

Cruise ships must be effectively regulated to minimise serious environment and health impact

The cruise ship industry should be subject to global monitoring and effective legislation because of its continuous increasing impact on both the environment and human health and wellbeing, according to new research.

An international research team led the most comprehensive research review ever conducted on what was one of the fastest growing industries in tourism before the pandemic.

The review, published in [*Marine Pollution Bulletin*](#), finds that cruising is a major source of environmental pollution and degradation, with air, water, soil, fragile habitats and areas and wildlife affected.

The research also finds that the cruise ship industry is a potential source of physical and mental human health risks, to passengers, staff and land-based residents who live near ports or work in shipyards. Risks to specific groups include the spread of infectious diseases, including COVID-19 outbreaks widely reported on some cruise ships. The review also found evidence of the impacts of noise and air pollution on health, and difficult working environments for boat and shipyard staff potentially resulting in injury and mental health issues.

The review combines evidence from more than 200 research papers on the health of people and the environment in different oceans and seas around the world. The research was conducted by a collaboration spanning Spain, Croatia and the UK.

First author Dr Josep Lloret, of the University of Girona, said: “Our paper highlights that cruising is a prime example of how the fates of our health and our environments are intertwined. Up until now, most studies have looked at aspects of this in isolation. Our review is the most comprehensive to date to combine these research fields and take a holistic view of how cruising damage our environments and our health. We now need global legislation to minimise damage on both our oceans and our health.”

Professor Lora Fleming, of the University of Exeter, an author of the review, said: “Cruise tourism is a was rapidly expanding pre COVID-19, and our research shows it causes major impacts on the environment and on human health and wellbeing. We need much better monitoring to generate more robust data for the true picture of these impacts. Without new and strictly enforced national and international standardised rules, the cruise industry is likely to continue causing these serious health and environmental hazards.”

The review combined research papers on a range of factors which have environmental or health impacts, or both. In one example, they synthesised six papers on carbon dioxide emissions, which have significant impacts on both human and environmental health, through contributing to global warming. Available research suggest that a large cruise ship can have a carbon footprint greater than 12,000 cars. Passengers on an Antarctic cruise can produce as much CO2 emissions while on an average seven day voyage as the average European in an entire year. Within the Mediterranean, cruise and ferry ship CO2 emissions are estimated to be up to 10 per cent of all ship emissions.

A 2007 study found that emissions factors for cruise ships journeying to New Zealand were at least three times higher than emissions factors relating to international aviation. Energy use for staying overnight on a cruise vessels was 12 times larger than the value for a land-based hotel.

The paper also includes research on solid waste as example of an activity from cruise ships which impacts both health and environment. Reducing plastics and marine litter are major global challenges, and a total amount of rubbish produced by a cruise ship carrying 2,700 passengers can exceed a ton per day. While cruise vessels make up only a small percentage of the global shipping industry, it is estimated that around 24 per cent of all waste produced by shipping comes from this sector. Figures calculated for cruise ship visits to Southampton during August 2005 indicated that 75 per cent of garbage being generated by passengers on board was incinerated and disposed of at sea, with a number of reports of illegal waste disposal reported in the Southern Ocean.

Co-author Dr Hrvoje Carić, of the Institute for Tourism in Croatia, said: “When environmental standards between cruisers and land-based polluters are compared, it becomes clear that there is a lot of room for improvement. We’ve long known that cruise ships cause damage to the environment, however it’s hugely important to incorporate the impact on human health into that picture. We hope that research like this will prompt action to help cruise industry become more environmentally sustainable.”

The article is " Environmental and Human Health Impacts of Cruise Tourism: a Review", by Josep Lloret, Arnau Carreño Hrvoje Carić, Joan San, Lora E. Fleming, (10.1016/j.marpolbul.2021.112979). It appears in [Marine Pollution Bulletin](#), Volume 173, (September 2021), published by [Elsevier](#).

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About Marine Pollution Bulletin

Marine Pollution Bulletin is concerned with the rational use of maritime and **marine resources** in estuaries, the seas and oceans, as well as with documenting **marine pollution** and introducing new forms of measurement and analysis. A wide range of topics are discussed as news, comment, reviews and research reports, not only on **effluent disposal** and **pollution control**, but also on the **management, economic** aspects and **protection** of the **marine environment** in general.

Disclaimer

Professor Fleming worked as an Epidemiologic Consultant for Royal Caribbean Cruise Lines from 1995-2006; all monies were paid to her former employer, the University of Miami School of Medicine.