



## Outcome of the 3rd meeting of the HELCOM Expert Network on Underwater Noise (EN-Noise 3-2020)

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## Outcome of the 3rd meeting of the HELCOM Expert Network on Underwater Noise (EN-Noise 3-2020)

### Introduction

0.1 In accordance with the memo of the EN-Noise working meeting held on 14 November 2019, the 3rd Meeting of the HELCOM Expert Network on Underwater Noise (EN-Noise 3-2020) was held on 27 March 2020 as an on-line meeting.

0.2 The Meeting was attended by delegations from Denmark, Estonia, EU, Finland, Germany, Lithuania and Sweden, as well as Observers from ICES and invited guests from ITAW. The List of Participants is contained in **Annex 1**.

0.3 The Meeting was chaired by the Chair of EN-Noise, Mr. Jakob Tougaard, Denmark. Ms. Marta Ruiz, Associate Professional Secretary acted as secretary of the Meeting.

### Agenda Item 1 Adoption of the Agenda

1.1 The Meeting adopted the Agenda as contained in document 1-1.

### Agenda Item 2 Upcoming work on HELCOM continuous noise indicator

2.1 The Meeting took note of the Work Plan for future work on HELCOM indicators on underwater noise, where questions and issues on the implementation of the Work Plan for consideration by the Meeting are included with track changes (**document 2-1**).

2.2 The Meeting discussed the questions raised, provided input and agreed on the addition of the text in red to the Work Plan in relation to its implementation as contained in **Annex 2**. The Meeting agreed to submit Annex 2 to PRESSURE 12-2020 for consideration.

2.3 The Meeting agreed to hold a technical on-line meeting to discuss the requirements to set up the modelling tool in April (dates tbc). Among other issues, the developments of the Jomopans tool will be shared. The Jomopans tool should be not only open access but also transferable to other interested users.

2.4 The Meeting took note that Denmark and Sweden are willing to participate in such on-line technical discussion. Countries are invited to indicate their willingness to participate in the discussion by **6 April 2020** to the Secretariat ([marta.ruiz@helcom.fi](mailto:marta.ruiz@helcom.fi))

2.5 The Meeting agreed that the outcome of the initial discussion will be subsequently shared and discussed with the whole EN-Noise for agreement on further steps.

2.6 The Meeting took note that the Jomopans project finishes this year, but that it is foreseen to ask for an extension of the project.

2.7 The Meeting took note of the continuous underwater noise submission format to the HELCOM database jointly prepared and agreed by the ICES Data Centre, JOMOPANS and HELCOM EN-Noise (**document 2-2** and **Presentation 1**).

2.8 The Meeting took note that the work conducted so far is part of the first phase of the work and that as part of the second phase a visual presentation of the data in a map will be made. It is foreseen that this second phase starts in April being finished in July.

2.9 The Meeting took note that a document by The Netherlands with contribution from ICES is to be submitted to the upcoming OSPAR EIHA meeting on the HELCOM database on continuous underwater noise with the request that OSPAR joins the initiative and allocate the ICES database as the common storage for ambient noise measurements.

- 2.10 The Meeting took note of the clarification by ICES that when submitting data from stations these can be tagged as HELCOM, national, from projects and that more than one tag can be assigned.
- 2.11 The Meeting recalled that the quality control of the data is the responsibility of the uploading institution.
- 2.12 The Meeting suggested to provide instructions on how to code the file to be uploaded in the reporting manual (recognisable station name, year, country).
- 2.13 The Meeting took note that Denmark, Germany and Sweden will be testing the uploading of data to the database. Subsequently, the database will be reset, and the upload of real data will start.
- 2.14 Countries are invited to send pictures that can be used for the homepage to the database to ICES (Neil Holdsworth, [neilh@ices.dk](mailto:neilh@ices.dk)).

### **Agenda Item 3 Upcoming work on HELCOM impulsive noise indicator**

- 3.1 The Meeting took note of a recently published paper on the “Impulsive noise pollution in the Northeast Atlantic: Reported activity during 2015–2017” (**document 3-1**).
- 3.2 The Meeting discussed the possibility of using the sample approach for assessing the impulsive noise activity in the HELCOM area.
- 3.3 The Meeting expressed the following views:
- the metric pulse block days does not take the number of impulses into account which is critical for disturbance;
  - the intensity of the noise is not well reflected (e. e.g. mitigation measures are not considered, pile and hammer size in piling or charge size in explosions are not considered);
  - the report is not complete, in particular in relation to explosions reported from naval activities. Such activities are not required by the EU MSFD to be reported although it is difficult to get the total pressure without this information;
  - the specifications of the impulsive noise registry and the requirements of the EU MSFD for those HELCOM countries being EU members define the data already available in the registry. However, countries may need to add more useful information to the registry which needs to be taken into consideration, e.g., information on frequency content.
- 3.4 The Meeting took note of the Swedish proposal for countries to send additional input to document 3-1 to them (Mathias Andersson, [mathias.andersson@foi.se](mailto:mathias.andersson@foi.se)) so that they can be shared with OSPAR in the upcoming EIHA meeting to be held in April.
- 3.5 The Meeting took note that it is envisaged that the OSPAR impact impulsive noise indicator is considered for adoption in the upcoming EIHA meeting.
- 3.6 The Meeting discussed the scope of the proposed OSPAR impact impulsive noise indicator and took note of the following views:
- Germany: the main issue is that it does not address injury;
  - Sweden: there is a need to address injury through another indicator;
  - Chair: part of the logic is that injury to animals is something to be handled in the national permitting process, as it is something that relates more to the EU Habitats Directive than the EU MSFD;
  - Germany: it has not yet been finally clarified legally whether munition clearance operations require a national permitting process which would address injury to biota.
- 3.7 The Meeting agreed to discuss whether to and how to include injury in the HOLAS III assessment.
- 3.8 The Meeting considered the possibility of drafting a document for the HELCOM area similar to the one contained in document 3-1 for the OSPAR area. The Meeting took note of the clarification by ICES

that they have conducted the extraction of data and that its further analysis has been conducted by colleagues from the OSPAR ICG Noise. The Meeting also noted that the OSPAR methodology has changed from using intersection to centroid areas, whereas for the Baltic Sea the intersection methodology applies. The Meeting further noted that Germany enables polygons (i.e. German naval squares) and that they have reported one in the Baltic Sea, and it is foreseen that more events are reported in the same location in the years to come.

3.9 The Meeting agreed on the need to further consider whether to change the HELCOM methodology from using intersection to centroid areas.

3.10 The Meeting was of the view that there is a need to initiate discussion on threshold values as soon as possible. As starting point the [pre-core indicator report](#) can be utilised to further identify the main obstacles to achieve an operational impulsive noise indicator by HOLAS III. There is also a need to prepare examples on how the methodology with the registry works with real data. These examples are to be gathered and shared in the [EN-Noise Workspace](#).

3.11 The Meeting agreed to have an on-line meeting in the second half of May 2020 (18, 19 or 20 May, date tbc) to further discuss the topic in preparation for the annual EU TG Noise meeting to be held on 2-4 June 2020. In preparation for such meeting the EN-Noise is invited to comment on the [pre-core indicator report](#) by **4 May 2020**, so that a document compiling all comments is shared before the meeting.

#### **Agenda Item 4 Future work and any other business**

4.1 The Meeting took note of the information by Sweden that they have started working on update of the "HELCOM Guidelines for monitoring continuous noise" to be aligned with the new Jomopans standard. It is foreseen that the updated draft is circulated to the EN-Noise for consideration by 3 April 2020.

4.2 The Meeting took note that Ocean Noise 2020 to be held on 25-29 May 2020 in Barcelona has been postponed due to the coronavirus situation to May 2021. In view of this, the Meeting agreed that the joint meeting of the EN-Noise with the OSPAR ICG-Noise in coordination with EU TG Noise to advance underwater noise indicators which was to be held in connection with such Conference is to be held on-line. The Meeting further agreed that Denmark will contact OSPAR ICG-Noise to confirm the date for the on-line meeting to be held on the week 25-29 May 2020.

4.3 The Meeting invited the Secretariat to share with the EN-Noise the outcome of PRESSURE 12-2020 in relation to underwater noise issues.

#### **Agenda Item 5 Outcome of the Meeting**

5.1 Meeting participants were provided with the draft Outcome of the Meeting by **30 March 2020**. Meeting participants were invited to provide comments to the draft Outcome by **2 April noon**. The Secretariat will circulate an updated Outcome by **close of business 2 April 2020** for tacit approval by **close of business 3 April 2020**.

## Annex 1

## List of participants

Representing	Name	Organisation	Email address
<b>Chair EN-Noise</b>			
Denmark	Mr. Jakob Tougaard	DCE/Aarhus University	<a href="mailto:jat@bios.au.dk">jat@bios.au.dk</a>
<b>Contracting Parties</b>			
Denmark	Ms. Lonnie Mikkelsen	Ministry of Environment and Food	<a href="mailto:lomik@mfvm.dk">lomik@mfvm.dk</a>
Estonia	Mr. Aleksander Klauson	School of Engineering: Department of Civil Engineering and Architecture: Mechanics and Fluids and Structures Research Group	<a href="mailto:aleksander.klauson@taltech.ee">aleksander.klauson@taltech.ee</a>
Estonia	Mirko Mustonen	School of Engineering: Department of Civil Engineering and Architecture: Mechanics and Fluids and Structures Research Group	<a href="mailto:mirko.mustonen@taltech.ee">mirko.mustonen@taltech.ee</a>
EU	Ms. Patricia Calixto Pires	European Commission	<a href="mailto:patricia.calixto-pires@ec.europa.eu">patricia.calixto-pires@ec.europa.eu</a>
Finland	Mr. Joonas Syrjälä	Finnish Transport and Communications Agency Traficom	<a href="mailto:joonas.syrjala@traficom.fi">joonas.syrjala@traficom.fi</a>
Germany	Mr. Fritjof Basan	Federal Maritime and Hydrographic Agency (BSH)	<a href="mailto:fritjof.basan@bsh.de">fritjof.basan@bsh.de</a>
Germany	Ms. Carina Juretzek	Federal Maritime and Hydrographic Agency (BSH)	<a href="mailto:Carina.Juretzek@bsh.de">Carina.Juretzek@bsh.de</a>
Germany	Mr. Sven Koschinski	Federal Agency for Nature Conservation (BfN)/ Meereszoologie	<a href="mailto:SK@meereszoologie.de">SK@meereszoologie.de</a>
Lithuania	Mr. Donatas Bagočius	Environmental Protection Department under the Ministry of Environment	<a href="mailto:donatas.bagocius@aad.am.lt">donatas.bagocius@aad.am.lt</a>
Sweden	Mr. Mathias Andersson	Swedish Defence Research Agency	<a href="mailto:mathias.andersson@foi.se">mathias.andersson@foi.se</a>
Sweden	Ms. Emilia Lalander	Swedish Defence Research Agency	<a href="mailto:emilia.lalander@foi.se">emilia.lalander@foi.se</a>
<b>HELCOM Observers</b>			
ICES	Mr. Mehdi Abbasi	ICES	<a href="mailto:mehdi.abbasi@ices.dk">mehdi.abbasi@ices.dk</a>
ICES	Mr. Neil Holdsworth	ICES	<a href="mailto:neilh@ices.dk">neilh@ices.dk</a>
ICES	Mr. Carlos Pinto	ICES	<a href="mailto:carlos@ices.dk">carlos@ices.dk</a>
ICES	Ms. Joana Ribeiro	ICES	<a href="mailto:joana.ribeiro@ices.dk">joana.ribeiro@ices.dk</a>
<b>Invited guests</b>			
ITAW	Ms. Maria Morell Ybarz	ITAW	<a href="mailto:maria.morell@tiho-hannover.de">maria.morell@tiho-hannover.de</a>
ITAW	Mr. Andreas Ruser	ITAW	<a href="mailto:andreas.ruser@tiho-hannover.de">andreas.ruser@tiho-hannover.de</a>
<b>HELCOM Secretariat</b>			
HELCOM Secretariat	Ms. Marta Ruiz	HELCOM Secretariat	<a href="mailto:Marta.Ruiz@helcom.fi">Marta.Ruiz@helcom.fi</a>

## Annex 2 Implementing the Work Plan for future work on HELCOM indicators on underwater noise

### What is the optimal assessment?

A [Topic Summary](#) has been prepared as part of the preparatory work in the future work on HELCOM Indicators process. An optimal assessment should be tied to suitable species that are affected by these noise-generating activities during periods of biological significance of their lifetime and be assessed against suitable threshold values. Cooperation with relevant institutions (e.g. OSPAR and EU TG Noise) should take place, and the specific feasibility of stages of the development work should be clarified and detailed (e.g. in EN Noise). There is a need to ensure that regionally harmonized monitoring and methodologies are applied, and that relevant quality assurance is in place. The optimal assessment is not yet fully established and needs further work, needing the involvement of experts within EN Noise. Short-term assessments should consider an evaluation of pressures, with longer-term developments to address the link with biota.

### What will be achieved by HOLAS III (e.g. operational indicators by autumn 2021), and how?

#### Impulsive noise:

Impulsive noise was not included in HOLAS II as an operational indicator, however for HOLAS III there seems a reasonable chance that the indicator can be further developed and potentially fully operationalised.

#### Steps in 2020

- An assessment based on the registry can be included in the HOLAS III, which will benefit from experience gained by the assessment made in OSPAR. This will require an analysis of the sufficiency of available data in the registry.
  - A document will be prepared and submitted to PRESSURE 12-2020 to compile information on available and envisaged data in the registry.*
  - Proposal to prepare a document similar to the one drafted by OSPAR ([document 3-1](#) to this Meeting) on the HELCOM procedure to conduct the assessment based on the data available in the registry. There is a need to clarify what is the minimum data required to conduct the assessment.*
- It is proposed to send a questionnaire out to get feedback from Contracting Parties on the present situation related to reporting completeness and the corresponding perspective for improvement (see proposed questionnaire to assess completeness of data at end of document).
  - Already done. See statement above.*
- It will be important to maintain the awareness that a need for reporting of data to the registry is critical in achieving a high-quality spatial assessment. Maintaining this awareness at all levels within HELCOM structure (e.g. Working Groups and EN Noise) will be important in achieving the best possible outcome by HOLAS III.
  - It is suggested to regularly inform PRESSURE of the request to countries to provide annual data to the registry by September.*
  - The EN-Noise will share information on best practices and national experiences through the [underwater noise workspace](#). The EN-Noise will further develop the format for reporting data to the registry to be aligned with problems encountered with national experiences.*

#### Steps in 2021

- Adoption of initial operational indicator (inclusive of threshold values is targeted) at State and Conservation (also sent jointly to PRESSURE) in autumn 2021.
  - There is a need to initiate discussion on threshold values as soon as possible in the process. As starting point the [pre-core indicator report](#) can be utilised to further identify the main obstacles to achieve an operational impulsive noise indicator by HOLAS III. There is also a need to prepare examples on how the methodology with the registry works with real data. These*

examples are to be gathered and shared in the [EN-Noise Workspace](#). To have an on-line meeting in the second half of May (date tbc) to further discuss the topic in preparation for the annual EU TG Noise meeting to be held on 2-4 June 2020 In preparation for such meeting the EN-Noise is invited to comment on the [pre-core indicator report](#) by 4 May 2020, so that a document compiling all comments is shared before the meeting.

Further work is needed on the expert level (in EN Noise) to update the workplan with additional details and to ensure the timeline is viable and any foreseen obstacles can be uncovered. There is potential for an operational indicator by HOLAS III and as a minimum a strong overview to supplement the thematic discussion in HOLAS III will be possible.

Continuous noise:

*Steps in 2020*

- New soundscape maps, based on modelling, for the new relevant assessment period are not yet available and need to be produced. This requires a solution as it will be a significant resource requirement.

There is a need to produce new soundscape maps since the ones available now date back to 2014. Estonia has conducted a comparison on the noise maps from 2014 and 2019 and analyses of the differences between the two years has been initiated. Also, there may be a need to make maps including other frequencies than those used in 2014.

The continuous noise database is currently testing the upload of data. The requirements to set up the modelling tool will be further discussed in a technical meeting to be held on-line in April (dates tbc). Among other issues, the developments of the Jomopans tool will be shared. The outcome of the initial discussion will be subsequently shared and discussed with the whole EN-Noise for agreement on further steps.

- A further developed and improved assessment compared to HOLAS II would then be achievable. The necessary experience and knowledge is available within EN Noise and the group needs to be involved at an early stage and throughout the process.

The EN-Noise will follow the discussion at EU and OSPAR level, evaluate it, and include it in the evaluation of the assessment procedure. There is a need for further discussion on the finalisation of the indicators in relation to the definition of threshold values. It is foreseen that such discussion continues in August 2020 in preparation for autumn meetings. The possibility of having a meeting of the EN-Noise back to back to the BSAP up workshops in autumn will be investigated. This will allow improve cooperation with FISH and EG MAMA experts.

*Steps in 2021*

- Adoption of initial operational indicator (inclusive of threshold values is targeted) at State and Conservation (also sent jointly to PRESSURE) in autumn 2021.

The EN-Noise will use the [pre-core indicator report](#) as starting point of the discussion. It will be important to align the process with the EU TG Noise one, aiming at submission of a HELCOM document on the topic to the EU TG Noise meeting in spring 2021.

What aspects of the identified work represent the highest priority?

Impulsive noise:

- The highest priority is maintaining awareness of the need to ensure improved and complete reporting to the underwater noise registry. Completeness of reporting will be a critical factor in the outcome of the proposed work.
- Further development of the HELCOM register of impulsive events (established in 2015 and hosted by ICES, where countries are reporting data on an annual basis), including:

- a. currently the registry only compiles information based on information required as part of the Marine Strategy Framework Directive (MSFD) commitments by HELCOM Contracting parties that are also EU Member States. HELCOM countries may agree on reporting additional detailed information (e.g. position of the sources, number of pulses, date and time, source level, frequency spectrum) to increase the accuracy and usefulness of the registry, and in such a scenario the registry would need updating to support this information.

There is a need to agree on the specific information for countries to provide and inform them accordingly. This will be a follow up process once the monitoring programme on impulsive noise events is updated.

- b. clarify minimum levels for activities below which reporting to the registry is not required, and clarify also how mitigation measures, such as bubble curtains, are dealt with.

This will be part of the finalisation of the indicator.

- An assessment of the availability and quality of data to evaluate its sufficiency for the planned assessment for HOLAS III will also be an important priority in the early stages of the ongoing work.

Please see comments above.

- Discuss possibilities for, and potential added value of, developing a common monitoring programme involving measurements of impulsive noise.

This will be addressed as part of the finalisation of the indicator.

- In terms of threshold values, further work on the issue is needed, building on the HELCOM input to the process of establishing environmental targets for underwater noise, agreed by HOD 54-2018, and in alignment with relevant EU (the document has already been shared with TG Noise) and OSPAR processes.

It is expected that EU TG-Noise provides guidance on thresholds by the end of 2021. However, this timeframe is not aligned with HOLAS III requirements. There is a need to ensure that the two processes are aligned.

#### Continuous noise:

- How to include higher frequency bands (tentative proposals 2 and 5 kHz third octave bands).  
Discussion on the topic to be initiated in August 2020.
- The assessment protocol, which has been described - although further work is needed to ensure that it only considers those areas where specific sound sensitive species occur (the BSEP on noise sensitivity of animals in the Baltic Sea is to be used for that purpose).  
Discussion on the topic to be initiated in August 2020.
- Statistical power in the monitoring data, i.e. determining how the ability to detect statistically significant trends in the indicators depends on the number of years of monitoring data available.  
Considerations to be made once national data are uploaded to the continuous noise database.
- Guidelines for monitoring as well as a monitoring sub-programme for continuous noise are available. Work is on-going together with ICES to set up a continuous noise database to host the indicator data, which is foreseen to be ready by the end of 2019, at which point countries could start reporting data on an annual basis.
- Subsequently, the focus will be on setting up the soundscape planning tool, which is planned to be ready by mid-2020.

#### Is the proposed assessment policy relevant and ecologically relevant?

Both indicators are needed to provide a policy and ecologically relevant assessment. In particular, the work related to linking noise effects to relevant biota is of clear ecological relevance.

What are the resource needs (and period) to 1) carry out the work by HOLAS III (autumn 2021), and 2) for longer-term development issues (post-HOLAS III)?

The process of indicator development is well integrated within the existing structure (e.g. within EN Noise). However, additional resources are reflected on below.

#### Impulsive noise

- There may be national resource issues to consider ensuring effective and full reporting to the noise registry.

#### Continuous Noise

- Resource implications exist for ensuring the planned work is completed.
- There may also be considerations needed regarding national resources to ensure data is fully reported and available.
- The resource aspects needed to produce modelled soundscape maps will be needed. A previous estimate has been presented to State and Conservation 8-2018 ([document 3MA-5, table 4](#)).

It is to be pointed out that the budget estimate included in ([document 3MA-5, table 4](#)) needs to be updated, with the understanding that there is no budget allocated for producing the new soundscape maps which will be needed for the HOLAS III assessment. Such a need is due to the fact that the maps available now date back to 2014. Also, there may be a need to make maps including other frequencies than those used in 2014 and separate noise into different sources (natural ambient and different ship types).

- HOD-55 agreed on the suggested infrastructure for hosting a soundscape planning tool and a database. This should now be fulfilled to make it operational.
- The soundscape planning tool should be continuously updated with new soundscape maps. Currently the soundscape planning tool is using soundscape maps produced in 2014.

What integration of the indicators (i.e. those defined in question 2) is foreseen in HOLAS III?

- A more detailed answer is needed from EN Noise with input from relevant groups. For policy requirements under the MSFD there is no requirement to carry out an integration of the two proposed indicators, though the following questions could be discussed further at EN Noise in the future:
  - Would the information and indicators available by HOLAS III support the development of an additional thematic assessment (i.e. an independent detailed report to complement the summary report) on underwater noise in HOLAS III?
  - If the above is considered valuable, could some form of summary related to underwater noise and the Baltic Sea Action Plan (BSAP), as summarised in a thematic assessment at HOLAS III be valid?

Further guidance on the required input from EN-Noise work is needed, with the understanding that conducting an additional thematic assessment would require the provision of specific resources for the purpose.

- It is important that the work is aligned with relevant biological layers. This will require ongoing cross-theme development work in the future and should be continued so that progress can be reflected in HOLAS III.

The EN-Noise will establish contact with EG MAMA and FISH for further cooperation.

What cross-theme issues exist (e.g. links between biodiversity and noise) and how will these be considered in future assessments?

- Links exist with EG-MAMA and Maritime WG, whereas it is important to further develop them with relevant fish groups.
- There is a need for joint discussion between these groups.

It is important that the work is carried out jointly and not completed as separate assessments for noise and biota.