Blue Tourism Initiative

Policy Pathways Towards a More Sustainable Cruise Sector

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About the Blue Tourism Initiative

The Blue Tourism Initiative is a global multi-stakeholder innovation program focused on the environmental management, governance, and planning of coastal and maritime tourism in three marine regions: the Mediterranean, the Western Indian Ocean and the Caribbean. The project supports the participatory development of sustainable blue tourism initiatives through policy actions and a multi-stakeholder approach to inform the scalability of sustainable blue tourism in other regions.

The objectives of the Blue Tourism Initiative are to:

1. Assess the current global and regional situation of blue tourism, focusing on challenges and opportunities, and recommend directions for sustainable blue tourism development.

2. Support and monitor the implementation of sustainable blue tourism initiatives in the Mediterranean, Western Indian Ocean, and the Caribbean.

3. Integrate sustainable blue tourism management and governance at the regional policy level, share best practices, and raise awareness among key local, national, and regional stakeholders.

www.BlueTourismInitiative.org

The Blue Tourism Initiative project partners:

IDDRI is an independent think tank based in Paris (France) at the interface of research and decision-making that investigates sustainable development issues requiring global coordination.

Eco-union is an independent Think and Do Tank based in Barcelona (Spain), whose objective is to accelerate the ecological transition of the Euro-Mediterranean region.

IUCN Centre for Mediterranean Cooperation, established in Malaga (Spain), works to bridge gaps between science, policy, management, and action in order to conserve nature and accelerate the transition towards sustainable development in the Mediterranean.

CANARI (Caribbean Natural Resources Institute) is a non-profit institute headquartered in Trinidad and Tobago, facilitating stakeholder participation in the stewardship of renewable natural resources in the Caribbean.

CORDIO East Africa is a nonprofit research organisation based in Kenya focused on the sustainable use and management of coastal and marine resources in the Western Indian Ocean.

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FONDS FRANÇAIS POUR L'ENVIRONNEMENT MONDIAL

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Summary

Cruise tourism is a significant component of coastal and marine tourism.[1] Despite the sharp decline during the COVID-19 pandemic,[2] the sector rebounded in 2023 with **31.7 million passengers**, surpassing 2019 levels by 7%. Additionally, projections estimate that the cruise sector will reach **40 million passengers** annually by 2027.[3]

Cruise tourism frequently attracts attention due to its **impacts on sea, air, and land**, highly contributing to **greenhouse gas emissions**. There is also the controversy surrounding the cruise industry's relationship with destination communities, who are the first to experience the externalities of the cruise tourism industry development.

Furthermore, the **market power** of cruise industry in numerous regions and destinations drives intense competition and conflicts among stakeholders, who often have different cost-benefit perceptions and goals.[4] This tension can hinder the development of a more sustainable cruise sector by obstructing necessary **cooperation** among actors.

The sector also faces **regulatory gaps** from the global to the national and local levels, with weak monitoring and enforcement compliance mechanisms—left to the charge of national or local authorities, who often face limitations in applying these mechanisms, hindering the sustainability of the sector. Many cruise ships are registered in **Flag State s** that are responsible for ensuring cruise compliance with environmental, labour or safety regulations[5] but these countries often have lower standards or lack of capacity or willingness to implement and enforce the relevant laws.

With an expected growth in the coming years due to an increasing market size, cruise tourism must swiftly adopt more **sustainable practices** to align with **Climate**[6] **and Biodiversity targets**[7], and the **Sustainable Development Goals** (SDGs). This green transition requires improved **collaborative governance** at the institutional level that is socially, geographically, and politically inclusive, informing cohesive and coherent **sustainability strategies and policies**. Specifically, regional **intergovernmental and intersectoral cooperation** can leverage existing frameworks to strengthen monitoring mechanisms, share expertise and utilise innovative technologies.

This report, based on **desk research** and **stakeholder consultations**, examines the **global state of cruise tourism worldwide**. It provides relevant updated market data, in terms of passengers' volumes, main destinations, and type of vessels. After discussing the multidimensional impacts generated by this industry, the report critically outlines the governance shortcomings in the cruise sector, detailing the main actors and the key **international and regional regulatory frameworks**. Particular attention is given to the **Mediterranean**, **Caribbean**, and **Western Indian Ocean** regions due to their significant role as cruise destinations.

Finally, a set of **policy pathways** are proposed to enable the cruise sector's transition to a fairer, more responsible and sustainable industry. This report intends to serve as a **wake-up call** for increased regional and global cooperation, advocating for a coordinated approach in regulating, monitoring, and maximising the benefits of the sector.

1 Balestracci, G., Sciacca, A., (2023). "Towards sustainable blue tourism: trends, challenges, and policy pathways". Edited by the Blue Tourism Initiative. IDDRI & eco-union.

2 Radic, A., Law, R., Lück, M., Kang, H., Ariza-Montes, A., Arjona-Fuentes, J. M., & Han, H., (2020). "Apocalypse now or overreaction to coronavirus: The global cruise tourism industry crisis". Sustainability, 12(17), 6968.

3 Cruise Lines International Association, (2024). "State of the Cruise Industry Report."

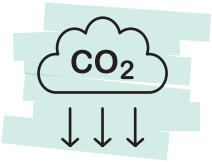
4 Kim, S. B., Marshall, L. H., Gardiner, R., & Kim, D. Y., (2021). "Conflicts in communities and residents' attitudes toward the impacts of cruise tourism in the Bahamas." Journal of Travel & Tourism Marketing, 38(9), 956-973.

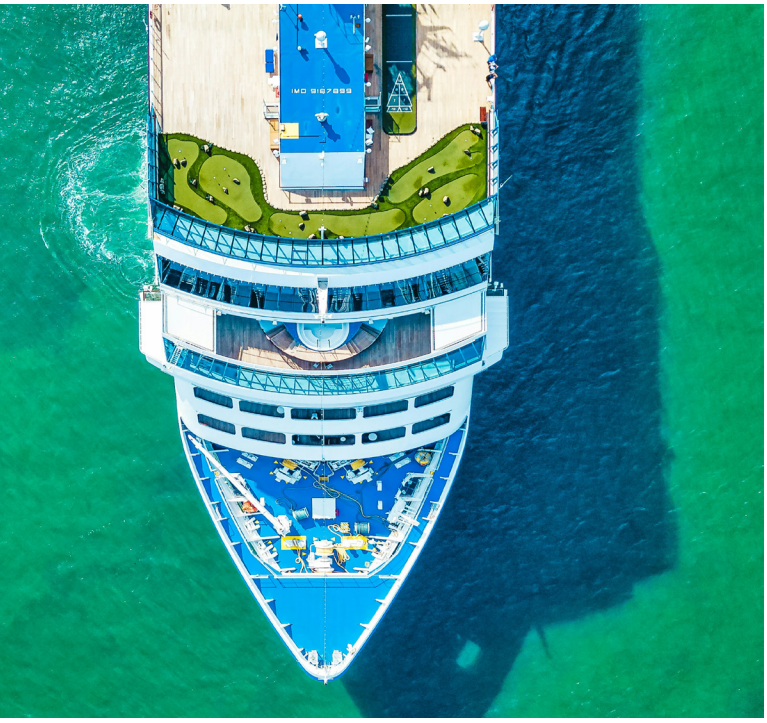
5 Tonazzini, D., Fosse, J., Morales, E., González, A., Klarwein, S., Moukaddem, K., Louveau, O., (2019). "Blue Tourism. Towards a sustainable coastal and maritime tourism in world marine regions". Edited by eco-union. Barcelona

6 United Nations, (2015). "The Paris Agreement."

7 CBD, (2004). "The Kunming-Montreal Global Biodiversity Framework." Particularly, TARGETS 4, 7, 14, 15 and 16.

Table. Policy Pathways Towards a More Sustainable Cruise Sector

Challenge 1. **Global and regional regulatory and governance gaps** 	**Pathway 1. Identify and address global regulatory and governance gaps in the cruise sector** 1.1. A comprehensive review of global environmental, economic, and social regulatory frameworks is needed to identify policy gaps and loopholes in the cruise sector governance. 1.2. Fostering consistent regulations, effective communication and policy collaboration across all levels—both horizontally (across sectors) and vertically (from local to global levels) will contribute to improving cruise governance.
Challenge 2. **Limited collaboration and competition among cruise destinations** 	**Pathway 2. Promote cross-national cooperation and collaboration between cruise destinations** 2.1. Cross-national and multi-sectoral cooperation should be enhanced to align policies across regions and countries, ensuring consistency with commonly agreed sustainability goals for cruise tourism. 2.2. International collaboration between regional and national cruise tourism bodies and other regional mechanisms should be supported to promote cohesive global actions.
Challenge 3. **National and local regulatory and governance gaps** 	**Pathway 3. Identify and tackle national regulatory gaps in the cruise industry** 3.1. Countries should embark on comprehensive reviews of their national regulatory frameworks to identify gaps and loopholes, ensuring alignment with regional and global policy commitments. 3.2. Engaging regional cooperation mechanisms is essential to ensure policy consistency with neighbouring countries and prevent fragmented approaches.
Challenge 4. **Weak monitoring of and lack of enforcement** 	**Pathway 4. Improve cruise monitoring and reporting systems** 4.1. Monitoring frameworks should be enhanced at both national and regional levels to ensure effective and consistent monitoring of cruise practices across regions. 4.2. Reporting systems should be strengthened and harmonized at national and regional levels to promote consistency and enforcement of relevant policies and regulation.
Challenge 5. **Low adoption of clean technologies and sustainable behaviours** 	**Pathway 5. Support cleaner technologies and more sustainable behaviours of the industry and consumers** 5.1. Policy and non-regulatory actions should support greener ships in the whole life cycle. 5.2. Vessel certifications should become more ambitious, widely-used and better aligned with international environmental commitments. 5.3. Sustainable behaviours of the industry and consumers through awareness and capacity-building tools should be fostered.



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Abbreviations and Acronyms

CSER	Corporate Social and Environmental Responsibility
CFCs	Chlorofluorocarbons
CLIA	Cruise Lines International Association
CMOU	Caribbean Memorandum of Understanding on Port State Control
COLREGS	Convention on the International Regulations for Preventing Collisions at Sea
CO_2	Carbon Dioxide
GDP	Gross Domestic Product
GSTC	Global Sustainable Tourism Council
HELCOM	Helsinki Commission
ILO	International Labour Organisation
LEED	Leadership in Energy and Environmental Design
IMO	International Maritime Organisation
MARPOL	International Convention for the Prevention of Pollution from Ships
MSSD	Mediterranean Strategy for Sustainable Development
NGOs	Non-governmental organisations
NOx	Nitrogen Oxides
PPP	Public-Private Partnerships
PVC	Polyvinyl Chloride
SDGs	Sustainable Development Goals
SECA	Sulphur Emission Control Area
SOLAS	International Convention for the Safety of Life at Sea
SOx	Sulphur Oxides
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
UN	United Nations
EU	European Union
UNEP/MAP	United Nations Environment Programme/ Mediterranean Action Plan
WWF	World Wildlife Fund for Nature

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1. Introduction

Cruise tourism is one of the **most profitable** segments of coastal and marine tourism.[8] Ocean cruising is rapidly expanding, and it represents the **largest tourism sub-sector** in terms of gross added value and employment. The cruise industry has attracted increasing attention due to its significant growth and swift recovery following crises such as the 2008-09 financial crises, geopolitical challenges (i.e. the impact of the Arab Spring on Mediterranean cruising) and the negative aftermath of the Costa Concordia accident in Italy, which affected the image of the sector. Even after the COVID-19 pandemic, the cruise industry has demonstrated its **financial and market resilience** with sustained growth.[9] While major cruise companies celebrate this economic success, concerns from civil society, local communities and public stakeholders persist regarding the **adverse impact of cruise** activities on the environment, society, and the local economies. A primary challenge remains enhancing the sector's sustainability across all its dimensions, particularly given its transnational operations, which pose hurdles in terms of regulation, monitoring, and governance. Furthermore, the intense competitive **environment** that characterises the cruise industry further exacerbates these challenges, potentially impeding collaborative efforts necessary for advancing sustainable practices.

This report focuses on providing a **diagnostic of the cruise industry,** examining its economic, environmental, and social impacts, and identifying the main challenges and policy opportunities for improving sustainability within the sector. Emphasising the urgency, this report highlights the triple planetary crisis of climate change, biodiversity loss and pollution, and underscores the need for the cruise industry to increasingly align with global **climate**[10] **and biodiversity targets**[11] and **Sustainable Development Goals** (SDGs).[12] Against this backdrop, the report supports enhanced collaborative governance models and an increased regional cooperation. These are seen as pivotal strategies to foster the growth of sustainable approaches within the cruise sector, ensuring alignment with global sustainability targets and the equitable distribution of its benefits.

8 Balestracci, G., Sciacca, A. (2023): "Towards sustainable blue tourism: trends, challenges, and policy pathways." Edited by Blue Tourism Initiative. eco-union & IDDRI.

9 Notteboom, T., Pallis, A., & Rodrigue, J. P. (2022): "Port economics, management and policy". Routledge.

10 United Nations, (2015): "The Paris Agreement."

11 CBD, (2022): "The Kunming-Montreal Global Biodiversity Framework". Particularly, TARGETS 4, 7, 14, 15 and 16.

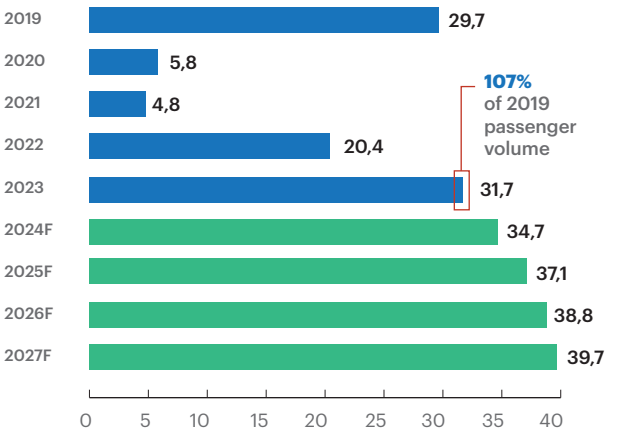
12 United Nations Department of Economic and Social Affairs (2024). Sustainable Development Goals. In particular a more sustainable cruise industry would better align with several SDGs that are centred on on environmental protection, social well-being, and responsible economic growth (i.e.,SDG 6: Clean Water and Sanitation, SDG 7: Affordable and Clean Energy, SDG 12: Responsible Consumption and Production, SDG 13: Climate Action, SDG 14: Life Below Water, SDG 15: Life on Land, SDG 17: Partnerships for the Goals) (see appendix)

2. State of the Cruise Sector

Over the past 15 years, the cruise sector has undergone a significant transformation, experiencing consistent **annual growth averaging 7%** until the onset of the COVID-19 pandemic.[13] From 2009 to 2019, the number of cruise passengers nearly doubled, underscoring a substantial rise in the sector's popularity and accessibility.[14] This growth was propelled by substantial infrastructural advancements and an expanding global traveller base. Despite a brief slowdown following the 2009 financial crisis, the cruise industry outpaced other transport or tourism sectors in growth. However, the **COVID-19 pandemic** represented a major setback for the industry,[15] leading to swift travel restrictions, enforced quarantines, and port closures.[16] These containment measures had a particularly significant impact on coastal businesses reliant on the cruise sector, resulting in substantial income losses.[17] Nonetheless, the sector displayed **financial and market resilience** by rebounding strongly, achieving 31.7 million passengers in 2023, surpassing 2019's levels by 7%. Projections indicate continued growth, with forecasts predicting **40 million annual passengers by 2027** (Figure 1).

Figure 1. Global Cruise Passengers

(in millions, 2019-2023 and forecast until 2027).

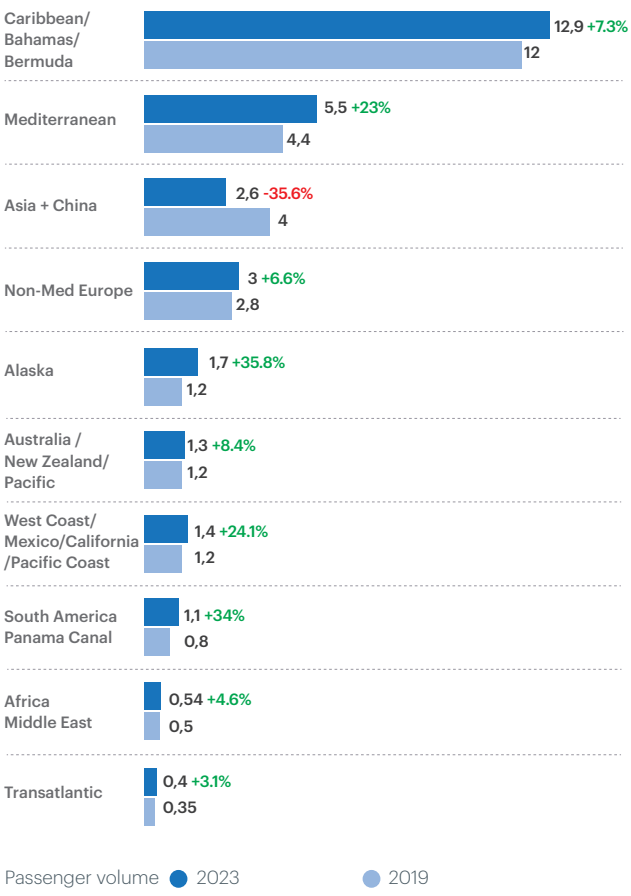


Source: Cruise Lines International Association, 2024 (Cruise Lines International Association, (2024): "State of the Cruise Industry Report.)

Regional data on passenger volumes offers a closer examination of the cruise sector's resilience to external shocks. Figure 2 compares passenger volumes between 2023 and 2019, revealing increases in every region except for Asia and China. The **Caribbean** remains the most visited cruise destination worldwide, welcoming nearly 13 million passengers in 2023 - an increase of almost 1 million compared to 2019. Following closely, the **Mediterranean** recorded 5.5 million passengers in 2023, non-Mediterranean Europe saw 3 million passengers, and Asia had 2.6 million passengers in 2023.[18]

Figure 2. Passenger Volume per Region (2023)

(in millions).



Source: Cruise Lines International Association, (2024). Cruise Lines International Association, (2024): "State of the Cruise Industry Report."

Cruise tourism destinations are very diverse, ranging from small islands in the Caribbean, large Mediterranean cities such as Barcelona in Spain and Venice in Italy, to remote rural communities in the Arctic, whose popularity as cruise destinations is on the rise due to melting ice.[19] In 2023, the **United States** led globally as the top source market with 16.9 million passengers, followed by **Germany** with 2.5 million passengers and the **United Kingdom** with 2.2 million passengers. However, Asian markets, notably **China**, saw a substantial decline due to the COVID-19 crisis, experiencing a 92% decrease in passenger volume.[20]

13 European Commission, Directorate-General for Maritime Affairs and Fisheries (2023): "Good practices for sustainable cruise tourism – Final report", Publications Office of the European Union.

14 Fosse, J., Tonazzini, D., Morales, E., González, A., Klarwein, S., Moukaddem, K., & Louveau, O. (2019): "Sustainable blue tourism: towards a sustainable coastal and maritime tourism in world marine regions". Eco-union.

15 Notteboom, T., Pallis, A., & Rodrigue, J. P. (2022): "*Port economics, management and policy*". Routledge.

16 Cruise Lines International Association, (2022): "State of the Cruise Tourism Outlook 2022".

17 da Silva, A. L. R., (2021): "An overview of the impact of COVID-19 on the cruise industry with considerations for Florida". Transportation Research Interdisciplinary Perspectives 10: 100391.

18 Ibid.

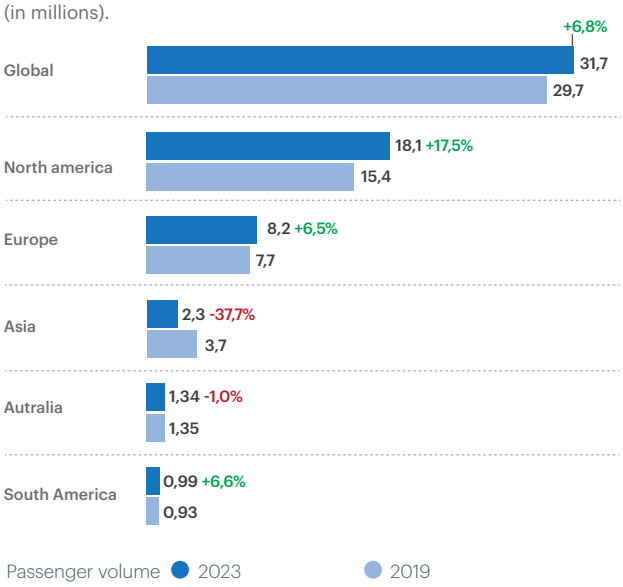
19 Lau, Y. yip, Kanrak, M., Ng, A. K. Y., & Ling, X. (2023): "Arctic region: analysis of cruise products, network structure, and popular routes" Polar Geography, 46(2–3), 157–169.

20 Cruise Lines International Association. (2024): "State of the Cruise Industry Report."

D. Bagg/Unsplash

Figure 3. Major Source Regions and Respective Passenger Volume Comparison 2023-2019

(in millions).



Source: Cruise Lines International Association, (2024).Cruise Lines International Association, (2024): "State of the Cruise Industry Report."

Recent **economic growth** of the sector has been significantly shaped by increasing **vessel capacity** over the past 15 years (Figure 4), and **economic affordability** for consumers.[21] **Larger vessels** have become more prevalent in the market, gradually displacing mid-size cruises.[22] Moreover, global cruise capacity is expected to grow by at least 10% from 2024 to 2028, with continuous expansion in cruise ship berths (Figure 5). Concurrently, there has been a surge in the construction of very small vessels catering to the **luxury markets,** highlighting a dual trend in industry growth. Globally, the luxury sector is projected to grow from 4% in 2019 to 6% by 2028, driven by the construction of **45 new luxury vessels** between 2020 and 2028.[23]

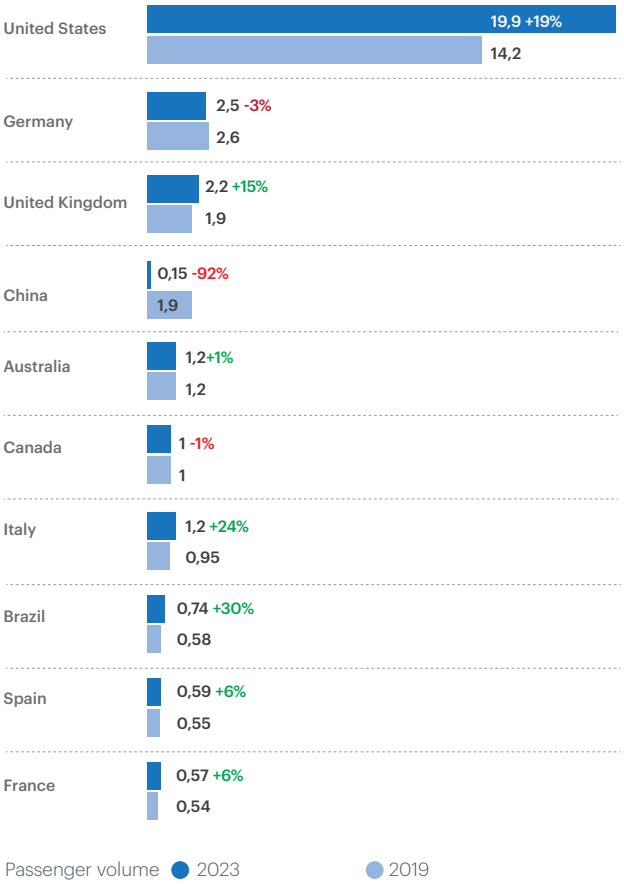
21 da Silva, A. L. R., (2021): "An overview of the impact of COVID-19 on the cruise industry with considerations for Florida" Transportation Research Interdisciplinary Perspectives 10: 100391.

22 Goodger, D. Savelli, C., (2023): "Luxury cruising – the new normal". Oxford Economics.

23 Ibid.

Figure 4. Passenger Volume Comparison 2023-2019

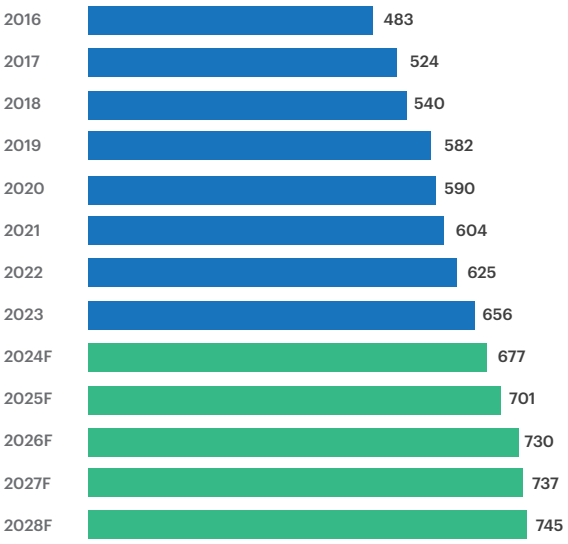
(in millions).



Source: Cruise Lines International Association (2024). Cruise Lines International Association, (2024): "State of the Cruise Industry Report."

Figure 5. Cruise Capacity Projections

(number of cruis ship berths; in thousand).



Source: Cruise Lines International Association, (2024). Cruise Lines International Association, (2024): "State of the Cruise Industry Report"

3. Impacts of the Cruise Sector

The **externalities of the cruise industry** are multi-dimensional and should inform areas of action to foster a more sustainable and equitable sector (Figure 6). Despite their diversity, cruise destinations share common **sustainability challenges,** particularly in relation to ensuring sustainable port operations, waste management and benefits for local communities. This section delves into the impacts of cruise tourism across environmental, economic, and social dimensions.

3.1. Environmental Impacts

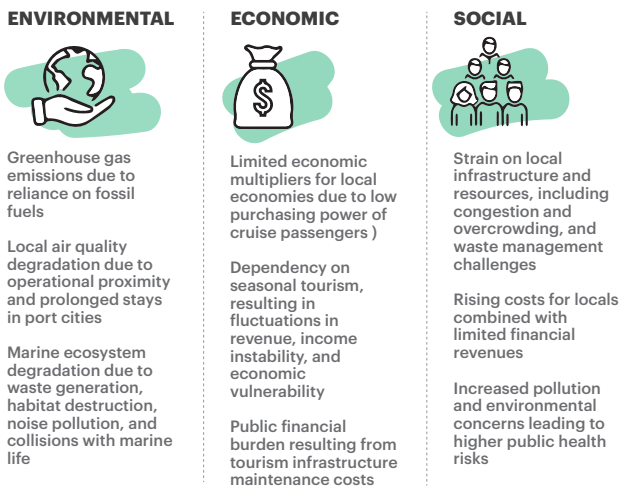
Cruise ships are an important source of **marine pollution**[24] with an estimated **waste generation** ranging from 2.6 to 3.5 kg/person/day.[25] One of the main sustainability issues in the cruise sector is its heavy **reliance on fossil fuels** and emission of toxic substances, such as sulphur oxides (SOx), nitrogen oxides (NOx), particulate matter (PM), and carbon dioxide (CO_2). These emissions contribute to **acid rain, ocean acidification, and climate change**, all of which negatively impact marine life and ecosystems.[26] It has been estimated that a passenger on a cruise emits twice as much CO_2 than someone who flies and rents a hotel.[27]

Furthermore, despite being a small segment of the shipping industry, cruise ships' operational proximity to coastal areas and prolonged stays in **port cities** substantially deteriorate **local air quality,** with direct effects on the health and well-being of resident communities.[28] For example, in Barcelona, a study has shown a 3.8% increase in Nitrogen Dioxide levels above mean values for every additional cruise ship.[29] This issue is exacerbated by **weak regulatory standards** governing marine fuels, which lag behind those of other transport modes, amplifying the industry's environmental footprint.[30]

Moreover, cruise ships severely impact marine ecosystems through **wastewater discharge**[31] (Figure 7), introducing harmful bacteria, excessive nutrients, and persistent chemicals into the ocean. In this regard, despite new engines being built to run on liquified natural gas (which has its own shortcomings regarding the leakage of unburned methane, known as 'methane slip),[32] many cruise ships still use **scrubbers** to redirect pollution from air to water.[33] However, scrubbers discard waters often contaminated with polycyclic aromatic hydrocarbons linked to cancers and reproductive dysfunction in marine mammals.[34] Ships, in general, can emit 10 gigatonnes of scrubber wash water in a year, with high concentration areas being the Caribbean, around Europe, and the Strait of Malacca. **Fifteen percent of scrubber emissions are associated with the cruises.**[35] This highlights the need for stricter regulations and innovative solutions to mitigate the impacts of scrubber emissions and the shortcomings of liquified natural gas cruise ship engines. Another relevant hazardous waste that should not be discharged at sea is the **ash** generated by the cruise ship, not yet regulated at the international level.[36]

Additionally, the large amounts of **solid waste** generated—such as plastics (single-use items like utensils and packaging materials), food waste, and other refuse—threaten marine animals through ingestion or entanglement and disrupt ecosystems. For example, a study of cruise ships in the Caribbean has shown that each can generate around 266m^3 of solid waste.[37] In some cases, **sewage sludge** is dewatered and then

Figure 6. **Environmental, Economic, and Social Externalities of Cruise Tourism**



Source: elaborated from Tonazzini, D., et al. (2019): "Sustainable blue tourism: towards a sustainable coastal and maritime tourism in world marine regions." Eco-union.

24 Carić, H., & Mackelworth, P., (2014): "Cruise tourism environmental impacts–The perspective from the Adriatic Sea." Ocean & coastal management, 102, 350-363.

25 US EPA – United States environmental Protection Agency, (2008): "*Cruise Ship Discharge Assessment Report*." US EPA Oceans and Coastal Protection Division. *Washington*

26 Hall, C. M., Wood, H., & Wilson, S., (2017): "Environmental reporting in the cruise industry. In Cruise ship tourism" (pp. 441-464). Wallingford UK: CABI; European Commission, Directorate-General for Maritime Affairs and Fisheries (2023): "Good practices for sustainable cruise tourism – Final report." Publications Office of the European Union.

27 Comer, B,. (2022): "What if I told you cruising is worse for the climate than flying?" International Council of Clean Transportation.

28 Lloret, J., et al., (2021): "Environmental and Human Health Impacts of Cruise Tourism: a review".

29 Oxford Economics, (2023): "Environmental impact of cruise traffic within Barcelona." Cruise Line Association.

30 Transport & Environment, (2023): "The Return of the Cruise".

31 European Commission, Directorate-General for Maritime Affairs and Fisheries, (2023): "Good practices for sustainable cruise tourism – Final report." Publications Office of the European Union.

32 Comer, B., (2022): "What if I told you cruising is worse for the climate than flying?" International Council of Clean Transportation.

33 Osipova, O., Georgeff, E. & Comer, B., (2021): "Global scrubber washwater discharges under IMO's 2020 fuel sulfur limit." International Council on Clean Transportation. 10-12.

34 Georgeff, E., Mao, X., & Comer, B, (2019): "A whale of a problem? Heavy fuel oil, exhaust gas cleaning systems, and British Columbia's resident killer whales." International Council on Clean Transportation.

35 Osipova, L, Georgeff, E. & Comer, B. (2021): "Ship scrubber washwater: How much, what's in it, and where it's dumped." International Council on Clean Transportation.

36 Klein, Ross A., (2009): "Getting a Grip on Cruise Ship Pollution". Friends of the Earth.

37 Kotrikla, A. M., Zavantias, A., & Kaloupi, M. (2021): "Waste generation and management onboard a cruise ship: A case study" Ocean & Coastal Management, 212, 105850.

Figure 7. **Waste Streams from Cruise Ships**

Source: Cogea, (2017). "Study on differentiated port infrastructure charges to promote environmentally friendly maritime transport activities and sustainable transportation".

incinerated. In other cases, sludge is dumped at sea. Most jurisdictions permit sludge to be dumped within three miles of shore. However, food and other waste not easily incinerated is ground or macerated and discharged into the sea. Waste management operations include incineration, legal discharge at sea and disposal at ports.

However, there is often a **lack of adequate land-based waste facilities at the destination,** which hinders proper waste management and the prevention of marine and coastal pollution.[38] Solid waste and some plastics are incinerated on board, with the **incinerator ash** being dumped into the ocean. Incinerator ash and the resulting air emissions can contain furans and dioxins, both found to be carcinogenic, as well as heavy metal and other toxic residues. For this reason, Annex V of MARPOL recommends, but does not require, that ash from incineration of certain plastics not be discharged into the sea.[39] Moreover, **underwater noise pollution** from ships (which may range from 180 to 200 decibels)[40] interferes with the communication, navigation, and feeding of marine animals, particularly cetaceans like whales and dolphins.[41]

In addition, **physical damage** from anchoring or accidental groundings in fragile areas like coral reefs[42] and seagrass beds[43] can significantly impact the marine environment.

38 Ibis

39 Klein, Ross A. (2009): "Getting a Grip on Cruise Ship Pollution". Friends of the Earth.

40 Jalkanen, J. P., Johansson, L., Andersson, M. H., Majamäki, E., & Sigray, P. (2022): "Underwater noise emissions from ships during 2014–2020". Environmental Pollution, 311, 119766.

41 Erbe, C., Marley, S. A., Schoeman, R. P., Smith, J. N., Trigg, L. E., & Embling, C. B. (2019): "The effects of ship noise on marine mammals—a review. Frontiers in Marine Science, 6, 606.

42 Burke, L., & Maidens, J., (2004): "Reefs at Risk in the Caribbean; Small, M., & Oxenford, H. A. (2022): "Impacts of cruise ship anchoring during COVID-19: Management failures and lessons learnt." Ocean & Coastal Management, 229, 106332.

43 Watson, S. J., Ribó, M., Seabrook, S., Strachan, L. J., Hale, R., & Lamarche, G. (2022): "The footprint of ship anchoring on the seafloor." Scientific Reports, 12(1), 7500.

Moreover, the construction and expansion of **cruise terminals** and associated infrastructure lead to **land-use changes**, habitat destruction, and alterations to coastlines. **Dredging**, a common practice to accommodate larger vessels,[44] can disrupt local ecosystems, increase noise pollution, cause physical disturbances, and raises the risk of collisions with marine life.[45]

The **dismantling of cruise ships**, also known as shipbreaking or ship recycling, poses significant environmental risks, particularly due to the hazardous materials found in these vessels. Ships are composed of various toxic substances, including asbestos, heavy metals, paints, oil, plastics, PVC pipes, glass wool, and even radioactive waste.[46] During dismantling, residual fuel, oil, and chemicals remaining in the ship's tanks can leak, causing pollution in surrounding areas. In recent decades, most decommissioned cruise ships have been sent to shipbreaking yards in developing countries, particularly in South Asian countries, including Bangladesh, India, and Pakistan.

These countries often **lack the infrastructure** for safe and environmentally sound shipbreaking. As a result, **waste materials accumulate on land** and eventually enter the marine environment through tidal and subtidal zones, damaging the physico-chemical properties of seawater and sediments, which leads to coastal and marine degradation. Additionally, many shipyards in these countries **lack proper facilities for recycling,** resulting in improper disposal of non-recyclable materials. Due to the inadequate infrastructure and unsafe disposal practices in these developing countries, cruise ship deconstruction presents significant environmental hazards, contributing to soil and marine pollution.[47]

3.2. Economic Impacts

The economic impact of the cruise sector is multifaceted and substantial, even though it represents just 2% of international travel. In 2022, with 20.4 million cruise passengers, the cruise industry contributed **$138 billion** in total economic impact globally, supporting **1.2 million jobs** worldwide and $43 billion in wages.[48] For instance, in the **Caribbean**, cruise tourism accounted for 20% of the GDP in 2022, attracting over 780,000 stopover visitors. This sector is expected to grow by 10-15% by the end of 2024, reaching 35.8 million cruise visits.[49] In **Europe**, the cruise sector contributes $44 billion to the regional economy and supports approximately 315,000 jobs.[50] These figures underscore the role of cruise tourism in the global economy.

44 Ganic, E. (2021): "Nassau Cruise Port: Dredging, land reclamation underway."

45 European Commission, Directorate-General for Maritime Affairs and Fisheries, (2023): "Good practices for sustainable cruise tourism – Final report." Publications Office of the European Union.

46 Occupational Safety and Health Administration (OSHA), (2001): "Ship Breaking Fact Sheet. US Department of Labor. "

47 Demaria, F. (2010): "Shipbreaking at Alang–Sosiya (India): An ecological distribution conflict." Ecological Economics.

48 Cruise Lines International Association, (2024): "State of the Cruise Industry Report"

49 Caribbean Tourism Organisation, (2024): "Caribbean Tourism Experiences Strong Growth in 2023, Recovery to Continue into 2024". Bridgetown, Barbados.

50 Cruise Lines International Association, (2023): "State of the Cruise Industry Report".

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However, evidence suggests that cruise tourism primarily benefits a few stakeholders, with limited positive impact on local employment and economic activity.[51] Studies also show **low economic multipliers**[52] for cruising, as the money spent by cruise tourists tends to remain confined to ports, terminals and related infrastructure rather than circulating widely in the local economy. This can be attributed to the relatively **modest purchasing power** of cruise passengers, which averages 30% lower than land tourists.[53] This is since most goods and services are readily available on board, leading to reduced spending in local destinations. The **seasonal nature** of cruise tourism poses additional challenges for destination communities. Fluctuations in visitor numbers create peaks of intense activities and periods of decreased economic engagement. During peak seasons, ports may struggle to handle the influx of cruise ships, causing congestion and strain on local infrastructure. Conversely, off-peak periods bring decreased revenue for local businesses, exacerbating economic instability and vulnerability.[54]

Furthermore, the **infrastructure costs** associated with accommodating cruise tourism can impose significant financial burdens on local governments. The construction, operation and maintenance of ports, terminals, and supporting infrastructure require substantial investments, often straining limited budgets and resources that may not be entirely covered by head tax or dockage fees paid by cruise companies. As a result, governments may divert financial resources from other purposes to cover these expenses from their budgets.. For example, in **Key West**, a popular cruise destination in the USA, dockage fees by law can only be used for services and to support the improvement of port facilities. However, these fees cover only a minimum portion of the incurred expenses, impacting the financial sustainability of port operations.[55]

3.3. Social Impacts

From a social perspective, cruise tourism can result in both positive and negative social externalities. On the positive side, cruise tourism can lead to job creation in port cities and destinations, including jobs in hospitality, retail, transportation, and tour services, leading to local business growth thanks to an increased tourist spending supporting local restaurants, shops, and markets. For example, cruise tourism in **Fiji** generated over 4,000 full time jobs in 2018 (approximately 1% of the working age population),[56] and approximately 9,000 annual employment opportunities in Barcelona and its surrounding areas.[57] Also, the cruise sector encourages the **development of infrastructure** such as ports, roads, and public facilities, benefiting both tourists and residents.[58]

On the other hand, one significant issue is the **strain on local infrastructure and resources** caused by the **temporal and spatial concentration** of cruise activities with the influx of tourists arriving simultaneously during seasonal peaks (e.g. unmanageable levels of waste pressuring waste infrastructure; congestion of transportation methods impacting quality of life of residents[59]). The surge in tourist numbers can also drive up prices of goods and services, making them less affordable for local communities.[60] Cruise tourism can contribute to **cultural displacement** in destinations, often resulting in a perceived loss of authenticity by residents who react to the erosion of their everyday life. For example, **Venetians** have protested for years against the presence of cruise ships or for better regulations.[61]

Moreover, the **limited contribution of cruise tourists to the local economy** makes destination communities more vulnerable and sensitive to economic challenges and fluctuations[62] With tourists spending minimal time ashore, local businesses often experience limited financial gains, leading to unequal distribution of benefits and leaving communities reliant on seasonal and precarious employment.[63] Additionally, pollution from cruise ships and crowded tourist areas poses a threat to public health by degrading air and water quality. This pollution increases the risk of respiratory ailments and other **health issues** among residents, compounding the negative social impacts of cruise tourism on destination communities.[64]

51 Macneill, T., & Wozniak, D. (2018). "The economic, social, and environmental impacts of cruise tourism". In Tourism Management, 66, pp. 387-404; Seidl, A., Guiliano, F., & Pratt, L. (2006): "Cruise tourism and community economic development in Central America and the Caribbean: The case of Costa Rica". PASOS. Revista de Turismo y Patrimonio Cultural, 4(2), 213-224.

52 The economic multiplier effect refers to the way spending in one sector can lead to increased economic activity and spending in other sectors. In the context of cruising, a low multiplier indicates that the money spent by cruise tourists does not circulate extensively through the local economy.

53 Brida, J. G., & Zapata, S. (2010): "Cruise tourism: economic, socio-cultural and environmental impacts." International Journal of Leisure and Tourism Marketing, 1(3), 205-226.

54 Kizielewicz, J., & Luković, T. (2015): "Negative impact of cruise tourism development on local community and the environment." Information, Communication and Environment: Marine Navigation and Safety of Sea Transportation, 6(3), 243-250.

55 Krogh, R., (2022). "Key West Doesn't Want Your Big Cruise Ships." Outside; Honey, M. (2020). The Economics of Cruise Tourism in Key West: Behind the Cruise Industry's Propaganda Veil.

56 International Finance Corporation, (2019). "Assessment of the Economic Impact of Cruise Tourism in Fiji."

57 Cruise Lines International Association, (2018): "Contribution of Cruise Tourism to the Economies of Europe 2017"

58 Fosse, J., Tonazzini, D., Morales, E., González, A., Klarwein, S., Moukaddem, K., & Louveau, O. (2019): "Sustainable blue tourism: towards a sustainable coastal and maritime tourism in world marine regions." Eco-union.

59 Baumann, A. C. (2021): "On the path towards understanding overtourism–cruise tourism and the transportation infrastructure." World Leisure Journal, 63(1), 5-13.

60 Klein, Ross A. (2011): "Responsible cruise tourism: Issues of cruise tourism and sustainability". Journal of Hospitality and Tourism Management 18, no. 1 (2011): 107-116.

61 Schemmer, J. (2022): "Social Resistance and Spatial Knowledge: Protest Against Cruise Ships in Venice". NTM Zeitschrift für Geschichte der Wissenschaften, Technik und Medizin, 30(3), 377-406.

62 Macneill, T., & Wozniak, D. (2018): "The economic, social, and environmental impacts of cruise tourism." In Tourism Management, 66, pp. 387-404

63 Seidl, A., Guiliano, F., & Pratt, L. (2006): "*Cruise tourism and community economic development in Central America and the Caribbean: The case of Costa Rica*". *PASOS. Revista de Turismo y Patrimonio Cultural*, *4*(2), 213-224.

64 Ibid.

4. Cruise Sector Governance

The governance of the cruise industry is cross-border and multi-level, including within nations. Key players in the industry, such as major corporations and international regulatory organisations, shape the operational standards and practices within the sector while the cruises must also comply with international, regional, national and local policies and laws.

4.1. Market Actors

The cruise sector comprises a diverse range of market actors that collectively shape its operations and governance. In addition to passengers, who influence market and industry practices through their preferences, and crew members, who are essential to the operation of cruise ships both at sea and on land, includes a number of actors listed to follow.

4.1.1 Cruise Lines

The cruise sector comprises more than **50 cruise lines and over 250 ships**.[65] Nonetheless, major corporations dominate the cruise market, with a few large companies holding significant market shares. **Carnival Corporation,** for instance, is estimated to control about 37% of the global market, followed by **Royal Caribbean Cruises Ltd.** with 24% and **Norwegian Cruise Line Holdings** with 14%. These corporations operate multiple brands and collectively generate substantial revenue, driving the industry's economic engine (e.g. in 2023, Carnival generated over $24 billion in revenue) (Table 1).[66] Currently, these three corporations still account for **75% of the global market share**.[67] Additionally, there are smaller **luxury and niche operators,** smaller companies focusing on luxury experiences, adventure cruises, or specific destinations, such as Seabourn, Silversea, and Ponant.[68] The current market structure, particularly the concentration of cruise companies, may raise concerns related to limiting the differentiation of offerings, strengthening economic linkages with destination operators, and the development of more sustainable brands and practices.[69]

4.1.2 Tourism Organisations

When considering the cruise industry as a tourism sub-sector, it is important to mention the role of national and regional **Tourism Boards**. These entities promote cruise destinations and manage tourism strategies to attract cruise lines. Additionally, tour operators and guides provide shore excursions, tours, and other experiences for cruise passengers, thereby contributing to the local economy.

65 da Silva, A. L. R. (2021): "An overview of the impact of COVID-19 on the cruise industry with considerations for Florida" Transportation Research Interdisciplinary Perspectives 10: 100391.

66 Cruise Market Watch, (2024): "2024 Worldwide Cruise Line Market Share." .

67 da Silva, A. L. R. (2021): "An overview of the impact of COVID-19 on the cruise industry with considerations for Florida" Transportation Research Interdisciplinary Perspectives 10: 100391.

68 Cruise Market Watch, (2024): "2024 Worldwide Cruise Line Market Share."

69 The Tribune, (2022): "Competition law could help cruise challenges."

Table 1. **Estimate Worldwide Cruise Line Market Share for 2024**

Name and number of passengers		Revenue, in Billions	% Revenue
Carnival	12.921.000	$ 24.68	37,3%
Royal Caribbean	7.740.900	$ 15.80	23.9%
Norwegian	2.819.300	$ 9.31	14.1%
All Others	6.665.900	$ 16.35	24.7%
Grand Total	**30.147.100**	**$ 66.16**	**100%**

Source: Authors elaborated from Cruise Market Watch (2024): "2024 Worldwide Cruise Line Market Share."

4.1.3 Industry Associations

One relevant actor within the cruise tourism landscape is the **Cruise Lines International Association** (CLIA). As the world's largest cruise industry trade association, CLIA represents over 95% of global cruise capacity and 54,000 travel agents, with 15,000 of the largest travel agencies in the world as voluntary members. CLIA serves as the primary political advocate for the industry, focusing on advocacy, training, and industry standards. It aims to align the interests of cruise lines with regulatory bodies by promoting policies that support the growth of cruise tourism and by supporting sustainability actions. For example, CLIA members are committed to reducing carbon emissions by 40% by 2030 compared to 2008 levels and pursue net-zero carbon neutral cruising globally by 2050.[70]

4.1.4 Port Destinations

Port destinations play a critical role in the global cruise sector, serving as **vital hubs** for the economic, environmental, and social dynamics of the cruise and shipping industry. These destinations act as economic gateways for the cruise sector, facilitating passenger disembarkation, excursions, and services like shopping, dining, and tours, shaping the full cruise passenger experience on land. The economic impact of these ports extends beyond the cruise terminal, as a part of collecting **port fees and taxes,** they negotiate the complex relationships between global cruise companies and local economies, representing an opportunity for local revenue generation. Also, to accommodate the **growing size and volume of cruise ships**, port destinations continually invest in infrastructure (expansion and modernization), as well as improving roads, transportation services, and amenities that support the influx of cruise tourists.[71] Furthermore, port destinations are, in principle, also responsible for inspecting and where necessary, managing and mitigating the environmental impacts of cruise ships.

70 European Commission, Directorate-General for Maritime Affairs and Fisheries, (2023). "Good practices for sustainable cruise tourism – Final report." Publications Office of the European Union.

71 Santos, M., Radicchi, E., & Zagnoli, P., (2019): "Port's role as a determinant of cruise destination socio-economic sustainability." Sustainability, 11(17), 4542.

4.1.3 Shipbuilders

Shipbuilders construct cruise ships, with major shipyards located in **Germany** (Meyer Werft), **Italy** (STX Europe and Fincantieri) and **France**. The **Energy Efficiency Design Index** (EEDI),[72] promoted by the IMO, aims at reducing CO_2 emissions prescribing a minimum level of efficiency per tonne-mile for all vessels constructed after 2013, with an initial CO_2 reduction level by 10% compared to a baseline.[73] Requirements are tightened every five years to stay ahead of technological improvements. In this context, large-size bulkers registered improved hull designs, which positively influenced the EEDI.[74] Shipbuilders are increasingly constructing **eco-friendly vessels** that reduce fuel consumption and maximise fuel efficiency to meet **environmental IMO standards**,[75] while also incorporating innovative technologies to further minimise their environmental footprint.[76] However, marine transport—including cruise sector—remains heavily **dependent on fossil fuel,** including LNG, and is not yet on the track to comply with the **Paris climate goals**.[77]

As described in this section, the sector consists of various actors, each influencing regulatory frameworks and practices in distinct ways. This collective influence not only shapes industry standards but also the level of environmental protection and social justice.

4.2. Regulatory and Cooperation Frameworks

The regulatory frameworks for cruise tourism involve multiple stakeholders at various levels, highlighting the need for effective collaboration. This section provides an overview of relevant frameworks at the global, regional, and national and local levels (Table 1).

4.2.1 International Policy Framework and related Conventions

At the global level, the **International Maritime Organization** (IMO) is the United Nations agency responsible for "safe, secure, and efficient shipping on clean oceans''. While several conventions have been adopted by the 160 IMO Member States that apply to cruise ships, their effectiveness often depends on the commitments and capacities of individual nations to enforce and adhere to these frameworks:

72 International Maritime Organization, (2024): "Improving the energy efficiency of ships."

73 Tonazzini, D., Fosse, J., Morales, E., González, A., Klarwein, S., Moukaddem, K., Louveau, O. (2019): "Blue Tourism. Towards a sustainable coastal and maritime tourism in world marine regions." Edited by eco-union. Barcelona

74 OECD (2018): "Shipbuilding Market Developments Q2-2018."

75 Lee, T., Nam, H., (2017): "*A Study on Green Shipping in Major Countries: In the View of Shipyards, Shipping Companies, Ports, and Policies*." The Asian Journal of Shipping and Logistics. Volume 33, Issue 4, December 2017, Pages 253-262

76 Adams, S.-A., Font, X. and Stanford, D. (2017): "All aboard the corporate socially and environmentally responsible cruise ship: A conjoint analysis of consumer choices", Worldwide Hospitality and Tourism Themes, Vol. 9 No. 1, pp. 31-43.

77 NABU, (2023): "Cruise Ranking 2023"

Table 2. **Actors of the Cruise Sector Governance***

Examples of regulatory authorities	Examples of frameworks and regulations
International	
International Maritime Organisation (IMO), International Labour Organisation (ILO), United Nations (UN)	SOLAS, COLREGS, BASEL convention, and MARPOL conventions
Regional	
European Union, Regional seas programmes, HELCOM, Caribbean Maritime Organization (CMO), Organization of Eastern Caribbean States (OECS), South African Maritime Safety Authority (SAMSA), Port Management Association of Eastern and Southern Africa (PMAESA)	European Green Deal, MSDD, CMOU, Barcelona, Nairobi, Helsinki, Cartagena conventions
National and local	
National governments, maritime authorities, national environmental agencies and health departments	National regulations on maritime safety, pollution prevention, and labour standards; local regulations governing port operations and environmental protection measures.

Source: Authors (2024). *UNEP/MAP: United Nations Environment Programme/Mediterranean Action Plan, HELCOM: Helsinki Commission, SOLAS: International Convention for the Safety of Life at Sea; COLREGS: Convention on the International Regulations for Preventing Collisions at Sea; MARPOL: International Convention for the Prevention of Pollution from Ships, MSSD: Mediterranean Strategy for Sustainable Development, CMOU: Cruise Memorandum of Understanding.

- The **International Convention for the Safety of Life at Sea (SOLAS)** concerns the safety of **merchant ships** and was adopted in 1914 in response to the Titanic disaster. The main objective is to specify minimum standards for the construction, equipment, and operation of ships, ensuring compatibility with safety standards. **Flag States** are responsible for ensuring that ships under their flag comply with the requirements of the SOLAS Convention. State Parties can inspect ships of other nations if there are clear grounds to believe that the ship and its equipment do not substantially comply with the Convention's requirements, through the "**Port State control procedure**".[78] However, while countries are tasked with ensuring compliance, various factors can affect the rigour of inspections conducted by countries. Moreover, the port State control procedure can fall short due to limited resources at port destinations.

78 IMO, (2019): "International Convention for the Safety of Life at Sea (SOLAS)".

- The **Convention on International Regulation for Preventing Collision at Sea (COLREGS) (1974)** establishes 10 rules to provide guidance on determining safe speed for ships, assessing the risk of collision between vessels, and the conduct of vessels operating in or near traffic separation schemes.[79] However, challenges lie in ensuring that all vessels, particularly in busy and congested waters, consistently adhere to these regulations, which require effective monitoring and enforcement mechanisms.

- The **International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW)** (1995) establishes basic requirements on training, certification and watchkeeping for seafarers at the international level. This Convention regulates general provisions, master, deck and engine departments, radiocommunication and radio personnel, special training requirements for personnel on certain types of ships, emergency procedures, occupational safety, medical care and survival functions, alternative certification, and watchkeeping.[80] While this Convention mandates that countries meet or exceed the standards, the variability in national implementation raises questions about the overall effectiveness of the training provided to crew members, impacting the overall safety across the cruise tourism sector.[81]

- The **International Convention for the Prevention of Pollution from Ships (MARPOL)** (1998)[82] covers the prevention of marine pollution by ships from operational or accidental causes. The most significant feature of MARPOL is that all ships engaged in international navigation must have a **Waste Management Plan**, for the collecting, storing, processing, and disposing of waste. MARPOL regulates several aspects of ship and port operations, including oil-related hazardous emissions (Annex I), air emissions of NOx, SOx, VOCs, on-ship incineration and CFCs (Annex VI), and wastewater (Annex IV). Additionally, it requires ports to provide **facilities to treat ship-generated residues** and garbage that cannot be discharged into the sea[83] (e.g., Directive 2019/883 on port reception facilities). Yet, despite these regulations, many ports lack the necessary infrastructure to treat generated waste, potentially undermining the objective of the Convention.

- The **International Labour Organization** (ILO), a specialised agency of the United Nations focuses on labour-related issues. Its most relevant convention for the cruise shipping industry is the **Marine Labour Convention** (2006) which applies to all commercially operated ships except for fishing vessels. The Convention addresses the welfare of seafarers, including decent living conditions, minimum wages, maximum hours of work, health and safety protection, accommodation requirements, food provisions, and medical care. Nevertheless, the application of these standards often varies, raising concerns about the actual living conditions experienced by crew members.[84]

While **international conventions** provide a crucial framework for establishing overarching goals and standards for the cruise tourism sector, their implementation is critically dependent on the commitment and capacities of flag and port States. Without robust enforcement mechanisms and genuine political will, the potential benefits of these conventions may remain largely unfulfilled (see Chapter 5).

4.2.2 Regional Agreements and Cooperation Mechanisms

Regional agreements are key to governing the cruise tourism sector and promoting coherence in policy and management actions at the regional level. The developments below provide an overview of relevant regional frameworks and related agreements for the Caribbean, Mediterranean, and the Western Indian Ocean.

4.2.2.1 Caribbean Region

As the most popular cruise destination in the region, the Caribbean region has established various cooperation mechanisms and regional agreements that apply to the shipping industry, including the cruise sector.

The **key regional agreements** include:

- The **Caribbean Community (CARICOM)** through its Single Market and Economy (CSME) arrangement facilitates the free movement of goods, services, capital, and people, impacting the cruise industry by promoting a unified market.

- The **Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention)** aims to safeguard the Caribbean Sea from pollution.

- The **Eastern Caribbean Regional Ocean Policy** (ECROP) - adopted under the Organisation of Eastern Caribbean States (OECS) - sets a framework for the sustainable use of ocean resources, including those related to the cruise industry.

- The **RAC-Rempeitc** (Regional Marine Pollution Emergency, Information, and Training Center for the Wider Caribbean) assists countries to implement international conventions designed to reduce pollution from ships, while **RAC-Spaw** (Specially Protected Areas and Wildlife) aims to protect endangered species and habitats.

79 IMO, (2019): "Convention on International Regulation for Preventing Collision at Sea (COLREGS)".

80 IMO, (2019): "International Convention on Standards of Training, Certification and Watchkeeping for Seafarers" (STCW).

81 Österman, C., Hult, C., & Praetorius, G. (2020): "Occupational safety and health for service crew on passenger ships". Safety science, 121, 403-413.

82 IMO, (2019): "International Convention for the Prevention of Pollution from Ships (MARPOL)" The International Convention for the Prevention of Pollution from Ships (MARPOL) includes regulations aimed at preventing and minimising pollution from ships - both accidental pollution and that from routine operations - and currently includes six technical Annexes. Special Areas with strict controls on operational discharges are included in most Annexes. In particular, the Annexes are dedicated to: Annex I Regulations for the Prevention of Pollution by Oil (1983), Annex II Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk (1987), Annex III Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form (1992), Annex IV Prevention of Pollution by Sewage from Ships (2003), Annex V Prevention of Pollution by Garbage from Ships (1988), and Annex VI Prevention of Air Pollution from Ships (2005).

83 Pallis, A. A., Papachristou, A. A., & Platias, C., (2017): "Environmental policies and practices in Cruise Ports: Waste reception facilities in the Med". SPOUDAI-Journal of Economics and Business, 67(1), 54-70.

84 Österman, C., Hult, C., & Praetorius, G. (2020): "Occupational safety and health for service crew on passenger ships". Safety science, 121, 403-413.

The **key organisations** include:

- The **Caribbean Tourism Organization (CTO)** develops sustainable tourism policies, such as the CTO, 2020.[85] This framework focuses on preserving natural resources, promoting cultural heritage, and enhancing community involvement in tourism.

- The **Organization of Eastern Caribbean States (OECS)** is a regional organisation comprising several Eastern Caribbean countries. It aims to promote economic integration, harmonise policies, and foster cooperation among its member States. The OECS covers various areas, including maritime safety, environmental protection, and tourism development. Specifically, it promotes maritime safety and environmental protection through regional initiatives aligned with international standards and fosters collaborative projects, including port infrastructure improvements and marine pollution control.

- The **Caribbean Shipping Association (CSA)** focuses on promoting the interests of Caribbean shipping, improving maritime safety, environmental protection, and industry standards.

- The **Association of Caribbean States (ACS)** launched the ACS, 2020[86] to promote sustainable tourism practices, including in the cruise sector, to protect the region's natural and cultural resources.

- **The Caribbean Community and Common Market (CARIFORUM)** engages in dialogue and agreements with various international partners through the *Economic Partnership Agreement* (EPA).[87] These agreements facilitate trade and investment, impacting the cruise tourism sector by enhancing infrastructure, fostering economic growth, and improving regulatory standards.

The Caribbean has established a strong foundation for sustainability through regional cooperation and agreements such as CARICOM, the Cartagena Convention and the OECS. Yet, specific challenges remain in the cruise sector, particularly in ensuring equitable benefits and environmental sustainability. Enhanced, cruise-specific, multi-stakeholder collaboration is essential to securing a more sustainable future for the industry in the region.

4.2.2.2 Mediterranean Region

As the second most popular region for cruise tourism, the Mediterranean region has a number of frameworks that regulate the industry's operations. Regulatory efforts are mainly bolstered by UNEP/MAP through agreements such as the Barcelona Convention and its Protocols.

Key regional agreements include:

- **Barcelona Convention:** formally known as the Convention for the Protection of the Mediterranean Sea Against Pollution, the Barcelona Convention (BC) is a regional environmental agreement that aims to protect the Mediterranean Sea from pollution. It partially regulates cruise ships through broad environmental measures (e.g. MARPOL) aimed at preventing pollution and protecting biodiversity via protocols on pollution control, waste management, and emissions. The protocols concerning **Cooperation in Preventing Pollution from Ships (1995)**, **Protection of the Mediterranean Sea against Pollution from Land-Based Sources** and **Hazardous Wastes** apply to cruise ships to avoid marine pollution and waste brought ashore for disposal.

- The **Mediterranean Strategy for Sustainable Development (MSSD)** is a regional sustainability framework aimed at promoting sustainable development across the Mediterranean region within the **Barcelona Convention.** It provides a strategic guidance document for regional cooperation, emphasising the integration of environmental considerations into socio-economic development. One of its objectives covers the **Blue and Green Economy,** including **coastal and marine tourism and cruise activities.**

- The **Mediterranean Memorandum of Understanding (MoU) on Port State Control** is a formal agreement among 11 Mediterranean countries[88] to enforce international maritime safety, security, and environmental standards. It establishes obligations for port inspections and compliance monitoring to ensure safe and environmentally friendly maritime operations.

Key regional organisations include:

- **UNEP/MAP:** Initiated by the United Nations Environment Programme (UNEP), the **Mediterranean Action Plan** (MAP) is an environmental policy framework for regional cooperation. It supports the implementation of the **Barcelona Convention** and its Protocols and promotes sustainable development in the Mediterranean. This MAP involves monitoring and controlling pollution, protecting biodiversity, and ensuring sustainable resource use, benefiting both the shipping and cruise sectors.

The **Regional Activity Centers** (RACs) most relevant for the cruise sector include:

- **Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC),** focused on enhancing regional cooperation in preventing and responding to marine pollution incidents.

- **Regional Activity Centre for Specially Protected Areas** (RAC/SPA), dedicated to the protection of biodiversity and the management of specially protected areas, it provides guidelines for sustainable tourism and eco-friendly practices.

- **Regional Activity Centre for Sustainable Consumption and Production** (MedWaves), promoting cleaner production and sustainable consumption patterns through guidelines for various industries, including tourism.

85 Caribbean Sustainable Tourism Policy Framework

86 Sustainable Tourism Zone of the Greater Caribbean (STZC)

87 Barbados Ministry of Foreign Affairs and Foreign Trade, (2020): "The CARIFORUM EU Economic Partnership Agreement".

88 The MoU includes maritime authorities from: Algeria, Croatia, Cyprus, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, Tunisia, and Türkiye. https://www.medmou.org/MS.aspx

- **Plan Bleu,** supporting the transition towards a green and blue economy, acting as the **Mediterranean Observatory on environment and sustainable development.**

- **MedCruise Association:** Medcruise represents Mediterranean cruise ports and promotes the interests of its members by enhancing the cruise experience and marketing the Mediterranean as a premier cruise destination. It facilitates collaboration among ports, cruise lines, and other stakeholders to sustain cruise tourism and improve infrastructure and services.

Similarly to the Caribbean, the Mediterranean region has a partial regulatory framework for cruise tourism, primarily through the Barcelona Convention and UNEP/MAP initiative. While these initiatives focus on pollution control and biodiversity protection, stronger collaboration between ports, cruise operators, and environmental bodies is needed to better safeguard the Mediterranean's environmental and socio-economic balance.

4.2.2.3 Western Indian Region

As an emerging destination for cruise tourism, the Western Indian Ocean region presents a number of regulatory mechanisms that impact the shipping and cruise industry, including:

- **The Indian Ocean Rim Association (IORA)** is a regional intergovernmental organisation established in 1997 to promote cooperation and sustainable development within the Indian Ocean region. With 22 member States and 10 dialogue partners, IORA focuses on four main objectives: fostering regional integration, enhancing maritime safety and security, promoting economic growth, and addressing environmental challenges in the Indian Ocean. IORA operates through working groups and task forces addressing key sectors, including maritime safety, fisheries management, tourism, and environment. Additionally, it fosters collaboration in maritime safety, search and rescue operations, marine pollution response, and port management practices.

The **Nairobi Convention for the Protection, Management and Development of Coastal and Marine Environment of the Western Indian Ocean (WIO)** region is a regional agreement aimed at fostering cooperation among WIO countries to safeguard the marine and coastal environment. Adopted in 1985, its objectives include preventing, reducing, and controlling pollution from land-based sources, as well as protecting and managing coastal and marine biodiversity. For the shipping and cruise sector, the Nairobi Convention supports the development of sustainable ports through scenario analysis[89] and toolkits[90] for sustainable port facilities and operations within the blue economy context. Additionally, Article 12 of the Amended Nairobi Convention (2015)[91] requires Parties to collaborate on pollution emergencies, leading to initiatives such as the Regional Oil Spill Preparedness in Eastern Africa and the Western Indian Ocean.[92]

As an emerging cruise destination, the WIO has adopted these frameworks, which address maritime safety, environmental protection, and port sustainability. However, further efforts are needed to develop cruise-specific guidelines and enhance regional cooperation, ensuring the sector's sustainability while balancing economic and environmental priorities.

4.2.2.4 Cross-Regional Framework

The **regulatory landscape** governing the cruise tourism sector varies significantly across regions, leading to varying levels of regulations and degrees of attention to sustainability of the sector. These **regulatory disparity** among regions can create **inconsistencies and loopholes**, potentially weakening global oversight of cruise activities. Mitigating these risks requires **strong cooperation among regions,** specifically in cruise tourism, to align international, regional, national and destination-level regulations with sustainability targets.

Moreover, while regional agreements and frameworks demonstrate active intergovernmental and multi-sectoral cooperation, the absence of region-specific mechanisms for cruise tourism may hinder efforts to create a cohesive regulatory environment that effectively regulates and incentivises sustainable cruise operations.

4.2.3 National and Local Regulations

National and local regulations play a crucial role in shaping the operational framework of cruise tourism and its impacts worldwide. These regulations are developed within each country's legal framework and are enforced by national governments and local authorities. National governments, maritime authorities, national environmental agencies and health departments design and implement national regulations on maritime safety, pollution prevention, and labour standards, ensuring alignment with international conventions. The following examples, in Box 1, illustrate how national and local authorities have applied regulations to mitigate the negative externalities of cruise tourism.

89 United Nations Environment Programme, Nairobi Convention Secretariat and Council for Scientific & Industrial Research, (2023): "Towards Sustainable Port Development in the Western Indian Ocean. Scenario Analysis." UNEP, Nairobi, Kenya

90 Ibid.

91 United Nations Environment Programme, (2015): "The Amended Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean (Amended Nairobi Convention)". Mahe, Seychelles.

92 United Nations Environment Programme / Nairobi Convention and the International Maritime Organization, (2020): "Regional Oil Spill Preparedness in Eastern Africa and the Western Indian Ocean: Background Document."

Box 1. National and Local Cruise Tourism Regulations

Examples from the Caribbean region

Passenger Head Tax - Port Fees

In the late 1990s, CARICOM countries, with the support of the Caribbean Tourism Organisation (CTO), sought to introduce a regional "head tax" of approximately $20 per passenger to address the economic and environmental impacts of cruise tourism. However, industry disagreements over the tax rate led to the initiative's collapse, with countries pursuing their own policies instead. Currently, the Bahamas and the British Virgin Islands impose a $15 head tax, with revenue reinvesting into tourism infrastructure. Some countries, like Aruba and the British Virgin Islands, also impose environmental protection fees to fund conservation projects.[93]

Environmental regulation

The Bahamas and Barbados enforce strict regulations regarding ballast water and waste discharge. It is illegal for cruise ships to discharge untreated sewage, greywater, or oily waste into their waters. Cruise ships must treat it onboard or discharge it at designated port facilities . As a community-driven, innovative initiative, the Barbados Marine Spatial Plan[94] has also been implemented to manage marine resources,reduce pollution, and regulate environmental issues related to cruise industry activities.

Green Port Initiatives

St. Lucia and St. Vincent and the Grenadines are actively participating in the Caribbean Green Economy Initiative,[95] which promotes sustainable port operations,including reducing the environmental impact of cruise ships through measures such as waste reduction, energy efficiency, and the promotion of eco-friendly shore excursions.

Examples in Europe

Venice

Over the past decade, the number of cruise ships visiting Venice annually has grown significantly, with their size doubling. This has raised concerns about the environmental degradation and prompted calls for a sustainable development plan.[96] In 2021, the Italian government banned cruise ships and other large vessels from the Venice Lagoon, redirecting them to the nearby industrial port of Marghera.[97] Additionally, cruise ships are required to use cleaner fuels and advanced technologies to minimise emissions. The enforcement of these measures is overseen by the Venice Port Authority and Italian environmental agencies. However, critics argue that relocating large cruise ships to the industrial port of Marghera does not fully address the environmental issues, as it merely shifts the pollution. Moreover, ensuring compliance with cleaner fuels and advanced technologies is challenging due to limited enforcement resources. There are also concerns about the economic impact on Venice's tourism sector and the adequacy of Marghera's infrastructure to handle the redirected cruise traffic efficiently.[98] This underscores the need for coordinated regional or national action to address the cruise industry's environmental impact effectively. Furthermore, tackling the broader issue of overtourism requires a multifaceted approach that goes beyond regulating cruise ships and includes measures to manage the influx of visitors from all transport modes.[99] Ultimately, effectively addressing the environmental impact of the cruise industry and the broader problem of overtourism requires coordinated regional or national strategies and a holistic approach that considers all modes of transport. Simply shifting the problem is not a sustainable solution.

Amsterdam

A decision approved by Amsterdam City Council aims to ban large cruise ships from the city's central terminal to reduce pollution, manage the flow of tourists, and align with Amsterdam's sustainability goals. This is also intended to reduce the negative impact of cruise tourism on the environment and local infrastructure.[100] The city has reached an agreement to begin limiting the number of cruise ship calls at the port starting in 2026. It is part of a broader plan to eventually remove the cruise terminal from the city and better manage the influx of tourists. According to the recently disbanded Amsterdam Cruise Port foundation, the city previously received as many as 150 cruise calls annually and handled over 300,000 passengers. In 2026, the new limit will be set at a maximum of 100 calls per year.

Norway

Norway has devised an ambitious strategy to cut emissions from cruise ships. The country welcomed nearly 5 million cruise ship passengers in 2023,[101] with ships collectively consuming approximately 170 million litres of fuel annually, contributing around 3 percent of Norway's total greenhouse gas emissions. While most fuel is burned at sea, approximately 20 percent—equivalent to nearly 34 million litres—is consumed while ships are in port or navigating fjords.[102] To address these concerns, in 2022, the Ministry of Climate and Environment tasked the Norwegian Maritime Authority (NMA) with developing plans to achieve zero emissions from cruise ships, tourist boats and ferries in fjords. Starting in 2026, only ships powered by alternative fuels will be permitted to visit the country's fjords, aiming to safeguard its unique natural landscapes from the adverse effects of marine diesel oil and unchecked tourism. Even liquefied natural gas (LNG), previously considered a cleaner option, will no longer meet the standards for cruise ships operating in Norwegian fjords.[103]

Source: Authors (2024)

93 Government of Virgin Islands, (2018): "Visitors to the Virgin Islands are being reminded of the Environmental and Tourism Levy."
94 Barbados Marine Spatial Plan
95 UNEP, (2024). "Assisting Caribbean States' Sustainable Development through Green Economy (ACSSD-GE)"
96 Figueroa D., (2021): "Italy: Cruise Ships Banned from Venice Lagoon, Waterways Declared National Monument." The Library of Congress.
97 Ibid.
98 Giuffrida A., (2022): "Cruise passengers shuttled into Venice by motor boat to dodge big ships' ban." The Guardian.
99 Lall, D. (2024): "Venice Doubles Tourist Entry Fee: A Bold Step Towards Sustainable Tourism". Europe Incoming.
100 CruiseCritic, (2023): "Amsterdam Votes to Ban Cruise Ships; Additional Steps Still Required."
101 Hanley S., (2024): "Norway Moves Aggressively To Curb Cruise Ship Emissions." Clean Technica.
102 Ibid.
103 Ibid.

© Boat in Caribe. S. Bush/Pexel

These case studies highlight the importance of national and local authorities in complementing existing international and regional frameworks that regulate the impact of cruise tourism. However, countries have varying capacities and resources to **enforce regulations and ensure compliance**, which has contributed to the proliferation of the "flags of convenience" practice. This allows cruise ships to register in countries with more lenient regulatory frameworks, complicating enforcement and undermining transparency efforts[104]

The prevalence of flags of convenience underscores the challenges of regulating the cruise sector at the national level and the need for cohesive, collaborating regulatory governance mechanisms at the marine regional level. These shortcomings are further exacerbated by the **intense competitiveness** within the industry, which leads States and cruise lines to prioritise economic gains over stringent regulatory compliance, resulting in regulatory arbitrage and lapses in safety and environmental standards.[105]

104 Negret, C. F. L., (2016): "Pretending to be Liberian and Panamanian; Flags of Convenience and the Weakening of the Nation State on the High Seas". J. Mar. L. & Com., 47, 1.7.

105 Ford, J. H., & Wilcox, C., (2019): "Shedding light on the dark side of maritime trade–A new approach for identifying countries as flags of convenience". Marine Policy, 99, 298-303.

5. Challenges and Opportunities for a Sustainable Cruise Sector

Given the significant environmental, social, and economic externalities associated with the cruise sector, there is a pressing need for both public and private decision-makers to prioritise sustainability within the sector. This involves aligning international efforts to reduce greenhouse gas emissions and protect biodiversity. This section highlights the key challenges and opportunities in fostering a more sustainable cruise tourism sector.

5.1. Challenges for a Sustainable Cruise industry

The cruise sector faces several challenges that hinder its sustainability. On the supply side, while many leading cruise companies recognise the urgent need to transition towards more sustainable practices, **short-term financial gains** often take precedence over long-term sustainability goals.[106] This can lead to decisions that prioritise immediate financial benefits over broader environmental and social considerations. A short-term focus may enable cruise lines to maximise profits in the near term, potentially undermining long-term environmental conservation efforts.[107] Consequently, this highlights the need for cruise governance that increasingly favours cooperation and sustainability. **Governance and regulatory challenges** can be categorised into two areas: i) issues in the current design of regulations, at different levels, including gaps, fragmentation, and inconsistencies across jurisdictions; and ii) challenges in the implementation phase of these regulations, due to weak enforcements at various levels.

5.1.1. Regulatory Gaps and Loopholes

The cruise sector is governed by varying regulatory frameworks across different jurisdictions, creating inconsistencies in the regulatory landscape and limiting the needed coherence and uniformity.[108] International organisations, such as the IMO, ILO, and UNEP, set baseline standards for safety and environmental protection due to their global scope, while also leading the effort to reduce greenhouse gas emissions from ships. For example, the IMO has introduced initiatives like fuel restrictions and committed to achieving net-zero emissions by around 2050.[109] However, individual countries are responsible for interpreting and implementing these standards. As a result, countries may adopt stricter or weaker regulations, resulting in a complex web of rules. For instance, national regulations vary in the degree of focus on sustainability, leading to different levels of effort by cruise lines to implement eco-efficiency practices.[110] This inconsistency can make compliance challenging for cruise lines operating across multiple itineraries.

Jamaica, Mauritius, and Turkey represent varying levels of effort in regulating the sustainability of the cruise sector, primarily due to differences in the application and enforcement of international conventions. **Jamaica,** for instance**,** has faced challenges in enforcing waste management regulations for vessels, especially in smaller ports where limited monitoring capacity has allowed some ships to discharge sewage into the ocean.[111] While the country has adopted MARPOL's pollution prevention standards, its enforcement remains weaker compared to stricter regions like the U.S. and EU. Nonetheless, Jamaica has made progress in marine protection through the establishment of marine protected areas (MPAs) and regulations aimed at controlling pollution from cruise ships.

Mauritius has faced challenges in enforcing shipping regulations, particularly concerning waste management and oil spill responses. The 2020 MV Wakashio oil spill exposed[112] significant gaps in the country's implementation of environmental and safety regulation. Despite adhering to international conventions, Mauritius' maritime industry is still developing its capacity for monitoring and compliance.

Turkey, which experiences high maritime traffic through the Bosporus Strait, also faces challenges in enforcing environmental and safety regulations. While the government has made efforts to regulate air pollution from ships and adheres to MARPOL Annex VI, enforcement remains inconsistent, particularly outside EU waters. Turkey's oversight of ballast water management and oil spill preparedness has been criticised, highlighting the country's limited capacity to control illegal discharges and emissions, especially in comparison to stricter EU enforcement in the Mediterranean.

Other countries, such as **The Bahamas, Seychelles, and Greece,** have adopted proactive measures, often exceeding the minimum IMO requirements to ensure stricter environmental protection and safety compliance. These disparities contribute to a fragmented regulatory landscape, where enforcement and compliance vary based on each country's priorities and capabilities. In all cases, the varying levels of enforcement highlight the challenges countries face in aligning their national legislation with international sustainability standards for the cruise sector. These differences result in inconsistent approaches to compliance, driven by varying resources and capacities.

Moreover, not all potentially harmful impacts of cruise tourism are regulated at the global level. For example, the limited global regulations on **greywater discharge** into the sea is one area that needs further attention. Local bans on the discharge of greywater have been set by individual States, e.g. The

106 Jones, P., Comfort, D., & Hillier, D., (2019): "Sustainability and the world's leading ocean cruising companies". Journal of Public Affairs.

107 Avagyan, A., (2022): "Addressing the Criticism on Flags of Convenience: Should Flags of Convenience Be Abolished for the Cruise Industry?" Southwestern Journal of International Law 28, 129-147

108 Boy, C., & Neumann, S. (2012): "Regulatory frameworks of the cruise industry." The business and management of ocean cruises. CABI, Wallingford/Cambridge, 30-45.

109 IMO, (2023): "IMO Strategy on Reduction of GHG Emissions from Ships."

110 Sun, R., Ye, X., Li, Q., & Scott, N., (2024): "Assessing the eco-efficiency of cruise tourism at the national Level: Determinants, challenges, and opportunities for sustainable development". Ecological Indicators, 160, 111768.

111 World Bank, (2019): "Marine Pollution in the Caribbean:Not a Minute to Waste."

112 Scarlett, et al. (2021): "MV Wakashio grounding incident in Mauritius 2020: The world's first major spillage of Very Low Sulfur Fuel Oil."

Bahamas and Barbados. Although it is less contaminated than sewage, grey water contains components of concern.[113]

Regulatory gaps are also evident at the jurisdiction and port levels, particularly in the **enforcement of safety and environmental regulations by flag States**. Attention has been given to the **discharge of wash water** from open-loop scrubbers impacting ecosystems[114] with countries taking steps in regulating the discharge and some not indicating gaps in their regulatory framework on open loop scrubbers. Below is a list of countries that, as of June 2024, did not have regulations ... on fully banning open loop scrubbers:

Table 3. Countries Permitting Open-Loop Scrubber Discharge

Country	Open-Loop Scrubber Regulation
Hong Kong	While there is no explicit ban on EGCS (Exhaust Gas Cleaning System) wastewater, Hong Kong's regulation L.N 135 of 2018 permits an exemption from the use of non-compliant fuel if authorities are satisfied with the abatement technology employed to reduce sulphur dioxide emissions.
New Zealand	New Zealand has issued non-statutory guidance on the use of exhaust gas cleaning systems (scrubbers) for ships, ports, and regional authorities. Although not legally binding, the guidance encourages ships operating in New Zealand waters to engage with relevant authorities and, as a precaution, to avoid discharging scrubber effluent near shore. Suggested measures include using compliant low-sulphur fuel in sensitive environments or operating scrubbers in closed-loop mode, retaining effluent until it can be disposed of at the next available port facility.
United States (Hawaii)	The State of Hawaii's Clean Water Branch issued a 'Blanket Section 401' Water Quality Criteria (WQC), covering 27 categories of effluent discharge from applicable vessels, including Exhaust Gas Cleaning System (EGCS) wash water. These discharges, incidental to normal vessel operations, must undergo the best available control or treatment before entering Hawaii's waters.
United Arab Emirates	Abu Dhabi Ports has confirmed that, under national legislation, both closed- and open-loop exhaust gas cleaning systems are permitted within port limits, subject to certain restrictions. These systems must comply with IMO/MARPOL Annex VI requirements and standards.

Source: Elaborated from NorthStandard (2024)[115]

These gaps directly impact the ability to limit pollution locally.

In addition to the importance of having a comprehensive regulatory framework at the national level, it is crucial to integrate these regulations into regional mechanisms that foster cohesion and enable countries to strengthen their enforcement capacity. **Regional frameworks** can be effective by enhancing local self-reliance, addressing the competitive pressures on sustainability transitions, and counterbalancing the market power of the cruise industry.

Box 2. Examples of EU Shipping Decarbonization Regulations

Since 2023, the EU has been adopting a multi-pronged approach to decarbonizing the shipping industry, aiming for a 55% reduction in greenhouse gas emissions by 2030 and climate neutrality by 2050. Specifically, the **FuelEU Maritime Regulation**[116] (Regulation (EU) 2023/1805) promotes the use of renewable, low-carbon fuels and clean energy technologies for ships, which is essential for supporting decarbonisation in the sector. It has entered into force from January 2025.

FuelEU Maritime sets maximum limits for the yearly average greenhouse gas (GHG) intensity of energy used by ships above 5,000 gross tonnage calling at European ports, regardless of their flag. Targets will ensure that the greenhouse gas intensity of fuels used in the sector decreases gradually over time, starting with a 2% reduction by 2025 and reaching up to an 80% reduction by 2050. The Regulation also introduces additional zero-emission requirements for ships at berth, mandating the use of **on-shore power supply** (OPS) or alternative zero-emission technologies in ports for passenger ships and containerships, in order to mitigate air pollution emissions in ports, which are often located near densely populated areas.

Another example from EU is the **Emissions Trading System** (ETS),[117] which places a price on carbon emissions, including those from the shipping industry. It sets a cap on the total amount of greenhouse gases that can be emitted by covered entities. Companies must surrender allowances for every ton of CO_2 equivalent they emit. Shipping companies now included in the ETS will be required to monitor, report, and pay for their emissions. This is expected to incentivise them to reduce their carbon footprint, monitoring CO_2, methane (CH_4), and nitrous oxide (N_2O) emissions.

Non-mandatory guidelines for cruise sustainability[118], while valuable, do not always compensate for the lack of mandatory regulations. For example, a study conducted by the EU concluded that important gaps remain in the regulation of **food waste, grey water, underwater and over-water noise, black carbon, scrubber wash water, and mammal collisions**[119]. This is shown by **MARPOL Annex V,** which permits the discharge of certain materials, such as garbage, food waste, cargo residues (classified as non-harmful to the marine

113 Andersson, K., et al., (2016): "Shipping and the Environment. Springer Berlin Heidelberg."

114 Picone, et al., (2023): "Impacts of exhaust gas cleaning systems (EGCS) discharge waters on planktonic biological indicators."

115 North Standard, (2024): "No Scrubs: Countries and Ports where Restrictions on EGCS Discharges apply."

116 EU Regulation2023/1805 of the European Parliament, (2023): "FuelEU Maritime Regulation"

117 EU (2023): "What is the EU ETS?"

118 Plan Bleu, (2022): "Guidelines for the sustainability of cruising and recreational boating in the Mediterranean region."

119 European Commission, Directorate-General for Maritime Affairs and Fisheries. (2023): "Good Practices for Sustainable Cruise Tourism" - Final report. Publications Office of the European Union.

environment), cleaning agents and additives (classified as non-harmful to the environment), and animals carcasses.[120] While restrictions apply in special areas designated by IMO—such as the Mediterranean Sea, the Baltic Sea, the Black Sea, the Red Sea, the Gulf, the North Sea, the Wider Caribbean Region and the Antarctic area—these materials can still cause local environmental impacts in areas with heavy ship traffic.

5.1.2. Weak Monitoring and Enforcement

Regulatory inconsistencies and gaps, as highlighted earlier, expose a broader issue of **weak enforcement and compliance mechanisms** that undermine the effectiveness of existing regulations. Even when regulations are in place, enforcement shortcomings often render them ineffective due to several contributing factors. One key issue is the prevalence of the "**Flag of Convenience (FoC)**" (Box 2), where many cruise ships are registered in countries with more lenient regulations rather than operating under the jurisdiction in which they primarily sail.

This practice leads to weaker regulatory oversight and enforcement by flag States (or FoC), resulting in **lax adherence to international standards.** While Port States have the authority to inspect foreign ships and enforce compliance with international and national regulations, resource constraints and varying national priorities can lead to inconsistent enforcement across different ports.[121] Although many national and port authorities are responsible for monitoring cruise ship compliance when docked, they often lack the technology, financial resources, or jurisdiction to continuously track environmental compliance - especially concerning air pollution, waste disposal, and ballast water management. This limits their ability to enforce stringent standards effectively.[122] Furthermore, many ports depend on the cruise industry for revenue and tourism, creating potential conflicts of interest that may lead to leniency in enforcement.

Moreover, **weak institutions** and a **lack of coordination** between countries and regions—due to differing national rules on emissions, waste disposal, passenger limits, etc.—make it difficult to enforce consistent standards. Also, the lack of coordination between governing bodies within the same jurisdiction can also cause confusion over responsibilities between the Flag State , the port state, and international bodies in regulating cruise operations, both domestically and across borders.[123] This can result in buck-passing, inaction, and limited joint enforcement that would help ensure compliance with international rules and standards.

This inconsistency highlights the need for **cruise-specific regional cooperation** to improve enforcement and facilitate effective resource sharing. Examples of challenges in enforcing cruise regulations or promoting more sustainable practices can be seen in Key West, Florida, and Venice, Italy. **Key West** has struggled to enforce local regulations on cruise ships, particularly concerning passenger limits. The city has faced difficulties managing the size and number of cruise ships visiting its port, leading to overcrowding and placing pressure on local resources.[124]

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Similarly, **Venice** has faced significant challenges in regulating cruise ships due to high tourist traffic and lack of alternative infrastructure.[125] Regulations aimed at limiting the size and frequency of cruise ships entering the city's historic canals have seen inconsistent enforcement. These examples illustrate how **enforcement challenges**—exacerbated by weak compliance mechanisms and differing regulatory priorities—can undermine efforts to manage cruise tourism sustainably. They highlight the need for more robust regional cooperation and effective enforcement strategies to address these ongoing issues.

Given the global nature of cruise ship operations and the widespread use of flags of convenience, ensuring **compliance with regulatory requirements** becomes even more challenging. This compromises efforts to promote sustainability, protect

120 MARPOL, Annex V. "Prevention of Pollution by Garbage from Ships."

121 Ibid.

122 Tonazzini, D., Fosse, J., Morales, E., González, A., Klarwein, S., Moukaddem, K., Louveau, O. (2019): "Blue Tourism. Towards a sustainable coastal and maritime tourism in world marine regions". Edited by eco-union. Barcelona

123 C. Copeland, C. (2009): "Cruise Ship Pollution: Background, Laws and Regulations, and Key Issues."

124 The Maritime Executive, (2024): "Florida Permits Larger Cruise Ships in Key West Over Local Objections."

125 Euronews, (2023): "I've lived in Venice for 8 years. Why are cruise ships still stopping here when they've been banned?"

the environment, and safeguard the safety and well-being of workers and passengers aboard cruise ships.[126] Box 2 provides a detailed explanation of the role of "flags of convenience" in the context of cruise tourism and its sustainability.

Box 3. Flag States and Flags of Convenience (FoC) in the Cruise Industry

The Flag State of a ship refers to the country in which the ship is registered and whose flag it flies. This registration creates a legal connection between the vessel and the country, subjecting the ship to that nation's laws and regulations. All countries with a shipping registry are Flag State s. Flag states play a crucial role in regulating shipping and ensuring compliance with international maritime law.[127]

The practice of registering ships under a "**Flag of Convenience**" (FoC) occurs when a cruise company registers its vessels in a foreign country with more lenient regulations than those of its home nation. These countries, often referred to as "**Flag States**", offer various incentives such as lower taxes, minimal regulatory oversight, and weaker labour laws, making them attractive to businesses seeking to reduce operational costs.[128]

One of the primary advantages of using a FoC for cruise companies is the ability to benefit from **lower taxes** in the Flag State . Many of these countries offer tax breaks to attract ship registrations, allowing cruise companies to reduce their tax liabilities significantly, keeping more profits while avoiding higher corporate taxes in their home countries.[129] FoC countries also tend to have less stringent **labour regulations,** enabling cruise companies to circumvent more rigorous worker protections required under domestic law. For example, minimum wage standards, working conditions, and safety regulations are often less strictly enforced.[130]

Additionally, many Flag States do not rigorously enforce international **environmental standards** related to waste disposal, emissions control, or pollution. As a result, cruise companies are able to engage in practices such as discharging waste into international waters or burning high-pollution fuels without facing significant penalties or oversight.[131] While FoC practices offer significant economic advantages to cruise companies, they often come at a cost to sustainability, labour rights, and environmental protection. These regulatory gaps allow the cruise industry to continue practices that contribute to environmental degradation and social inequities.

5.2. Regulatory and Governance Opportunities

Global and regional organizations, as well as related instruments, can assist with regulatory assessment at various levels. In collaboration with national entities, they can identify actions to make cruise tourism operations more sustainable, such as reducing emissions, improving waste management, and enforcing environmental regulations.

5.2.1. Carbon Emission Regulations

International organisations such as the **IMO** play a leading role in reducing shipping emissions, particularly greenhouse gas emissions from the industry. Through various initiatives, such as setting limits on the sulfur content of fuels and promoting the transition to cleaner alternatives, the IMO is paving the way for international regulations that will significantly reduce air pollution from ships.[132]

The **2023 IMO GHG Strategy** specifically aims to reduce the carbon intensity of international shipping by at least 40% by 2030. It also sets a target for zero or near-zero GHG emission technologies, fuels and energy sources to account for at least 5%—striving for 10%—of energy used by international shipping by 2030.[133] The revised strategy includes indicative checkpoints: a 30% reduction in emissions by 2030 (with a minimum of 20% compared to 2008), and an 80% reduction by 2040 (with a minimum of 70%).[134] However, concerns remain regarding the IMO's slow progress on shipping decarbonization, which may lead to fragmented regulatory approaches, with blocs like the EU potentially acting independently.[135] The IMO's structure hinders stricter environmental regulations,[136] as it's constrained by its member states' pace.[137] Additionally, decarbonization efforts cannot rely solely on the IMO; the contributions of flag and port states are invaluable.Some also argue for market-based measures, such as a "polluter pays" system, to incentivize the adoption of cleaner fuels and technologies, which currently struggle to compete with low-cost fossil fuels.[138]

Beyond the IMO's global initiatives, regional efforts are also driving a cleaner shipping industry. In particular, the United States and the European Union have implemented **shore power** requirements for ships in their ports.[139] This "cold ironing" practice, which requires ships to use shore power while docked, eliminates emissions from idling engines, thereby improving air quality in port cities. These regulations are also increasingly driven by a growing awareness of the impact of shipping emissions on climate change and marine biodiversity.

126 Avagyan, A., (2022): "Addressing the Criticism on Flags of Convenience: Should Flags of Convenience Be Abolished for the Cruise Industry?". Southwestern Journal of International Law 28, 129.

127 United Nations, (1994): "United Nations Convention on the Law of the Sea (UNCLOS)". Articles 91, 92, and 94.

128 Ibid..

129 Boczek, B.A., (1962): "Flags of Convenience: An International Legal Study," Cambridge, MA and London, England: Harvard University Press, .

130 Negret, CFL. (2016): "Pretending to be Liberian and Panamanian; Flags of Convenience and the Weakening of the Nation State on the High Seas." J. Mar. L. & Com. 47

131 Demaria, F., (2010): "Shipbreaking at Alang–Sosiya (India): An ecological distribution conflict." Ecological Economics.

132 IMO, (2023): "IMO Strategy on Reduction of GHG Emissions from Ships."

133 IMO, (2023): "IMO Strategy on Reduction of GHG Emissions from Ships."

134 Fricaudet, M. (2024). Shipping in transition: IMO's timely negotiations for a net-zero Future. IDDRI

135 Henrik Selin et al 202. Mitigation of CO_2 emissions from international shipping through national allocation.

136 Monios J. , Adolf K.Y. N. (2021). "Competing institutional logics and institutional erosion in environmental governance of maritime transport."

137 Bach H.,Hansen T. (2023). "IMO off course for decarbonisation of shipping? Three challenges for stricter policy."

138 Psaraftis, H. N., Zis, T., & Lagouvardou, S. (2021). "A comparative evaluation of market based measures for shipping decarbonization." Maritime Transport Research, 2, 100019.

139 EU (2025). "New EU rules aiming to decarbonise the maritime sector take effect"

5.2.2. Sustainable Governance Measures

Organisations such as the IMO, ILO, and UNEP, can also support the establishment of sector-specific governance mechanisms to oversee the environmental and operational practices of the cruise sector. Existing frameworks, such as the MARPOL regulations, provide a solid foundation for expanding sustainability measures within the cruise sector. Since its inception in 2005 to address ship-related air pollution, MARPOL Annex VI has undergone amendments that have broadened its scope and tightened environmental standards. A notable example is the IMO 2020 regulation, which mandated a significant reduction in ships' allowable sulphur content in fuel oil from 3.5% to 0.50%.[140]

Similarly, several regional and national authorities have introduced additional regulations and initiatives to complement MARPOL Annex V. For example, efforts to reduce **plastic pollution** from ships, such as the **EU Directive on Port Reception Facilities for the Delivery of Waste from Ships**,[141] provide opportunities for sharing best practices and scaling successful regulatory models across other regions or expanding initiatives to larger geographical areas.

Additionally, existing international organisations (IMO, ILO, and UNEP) can function as platforms to harmonise national regulatory frameworks and align them with common regional objectives. This can be achieved through global forums, policy roundtables, and collaborative initiatives. These organisations can also promote collaboration among stakeholders with varying interests. Moreover, intergovernmental organisations can develop and enforce strict regulations, identify gaps in existing policy, address loopholes, and facilitate knowledge sharing and collaboration. Regional bodies, such as the **Organization of Eastern Caribbean States** (OECS) or the European Union, can enhance regional cooperation and tailor regulations to address specific regional challenges and needs.

For example, the **European Union** has taken proactive steps to regulate the environmental impact of shipping. Notably, the EU's **"Fit for 55"**[142] package includes regulations requiring both ships and ports to connect to shore-side electricity by 2030. This initiative aims to reduce air pollution and greenhouse gas emissions from ships at berth.

Furthermore, **national governments** can implement stricter environmental and safety standards for cruise ships calling at their ports. They can also incentivize the use of cleaner technologies and fuels, and invest in port infrastructure to support sustainable practices. Two good examples are the United States and Norway. The **U.S. Environmental Protection Agency** (EPA) has established regulations for cruise ship discharges, including wastewater and air emissions, as well as **Vessel General Permits** (VGPs) that set pollutant standards.[143] Meanwhile, **Norway** has been a leader in regulating cruise ship emissions, particularly in its fjords, by implementing strict **NOx emission limits** and advancing policies to transition towards **zero-emission cruise ships** in the future.[144]

140 IMO, (2023): "The 2020 global sulphur limit - Frequently Asked Questions."
141 EUR-Lex, (2022): "Port facilities for waste from ships, including cargo residues".
142 European Commission, (2021): "EU's "Fit for 55"
143 U.S. Environmental Protection Agency, (2008). "Vessel General Permit (VGP)."
144 The Maritime Executive, (2021). "Norway Sets Its Sights on Emission-Free Cruise Ships."

5.2.3. Enhancing the Role of Ports Destinations

The role of ports in enhancing the sustainability of the cruise industry is crucial, as they serve as key hubs where land and sea operations intersect. Ports offer significant opportunities to pilot innovative solutions that mitigate environmental impacts. While **Emission Control Areas** (ECA) are -designated by the IMO, ports have the legal capacity to implement their own local regulations, which can impose even stricter emission limits and waste treatment requirements.[145] Ports' environmental regulations could include lower sulfur limits, restrictions on scrubber discharge, and stricter control on pollutants such as NOx. Additionally, ports can encourage or mandate ships to connect to shore-side electricity while at berth. By providing **shore power facilities,** ports enable ships to connect to the local electrical grid instead of running their engines, significantly reducing air pollution, greenhouse gas emissions, and noise pollution—benefiting both the environment and local communities.

California has been a leader in promoting shore power for ships. The California Air Resources Board (CARB) has implemented regulations requiring container ships, refrigerated cargo ships, and cruise ships to use shore power in California ports.[146] Many ports in the state have already established shore power infrastructure and programs to encourage its use. In Europe, the Alternative Fuels Infrastructure Regulation (AFIR) plays a key role in accelerating the deployment of alternative fuels infrastructure. It mandates that TEN-T (trans-European transport network) ports provide shore-side electricity for container and passenger ships above a certain size by 2030, aiming to reduce emissions by ships at berth.[147]

Port states can enforce these standards through inspections, monitoring, and penalties for violations. They can also incentive ships that meet or exceed environmental standards by offering reduced port fees or priority berthing, encouraging the adoption of cleaner technologies and practices regardless of their Flag State . This can potentially deter ship owners from registering under flags of convenience to avoid stricter regulations. Notable examples of efforts to address regulatory and governance gaps include the European Union, which has implemented regulations on sulfur emissions and shore-side electricity that apply to all ships calling at EU ports,[148] regardless of their Flag State . Similarly, the United States has established regulations on ballast water management and air emissions that apply to all ships entering U.S. waters.[149]

Ports can also implement advanced **waste management systems** to ensure the proper handling, recycling, and disposal of ship-generated waste, supporting the circular economy and reducing the environmental footprint of cruise operations. For example, the Port of Vancouver[150] offers reduced fees or discounts to cruise ships that meet specific environmental criteria, such as low emissions or efficient

145 Molenaar, E. J. (2007). "Port State Jurisdiction: Toward Comprehensive, Mandatory and Global Coverage". Ocean Development & International Law, 38(1–2), 225–257.
146 California Air Resources Board, (2020): "Ocean-Going Vessels At Berth Regulation"
147 European Commission (2023): "Deployment of alternative fuels infrastructure, and Directive 2014/94/EU"
148 Eropean Commission (2023): "Deployment of alternative fuels infrastructure, and Directive 2014/94/EU"
149 The Maritime Executive, (2021): "Norway Sets Its Sights on Emission-Free Cruise Ships."
150 Port of Vancouver, (2024): "Port of Vancouver Environmental Programs."

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waste management. Additionally, ports have the potential to act as centres of innovation by adopting and promoting the use of cleaner fuels, such as hydrogen, and facilitating their bunkering. Moreover, ports can drive sustainability across the cruise industry by setting stringent **environmental standards** for visiting ships. For instance, the Venice Port Authority has introduced enforcement measures to ban cruise ships that do not use cleaner fuels and advanced technologies to minimise emissions. Through these efforts, ports play a critical role in shaping the environmental performance and long-term sustainability of the cruise sector.[151]

Ports can also form **voluntary agreements** to collaborate on sustainability initiatives, share best practices, and set common goals for reducing emissions and waste. Many ports worldwide—for example, Houston, Barcelona, London, andTokyo —are part of the **World Ports Sustainability Program**, which promotes collaboration between ports on sustainable development.[152] Furthermore, integrating local supply chains into the sustainability strategies of cruise destinations can enhance both the environmental and economic outcomes for the entire destination region. To foster such integration, port destinations can collaborate with cruise lines to ensure that resources and services are sourced from local and more sustainable suppliers. The supply of food and beverage items in cruise liner operations constitutes an essential part of the services provided to onboard vacationers. While the embarkation port is the primary stock-loading point, other ports can also play a role in keeping the ship well-stocked with fresh and diverse food options throughout the voyage. Fresh products are often pre-arranged and sourced locally at specific ports chosen strategically.[153]

Prioritising **partnerships with local suppliers** - such as farmers, artisans, and businesses - not only strengthens the resilience of cruise destinations through more sustainable operations but also promotes more authentic and responsible tourism experiences. A notable example comes from the small-scale cruise operators in the Western Indian Ocean.[154] This shift towards locally sourced supply chains can create a ripple effect, encouraging cruise companies and their passengers to embrace sustainable consumption patterns, further embedding sustainability throughout the cruise tourism value chain.

151 Ibid.

152 Ninan, J. (2023): "Ports for SDGs: An Ecosystem Perspective on Infrastructure Megaprojects". University of Leiden.

153 Véronneau, S., & Roy, J. (2009). "Global service supply chains: An empirical study of current practices and challenges of a cruise line corporation". Tourism Management, 30(1), 128-139.

154 Vanilla Islands https://www.vanilla-islands.org/en/solidary-trip/

5.3. Non-Regulatory Opportunities

5.3.1. Technological Innovation

Investing in **technological innovation** is crucial for enhancing the sustainability of the cruise sector. **Alternative fuels** to reduce emissions are being actively explored, particularly green ammonia, hydrogen, and methanol. These fuels have also been supported by regulatory tools such as FuelEU Maritime,[155] which regulates the GHGemissions of fuels. Alternative fuel solutions show promise due to their potential scalability and compatibility with modified internal combustion engines. **Synthetic e-fuels,** such as e-methanol produced from green hydrogen, are also gaining interest, while biofuels such as bioethanol may serve as transitional options due to the availability of feedstock.[156] However, each of these fuels present challenges: green hydrogen is costly to store and handle, ammonia raises toxicity concerns, and the sustainable availability of methanol feedstock remains uncertain. **Biofuels**, derived from renewable sources, have the potential to reduce GHG emissions compared to fossil fuels, but their sustainability depends heavily on production methods. Some biofuels compete with food production, contribute to deforestation, or require significant energy inputs, potentially negating their environmental benefits. Additionally, securing a sufficient supply of sustainable biofuels to meet the demands of the cruise industry remains a challenge.[157]

Beyond alternative fuels, technological advancements in engine controls and exhaust treatment systems play a key role in reducing emissions. Measures such as **Exhaust Gas Recirculation** (EGR) and exhaust gas after-treatment such as **Selective Catalytic Reduction** (SCR) can help capture black carbon, a major contributor to climate change.[158] SCR filters are effective in reducing NOx emissions but do not address particulate matter.A crucial yet often missing technology on cruise ships is **soot particle filters.**[159] which are highly effective in capturing black carbon and reducing both air pollution and climate impacts.

The viability of alternative fuels in the cruise industry depends on overcoming key limitations through continued research and development, expanding infrastructure for wider accessibility, enforcing regulatory frameworks, and incentivising competitiveness against conventional fuels. Additionally, investing in real-time **monitoring technologies,** such as sensors and satellite tracking, can provide accurate, up-to-date data on a ship's environmental performance. These technologies can track emissions, waste discharge, and fuel consumption, enabling more effective management and regulatory compliance. Real-time data also facilitates early issue detection, allowing for immediate corrective actions to minimise environmental impacts. Moreover, **hybrid cruise ships** are emerging as a solution, integrating electric propulsion to reduce emissions. However, **decarbonising** the shipping industry presents distinct challenges compared to road transport.[160] Given the size of vessels and the vast distances they cover, large-scale electrification via batteries is not yet feasible. While electrification holds promise for short-distance routes and smaller ships, alternative fuels remain essential for larger vessels undertaking long voyages.[161]

Therefore, accelerating the adoption of alternative fuels should be combined with energy efficiency measures to reduce overall fuel consumption. This includes optimizing hull design, implementing slow steaming practices, and utilizing wind-assisted propulsion technologies.[162] By integrating these strategies, the shipping industry can make meaningful progress toward decarbonization, even as it navigates challenges related to fuel availability and production.

5.3.2. The Role of Sustainability Standards

Sustainability standards play a role in shaping the environmental, social, and economic practices of the cruise sector. These standards help the industry minimise its negative impact on the environment—such as through waste management and emission reduction—while enhancing social responsibility and promoting sustainable tourismFor example, the **ISO 14001 environmental management system** provides a framework for cruise lines to establish effective waste management processes.[163] Meanwhile, MARPOL Annex VI[164] sets limits on air pollution from ships and designates the **North Sea Emission Control Area** (NECA), where stricter sulfur oxide (SOx) controls are enforced to reduce air pollution.[165] Similarly, the **Sulphur Emission Control Area (**SECA), covering regions such as the Mediterranean and North Sea, mandates the use of cleaner fuels.

Sustainability standards and **certifications** provide accountability and transparency, enabling helping cruise lines demonstrate their commitment to sustainability. Notable certifications include:

LEED (Leadership in Energy and Environmental Design),[166] which encourages environmentally friendly terminal and infrastructure development. For example, the DP World achieved LEED Gold certification for its facility at the Port of Vancouver, revitalizing a century-old heritage structure and showcasing how LEED can be integrated into existing infrastructure and historical sites.[167] The Port of Long Beach has also constructed several LEED-certified buildings, focusing on energy and water conservation.[168]

155 EU Regulation2023/1805 of the European Parliament, (2023): "FuelEU Maritime Regulation"

156 European Commission, Directorate-General for Maritime Affairs and Fisheries, (2023): "Good Practices for Sustainable Cruise Tourism" - Final report. Publications Office of the European Union.

157 Jeswani Harish K.,et al. (2020): "Environmental sustainability of biofuels: a review."

158 International Council on Clean Transportation (ICCT), (2014). "Feasibility of IMO Annex VI Tier III implementation using Selective Catalytic Reduction"

159 Nature and Biodiversity Conservation Union (NABU) (2012): "Background paper: (soot) emissions from cruise ships"

160 M. Sharmina et al. (2020): "Decarbonising the critical sectors of aviation, shipping, road freightand industry to limit warming to 1.5–2°C", Climate Policy.

161 OECD (2018). Decarbonising Maritime Transport Pathways to zero-carbon shipping by 2035

162 World Economic Forum (2024). "Why is the shipping industry not decarbonizing faster?"

163 ISO 14001, (2015): "Environmental management systems — Requirements with guidance for use"

164 MARPOL, (2020): "MARPOL Annex VI and the Act To Prevent Pollution From Ships (APPS)"

165 Topic, T. et al. (2023): "NOx Emissions Control Area (NECA) scenario for ports in the North Adriatic Sea." Journal of Environmental Management.

166 U.S. Green Building Council, (2019): "LEED-certified green buildings are better buildings."

167 Procter, A. (2011): "Adaptation-mitigation conflicts in municipal planning: the case of heat wave preparedness in Vancouver, Canada."

168 Aryan-Zahlan, D., et al.. (2013): "Sustainable Design and Construction Guidelines for Ports." In Ports 2013: Success through Diversification (pp. 302-311).

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Green Marine Certification,[169] a voluntary environmental certification program for the North American marine industry, providing benchmarks for reducing emissions, managing waste, and minimising underwater noise. Certified ports include the Port of Hueneme in California and the Port of Montreal in Canada. TraPac's Terminals in Los Angeles and Oakland integrate both Green Marine certification and LEED standards,[170] showcasing how different sustainability certifications can complement one another.

Additionally, certifications such as the **Blue Flag for Sustainable Cruising**, endorsed by CLIA, ensure that cruise operators visit destinations that maintain high environmental standards in water quality, waste management, and conservation.[171] Meanwhile, the **Global Sustainable Tourism Council (GSTC) Destination Criteria (GSTC-D)** provides a solid framework for assessing the sustainability of cruise destinations. These assessments offer opportunities to extend sustainability efforts beyond cruise operations, such as by fostering more inclusive and sustainable local supply chains.

Furthermore, the **Zero Emission Maritime Buyers Alliance** (ZEMBA)[172] focuses on reducing underwater noise from ships, which can have harmful effects on marine life. It promotes quieter ship technologies and practices. Ports can support ZEMBA by raising awareness, promoting quieter ship operations, and supporting research on underwater noise reduction.

Another key initiative is the **Sustainable Shipping Initiative** (SSI),[173] a coalition of companies across the shipping value chain—including shipowners, operators, cargo owners, banks, and NGOs—committed to improving the sector's environmental, social, and economic sustainability. SSI has developed the **Roadmap to a Sustainable Shipping Industry**,[174] which outlines a 2040 vision and key actions for achieving a more sustainable maritime sector. Additionally, SSI influences policy, promotes industry-wide changes, and fosters transparency through open communication and data sharing.

By engaging in voluntary certification programs and sustainability initiatives, cruise lines and ports can demonstrate their leadership, enhance their competitive advantage, and contribute to a healthier marine environment.

169 Marine Atlantic, (2020): "Green Marine Certification."

170 Farrell, B. R., & Zordilla, E. (2007): "Sustainable Building Design: The" Greening" of Container Terminals". In Ports 2007: 30 Years of Sharing Ideas: 1977-2007 (pp. 1-10).

171 European Commission, Directorate-General for Maritime Affairs and Fisheries. (2023): "Good Practices for Sustainable Cruise Tourism" - Final report. Publications Office of the European Union.

172 Zero Emission Maritime Buyers Alliance (ZEMBA)

173 Sustainable Shipping Initiative (SSI)

174 Sustainable Shipping Initiative (SSI), (2020): "Roadmap to a Sustainable Shipping Industry."

Box 4. The Case of Dubrovnik: Advancing Sustainability in the Cruise Industry

In 2019, the Cruise Lines International Association (CLIA) and the Global Sustainable Tourism Council (GSTC) partnered to promote a more sustainable cruise tourism industry. The GSTC conducted a destination assessment for Dubrovnik, funded by CLIA, based on criteria for sustainable tourism and destination management.[175] The assessment included on-site activities and collaboration with local actors such as Dubrovnik Tourist Board, the Dubrovnik Development Agency, and other 70 stakeholders from national and local government, the private sector, NGOs, universities, and residents. The aim was to evaluate the destination's sustainability performance using the GSTC Destination Criteria.[176] The results highlighted key gaps in several areas, including monitoring, sustainability standards, crisis and emergency management, transport and traffic control, environmental risks, and wastewater management.

Based on these findings, local stakeholders developed an Action Plan that outlined consensus priorities and several key projects. These projects focused on creating a sustainable destination strategy, applying collected economic data, implementing systematic visitor management and behaviour practices, and assessing environmental risk. Additionally, more complex issues were identified, such as improving accessibility within and around the destination, developing sustainability standards, monitoring and reporting on greenhouse gas emissions and water management practices, and gathering local community feedback to better understand the impacts of tourism.[177] By partnering with the cruise industry and the city of Dubrovnik, this initiative demonstrated what can be achieved through collaborative tourism efforts to help preserve port destinations.[178]

5.3.3. Incentives for More Sustainable Industry and Consumer Behaviours

Incentives can drive the cruise industry toward greater sustainability by making eco-friendly practices financially viable, improving operational efficiency, and aligning with consumer demand for responsible tourism. Whether through financial rewards, regulatory benefits, market opportunities, or collaboration, these incentives create a positive feedback loop that encourages cruise lines to adopt greener technologies, protect local communities, and minimise their environmental impact.

Slow steaming, the practice of reducing vessel speeds, offers significant potential for improving the shipping industry's environmental performance. By reducing speeds by just 10%, ships can achieve fuel savings of 20-30%, leading to lower greenhouse gas emissions and reduced air pollution.[179] Furthermore, slow steaming minimises underwater noise, benefiting marine life.[180] However, widespread adoption faces barriers, including market pressures for fast delivery times and the need to maximise profits. To overcome these challenges, a combination of regulations, incentives, and contractual adjustments is needed. Raising consumer awareness about the benefits of slow steaming can also create demand for more sustainable shipping practices.

From the port perspective, financial rewards and cost-saving opportunities can motivate cruise lines to invest in sustainable technologies and practices. Several ports offer **port fee reductions or rebates** on docking fees for cruise ships that meet certain sustainability criteria, such as reduced emissions, waste management, and fuel efficiency. For example, ports like Port of Vancouver.[181] and the Port of Hamburg provide **Environmental Ship Index (ESI)** discounts to ships that meet stringent environmental standards, including lower nitrogen oxide (NOx) and sulphur oxide (SOx) emissions. Additionally, ports in agreements with local governments could grant **priority docking rights** for cruise ships that adopt greener technologies, engaging them with better scheduling options, and lower operational costs. Ports and maritime authorities could also grant some operators trusted status based on their environmental performance, especially for cruise lines that consistently meet or exceed sustainability criteria. This status could reduce the number of inspections and the administrative burden, allowing them to operate more efficiently.

On the market side, **Eco-labels** or **green certifications**, such as **Green Marine** or **ISO 14001**, can attract environmentally conscious consumers. Cruise lines that meet specific sustainability criteria can display these certifications, signalling to passengers that they prioritise responsible tourism. As the cruise industry expands, younger passengers are increasingly concerned with quality of life, where ethical conduct, social engagement and ecological consciousness play a critical role.[182] Cruise lines that invest in sustainable practices can charge premium prices, attract a loyal customer base, and increase their revenue by offering sustainable excursions or cruises focused on environmental education and conservation efforts. Many passengers may be willing to pay a premium for cruises that prioritise environmental responsibility.[183]

Addressing the sustainability challenges in the cruise tourism sector requires a multifaceted and collaborative approach. By identifying and addressing regulatory gaps at global, regional, and national levels, fostering cooperation among stakeholders, and enhancing monitoring and reporting frameworks, a more sustainable cruise tourism sector can be created. In the next section, we explore specific policy pathways. The proposed policy pathways aim to ensure that sustainability becomes a core principle of cruise tourism, guiding industry practices and regulatory frameworks toward long-term resilience and environmental stewardship.

175 Greek Travel Pages, (2021): "CLIA and GSTC Pave the Way for Sustainable Cruise Tourism Development in Greece"

176 GSTC, (2020): "Report on GSTC Destination Assessment of Dubrovnik"

177 GSTC (2020): "GSTC Destination Assessment – Dubrovnik 2019 Final Report".

178 European Commission, Directorate-General for Maritime Affairs and Fisheries, (2023): "Good practices for sustainable cruise tourism – Final report". Publications Office of the European Union.

179 Corbett, J. J., et al. (2012). "The effectiveness and costs of speed reductions on emissions from international shipping." Transportation Research Part D: Transport and Environment, 17(8), 593-598.

180 WWF, 2021. "Slow steaming: Decreasing speed cuts emissions, wildlife collisions and costs."

181 Port of Vancouver, (2024). "Port of Vancouver Environmental Programs."

182 Adams, S.-A., Font, X. and Stanford, D. (2017): "All aboard the corporate socially and environmentally responsible cruise ship: A conjoint analysis of consumer choices", Worldwide Hospitality and Tourism Themes, Vol. 9 No. 1, pp. 31-43.

183 Ibid.

6. Policy Pathways for a More Sustainable Cruise Sector

Drawing upon the challenges, and to foster a more sustainable cruise tourism sector, it is crucial to address regulatory gaps, promote cooperation, and improve monitoring systems across global, regional, and national levels. By aligning policies and encouraging collaboration between regions, nations, and sectors, a more comprehensive and cohesive approach to sustainability can be achieved. The following pathways outline actions needed to fill regulatory gaps, enhance cooperation, and strengthen monitoring and reporting systems, ensuring that sustainable practices are effectively implemented in the cruise industry.

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Table 4. Policy Pathways Towards a More Sustainable Cruise Sector

Challenge 1. **Global and regional regulatory and governance gaps**	**Pathway 1. Identify and address global regulatory and governance gaps in the cruise sector** 1.1. A comprehensive review of global environmental, economic, and social regulatory frameworks is needed to identify policy gaps and loopholes in the cruise sector governance. 1.2. Fostering consistent regulations, effective communication and policy collaboration across all levels—both horizontally (across sectors) and vertically (from local to global levels) will contribute to improving cruise governance.
Challenge 2. **Limited collaboration and competition among cruise destinations**	**Pathway 2. Promote cross-national cooperation and collaboration between cruise destinations** 2.1. Cross-national and multi-sectoral cooperation should be enhanced to align policies across regions and countries, ensuring consistency with commonly agreed sustainability goals for cruise tourism. 2.2. International collaboration between regional and national cruise tourism bodies and other regional mechanisms should be supported to promote cohesive global actions.
Challenge 3. **National and local regulatory and governance gaps**	**Pathway 3. Identify and tackle national regulatory gaps in the cruise industry** 3.1. Countries should embark on comprehensive reviews of their national regulatory frameworks to identify gaps and loopholes, ensuring alignment with regional and global policy commitments. 3.2. Engaging regional cooperation mechanisms is essential to ensure policy consistency with neighbouring countries and prevent fragmented approaches.
Challenge 4. **Weak monitoring of and lack of enforcement**	**Pathway 4. Improve cruise monitoring and reporting systems** 4.1. Monitoring frameworks should be enhanced at both national and regional levels to ensure effective and consistent monitoring of cruise practices across regions. 4.2. Reporting systems should be strengthened and harmonized at national and regional levels to promote consistency and enforcement of relevant policies and regulation.
Challenge 5. **Low adoption of clean technologies and sustainable behaviours**	**Pathway 5. Support cleaner technologies and more sustainable behaviours of the industry and consumers** 5.1. Policy and non-regulatory actions should support greener ships in the whole life cycle. 5.2. Vessel certifications should become more ambitious, widely-used and better aligned with international environmental commitments. 5.3. Sustainable behaviours of the industry and consumers through awareness and capacity-building tools should be fostered.

Pathway 1 - Identify and tackle global regulatory and governance gaps in the sector

Two main priorities are proposed to address global regulatory gaps for a more sustainable cruise sector:

1.1. A comprehensive review of global regulatory frameworks is needed to identify existing gaps and loopholes.

Global regulatory gaps should be identified and addressed to ensure a more sustainable cruise tourism sector. Strengthening global regulatory frameworks by closing these gaps is essential for establishing consistent and comprehensive sustainability standards across the cruise industry, fostering a more environmentally responsible and less fragmented market at regional and national levels. Existing frameworks such as the MARPOL regulations provide a solid foundation for further expanding sustainability within the cruise sector. Since its inception in 2005, MARPOL Annex VI has undergone amendments, broadened its scope and tightened environmental standards.

1.2. Fostering consistent regulations, effective communication and collaboration across all levels—both horizontally (across sectors) and vertically (from local to global levels).

Building on the regulatory review and other global efforts, opportunities remain to expand the **global regulatory framework** for cruise tourism, potentially providing more comprehensive and region-specific guidance. Particular attention could be given to strengthening the role of Flag State s in fostering sustainable practices within the sector. Current regulatory frameworks may benefit from stricter oversight of Flag State s, including more rigorous environmental, labour, and safety standards requirements, as well as enhanced monitoring and compliance mechanisms.

Furthermore, the **IMO** could serve as a key platform for multi-stakeholder cooperation to act on regulatory gaps and to expand existing frameworks, such as MARPOL VI by integrating new amendments to strengthen environmental objectives, such as expanding upon existing environmental legislation, e.g. Emissions Control Area, limit emissions of pollutants like NOx and SOx, improving air quality and minimising regulatory arbitrage opportunities, ensuring a level playing field for cruise operators while promoting environmental protection.

Pathway 2 - Promote regional and interregional cooperation between destinations

Two main priorities are proposed to promote cruise-specific regional cooperation global regulatory gaps for a more sustainable cruise sector:

2.1. Cross-national and multi-sectoral cooperation should be enhanced to align policies across regions, ensuring consistency with commonly agreed sustainability goals for cruise tourism.

Enhancing **regional partnerships** is crucial for promoting long-term sustainability and addressing competitive dynamics that hinder sustainable practices within the cruise sector. Strengthening intergovernmental and multi-sectoral cooperation between neighbouring countries can lead to development of common sustainability standards and initiatives that prioritise environmental protection and equitable economic distribution. Regional platforms for dialogue and collaboration will support the exchange of best practices and collective decision-making on sustainability issues, reducing pressure on individual destinations to prioritise short-term gains over long-term sustainability.

In addition, **revenue-sharing mechanisms** and **joint investment projects** can incentivise sustainable practices and contribute to a more balanced, resilient, and environmentally conscious cruise industry ecosystem, benefiting both local communities and the environment. Such cooperation would be centred in aligning regulations and standards across different jurisdictions to develop uniform regulatory standards and address the implications of the transnational character of cruise operations. International and regional entities such as the IMO, EU, and OECS already serve as pivotal forums for multi-stakeholder cooperation and existing frameworks.

2.2. Regional collaboration between cruise tourism bodies should be supported to promote cohesive actions and sustainable practices within the cruise tourism sector.

Existing **regional organisations** can function as platforms to harmonise regulatory framework and promote collaboration among stakeholders. Specifically, intergovernmental organisations can develop stricter regulations, identify gaps in existing policy frameworks, address loopholes, and facilitate knowledge sharing and collaboration. Regional organisations, such as the **Organization of Eastern Caribbean States** (OECS) or the **EU**, can also facilitate regional cooperation and tailor regulations to specific regional challenges and needs. An example of this regional effort is the European Union (EU) adopting the EU Directive on Port Reception Facilities for the Delivery of Waste from Ships, which requires ports to provide adequate reception facilities for the delivery of ship-generated waste, including plastics and other garbage.[184]

Building on these regional successes, there is a need to establish mechanisms—or to build within the **UNEP Regional Seas Programme,**—that foster interregional active cooperation on regulating and benefiting from cruise tourism, along with providing a collective voice towards international conventions and regulations that remains sensitive to region specific opportunities and vulnerabilities.

Pathway 3 - Identify and address national regulatory gaps in the cruise industry

Two main priorities are proposed to address national regulatory gaps for a more sustainable cruise sector:

3.1. Countries should review their national regulatory frameworks to identify gaps and loopholes, ensuring alignment with regional and global agendas and commitments.

Countries may lack the necessary regulations to manage cruise tourism within a comprehensive framework that

184 EUR-Lex., (2022): "Port facilities for waste from ships, including cargo residues".

enforces compliance with sustainability principles and incentivizes sustainable operations. To address this, it is recommended that countries initiate a review of their national policy frameworks to identify gaps, ensuring alignment with developments in the cruise sector, emerging technologies, and growing climate vulnerabilities. These reviews must be conducted through national and regional cooperation, ensuring consistency with regional and global actions. It is important for this process to be anchored on key sustainability pillars such as socio-economic resilience, environmental protection, climate justice, and the role of ports in promoting sustainable cruise practices.

At the level of **Marine Protected Areas**, cruises should have specific regulations to support their protection. For instance, recent research has shown vulnerability to and impact from boat and cruise activities on Marine Protected Areas on Posidonia meadows and cetaceans in the Mediterranean.[185] Other examples of regulatory measures could be to adopt national emissions control areas, forbid the use of polluting devices at sea (e.g. scrubbers), implementing stricter regulations on waste disposal and treatment to minimise pollution and encourage recycling and reuse.[186] Setting limits on underwater noise from ships to protect marine life and sensitive ecosystems.[187]

Furthermore, it is important implement national laws and regulations to protect the **rights of cruise ship workers,** particularly those who are not covered by the **Maritime Labour Convention** (MLC),[188] which ensure decent working conditions for seafarers. In particular, provisions on wages, working hours, rest periods, health and safety, and social security. Port states should also enforce labor standards by inspecting ships and ensuring compliance with regulations.[189]

3.2. Mobilising the necessary resources and fostering cooperation, engaging within regional cooperation mechanisms to ensure policy consistency with neighbouring countries and prevent fragmented approaches.

Economic instruments to enforce compliance with sustainability principles could be considered at national and port levels. For example**,** taxes on cruise tickets and taxes for visiting protected areas**.** Levying taxes on cruise tickets can generate revenue for environmental protection and infrastructure development, while also potentially influencing consumer behavior.[190] Also, charging higher fees for cruise ships visiting ecologically sensitive areas can help fund conservation efforts and discourage unsustainable practices.[191]

185 Lloret, J., et al. (2008): "Impacts of recreational boating on the marine environment of Cap de Creus (Mediterranean Sea)." Ocean & Coastal Management, 51(11), 749-754.

186 Olaniyi, E.O., et al. (2024): "Smart regulations in maritime governance: Efficacy, gaps, and stakeholder perspectives". Marine Pollution Bolletin.

187 Erbe, C., Marley, S. A., Schoeman, R. P., Smith, J. N., Trigg, L. E., & Embling, C. B., (2019): "The effects of ship noise on marine mammals—a review." Frontiers in Marine Science, 6, 606.

188 ILO, (2006): "Maritime Labour Convention"

189 Klein, Ross A., and Chris Roberts. "Cruise ship blues: The underside of the cruise industry." Alternatives Journal 29.3 (2003): 42.

190 Pallis, T. (2015), "Cruise Shipping and Urban Development: State of the Art of the Industry and Cruise Ports", International Transport Forum Discussion Papers, No. 2015/14, OECD Publishing, Paris.

191 Cárdenas- García, P.J., et al. (2022): "Tourist taxation as a sustainability financing mechanism for mass tourism destinations." International Journal of Tourism Research 24.4 577-592.

Ports play a pivotal role as critical intersections of land and sea operations,[192] offering multiple opportunities to mitigate environmental impacts by piloting and implementing solutions. Countries can design strategies to incentivize sustainable cruise companies by offering benefits like tax reductions or subsidies for meeting recognized environmental and labour standards. Additionally, governments should promote transparency in ship registrations and adherence to international regulations, enabling stakeholders, including consumers, to easily identify companies that prioritise sustainability and responsible business practices.

Policies must also increasingly support technological innovation, which is essential for enhancing the sustainability in the sector. For example, synthetic e-fuels like e-methanol, produced using green hydrogen, offer promising alternatives to conventional fuels.[193] However, policies should support research and innovation to address the limitations of these alternative fuels, establish necessary infrastructure, and provide incentives to make them more competitive. Moreover, end-of-pipe technologies, such as **advanced wastewater treatment** systems (AWTS), can help reduce emissions from onboard combustion processes, while sustainable onboard waste management can significantly reduce environmental impacts by addressing solid waste and single-use plastics.[194] This applies equally to port waste management systems, which are integral to a holistic approach to sustainability in the cruise industry.[195]

By adopting these and other regulatory measures, national governments can address specific challenges and promote a more sustainable cruise industry within their borders. It's important to note that these measures should be based on scientific evidence, stakeholder input, and best practices to ensure their effectiveness and minimize unintended consequences.

Pathway 4 - Improve monitoring and reporting systems of the cruise impacts

Two main priorities are proposed to improve monitoring and reporting systems for a more sustainable cruise sector:

4.1. Monitoring frameworks should be enhanced at both national and regional levels to ensure cohesive and consistent monitoring practices across regions.

National initiatives, such as those in the U.S., showcase effective monitoring and enforcement of cruise ship pollution. **Alaska** sets stringent standards for wastewater discharge into state waters, regularly monitors air emissions while ships are in port, and employs onboard observers to ensure compliance. Similarly, **Casco Bay** (Portland) was designated a **No Discharge Area** (NDA) in 2006, making it illegal to release untreated blackwater from any vessel. **The Bahamas and Barbados** also enforce strict ballast water and waste

192 Klein Ross A., (2011): "Responsible cruise tourism: Issues of cruise tourism and sustainability." Journal of Hospitality and Tourism Management 18, no. 1 (2011): 107-116.

193 European Commission, Directorate-General for Maritime Affairs and Fisheries, (2023): "Good practices for sustainable cruise tourism – Final report". Publications Office of the European Union.

194 Ibid.

195 Ibid.

discharge regulations, prohibiting the dumping of untreated sewage and requiring ships to treat waste onboard or use designated port facilities.

Effective monitoring and reporting are essential for tracking progress, identifying areas for improvement, and ensuring accountability in the cruise industry's journey toward sustainability. In addition to crucial top-down regulatory approaches, some cruise companies, like **Carnival Corporation** and **Royal Caribbean Cruises,** have voluntarily begun publishing annual corporate sustainability reports. These reports detail their strategies and achievements, contributing to increased transparency within the industry. However, variability in the scope and depth of these reports complicates comprehensive assessments of the sector's sustainability performance. To address this, developing standardised frameworks that encompass all aspects of cruise ship operations is essential. These frameworks should include metrics that evaluate the environmental, social, and economic impacts of cruise activities, ensuring accountability to stakeholders and supporting continuous improvement in the industry's sustainability practices. Moreover, pressures from cruise ships should be measured, supported by carrying capacities and the current positive and negative impacts on local communities. This would allow mitigating the negative and enhancing the positive impacts of the cruise sector.

For example, the **Charter on Sustainable Cruising in the French Mediterranean**[196] is a voluntary agreement between the French government and major cruise lines operating in the region. It outlines a set of commitments to reduce the environmental footprint of cruise activities and promote sustainable practices. Such as reducing air emissions by using shore-side electricity, cleaner fuels, and emission reduction technologies. Protecting marine environments through pledges to avoid sensitive areas, manage ballast water responsibly, minimize discharges, and reduce waste generation. The Charter also includes provisions for monitoring and reporting on progress toward these commitments, ensuring transparency and accountability.

4.2. Reporting systems should be strengthened at national and regional levels to promote consistency and enforcement.

To ensure that sustainability regulations are effectively implemented and adhered to by cruise companies, robust enforcement and compliance mechanisms are essential. Governments must submit detailed reports to the **International Maritime Organization** (IMO) on the measures they have adopted to enforce sustainability provisions within their legal frameworks. These reports are assessed by independent committees of experts to evaluate the fulfilment of international obligations under relevant conventions. Mandatory sustainability reporting for cruise companies would further enhance transparency and accountability, allowing policymakers to monitor progress and identify areas for improvement. International bodies like the IMO and the **International Labour Organization** (ILO) play key roles in overseeing these processes. Regional and national authorities, such as the **European Maritime Safety Agency** (EMSA), also contribute by enforcing regulations at localised levels. Yet, capacity-building initiatives—including training programs and funding for inspection activities—are essential to strengthen these authorities, improving their ability to enforce compliance effectively.

Port State Control (PSC) regimes further support enforcement efforts by conducting rigorous inspections during port visits to ensure vessels meet international standards. For example, the ILO's supervisory system serves as a key reporting tool for compliance with international labour standards, while the IMO promotes environmental compliance through mechanisms like the MARPOL Annex VI, which mandates reporting on environmental performance. These systems require ships to submit records of their environmental activities, and PSC officers inspect visiting vessels to verify compliance with IMO conventions. By providing additional resources and authority to PSC regimes, compliance rates can be improved through more stringent inspections and enforcement actions against non-compliant vessels. Attention must also be given to mitigating limitations faced by municipalities in managing compliance mechanisms, ensuring that local enforcement can support national and regional efforts.

Pathway 5 - Implement cleaner technologies and more sustainable industry and consumers's behaviours

Three main priorities are proposed to improve the development and implementation of clean technologies and more sustainable behaviours by the industry and consumers.

5.1. Policy and non-regulatory actions should be fostered to support for greener cruise ship technologies and emission reductions

Policymakers should increasingly encourage **technological innovation** and offer diverse and targeted incentives for the adoption of sustainable cruise practices that minimise environmental impact. These incentives could include subsidies for retrofitting ships with cleaner technologies, tax credits for companies meeting environmental performance benchmarks, grants for research and development in emerging green technologies. Additionally, fast-track permits and priority docking rights could be granted to cruise operators that comply with stringent environmental regulations, ensuring they have operational advantages. The research and development of alternative fuels such as biofuels,[197] which still present some sustainability issues, or hydrogen, which hold significant potential to reduce cruise ship emissions could be supported.

To develop **shore-side electricity,** governments could implement regulations that mandate or incentivize slow steaming, such as speed limits in certain areas or emissions-based taxes that reward slower speeds. **Slow steaming** for ships can reduce underwater noise pollution, fuel consumption, and air emissions. This is particularly important in areas with high concentrations of marine mammals.[198]

196 French Government, (2022): "Charter on Sustainable Cruising in the French Mediterranean"

197 Jeswani H. K.,et al. (2020): "Environmental sustainability of biofuels: a review."

198 WWF, (2021): "Slow steaming: Decreasing speed cuts emissions, wildlife collisions and costs."

Moreover, policymakers can accelerate this transition by creating **public-private partnerships** (PPP) to fund research, offering tax incentives and green finance's access to support innovation and pilot projects for these new fuels' technologies. Policymakers can also drive the adoption of sustainable practices by supporting **certification programs and eco-labels,** which reward cruise lines that meet sustainability benchmarks. Collaboration with international organisations and regional governments can also promote cross-border research partnerships to share knowledge and best practices.

5.2. Vessel's certifications should become more ambitious, widely-used and better aligned with international environmental standards and commitments

To mitigate some of the environmental impacts of the cruise sector, more ambitious vessel certifications are necessary. These should evolve as national, regional and global regulations become more comprehensive and sustainability targets more ambitious. Traditionally, vessel certifications have focused on safety, operational efficiency and basic environmental compliance. While they serve as a tool to ensure cruise ships comply with international regulations and practices, they can also foster greater accountability among cruise lines for their environmental and social performance. By expanding the scope of these certifications, they can drive innovation and a standardised approach of sustainability targets and practices.

Moreover, since certifications are recognized across borders, they are essential to ensure that cruise ships adopt a cohesive approach to environmental actions, regardless of their operating regions or countries of registration. Strengthening the environmental criteria within certifications would drive collective change towards more sustainable operating models. This is particularly important as cruise ships operate across borders and are subject to fragmented regulations, making consistent monitoring challenging. In addition, certifications can align national and regional regulations with international frameworks, such as IMO's emission standards, further strengthening global compliance.

5.3 Sustainable behaviours of the industry and consumers through awareness and capacity building tools should be fostered

Sustainable behaviour in the cruise sector is increasingly a necessity as the sector, given its volume, can play a relevant role in climate change mitigation. This is particularly significant for **Small Island Developing States** (SIDS) where cruise operations generate higher pressures. To this extent, **awareness and capacity building** for a more sustainable cruise sector should be fostered through policymaking, in collaboration with key industry actors. The development of **training programs** should increasingly focus on relevant aspects of cruise operations to ensure a high-quality experience for passengers and maintain safety, sustainability, operational efficiency, and be informed by technological developments and innovative practices. Meanwhile, consumers should become increasingly aware of sustainable cruise options and the environmental and social importance of selecting more inclusive and responsible cruise providers and destinations. To this extent, **certification** can help consumers identify such options and make informed decisions.

In addition, **capacity building programmes** should also involve tourism operators in port destinations to ensure enhanced sustainability throughout the whole cruise supply chains. Focus of these training programmes could include waste management and green procurements. Matchmaking initiatives and digital tools can enable these sustainable supply chain practices by making processes more time and cost effective. The multitude of expertise needed for capacity building programmes can be sourced in multi-stakeholder partnerships that can facilitate sharing of best practices and success stories within and among port destinations.

Considering that the cruise industry relies heavily on a **global workforce**, to ensure a sustainable cruise industry, strong company policies on ethical recruitment, fair wages, working hours, and crew welfare could be supported. This requires a multi-faceted approach, including at the industry level, encouraging **collective bargaining** between cruise lines and seafarer unions to help ensure fair wages and working conditions. Also, promoting **transparency in employment** practices and reporting on key labor indicators can help hold companies accountable. Improving **labor standards** can be a crucial step towards a more sustainable cruise industry, leading to lowering recruitment and training costs for cruise lines and to a better service and a more positive experience for passengers, improving the industry's image and attracting a more socially conscious customer base.[199]

199 Ariza-Montes, et al. (2021): "Job quality and work engagement in the cruise industry." Asia Pacific Journal of Tourism Research, 26:5, 469-487

Bibliography

Adams, S.-A., Font, X. and Stanford, D. (2017): "*All aboard the corporate socially and environmentally responsible cruise ship: A conjoint analysis of consumer choices*", Worldwide Hospitality and Tourism Themes, 9(1), 31-43.

Asero, V., & Skonieczny, S., (2018): "*Cruise Tourism and Sustainability in the Mediterranean. Destination Venice*". InTech.

Andersson, K., et al. (2016): "*Shipping and the Environment*" (pp. 3-27). Springer Berlin Heidelberg.

Ariza-Montes, et al. (2021): "*Job quality and work engagement in the cruise industry*". Asia Pacific Journal of Tourism Research, 26:5, 469-487

Aryan-Zahlan, D., et al. (2013): "*Sustainable Design and Construction Guidelines for Ports*." In Ports 2013: Success through Diversification (pp. 302-311).

Avagyan, A. (2022): "*Addressing the Criticism on Flags of Convenience: Should Flags of Convenience Be Abolished for the Cruise Industry?*" Southwestern Journal of International Law, 28, 129.

Bach H., Hansen T. (2023): "*IMO off course for decarbonisation of shipping? Three challenges for stricter policy.*"

Balestracci, G., Sciacca, A. (2023): "*Towards sustainable blue tourism: trends, challenges, and policy pathways*". Edited by Blue Tourism Initiative.

Barbados Ministry of Foreign Affairs and Foreign Trade, (2015): "*The CARIFORUM EU Economic Partnership Agreement.*"

Boczek, B. A. (1962): "*IFlags of Convenience: An International Legal Study, Cambridge, MA and London*" England: Harvard University Press, .

Boy, C., & Neumann, S. (2012): "*Regulatory frameworks of the cruise industry. The business and management of ocean cruises.*" CABI, Wallingford/Cambridge, 30-45.

Brida, J. G., & Zapata, S. (2010): "*Cruise tourism: economic, socio-cultural and environmental impacts*". International Journal of Leisure and Tourism Marketing, 1(3), 205-226.

Cárdenas- García, Pablo Juan, et al. (2022): "*Tourist taxation as a sustainability financing mechanism for mass tourism destinations.*" International Journal of Tourism Research.

Caribbean Tourism Organisation, (2024): "*Caribbean Tourism Experiences Strong Growth in 2023, Recovery to Continue into 2024*" Bridgetown, Barbados.

Carić, H., & Mackelworth, P. (2014): "*Cruise tourism environmental impacts–The perspective from the Adriatic Sea.*" Ocean & coastal management, 102, 350-363.

CBD, (2022): "*The Kunming-Montreal Global Biodiversity Framework*". Particularly, TARGETS 4, 7, 14, 15 and 16.

COGEA, (2017): "*Study on differentiated port infrastructure charges to promote environmentally friendly maritime transport activities and sustainable transportation*".

Comer, B., Georgeff, E., & Osipova, L. (2020): "*Air emissions and water pollution discharges from ships with scrubbers*". International Council on Clean Transportation

Comer, B,. (2022): "*What if I told you cruising is worse for the climate than flying?*" International Council of Clean Transportation.

Copeland, C. (2009): "*Cruise Ship Pollution: Background, Laws and Regulations, and Key Issues.*"

Corbett, J. J., et al. (2012): "*The effectiveness and costs of speed reductions on emissions from international shipping.*" Transportation Research Part D: Transport and Environment, 17(8), 593-598.

Cruise Lines International Association (CLIA), (2022): "*State of the Cruise Tourism Outlook 2022.*"

Cruise Lines International Association, (2023): "*State of the Cruise Industry Report*".

Cruise Lines International Association, (2024): "*State of the Cruise Industry Report.*"

Cruise Market Watch, (2024): "*2024 Worldwide Cruise Line Market Share.*"

Čučuk, A. (2024): "*MSC Cruises to reduce fleetwide emissions with itinerary planning tool*". Offshore Energy.

da Silva, A. L. R., (2021): "*An overview of the impact of COVID-19 on the cruise industry with considerations for Florida*" Transportation Research Interdisciplinary Perspectives, 10,100391.

Demaria, F. (2010): "*Shipbreaking at Alang–Sosiya (India): An ecological distribution conflict.*" Ecological Economics. 70 (2), 250-260

ESPO, (2018): "*Environmental Annual Report.*"

EUR-Lex, (2019): "*Port facilities for waste from ships, including cargo residues.*"

European Commission, Directorate-General for Maritime Affairs and Fisheries, (2023): "*Good practices for sustainable cruise tourism* – Final report". Publications Office of the European Union.

European Commission, (2021): "*EU's "Fit for 55."*

European Commission, (2023): "*What is the EU ETS?*"

European Commission, (2023): "*Deployment of alternative fuels infrastructure, and Directive 2014/94/EU*"

European Commission, (2025): "*New EU rules aiming to decarbonise the maritime sector take effect*"

Farrell, B. R., & Zordilla, E. (2007): "*Sustainable Building Design: The" Greening" of Container Terminals.*" In Ports 2007: 30 Years of Sharing Ideas: 1977-2007 (pp. 1-10).

Figueroa D. (2021): "*Italy: Cruise Ships Banned from Venice Lagoon, Waterways Declared National Monument.*" The Library of Congress.

Ford, J. H., & Wilcox, C. (2019): "*Shedding light on the dark side of maritime trade–A new approach for identifying countries as flags of convenience.*" Marine Policy, 99, 298-303.

Fosse, J., Tonazzini, D., Morales, E., González, A., Klarwein, S., Moukaddem, K., & Louveau, O. (2019): "*Sustainable blue tourism: towards a sustainable coastal and maritime tourism in world marine regions.*" Eco-union.

French Government, (2022): "*Charter on Sustainable Cruising in the French Mediterranean*"

Fricaudet, M. (2024): "*Shipping in transition: IMO's timely negotiations for a net-zero Future*." IDDRI

Friend of the Sea, (2021): "Certified Sustainable Shipping & Cruise Lines"

Giuffrida A. (2022): "*Cruise passengers shuttled into Venice by motor boat to dodge big ships ban*." The Guardian.

Goodger, D. Savelli, C. (2023): "*Luxury cruising – the new normal*". Oxford Economics.

Government of Virgin Islands, (2018): "*Visitors to the Virgin Islands are being reminded of the Environmental and Tourism Levy*."

Greek Travel Pages, (2021): "*CLIA and GSTC Pave the Way for Sustainable Cruise Tourism Development in Greece*"

GSTC, (2020): "*GSTC Destination Assessment – Dubrovnik 2019 Final Report*".

GSTC, (2020): "*Report on GSTC Destination Assessment of Dubrovnik*"

Guaraldo, E. (2021): "*Resisting the Tourist Gaze. Art Activism Against Cruise Ship Extractivism in the Venice Lagoon*." Lagoonscapes, *1*(1), 101-124.

Hall, C. M., Wood, H., & Wilson, S. (2017): "*Environmental reporting in the cruise industry.*" In Cruise ship tourism (pp. 441-464). Wallingford UK: CABI.

Hanley S., (2024): "*Norway Moves Aggressively To Curb Cruise Ship Emissions.*" Clean Technica.

HELCOM, (2021): "*The Baltic Sea Action Plan*."

HELCOM, (1974; 214): "*The Helsinki Convention*."

Henrik Selin et al. (2021): "*Mitigation of CO_2 emissions from international shipping through national allocation*."

Klein, Ross A., (2009): "*Getting a Grip on Cruise Ship Pollution*". Friends of the Earth.

Klein, Ross A., (2011): "*Responsible cruise tourism: Issues of cruise tourism and sustainability*". Journal of Hospitality and Tourism Management 18, no. 1 (2011): 107-116.

Klein, R. A., (2013): "*Responsible Cruise Tourism: Issues of Cruise Tourism and Sustainability*". Memorial University of Newfoundland, Canada

Klein, R. A., et al. (2017): "*Representation without taxation*". In Cruise Ship Tourism, pp. 57-72

Kizielewicz, J., & Luković, T., (2015): "*Negative impact of cruise tourism development on local community and the environment.*" Information, Communication and Environment: Marine Navigation and Safety of Sea Transportation, 6(3), 243-250.

Klein, Ross A. (2011): "*Responsible cruise tourism: Issues of cruise tourism and sustainability.*" Journal of Hospitality and Tourism Management 18, no. 1 (2011): 107-116.

ILO, (2006): "*ILO Supervisory System: Committee of Experts on the Application of Conventions and Recommendations (CEACR).*"

IMO, (2021): "*Procedures for port state control.*"

IMO, (2019): "*Convention on International Regulation for Preventing Collision at Sea (COLREGS).*"

IMO, (2019): "*International Convention for the Safety of Life at Sea (SOLAS).*"

IMO, (2019): "*International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).*"

IMO, (2023): "*The 2020 global sulphur limit - Frequently Asked Questions*."

IMO, (2023): "*IMO Strategy on Reduction of GHG Emissions from Ships*."

IMO (2017): "*Leading shipowners/operators, class societies, engine and technology builders and suppliers, data providers and oil companies sign up to Global Industry Alliance to support shipping towards a low carbon future.*"

ISO 14001, (2015): "*Environmental management systems — Requirements with guidance for use*"

Lall, D. (2024): "*Venice Doubles Tourist Entry Fee: A Bold Step Towards Sustainable Tourism*". Europe Incoming.

Lloret, J., et al. (2008): "*Impacts of recreational boating on the marine environment of Cap de Creus (Mediterranean Sea).*" Ocean & Coastal Management, 51(11), 749-754.

Jean-Marie, D. (2020): "*The role of shipping and marine transport in developing blue economies*". In The Caribbean blue economy (pp. 143-155). Routledge.

Jones, P., Comfort, D., & Hillier, D., (2019): "*Sustainability and the world's leading ocean cruising companies*". Journal of Public Affairs, 19(1).

Jones, P., Hillier, D., & Comfort, D. (2016): "*The environmental, social and economic impacts of cruising and corporate sustainability strategies.*" Athens Journal of Tourism, 3(4), 273-286.

Lau, Y. yip, Kanrak, M., Ng, A. K. Y., & Ling, X. (2023): "*Arctic region: analysis of cruise products, network structure, and popular routes*." Polar Geography, 46(2–3), 157–169.

Lee, T., Nam, H., (2017): "*A Study on Green Shipping in Major Countries: In the View of Shipyards, Shipping Companies, Ports, and Policies*." The Asian Journal of Shipping and Logistics.33(4),253-262.

MacLellan, R., (2019): "*A call for Caribbean governments to tax cruise sector more and tax air passengers less.*"

Macneill, T., & Wozniak, D., (2018): "*The economic, social, and environmental impacts of cruise tourism*". In Tourism Management, 66, pp. 387-404;

MARPOL, Annex V. (2013): "*Prevention of Pollution by Garbage from Ships.*"

MITAGS, (2023): "*Flag State vs. Port State*".

Molenaar, E. J. (2007): "*Port State Jurisdiction: Toward Comprehensive, Mandatory and Global Coverage*". Ocean Development & International Law, 38(1–2), 225–257.

Monios J. , Adolf K.Y. N. (2021): "*Competing institutional logics and institutional erosion in environmental governance of maritime transport.*"

Negret, Carlos Felipe Llinás, (2016): "*Pretending to be Liberian and Panamanian; Flags of Convenience and the Weakening of the Nation State on the High Seas.*" J. Mar. L. & Com. 47(1).

Ninan, J. (2023): "*Ports for SDGs: An Ecosystem Perspective on Infrastructure Megaprojects.*" University of Leiden.

Notteboom, T., Pallis, A., & Rodrigue, J. P. (2022): "*Port economics, management and policy.*" Routledge.

OECD (2018): "*Shipbuilding Market Developments Q2-2018*."

Olaniyi, E.O., et al. (2024): "*Smart regulations in maritime governance: Efficacy, gaps, and stakeholder perspectives*." Marine Pollution Bolletin.

Occupational Safety and Health Administration (OSHA), (2001): "*Ship Breaking Fact Sheet. US Department of Labor*".

Österman, C., Hult, C., & Praetorius, G. (2020): "*Occupational safety and health for service crew on passenger ships*". Safety science, 121, 403-413.

Pallis, T. (2015), "*Cruise Shipping and Urban Development: State of the Art of the Industry and Cruise Ports*", International Transport Forum Discussion Papers, No. 2015/14, OECD Publishing, Paris.

Port of Vancouver, (2024): "Port of Vancouver Environmental Programs."

Procter, A. (2011): "*Adaptation-mitigation conflicts in municipal planning: the case of heat wave preparedness in Vancouver, Canada*."

Psaraftis, H. N., Zis, T., & Lagouvardou, S. (2021): "A comparative evaluation of market based measures for shipping decarbonization." Maritime Transport Research, 2, 100019.

Santos, M., Radicchi, E., & Zagnoli, P., (2019): "*Port's role as a determinant of cruise destination socio-economic sustainability*." Sustainability, 11(17), 4542.

Seidl, A., Guiliano, F., & Pratt, L., (2006): "*Cruise tourism and community economic development in Central America and the Caribbean: The case of Costa Rica*." PASOS. Revista de Turismo y Patrimonio Cultural, 4(2), 213-224.

Sharmina , M. et al. (2020): "*Decarbonising the critical sectors of aviation, shipping, road freightand industry to limit warming to 1.5–2°C*." Climate Policy.

The Maritime Executive, (2021). "Norway Sets Its Sights on Emission-Free Cruise Ships."

Tonazzini, D., Fosse, J., Morales, E., González, A., Klarwein, S., Moukaddem, K., Louveau, O. (2019): "*Blue Tourism. Towards a sustainable coastal and maritime tourism in world marine regions*." Edited by eco-union. Barcelona

Topic, T. et al. (2023): "*NOx Emissions Control Area (NECA) scenario for ports in the North Adriatic Sea*." Journal of Environmental Management.

Transport & Environment, (2023): "*The Return of the Cruise*."

United Nations, (1994): "*United Nations Convention on the Law of the Sea (UNCLOS)*". Articles 91, 92, and 94.

US EPA – United States environmental Protection Agency (2008): "*Cruise Ship Discharge Assessment Report. US EPA Oceans and Coastal Protection Division*". Washington.

U.S. Green Building Council: *LEED-certified green buildings are better buildings*.

U.S. Environmental Protection Agency. (2008). "*Vessel General Permit (VGP)*."

Véronneau, S., & Roy, J. (2009): "*Global service supply chains: An empirical study of current practices and challenges of a cruise line corporation*." Tourism Management, 30(1), 128-139.

World Economic Forum (2024). "*Why is the shipping industry not decarbonizing faster?*"

WWF, (2016): "*Royal Caribbean Cruises Ltd. and WWF announce global partnership to support ocean conservation*."

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