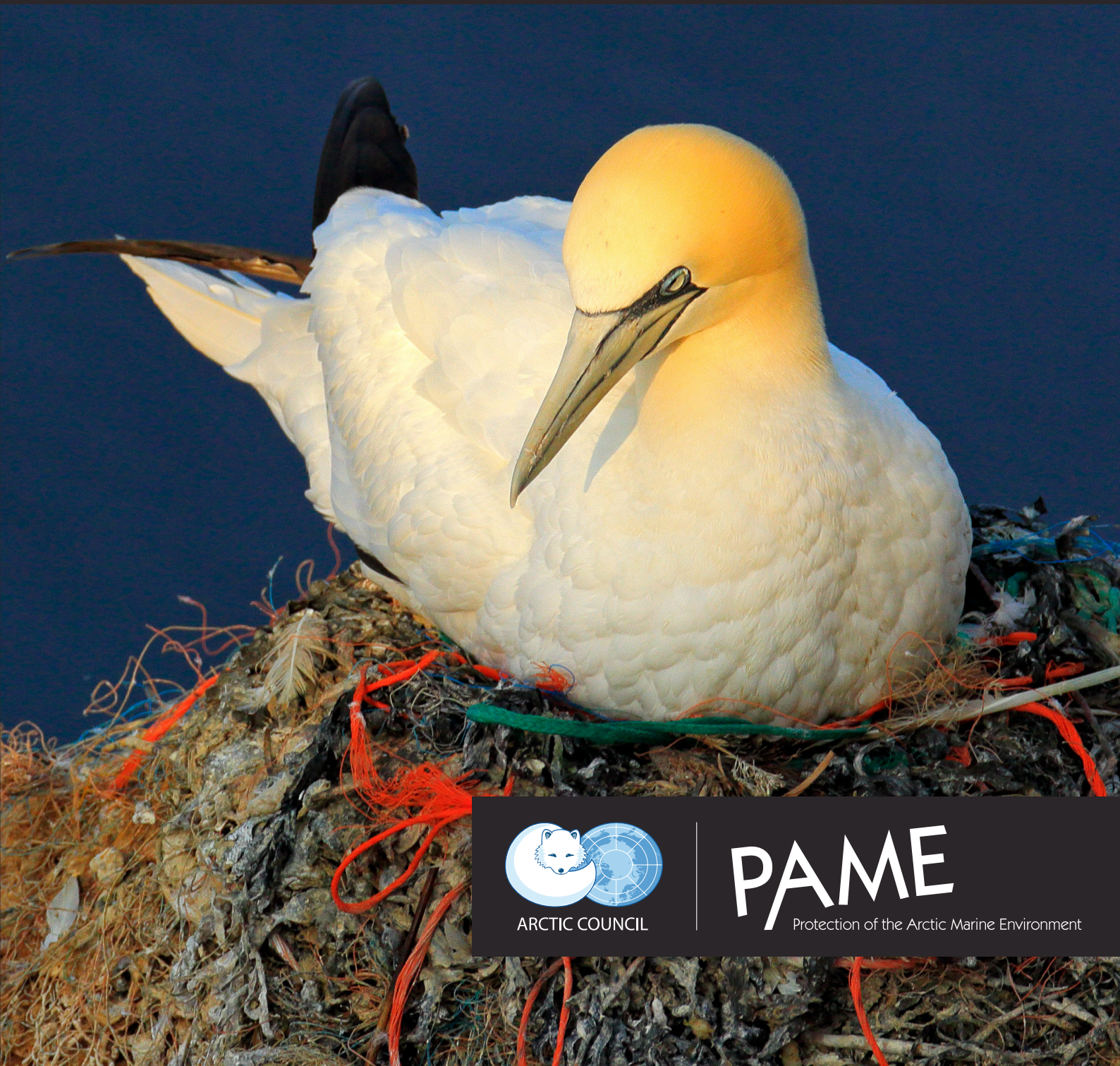


REGIONAL ACTION PLAN ON MARINE LITTER IN THE ARCTIC

MAY 2021



ARCTIC COUNCIL

PAME

Protection of the Arctic Marine Environment

Regional Action Plan on Marine Litter in the Arctic

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Norwegian Ministry
of Climate and
Environment



Nordic
Co-operation

REGIONAL ACTION PLAN ON MARINE LITTER IN THE ARCTIC

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EXECUTIVE SUMMARY

Marine litter, particularly when made of plastic, is amongst the most pervasive problems affecting the marine environment globally (UNEP, 2009; UNGA, 2012; UNEP, 2016). Marine litter in the Arctic is a threat not only to marine species and ecosystems, but also to human health and ways of life. Vital Arctic economic sectors such as tourism, fisheries, and shipping can be potential sources of marine litter and be negatively impacted by it. Marine litter found on Arctic beaches, coastlines, and inland waters originates both from within the region and outside it, with regional variability.

The *Regional Action Plan on Marine Litter* in the Arctic will enable the Arctic Council to take targeted and collective action to address this problem within the Arctic and contribute to awareness of the Arctic-specific impacts. It is focused on actions to be taken in the Arctic, by Arctic States collectively and independently, and is designed to be complementary to, and cooperative with, efforts underway in other international and regional organizations and conventions, as well as their activities and programs.

The *Regional Action Plan on Marine Litter* in the Arctic sets out a range of Strategic Actions that address both land- and sea-based sources of marine litter in the Arctic region, organized by the following eight themes: I) Reducing Marine Litter Inputs from Fisheries and Aquaculture; II) Reducing Marine Litter Inputs from Ships and Offshore Structures; III) Improving Onshore Waste and Wastewater Management; IV)

Sustainable Materials Management in the Arctic Environment; V) Cleaning Arctic Coasts; VI) Strengthening Monitoring and Research; VII) Outreach; and VIII) International Cooperation.

It is important for the implementation and success of the *Regional Action Plan on Marine Litter* in the Arctic to be able to document levels and changes in marine litter prevalence and to better understand marine litter sources, distribution, and impacts on communities, wildlife, and the broader Arctic ecosystems. To address a broad need for monitoring, the Arctic Council has concurrently approved a monitoring plan and monitoring guidelines, which provide recommendations for monitoring of marine litter in the Arctic.

Marine litter is a global challenge that benefits from action at international, regional, national and local levels, with this plan focusing the Arctic Council's work on the regional and national actions. The Strategic Actions can be taken by the Arctic Council, including its subsidiary bodies, in collaboration with national and local governments, Indigenous Peoples and local communities, international and regional fora, academic institutions, non-governmental organizations, the private sector, youth, and other stakeholders.

To facilitate and support effective and coordinated implementation of the *Regional Action Plan on Marine Litter* in the Arctic, the Arctic Council will develop and periodically update an associated Implementation Plan and Communication Plan.



Photo: Bo Eide

1. INTRODUCTION

Marine litter, particularly marine plastic litter, is amongst the most pervasive problems affecting the marine environment globally.¹ Litter in the ocean is ubiquitous and has been recorded from coastal shallow waters and ocean basins to the deepest oceanic trenches. Like in all other regions in the world, marine litter, including microplastics, persists in the Arctic marine environment. The presence of marine litter in the Arctic marine environment is connected to human activities occurring both within and outside the Arctic region.

Marine litter can impact species through entanglement and ingestion resulting direct harm or death. It can also damage habitats, serve as a means to transport non-native species, and absorb or release contaminants in the environment. Marine litter is a threat not only to marine species and ecosystems, but also to human health. It also has significant implications for human welfare, negatively impacting vital economic sectors such as tourism, fisheries, and aquaculture, and bringing economic losses to individuals, enterprises, and communities. While the serious threats that marine litter poses to the marine environment and human welfare are globally recognized, the Arctic is a region with unique geographic, climatic, biological and cultural characteristics, as well as unique geopolitical context. Consequently, this Regional Action Plan on Marine Litter in the Arctic affords the opportunity to take these unique elements into account and address Arctic marine litter specifically.

The Arctic Council is the leading intergovernmental forum promoting cooperation, coordination, and interaction among the Arctic States, Arctic Indigenous Peoples, and local communities on common Arctic issues, in particular on issues of sustainable development and environmental protection in the Arctic. It regularly produces comprehensive, cutting-edge environmental, ecological, and social assessments through its six Working Groups.

The Arctic Council's Working Group on the Protection of the Arctic Marine Environment (PAME) has a long history of addressing pollution in the Arctic marine environment. With the adoption of the *Regional Programme of Action on Protection of the Arctic Marine Environment from Land-based Activities* in 1998, and its updates in 2004 and 2009, PAME outlined a step-wise

approach for tackling land-based sources of marine pollution. The sources included litter, though there was no specific focus on regional understanding or actions to address marine litter until more recently.

Arctic Council Working Groups will coordinate and cooperate closely in the implementation of the ML-RAP, as relevant to their mandates:

PROTECTION OF THE ARCTIC MARINE ENVIRONMENT (PAME)

PAME addresses marine policy measures in response to environmental change from both land- and sea-based activities.

ARCTIC MONITORING & ASSESSMENT PROGRAMME (AMAP)

AMAP monitors and assesses pollution and climate change issues in the Arctic.

CONSERVATION OF ARCTIC FLORA & FAUNA (CAFF)

CAFF addresses the conservation of Arctic biodiversity, helping to promote practices which ensure the sustainability of the Arctic's living resources.

ARCTIC CONTAMINANTS ACTION PROGRAM (ACAP)

ACAP contributes to the efforts to reduce environmental risks and prevent pollution of the Arctic environment.

SUSTAINABLE DEVELOPMENT WORKING GROUP (SDWG)

SDWG focuses on the human dimensions of the Arctic, working to protect and enhance the environment, economy, social conditions, and health of Indigenous communities and Arctic inhabitants.

EMERGENCY PREPAREDNESS, PREVENTION AND RESPONSE (EPPR)

EPPR focuses on the prevention, preparedness, and response to environmental emergencies, search and rescue, natural and manmade disasters, and accidents in the Arctic.

1. UNEP, 2009. *Marine Litter: A Global Challenge*. Nairobi: UNEP. 232 pp.; UNGA, 2012. Resolution A/RES/66/288, paragraph 163; UNEP, 2016. *Marine plastic debris and microplastics - Global lessons and research to inspire action and guide policy change*. Nairobi, United Nations Environment Programme.

In 2019, PAME completed a *Desktop Study on Marine Litter, including Microplastics, in the Arctic* (the Desktop Study), which improved the understanding of the scope of marine litter in the Arctic region, synthesized knowledge on its extent and effects in the Arctic marine environment, and identified knowledge gaps. When the eight Arctic States and six Permanent Participants met in Rovaniemi, Finland in May 2019, the Arctic Council Chair released a state-

ment which “noted with concern that marine litter, including plastic and microplastics, represents a serious environmental problem on a global scale, including in the Arctic, welcomed the *Desktop Study on Marine Litter* and supported the development of an Arctic regional action plan for reducing marine litter.”² The Desktop Study serves as the basis for this *Regional Action Plan on Marine Litter in the Arctic* (ML-RAP).



Photo: Bo Eide

2. Arctic Council (2019). “Statement by the Chair; 11th Ministerial Meeting of the Arctic Council.” Rovaniemi, Finland. Accessed at: https://arctic-council.org/images/PDF_attachments/Rovaniemi-Statement-from-the-chair_FINAL_840AM-7MAY.pdf.

2. CONTEXT FOR THE REGIONAL ACTION PLAN

Research summarized within the Desktop Study highlighted that marine litter is found across the Arctic marine environment, including in sea ice, seafloor sediments, throughout the water column, and on coastlines. Marine litter affects Arctic wildlife in a range of ways, including ingestion and entanglement. The Desktop Study’s sources demonstrated that marine litter can be transported to and within the Arctic Ocean via ocean currents, freshwater systems, the atmosphere, and other mechanisms such as ballast water and wildlife. In addition, marine litter accumulates in sea ice, which transports it elsewhere and subsequently releases it into the ocean upon melting. Therefore, regional circulation patterns such as the Transpolar Drift, which transports sea ice, can influence the distribution of marine litter in the Arctic.

The Desktop Study considered both land-based and sea-based sources of marine litter. Analysis of existing coastal and seafloor litter data identified fisheries-

General Definition

Marine litter, also known as marine debris, has been defined as “any persistent, manufactured or processed solid material discarded, disposed of, or abandoned in the marine and coastal environment”.³ Examples may include all types of plastic, including microplastics, machined wood, synthetic fiber, textiles, metal, glass, ceramics, rubber and other persistent artificial material.

related activities as a major source of marine litter in the Arctic. Other activities such as aquaculture, cruise tourism, commercial shipping, and oil and gas exploration and exploitation may constitute additional sea-based sources in the Arctic. As for land-based sources, ineffective waste and wastewater management systems in some Arctic coastal communities were identified as known or potential localized sources of marine litter.

While the Desktop Study was able to greatly improve understanding of the state of knowledge on marine litter in the Arctic, it also highlighted key knowledge gaps and future research needs.⁴ The Desktop Study identified the need for information on the distribution of marine litter both within Arctic geographic subregions and throughout the Arctic marine environment, the sources and pathways of marine litter, and the impacts of marine litter on Arctic wildlife and human populations. Furthermore, the Desktop Study identified the absence of a formal and harmonized monitoring program that covers the sources, pathways, and distribution of marine litter throughout the Arctic and internationally.

The information provided in, and gaps identified through, the Desktop Study have contributed to the development of this ML-RAP. The Arctic Council notes the importance of taking action now, based on current best available scientific information, while simultaneously pursuing research and monitoring to improve understanding of marine litter and for greater collective knowledge in the future.



Photo: Wouter Jan Stremman

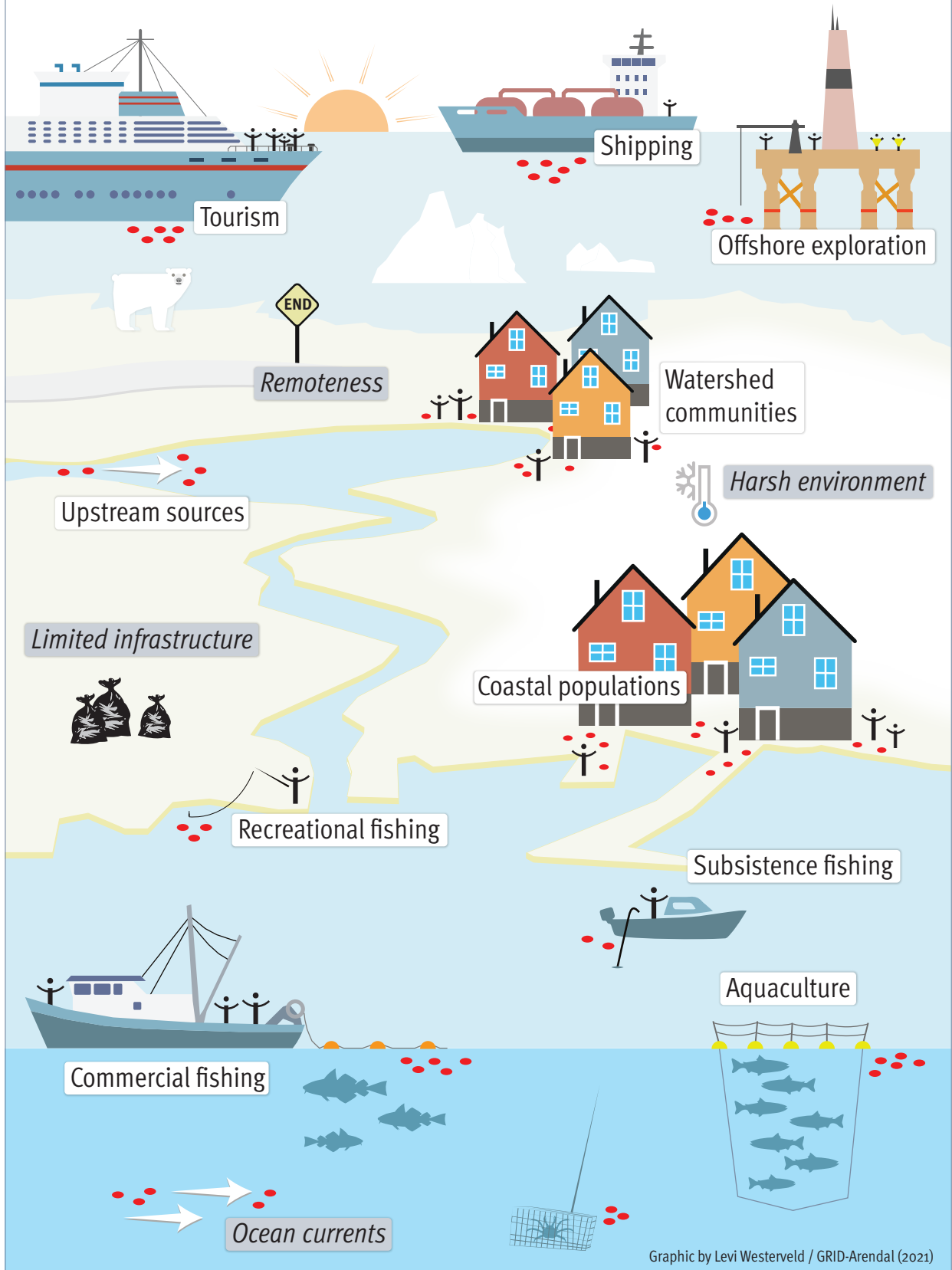
3. UNEP, 2009. Marine Litter: A Global Challenge. Nairobi: UNEP. 232 pp.

4. PAME, Desktop Study on Marine Litter including Microplastics in the Arctic (May 2019)

Sources of marine litter in the Arctic

Direct sources

Contributing factors



Graphic by Levi Westerveld / GRID-Arendal (2021)

Figure 1: Depiction of Arctic land and sea-based sources of marine litter and contributing factors

3. OBJECTIVE

The objective of the ML-RAP is to support Arctic States' efforts to reduce marine litter in the Arctic marine environment, prevent the potential negative

impacts, and mitigate the risks it may pose, as well as to improve cooperation on and awareness of this shared objective.



Photo: Wouter Jan Strehman

4. GEOGRAPHIC SCOPE

The ML-RAP applies to all Arctic marine areas identified by the Arctic States, including coastal zones,

river basins, and other areas that are connected to the marine environment.



Figure 2: Map of the Arctic

5. REGIONAL AND INTERNATIONAL EFFORTS TO ADDRESS MARINE LITTER

Marine litter is a global challenge that benefits from actions at international, regional, national and local levels. Marine litter found on Arctic beaches, coastlines, and inland waters originates both from within and outside the region and , with regional variability. The ML-RAP is focused on actions to be taken in the Arctic, by Arctic States collectively and independently, and is designed to be complementary to, and cooperative with, efforts underway in existing organizations and programs.

Many existing international and regional organizations and conventions, as well as their activities and programs, are relevant to the Arctic region as a whole or to a subset of Arctic States, depending on membership in specific fora, such as: the International Maritime Organization (IMO); the Food and Agriculture Organization (FAO) and regional fisheries agreements; the United Nations (UN) Environment Programme (UNEP); the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal; the Convention on Biological Diversity; the G7 and G20; the the European Union (EU); the Nordic

Council of Ministers; the Convention for the Protection of the Marine Environment for the North-East Atlantic (OSPAR); the Baltic Marine Environment Protection Commission (aka Helsinki Convention); and Asia-Pacific Economic Cooperation. In addition, the UN 2030 Agenda on Sustainable Development includes 17 goals, each with specific targets. Goal 14 (Life below Water) includes a target to, “by 2025, prevent and significantly reduce marine pollution of all kinds, particularly from land-based activities, including marine debris and nutrient pollution.”

The IMO, a UN specialized agency with the mandate to promote safe, secure, environmentally sound, efficient, and sustainable shipping, supports the implementation of the International Convention for the Prevention of Pollution from Ships (MARPOL), as well as the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter (LP), and the original London Convention 1972 (LDC, LC). Contracting parties to these treaties are cooperating on an *IMO Action Plan to address marine plastic litter from ships*.

The FAO, a UN specialized agency with the responsibility for food and agriculture, including fisheries, has developed *Voluntary Guidelines on the Marking of Fishing Gear*,⁵ as well as technical papers on abandoned, lost, or otherwise discarded fishing gear (ALDFG).

The UNEP, as the program responsible for coordinating the UN’s environmental activities at the global level, has a number of ongoing initiatives relevant to marine litter in the Arctic.

In 2017, the third session of the UN Environmental Assembly (UNEA) stressed the importance of long-term elimination of discharge of litter and microplastics to the oceans and decided to convene an open ended ad hoc expert group (AHEG) to inter alia consider barriers to and options for combating marine plastic litter and microplastics, from all sources and to identify the range of national, regional, and international response



Photo: Wouter Jan Strietman

5. FAO. 2019. *Voluntary Guidelines on the Marking of Fishing Gear*. Rome, 88 pp. Licence: CC BY-NC-SA 3.0 IGO. <http://www.fao.org/3/ca3546t/ca3546t.pdf>



Photo: Wouter Jan Strieman



Photo: Wouter Jan Strieman

options. The work of the AHEG has since concluded and will be reported on at UNEA-5.2.

The UNEP Regional Seas Programme, which engages neighboring countries to address marine policy issues, has 18 regional seas programs around the world, seven of which are administered by UNEP. Many of the regional seas programs such as OSPAR, which covers the Northeast Atlantic into the Arctic Ocean, have developed regional action plans to address marine litter. These plans typically identify actions such as minimizing inputs from sea-based and land-based sources of marine litter, supporting education and outreach efforts to increase public awareness, and identifying ways to monitor and assess the state of the marine environment. The non-binding Global Programme of

Action for the Protection of the Marine Environment from Land-Based Activities (GPA), administered by UNEP, addresses eight source categories of pollution, including marine litter, and encourages the development of regional and national programs of action such as the Arctic Council's *Regional Programme of Action* mentioned earlier.

The ML-RAP provides an opportunity for Arctic States to cooperate with relevant international and regional fora. In addition to these regional and international efforts, the Arctic States have a robust suite of legislation, programs, and monitoring initiatives that form the framework within which this ML-RAP will be applied and will serve to help implement the strategic actions that follow.



Photo: PAME (Getty/images)

6. ENVIRONMENTAL MONITORING

Monitoring of marine litter is a relatively new field in the Arctic and can be challenging due to regional environmental conditions, resulting in relatively few monitoring initiatives to date. Furthermore, where limited data is available, the lack of harmonized sampling, analysis, and reporting makes it difficult to compare information across studies or campaigns. However, long-term harmonized monitoring is essential for tracking temporal and spatial trends in prevalence of marine litter, impacts to wildlife, and other related issues. It is also important for the implementation and success of the ML-RAP to be able to document levels and changes in marine litter prevalence and to better understand marine litter sources, distribution, and impacts on communities, wildlife, and broader Arctic ecosystems.

To address the broad need for monitoring, the Arctic Council has a number of initiatives that will provide a basis for future coordination on marine litter monitoring efforts in the Arctic. The *AMAP Litter and Microplastics Monitoring Plan* and the *AMAP*

*Monitoring Guidelines*⁶ provide recommendations on the design of a litter monitoring program and promote harmonized methods for monitoring and reporting on amounts and characteristics of marine litter throughout the Arctic marine environment. The CAFF Circumpolar Biodiversity Monitoring Program (CBMP) is an international network that aims to harmonize and integrate monitoring efforts for the Arctic's living resources and can provide broad support to the coordinated monitoring of litter across marine, freshwater, terrestrial, and coastal ecosystems. The Arctic Migratory Birds Initiative is a CAFF initiative that has been monitoring trends in plastic pollution ingested by seabirds across the North Atlantic.

It is important that the monitoring methods used, as far as practicable, result in comparable data across the Arctic to allow circumpolar monitoring and assessments of levels and trends of marine litter. It is also advisable that data are comparable to other regions in the world, to the extent possible, considering the interlinkage with other oceans.



Photo: Wouter Jan Strehman

6. CAFF (2021). Arctic Migratory Birds Initiative Work Plan 2021-2023 (Revised). Conservation of Arctic Flora and Fauna International Secretariat: Akureyri, Iceland. ISBN 978-9935-431-91-2.

7. ACTIONS FOR THE PREVENTION AND REDUCTION OF ARCTIC MARINE LITTER

This ML-RAP sets out a range of Strategic Actions that can be taken by the Arctic Council, including its subsidiary bodies, in collaboration with national and local governments, Indigenous Peoples and local communities, international and regional fora, academic institutions, non-governmental organizations, the private sector, youth, and other stakeholders. Implementation will utilize the best available scientific information and traditional and local knowledge.

These Strategic Actions address both land- and sea-based sources of marine litter in the Arctic region and are organized by the following eight themes: I) Reducing Marine Litter Inputs from Fisheries and Aquaculture; II) Reducing Marine Litter Inputs from Ships and Offshore Structures; III) Improving Onshore Waste and Wastewater Management; IV) Sustainable Materials Management in the Arctic Environment; V) Cleaning Arctic Coasts; VI) Strengthening Monitoring and Research; VII) Outreach; and VIII) International Cooperation.

The Strategic Actions are intended to address the most prevalent regional sources of marine litter and the marine litter types posing the greatest environmental risks, as well as identify the areas of highest accumulation due to Arctic-specific pathways, and the geographic areas most impacted by marine litter. They are based on best available scientific information, taking into account knowledge gaps identified in the Desktop Study and other relevant initiatives across the Arctic Council and its subsidiary bodies.

Implementation will play an important role in demonstrating Arctic States' stewardship efforts to prevent and reduce marine litter and its negative impacts on Arctic marine species and ecosystems as well as communities. It is anticipated that Strategic Actions may be revised as work is accomplished, new priorities emerge, or new information becomes available through, for example, ongoing or new studies by Arctic Council Working Groups and others.

I Reducing Marine Litter Inputs from Fisheries and Aquaculture

Fisheries and aquaculture activities are sources of marine litter in the Arctic. The Desktop Study analysis of existing coastal and seafloor litter in some regions of the Arctic identified all types of fishing activities as a significant source of marine litter. While aquaculture activities' contribution to marine litter in the Arctic is relatively small compared to fisheries, it has the potential, with growth, to contribute more significantly on a local scale in the future. Actions to reduce input from fisheries and aquaculture include those aimed at reduction of operational losses/net cuttings; extended recovery, reuse, and recycling of abandoned, lost, or otherwise discarded fishing gear (ALDFG); and improvement of waste management onboard fishing vessels, at aquaculture installations, and at port reception facilities. The actions will take into consideration and contribute to existing guidelines, initiatives, and processes at the regional and global levels such as work under regional fisheries management organizations, the FAO, and the IMO.

Actions

1. Review and promote best practices for waste prevention, management, onboard storage, and disposal procedures for waste generated by fishing vessels and aquaculture installations in the Arctic that complement onshore waste management practices.
2. Support and promote gear marking, reporting, and recovery of ALDFG, as outlined in the FAO *Voluntary Guidelines for the Marking of Fishing Gear*.
3. Identify most commonly lost or discarded fishing gear in different areas of the Arctic, as well as where opportunities may exist to develop procedures for ALDFG prevention and reduction within the region.



4. Identify hot spot areas of ALDFG in the Arctic through mapping of known snagging sites or unsanctioned dumping grounds, in collaboration with relevant stakeholders.
5. Conduct a risk assessment to identify where accumulations of ALDFG pose a particular threat to the environment and should be removed.
6. Identify environmentally sound retrieval practices for ALDFG that prevent impacts on the marine environment.
7. Promote separate collection of end-of-life fishing gear and ALDFG in relevant ports to enhance its further recovery and preparation for reuse or recycling.
8. Contribute to and support the implementation of the *IMO Action Plan to address marine plastic litter from ships*, focusing on measures on ALDFG.
9. Support and promote prevention, reporting, and recovery, where practicable, of lost items and gear from aquaculture.
10. Encourage States, in compliance with MARPOL Annex V, to ban the discard of fishing gear in the environment, require the reporting of loss of fishing gear in national regulations, and promote the adoption of other relevant ALDFG measures within regional fisheries management organizations to which they are a member.
11. Encourage the Parties to the *Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean* to consider measures to prevent ALDFG when developing conservation and management measures for exploratory fishing and any other future fishing activity regulated under the Agreement.

II Reducing Marine Litter Inputs from Ships and Offshore Structures

Ships and offshore structures are sources of marine litter if they do not have the infrastructure and processes onboard or onshore to effectively manage and dispose of their waste. MARPOL is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes and currently includes six technical Annexes addressing specific pollution types. In 2017 the IMO Polar Code entered into force and included amendments to MARPOL, which inter alia restrict the discharge of untreated sewage and garbage from ships and offshore structures into Arctic and Antarctic waters and requires that they be disposed of at facilities at ports and terminals.



Photo: PAME (GettyImages)

However, not all ports or terminals throughout the polar regions have adequate waste management infrastructure. Accidents involving ships, which can include loss of containers, are also known sources of marine litter.

Actions

12. Assess the waste generated by ships and offshore structures and identify the gaps and opportunities to collect, sort, dispose, and recycle waste at marinas, ports, and harbors in the Arctic, taking into account local waste management facilities, as well as their capacity and practices.
13. Identify and promote Arctic-relevant best practices and guidelines for environmentally sound management of MARPOL-regulated waste generated by ships and offshore structures.
14. Encourage Arctic States to enhance inspection and enforcement on ships, on offshore structures, and at ports and terminals, where feasible, for compliance with MARPOL Annex V.
15. Promote and incorporate, when relevant to Arctic waters and Arctic States, the International Standard Organization's (ISO) existing standards for addressing the management and handling of ship-generated waste.
16. Review the IMO's annual reports on alleged inadequate port reception facilities and encourage implementation of, where possible, solutions to address inadequacies and trends found in ports used by vessels operating in or transiting through Arctic waters.
17. Continue supporting Arctic States' ongoing contributions to the IMO to develop Arctic-specific amendments to MARPOL to allow for regional arrangements of port reception facilities.
18. Encourage Arctic States participating in those regional arrangements to subsequently develop a Regional Reception Facilities Plan for IMO approval and Arctic State implementation.
19. Support and encourage the use of existing, or the development of new where needed, best practices and site-specific guidelines that contribute to reducing marine litter for near-shore and coastal areas of the Arctic visited by marine tourism vessels and pleasure craft.
20. Contribute to and support the implementation of the *IMO Action Plan to address marine plastic litter from ships*, focusing on the effectiveness of port reception facilities, including waste collection and recycling, and on prevention of cargo loss.

III Improving Onshore Waste and Wastewater Management

The conditions for waste and wastewater management vary throughout the circumpolar Arctic, including some regions with advanced systems and some communities with little or no infrastructure. There are unique characteristics across remote communities in Arctic coastal regions, including low population densities, variable concentration of communities along coastlines and rivers, and a general lack of infrastructure for local waste collection. These characteristics mean that there may be instances of locally high inputs of litter into the marine environment due to a lack of access to environmentally sound waste and wastewater management and the challenges and cost of sewage treatment and garbage removal.

Actions

21. Develop best practices and guidelines to improve the waste management and recycling systems in Arctic areas at the appropriate levels of jurisdiction.
22. Share and promote best practices to prevent litter from entering the marine environment through sewage, stormwater, and wastewater outlets, where such infrastructure exists or is feasible.
23. Engage with remote Arctic communities to develop training and technical materials on ways to improve collection and sustainable management of waste and wastewater such as by considering pathways for transport of waste out of remote communities to processing and disposal facilities.
24. Identify hot spot source areas of litter in upstream regions of rivers that flow into the Arctic and ways to reduce the input from these potential point and non-point-sources to the Arctic. This could include enhanced cooperation with river basin authorities to prevent and reduce input from these hot spots.
25. Identify landfills and open dumpsites near to Arctic coastal zones and waterways, particularly those at greatest risk of leakage and/or already being affected by coastal erosion, weather conditions, permafrost thaw, and natural disasters.
26. Review best practices for remedial action to prevent unintentional release of waste into the marine environment from affected or susceptible landfills and open dumpsites, and develop guidelines at the appropriate levels of jurisdiction to clean up and restore affected areas in the most cost-effective and environmentally sound way.



Photo: PAME (Getty Images)

IV Sustainable Materials Management in the Arctic Environment

Preventing litter from entering the marine environment is the top priority; as such, it is also important to consider the sources of litter and the life-cycle of products, and materials that end up as litter, as well as their alternatives. Considering this allows for opportunities to recover resources and economic value that may otherwise be lost. This can be done through improving product design, putting in place collection systems, improving recycling capacity, creating or enhancing markets for recycled material, and/or looking to alternative materials where appropriate. While some of the activities may occur outside the Arctic such as product design, ultimate efficacy for sustainable materials management depends on the unique needs and challenges found within the region. The Arctic Council members may also work together to seek innovative solutions for different aspects of the material life-cycle.

Actions

27. Identify and share information on products, materials, services and practices that reduce waste and support sustainable materials management in the Arctic, taking into account the full lifecycle of products and impacts of alternatives.
28. Develop and share, in accordance with national circumstances, best practices, measures, and tools, including incentives, that will improve the lifecycle of products and materials, focusing on those most commonly found in the Arctic.
29. Promote the development and design of materials for use in fishing gear that minimizes impacts upon ecosystems or the environment from ALDFG.
30. Promote the use of incentives, as appropriate within national programs, to support the reduction of high loss fishing gear used by industry.

V

Cleaning Arctic Coasts

One of the most effective ways of reducing marine litter on the coast is to conduct coastal clean-ups. Coastal clean-ups have several positive effects such as identifying the main sources of litter present along the coastline, reducing the chances of animals getting caught in or ingesting the litter, and raising awareness through local community engagement. Coastal clean-ups also serve as a source of data regarding the amount, distribution, and/or composition of marine litter found in the Arctic, and, in some instances, can benefit from harmonized monitoring methods. As there are high economic costs of cleaning marine litter from beaches and coastal areas, Arctic States have different approaches to conducting clean-ups when it comes to organization, financing, and data registration. There are also significant opportunities to develop a comprehensive understanding of how to conduct shoreline cleanup activities effectively, taking into account the environment, and health, and safety measures.

Actions

31. Share experiences in implementing national and other relevant programs for mapping environ-

mentally sound removal, and disposal of marine litter found on shorelines, waterways, and nearshore areas in the Arctic, including opportunities to recover the materials through reuse and recycling of the litter.

32. Promote best practices for the detection, removal, reuse and recycling of marine litter along Arctic shorelines, waterways, and nearshore areas. This includes efforts that: minimize adverse environmental effects; facilitate participation of citizens regarding reporting and clean-up activities; promote safety; assess logistical feasibility of removal in Arctic remote communities; and promote integration of data on litter accumulation, quantities, and types.
33. Share experiences and promote national regulations and other approaches to prevent, identify, prioritize, and remove or remediate abandoned and wrecked vessels that pose a threat in the Arctic, particularly in ecologically sensitive and culturally important areas.
34. Involve Indigenous Peoples and local communities, youth, and young adults in clean-up actions.



Photo: PAME (Getty/Images)

VI**Strengthening Monitoring and Research**

While a number of research initiatives and organizations are active in the region, the level of current knowledge on litter in Arctic marine ecosystems varies throughout the Arctic. There are opportunities to improve monitoring and research to better understand the sources, distribution, temporal and spatial trends, and pathways of marine litter in the Arctic, as well as its impacts on Arctic marine ecosystems and implications for Arctic communities. The work of Arctic States, the Arctic Council, and relevant research organizations and entities, as well as inclusion of traditional knowledge and local knowledge, are vital for exploring solutions to emerging issues in the Arctic and contribute to the knowledge base for decision-making. The Arctic Council has a number of initiatives that support coordination and priority setting of monitoring research in the Arctic context which complement the Strategic Actions in this section.

Actions

35. Prioritize monitoring, research, and investments in Arctic science and integration of traditional knowledge and local knowledge on the sources, presence, movement, composition, temporal trends, and impacts of marine litter in the environment.
36. Promote harmonized approaches to detect, monitor, characterize, and assess marine litter in the Arctic environment applying the current state of knowledge.
37. Encourage the collection and sharing of data on litter quantity and composition from removal and clean-up activities, integrating community engagement and citizen science.
38. Improve understanding and modeling of the sources, sinks, movement, distribution, and temporal trends of marine litter in the Arctic, including pathways into the Arctic, to help identify and prioritize Arctic hot spots and other key geographic areas of concern.
39. Identify and understand the impacts of marine litter on the environment and wildlife species of ecological, commercial, and cultural importance (e.g., plankton, fish, seabirds, and marine mammals) in the Arctic, including entanglement, ingestion, and potential contaminant transfer from marine litter to wildlife.
40. Identify and understand the potential impacts of marine litter on human health and implications for Arctic communities, including the potential transfer of contaminants through the food chain.

41. Promote and support research to identify the existing and potential socio-economic impacts of marine litter in the Arctic in both private and public sectors and at cultural, community, and regional levels.
42. Advance research on technologies and innovations for the prevention, as well as environmentally sound removal, of marine litter, taking into account the unique conditions of the Arctic.
43. Support research on the generation and spread of microplastics from wear and tear of plastic materials in the Arctic, e.g., from fisheries and aquaculture gear.

VII**Outreach**

Outreach and education activities tailored to specific audiences, including: different levels of government; Indigenous Peoples and local communities; the fisheries and aquaculture, shipping, and tourism industries; waste practitioners; educators and youth; and the general public, are key to achieving a reduction of marine litter at its sources, both within and outside the region. Communicating information on the following can contribute to actions by individuals and sectors: current research findings; traditional and local knowledge;



Photo: Bo Eide

best practices; how to reduce, reuse, or recycle waste before it becomes marine litter; and the impacts on wildlife and communities. In the Arctic context, working with Indigenous Peoples and local communities to increase awareness about marine litter, leveraging traditional knowledge and local knowledge, and incorporating local circumstances and cultural considerations will be important when conducting outreach and education.

Actions

44. Increase awareness of information and best practices relevant to MARPOL Annex V measures, including Polar Code amendments, targeting Arctic operations and owners of vessels that operate in the Arctic.
45. Increase awareness, including through the development and distribution of educational material, across Arctic communities and relevant sectors on best waste management practices that reduce their contribution to marine litter.
46. Raise vessel owners' awareness of the financial and environmental costs of abandoned and wrecked vessels, national or local legislation prohibiting such actions, as appropriate, and of options and procedures for responsible disposal of vessels to prevent improper vessel disposal.
47. Identify, share, and promote Arctic-relevant best practices, research, and funding opportunities to reduce waste and marine litter.
48. Support or promote curricula for marine-related education for the commercial and recreational sectors to develop awareness and understanding of, and respect for, the Arctic marine environment.
49. Support and collaborate with youth organizations to facilitate intergenerational dialogue on marine litter and encourage positive action.
50. Enhance awareness of threats that ALDFG pose to the marine environment and maritime safety.
51. Conduct outreach and communication with fishing organizations and the aquaculture industry on the types of gear typically found in Arctic coastal clean-ups to improve understanding of ALDFG and lead to better fishing practices.
52. Promote initiatives, tools, and guidance that inform households, youth, schools, businesses, and institutions to facilitate behavior that reduces waste ending up as marine litter in the Arctic environment.
53. Identify and adapt successful anti-littering campaigns for use by Indigenous Peoples and local communities in the Arctic, engaging/involving youth and incorporating local and cultural considerations, traditional knowledge, and local knowledge.
54. Host or participate in events on marine litter in the Arctic, focusing on the latest science, traditional knowledge and local knowledge, and best practices.

VIII International Cooperation

The Arctic marine environment is part of the global oceans system. Current trends in the Arctic could have lasting effects that will persist into the future. International cooperation and communication is important to reducing marine litter, including in the Arctic region.

There are a number of regional sea programs, international organizations, and global initiatives that work on marine litter issues. Cooperation with such bodies could enable Arctic States to leverage and advance the policies, guidelines, and tools developed by these organizations and initiatives, including to share information on new findings, best practices and lessons learned.

Actions

55. Communicate and exchange information on marine litter with regional seas programs and other relevant fora on the development of best practices and policy frameworks.
56. Cooperate with relevant international and regional organizations, non-profits, and the private sector on initiatives that address prevention, reduction, and removal of marine litter.
57. Promote and support complementary efforts that address marine litter and strengthen cooperation among Arctic States and relevant institutions.
58. Encourage the sharing of scientific research and monitoring activities, data, and results relevant to marine litter in the Arctic to enable decision-making based on the best available scientific information.
59. Participate in international events on marine litter issues to highlight the work on and management of marine litter in the Arctic and the interlinkages of marine litter to other regions.

8. IMPLEMENTATION

The ML-RAP addresses both short- and long-term challenges and opportunities to reduce marine litter in the Arctic marine environment, prevent the potential negative impacts, and mitigate the risks it may pose to the Arctic region.

The Arctic Council Working Groups will coordinate and cooperate closely to facilitate and support the actions listed in the ML-RAP. In addition, the Arctic Council will need to look to individual Arctic States for support, participation, and the advancement of actions in accordance with national circumstances. Working regionally offers an economy of scale, particularly for joint efforts such as research, monitoring, and technical cooperation, in collaboration with Indigenous peoples and local communities. Regional work can also improve policy and program coordination, which in turn helps strengthen implementation. The implementation of this ML-RAP may also foster Arctic State cooperation to promote Arctic initiatives in other relevant international and regional fora, as appropriate.

The Arctic Council provides strong institutional support for the stewardship of the Arctic marine environment. The implementation of this ML-RAP will utilize the best available scientific information and tradition-

al and local knowledge and relies on existing structures and mechanisms of the Arctic Council, i.e., Arctic Council biannual Ministerial meetings, Senior Arctic Official (SAO) meetings, and the activities of the Arctic Council Working Groups. Each Working Group, under the overall direction of the SAOs, implements, subject to available resources, those actions that relate to their mandate and incorporates them into their work plans by consensus. Cooperation with the full range of stakeholders will facilitate the execution of this work. Since a portion of the marine litter found in the Arctic comes from outside of the region, cooperation and collaboration between the Arctic Council and entities external to the Arctic will contribute to the objective of this ML-RAP.

Reports on the implementation of the ML-RAP will be submitted biennially to the SAOs. Every four years, PAME, in collaboration with all Arctic Council subsidiary bodies, will lead a review and, unless otherwise decided, update of the ML-RAP.

PAME, under the direction of SAOs and in consultation with other Arctic Council Working Groups and Permanent Participants, will develop and periodically update an Implementation Plan for the ML-RAP and a Communication Plan to raise awareness of the ML-RAP.



Photo: Wouter Jan Strietman

LIST OF ACRONYMS

ACAP	Arctic Contaminants Action Program
AHEG	Open ended Ad Hoc Expert Group
ALDFG	Abandoned, Lost or otherwise Discarded Fishing Gear
AMAP	Arctic Monitoring and Assessment Programme
APEC	Asia-Pacific Economic Cooperation
CAFF	Conservation of Arctic Flora and Fauna
CBMP	Circumpolar Biodiversity Monitoring Program
EPPR	Emergency Preparedness, Prevention and Response
EU	European Union
FAO	Food and Agriculture Organization
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities
IMO	International Maritime Organization
ISO	International Organization for Standardization
LDC, LC	London Convention
LP	London Protocol
MARPOL	International Convention for the Prevention of Pollution from Ships
ML-RAP	Regional Action Plan on Marine Litter in the Arctic
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
PAME	Protection of the Arctic Marine Environment
SAO	Senior Arctic Official
SDWG	Sustainable Development Working Group
UN	United Nations
UNEA	United Nations Environmental Assembly
UNEP	United Nations Environment Programme

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