

# On the Need for Standardized Bioacoustical Terminology

## Summary

Communicating about and addressing the issue of underwater radiated noise requires a common understanding of all associated terminology. At present, there are no international standards for the field of aquatic bioacoustics, which hinders the ability of researchers and governments around the world to address this global issue.

## RECOMMENDATION

The SATURN project urgently recommends the adoption of existing international terminology standards and the development of standardized and agreed-upon terminology to facilitate effective communication, a pre-requisite for monitoring and mitigation efforts worldwide.

## Context

The adoption of well-defined terminology is an essential pre-requisite for making progress toward the monitoring and reduction of underwater radiated noise from vessels. Using standardized terminology is particularly important for international policy, yet many terms currently in use in research and policy documents lack clear and harmonised definitions — which may lead to confusion at best, and misunderstanding at worst. For example, Commission Decision 2017/848, which provides specifications and standardized methods for the monitoring and assessment of underwater noise under the **Marine Strategy Framework Directive (MSFD)**, refers to both “impulsive sound” and “continuous low-frequency sound”, but defines neither.



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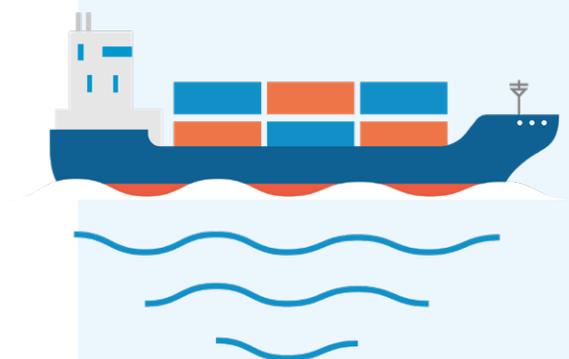


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**SATURN** is an EU-funded research project examining solutions to underwater radiated noise from shipping and other vessels.

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Recognising the urgent need for well-defined and widely understood terminology, international experts on the EU-funded [SATURN project](#) are developing definitions for terms used in the field of marine bioacoustics, for which there are no existing international standards ([IQOE, 2021](#)). SATURN work defines frequently used but poorly defined terms such as acoustic disturbance, acoustic tolerance, dose and biological response, as well as various terms for quantifying sound exposure. SATURN's draft definitions are already being used by [TG Noise](#), the EU expert advisory group that advises EU Member States on matters related to the monitoring and assessment of underwater noise within the Marine Strategy Framework Directive. A public report containing these agreed-upon definitions will be available in October 2024.

## International Standardization

Two existing international acoustical terminology standards are:

- [ISO 80000-8:2020 Quantities and units – Part 8: Acoustics](#)
- [ISO 18405:2017 Underwater acoustics – Terminology](#)

These provide a basic lexicon to facilitate effective communication between stakeholders, and create a firm foundation for the development of standards specific to bioacoustics.

To promulgate SATURN's efforts to develop standards and methods to measure, assess and compare the impacts from underwater noise from shipping and boats, SATURN supported the creation of a new working group ([ISO TC 43/SC 3/WG 6 Aquatic bioacoustics](#), henceforth abbreviated WG6) of the International Organization for Standardization (ISO). The first project to be carried out by WG6 is to develop an international standard for bioacoustical terminology. The purpose of the new terminology project is to standardize terms and definitions for aquatic bioacoustics, including biotremology (production or reception of vibrations).

### RECOMMENDATION

SATURN recommends the global adoption and use of existing ISO terminology standards in underwater acoustics and use of the forthcoming SATURN Terminology Standard to facilitate effective communication to guide projects dedicated to understanding bioacoustics and mitigating underwater noise exposure.



**MSFD D11:** Under the Marine Strategy Framework Directive, there are two criteria for reaching Good Environmental Status related to Descriptor 11, which pertains to energy and noise. **D11C1** refers to anthropogenic impulsive sound in water. **D11C2** refers to anthropogenic continuous low-frequency sound in water.

**TG NOISE:** The Technical Group on Underwater Noise helps to coordinate the implementation of Descriptor 11 of the MSFD.



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