ICEBERG

Innovative Community Engagement for Building Effective Resilience and Arctic Ocean Pollution-control Governance in the Context of Climate Change

Regulating Arctic Cruise Tourism

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A policy paper prepared by the ICEBERG project, presenting background information on various elements relevant to pollution governance in the Arctic.

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Cruise Tourism in Greenland, Iceland and Svalbard

Cruise tourism in the Arctic is increasing. There are hopes for new sources of income and economic diversification, while we also see growing local concerns about associated socio-economic and environmental risks. To adequately address these risks further, international regulations are necessary, and new national regulations will have to be implemented comprehensively.

CURRENT GOVERNANCE - KEY ISSUES

• There is a broad range of negative impacts associated with cruise tourism in the Arctic, such as sewage and waste, toxic emissions, underwater noise, oil spills, and adverse local social and economic effects.

• International regulations are lagging behind the rate of increase in cruise tourism in the region, limiting the possibility for sustainable development of the industry.

• New national regulations have recently been enacted (Iceland, Svalbard) or are in the making (Greenland). They address some of the existing regulative gaps, but not all.

• Numerous voluntary initiatives for sustainable cruise shipping complement legally binding regulations. Their effectiveness is hampered by deficient standardisation, coordination and monitoring.

THE MAIN GOVERNANCE GAPS

1. The capacity and policy impact of the global UN Tourism Organization (UNWTO) is limited.

2. While there are discussions within the International Maritime Organization (IMO) about the risk of underwater noise and banning scrubber water discharge, IMO rules - including the Polar Code - do not include binding regulations on these major risk factors.

3. A successful implementation of new national governance initiatives for sustainable cruise tourism is challenged by limited administrative capacities in Arctic jurisdictions and municipalities, and deficient port infrastructure (in particular in remote areas).

EXAMPLES OF GOOD PRACTICE

1. Since 2003, the Association of Arctic Expedition Cruise Operators (AECO) has been continuously developing comprehensive voluntary initiatives for more sustainable cruise tourism.

2. The new Greenlandic Tourism Act (2024), with its zoning concept, can be considered an adaptive and participatory tool to mitigate negative side-effects of cruise tourism. Its actual impact will depend on the inclusiveness and transparency of its implementation.

Port of Nuuk, Photo: Annegret Kuhn, 2025

FURTHER READING & CONTACT

FULL REPORT: arctic-iceberg.eu/publications

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ICEBERG project

Climate change and pollution, including plastics, ship emissions and wastewater, pose threats to human health and the ecosystems of the Arctic region.

From 2024-2027, the ICEBERG project, funded by the EU under the Horizon Europe programme, studies pollution and its impacts on the ecosystems and communities in the European Arctic, focusing on three regions: southern Kalaallit Nunaat (Greenland), Northern Iceland and Svalbard.

The ICEBERG project integrates natural and social sciences with Indigenous and local knowledge. Researchers employ an ethical, multi-actor and gender-sensitive approach to assess the impacts, risks and vulnerabilities of local communities. The project applies the One Health approach, which recognises the interconnectedness and interdependence of the health of humans, animals, plants and entire ecosystems.

The aim is to mitigate the impacts of pollutants in the Arctic. The project investigates the sources, types and distribution of pollutants, such as plastics, ship emissions, wastewater and heavy metals, by using simulations, remote sensing and observations. On a practical level, the project develops, for example, automatic marine litter detection tools using drones, AI and citizen science. The toxicological impact of microplastics, nanoplastics and persistent organic pollutants (POPs) on human digestive health is being evaluated. The impact of pollution emissions on the marine food web is assessed.

Researchers work together with the communities and stakeholders to co-develop pollution monitoring, mitigation and adaptation strategies, as well as policy recommendations for multilevel pollution-control governance.

Policy papers

The series of policy papers outlines the main elements of the governance framework relevant to pollution control in the Arctic areas of the North Atlantic, with a focus on the three ICEBERG study sites.

Each paper starts with an introduction on the specific policy area or economic sector relevant for Arctic pollution governance, then proceeds to discuss national regulations in the three ICEBERG study sites, as well as to provide an overview of international law, European Union policies and legislation, Arctic Council actions and corporate governance. Governance gaps and selected best practices are presented.

The policy papers produced and published on the ICEBERG website are:

- Cruise tourism
- Solid waste & wastewater management
- Microplastics and plastics pollution
- Frameworks for Arctic beach clean-ups
- POPS and heavy metals
- Pollution related to mining activities

The policy paper does not constitute a formal deliverable of the ICEBERG project.

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Key insights:

- Cruise tourism shipping activities in the Arctic region have increased and are likely to further increase in the future in relation to Arctic sea ice loss predictions.
- Major associated risks are underwater noise, oil spills, sewage and waste, toxic emissions, potential collisions with marine mammals, and the importation of invasive species, as well as adverse social and economic effects for local communities.
- There are growing concerns of local communities in Greenland, Iceland and Svalbard about the consequences of growing cruise tourism.
- International political regulations (such as MARPOL and the Polar Code) are lagging behind a sustainable regulation of increasing cruise tourism in the region, for example, in the issue areas of underwater noise and scrubber water discharge.
- New national regulations have recently been enacted (Iceland, Svalbard) or are in the making (Greenland), which address some but not all of the existing regulative gaps.
- Voluntary guidelines for cruise sustainability have been put in place, but there is a lack of knowledge regarding their actual implementation and their impacts.

1. Introduction and background

Arctic shipping, including cruise tourism, has strongly grown during the past two decades and particularly during the past few years, along with the recovery of the tourism industry after the COVID-19 pandemic (PAME, 2025). Besides international interest towards prospecting for hydrocarbons and rare earths, tourism has also become an important activity in the Arctic. In both Greenland and Iceland, the number of cruise tourists has increased remarkably over recent years.

In Greenland, the number of cruise tourists has increased from just under 10 000 passengers in 2003 to over 95.000 in 2024 (Visit Greenland 2024: 9). In South Greenland, cruise tourism saw a massive growth, most of it in Qaqortoq and Nanortalik (Visit Greenland 2024). Other frequently visited sites in Greenland include, e.g. Ilulissat Icefjord in Western Greenland in the Avannaata Municipality.

In 2023, in Iceland, there were 209 ships calling at the Port of Akureyri and carrying close to 250 thousand passengers (around 100,000 more compared to 2019 and only about 55 thousand fewer than arriving at Reykjavik in 2023, which is Iceland's busiest harbour. In Husavík, 41 vessels brought over 10,600 visitors in 2023 (Statistics | Cruise Iceland) (Cruise Iceland).

In Svalbard, the number of vessels calling at the port of Longyearbyen has slightly increased from pre-COVID to post-COVID times, with 456 vessels in 2019 and 506 in 2024, with respectively 62,000 and 67,000 cruise passengers arriving in Longyearbyen. It is important to note that 95% of the vessels in 2024 were expedition cruise vessels (Visit Svalbard & Svalbard Cruise Forum, 2024).

In general, there are two types of cruise vessels that need to be considered from the regulatory point of view: large cruise vessels (>3000 passengers), and expedition cruises, the latter carrying between 20 and 500 passengers, calling at smaller ports and bringing tourists more often to interesting nature remote locations (Linde et al., 2017; Varnajot & Lépy, 2024).

The increasing presence of cruise vessels has been a subject of a broader debate about mass tourism in Iceland, Svalbard, and, more recently, also in Greenland. There are doubts about the actual economic benefits of cruise tourism for local communities and regions, as well as concerns about the environmental and socio-cultural impacts of large numbers of passengers arriving on a daily basis to small coastal communities (see own interviews; Cruise tourists spend less | News | UiB). Limiting the daily number of passengers has been, so far, the main policy response (Iceland), alongside introducing passenger fees and developing tourism offers that can generate greater local income (e.g., day tours organised by local companies). There are public concerns about emissions and waste emitted by vessels. The set of challenges for relatively smaller expedition cruises is different. There have been some conflicts with whale-watching companies with respect to crowded locations off the coast in Northern Iceland.

In particular, pressure is put on small Arctic communities, which may not have sufficient facilities for receiving the visitors, including toilets and waste management. Moreover, strain on local supplies is often mentioned by locals. Communities that receive their provisions by marine transport may face shortages of food and other goods, if cruise ship visitors purchase beverages and snacks from local shops, or food transported for locals is bought at the shops, as in Greenland (based on interview research by co-authors). In small communities, there is also noise and disturbance from

the visitors, as one cruise ship can carry thousands of tourists, outnumbering the coastal community residents. Nearshore ship noise can also be highly disruptive during local hunting seasons (information gathering in interviews during field research).

Beyond that, the sound of ship propellers creates a noise which is able to disrupt the echolocation of marine mammals, used for navigation and communication, and can thereby interrupt the migratory and feeding habits of various species, causing disorientation and stress. Marine Mammals in the Arctic are increasingly threatened by underwater sound pollution as the decreasing sea ice is opening new shipping routes. (WWF https://www.arcticwwf.org/newsroom/news/wwf-calls-for-stronger-underwater-noise-measures-at-imo-shipping-negotiations/)

Moreover, sewage and greywater[1] releases from cruise ships constitute a further risk for the marine ecosystem. A recent PAME report concludes that while the theoretically technology exists to effectively address sewage and greywater, installation of these advanced systems needs to be broadened and correct use promoted (PAME 2022: 15). The growth in cruise tourism also increases accidental oil spill risks, resulting in harmful consequences for invertebrates, fish, seabirds, mammals, as well as health threats of coastal residents.

As concerns over the socio-cultural sustainability and ecological impacts of Arctic cruise tourism have increased along with the rapid growth of the field, more recently, both national and international regulations, as well as voluntary guidelines within the industry, have begun to be established.

2. National/local governance

2.1. Greenland

In recent decades, Greenland has witnessed a **substantial increase** in cruise tourism, now accounting for approximately one-third of all foreign visitors to the island (James et al. 2025: 5). This growth has been encouraged by Greenlandic authorities since the 1990s, driven by the promise of economic diversification and regional development. Yet, especially remote areas in Greenland have become increasingly attractive due to diminishing sea ice, opening destinations that were previously inaccessible for cruise tourism (Cajaiba et al. 2020: 2, James et al. 2020: 4). While the Covid-19 Pandemic brought the cruise ship industry globally to a halt, its exhilarated growth continued in Greenland in 2022 and almost doubling its passenger numbers in 2023 (James et al., 2025: 6).

The launch of 3 new airports in Greenland, including the capital Nuuk, marks a turning point in Greenland tourism infrastructure, positioning the capital as a potential „turnaround port", where cruise voyages begin or end, encouraging longer stays and increasing land-based tourism (James

[1] Definition of greywater: "Considered drainage from accommodation (e.g. shower, bath), laundry and dishwater and is distinct from drainage from toilets, urinals, hospitals, and cargo spaces. Grey water can contain a variety of environmentally harmful pollutants and contaminants, including microplastics, nutrients, oil and grease, detergent and soap residue, harmful cleaning products, pharmaceutical and personal care products, heavy metals (e.g., copper, lead, mercury), coliform bacteria and pathogens." (PAME, Survey of Select Wastewater Discharges | PAME).

et al. 2025). While the public partly endorses increasing (cruise) tourism, public contestations have intensified as well. Thus, protests in summer 2024 highlight local frustrations over mass tourism's cultural impacts and economic disparities, particularly regarding cruise companies' limited engagement with local tour operators. https://polarjournal.ch/en/2024/08/29/cruise-ship-organization-visited-ilulissat-to-ease-increasing-tensions/

Cruise tourism in Greenland is largely subject to the same regulations as shipping in general (see also Wienrich, 2022: 45). The governance of maritime activity in Greenland is jointly shared with Denmark. Greenlandic authorities regulate shipping within the coastal three-nautical-mile zone, while Danish authorities oversee operations beyond that, up to the limits of the Exclusive Economic Zone (EEZ). The principal authority regulating the tourism and cruise sectors is the **Ministry for Industry, Trade, Foreign Affairs and Climate** (formerly the Ministry of Industry, Labour, Trade and Energy), supported by **Visit Greenland,** the national tourism council.

As a limited liability company 100% owned by the Government, Visit Greenland is tasked with the branding and development of the national tourism sector from a socioeconomic perspective, with attention to safety, environment, and cultural sustainability. Under its 2021-2024 strategy, Visit Greenland emphasises four key priorities: (1) increasing demand from high-value, low-impact adventure tourists; (2) promoting year-round tourism throughout the island, including winter and shoulder-season travel; (3) advancing knowledge sharing and competence in the industry, especially digital capacity; and (4) supporting favourable policy and infrastructure conditions.

Since January 2024, the Greenlandic Parliament has implemented a per-person cruise passenger tax of 50 DKK, as well as an environmental and maintenance fee (again up to 50 DKK per passenger), and has in addition doubled port taxes (https://aka.gl/emner/erhverv/afgifter/havne--og-krydstogtpassagerafgifter?sc_lang=en). These taxes apply universally, including to natural landings in remote areas. While income from the cruise passenger tax goes to the national government, the income from the environmental and maintenance fee belongs to the five municipalities of Greenland. While it should be reinvested in local (touristic) infrastructure and environmental protection in general, there are no specific stipulations on the use of the fee.

In 2024, Greenland adopted a new Tourism Act—entering into force in January 2025—so as to manage the rapid expansion of Arctic tourism, particularly cruise operations. The legislation establishes regulations with regard to 1) Licensing and Ownership, in the sense that all tourism operators must obtain a license and be registered and taxed in Greenland, with at least two-thirds of ownership and voting rights held by Greenlandic residents. Act 2) introduces a three-tier zoning system to be implemented within the near future (no fixed date yet). The zoning will regulate (cruise) tourism access to different regions: while green zones (terrestrial zones as well as marine areas) allow general touristic operations, yellow zones impose several potential restrictions, such as seasonal or ecological limits. Red zones prohibit touristic activities in areas of high ecological or cultural sensitivity. Municipalities are assigned to define local zones and monitor compliance. While municipalities are compelled to make decisions on zoning in collaboration with local stakeholders, there are no formal stipulations about the format of this stakeholder engagement.

Moreover, commissioned by the Greenlandic government, from 2025, Visit Greenland has begun to develop new guidelines for sustainable tourism in Greenland (including cruise tourism), which shall be completed within the next year by drawing on broad local stakeholder consultation.

2.2. Iceland

In Iceland, the majority of the regulatory framework governing the navigation, equipment and crews training (such as the Icelandic Act on Ship Crews (82/2022) regulating all aspects of the safety of personnel and passengers on board for vessels under the Icelandic flag) follows IMO rules and regulations. For instance, no discharges of wastewater into the ocean can occur within 12 nautical miles offshore (i.e. within the Icelandic territorial sea). Icelandic ports are also a part of the **Paris MOU** (see below) on port state control, which ensures coordination of inspections. This means, among others, that each vessel calling at Icelandic ports needs to submit a SAR statement, which covers basic information such as the number of passengers, fuel used, emergency equipment, but also the presence of different types of waste on board and the plans for how much of the waste is to be disposed of in the visited harbour.

The Regulation 124/2015 obligates cruise vessels to use scrubbers or the Sulphur content in the fuel used cannot exceed 0.1% within Icelandic territorial waters, including the harbours, and thereby implementing the EU Directive 2016/802. The Guidelines for masters of cruise and passenger ships arriving in Iceland further state that "Vessels at berth in ports shall use shore electricity instead of marine fuels as possible" (Environment Agency of Iceland, 2024: 10)

There are no formal limitations on vessels approaching sites of high biodiversity value around Akureyri and Husavík (where bird colonies are present), although such limits are a part of industry standards (see overview of AECO standards below). (AECO, 2024d)

The **Icelandic Transport Authority** (ICETRA) is the main institution responsible for managing cruise vessels. Operators need to obtain a passenger license for each vessel over six meters in length. The license covers emergency plans and safety equipment, safe manning levels, maximum passenger capacity, operational areas, voyage durations, and insurance coverage. Foreign cruise ships are generally exempt from these licensing requirements when solely transporting passengers to and from shore. However, if they conduct local excursions using their own boats, those tour vessels must be licensed by ICETRA. Starting from January 2025, an **infrastructure fee** has been introduced (ISK 2500 per passenger per 24 hours in port) for all cruise vessels arriving in Iceland.

The capacities of state agencies to control the environmental performance of cruise vessels are limited. In general, inspections in North Icelandic ports occur rarely (Wang and Chambers 2023).

In 2019, the Environment Agency, the Icelandic Transport Authority and the Icelandic Coast Guard released a guide for cruise and passenger vessels. The guide contains rules for incoming ships, including the prohibition of the discharge of objects or substances into the sea, the use of shore electricity where possible and stipulations on the avoidance of bird cliffs and protected areas. The guide also mentions respectful behaviour that is expected by parties going ashore towards vegetation, farm animals, birds and seals. It states that wild animals are generally protected. It does not directly refer to whales aside from referring to hunting rules that must be obeyed when hunting wild (Environment Agency, Icelandic Transport Authority & Icelandic Coast Guard, 2019).

Icelandic ports and municipalities have a degree of control over the cruise vessel traffic. This is, however, limited by the legal standing of the ports.

Ports in Húsavík and Akureyri, for example, are owned by their municipalities and do not have the capacity to provide incentives, such as lower fees for vessels with lower emissions or vessels adhering to stricter environmental standards. These incentives could serve as a major tool for

strengthening industry-related pollution control, as used by the Port of Reykjavik, which has greater decision-making power in that respect. The tool used is the Environmental Port Index (EPI), which allows harbours to define the environmental footprint of cruise vessels and adjust fees accordingly. Akureyri, while not yet legally able to implement EPI-based charges, started to collect EPI data. In addition, ports – including Akureyri – are planning on investing in harbour electrification, allowing vessels to use grid power rather than produce their own electricity using ship engines when at harbour.

All municipalities together with ICETRA can, however, set the limit for the daily limit of passengers, which has been the case in many smaller ports in Iceland (e.g. Grundarfjörður, Seyðisfjörður and Ísafjörður). Akureyri is currently deciding on the limits.

The **Icelandic Tourist Board** also plays a role in regulating cruise vessels with respect to the activities taking place on land. Thus, the board issues licenses for travel agencies and day tour operators and certifies information centres. It is also responsible for developing and implementing Icelandic tourism strategies.

Close to the coastline, cruise shipping can be affected by marine spatial planning. A legal framework was created in 2018 with the Law on the Structure of the Sea and Coast (88/2018) with the primary objective of promoting sustainable development while ensuring the protection of ecosystems and natural resources. This law gives a key role to the National Planning Agency and its work done in cooperation with coastal communities/municipalities and stakeholders. Norðurþing Municipality (Húsavík) has been developing a spatial planning process to cover Skjálfandi Bay (importantly, only 125 metres off the coast are fully within the decision-making power of municipalities, beyond, the national government takes over the primary role).

2.3. Svalbard

In the 1990s, the governance of cruise tourism in Svalbard was state-driven and controlled by the Ministry of Trade, Industry and Fisheries in collaboration with the Ministry of Justice and Public Security and the Ministry of Climate and Environment. However, in 2002, the Committee on Polar Affairs was established to coordinate legislation and policymaking in the polar regions under the jurisdiction of the above ministries, supported by its secretariat, the Department of Polar Affairs. The responsibility for implementing and enforcing the Committee's policies and legislation lies with the Governor of Svalbard, the highest governmental authority for the Norwegian government on the archipelago. Enforcing the **2001 Svalbard Environmental Protection Act (**amended in 2014, 2021 and 2024) and other regulations, the field inspectors check ships' documents, assess the competence of crews and expedition guides and observe landing procedures. In addition to the inspections, the behaviour and compliance of cruise operators is monitored through requirements to notify the Governor of Svalbard of ships' itineraries and to submit a post-visit report detailing routes, landings and anchorages, which members also submit to the AECO database.

The **Svalbard Environmental Protection Act** and its amendments, which regulate landings, fuel use, and motorised activity in Svalbard, are designed to minimise environmental impact and protect the region's fragile ecosystems and wildlife. Landings are strictly limited to 43 designated sites, ensuring controlled access to sensitive areas. However, these restrictions do not apply to Nordenskiöld Land National Park and Sassen-Bünsow Land National Park, as well as other national parks where a traffic ban is already in place to protect bird nature sanctuaries. To further reduce

human disturbance, every landing and stay on land must be accompanied by a qualified guide, and there are restrictions on the number of people on land at any one time. While these landing regulations primarily target tourism activities, permanent residents, individual travellers, and researchers are exempt unless they are involved in tourism operations. In addition, there is a 200-person limit in all protected areas and for vessels at sea, which helps to regulate the visitor numbers in ecologically sensitive areas. The use of drones is strictly prohibited in all protected areas, reducing potential disturbance to wildlife, while the operation of snowmobiles on sea ice is annually forbidden after the 1st of March, reflecting the need to protect seasonal ice formations and the species that depend on them.

In addition to landing restrictions, regulations also control motorised traffic on land, air or at sea to prevent disturbance to marine and coastal wildlife. Generally, motorised traffic is restricted to roads and places built for this purpose, with few exceptions made by the SEPA (Hovelsrud et al., 2023: 95). At sea, from 1 April to 31 August, vessels must reduce speed to a maximum of 5 knots and maintain a minimum distance of 500 meters from land when sailing near bird cliffs to avoid excessive noise and wave disturbance during critical breeding periods. Similarly, motorised vessels must maintain a speed limit of 5 knots and a minimum distance of 150 meters from walrus haul-out sites. Breaking fast ice is also strictly forbidden, with exceptions only for shipping routes to Longyearbyen and other inhabited settlements, and for coastguard operations. Special attention is also given to the protection of polar bears, with strict regulations in place to prevent disturbance, luring, or pursuit of these animals. Minimum approach distances have been established to reduce human-wildlife conflict, with a minimum distance of 300 meters from 1 July to 28 February, and a stricter minimum distance of 500 meters for the rest of the year.

In addition to these operational and wildlife protection measures, the regulations on fuel use in Svalbard's territorial waters have been significantly tightened. An **amendment to the Act on the Protection of the Environment in Svalbard** (No. 79 of 2001) amended Article 51 and introduced Article 82a, which imposes stricter limits on the use of fuel oil. Article 82a now states that vessels entering the territorial waters of Svalbard are prohibited from using or carrying on board petroleum-based fuel with a higher viscosity, density, or freezing point than the permitted fuel oil standards. This prohibition aims to reduce the environmental risks associated with oil spills and limit emissions of highly polluting heavy fuel oils, in line with international efforts to protect the Arctic environment from maritime pollution.

The Norwegian Government aims to reduce greenhouse gas emissions and local air pollution from cruise ships operating in its waters and will enforce a requirement for cruise ships and ferries in the West Norwegian Fjords World Heritage Site to be emission-free as soon as technologically feasible.

In Norway, cruise operators are subject to various charges, with all vessels over 70 meters in length required to use pilotage services when operating within Norwegian baselines. This mandatory service is user-funded and includes pilotage stand-by and service fees, with Norwegian pilotage rules being extended to Svalbard as of July 2012 (Kystverket, 2025a; Kystverket 2025b). Additional fees are set by individual harbour administrations and typically include passenger fees, waste disposal fees and quay fees to reflect the use of local infrastructure (Port of Bergen, 2025; Port of Longyearbyen, 2025).

3. Supra-national initiatives

3.1. Arctic Council initiatives

The Arctic Council activities related to cruise tourism are carried out primarily by the Protection of the Arctic Marine Environment (PAME) working group. Many PAME activities dealing with Arctic shipping in general are also of relevance to cruise tourism. Main initiatives are linked to the **2009 Arctic Marine Shipping Assessment** (AMSA),[2] which included recommendations that have been implemented over the following years. This included, among others, the adoption of the Polar Code as a legally-binding set of guidelines. PAME has also set up the **Arctic Ship Traffic Data** (ASTD) System, which is one of the main sources of information about Arctic marine shipping, including cruise vessel traffic. Moreover, in 2017, an Arctic Shipping Best Practice Forum was established to facilitate the implementation of Polar Code provisions and bring together national agencies, researchers, NGOs, Arctic Indigenous organisations, and shipping industry actors. As part of the forum, an information web portal has been established in order to share best practices related to different elements of the Polar Code framework.[3]

On a more general level, the **Arctic Marine Strategic Plan** (AMSP) 2015-2025 of the Arctic Council has served as a guiding framework for expanding scientific understanding of marine ecosystems, tracking environmental changes, safeguarding biodiversity, and promoting responsible resource management – also including critical questions related to cruise tourism (for more details, see the policy paper on plastics regulation). In addition, PAME has implemented the **Arctic Marine Tourism Project** (2013-2019)[4], which included an overview of trends in passenger vessel traffic. In 2015, **the Arctic Marine Tourism Best Practice Guidelines were** adopted.[5] Among others, the guidelines encouraged the ratification of the Ballast Water Management (BWM) Convention, more sustained and regular compilation of information on marine tourism in the Arctic, streamlining of permitting and oversight processes, carrying out outreach and awareness campaigns, establishment of community contact points, as well as the development of visitor codes of conduct for specific communities and regions.

3.2. European Union initiatives

In its Arctic policy (2021 Joint Communication on a stronger EU engagement for a peaceful, sustainable and prosperous Arctic), the EU policymakers highlighted that it is in the interest of the EU and its citizens that tourism in the Arctic is carried out sustainably and supported by enhanced safety and security systems, such as satellite and information services. The EU has very limited regulatory powers to regulate cruise tourism in the Arctic. While EU legislation applies to the

[2] Arctic Marine Shipping Assessment (2009). AMSA. Protection of Arctic Marine Environment, Arctic Council.
[3] See https://pame.is/ourwork/arctic-shipping/current-shipping-projects/forum/web-portal/
[4] See PAME website at https://pame.is/ourwork/arctic-shipping/previous-shipping-projects/arctic-marine-tourism/?utm
[5] Arctic Marine Tourism Project (AMTP) - Best Practice Guidelines, Arctic Council – Protection of the Arctic Marine Environment (PAME), 17 February, 2015. URL: https://oaarchive.arctic-council.org/items/318f05af-e0d2-4ed3-879f-3da5f11dec89

environmental status of Icelandic coastal waters, waste and emissions, the international law of the sea and IMO instruments take precedence in regulating seafaring. In addition, many Arctic cruise ships, including those by European operators, fly flags of convenience, further limiting the powers of EU Member States. EU legislation on port state control (Directive 2009/16/EC)[6] is, however, relevant for the inspection of vessels both in EU ports and in Iceland.

Nonetheless, rather than directly regulating, the EU's role in the cruise tourism sector is more about creating frameworks and services supporting environmentally sound and safe operations. The EU has developed different components of its satellite programme, including Galileo, which enhances positioning and communication in high latitudes, and Copernicus, supporting Arctic environmental and emergency monitoring and earth observation. The EU also funds research projects aimed at developing technologies and processes, as well as assessing environmental impacts. Beyond the ICEBERG project, further examples are: the Horizon 2020 FACE-IT project (The future of Arctic coastal ecosystems - Identifying transitions in fjord systems and adjacent coastal areas), dealing with the marine coastal environment, working on opportunities and barriers for sustainable Arctic cruise tourism, with a focus on Greenland and its coastal communities and industries. Moreover, the Arctic Europe Tourism Cluster (AETC) under the Interreg Aurora programme, which facilitates cooperation among regions in Arctic Europe, including North Norway, where cruise tourism continues to expand.

Furthermore, the countries agreed upon the Paris Memorandum of Understanding on Port State Control. Created in 1987, the **Paris MoU** is an administrative agreement between the maritime administrations of 27 countries, aimed at improving crew living and working conditions in accordance with the ILO Convention No. 147 on Merchant Shipping Minimum Standards. It establishes a harmonised inspection system through a main text and 12 annexes, which define the relevant international conventions, inspection commitments, ship selection principles, inspection procedures, information exchange, organisational structure, and amendment processes. (Paris MoU, 2025; Rodriguez and Piniella, 2012: 1)

3.3. International policies and legal instruments

UNCLOS: For ice-covered waters, UNCLOS provides, with its Article 234, *lex specialis*, meaning that the provision only applies to marine regions that are covered by ice. As such, Arctic coastal States are provided with additional legislative and enforcement jurisdictions over ship vessels to prevent, reduce and control vessel-sourced pollution within the limits of the EEZ (Palma et al., 2019; Gavrilov et al., 2019; UNCLOS, art. 234). This might also apply to cruise ship vessels, but is not specified within the provision, nor by case-specific regulation. To date, only two Arctic States have made use of the provision (i.e. Canada and Russia), in order to strengthen regulatory measures for marine environmental protection in the Arctic Ocean (Palma et al., 2019).

Principal responsibility for shipping regulation, including cruise shipping, at the international level lies in the hands of the **International Maritime Organization (IMO**). The two key conventions adopted by IMO are the International Convention for the Prevention of Pollution from Ships (MARPOL) and the International Convention for the Safety of Life at Sea (SOLAS).

[6] Directive 2009/16/EC of the European Parliament and of the Council of 23 April 2009 on port State control

MARPOL regulations are in particular focusing on the regulation of pollution by oil and other hazardous substances from shipping. Moreover, the **MARPOL, Annexe IV contains** various regulations regarding the discharge of sewage into the sea from ships, including regulations regarding the ships' equipment and systems for the control of sewage discharge, the provision of port reception facilities for sewage, and requirements for survey and certification. The Annex entered into force in September 2003. A revised Annex IV was adopted in April 2004 and entered into force in August 2005.

In July 2011, the most recent amendment to MARPOL Annex IV was adopted and entered into force in January 2013. The amendment introduced, inter alia, a definition for Special Area as well as relevant requirements for the discharge of sewage from passenger ships in Special Areas and for port reception facilities, including greywater. Besides, in 2004, the IMO adopted the **International Convention for the Control and Management of Ships' Ballast Water and Sediments** (BWM), which entered into force in 2017 and regulates the spread of potentially harmful aquatic organisms and pathogens in ships' ballast water (including cruise ships).

SOLAS: International Ship and Port Facility Security Code (**ISPS-Code**): The International Ship and Port Facility Security (ISPS) Code, which came into force on 1 July 2004 as part of SOLAS Chapter XI-2, establishes a mandatory international maritime security regime though its mandatory Part A and recommendatory Part B. Its main objectives are to promote cooperation between stakeholders in assessing and addressing security threats, to define roles and responsibilities at all levels and to ensure the timely exchange of security-related information. The Code also requires the appointment of security officers who are responsible for developing and implementing security plans tailored to different threat levels. The IMO supports implementation through technical cooperation, including workshops and seminars, guided by the 2012 and 2021 editions of the Guide to Maritime Security and the ISPS-Code.

Beyond the Polar Code, pertaining to passenger and cargo ships of 500 gross tonnes or more operating, is extending MARPOL and SOLAS, and as an Annex to both, is legally binding to the respective signatory states, specifically tailored for the conditions confronting ships in the Arctic as well as Antarctic Waters. It offers both mandatory standards and recommendations in ship design, construction, equipment, operational training and environmental protection. The Polar Code offers only a few regulations specifically for “passenger ships”, under which cruise ships are categorised. Next to crew certifications (Part I-A, Chapter 8) and SAR regulations (Part I-A, Part 12), dumping sewage into the water is specifically prohibited for all passenger ships under Part II-A, Article 4.2.2. However, ships under the gross tonnage of 500 t, and with fewer than 12 passengers, do not fall under the regulations of the Polar Code, which leaves the Polar regions vulnerable to pollution from smaller charter and pleasure yachts. Moreover, neither MARPOL nor the Polar Code include any binding regulations on underwater noise pollution (for further gaps of the Polar Code regarding cruise tourism, as well as further aspects, see also: MSC-107-17-23-Elements-for-consideration.pdf), a submission of the WWF and ICC to the IMO in 2023.

On the other hand, in 2021, an amendment to MARPOL Annex I was approved, introducing the prohibition of the use and carriage of heavy fuel oil for use as fuel in Arctic waters starting 1 July 2024 (Wienrich, 2022).

While the area of application of the Polar Code in the Behring Sea is set at the 60th parallel, the boundary in the North Atlantic does not follow an exact latitude. Here, the area is extended along

the seas around the southern tip of Greenland to the 58th parallel and follows the Greenland coast northwards, across the Atlantic to the Island of Bjørnøya, between the Norwegian mainland and Svalbard at the 73rd parallel. This excludes Iceland and the Scandinavian peninsula from the scope of the Polar Code (MPEC 68/21/Add.1 Annex "Polar Code": 9).

Cruise tourism is moreover an industry of recent high interest and concern for the **OSPAR Commission** (Convention for the Protection of the Marine Environment of the North-East Atlantic). OSPAR's 2023 Quality Status Report[7] highlights that cruise tourism contributes to physical disturbances, pollution through hazardous substances, marine litter, underwater noise, and the introduction of invasive species. While OSPAR has not yet developed any recommendations or actions specifically focused on cruise tourism, many of its outputs are relevant for maritime transport in the North Atlantic and the Arctic. For instance, the **Regional Action Plan for Marine Litter** (see also Policy Paper on Micro-Plastics) addresses pollution from various sources, including ship activities. OSPAR also emphasises the importance of sustainable tourism practices.

There also exists a United Nations' specialised agency for tourism, the **UN Tourism** (formerly **UNWTO - World Tourism Organization)**, whose role consists in the development of guidelines, norms, and best practices for sustainable and responsible tourism. The UNWTO has, for example, drafted the "Global Code of Ethics for Tourism" (1999) and the "Sustainable Tourism Investment Guidelines" (2025). UNWTO is, however, quite small in staff numbers compared to other UN agencies, and its capacity and policy impact is rather limited.

3.4. Voluntary initiatives of non-state actors

A major voluntary initiative for sustainable cruise shipping is the **Association of Arctic Expedition Cruise Operators (AECO),** created in 2003.

As an industry association for voluntary self-governance, it formulated various objectives to minimise environmental impact, ensure safe and sustainable expedition cruising and create operational guidelines. AECO members are obligated to comply with a variety of guidelines regarding tourists, site-specific conditions, wildlife and biosecurity. A key AECO policy includes self-reporting and compliance monitoring, for which members must submit detailed reports, while compliance is enforced via peer monitoring and incident reporting during AECO's annual general assembly. While 80% of expedition cruise operators in Greenland and 50% in Canada are members, almost all expedition cruise operators in Svalbard are part of AECO. (Van Bets et al., 2017)

Lately, AECO has provided guidelines for the industry, for example, on noise pollution. Moreover, they provide guidelines to customers and focus on ways to avoid plastic pollution (AECO 2024a) and on plastic waste clean-up in Svalbard (AECO 2024b – see also Policy paper on Micro-plastics). The principles for customers are largely aligned with several other sustainable tourism guidelines in the Arctic and focus on minimising environmental impacts, such as harming flora or fauna, and avoiding leaving rubbish; safety, including considering polar bears; and respecting local people and cultural sites (AECO 2022).

Furthermore, AECO has signed several memoranda of understanding with the UN Environment Program, among others, including a commitment to sustainable tourism, reducing the use of

[7] https://www.ospar.org/work-areas/cross-cutting-issues/qsr2023

single-use plastic on cruise ships and involving passengers in beach clean-ups, contributing to the UN-led Clean Seas Project. The Association also aims to play an educational role in the tourism industry and among local communities to raise awareness of plastic pollution and how to dispose of and reduce waste. To this end, the guidelines are published, and lectures are given on board (UN Department of Economic and Social Affairs, 2021; AECO, 2019).

AECO has also recognised the pollution from underwater noise by ships, which is why it is participating in projects and initiatives to support marine spatial planning and resource management through targeted data collection. (AECO, 2024c) However, the AECO operational guidelines only recommend noise reduction for marine wildlife, without mentioning specific measures for cruise ships. (AECO , 2024d). For cruise ship operators seeking to reduce the underwater noise emitted from their ships, classification societies, such as DNV and Lloyd's Register, offer advice and certification. These services include underwater acoustic surveys and performance assessments aimed at identifying noise sources and evaluating compliance with voluntary notations or guidelines (DNV, 2025; Lloyd's Register, 2025).

The co-existence of governmental and AECO regulations has led members to report excessive paperwork and over-administration. In their view, this has also led to an information overload and conflicts between industry and government. Members have also pointed out that several AECO regulations are not adapted to local conditions, which would compromise cruise operators' ability to focus on the passenger experience (Van Bets et al. 2017). In general, however, there is a lack of knowledge on the impact of the AECO initiative as well as other voluntary guidelines for cruise tourism.

4. Regulatory and policy gaps and current developments

International and national regulations are generally lagging behind the growing extent of cruise shipping in Arctic countries. In response to the IMO's call for proposals for a new output on the implementation of the Polar Code to MSC 107 (MSC 106/19, paragraphs 18.37 and 18.38), the ICC and the WWF called for the overdue review of POLARIS[8]. The submissions also point to the annual reports of the Arctic Council's PAME Working Group and the gaps and challenges it has identified in the implementation of the Polar Code – regarding increased cruise shipping but also further related to marine ecosystem risks.

One of these risks is **underwater noise** caused by (cruise and cargo) ships. While, fundamentally, the UN Law of the Sea Convention from 1982 (UNCLOS) offers several instruments, relevant to engaging the underwater sound pollution. Firstly, the definition of pollution in Article 1 (4) UNCLOS, in which not only the introduction of substances into the marine environment, but also the introduction of energy, is defined as pollution. Even though the „introduction of "energy" was initially added to accommodate thermal pollution, it could be understood to include all forms of

[8] The POLARIS is a „key methodology for assessing ice operational risk and is an integral tool of the IMO Polar Code to strengthen safety of navigation, and protection of the environment"; established in MSC.1/Circ.1519; https://pame.is/ourwork/arctic-shipping/current-shipping-projects/polaris/).

energy, including noise pollution. With the definition of pollution met, the UNCLOS obliges states to protect the marine environment and avoid underwater noise pollution. (Dotinga, Elferink: 170). However, the UNCLOS does not establish an international agreement against underwater noise pollution.

While the awareness of the polluting effects of underwater noise has risen in recent years, the international community has yet to agree on a binding legislation to reduce the sound emitted by ships. The International Maritime Organization (IMO) is generally considered to be the organisation responsible for this. However, its instrument, the International Convention for the Prevention of Pollution from Ships (MARPOL), does not include the pollution from shipping noises, since it is only aimed at the emission of substances into the marine environment, whilst noise pollution is regarded as energy introduced into to the water. Likewise, the IMO's Polar Code does not include any regulations on underwater noise pollution.

The resulting policy gap has so far been addressed only by voluntary guidelines and commitments from the IMO. Thus, the IMO offers specialized advice for ship designers and builders as well as ship operators and legislators in order to reduce underwater noise pollution („Revised Guidelines for the reduction of underwater radiated noise from shipping to address adverse impacts on marine life" for 2023, ***Guideline MEPC.1/Circ.906 - para.*** 3.1.) Furthermore, the guidelines acknowledge the reliance of indigenous communities on the marine life, which is affected by the sound pollution. (Para. 1.1.) Additionally, the IMO has adopted the „Guidelines for underwater radiated noise reduction in Inuit Nunaat and the Arctic" (MEPC.1/Circ.907), aiming to amend the previous guidelines and advise ship operators travelling through Inuit Nunaat (Inuit Homeland) and encourage the engagement of indigenous communities and the indigenous knowledge. (Bielecka, 2024).

A further critique relates to the "IMO 2020 rule", which limits the sulphur content of fuel oil used on board ships operating outside designated emission control areas to 0.50 % m/m by requiring the use of Exhaust Gas Cleaning Systems (EGCS), also known as scrubbers. While this regulation has been repeatedly criticised for transferring toxic pollution from the air into the oceans, and there seems to be increasing political pressure on the IMO for stricter regulations, these regulations do not yet exist as of October 2025.

New national regulations have recently been enacted (Iceland, Svalbard) or are in the making (Greenland), which seem to address some regulatory gaps (e.g., a ban on scrubber water discharge at least in the 3nm/12 nm zone) but not all of the existing regulatory gaps. So, while, for example, the increase in taxes and fees for cruise tourism in Greenland is meant to further develop **port infrastructure** for reducing problems of waste, the storage of wastewater, and for fostering sustainable energy supply for ships. The development of such infrastructure is a long-term endeavour, however, and is moreover facing serious challenges, especially in remote rural areas. Landing restrictions (Svalbard) and zoning (Greenland) are in place, and adaptive tools to mitigate the negative side effects of increasing cruise tourism within Arctic communities are also available. However, their impact and legitimacy depend on the inclusiveness of their formation process. Compliance control remains a crucial challenge, also for their new governance initiatives, particularly in smaller communities.

Cruise ship-based tourism and MPA management

Shipping or vessel traffic, including cruise ships, within MPAs is regulated through a combination of international and national law, as well as site-specific management plans. Generally, the regulation of marine activities within MPAs is case-specific. MPAs are often organised in such a way that they include various zones, in which different activities are permitted or prohibited. For example, there may be no-take zones, where all activities may be prohibited (especially those of an extractive nature), in other zones, - restricted zones- limited activities, such as certain types of shipping, may be allowed. Different forms of managing ship-based activities within protected areas may include: a prohibition in sensitive zones, a restriction of activities by vessel type and/or directing ships through determined corridors or routes to minimise impact.

MPAs, located within the territorial waters of a coastal state, are governed by national laws. Accordingly, the relevant authorities may restrict or prohibit anchoring, set speed limits to reduce noise or collision risks, decide on seasonal closures, or establish mandatory pilotage or navigation routes. Notably, the coastal State may ask for permits or pre-notification for certain vessels, such as cruise ships.

The complexity of the regulation of marine activities in MPAs for areas beyond national jurisdiction (ABNJ) may be illustrated by an example, such as the MAR North of the Azores High Seas MPA under OSPAR. In its decision, which establishes the MPA, the OSPAR Commission recognises "that a range of human activities occurring, or potentially occurring, *[in the area]* are regulated in the respective framework of other competent authorities. These include, in particular, fishing (North-East Atlantic Fisheries Commission (NEAFC), [...], International Whaling Commission (IWC)), and shipping (International Maritime Organization (IMO)." (emphasis added, OSPAR 10/23/1-E, Annex 44). Here, the Agreement on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (BBNJ Agreement), adopted in June 2023, might be able to improve coordination – if and when it enters into force (once 60 countries have ratified it, as of May 2025).

While MPAs are considered key tools for environmental protection and to support climate change resilience, they are not the only tools to regulate marine activities in vulnerable and sensitive marine areas, including the Arctic marine waters and are also applicable to cruise tourism. Other measures include, for example:

- Particularly Sensitive Sea Areas (PSSA), which are areas requiring special protection through the IMO due to their socio-economic or ecological value (see: https://www.imo.org/en/ourwork/environment/pages/pssas.aspx);
- Areas to be avoided (ATBA): ship routing measure comprising an area within defined limits to reduce risks from shipping activities, for example, in areas with the presence of sea ice, through the IMO (may be mandatory or recommendatory) (Huntington et al., 2019).

However, to date, there are no PSSAs established within the Arctic Ocean, but the establishment of a PSSA has been suggested, for example, for the Talluruptiup Imanga National Marine Conservation Areas (NMCA) in the Eastern Arctic region of Canada (WWF Canada, 2021). This PSSA would then also include the regulation of cruise ships for the area.

Not only in coastal areas but also in the Central Arctic Ocean Large Marine Ecosystem (CAO LME, as defined by PAME) experiences an increase in cruise ship-based tourism, which puts increasing pressure on marine ecosystems, including protected areas (although there is still less ship traffic in

CAO LME compared to coastal waters). For example, a study from the Mediterranean suggests that cruise activities also increase pressures on MPAs even when "only" undertaken in proximity to MPAs (Pharos4MPAs, 2019). Many cruise ship activities in the CAO LME, especially the ones travelling to the geographic North Pole, embark and disembark passengers in Longyearbyen, Svalbard (PAME, CAO report, forthcoming).

Rules for **sustainable behaviour of passengers of cruise tourism on land,** to minimise environmental impacts and respect local people and cultures, are predominantly of a voluntary nature, while existing national legal regulations are not made up for the sharply increasing numbers of (cruise) tourists. Additionally, national regulations, in instances, were only developed on an ad-hoc basis, following incidents where cruise ships landed in areas that are technically protected (e.g., see: Cruise ship vessels landing in protected areas in Iceland, such as the Hornstrandir Nature Reserve (Iceland Review (2018a) & (2018b)). This highlights the need to take all ship-based activities, including cruise ship tourism, into account for both the establishment of protected areas on land and sea, as well as to reconsider management plans of existing protected areas.

However, the amenable effort to protect the environment from increasing tourism is often in conflict with the interests of socio-economic development. Managing both is rarely without conflict and inconsistency, as Havelsrud et al. (2023, 99-103) have found in the case of Svalbard's tourism governance and environmental protection. In terms of vertical policy integration, Norway's interpretation of international frameworks promotes tourism and simultaneously enforces strict environmental protection, creating tensions between development and conservation. Horizontally, tourism cuts across several sectors, making coordination difficult. The lack of a central tourism authority and the fragmentation of ministerial responsibilities hamper a unified policy, with core conflicts between wilderness protection - a higher priority than in mainland Norway (Hovelsrud et al., 2023, 99) - and commercial activity. Policies lack clear business development objectives or guidance on acceptable environmental or social change, leading to contradictions and limiting sustainable planning. For example, restrictions on large cruise ships may increase environmental pressure from smaller vessels and reduce economic benefits.

Additionally, locals and tourists are subject to different regulations that restrict access and modes of travel for tourists, while the categorisation of locals based on time spent on the archipelago does not take into account whether certain experiences or skills are evident. Hovelsrud et al. also question the adaptability of the environmental monitoring and regulations to the impacts and effects of climate change, as longer tourist seasons and restricted access to protected areas lead to increased footprints in unrestricted areas. Finally, the fixed eight-week reporting requirement for operators limits their ability to adapt to rapidly changing sea and weather conditions, further dampening the economic development (Havelsrud et al., 2023).

Such trends, which might increase even further in the future with more accessibility due to declining sea ice extent, are also relevant to consider in efforts to protect the CAO ecosystem. To date, there are no MPAs or PSSAs present within the Arctic High Seas portions, but efforts for increasing conservation are seen. Yet, they are either of a sectoral nature (i.e. Central Arctic Ocean Fisheries Agreement, focusing mainly on fishing activities) or they have yet to enter into force and require further definition/negotiation of details (i.e., BBNJ Agreement). Thus, the current, complex nature of the regulation of cruise ship tourism in the Arctic, especially in view of MPA management, should be taken into account.

5. Best practices

The **RETURN Project** (Regenerative Economic Transfer for Universal Resilience in the North), a EU funding programme supporting cooperation between remote and sparsely populated communities in the northernmost part of Europe, might serve as a leading example of how to operationalise sustainable and regenerative cruise tourism. Funded by the Northern Periphery and Arctic programme (NPA), RETURN focuses on ensuring that tourism revenues directly benefit local communities, strengthen infrastructure and protect the Arctic. In Norway, this includes enabling municipalities - such as those in Svalbard – to introduce visitor taxes and promoting the participation of indigenous Sami people in tourism governance. Iceland has reintroduced an accommodation tax and is preparing additional access fees to fund conservation efforts, as is Greenland's passenger tax (Arctic Centre, 2025; RETURN Project, 2025).

The comprehensive voluntary initiative for sustainable cruise shipping by **AECO**, outlined above, has also been considered a best practice example by several observers. There are, however, also more critical voices, stressing, for example, over-administration and a lack of local adaptation capacity (Van Bets et al. 2017).

One best practice example, specifically focusing on technical development, is the implementation of **Onshore Power Supply (OPS),** which enables cruise ships to connect to the local electricity grid while docked, significantly reducing air pollution and greenhouse gas emissions in port communities. The EU's **Fuel EU Maritime initiative** encourages the adoption of OPS across member states. Making OPS mandatory, however, is a necessary step to meet both local and international environmental targets.

Complementary good practices could also include **circular waste management systems** – such as pre-sorting and waste-to-energy models used in Stockholm – and destination management strategies that limit visitor numbers to safeguard fragile ecosystems (EU Commission, 2023: 135).

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