

AT-A-GLANCE

Recommendations for Underwater Sound Mapping

Stakeholder feedback from an underwater sound mapping workshop conducted by JONAS

Workshop Summary

Joint Framework for Ocean Noise in the Atlantic Seas (JONAS) is an INTERREG Atlantic Area-funded project that aims to address the risks of acoustic pressures on biodiversity by streamlining ocean noise monitoring and risk prediction. The project held an online workshop in April 2022 to present JONAS's work on sound mapping in the context of the MSFD framework (specifically Descriptor 11) to stakeholders. The discussion covered sound mapping and uncertainties and explored future research needs for effective decision making with JONAS stakeholders. By incorporating stakeholder feedback, the project hopes to encourage widespread uptake and adoption of better mapping approaches and associated resources.

Modelling & Uncertainty

Uncertainty is a very complex topic and an important challenge in underwater sound mapping. Focusing solely on reducing uncertainties (e.g. around measurements) is less effective than applying modelling approaches that aid in our understanding of whole systems. However, measurements that inform these models are not comprehensive and have inherent weaknesses. Models simplify complex processes, and the choices surrounding what to include in these models need to be conveyed to decision makers to address uncertainty and manage expectations. Further advances in sound mapping should reveal the most useful combinations of maps and approaches that can help navigate uncertainties.

ATTENDEES

Rijkswaterstaat (NL)
MITECO (ES)
Museu da Baleia (PT)
DPHLG (IE)
IEO (ES)
CNR-ISMAR (IT)
CNRS-LMA (FR)
World Ocean Council
TNO (NL)

“Sound maps illuminate the picture and allow us to pick apart the subtleties in space and time which are really important in decisions on what activities can coexist.”

Gerry Sutton
JONAS Project Coordinator
MaREI UCC

Key Recommendations

for the Future of Sound Mapping



Sound mapping research is only about a decade old. We're still at the beginning of the story.

Thomas Folegot
Quiet-Oceans

Full Report

Kopke K., Dozier A., Dellong D., Jesus S.M., Folegot T., Giannoumis J. and Sutton G. (2022).

JONAS 2nd Online Workshop – Underwater Sound Mapping Approaches: Event Summary & Participant Recommendations.

Available at jonasproject.eu

- Physics**
 There is a need to improve our understanding of the basic mechanisms and physics of sound in aquatic environments. Researchers need to better understand how making ships quieter or adjusting ship speed or shipping lanes can change the sound field – and if such actions are indeed reducing anthropogenic underwater noise.
- Taking Stock**
 The diversity of sound mapping approaches is important to facilitate exploration but there is a need to take stock of, evaluate, and select a set of common approaches.
- Accuracy**
 An assessment of sound mapping approaches and the different models developed is necessary to identify which approaches are the most accurate so that ensemble modelling can be undertaken
- Uncertainty**
 There is a need to better understand and communicate the limitations of models used to serve informed decision making.
- Policy Support**
 Understanding the underlying mechanisms of how potential policy actions and measures change the sound field (e.g. implementing restrictions on ship speed) is key, even if measurements aren't perfect. If those mechanisms are understood, informed support can be provided to decision makers.
- Integration**
 Sound mapping approaches cannot be the only answer for risk assessments and need to be integrated with other tools and approaches to provide fully developed decision support systems.
- Communication**
 Understanding the complexities associated with anthropogenic underwater noise can take extensive time and learning, and should be presented in an accessible way.