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SEASOUND - Innovative marine soundscape characterization to effectively mitigate ocean and sea noise pollution

SEASOUNDS aims to better characterize and predict marine soundscapes, in order to provide recommendations for appropriate and proportionate underwater noise mitigation solutions, for improved know-how, decision-making and standards setting for a sustainable Blue Growth limiting the impact on marine wildlife. SEASOUNDS addresses important knowledge gaps related to understanding, characterization and modeling of the entire noise transfer chain, from the noise source (e.g. offshore foundation installation, unexploded ordnance UXO disposal, shipping) to the receiver (whether a technological tool or an animal). SEASOUNDS' methodological approach is built around the idea that, to address effectively these complex scientific questions, we need to go beyond the underwater acoustics-related approaches.

Thus, SEASOUNDS incorporates concepts, models, and tools from seismology and mechanics to: (i) develop solutions based on Distributed Acoustic Sensing (DAS) technology to monitor marine mammals and provide information on seabed properties; (ii) characterize the soundscape of eco-regions where noise pollution is poorly known and hence insufficiently regulated, and highlight the temporal noise dynamics marine life has to face; (iii) investigate methodology biases on noise assessment, biases being induced either by numerical models or by uncertainties in the environment properties; (iv) develop efficient physics-driven modeling of noise generation (including seabed vibrations) and propagation in shallow waters; (v) study the impact of noise and vibrations on marine invertebrates and plants; (vi) understand the link between exposures of individual animals and the overall quality of the habitat that the animals live in.

SEASOUNDS will train the next generation of professionals with high multidisciplinary, inter-sectoral, and transverse skills, who will comprehend noise pollution issues in a holistic way, and hence be highly valuable for public organizations, policy makers, and stakeholders who have to take science-based decisions.

Coordinator: Centre National De La Recherche Scientifique Cnrs

Beneficiary: Università degli Studi di Padova

UNIPD Supervisor: Lapo Boschi

Department: Department of Geosciences



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