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EDITS TO THIS DOCUMENT (2020-11-02)

- *Removed text: "Kingdom of Denmark, the Russian Federation, and Finland will submit a project status update on the progress made at the Paris MoU to PAME I -2021."*
- *Removed text: "PAME noted the decisions of Poland, Bulgaria, and Portugal to sign the Torremolinos Declaration indicating their intention to ratify the 2012 Cape Town Agreement by October 2022 for the safety of fishing vessels, and invited Arctic and Observer States that have not yet done so to consider signing the Declaration, which remains open for signature at IMO until 20 October 2020."*
- *Editorial changes*

ARCTIC COUNCIL

PAME Summary Progress Report
SAO Meeting online 17-19 November 2020

Summary of progress on PAME activities: PAME's 2nd biannual meeting of 2020 (PAME II-2020) was held online from 23-25 September. PAME's five thematic expert group meetings (shipping, marine protected areas, ecosystem approach, marine litter and resource exploration and development) were held online from 15-22 September.

A list of preliminary projects for the 2021-2023 PAME Work Plan is in Annex I and a preliminary list of PAME deliverables to the 2021 Ministerial is in Annex II.

Marine Protected Areas (MPAs)

Finland and USA gave an update on the two Fact Sheets in development, "*Marine Protected Areas in a Changing Arctic"* and "*Food Security in the Arctic - Implications of a Changing Ocean".* This work has included a collaboration with PPs and CAFF, as well as with AMAP on the climate-related portions of the Fact Sheets. PAME agreed on a timeline to finalize both Fact Sheets for submission to the Spring 2021 SAO and Ministerial Meetings.

Sweden presented on results of the *"Modelling Arctic Oceanographic Connectivity – Preliminary Technical Report".* PAME accepted the timeline to complete final research and circulate the final report to PAME for review by 26 November 2020. Sweden will present the draft report to CAFF's expert group working on the Circumpolar Biodiversity Monitoring Plan (CBMP).

WWF presented on its *"Arctic Ocean Network of Priority Areas for Conservation (ArcNet)"* and noted its interest to connect ArcNet (the outcome of the WWF project formerly known as PAMPAN) with the work ongoing in PAME and other Arctic Council working groups.

Furthermore, PAME discussed ongoing work of the PAME and CAFF Secretariats to update the *Arctic Protected Areas Indicator Report from 2017,* including a possible title change, and agreed to the timeline to finalize the update, with 1st draft to be circulated for comments in November 2020.

Invasive Species

PAME recognized the importance of further exploring ways to follow up on the the joint PAME/CAFF effort to implement the Arctic Invasive Alien Species Strategy and Action Plan (known as ARIAS) and encouraged its members to submit project proposals 30 days before the PAME I-2021 meeting for consideration and inclusion into the PAME 2021-2023 Work Plan.

The Kingdom of Denmark informed PAME of a project proposal focusing on improving the knowledge base for work to be done jointly with CAFF on the transfer of marine invasive species by ships e.g. through ballast water and biofouling. This project proposal has been circulated to PAME for review and feedback, with an emphasis on feedback from the Shipping Expert Group.

Arctic Marine Shipping

PAME and its Shipping Expert Group (SEG) continue to advance several projects and initiatives to promote safe and sustainable navigation in the Arctic.

Linking with International Organizations

The 4th annual Arctic Shipping Best Practice Information Forum meeting will take place online 24-25 November. PAME's Forum Coordinating Committee will submit a report on its outcomes to PAME I-2021.

PAME approved for consideration four Arctic Regional Hydrographic Commission's (ARHC) proposals with the aim to explore further shared goals of protecting the Arctic marine environment. The SEG Co-Chairs will communicate and coordinate with the ARHC and report on developments to PAME I-2021.

PAME invited the IMO Secretariat to submit to PAME I-2021 information on IMO issues and developments of interest to PAME, including with respect to IMO's development of a Polar Strategy.

The International Council for the Exploration of the Sea (ICES) Working Group on Shipping Impacts in the Marine Environment (WGSHIP) gave a presentation on the WGSHIP's terms of reference, scope, and planned deliverables. The SEG Co-Chairs will liaise with WGSHIP as appropriate to identify any potential areas of mutual interest and collaboration.

India has been invited to make a presentation at PAME I-2021 on its Arctic interests, including with respect to shipping.

IMO Measures for Arctic Shipping

Iceland will advance its project on *"Black carbon emissions from shipping activity in the Arctic and technology developments for their reduction"* and submit a status update report to PAME I-2021.

Norway will submit an updated template and a survey to collect information on how Arctic and Observer States

interpret the Polar Code. Norway will provide a status update at PAME I-2021.

Arctic and Observer States have been invoted to submit to PAME I-2021 information on Polar Ship Certificates that have been issued by or on behalf of their maritime administrations. Such information is to include if possible, the type of ship, gross registered tonnage, and ice class.

PAME also invited its members as well as Parties to the Antarctic Treaty to support a Polar Code Inspection Campaign in cooperation with the Tokyo MoU. The project co-leads will work with the PAME Secretariat to prepare a letter to the Antarctic Treaty Secretariat requesting such support.

Norway updated PAME on progress concerning the joint PAME-EPPR *"New Low Sulphur Fuels, Fate and Behavior in Cold Water Conditions"* project. PAME members have nominated experts to participate in the project and Norway will submit a project status update to PAME I-2021.

Strengthening Passenger Ship Safety in Arctic Waters

The Arctic Marine Tourism Project's (AMTP) co-leads (Canada, Iceland, and the United Kingdom) provided a timeline to finalize Work Package #1 (compilation of data on tourism vessels in the Arctic) and Work Package #2 (summary of existing site-specific guidelines for near-shore and coastal areas of the Arctic visited by passengers of marine tourism vessels and pleasure craft) and will submit a final draft report to PAME I-2021 for review and approval.

Addressing Impacts on Marine Mammals

Work on the Underwater Noise Mapping project is underway and the draft report will be submitted by co-leads (Canada, Germany, and WWF) to PAME I-2021.

PAME approved the project proposal by Iceland, CCU, and WWF to survey vessel operations on selected wastewater discharges in Arctic waters, specifically grey water, sewage, and exhaust gas cleaning system (scrubber) effluent and provide a status update to PAME I-2021 on its progress.

Addressing the Infrastructure Deficit

PAME invited USA and Russia to circulate for comment the proposed draft MARPOL amendments language that would implement an Arctic Regional Arrangement for Port Reception Facilities and to submit a project status update to PAME I-2021. PAME also invites its members to identify subject matter experts to participate in a PAME correspondence group to advance the work on this project in preparation for a joint submission by Arctic States to the 9th meeting of IMO's Sub-committee on Pollution, Prevention and Response (PPR) in 2022.

Arctic Marine Traffic Systems

The Arctic Ship Traffic Data (ASTD) Expert Group has been tasked to prepare a prioritized list of new data layers and capabilities it recommends be added to the ASTD System. The ASTD project co-leads, USA and Norway, with support from the PAME Secretariat, will evaluate these recommendations and submit a status update report to PAME I-2021 and continue to raise awareness of the ASTD System, including by making presentations as appropriate in other fora (e.g., the Arctic Coast Guard Forum, other Arctic Council working groups), to refine the ASTD instructions and forms as appropriate, and to facilitate ASTD System access by eligible applicants.

The Arctic Shipping Status Report (ASSR) project's main objective is to utilize the ASTD System to develop a user-friendly, illustrative informational factsheets online on Arctic shipping. PAME released the The first ASSR report (ASSR #1) on March 31 2020. This report provides information on general Arctic shipping trends between 2013 and 2019 and shows how much Arctic ship traffic has increased. PAME conditionally approved the 2nd Arctic Shipping Status Report (ASSR #2) on "Heavy Fuel Oil in the Arctic" which was released on 20 October 2020.

Future ASSR Reports will be developed in consultation with appropriate subject matter experts, and distributed for intersessional PAME HoDs approval prior to dissemination.

PAME invited the USA to submit intersessionally for PAME approval a final report on the Compendium of Arctic Ship Accident (CASA) project along with a final data spreadsheet. PAME approved the use of the CASA information to create an ASTD data layer, subject to an appropriate disclaimer about the multiple sources of the data and the work undertaken to standardize it.

Engagement of Observers in PAME's Shipping-Related Activities

PAME invited the co-leads (USA, Poland, Republic of Korea, and the Northern Forum) on developing *A framework for more systematically engaging with Observers on shipping related matters* to resume work by (i) distributing to Observers a survey requesting input on prioritizing a selected list of the most feasible and useful options for strengthening Observer engagement with PAME's shipping-related activities and (ii) submitting to PAME I-2021 a draft "PAME 101 for Observers" document along with a project status update.

Updating PAME's Shipping Priorities

PAME continues is work on updating the 2009 Arctic Marine Shipping Assessment (AMSA) Report Recommendations (the AMSA refresh project) and approved the final draft AMSA Recommendations matrix and invited the project co-leads (Canada and USA) to develop a paper to accompany the submission of the matrix to the SAOs and a communications plan for submission to PAME I-2021.

Arctic Offshore Resource Exploration and Development

PAME approves the final draft *Meaningful Engagement of Indigenous Peoples and Local Communities in Marine Activities (MEMA)* Reference Guide, subject to final editing, layout and design, for submission to SAOs and

the 2021 Ministerial. The MEMA Reference Guide is designed to highlight the good practices for meaningful engagement between proponents of activities in the Arctic and Indigenous peoples and local communities.

PAME invites its members to translate the MEMA Reference Guide into various languages and notes the importance of reaching out to the Arctic Council Secretariat, Permanent Participants, other Arctic Council working groups and Observers to encourage the use of the MEMA Reference Guide as a resource for all Arctic Council projects and other Arctic activities.

PAME welcomed the draft status of Offshore Oil and Gas Activities and Regulatory Frameworks in the Arctic, which provides a compilation of the status on current or planned offshore oil and gas activities, as well as changes to relevant legislation, regulations and policies over the last ten years. The compilation will be submitted to PAME I-2021 followed by submission to SAOs and the 2021 Ministerial for information.

PAME noted the possibility of using the oil and gas information on offshore activities for inclusion into a future the Arctic Shipping Status Report (ASSR).

Ecosystem Approach to Management (EA)

PAME welcomed the planning of a 7th EA workshop in 2021 (originally planned in Fall 2020) on element No. 5 of the EA framework, *"Value and Valuation in the Ecosystem Approach",* and approved the objectives and scope as outlined in the draft workshop program.

PAME welcomed the information on the work of the joint *ICES/PICES[1]/PAME Working Group for Integrated Ecosystem Assessment of the Central Arctic Ocean* (WGICA) and noted the plan to produce reports toward 2024 with more emphasis on impacts of human activities on the Central Arctic Ocean ecosystem.

PAME welcomed the revised timetable for the preparation of the first draft report on setting ecological objectives during October-December 2020 timeframe. Followed by a review by the project group on January 2021. A small group of experts has been formed that will contribute to the drafting of the report. A draft of the report will be presented to PAME-I 2021 for approval and decision on forwarding the report as a deliverable to the ministerial meeting in spring 2021.

PAME welcomed the initiatives to strengthen the communication between the EA-Expert Group co-chairs and the relevant Arctic Council working group members. These include the i) planning of a 7th EA workshop and the ii) a summary of new and existing information from Arctic Council working groups of particular relevance to EA, and an assessment of how this information could be used to strengthen EA. This assessment could also be presented to the SAOs at meetings under the SAO Marine Mechanism.

Development of a Regional Action Plan on Marine Litter in the Arctic (ML-RAP)

PAME welcomed the 3rd draft of the Regional Action Plan on Marine Litter in the Arctic (ML-RAP) and noted with appreciation the contributions from marine litter experts. The project co-leads (Canada, Kingdom of Denmark, Finland, Iceland, Norway, Sweden, the USA, AIA and OSPAR) welcome additional comments according to an agreed timeline to further develop the ML-RAP.

PAME noted with appreciation the development of communication and outreach material for PAME's work on marine litter in the Arctic by the PAME Secretariat. This effort is an important aspect of PAME's ML-RAP. Recently, two main components have been carried out, the Plastic in a Bottle initiative and the Marine Litter Library.

PAME noted the cooperation with other Arctic Council Working Groups in developing the ML-RAP and invites its expert groups, Member States, Permanent Participants and Observers to consider projects on marine litter be proposed for inclusion in the 2021-2023 work plan.

Reporting on implementation progress on the Arctic Marine Strategic Plan (AMSP)

PAME welcomed the timeline to finalize the 3rd AMSP Implementation Report noting in particular valuable engagement by other Arctic Council working groups. Final draft will be submitted to PAME I-2021 for approval.

Collaboration and coordination with other Working Groups

PAME works towards strengthening the coordination and collaboration with other Arctic Council working groups by inviting them to nominate experts in PAME's expert groups working on activities of mutual relevance. Furthermore, PAME makes an effort to participate in meetings of other WGs, e.g., through its Heads of Delegations (HoDs) for coordination purposes, and shares work on progress to seek input, as relevant.

PAME continues to liaise with CAFF on MPAs and invasive species work and has sought input from AMAP in the development of the Fact Sheet on Marine Protected Areas under change. PAME continues to coordinate its work with EPPR, noting in particular the joint PAME-EPPR *"New Low Sulphur Fuels, Fate and Behavior in Cold Water Conditions"* project. Inputs from all WGs has been sought in the development of the RAP-ML, and notes that access to the ASTD System is open for the WGs as well.

Observers at the PAME II-2020 Working Group Meeting

PAME continues to strengthen its engagement with Observers in PAME's shipping-related activities by inviting one representative for each meeting to give a presentation on its Arctic interest and activities. PAME I-

[1] The North Pacific Marine Science Organization

2021 and its expert group meetings were collectively attended by 166 participants, of which 53 were Observers; 31 representing Observer States: China, France, Germany, Japan, The Netherlands, , Italy, Poland, Republic of Korea, Singapore, Spain, and the United Kingdom; and 22 representing Observer Organizations: WWF, GRID-Arendal, Oceana, IASC, ICES, OSPAR, Arctic Institute of North America, CCU, UNEP, EC, IMO and WMO.

PAME Next Meeting and Administration

The next PAME meeting (PAME I-2021) will take place in early February 2021 and hosted by Kingdom of Denmark or online, subject to COVID.

PAME national HoDs decided on a set rotation for hosting of PAME meetings, chairing of PAME and Secretariat funding, noting States may elect to amend.

Annex I - Proposed Projects for PAME Work Plan (2021-2023)

This list is preliminary and will be further refined for the PAME I-2021 final approval. The inclusion of projects on this list does not prejudice any subsequent decision on them.

Framework for a Pan-Arctic Network of MPAs

1. Follow-on ideas related to oceanographic connectivity (e.g., climate scenarios, spread of invasive species, and testing in specific countries' waters.
2. Different ways of knowing: Applying Indigenous, Local and Scientific Knowledge to Arctic Conservation Planning (CAN, USA, AIA, WWF)
3. Revisiting the 2015 MPA Framework Document for potential updates
4. Evaluating potential OECM areas in the Arctic using the criteria from CBD 14/8 for inclusion in OECM reporting and management, taking into account selected governance issues. (KoD and WWF)
5. Potential linkages to the UN Decade of Ocean Science for Sustainable Development
6. Potential additional fact sheets
7. Potential exploration of area-based management tools in ABNJ (e.g., Central Arctic Ocean)
8. Convene a meeting of MPA managers from the Arctic to share approaches, opportunities and challenges, as well as contribute to revisiting of MPA Framework Document.

Protection from Ivasive Species

1. Project proposal focusing on improving the knowledge base for work to be done jointly with CAFF on the transfer of marine invasive species by ships e.g. through ballast water and biofouling. (KoD).

Arctic Marine Shipping

1. **(Co-leads: Iceland, WWF, CCU) Survey of Select Wastewater Discharges**

   Survey vessel operations on selected wastewater discharges in the Arctic, specifically grey water, sewage, and exhaust gas cleaning system (scrubber) effluent.

2. **(Lead: USA) Arctic Port Reception Facilities**

   Update the 2012 USA paper titled "Specially Designated Arctic Marine Areas and Port Reception Facilities" (PAME (I) 12/4.6/b), which summarizes the capabilities and capacities of port reception facilities in the Arctic. The update includes a review of the existing waste infrastructure within each Arctic country and the development of a mapping data layer for incorporation into PAME's Arctic Shipping Traffic Data (ASTD) System.

3. **(Co-leads: USA & XXX) Collaboration with the Arctic Regional Hydrographic Commission (ARHC)**

   In collaboration with the ARHC:

   - explore the development of a policy statement encouraging the hydrographic mapping of Arctic waters, using for inspiration Antarctic Treaty Consultative Mechanism Resolution 6 (2019), titled "Hydrographic Mapping of Antarctic Waters;[2]

[2] Available at https://documents.ats.aq/ATCM42/fr/ATCM42_fr001_e.pdf, p. 419-20.

- consider the development and dissemination of reports and other information that support navigational safety and environmental protection in the Arctic along the lines of the Arctic Navigation Risk summary bulletin issued by the ARHC in 2017;[3]
- review the potential interoperability of databases (including the ASTD System) that contain Arctic geospatial information to determine their potential utilization across platforms for improved analysis; and
- undertake work to issue a 2023 update of ARHC's 2018 Arctic hydrography risk assessment[4] by designating a representative to communicate with the ARHC on the approach, structure, usability, etc., of the update.

4. **(Co-leads: Norway, USA, PAME Secretariat) Arctic Ship Traffic Data (ASTD) System**

   This project will continue to strengthen the ASTD System by augmenting its functionality with new data layers and additional data, enhancing its analytical and report generating capabilities, and facilitating access for eligible users, particularly Arctic States, PPs, accredited Observers and Arctic Council Working Groups.

5. **(Co-leads: Canada, USA, Russia) Arctic Shipping Best Practice Information Forum**

   A continuation of previous work plan efforts, the objective of this project is to identify ways to foster increased use of the Arctic Shipping Best Practice Information Forum web portal - which includes links to information related to the IMO's Polar Code - and to convene (in person or virtually) the complementary 5th and 6th annual Forum meetings.

6. **(Co-leads: Canada, WWF, Germany) Underwater Noise**

   The objective of this proposal is to build off the related work completed during the 2019-2021 work plan to increase the understanding of noise emissions incidentally generated by ships operating in the Arctic, including the investigation of possible mitigation strategies to reduce the impacts of underwater noise.

7. **(Co-leads: USA, PAME Secretariat) Arctic Shipping Status Reports**

   The project will utilize the Arctic Ship Traffic Data (ASTD) System to develop user-friendly, illustrative information reports on Arctic shipping that describe notable trends, highlight important developments, and depict interesting and important information. The goal is to produce 3-4 reports each year and, once approved, disseminate them to the general public and other stakeholders.

8. **(Co-leads: Iceland, Finland) Black Carbon emissions from shipping activity in the Arctic and technology developments for reduction**

   The objective of this project is to strengthen harmonization and foster dialogue and cooperation between Arctic States, Permanent Participants and Arctic Council Observers on research on various fuel and exhaust gas treatment methods as possible means by which to reduce the amount of harmful gases emitted by vessel engines. To compile data on black carbon emissions from shipping activity in Arctic waters using PAME's Arctic Ship Traffic Data (ASTD) System to better understand the distribution and magnitude of these emissions in the region; and foster dialogue and sharing of information among PAME members, industry, experts, and others as appropriate on technology developments, including information on cost-efficiency, methodology and other relevant factors, for the reduction of black carbon emissions from shipping in the Arctic.

9. **(Lead: Norway) New Low Sulphur Fuels, Fate, and Behavior in Cold Water Conditions (PAME-EPPR Joint Project)**

   The project aims to further our knowledge of the toxicity and fate and behavior of new fuel oils in cold water conditions. Results will be described factually in order to support the integration of the project's results into marine oil spills prevention, preparedness and response activities.

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[3] Available at https://iho.int/uploads/user/Inter-Regional%20Coordination/RHC/ARHC/MISC/Notice%20on%20caution%20required%20when%20using%20nautical%20charts%20in%20Arctic%20waters3.pdf.

[4] Available at https://iho.int/mtg_docs/rhc/ArHC/ARHC8/ARHC8-C1a_Arctic_Hydrographic_Adequacy_OTWG.pdf.

10. **(Co-leads: USA and the Russian Federation) Arctic Arrangement for Regional Reception Facilities**

    The project's objective is to develop proposed draft MARPOL amendments language that, consistent with the decision made by the 74th Session of the IMO's Marine Environmental Protection Committee (MEPC), would implement an Arctic Regional Arrangement for Port Reception Facilities. Such proposed draft language would be part of a joint submission by Arctic States to the 9th meeting of IMO's Sub-committee on Pollution, Prevention and Response (PPR) in 2022.

11. **(Lead: Norway) Polar Code Interpretation Project**

    Building off the survey submitted during the 2019-2021 workplan, the co-leads propose to analyze the results in order to develop a paper for possible submission to the IMO on unified interpretations of the Polar Code.

12. **(Co-leads: USA, Poland, South Korea, Northern Forum) Strengthening Observer Engagement**

    Continue development of an approach for more systematically engaging with Observers on PAME's shipping-related work and identify opportunities for Observers to contribute to and/or support such work. Planned deliverables include a prioritized list of recommendations that can be pursued by PAME to strengthen Observer engagement and an "Observer 101" manual with important basic information that every PAME observer should know.

13. **(Co-leads: Canada, Iceland, UK) Arctic Marine Tourism Project**

    Ongoing trend analysis of tourism vessel information from throughout the circumpolar Arctic, with a particular focus on smaller vessel/pleasure craft activities not captured within the ASTD database.

Resource Exploration and Development

1. MEMA Outreach and Next Steps
2. Guidelines for Arctic Marine Oil and Gas Associated Noise
3. A Thorough Update of the Arctic Offshore Oil and Gas Regulatory Resource (AOOGRR)
4. Update Guidance on Non-Emergency Offshore Oil and Gas Operations and Monitoring
5. Marine and coastal mineral extraction

Ecosystem Approach to Management (EA)

1. **(co-leads Norway/USA in close collaboration with the EA expert group) Project/activity: 7th EA Workshop** (continuation on advancing the EA work within the Arctic Council). Objective: To convene the 7th EA workshop in 2021 with focus on element No. 5 of the EA framework: Value the cultural, social, and economic goods and services produced by the ecosystem.

2. **(co-leads: Norway/USA in close collaboration with the EA expert group) Project/activity: Third International Science and Policy Conference on Implementation of the Ecosystem Approach to Management in the Arctic in TBD 2022:** Title: "How far have the international Arctic community including Arctic States come in implementing EA? Cooperation, challenges, understanding, and a way forward".

Objective**:** Topics to be addressed include common understandings on implementation; cooperation and joint work; challenges and solutions; and other aspects as developed by a conference planning group.

Outcomes and Products: Presentations, panels and discussion groups at the conference will review information, experiences and examples of EA implementation in Arctic waters; and other aspects as developed by a conference planning group.

Meeting Concepts**:** A planning group will be established with representatives of co-conveners and others who will develop the program, identify and invite speakers, arrange for editing and publication of the proceedings, solicit sponsors, and provide for other operational details of the conference.

3. **(ongoing cross-cutting initiative by ICES/PICES and PAME) Project/activity: Integrated Ecosystem Assessment (IEA) of the Central Arctic Ocean:** Objective: Continue emphasis on development of Integrated Ecosystem Assessment (IEA). Continue to report on developments within ICES/PICES/PAME Working Group

on Integrated Ecosystem Assessment (WGICA) as well as other ICES activities on IEA, the meetings of scientific experts on fish stocks in the central Arctic Ocean, and any other relevant activities, e.g., in the U.S. NOAA IEA program. Outcomes and Products: WGICA to draft Report on human activities, pressures and management bodies (Part 1); and climate and vulnerability assessment (Part 2) of the Central Arctic Ocean

4. **(co-leads: Norway/USA in close collaboration with the EA expert group). Project/activity: Ecosystem Approach Framework:** Objective: Revise the 6-point EA framework by adding 2 more points "Monitoring" and "Scientific and Indigenous Knowledge advice".

5. **(co-leads: Norway/USA in close collaboration with the EA expert group). Project/activity: Compilation of relevant EA information within Arctic Council (AC):** Objective: Summarize existing and new information from AC Working Groups of relevance to EA, and assess how this information could be used to strengthen EA and what is missing. This assessment could also be presented to the SAOs at meetings under the SAO Marine Mechanism.

Marine Litter in the Arctic

1. Develop a ML-RAP Implementation Plan
2. Develop a ML-RAP Communication Plan
3. **Port Reception Facilities in the Arctic – (**Note: cross reference the Shipping Expert Group project, capturing information relevant for marine litter (joint ML and SEG project?).
4. **Arctic Port Reception Facilities -** (Cross reference with the Shipping Expert Group on the same project – pulling the information relevant for marine litter).
5. **Hotspot Analysis & Visualization** - Work with partners, to identify and harmonize data and create hotspot analyses showing qualitative or comparative concentrations by debris type. This would initially focus on the types of debris where data is captured in multiple locations (either from monitoring or removal efforts), but could expand over time to include more geographic coverage as RAP implementation efforts increase debris and debris data collection.
6. **ALDFG Index or Inventory** - Information on current practices gathered from Arctic States and non-Arctic States fishing in the area, which may help identify which gear could contribute to marine litter. This could be helpful in categorizing and classifying ALDFG that is recovered and understanding potential sources, pathways, and fate of ALDFG and associated equipment, especially as fishing effort shifts further North to follow biomass. This could inform or build into the risk assessment and hotspot analysis of ALDFG.
7. **Traditional Knowledge and Local Knowledge Integration** – Local communities and Indigenous peoples often have long term knowledge of shoreline deposition patterns, either of marine litter or of organic material. These patterns are often consistent, and date back years and generations. However, evolving conditions in the Arctic can alter these realities. This project would work to identify opportunities to gather, capture, and integrate traditional knowledge and local knowledge on deposition patterns, which could inform hotspot analysis and support longer term actions for identification and understanding of impacts to culturally important resources.
8. **Youth engagement** – Development youth engagement toolkit in cooperation with CAFF International Arctic Youth Engagement Strategy.

AMSP and Implementation Reporting

1. Exploring possible need to update the AMSP or parts of it based on the SAO Marine Mechanism (SMM) Process
2. 4th AMSP Implementation Reporting

Annex II - Preliminary list of deliverables to the 2021 Ministerial

This list is preliminary and will be further refined for the PAME I-2021 final approval.

Arctic Marine Shipping:

1. Progress Report on the Arctic Shipping Best Practice Information Forum
2. Progress Report on the Arctic Ship Traffic Data (ASTD) project
3. Arctic Marine Tourism: Development in the Arctic and enabling real change
4. A compendium by PAME and EPPR on Arctic Ship Accidents (CASA)
5. Status/summary report on Black Carbon emissions from shipping activity in the Arctic and technology developments for their reduction
6. Status/summary report on Environmental toxicity and fate of light and intermediate fuel when spilled in cold waters
7. Underwater Noise in the Arctic – Understanding Impacts and Defining Management Solutions - Phase I
8. Final Report: Collect and summarize information on Arctic State safe and low-impact marine corridor initiatives
9. Summary report on a framework for more systematically engaging with Observers on shipping related matters
10. Status report on PAME's update on shipping priorities and recommendations
11. Status report regarding the amendments relevant requirements in MARPOL Annexes I, II, IV, V and VI to allow States with ports in the Arctic region to enter into regional arrangements for port reception facilities – joint submission to IMO and decision on new output to agenda PPR Sub-Commitee

Marine Protected Areas

1. Final Report on Modelling Arctic oceanographic connectivity to further develop PAME's MPA toolbox
2. Update on the Arctic Protected Areas Indicator Report from 2017
3. Two factsheets on Marine Protected Areas (MPAs) under change
    - Fact Sheet 1: Marine Protected Areas in a Changing Arctic"
    - Fact Sheet 2: Food Security in the Arctic - Implications of a Changing Ocean".

Resource Exploration and Development

1. MEMA Reference Guide for engagement with Indigenous peoples and local communities
2. Update/status report on current offshore oil and gas activities by Arctic States

Ecosystem Approach:

1. Progress report on the EA-EG 2019-2021 Workplan with tentative plan for 2021-2023
2. Report on Ecological Objectives

Arctic Marine Pollution

1. Regional Action Plan on Marine Litter in the Arctic
2. *Communication and outreach products*

Other

1. 3rd reporting on progress/implementation of the 2015-2025 Arctic Marine Strategic Plan (AMSP).
2. PAME Summary Report of 2019-2021 Activities.
3. 2021-2023 PAME Work Plan.