



© Global Warming Images / WWF

Shipping and underwater noise: a growing risk to marine life globally

Melanie Lancaster
Senior Specialist, Arctic species
WWF Arctic Programme
mlancaster@wwfcanada.org





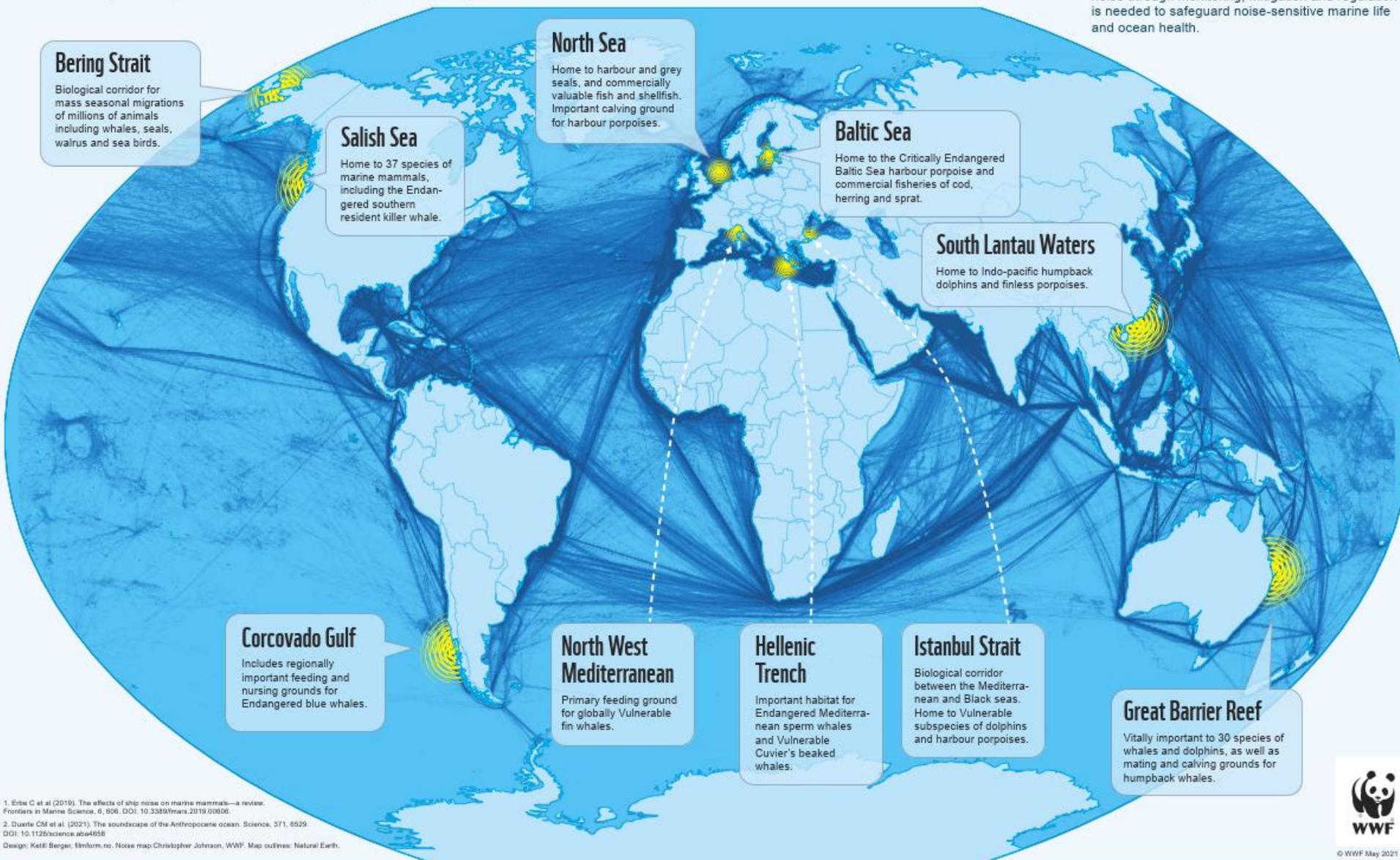
Shipping in the world's oceans

- Underwater noise from shipping leading contributor to ocean noise globally
- Shipping has increased the amount of underwater noise in the ocean over past 50 years
- Ship noise is present even away from shipping lanes due to long-range propagation
- Evidence of impacts on a multitude of species – whales, sea turtles, fish, invertebrates

OUR NOISY OCEANS: ship traffic risks marine life

Shipping is the leading contributor to ocean noise pollution worldwide¹. Some of the busiest ports and channels in the world's oceans overlap with important habitats for marine species that rely on underwater sound to survive.

- Many of these locations have experienced recent growth in ship traffic, with further increases expected in the coming decades.
- Underwater noise from shipping can have harmful impacts on marine life from shellfish to whales².
- Management of ship-generated underwater noise through monitoring, mitigation and regulation is needed to safeguard noise-sensitive marine life and ocean health.



1. Erbe C et al. (2019). The effects of ship noise on marine mammals—a review. *Frontiers in Marine Science*, 6, 806. DOI: 10.3389/fmars.2019.00806.

2. Duarte CM et al. (2021). The soundscape of the Anthropocene ocean. *Science*, 371, 8529. DOI: 10.1126/science.aba4058

Design: Kati Berger, kati.com.no. Noise map: Christopher Johnson, WWF. Map outlines: Natural Earth.



Underwater noise from shipping:

Pacific Ocean

Bering Strait

Biological corridor for mass seasonal migrations of millions of animals including whales, seals, walrus and sea birds.

The only link between the Pacific and Arctic oceans, will become a key shipping corridor as sea ice disappears.



© naturepl.com / naturepl.com / Franco Barili / WWF

South Lantau Waters

Home to Indo-pacific humpback dolphins and finless porpoises.

Heavy hourly, local and high-speed ferry traffic 24 hours a day. Vessel traffic is expected to increase due to marine development.



© Magnus Lundgren / Wild Wonders of China / WWF

Great Barrier Reef

Vitaly important to 30 species of whales and dolphins, as well as mating and calving grounds for humpback whales.

Export of natural resources via shipping is projected to increase.



© Shutterstock / Tomas Kotouc / WWF

Salish Sea

Home to 37 species of marine mammals, including the Endangered southern resident killer whale.

Important point of entry for international shipping between South Asia and North America.



© William W. Rossiter / WWF

Corcovado Gulf

Includes regionally important feeding and nursing grounds for Endangered blue whales.

At least 16 different activities are prompting growing maritime traffic.



© naturepl.com / Alex Mustard / WWF



North West Mediterranean

Primary feeding ground for globally Vulnerable fin whales.

One of the busiest seas in the world, traffic is expected to double in 15 to 20 years.



© naturepl.com / Luis Quinta / WWF

Istanbul Strait

Biological corridor between the Mediterranean and Black seas. Home to Vulnerable subspecies of dolphins and harbour porpoises.

Cargo ship traffic has increased tenfold over the past 80 years.



© Brian J. Skerry / National Geographic Stock / WWF

Hellenic Trench

Important habitat for Endangered Mediterranean sperm whales and Vulnerable Cuvier's beaked whales.

Heavy commercial and recreational shipping traffic will continue to increase.



© Hal Whitehead / WWF

Underwater noise from shipping:

Mediterranean Sea



Underwater noise
from shipping:

Arctic Ocean

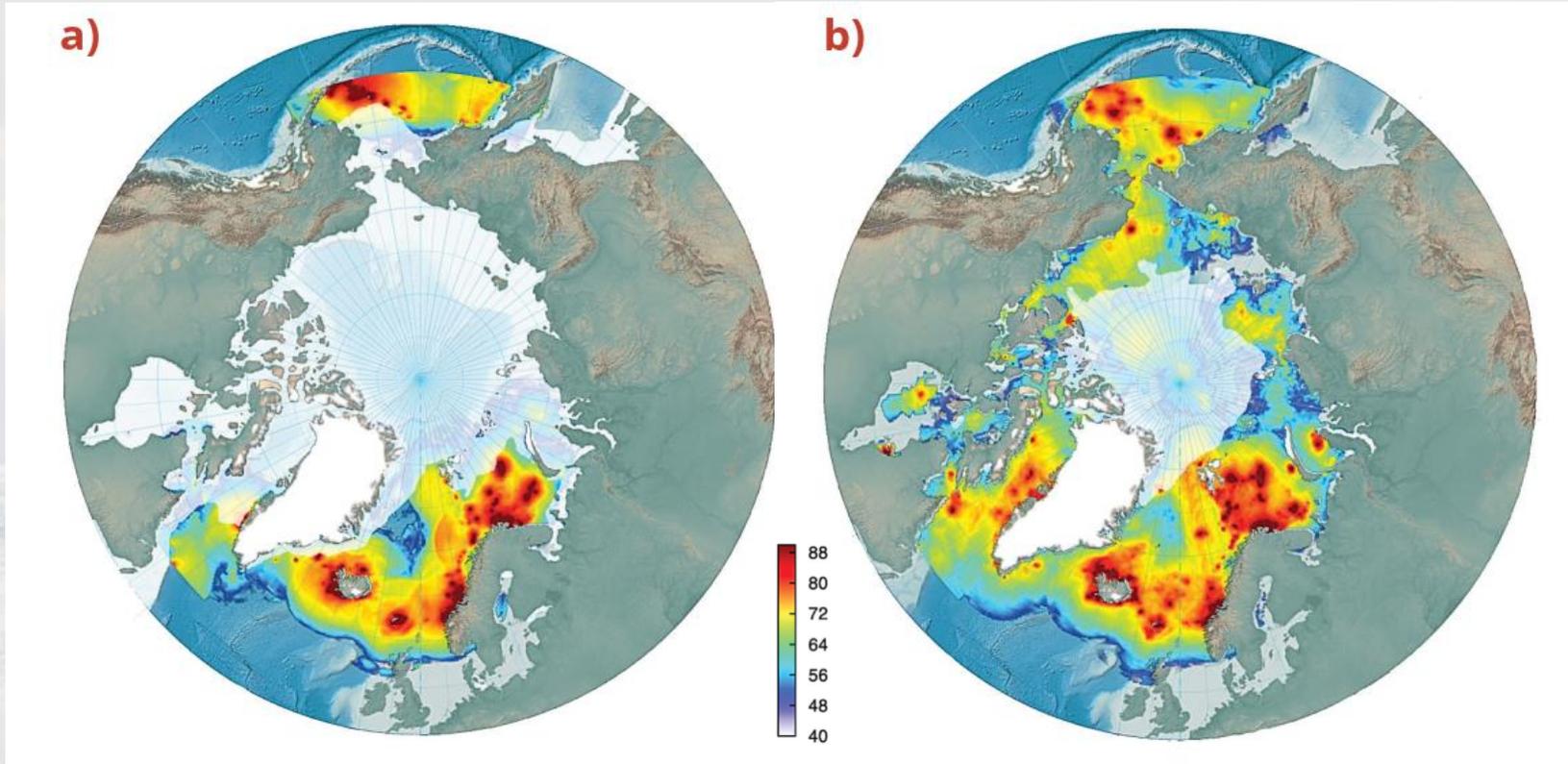


Fig. 1. Pan-Arctic 25Hz decade band weekly median SEL for a) March 2015 and b) September 2015 (SEL is in units of $\text{dB}/\mu\text{Pa}^2$).

Underwater noise from shipping mapped from 2013 – 2019 across the Arctic Ocean

In some regions, an increase of 5 – 15 dB over six years (@ 25 and 63 Hz) = a doubling of noise

Where shipping overlaps with noise-sensitive species, high levels of excess noise (15 – 30 dB @ 25 and 63 Hz)



Solutions and management

A range of measures deployed/considered in different locations

- Rerouting vessels
- Reducing maritime traffic speeds
- Offering financial incentives for quiet vessels
- Producing educational tools for voyage planning
- Providing support for research and monitoring

Quieter design, maintenance, policy



Thank you

For more information:

Melanie Lancaster
mlancaster@wwfcanada.org

Case studies, report and infographic:
<https://wwfwhales.org/resources>

