

# PAME MAIN ACHIEVEMENTS SUMMARY REPORT 2021-2025

MAY 2025



ARCTIC COUNCIL

# PAME

Protection of the Arctic Marine Environment

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# The PAME Working Group

The Arctic Council Working Group for the Protection of the Arctic Marine Environment (PAME) was established by the Arctic Council Ministers in Nuuk, Greenland, September 1993.

PAME members include National Representatives of the eight Arctic Council States: Canada, Kingdom of Denmark, Finland, Iceland, Norway, Russian Federation, Sweden and United States in addition to six Indigenous groups' organizations, Termed "Permanent Participants".

Representatives from several designated Arctic Council Observers also participate in PAME.

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## PAME mandate

The Protection of the Arctic Marine Environment (PAME) Working Group (WG) is the focal point of the Arctic Council's wide range of activities related to the protection and sustainable use of the Arctic marine environment and provides a unique forum for collaboration.

Its mandate is to:

*to address marine policy measures and other measures related to the conservation and sustainable use of the Arctic marine and coastal environment in response to environmental change from both land and sea-based activities, including non-emergency pollution prevention control measures such as coordinated strategic plans as well as developing programs, assessments and guidelines, all of which aim to complement or supplement efforts and existing arrangements for the protection and sustainable development of the Arctic marine environment.*

## PAME achievements 2021-2025

PAME's Work Plan has proceeded in accordance with the Arctic Council Guidelines for the resumption of Working Group/Expert Group work and its 2021-2023 Work Plan (extended to 2025). Based on these Guidelines, PAME prepared a resumption plan and convened regular online meetings with its Heads of Delegations (HoDs) and with the co-chairs of its 5 thematic expert groups in May, June and September 2024 and February 2025. PAME convened expert groups pre-meetings and a plenary meeting from 4-15 November 2024 (PAME I-2024) and from 3-14 March 2025 (PAME-I 2025).

PAME cooperates with other Arctic Council WGs to improve the efficiency and effectiveness of the Council. Further, PAME works substantively with Arctic inhabitants, including Indigenous Peoples and local communities, accredited Observers and other Arctic stakeholders to collaborate on a wide range of activities and topics on the Arctic marine environment.

As a follow-up to the Reykjavik Ministerial declaration of May 2021 and the Arctic Council Strategic Plan (2021-2030), PAME has, inter alia, undertaken the following work during the 2021-2025 period.

## Arctic Marine Shipping

PAME and its Shipping Expert Group (SEG) continue to advance shipping projects and activities by follow-up to the updated 2009 Arctic Marine Shipping Assessment (AMSA) Report's 17 Recommendations (2021) and other relevant shipping recommendations with the aim to promote and advance safe and sustainable shipping in the Arctic.

The Shipping Expert Group (SEG) convened 4 online meetings, in April, June (focused on Observer engagement), October 2024 and in February 2025. PAME has [published five Arctic Shipping Status Reports \(ASSR\) to date](#), of which three have been published since 2021:

- ASSR 1: The Increase in Arctic Shipping 2013-2019 (2020, updated in 2024 and 2025)
- ASSR 4: Flag States of ships in the Arctic (2023)
- ASSR 5: Types of ships in the Arctic (2024)

More reports are under development, including in conjunction with other PAME projects and in collaboration with other Arctic Council Working Groups.

PAME completed a report from the joint PAME-EPPR “New Low Sulphur Fuels, Fate and Behavior in Cold Water Conditions” project. When new fuel regulations were adopted worldwide in 2020 ships started to use new types of fuels. These new fuels were not tested in cold Arctic waters and their effects on the Arctic marine environment were unknown. This project is closing this knowledge gap after thorough testing of these new fuels. The report contains recommendations with the aim of reducing environmental risk.

PAME completed the *Underwater Noise in the Arctic: Understanding Impacts and Defining Management Solutions, Phase II* Report. The report characterizes the Arctic Ocean soundscape and its contributions from shipping, investigates scenarios for noise level predictions out to 2030, and models operational technological scenarios to mitigate underwaters noise impacts in three sub-regions of interest. A story map with the project results is being developed and the development of an ASSR report is planned as a follow on to this project

PAME completed an *Observer Frequently Asked Questions (FAQ)* document as a part of the *Framework for More Systematically Engaging with Observers on Shipping Related Matters* project. PAME's Shipping Expert Group continues to reach out and communicate with Arctic Council Observers via regular expert group meetings. Several Observers co-lead PAME projects in accordance with the Arctic Council Observer Manual for Subsidiary Bodies, including the IMO, Spain, United Kingdom, The Netherlands, World Wildlife Fund (WWF) and Circumpolar Conservation Union (CCU).

PAME continues to implement planned updates to strengthen the [Arctic Ship Traffic Data \(ASTD\)](#) Program, including adding shipping statistics from over 400 new ports in the Arctic

and adding a data layer from the Arctic Regional Hydrographic Commission on nautical chart adequacy in the Arctic. A new terrestrial automatic identification system (AIS) stream from Canada is being explored. The Arctic Council's work on Arctic shipping greatly benefits from the ASTD Program in promoting and advancing safe and sustainable shipping in the Arctic. Since ASTD launched in 2019, over 300 people from nearly 100 different entities have received access to ASTD Program data.

*The Polar Maritime Seminar*, co-sponsored by the International Maritime Organization (IMO) and Norway's Arctic Council Chairship in cooperation with PAME, was convened at the IMO Headquarters in London from 23-24 January 2025 with over 250 registrations. The seminar invited shipping experts to discuss topics such as trends in Arctic and Antarctic vessel activity, voyage planning, the PAME project *Review of the Polar Operational Limit Assessment Risk Indexing System (POLARIS)*, search and rescue, training of seafarers for polar operations, and fishing vessel safety. The Forum co-leads, Norway (as the Forum chair), USA, Canada and the PAME Secretariat contributed to the planning of the Seminar. [A press release was published following the meeting.](#)

PAME completed the *Wastewater Practices in the Arctic: Qualitative Insights* Report of findings which is part of the *Wastewater Discharges from Vessels in the Arctic* project. This report summarizes the aggregate survey results, key insights and views on potential solutions. The survey was directed at shipping operators and shipping associations, and priority vessel types and included passenger/cruise ships, container ships, community re-supply, bulk carriers, and tankers and focused on their vessel operations on selected wastewaters in Arctic waters, specifically grey water, sewage, and exhaust gas cleaning system ("scrubber") effluent.

*The Arctic Port Reception Facilities (PRF) Inventory* project has been finalized. Its results will update the ASTD Program with the information collected.

PAME continues to work on the *Interpretation of the Polar Code* project to ensure harmonized implementation of the Code. A correspondence group of subject matter experts has met several times to discuss and facilitate this interpretation.

PAME and the Arctic Regional Hydrography Commission (ARHC) have renewed and updated the *Memorandum of Understanding (MOU)*. Its purpose is to foster greater communication between the ARHC and PAME and enhance coordination on strategies to improve hydrographic data and services in the Arctic and environmental sustainability, safety and efficiency of Arctic shipping. Further work between PAME and the ARHC is planned.

PAME continues to work closely with the IMO on shipping topics and developments of interest to both bodies, including to advance safe and environmentally sound shipping in the Arctic. IMO is currently co-leading three PAME projects and is involved in others as

well and provides reports to the Shipping Expert Group on recent IMO meetings as they relate to PAME's work.

The PAME 2021-2023 Work Plan, extended to 2025, included 12 activities on Arctic shipping. Many of them will continue to the 2025-2027 Work Plan. Continuity for some activities stretches further back, including the ASTD Program, ASSR, the Arctic Shipping Best Practice Information Forum and work on underwater noise, tourism, ship-generated waste and fuels used by ships in the Arctic.

## **Marine Invasive Alien Species**

PAME and CAFF jointly completed the *Marine Invasive Alien Species in Arctic Waters Phase I* project which aims to contribute to the implementation of the *Arctic Invasive Alien Species Strategy and Action Plan (ARIAS: 2017)* by improving the knowledge base on specific actions in ARIAS that focus on the main source of the introduction of invasive alien species in marine systems which is by ships via ballast water (BW) and biofouling (BF) into and within Arctic waters.

The project has compiled a list of known non-indigenous species, including their current distributions, in Arctic waters. Furthermore, the project reviewed methods and tools used for risk assessment of invasive alien species, vectors, and pathways, and identified those best suited for the project's risk assessments. The next phase of this project will follow up on the identification and risk assessment of Phase I and work out the details going forward, including future scenarios of invasive alien species transferred by ships into Arctic water and between different Arctic marine ecoregions, monitoring, detection and registration of non-indigenous species, and a detailed analysis of ship traffic to and from the Arctic and risk assessment.

## **Marine Protected Areas**

PAME completed the extensive updating of *the Framework for a Pan-Arctic Marine Conservation Network*, which builds on a decade of work within the Arctic Council. The updated Framework sets out a common vision for international cooperation in conservation network development and management, based on best practices and previous Arctic Council initiatives. It aims to support and inform the development of networks of marine protected areas (MPAs), Indigenous Protected and Conserved Areas (IPCAs), and other effective area-based conservation measures (OECMS) that are located within the national jurisdiction of Arctic States, identify needs and opportunities for new MPAs, IPCAs, and OECMs that may be established in areas beyond national jurisdiction, and chart a course for future collaborative planning, management and actions for the conservation and protection of the Arctic marine environment. The Framework offers guidance and is not legally binding. Each Arctic State pursues the development of protected and conserved areas based on its own authorities, priorities and timelines.

PAME and CAFF jointly completed the report on *Other Effective Area-Based Conservation Measures (OECMs) in the Arctic Marine Environment*. The report provides an overview of the current range and understanding of international and national criteria used for identification of OECMs in the Arctic, include examples of case studies on the approach Arctic States have applied to identify OECM's in their national waters, and outlines how OECMs are contributing to broader marine conservation objectives. Furthermore, Indigenous Peoples also have an important role in advancing biodiversity conservation, sustainable marine management and the protection of cultural heritage. The role of Indigenous sustainable management practices, including Indigenous Protected and Conserved Areas (IPCA), and other Indigenous stewardship measures, and their contribution to effective marine stewardship are addressed. The outcomes of the OECM project can provide a basis from which to advance additional contributions to the MPA-network toolbox on concepts related to marine management for conservation not limited to marine protected areas.

PAME completed the *Synthesis Report on Ecosystem Status, Human Impacts and Management Measures in the Central Arctic Ocean (CAO-SR)*. The aim of this report was to synthesize relevant information on the status, trends, and projected changes in the Central Arctic Ocean (CAO) Large Marine Ecosystem (LME), human activities and pressures in the area, and the current management measures in place. The ICES/PICES/PAME working group on Integrated Ecosystem Assessment (IEA) of the Central Arctic Ocean (WGICA) was consulted to ensure alignment with their work.

CAFF and PAME updated and approved the *Status and Trends for Arctic Conservation Measures* report in 2024 (previous ones from 2021 and 2017).

PAME developed the following two *Information Briefs on Arctic Environment Under Change* in partnership with CAFF:

- *Ecological Connectivity in the Arctic Ocean*
- *Invasive Alien Species in a Changing Arctic*

The information briefs leverage and synthesize factual information from work by the Arctic Council and other experts to communicate to decision makers and the public, contribute to cross-WG cooperation on common topics, and contribute to outreach on Arctic Council work.

PAME continues to develop the *Different Ways of Knowing: Applying Indigenous and Local Knowledge and Scientific Information to Arctic Conservation Planning* report which focuses on four case studies on Indigenous-led area-based management for conservation and monitoring programs, focusing on ecosystem health. Two of the case studies are in Canada (Boothia Peninsula and Unga Nyak) and two in Alaska (Pribilof Islands Marine Stewardship Area and Northern Bering Sea Climate Resilience Area). This

project adds an important content to the MPA-Network Toolbox and a proposed Information Brief on Indigenous-led conservation. Communication and outreach effort will consist of sharing the final case studies with the communities involved, PAME, and other relevant audiences.

## Ecosystem Approach to Management (EA)

PAME continues to follow national and international developments in the Ecosystem Approach (EA) to management of marine ecosystems and facilitate the integration of the principles of EA into assessments and management recommendations. This contributes to the follow-up of recommendations in the *2013 Ecosystem-Based Management in the Arctic* Report, building on previous work on Large Marine Ecosystems in the Arctic.

The EA Expert Group, which is based in PAME, has been a joint PAME/AMAP/CAFF/SDWG Expert Group since 2011 and coordinates EA activities for these participating Arctic Council Working Groups. This includes the planning of the *third International Science and Policy Conference on Implementation of the Ecosystem Approach to Management in the Arctic* which was convened 15-18 April 2024 in Tromsø, Norway. The conference planning team was led by the joint PAME EA-Expert Group, ICC, Saami Council, International Council for the Exploration of the Sea (ICES) and WWF. The 3<sup>rd</sup> International EA Conference report can be accessed [here](#). Additional products include the Conference background Paper and Abstract Series.

The outcome of the 3<sup>rd</sup> International EA Conference contributes to ongoing and planned activities such as revision of the Guidelines and framework for implementing an Ecosystem Approach to Management of Arctic Marine Ecosystems, and the 7<sup>th</sup> EA Workshop on Values and Valuation.

To follow up on the outcome of the 3<sup>rd</sup> International EA Conference and support continued work to facilitate the implementation of an Ecosystem Approach, the Norway's Chairship and international partners convened a workshop December 2024 focused on the Central Arctic Ocean. This workshop aimed at identifying ways to promote effective international collaboration for producing, accessing, synthesizing, and sharing knowledge among organizations and working groups involved in the production of relevant knowledge, and those using this knowledge as a basis for advice and management decisions.

The EA Expert group has developed voluntary Guidelines and framework for implementing an Ecosystem Approach to Management of Arctic Marine Ecosystems. The work to update and revise these EA Guidelines and Framework has started and will continue to the 2025-2027 Work Plan. The final Report shall provide updated guidance for a step-by-step implementation of the Ecosystem Approach to management of Arctic Marine Ecosystems.

PAME continues to participate in the joint effort by the ICES/North Pacific Marine Science Organization (PICES)/PAME WG on *Integrated Ecosystem Assessment (IEA) for the Central Arctic Ocean (WGICA)*. A Report describing the Central Arctic Ocean ecosystem is accessible at the WGICA homepage [here](#), while a report describing the human activities, its pressures and the ecosystem vulnerability is in a review process and available as a preliminary report. A *Climate Assessment Report* is under development and expected as the 3-year (2022–2025) Report. A paper describing the results of the *Risk Assessment of the human activity-pressures on the CAO ecosystem* is in a revision process and was presented at the 3<sup>rd</sup> International EA Conference. WGICA has regular virtual meetings to advance its work.

## Marine Litter in the Arctic

PAME completed the *Implementation Plan for the Regional Action Plan on Marine Litter in the Arctic (ML-RAP)*. PAME emphasizes the importance of tracking the implementation of the strategic actions of the ML-RAP through a structured approach that tracks follow-up activities (ongoing and planned) in the marine Arctic in close coordination and cooperation with other Arctic Council Working Groups. A tracking matrix has been developed and sent to Arctic States, PPs, Arctic Council Working Groups and Observers with the aim to track progress on the ML-RAP and gather information on completed, ongoing and planned marine litter related activities in the Arctic marine environment. The aim is to identify gaps, needs and opportunities for new marine litter activities.

PAME completed the *Fishing Practice & Gear Inventory: Enhancing Understanding of Abandoned Lost or otherwise Discarded Fishing Gear (ALDFG)* Report which provides an overview of fishing activities with different gear types in the Arctic, based mainly on 2021 data collection from a template sent to the Arctic States. The findings from the project can be used to enhance the understanding of ALDFG, and as a tool to reduce marine litter.

Progress has been made on the *Arctic Cleanup initiative* which involves coordination between Keep Norway Beautiful, Ocean Conservancy, and local partners. The main activities in Arctic cleanup have been volunteer cleanups, citizen science data collection, and network building among local partners in the Arctic. Local partners in Norway, Iceland, Greenland, and USA (Alaska) have been responsible for planning and conducting cleanups, engaging volunteers, and collecting data. A status report for the activities since the start-up in 2021 has been published.

Marine Litter Communication and Outreach Activities include a recent update to the map for the [Plastic in a Bottle](#) initiative. Seven capsules have been launched to date and additional launches are planned in 2025.

## Resource Exploration and Development (REDEG)

PAME completed the *Management of Arctic Marine Oil and Gas Associated Noise* report. The project took stock of current practices for noise reduction or elimination related to marine oil and gas operations in the Arctic. The report shares information about measures to mitigate the impact of noise on marine life and related human activities across all phases of marine oil and gas operations.

PAME completed the *Arctic Mining: Environmental issues, mitigation and pollution control for marine and coastal mining (Phase 1)*. The project developed a survey on environmental issues associated with Arctic marine and coastal mining and convened a workshop on the topic. The results of the survey and workshop are presented in the report. As a follow up to the project, PAME will develop a database on mines in the Arctic and will create a web-portal for Arctic Coastal Mining. This inventory will provide an overview of regulatory, operational, and environmental information with a focus on the effects of mining on the Arctic marine and coastal environments.

Follow up activities for the *Meaningful Engagement of Indigenous Peoples and Local Communities in Marine Activities (MEMA)* project have been delayed and support is needed to translate the [MEMA Reference Guide](#) and brochure into Indigenous languages. The *MEMA Reference Guide* is designed to highlight good practices for meaningful engagement between proponents of activities in the Arctic and Indigenous Peoples and local communities. The *MEMA Reference Guide and information database* will be reviewed and updated and publicly available as resources for those interested in engagement with Arctic Indigenous Peoples and local communities.

PAME continues to update the *Arctic Offshore Oil and Gas Regulatory Resource (AOGRR)* information resource, including the recent re-design of its website.

## Arctic Marine Strategic Plan

An update of the *Arctic Council Arctic Marine Strategic Plan (AMSP 2015)* aims to take into account the Arctic Council Strategy, the Chairships' priorities, and potential new themes e.g. REDEG (alternative energy uses), the Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (BBNJ), and targets from the Kunming-Montreal Global Biodiversity Framework adopted by Parties to the Convention of Biological Diversity (COP 15). The 1<sup>st</sup> preliminary draft text of the revised AMSP has been prepared, and next steps call for an outreach, communication and collaboration with other Arctic Council Working Groups and PPs.

## **Coordination and collaboration with other Arctic Council working groups**

PAME actively pursues cooperation and collaboration with other Arctic Council WGs to contribute to improved efficiency and effectiveness of the Council. PAME collaborates closely with CAFF on MPA-related work and implementation of the ARIAS Strategy and Action Plan and with EPPR on shipping activities. AMAP, CAFF, and SDWG continue to be engaged in the joint EA EG. PAME collaborated with all Arctic Council WGs on the development of the Implementation Plan for the ML-RAP. All WGs can also access the ASTD System.

## **Administration**

The PAME International Secretariat is based in Akureyri, Iceland. The Secretariat has a staff of three: 1) the Executive Secretary; 2) Executive Assistant; and 3) Project Manager. An administrative budget to cover the operating costs of the Secretariat, including inter alia, salaries, travel costs, and website-related costs, is established for each calendar year, differentiating between project funding and operating costs. As the host country for the International Secretariat, Iceland provides approximately half of the annual country contributions, as decided at the time of the establishment of the PAME Secretariat (1999) and consistent with the approach taken for the operation of the CAFF Secretariat. The remainder of the budget comes from voluntary contributions by the seven other Arctic States (\$30,000 USD per year). A budget will be presented annually by the Secretariat; the budget and annual voluntary contributions may be evaluated, as needed, to meet Secretariat operations. Arctic States can provide additional finances to separate projects, which will also support the work of the Secretariat. PAME cooperates closely with CAFF to share fixed Secretariat overhead costs.

Sweden chaired the PAME WG in 2021 – 2023, and the Kingdom of Denmark has chaired the WG 2023-2025. The United States has co-chaired, the PAME WG during 2021–2025 period.

## **Communication and outreach**

The lead of PAME's overall communications activities is the PAME Secretariat. PAME develops necessary project-related communications, which include brochures, promotional materials, websites, video production, event hosting, presentations at key events, and press inquiries. PAME participates in relevant international symposia, meetings and other appropriate venues to communicate PAME's activities. PAME's work plan includes information outreach and efforts to increase cooperation and collaboration with international and regional organizations to include the liaising and exchange of information with relevant organizations and programs (e.g., UNEP Regional Seas Programme), and other regional programs. PAME's homepage serves as the main

outreach and communication tool ([www.pame.is](http://www.pame.is)) in addition to PAME's Facebook and Twitter accounts. PAME also collaborates closely with the Arctic Council Secretariat (ACS) communications team in its outreach efforts.

Outputs of PAME's activities for information include, e.g.:

- Arctic Shipping Status Reports;
- Arctic Marine Tourism report and trend analysis information online;
- Underwater Noise maps on the PAME website;
- Arctic Shipping Best Practice Information Forum Web portal;
- Arctic Ship Traffic Data Program (ASTD);
- Marine Protected Areas (MPAs) Information Briefs;
- Plastic in a Bottle;
- Meaningful Engagement of Indigenous Peoples and Local Communities in Marine Activities (MEMA) database; and,
- Various other communication and outreach products.

## **PAME deliverables to the 14<sup>th</sup> meeting of the Arctic Council**

PAME submissions for SAOs and 14<sup>th</sup> Arctic Council Meeting - for approval (4 activities)

1. Low Sulphur Fuels in the Arctic - Summary Report
2. Framework for a Pan-Arctic Marine Conservation Network
3. Other Effective Area-based Conservation Measures (OECMs) in the Arctic Marine Environment Report (joint PAME/CAFF)
4. Synthesis Report on Ecosystem Status, Human Impact and Management Measures in the Central Arctic Ocean (CAO-SR)

## PAME submissions for SAOs and 14<sup>th</sup> Arctic Council Meeting - for information (22 activities):

### *Marine Protected Areas (MPA) (3 activities)*

1. Information Brief: Ecological Connectivity in the Arctic Ocean
2. Information Brief: Invasive Alien Species in a Changing Arctic
3. Status and Trends for Arctic Conservation Measures Report (Joint PAME/CAFF)

### *Arctic Marine Shipping (10 activities)*

1. Arctic Ship Traffic Data (ASTD): Status Report
2. Arctic Shipping Status Report #1: [The Increase in Arctic Shipping](#)
3. Arctic Shipping Status Report #4: [Flag States of Ships in the Arctic](#)
4. Arctic Shipping Status Report #5: [Types of Ships in the Arctic](#)
5. FAQs for Arctic Council Observers
6. New and updated MOU between the Arctic Regional Hydrographic Commission and PAME
7. 2025 Polar Maritime Seminar Summary Report
8. The 2012 Cape Town Agreement Project: Status Report
9. Underwater Noise in the Arctic: Understanding Impacts and Defining Management Solutions - Phase II Report
10. Wastewater Practices in the Arctic: Qualitative Insights – Report of findings

### *Protection from Invasive Species (1 activity)*

1. Marine Invasive Alien Species in Arctic Waters (Phase I)

### *Resource Exploration and Development (REDEG) (2 activities)*

1. Management of Arctic Marine Oil and Gas Associated Noise Report
2. Arctic Mining: Environmental issues, mitigation and pollution control for marine and coastal mining (phase I)

### *Ecosystem Approach to Management (3 activities)*

1. Conference Report from the 3<sup>rd</sup> International Science and Policy Conference on Implementation of the Ecosystem Approach to Management in the Arctic (April 2024)
2. Workshop Report from the “Workshop on international multidisciplinary, and cross-sectoral cooperation (Dec 2024)

3. Scientific WGICA Report: Ecosystem Assessment of the Central Arctic Ocean: Description of Human activities, its Pressures and Vulnerability of the Ecosystem and Climate Assessment Report

*Arctic Marine Pollution: Marine Litter (3 activities)*

1. Implementation Plan for the Regional Action Plan on Marine Litter in the Arctic (ML-RAP).
2. Fishing Practice & Gear Inventory: Enhancing Understanding of Abandoned Lost or otherwise Discarded Fishing Gear (ALDFG) Report
3. Arctic Cleanup Project Report

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