

Shipping Noise

The natural sounds of the ocean are magnificent in their range, beautiful in their delivery and stunningly varied. But these

sounds are in danger of being overwhelmed by human noises and vibrations as never before. It is whales and dolphins which can be especially badly affected. With limited sight and smell, sound is all-important for them. Since they often communicate over long distances, their chain of communication is particularly vulnerable to human-induced noise. A particular problem arises if mammals are communicating at the same low-frequencies as 'man-made' noise. Although sonar testing and pile driving cause

real noise problems, the main culprit is shipping. Roughly 80% of international trade goods are transported by ships. Over 100,000 large commercial vessels are criss-crossing the world's oceans. The numbers continue to grow. They are clearly important for international trade which has contributed to the reduction in global poverty in recent decades. But they create a lot of noise.



Although sonar testing and pile driving cause noise problems in the ocean, shipping is the main culprit

There are two key factors generating the noise:

One is the speed at which the ships are travelling. It is estimated a 10% reduction in speed would cut global underwater noise from shipping by between 40% and 50% (18). It would also tackle CO₂ from shipping – which is a real problem – by around 13%. The International Maritime Organization (IMO) in April 2018 committed to reduce the total annual greenhouse gas emissions by at least 50% by 2050 compared to 2008, with the aim of phasing them out entirely. One element of the strategy is to consider and analyze the use of speed optimization and speed reduction, taking into account the impact on safety, distance travelled, the market, trade and on shipping's capability to serve remote geographic areas.

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The second is the propellers. As the blades turn, they create thousands of tiny bubbles, a process known as 'cavitation'. It is the sound of these bubbles bursting that causes the noise. Ship engines are a distant secondary contributor. The shipping industry has been slow to act. It would be in its interest to do so since reducing cavitation noise will cut fuel costs. The industry is supportive of improved design standards for new ships being mandatory but is reluctant to retrofit existing ships.

The industry is doing a lot more to tackle noise than it was but hasn't committed to the same sort of clear target it has done with climate emissions. It will undoubtedly weigh up the economic impacts of the different measures to cut noise and climate emissions but it has become clear in recent years it is beginning to sail in a different, quieter direction. However, the journey has only begun.

(1). <https://www.frontiersin.org/articles/10.3389/fmars.2019.00505/full>

- For more information on the topic of underwater noise check out the Jonas Project: <http://www.jonasproject.eu/oceannoise/>