

# Publication

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<b>Authors</b>	Alice Pari (CF)
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## Abstract

Two papers are under preparation and will be published in Scientific Data and Science of Total Environment Journals.

The two papers are:

1. Baseline assessment of underwater noise levels in the Northern Adriatic Sea (Scientific Data)
2. Underwater noise maps in the North Adriatic Sea: first atlas for year 2020 (Science of Total Environment)

Following are the two abstracts of the articles.

## Baseline assessment of underwater noise levels in the Northern Adriatic Sea

The protection of marine habitats from human-generated underwater noise is an emerging challenge. Baseline information on noise levels, however, are poorly available, especially in the Mediterranean Sea. To bridge this knowledge gap, the Italy-Croatia Interreg SOUNDSCAPE project run a basin-scale, cross-national, long-term underwater monitoring in the Northern Adriatic Sea. A broad network of nine monitoring stations, characterized by different natural conditions and anthropogenic pressures, ensured acoustic data collection from March 2020 to June 2021, including the first full lockdown period related to the Covid19 pandemic. Calibrated stationary recorders featured with an omnidirectional Neptune Sonar D60 Hydrophone recorded continuously 24h a day (48 kHz, 16 bit). Here, we release the dataset composed of 20 seconds averaged Sound Pressure Levels (SPL) output files collected by SOUNDSCAPE and the specifically developed and validated Audio Noise Processing python code used to obtain the SPL. This dataset represents a benchmark for scientists and policymakers addressing the risk of noise impacts on marine fauna in the Mediterranean Sea and worldwide.

## Underwater noise maps in the North Adriatic Sea: first atlas for year 2020.

A first atlas on underwater noise was composed by annual and monthly maps in the North Adriatic Sea developed in the context of the transnational Interreg EU SOUNDSCAPE project from January to December 2020. Noise modelling was performed by Quonops© underwater noise prediction system. Bathymetry, grain size, temperature and salinity as well as wind distributions were used as input data, together with the instantaneous positions of every vessel carrying an AIS system on board. Maps showing the Sound Pressure Levels (SPL) for four 1/3 octave bands centred at 63 Hz, 125 Hz, 250 Hz and 4000 Hz were given by the model for three depth ranges. For each noise map, seven percentiles were made available. Monthly natural and baseline noise maps were provided: baseline noise maps content traffic and natural noise contributions; natural noise maps contain ambient noise in the absence of any contribution from anthropogenic sources. A total of 2184 maps were created. A pre- and post-processing technical validation of this output is here provided. This dataset fills a relevant gap in Mediterranean noise distribution knowledge and covers needs as defined in existing and emerging national and international regulations regarding pollution levels and the preservation of habitats, marine ecosystems and the protection of marine species.