



jonas

Joint Framework for Ocean
Noise in the Atlantic Seas

1st ONLINE
UNDERWATER NOISE
WORKSHOP

Event Summary & Participant
Recommendations

30 June 2020



TABLE OF CONTENTS

| | | |
|---|--|----|
| 1 | INTRODUCTION | 2 |
| | // 1.1 JONAS WORKSHOPS | 2 |
| 2 | 1st ONLINE UNDERWATER NOISE WORKSHOP | 3 |
| | // 2.1 PURPOSE AND OBJECTIVES | 3 |
| | // 2.2 WORKSHOP PARTICIPANTS | 3 |
| | // 2.3 WORKSHOP STRUCTURE | 6 |
| | // 2.4 POST-WORKSHOP EVALUATION | 7 |
| 3 | DISCUSSION..... | 8 |
| | // 3.1 POTENTIAL CASE STUDIES | 8 |
| | // 3.2 DRAFT INDICATORS..... | 8 |
| | // 3.3 JONAS UNDERWATER NOISE VISUALISATION PLATFORM | 10 |
| | // 3.4 PLATFORM ACCESS & DATA/INFORMATION CONTRIBUTION | 11 |
| | // 3.5 EXPLORING INFORMATION & FUNCTIONALITY | 12 |
| 4 | PARTICIPANT RECOMMENDATIONS | 13 |
| | // 4.1 INDICATOR DEVELOPMENT | 13 |
| | // 4.2 JONAS UWN VISUALISATION PLATFORM | 13 |

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1 INTRODUCTION

The Joint Framework for Ocean Noise in the Atlantic Seas (JONAS) project, co-funded by the European Regional Development Fund (ERDF) through INTERREG Atlantic Area Programme, aims to streamline the monitoring and risk management of underwater noise in the northeast Atlantic ocean and support EU member states in meeting the requirements of the Marine Strategy Framework Directive (MSFD). Nine JONAS project partners have teamed up to examine and address the effects of underwater noise on sensitive species through eight interconnected Work Packages (WPs), which include specific project activities such as:

- The production of monthly noise and risk maps based on the spatial modelling of noise characteristics and the distributions of key sensitive species in order to support better planning and decision-making in EU Member States
- The development and demonstration of indicators for the risk of impact from shipping noise that are deemed suitable for OSPAR and MSFD assessment and local underwater noise management
- The development of an online underwater noise visualisation platform, to provide a communal workspace designed to make technical material more accessible and transform it into user-friendly tools and services for use by policymakers and researchers
- The examination of five case studies looking at the impacts and effects of acoustic pollution, ship quieting methods, seismic survey operations, offshore wind energy devices, and acoustic deterrent devices in aquaculture.

More information about JONAS can be found online at www.jonasproject.eu or on Twitter at [@jonas_project](https://twitter.com/jonas_project). You can also contact us directly via email at jonas@ucc.ie.

// 1.1 JONAS WORKSHOPS

JONAS stakeholder engagement and knowledge exchange between the project and its stakeholders is designed to be of mutual benefit for all involved and participating. A series of workshops in development will act as a focal point for the proactive engagement of JONAS stakeholders. These workshops are planned to interactively present, discuss, develop understanding and build a consensus around the outputs and management approaches proposed and developed within JONAS. The workshops specifically serve to gather input and feedback from stakeholders to develop and fine-tune the JONAS underwater noise visualisation platform, so that the requirements of policymakers, decision-makers, and

researchers are met. By incorporating stakeholder feedback, the project hopes to encourage widespread uptake and adoption of this digital resource.

The first JONAS workshop was initially scheduled to take place in Portugal in March 2020 and had to be cancelled due to COVID-19 restrictions. Subsequently, the project team designed and implemented an online workshop which was held on Tuesday the 30th of June 2020, from 10.00 to 12.30 Central European Summer Time (CEST).

2 1st ONLINE UNDERWATER NOISE WORKSHOP

// 2.1 PURPOSE AND OBJECTIVES

This online event aimed to facilitate a knowledge exchange between regulators, policymakers and scientists, with a focus on i) an initial proposal for defining an indicator concerning the risk of impact from shipping noise, and ii) the development of a user-friendly JONAS underwater noise (UWN) visualisation platform. The latter will support not only further research activities but also policy and decision makers in effective and implementable underwater noise management within the context of the Marine Strategy Framework Directive, Descriptor 11. The workshop had the following objectives:

- To highlight current JONAS research and upcoming research outputs;
- To explore the JONAS Risk-Based Approach considering policy, legal and regulatory needs; and
- To work together on identifying user needs for JONAS UWN visualisation platform.

// 2.2 WORKSHOP PARTICIPANTS

The event was designed, trialled and implemented by JONAS project partners from:

- MaREI, the SFI Centre for Energy, Climate, and Marine Research at University College Cork, who are coordinating the project and responsible for project communication and stakeholder engagement;
- PLOCAN, the Oceanic Platform of the Canary Islands, who are leading on JONAS capitalisation efforts and are responsible for the JONAS Underwater Noise Visualisation Platform; and
- CEFAS, the UK Centre for Environment, Fisheries and Aquaculture Science, who are leading the JONAS work concerning MSFD threshold values for anthropogenic noise by developing proposals for how such thresholds can be defined.

JONAS partners from SHOM, the French Naval Hydrographic and Oceanographic Service, and Quiet-Oceans, a French-based consultancy that specialises in underwater noise, participated as JONAS experts to ensure that technical proficiency contained within the project was provided to answer stakeholder questions.

Ten project stakeholders brought their expertise to the JONAS online workshop and represented nine organisations, which are outlined in Table 1. JONAS stakeholders UPV, DGRM, DRM, IMAR and IEO (see Table 1) are also partners in JONAS's sister project, RAGES - *Risk based Approach to Good Environmental Status*. This connection strengthens synergies and collaborations between the two projects. RAGES is developing a conceptual frame for incorporation of risk-based approaches into the MSFD with a focus on invasive species (Descriptor 2) and underwater noise (Descriptor 11).

Table 1: Organisations represented at the online workshop by country and relationship with underwater noise

| ORGANISATION | DESCRIPTION | COUNTRY | UNDERWATER NOISE |
|---|--|-----------------------------------|--|
| ACCOBAMS (Intergovernmental Agreement) | The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area | International; based in Monaco | ACCOBAMS is addressing issue of underwater noise and impact on marine mammals in the Mediterranean, the Black Sea and part of the Atlantic Area. |
| MITECO (Ministry) | Ministry for Ecological Transition and Demographic Challenge (MITECO) is a Department of the Government of Spain | Spain | MITECO is responsible for developing government policies concerning environmental issues that include policy and regulation addressing underwater noise. |
| DRM (Regional Government) | Regional Directorate for the Sea of the Madeira Government | Madeira, Portugal | DRM is responsible for implementation and coordination of regional policy including public policy of the sea which includes addressing issues of underwater noise. |

| | | | |
|---|---|---------------------|---|
| Marine Scotland (Scottish Government Body) | Civil Service Directorate within the Scottish Government | Scotland, UK | Marine Scotland is responsible for leading the protection of Scotland's coastal waters and seas, which includes addressing underwater noise research and policy support. |
| IEO (Public Research Organisation) | Spanish Institute of Oceanography | Spain | IEO is dedicated to research in marine science, especially in relation to scientific knowledge of the oceans, which includes underwater noise e.g. in relation to MSFD implementation concerning acoustic continuous noise. |
| CTNaval (Non-Profit Association) | Marine Technology Centre | Spain | CTNaval support maritime and naval industry by promoting R&D activities and are specialised in underwater noise e.g. physical occurrence and spread, acoustics communications and relevant electronic design. |
| IMAR (Private and Non-Profit Organization at the University of the Azores) | Institute of Marine Research | Azores, Portugal | IMAR contains expertise in oceanic studies, with teams working on diverse research subjects including underwater noise. |
| DGRM (Government Department) | The Directorate- General for Natural Resources, Security and Maritime Services | Portugal | DGRM is the competent authority to implement the MSFD in Portugal with remits that include underwater noise. |
| UPV (University) | Polytechnic University of Valencia | Spain | UPV research covers wide-ranging relevant expertise such as capacity in passive acoustic monitoring and processing algorithms for detection of species and density estimation. |

Individual workshop participants have not been named within this report to ensure data protection is in line with GDPR regulations. However, the project team is happy to assist

readers of this document to establish contact with workshop participants if their expressed permission is granted.

// 2.3 WORKSHOP STRUCTURE

It was of utmost importance for the JONAS project team to engage with stakeholders in a way that fostered open and constructive dialogue. Therefore, the event was divided equally into presentations, where information was provided by the project team, and participatory segments that allowed for stakeholder input, feedback and discussion, including both a guided conversation and an open Q&A. Participants were able to provide their views and pose questions by either requesting to speak verbally or by commenting in the workshop platform’s chat function.

The workshop began with an overview of the JONAS project presented by Project Coordinator Gerry Sutton of UCC, who provided the background and context of the JONAS project for all involved. This was followed by the introduction of JONAS’s risk-based approach by Nathan Merchant of CEFAS, with a specific focus on the proposed indicator regarding impact risk to marine species from shipping noise. The subsequent open Q&A discussion allowed participants to provide feedback, input and recommendations, which are outlined in the *Discussion and Recommendation* sections of this report.

After a short break, workshop participants were introduced to the project’s vision for an underwater noise visualisation platform by Eric Delory of PLOCAN, which was followed by a guided conversation on the topic of the JONAS platform development facilitated by Kathrin Kopke of UCC. The guided conversation approach was adapted for this context based on participant Group Facilitation Methods developed by the Institute of Cultural Affairs (ICA). The questions applied an ORID (Objective, Reflective, Interpretive, Decisional) method to entice participants to engage and to ensure interactions are comfortable for all involved within the online workshop setting. This allowed for a more structured approach to gathering feedback on end-user requirements.

Table 2: Workshop Agenda

| JONAS WORKSHOP AGENDA | |
|-----------------------|--|
| 10:00 – 10:05 | Welcome and Introduction – Gerry Sutton, UCC |
| 10:05 – 10:10 | Meeting “Netiquette” – Pauhla McGrane, UCC |
| 10:10 – 10:35 | Setting the Scene – Gerry Sutton, UCC |
| 10:35 – 11:00 | Risk-Based Approach – Nathan Merchant, CEFAS |

| | |
|---------------|--|
| 11:00 – 11:15 | Break |
| 11:15 – 11:40 | Virtual Research Environment (VRE) – Eric Delory, PLOCAN |
| 11:40 – 12:20 | JONAS VRE: Guided Conversation – Kathrin Kopke, UCC |
| 12:20 – 12:30 | Summary & Wrap Up |

// 2.4 POST-WORKSHOP EVALUATION

The JONAS project team invited workshop participants to take part in a short post-workshop evaluation survey to provide the opportunity for feedback on the event, as well as to allow the project to assess and improve the quality and relevance of JONAS stakeholder engagement. Five out of ten workshop participants chose to take part.

All respondents' scores for questions on a five-point Likert scale showed they felt positive towards the duration and organisation of the event, as well as the quality of the presented material. Most of the survey respondents indicated that the event was relevant to their work, with three of the respondents suggesting that participation may influence their future work. Multiple choice questions showed that for all five respondents, the presentations and the guided conversation were equally useful in relation to their purpose of attending the workshop.

In open-ended comments, respondents stated that stakeholder participation during the online event was enhanced by the specific questions posed by the project team and that information was well presented and clearly explained, which facilitated a valuable discussion in the guided conversation portion of the event. Individual respondents highlighted that they would have preferred more time for discussion and possibly the inclusion of more topics of interest, and suggested that sending questions to participants prior to a future online event could be beneficial. Respondents emphasised an overall appreciation with regards to the project's openness and flexibility during discussions, which was perceived to support workshop participants' contributions concerning the future direction of the project.

3 DISCUSSION

// 3.1 POTENTIAL CASE STUDIES

Specific areas of concern were highlighted by workshop participants during the Guided Discussion. One topic of discussion concerned Madeira, where issues concerning underwater noise concentrate around the south coast and are caused by small whale watching vessels operating in an area that coincides with an important site of conservation, which is part of the Natura 2000 network. Stakeholders queried whether JONAS could assist in risk assessment for such areas, e.g. where most of the traffic is concentrated.

Automatic Identification System (AIS) data is the JONAS project's principle source of input in terms of evaluating underwater noise sources; however, small vessels of interest may not be equipped with transponders. Determining sound propagation by such vessels with a high degree of confidence in an area of rapidly changing hydrography will be a challenge, potentially necessitating additional local high-resolution data and associated modelling to provide a risk assessment with an adequate degree of confidence. JONAS will evaluate how support can be provided via project tools, and if successful, this could be a potential case study shared in the next JONAS workshop.

Participants also inquired whether the impact of activities such as dredging are being evaluated as a source of underwater noise within the JONAS project. While the project would incorporate such information when it is available, e.g. location and time, such information is not planned to be integrated to large regional scale maps as it is viewed as a relatively small contribution to overall noise levels compared to primary sources such as shipping vessels. However, the project could work on case studies for management, where dredging is important.

// 3.2 DRAFT INDICATORS

Prior to the workshop, participants were sent a draft report compiled by CEFAS on an initial proposal for defining an indicator for risk assessment from shipping. Stakeholder questions during the workshop indicated an interest in applying the presented method for different scales and amounts of underwater noise. The consortium confirmed that while certain levels are preferential for visual representation and understanding, the proposed indicators themselves are scalable.

Participants also highlighted potential limitations of the indicator regarding certain species for which information and data are lacking. Potential data issues were identified in terms of species location, e.g. for fish or invertebrate distributions. However, if viewed in a broader context, such as an area of known spawning grounds or areas under certain management regimes (e.g. Marine Protected Areas), then exposure could be examined for the geospatial extent in question and wouldn't require species density information. The indicator proposal was also discussed in the context of the RAGES project and its risk models. The consortium and participants highlighted the potential to compare results between the two projects for certain areas that are deemed potentially at risk. Such collaboration was viewed as extremely valuable in terms of developing methodologies but also with regards to adapting different methodologies and learning from each other.

Stakeholders highlighted the importance of terminology standards to distinguish clearly between a risk indicator and an exposure indicator. This discussion emphasised the need for cooperation between the JONAS and RAGES projects, and in this context related specifically to the vocabulary the RAGES project is developing. Furthermore, the discussion also indicated that attention should be given to who is using what terminology, and that terminology may differ when applied from a management perspective compared to research-focused environments.

Participant questions on indicator development concerned threshold values, and the subsequent discussion explored work done on impulsive noise where huge differences are found depending on the particular spatial and temporal scale/resolution applied during analysis. Further discussion revealed that if specific indicators are developed for several species and threshold values for any of these species are exceeded, then the overall indicator threshold would also be exceeded, as MSFD requirements for GES necessitate that all components of an indicator must be below threshold values. Participants suggested that the project produce output maps for different species and share such results and associated threshold values for each species so that all compiled information can assist in identifying final indicators.

The indicators that JONAS will provide are specific to noise, so once indicators of exposure are finalised, they will be able to address, for example, questions concerning the exposure of migratory whales to underwater noise from whale watching boats. Discussion identified the opportunity for specialists such as biologists and ecologists to use such information for further investigation (e.g. for modelling or other computations) in order to make risk assessments for specific population of interest or individuals, which highlights the potential of the JONAS platform to facilitate sharing and processing of data and information across disciplines. In

terms of management, such expert input is required to determine the threshold level for what is considered an adverse impact for a species or population in order to reduce this impact.

// 3.3 JONAS UNDERWATER NOISE VISUALISATION PLATFORM

The guided conversation presented a series of questions to workshop participants that encouraged reflection on the JONAS underwater noise visualisation platform in the context of what was presented. The questions were posed in a way that allowed participants to explore certain areas of interest in more detail, to highlight potential issues, and to ultimately identify what they would like to see on the platform. Initially, workshop participants were asked to identify positive aspects and concerns in reaction to the workshop or subsequent discussion. These have been summarised in Table 3.

Table 3: Positive aspects and concerns identified by workshop participants regarding what was presented and discussed at the workshop.

| POSITIVE ASPECTS | CONCERNS |
|--|---|
| Interested in best ways of determining impacts of noise, in relation to general consenting operations and regarding appropriate assessments. | One challenge is to develop strong collaborations between EU member states and non-member states regarding UWN. |
| Excited that we are working in same field pushing forward to establish indicators. | Concerned about use of different methodologies when sharing and comparing results. Efforts should be made to compare, share and establish a network between different kinds of modelling, risk-based approaches. |
| Lots of positive aspects about the JONAS platform. It is very interesting to bring scientists working in the same field together. | Concerned that although tools make using the data easy, there is a potential danger of users misunderstanding or misinterpreting the data and the outputs of the platform's tools. The platform therefore needs to be specific and cautious about what is produced. |
| The platform and JONAS brings scientists and policy makers together and gets everyone talking to each other, which is helpful to all. | Confidence in modelling, particularly in habitat modelling, is a concern as decisions can be made based on models that have high associated uncertainty. Would be useful if tools could express confidence levels in different areas. |

| | |
|---|--|
| To be here and to better understand how we can benefit from work done in both projects (RAGES and JONAS) and leverage these to better understand how to implement MSFD. | Focused in projects and work and time is limited, it is difficult to keep a balance but hope to keep collaboration going between the two projects (RAGES and JONAS). |
| These type of short workshop initiatives that explain what the project is doing are great. | |
| Very happy to attend meeting as we are facing the same challenges, so this type of interaction is very useful. | |
| POSITIVE ASPECTS | CONCERNS |

// 3.4 PLATFORM ACCESS & DATA/INFORMATION CONTRIBUTION

Workshop participants were specifically interested in how access to the JONAS platform will be provided. Access will depend on what functionalities would be used and how many active users require certain capabilities, as some activities require more resources. In the discussion it became apparent that JONAS will need to have a measure of control concerning the type and number of users that are using the platform within the same timeframe. Therefore, access may have to be tiered, where certain users are granted more capabilities and others may have restrictions. The project does foresee the possibility to open the platform more broadly for demonstrations or with limited capacity for public use, in order to protect sensitive data.

Submission of data and information was also discussed. Initially, JONAS will populate the platform with project information and make an acoustic inventory available that includes raw data contribution for specific training and tutorials. JONAS will aim to demonstrate methods for noise and risk mapping on the platform, with the view that input from other interested parties would be possible. Stakeholders noted that it would be beneficial to encourage other projects and initiatives to contribute, thereby increasing cooperation to keep the platform relevant. Such collaborative efforts were generally seen as a proactive way to keep the resource active, updated, and therefore usable for more people.

Attention must be given to how the JONAS platform interfaces with other similar resources, and the project would welcome relevant contacts to follow up with. JONAS would also like to make connections with data producers and would initially look for avenues where APIs are

available and automatic links can be made. It may be beyond the project's resources when large amounts of data need to be added manually, but this would have to be decided when opportunities arise.

// 3.5 EXPLORING INFORMATION & FUNCTIONALITY

The platform was viewed by participants to be both a noise and risk visualisation tool that displays noise levels in an area of interest or region, but also includes information concerning associated risk. The stakeholders indicated that they would like to see species distribution maps and impact information for cetaceans.

Participants highlighted that it would be useful from a management and policy perspective to be able to access information for local areas, and to have graphical representation concerning thresholds to help responsible authorities for such areas to achieve Good Environmental Status (GES) under the MSFD. Unpublished sources of data and information, such as those from small or unpublished studies with information on source levels, vessel types, areas of interest, etc. were indicated to be of interest to scientists, and the idea to compile and collate such information in a library, catalogue, or directory as a platform service was discussed by participants. JONAS will explore the creation of such a directory, which could act as a starting point for users to access more existing information. The project would require support from the platform's user community and project stakeholders to create relevant content, especially concerning higher resolution information for specific or thematic areas.

Participants highlighted the potential risk of some users misinterpreting information that is displayed on the JONAS platform and the need to clearly distinguish between exposure, pressure, and impact indicators on the platform. Stakeholders also noted that while some data and information may be useful for scientists, decision and policy makers may require different outputs. Ultimately, it is the project's responsibility to make sure that the information, data and platform outputs are accompanied with adequate documentation and guidance to provide the context for data and information use.

Other specific questions related to the platform's interface and the provision of associated information, such as the identification of competent authorities for local areas or regions. Stakeholders also inquired as to when the platform will be available for use. JONAS is planning to host a follow-up workshop in 2021, where the consortium hopes to present a prototype for users to engage with and provide feedback on.

4 PARTICIPANT RECOMMENDATIONS

Direct stakeholder feedback collected through e-mails and via the post-workshop evaluation survey showed that participants had a positive experience and that this format of stakeholder engagement was useful for all involved. The online workshop captured a wealth of information and input from workshop participants, which is detailed in the discussion and from which specific recommendations have been summarised for the JONAS project team in the below bullets.

// 4.1 INDICATOR DEVELOPMENT

- Examine and standardise terminology used amongst policy makers and scientists, with special attention to distinguishing between risk and exposure indicators.
- Make efforts to share, compare and adapt methodologies and results with other projects such as RAGES and JOMOPANS, with special attention to risk models.

// 4.2 JONAS UWN VISUALISATION PLATFORM

- Be specific and cautious about what is produced, with clear guidelines for users regarding output, context and how to interpret data.
- Ensure correctly documented data and metadata.
- Include confidence levels on modelling and other outputs.
- Investigate the development of a data directory with a catalogue of existing local/regional sources of data.
- Explore the potential for the platform to be used as means of collaboration and training between policy makers and scientists towards deeper understanding of products and their application.
- Provide guidelines as to who can access the platform and the process involved.
- Encourage other projects and initiatives to submit localised underwater noise data to the platform.
- Ensure the platform can interface with other similar platforms using API.

The JONAS project team would like to thank all workshop participants for taking the time to attend this workshop and for their effort and expertise, which contributed to and shaped the event.