirds, and keystone fish species) under different types of commercial fishing gear, and how will this be monitored?

4. Over the next 10-30 years, what changes in fish populations, dependent species and the supporting ecosystems may occur in the central Arctic Ocean and the adjacent shelf ecosystems?
   a. Who are the winners and losers in the next 10-30 years?
   b. What changes in production and key linkages are expected in the coming 10-30 years?
   c. What northward population expansions are expected in the next 10-30 years?
   d. What are the anticipated impacts of changes in ocean acidification in the next 10-30 years?
   e. How will increased human activity in the region, including ship noise, industrial noise, and pollution, affect fish populations and ecosystem health in the next 10-30 years?
   f. How will increased fishing activity affect migratory and wide-ranging marine mammals and the Indigenous and local communities that depend upon these species to sustain their ways of living?
5. **How can Traditional Ecological Knowledge inform ecological baselines?**

IV. JPSRM Data Sharing Protocol

During the Fifth Meeting of Scientific Experts on Fish Stocks in the Central Arctic Ocean, participant's recommended next steps on the development of data sharing protocols (see Appendix II). During those discussions, a distributed database was identified as being preferred over a single hosted database. A distributed database combines metadata on existing data sets and data collection programs within a small hosted database, simplifying data discovery. Data records would be hosted by member data centers, allowing data owners to maintain greater control over data access.

The United States recommends that the PSCG participants agree to these next steps as Terms of Reference to a PSCG working group recommendation to the Conference of Parties. These next steps are modified from the Fifth Meeting of Scientific Experts on Fish Stocks in the Central Arctic Ocean to address the status of the Agreement. **We ask all delegations to review the steps below and come prepared to discuss in breakout sessions during our March 2022 PSCG meeting:**

1. Identify options for data archiving and data management of the JPSRM data after discussing data policies, a data sharing framework, and data management options with other international organizations.
2. Identify protocols for archiving and management of Indigenous knowledge and observations collected through the mapping and monitoring efforts.
3. Identify an existing organization to help data providers develop DOIs if their institutional or national data archive cannot provide the service.
4. Identify a data-hosting source accessed through a website and develop sharing protocols to test sharing of the fish observation dataset developed during the Fourth Meeting of

Scientific Experts on Fish Stocks in the Central Arctic Ocean, and the inventory of monitoring programs in the High Seas CAO and adjacent water.

Appendix I: Key science meetings leading up to the Agreement

2011, June 15-17. Anchorage, U.S.A. First Meeting of Scientific Experts on Fish Stocks in Arctic Ocean. The first meeting of scientific experts addressed Terms of Reference to identify:

1. current information and data on fish stocks, their ecosystems, and patterns of migration,
2. ongoing and planned scientific activities,
3. current information gaps and options to address gaps,
4. priorities in regard to identified research requirements, and
5. opportunities for and impediments to closer cooperation.

2013, October 28-31. Tromsø, Norway. Second Scientific Meeting on Arctic Fish Stocks. Four major scientific research themes were identified in 2013 at the Meeting of Governments. The meeting of scientific experts completed Terms of Reference:

1. 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.
2. Evaluate the outcome of relevant recent scientific meetings, such as the ICES/PICES (North Pacific Marine Science Organization) 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.
3. Consider meetings and other fora for future scientific cooperation.

2015, April 14–16. Seattle, U.S.A. Third Meeting of Scientific Experts on Fish Stocks in the Central Arctic Ocean. Terms of Reference:

1. Continuing the review of current programs for research and monitoring environmental parameters and patterns of fish distribution and abundance; establishing an inventory of research and monitoring programs and preparing a report on the status of and gaps in knowledge on the distribution and abundance of fish in the central Arctic Ocean. Such an inventory should include programs occurring in immediately adjacent shelf areas (i.e., within EEZs), which are linked and have relevance to the central Arctic Ocean (high seas).
2. Developing a framework for a Joint Program of Scientific Research and Monitoring for the Central Arctic Ocean, including the definition of baseline information needs and methods necessary to determine the likelihood of sustainable fisheries being present. Additionally, this framework should include one or more components that investigate the role of fishes and shellfish in the marine ecosystems (and vice versa) in the Central Arctic Ocean, as well as linkages with the shelf areas and likely impacts of climate change.
3. Considering the development of an action plan (e.g., notional schedules, areas of operations, costs) for the Joint Program of Scientific Research and Monitoring.

2016, September 26–28. Tromsø, Norway. Fourth Meeting of Scientific Experts on Fish Stocks in the Central Arctic Ocean. Framework and Terms of Reference drafted for a joint scientific research and monitoring plan program that included two survey elements, 1) a mapping phase and 2) a monitoring phase. Scientific questions were identified that need to be addressed to fully assess the potential for sustainable commercial fishing in the High Seas CAO. Terms of Reference:

1. Complete the synthesis of knowledge.
2. Develop a Joint Scientific Research and Monitoring Plan to address the four questions.
3. Provide a Framework for the Implementation Plan.

2017, October 24-26. Ottawa, Canada. Fifth Meeting of Scientific Experts on Fish Stocks in the Central Arctic Ocean. This final meeting of the science experts reported on a number of completed Terms of Reference:

1. Identification of baseline data (i.e., a mapping program) in the high seas CAO to achieve the goals of documenting species distributions, relative abundances, and key ecosystem parameters,
2. Development of a strategy for monitoring indicators of fish stocks and ecosystem components,
3. Determination of preliminary cost estimates to implement a mapping program in the high seas portion of the CAO and in the Pacific Gateway region, and
4. Development of a draft data sharing policy as the foundation for a future data sharing protocol.

2020, February 11-13. Ispra, Italy. First meeting of the Provisional Scientific Coordinating Group. The first meeting of the PSCG reported on a number of completed Terms of Reference:

1. Development of Interim Rules of Procedure and a basis for future Rules of Procedure for the PSCG.
2. Identification of processes and mechanisms to incorporate indigenous and local knowledge, through the inclusion of representatives of Arctic communities, including Arctic indigenous peoples, in the work of the PSCG by specifically recommending direct participation in PSCG delegations, working groups, or sub-groups.
3. Update of current or upcoming scientific activities and platforms of opportunity list for scientific mapping work in the Central Arctic Ocean that could contribute relevant information and data to the Joint Program of Scientific Research and Monitoring and identification of the knowledge gaps addressed by each activity or platform.
4. Prioritization of mapping work based on identified gaps, and any updates to these gaps, and coordinate among Signatories opportunities for conducting scientific mapping work in accordance with the Joint Program of Scientific Research and Monitoring, including by using upcoming scheduled scientific activities and platforms of opportunity identified.
5. Updated the Inventory of Monitoring Programs in the High Seas Central Arctic Ocean and adjacent water

Appendix II. Proposed JPSRM Data Sharing Protocol
(Amended from Appendix C from the Fifth Meeting of Scientific Experts on Fish Stocks in the Central Arctic [Based on DBO Data policy and release guidelines - 2015])

Current datasets to support PSCG

- Dataset of fish observations in the CAO and adjacent waters (started during the Fourth Meeting of Scientific Experts on Fish Stocks in the Central Arctic Ocean). This database is continuing to be maintained by the U.S. National Oceanic and Atmospheric Administration (NOAA). An accessible database will be developed for all researchers to contribute new observations from the High Seas CAO and adjacent waters to the database.
- Inventory of monitoring programs and vessels of opportunity in the High Seas CAO and adjacent water.

Future Data Sources

- Mapping during first three years of JPSRM for initial assessments of species distributions and abundances to quantify trophic linkages.
- Long term monitoring to support regular reassessments of populations and ecosystem status.
- Future exploratory fishing data detected changes based on indicators in targeted areas in the CAO to evaluate potential commercial harvesting opportunities.

Coordinated multi-national mapping and monitoring programs will require the establishment of an agreement on a data management policy and protocols that permit the sharing of monitoring and research data related to the JPSRM. This policy could be modeled after a number of other international data management policies (e.g., DBO, SAON and the International Arctic Science Committee (IASC), ICES and the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR)) for data standards and protocols for metadata, quality assurance and data sharing.

Initial decision points

- Centralized vs distributed data management system. A distributed system was encouraged during scientific expert meetings on fish stocks in the CAO so that each Party to the Agreement is responsible for the storage and maintenance of the data it collects, while software provides search and query capabilities across the individual databases.
- Identification of levels of data sharing to separate publically available data from protected data.
- Protocols for sharing and archiving Indigenous knowledge and observations.
- Development of a shared archive after data analysis and publication.

Proposed distributed data management system

- Data archive consisting of a series of distributed data centers, combining data from multi-national JPSRM and national sampling programs. A single site (website) will need to be developed for the submission of metadata that meet the standard JPSRM metadata profile.

- Data to be available to Agreement researchers in a timely manner for analysis, and to the larger community once initial analyses are completed. The first step in submitting data will be the completion of a metadata profile for the dataset. The data will then be submitted to a national or institutional data archive that is part of the JPSRM distributed data archive. Metadata should be submitted as soon as possible (i.e. within one month) after completion of a sampling program. Data should be made available as soon as possible after collection and completion of quality assurance programs. A common, password protected shared data archive may be established (e.g., Circumpolar Biodiversity Monitoring Programme, SAON data portals) to facilitate analyses upon completion of the mapping phase of the JPSRM and repeated analyses throughout the monitoring phase.
- Data centers that are part of the JPSRM distributed data archive will need to coordinate their data management activities, including developing consistent metadata generation, curation and interoperability. When data submitted directly to an institutional or national archive are deemed ready for long-term storage and distribution, a final version of the data and metadata will be uploaded or linked to a shared-archive.
- The JPSRM Data Sharing Protocol should be consistent and compliant with international standards and agreements such as the IASC Statement of Principles and Practices for Arctic Data Management. That is, free, timely, and unrestricted exchange of essential data and products to the maximum extent possible. The proposed JPSRM data policy approach is fully compatible with the World Meteorological Organization (WMO) Climate Variability and Predictability (CLIVAR) Data Policy. The proposed JPSRM data archive will follow the WMO Core Profile of the ISO 19115: Geographic Information --- Metadata standard.
- A JPSRM policy would not conflict with or supersede any national or international agency policy related to public access to these data.
- Citations from data downloaded from the archive and used in publications would include the data's origin should be acknowledged and referenced. Every user is responsible for referencing the Principle Investigator (PI) responsible for creating the dataset that is used and identifying that the dataset was obtained through the JPSRM data archive. If multiple sources have been used, acknowledgement must be provided for each dataset used.
- The JPSRM data management would include data Digital Object Identifier (DOI) standards supported by international coordination groups such as the Research Data Alliance (RDA).
- Co-authorship of JPSRM publications that make extensive use of JPSRM data is warranted if their work has contributed to the study in question, or if the investigator has directly contributed to the publication in other ways. It is highly recommended that any data user contact the responsible PI and discuss whether the PI's data collection warrants co-authorship or an acknowledgement.
- Research programs that contribute data to JPSRM use sophisticated, state-of-the-art instrumentation and comply with strict requirements for maintenance, exposure of instruments, calibration, quality assurance procedures and the like, in order to achieve the highest attainable standards of measurement, accuracy, representativeness, stability and repeatability. To ensure that this goal is reached, PIs who are leading experts for their instruments will take responsibility for individual instruments operated on the respective research program.

- Users of JPSRM data will be encouraged to establish direct contact with the Scientific Point of Contact for each data set used; this contact will be included in the metadata for each data set. The JPSRM Scientific Point of Contact will discuss the planned use of the dataset and, if necessary, put the data user in contact with the data set PI as the data provider for the purpose of complete interpretation and analysis of data for publication purposes.
- Users of JPSRM data are strongly encouraged to submit citations for any publications or products to the JPSRM shared archive. The JPSRM shared archive will develop a citation list of publications from the submitted citations. Whenever possible, the archive will use DOIs to link to a publication to its data source(s). The shared archive will make the citation list public via the archive website to provide a continuous record of applications and analyses of JPSRM data and JPSRM scientific achievements.

Annex 4: Chair's Statement of the Second PSCG meeting

Second Meeting of the Provisional Scientific Coordinating Group under the Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean
Virtual Meeting
March 1-3, 2022

Chair's Statement[1]

Introduction

Delegations from Canada, the People's Republic of China, the Kingdom of Denmark in respect of the Faroe Islands and Greenland, the European Union, Iceland, Japan, the Republic of Korea, the Kingdom of Norway, and the United States of America met virtually March 1-3, 2022, for the second meeting of the Provisional Scientific Coordinating Group (PSCG) to continue discussions and progress to ensure the Parties can meet the milestones in Article 4 of the *Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean* ("the Agreement") related to the Joint Program of Scientific Research and Monitoring (JPSRM). Although invited, the Russian Federation did not send any delegates to the meeting. Representatives of the International Council for the Exploration of the Sea (ICES), the North Pacific Marine Science Organization (PICES), and the Arctic Council's Protection of the Arctic Marine Environment (PAME) Working Group also attended the first two days of the meeting.

The meeting followed the 1st PSCG meeting of February 11-13, 2020, in Ispra, Italy and the June 15-16, 2021, virtual Preparatory Conference of the Signatories to the Agreement.

The PSCG made good progress in discussing the steps necessary to establish the JPSRM and data sharing protocol by June 25, 2023 per the Agreement. The PSCG also developed recommendations for the Conference of the Parties (COP) to consider and approve to allow this work to occur. Progress was also made on outstanding text in the Rules of Procedure (RoP), but further work is needed.

Establishing the Joint Program of Scientific Research and Monitoring

The delegates agreed that the JPSRM is a science plan, and the science plan and the associated implementation strategies are what must be established by the June 2023 deadline contained in Article 4 of the Agreement. Some delegates recommended that the JPSRM needs to include joint objectives and not just be a collection of national programs. Other delegates stressed the importance of including the work of the national programs in surrounding ecosystems given that few countries are currently

[1] This Chair's Statement attempts to capture the basic elements of the meeting but does not necessarily reflect the views of any individual delegation.

sending expeditions to the Agreement Area. The United States presented a proposal regarding the scientific questions identified in the reports from the meetings between 2011 and 2017 of Scientific Experts on Fish Stocks in the Central Arctic Ocean (otherwise known as FiSCAO) prior to the signing of the Agreement. The proposal included a summary of the process the United States used to engage with the Inuit Circumpolar Council Alaska (ICC AK) since summer 2021 to incorporate Indigenous Knowledge in the questions to be answered through implementation of the JPSRM. The United States presented a proposed list of the key questions identified during the previous FiSCAO meetings and that also incorporated new or updated questions. Following this introduction, the delegates broke into five breakout groups to discuss the proposed list of key JPSRM questions and answer the following discussion questions:

- Are the four main questions identified during previous science meetings still relevant?
- Are additional science and Indigenous knowledge data/parameters needed? If yes, what are they?
- What process do we use to answer the questions in time to meet the Agreement deadlines?

In plenary, the groups reviewed the main discussion points. Some common themes that emerged included: the original FiSCAO questions are relevant but there is a need to consider the recent rapid rate of change occurring in the region; a need to create categories of questions to answer as some were more basic research-type questions while others were more qualitative- or operational-type questions; the need to prioritize the questions specific to the objectives of the Agreement; the need to leverage existing resources and programs already working to answer some of these questions; and, ensuring Indigenous Knowledge and local knowledge are taken into account in developing the questions and programs that will answer the questions. Finally, the delegates agreed to propose to the COP to establish a working group to commence immediately and operate between full PSCG meetings in order to meet the June 2023 deadline.

Development of a Data Sharing Protocol

Following review of the proposal by the United States that was guided by the previous Scientific Experts meetings prior to entry into force of the Agreement, the delegates broke into five breakout groups to discuss the following questions:

- Are the next steps identified during previous science meetings still relevant?
- Are additional data and knowledge sharing protocol requirements needed? If yes, what are they?
- Do we agree that a distributed data management system makes the most sense?
- What are the necessary next steps to finalize a data sharing protocol for approval by the COP?

The groups discussed whether it is best to use a centralized or distributed database. As a compromise among different views, there was support for a hybrid framework that recognized a centralized system for data collected specifically for the JPSRM and a distributed system for relevant, accessible data

collected and voluntarily provided by national and multinational programs. There was also discussion about the differences between how scientific data and Indigenous Knowledge are collected, compiled, managed, shared, and archived and that this needs to be a consideration in the data sharing protocol. Finally, the delegates agreed to propose to the COP to establish a data sharing protocol working group to commence immediately and operate between full PSCG meetings in order to meet the June 2023 deadline.

Rules of Procedure

Ms. Nadia Bouffard, provisional Chair of the COP, shared initial remarks and direction to the PSCG delegates to guide their discussion of the PSCG RoPs. Ms. Bouffard noted the current schedule for completing the COP RoPs and noted that additional changes to the PSCG RoPs would be needed once outstanding issues within the COP RoPs are resolved. She suggested aligning the PSCG RoPs as much as possible with the COP RoPs, and she will suggest that the COP not approve the PSCG RoPs until it approves the COP RoPs.

The PSCG delegates reviewed the entire RoP document and inserted edits throughout the document. The meeting participants did not reach agreement on previously bracketed text. Given the ongoing discussions within the COP RoP drafting team regarding observers, the PSCG Chair recommended skipping discussion of certain sections of the PSCG RoP document related to the observer issue.

Recommendations to the Conference of the Parties and Next Steps

The PSCG meeting delegates discussed several recommendations for the COP as next steps towards establishing the JPSRM and associated data sharing protocol. The recommendations and requests include immediate needs and longer term requests:

Immediate Needs Requests

1. Call for the COP to establish a PSCG Mapping and Monitoring Working Group (MM-WG) to develop the mapping and monitoring plans for the JPSRM to achieve its aim, for approval by the PSCG, building on the draft plans from the 4th and 5th FiSCAO meetings and based on the 1st and this 2nd PSCG meeting discussions.
2. Call for the COP to establish a PSCG Data Sharing Protocol Working Group (DSP-WG) to develop an agreement on a data management policy and sharing protocols as part of the JPSRM, for approval by the PSCG, building on the draft plan from the 5th FiSCAO meeting and based on the discussions from this 2nd PSCG meeting;
3. Request that the Parties call for a Fall 2022 PSCG meeting to:
    a. Finalize the JPSRM mapping requirements and monitoring program drafted by the MM-WG; and

b. Finalize an agreement on a data management policy and sharing protocols drafted by the DSP-WG.

Longer Term Requests

1. Request that the Parties develop the Terms of Reference and other procedures for the function of the joint scientific meetings in accordance with Article 4 paragraph 6 of the Agreement, building on the Terms of Reference and the work of the PSCG, particularly to finalize the JPSRM and develop implementation plans for the JPSRM.
2. Request that the Parties call for a Spring 2023 PSCG/succeeding body meeting to:
    a. Finalize cost and infrastructure (e.g., vessels) sharing program requirement to implement the JPSRM under multiple funding scenarios as outcomes from the Fall 2022 PSCG meeting; and
    b. Focus on prioritizing key indicators of ecosystem change and triggers of productivity that lead to requirements for exploratory fishing.
3. Request that the Parties discuss exploratory fishing at their November 2022 COP meeting to provide guidance and identify issues for the PSCG to consider when taking up this topic at the proposed Spring 2023 PSCG/succeeding body meeting.
4. Recommend that the Parties identify resources and infrastructure to implement the JPSRM when it is approved; and in the meantime, support extensions of existing monitoring programs into the CAO and the Atlantic and Pacific Gateways to collect baseline mapping information.

The PSCG delegates agreed that receiving immediate approval to establish the MM-WG and DSP-WG and to convene meetings in Fall 2022 and Spring 2023 is critical to meeting the milestones in Article 4 of the Agreement.

The Chair agreed to circulate a draft of this Chair's Statement as soon as possible following the conclusion of the meeting for review by PSCG delegates and to circulate a draft report in time for the COP to consider it either at their upcoming April 28, 2022, COP RoP drafting meeting or as soon thereafter as the COP is able to discuss the report and associated recommendations and requests.

The Chair asked delegations to notify her of any delegations willing to host the Fall 2022 and Spring 2023 PSCG meetings.

Delegations thanked the Chair for her efforts and the United States for the proposals and documents shared in advance of the meeting.