

SUSTAINABLE TRENDS IN THE CRUISING INDUSTRY

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Abstract:

The cruising industry sets a positive example for tourism development. With a high pace in terms of new and frequent passengers, new ships, different types of travel, increasing revenues, and others, it stands out to be the most dynamic sector of tourism. Appealing to a wide range of customers, offering a variety of amenities, events, activities and itineraries, cruising is nowadays the most rapidly growing industry. Technological advancements and all-inclusive services provide travelers with the opportunity of bleisure travel, enjoying both the on-board facilities, itineraries and shore excursions.

The increasing demand for this type of travel and the expansion of large cruise vessels are raising concerns about the sustainability of cruising industry. Even though important steps have been taken to overcome the negative impact of cruising on the environment, the question remains "Can the cruising industry be sustainable?"

Keywords: cruise industry, trends, challenges, boutique cruise, sustainability.

JEL Classification: Z30.

1. Introduction

Since cruising has become so popular among all age categories, the demand for cruising has strongly increased, as an important option compared to the traditional holiday. More tourists are considering taking a cruise for the first time, having the option of choosing between a variety of themed cruises, diverse amenities and activities offered. The "floating resorts" represent a different type of travel altogether, with an ascending trend regarding the number of passengers and new ships to arrive. Cruising companies have increased the number of ships and their capacity, higher demand and stronger competition leading to the development of larger ships.

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While the positive impact is remarkable worldwide, the negative aspects should be addressed by proper regulations and policies. Major concerns are the environmental related issues, such as air and water pollution, the noise pollution, the greenhouse gases, the waste disposal etc., but socio-economic impact should not be overlooked.

2. The impact of cruising on the environment

Pollution is among the most negative effects of cruise ships, having a significant impact on the environment by causing sulfur oxide emissions, nitrogen oxide emissions, carbon emission, black carbon, heavy metals, methane, waste streams, impact on ecosystems, air and noise pollution in ports etc.¹

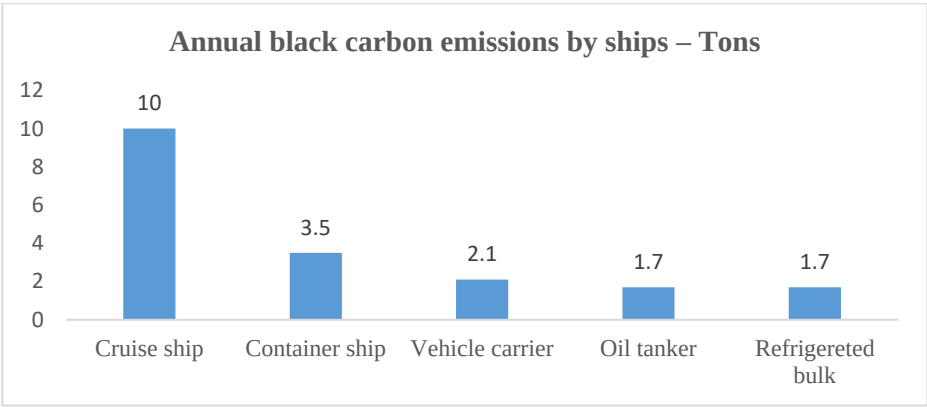
2023 studies have revealed that cruise ships are polluting more than the traffic of all cars in key port cities², with notable examples such as:

- *Barcelona* – 106 ships determine 18,277 SOx emissions; 531,749 cars generate 6,481 SOx emissions;
- *Port of Rome (Civitavecchia)* – 103 ships with 16,307 SOx emissions; 34,139 cars with 416 SOx emissions;
- *Palma de Mallorca* – 79 ships causing 12,285 SOx emissions; 248,207 cars with 3,025 SOx emissions;
- *Hamburg* – 47 ships with 10,445 SOx emissions; 813,847 cars with 9,919 SOx emissions;
- *Southampton* – 45 ships leading to 9,676 SOx emissions; 93,390 cars with 1,138 SOx emissions;
- *Marseille* – 75 ships resulting in 8,763 SOx emissions; 369,433 cars with 4,503 SOx emissions.

The data presented showcases the disparities between SOx emissions of cruise ships and passenger cars, also taking into consideration the high proportion of cars in rapport with the numbers of cruise ships. This offers a clear example of how cruise ships have a detrimental impact on the environment.

¹ <https://www.greenmatch.co.uk/blog/maritime-sustainability>

² <https://www.transportenvironment.org/articles/europes-luxury-cruise-ships-emit-as-much-toxic-sulphur-as-1bn-cars-study>



Source: <https://www.statista.com/chart/27353/worst-black-carbon-polluters/?srsltid=AfmBOoqs7NfVhh9L2UX-8-DNLX4w9B1jAGAGqsfx7SFz6MyocpI7nKMo>

The table above shows the amount of black carbon emissions at annual level by the most representative fleet. As can be seen the highest number is registered by cruise ships, ranking first with a major difference between the first and second place, in this case the container ships. It is important to consider the share of the global fleet³: cruise ship 1%, container ship 7%, vehicle carrier 1%, oil tanker 8% and refrigerated bulk 1%. Although it accounts for only 1% of the world fleet, cruise ships are generating 24% of waste produced by ships in the ocean⁴.

When analyzing pollution effects air transport is usually considered, but specialists have identified cruise ships as being the most responsible one, with four times more emissions of carbon dioxide per passage per mile per plane.⁵

Such detrimental impact on the environment has urged companies to take important actions towards a more sustainable development of cruising. Emerging trends regarding the huge capacity of vessels and the increasing number of ships built raise the question of sustainability and responsible tourism. Shift in the demand structure and the ability to incorporate work with leisure as a bleisure concept on the rise, are sustaining the growth of the industry and therefore the need to address the overall negative impact.

3. Overview of the cruising industry

The cruising industry is constantly evolving, adapting to new travel trends. The positive feedback of customers has made cruising one of the most captivating

³ <https://www.statista.com/chart/27353/worst-black-carbon-polluters/?srsltid=AfmBOoqs7NfVhh9L2UX-8-DNLX4w9B1jAGAGqsfx7SFz6MyocpI7nKMo>

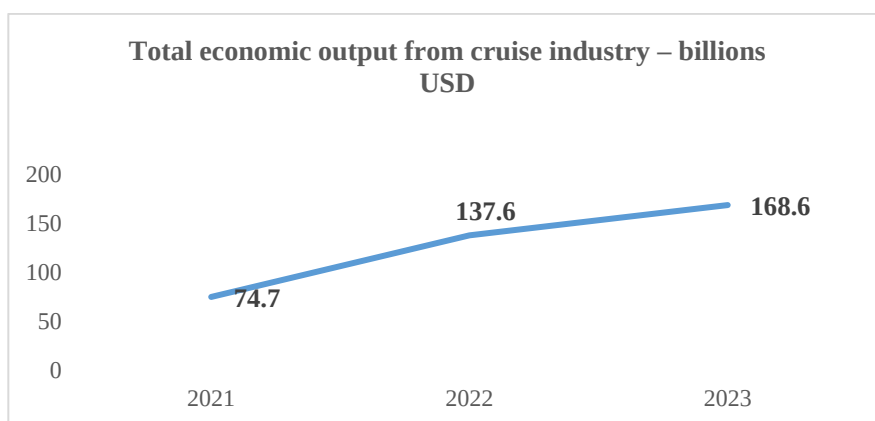
⁴ <https://www.theinvadingsea.com/2024/05/07/cruise-ships-waste-carbon-emissions-environmental-impact-pursuit-by-azamara-recycling-fuel/>

⁵ <https://www.environmentenergyleader.com/stories/cruise-ship-pollution-exceeds-urban-emission-levels,59797>

experiences, chosen by baby boomers in particular, families and multi-generational travelers, solo travelers, and more than before by gen z and millennials representatives.

Technology plays an important, innovative role in providing travelers with efficient itinerary options and enhanced experiences, especially for customers that choose to combine work with leisure; while technology is generally accepted as significant, digital detoxification and reconnection with the environment stands to be another important trend in the future of cruising.⁶

The call for luxury cruises has experienced substantial growth, with triple value since 2010, estimating 1.5 million luxury travelers by 2028.⁷ Boutique cruises are gaining popularity, reorientating towards luxury experience, personalized products and services and unique and interesting itineraries. Authentic and immersive experience of boutique cruises together with their more sustainable approach defines an increasingly notable segment of future cruising, the global boutique cruise market size estimated to reach 6.86 billion USD in 2033, as compared to 2.87 billion USD in 2024.⁸



Source: <https://cruising.org/sites/default/files/2025-07/State%20of%20the%20Cruise%20Industry%20Report%202025.pdf>

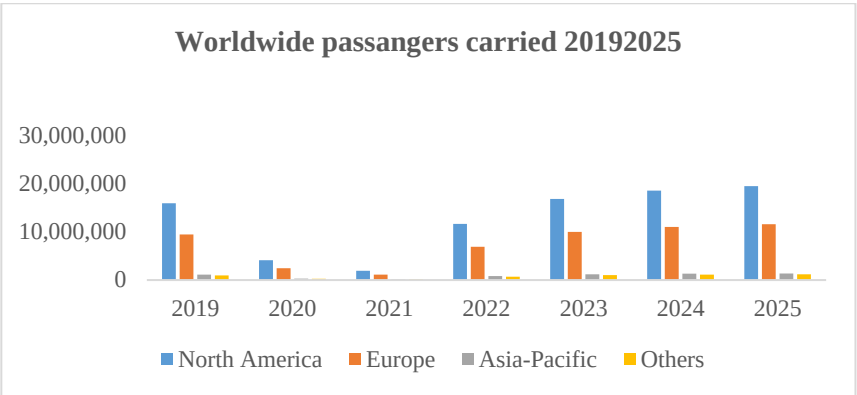
The economic impact of cruises has had a positive trend, from 74.7 billion USD in 2021 to 168.6 billion USD in 2023. Profoundly affected by Covid-19 pandemic, the industry had gone through rapid transformation reaching more than double the value of 2021 in terms of global economic output. The cruising market size is expected to achieve 263.77 billion USD in 2030⁹.

⁶ <https://www.the-travel-franchise.com/cruise-travel-trends-predictions-a-look-into-the-future-of-cruising/>

⁷ <https://cruising.org/sites/default/files/2025-07/State%20of%20the%20Cruise%20Industry%20Report%202025.pdf>

⁸ <https://dataintelo.com/report/boutique-cruise-market>

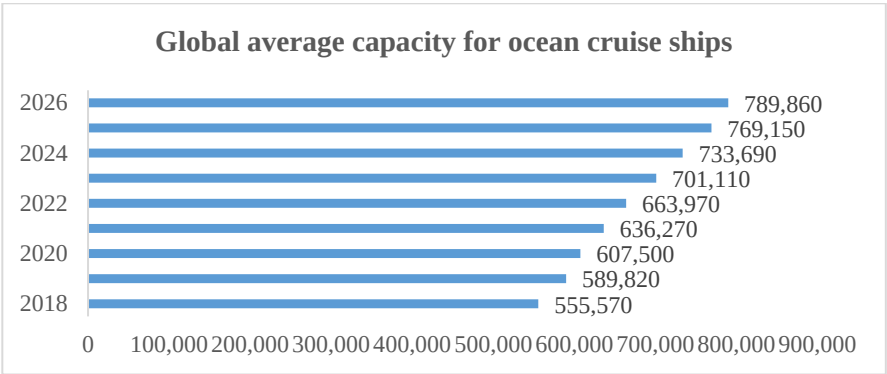
⁹ <https://www.mordorintelligence.com/industry-reports/cruise-tourism-market>



*Source region of passengers

Source: <https://cruisemarketwatch.com/growth/>

The table above presents the evolution of passengers carried out in the period 2019-2025, regarding the main source region. North America is the leader with almost 20 million passengers in 2025, followed by Europe with approx. 12 million passengers and thirdly Asia-Pacific region with 1.4 million passengers; Worldwide the number of passengers in 2025 has attained 33.6 million compared to 27.5 million in 2019.¹⁰



Source: <https://photoaid.com/blog/cruise-industry-statistics/?srsltid=AfmBOopXSI dzacsY5GCXeM dFqR9vtlq9J-g5vS8KGMmtmqkhjN-NYVoZ>

Tabel above offers a comprehensive perspective over the evolution of cruise ships global capacity over the latest years, with a prediction for 789,860 accommodation passengers in 2026. The figures mentioned are strongly connected to the general trend of building new and larger ships. Major companies are investing in developing their fleet, this been the case of *Carnival Corporation* owning 95 ships with a high capacity of 257,120 passengers; Further examples

¹⁰ <https://cruisemarketwatch.com/growth/>

supporting this are the *Royal Caribbean* with 58 ships that are catering for 155,430 passenger capacity and the *Norwegian* that operates 34 ships with 71,510 passenger capacity etc.¹¹

4. Sustainable tourism in the cruising industry

As tourism grows, so does the need for responsible travel. Companies are struggling to reduce the negative impact of cruising by researching and implementing new eco-friendly technologies, by addressing major issues like pollution, waste management, social and economic inequities etc. These actions are supported by consumers in their choice of travel, sustainable practices are contributing to the decision making regarding the type of cruise, itinerary, cruise line environment appropriate initiatives and others.

Such innovative initiatives are focused on:¹²

- *Cleaner fuels* – many cruise lines are now using LNG – liquefied natural gas, that has the property of burning cleaner and therefore to reduce carbon emission by a significant level;
- *Energy efficiency* – modern cruise ships are equipped with power saving technologies for reducing fuel consumption such as solar panels, led lighting, performance-optimized hulls etc.
- *Waste management* – cruise lines are using advanced waste treatment systems for recycling and reducing waste, therefore lowering considerable the waste that reaches landfills, or the ocean.

Responsible courses of action are moving towards:¹³ the technology development by using new engines and propulsion solutions, new fuel supply and onshore power capacity, operational management in terms of digitalization, reduce waste and energy consumption and strategically planned routing and itinerary. Strategic plans have already been applied, as number shows, based on CLIA – Cruise Line International Association statistics:¹⁴

- 19 ships, representing 13% of fleets' global capacity are implementing the use of NLG as their main fuel for propulsion;
- 71 ships consisting of 25% of fleet and over 20% of global capacity adopted SCR (Selected Catalytic Reduction technology), with an expansion of 34% from 2023; This technology helps decrease the emission of particulate matter and nitrogen oxide.

¹¹ <https://cruisemarketwatch.com/capacity/>

¹² <https://www.mtatravel.com.au/clia-2024-green-waves-the-rise-of-sustainable-cruising/>

¹³ <https://cruising.org/sites/default/files/2025-07/State%20of%20the%20Cruise%20Industry%20Report%202025.pdf>

¹⁴ <https://cruising.org/news/cruise-industry-data-shows-continued-progress-toward-sustainability-goals>

- 147 ships are equipped for connecting to OPS (Onshore Power Supply), increased by 23% from previous year and with a prediction that 239 ships will be able to connect to OPS in 2028; By connecting to OPS in ports it allows ships to shut down their engines, thus generating a considerable emission reduction up to 98%.

- 225 ships comprising 80% of total are integrated with AWTs (Advanced Water Treatment Systems), with a growth of 11% from 2023 etc.

As can be seen, increasingly new initiatives towards sustainable cruising are leading the way, an aspect confirmed by current data and predictions. Future of cruising is strongly related to a responsible tourism industry, taking permanent actions to reduce the negative impact it generates.

Sustainable cruising therefore requires strategic measures for addressing gaps in international regulations, sharing best practices and regional cooperation, legislation adaptation for encouraging sustainable practices, along with clean technology implementation and promoting sustainable behaviours of companies and tourists.¹⁵ Creating the framework for sustainable tourism must consider a series of adjoining actions that take into account the international regulations and international aligned certifications, national and international countries cooperation, private-public partnerships for encouraging clean technology research and development, responsible behaviour of all actors involved etc.

5. Conclusions:

The future of the cruising industry is linked to the implementation of sustainable practices. The rapid development of cruising and the major impact on the environment raise important concerns at international level. Advancement in technology and research shows that sustainable cruising is not only a possibility but can represent a future reality, through joint actions regarding regulations, proper practices and behaviours of responsible tourism.

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¹⁵ https://bluetourisminitiative.org/wp-content/uploads/2024/09/BlueTourism_Cruise_Report.pdf

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