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ocean noise: Mediterranean gateways versus open oceans

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Anthropogenic noise pollution may mask natural sounds, which are fundamental to survival and reproduction of wildlife, especially for marine cetaceans as they are highly dependent on underwater sounds for basic life functions.

In the 21st century, shipping in the ocean has increased significantly and causes low frequency (10–100 Hz) noise which affects or hinders vital communication of large baleen whales at 15 to 30 Hz. Noise in the ocean has been monitored as a byproduct by IMS monitoring stations of the CTBTO. However, elsewhere for example at ocean gateways or in marginal seas little is known about the soundscape.

Here, we report long-term and short-term low-frequency noise measurements from Gibraltar, the gateway into the Mediterranean Sea and from the Pelagos Sanctuary, a Marine Protected Area, in the Ligurian Sea, Mediterranean. Ambient noise is derived from calibrated moored ocean-bottom-hydrophones deployed for earthquake monitoring and seismic campaign work. Observations are compared to noise levels in the range of 1 to 100 Hz as revealed at CTBTO monitoring sites in the Atlantic, Indian and Pacific Ocean. Most profoundly, noise levels in the Mediterranean and near Gibraltar are significantly increase by up to 20 dB at 40 Hz when compared to the open oceans.

Promotional text

Research provides unique data on the soundscape of the oceans, documenting the global variability of the ocean noise levels, nurturing a sustainable management of our seas and oceans and protection of marine life. Observations will guide society, stakeholders, and governments.

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