

WINDHILL

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Ship Happens. The Environmental Impacts of Cruise Tourism

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CO₂ Emissions

Cruise ships are responsible for 17% of CO₂ emissions (458 000 tonnes) in Norway. 14.1% of these pollutants are deposited directly at ports such as Bergen, affecting the health of those living there. Even though these emissions affect local people and wildlife, it is estimated that they will continue to increase by 73% by 2030.



Ballast Water

Ballast water is water that ships store onboard to serve as additional weight to maintain buoyancy. However, this practice has significant ecological implications. Ballast water can transport unwanted aquatic organisms. As a result, an estimated 7,000 to 10,000 different species are dispersed globally each day through ballast water, posing risks to various ecosystems.

Tourism and Solid Waste

443,000 tourists visited Bergen via cruise in 2014. Along with tourist, comes a lot of associated waste. A 2017 study found an avarage of 678 items/km² in the Norwegian Sea, simply put, a lot of litter. This litter negative impacts livelihood of sea creatures through ingestion, suffocation and bioaccumulation just to name a few effects, and lead to a decrease in biodiversity.

Noise Pollution

Sound is crucial for underwater life. Animals, like this humpback whale, use sounds for feeding, mating, navigation, and communication. Noise from cruise ships can disrupt these activities, leading to reduced feeding, calling, and increased stress. This stress can weaken growth, fertility, and immunity. Sudden surfacing due to



Ocean Acidification

23% of annual CO₂ emissions are absorbed by the ocean. CO_2 reacts with seawater, causing ocean acidification, which dissolves $CaCO_3$, an important component for calcified organisms like me! It erodes my shell and prevents my babies from developing theirs. But ocean acidification can also influence snail behavior. Froehlich et al. (2020) found gastropods effected by acidification do not avoid crab predator cues! Could this become a new reality for Norweigian sea snails?

Graphics by Sofia

disturbances can cause decompression sickness in whales, posing a fatal risk.

A LIFE RELOW WATER