



Baltic Marine Environment Protection Commission

HELCOM Platform for sufficiency of measures

SOM Platform 2-2019

Helsinki, Finland, 16-17 September 2019

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Background

HOD 55-2018 agreed to establish an *ad hoc* platform for analysing sufficiency of measures (SOM Platform) to support the update of the Baltic Sea Action Plan ([Outcome HOD 55-2018](#)). To implement the framework and contribute with the required data and information for the analyses, topic teams were established for each of the topics addressed by the SOM Platform. The topic teams work intersessionally and report to SOM Platform meetings and relevant Working Groups during the course of their work. The SOM Topic Team for underwater noise submitted an [initial work plan](#) to PRESSURE 10-2019 describing the work before them and how it was to progress.

This document is an update of that work plan, outlining the progress, proposals, and ongoing work on underwater noise.

Action requested

The Meeting is invited to consider the document and guide the topic team's ongoing work

Introduction

Underwater noise has been recognized as a pressure on the Baltic marine ecosystem only recently (HELCOM Copenhagen Ministerial Declaration 2013 and HELCOM Brussels Ministerial Declaration 2018) and was thus not included in the Baltic Sea Action Plan adopted in 2007. This means that no targets for reduction of underwater noise pressures have been agreed upon, which in turn limits the scope of a SOM analysis for underwater noise.

The physical nature of underwater noise means that some links and connections are relatively simple and well known:

- Anthropogenic sources are generally well known (although not always well described).
- There is a direct link between activities and pressures: different activities generate noise, which is directly and immediately radiated into the surrounding environment.
- Underwater noise does not persist in the environment but disappears within seconds to minutes after a source has been removed. Thereby there is no lag time in the system and state essentially equals pressure.
- The absence of lag time means that measures to reduce underwater noise have immediate effect upon implementation. This greatly simplifies SOM and gap analyses, as the presence of a gap between state and target in itself indicates that measures are insufficient.

On the other hand, there are complicating factors related to the state of knowledge on effects of underwater noise on ecosystem components:

- No description of Good Environmental Status (GES) with respect to underwater noise has been adopted or accepted in HELCOM or any other similar body. A process towards establishing environmental targets for underwater noise is ongoing in HELCOM, among other along guiding principles already agreed (HOD 54-2018, para 4.30).
- Due to large differences in physiology, biology and conservation status between different ecosystem components, they may be differently affected by underwater noise. This relates, in particular, to different sensitivities to different parts of the frequency spectrum of the noise and that different species/species groups may have very different sensitivities in different parts of their life cycle. This means that some stratification with species/species groups may be required for proper assessment and subsequent establishment of targets.
- The lack of proper description of GES for underwater noise further means that there is a poor understanding of the link between pressure and GES. In other words, it cannot safely be assumed that any reduction in pressure will lead to better conditions, although a reduction at worst can be neutral, never have a negative impact on GES.
- Due to the lack of a GES threshold and the near equivalency of noise pressure and state, a metric of percent reduction in pressure from the base year may be preferred.

Organization of work

The SOM analyses for underwater noise is supported by a topic team lead by Denmark and with strong links to the HELCOM expert network on underwater noise (EN-Noise).

The team has been active, conducting most of its work by correspondence or in relation to ongoing EN Noise activities. This work structure has meant that the expert network has been closely engaged in the Topic Team's work meeting four times since the Platform kick-off: 25.4, 21.5, 18-19.6, 19.8.

Timetable

The timetable of work follows the preliminary timetable for action by the topic teams according to the below. Activities for 2020 are still to be outlined.

Task	Outcome/contribution	Timeline
Identify relevant measures frameworks (step 1 SOM approach)	Very short information document	Complete
Identify presence of time-lags between measures and pressures (step 2 SOM approach)	Very short information document	Complete
Propose geographic scale of analysis	Proposal	Complete
Expert evaluation: identifying main pathways for pressures (step 3 SOM approach)	Participate in survey	September, EN Noise
Pressure-state time-lags	Data (models, project outcomes, literature)	Complete
Measure-pressure time-lag verification	Verify time-lag effected measures from list provided by Secretariat	September
Measure list verification	Verify no missing relevant measures from list provided by Secretariat	September
Effect of measures data	Data (models, project outcomes, literature, national reports)	September-November
Expert evaluation: effectiveness of measures (step 4 SOM approach)	Participate in survey	September-October, EN Noise
Expert evaluation: pressure-state linkage (step 6 SOM approach)	Participate in survey/workshop	Not relevant for this topic
Projected development of human activities/pressures (step 5 SOM approach)	Data (models, project outcomes, literature, national reports)	Late fall
Synopses on potential new measures	Information document	End of year

Updated plan for work

The general approach for the SOM analysis is described in [Document 2-3](#) for HOD 56-2019. The updated plan outlines the progress of the Topic Team and the basis for the proposals made related to underwater noise and the SOM analysis.

1) Analysis structure

Discussion of underwater noise as one joint pressure was not considered a realistic approach, so the topic has been separated into three distinct pressures: Continuous noise in the 63 and 125 Hz bands; continuous noise in the 2 kHz band; and impulsive noise with peak energy below 10 kHz. Inclusion of impulsive noise with peak energy above 10 kHz was also considered but lack of information about extent of sources and in particular, about the magnitude of effects on the environment means that uncertainties in the assessment were considered unacceptably large. It was therefore decided that these sources and possible effects are to be handled qualitatively.

EN Noise chose to analyze these selected noise bands in 5 separate geographic areas (Figure 1) due to varying acoustic conditions and presence of sensitive species.

- Gulf of Bothnia [Bothnian Sea, the Quark and Bothnian Bay; Åland Sea and the Archipelago Sea]
 - Justification: Hydrographically well separated from the central Baltic, with low levels of shipping and extensive ice coverage in winter. Also, core habitat for the Bothnian subpopulation of ringed seals, which is considered healthier than the subpopulations in the Gulf of Finland/Gulf of Riga.
- Gulf of Finland [Gulf of Finland]
 - Justification: Like the Gulf of Bothnia, these waters are shallower waters and thus separated from the deeper central Baltic. Also, these waters, together with Gulf of Bothnia, constitute the main habitat for ringed seals.
- Gulf of Riga [Gulf of Riga]

- Justification: Because of its different shipping activity as well as wave climate and water depth compare to Central Baltic. It is also partly ice covered in winter time.
- Central Baltic [Arkona Basin, Bornholm Basin, Northern Baltic Proper, Eastern Gotland Basin, Western Gotland Basin, Gulf of Gdansk]
 - Justification: Hydrographically well-defined and dominated by deep, partly anoxic waters.
- Western Baltic [Kattegat, Great Belt, the Sound, Kiel Bay, Bay of Mecklenburg]
 - Justification: Shallow waters and narrow straits with heavy shipping. Hydrographically well separated from the Central Baltic by the southern shallows of the Sound and the Darss sill.

Identification of time-lags between measures and pressures:

Time-lags are not expected to be a major feature of analysis for noise (if a source is removed, so is the noise), but the Topic Team is prepared to review the completed measures list, if required.

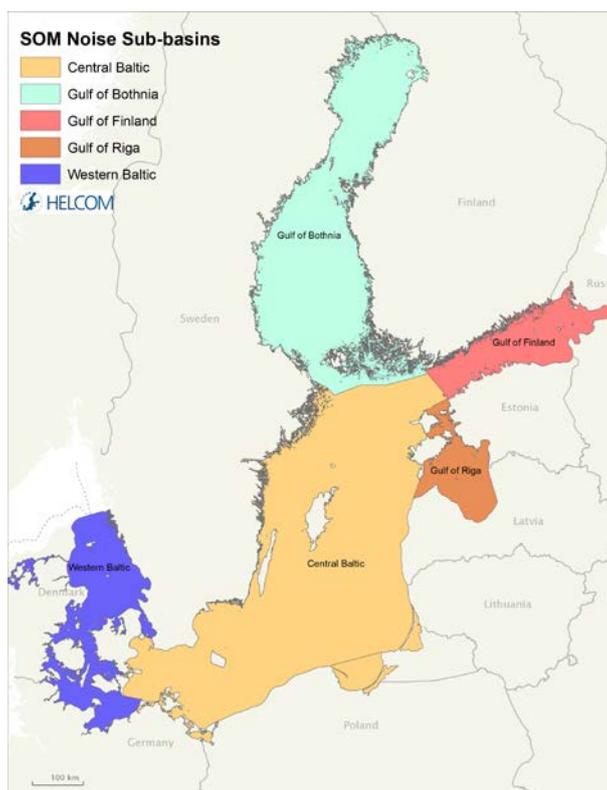


Figure 1. Sub-basins for use in SOM Noise analysis

2) Measures

A joint inventory of measures for all noise sub-pressures has been gathered by the Secretariat and distributed to the national contact points on 12 July. Responses were requested by 15 September. The initial lists included national MSFD reporting and online searches of global and regional measures frameworks.

The Topic Team will be involved in final preparation of the measures lists once responses are received from the CPs. Contributions will primarily include issues of data completeness and separation of the joint measures list into three separate lists tailored for each sub-pressure.

3) Contributions of activities causing underwater noise

A survey covering the contribution of different activities to each noise sub-pressure was distributed to EN Noise on 21 August with responses requested by 3 September. The survey will also be introduced at the upcoming EG MAMA meeting to receive additional expert contributions.

4) Overview

The gathered information will, where possible, represent synthesised collations of information linking sources-pathways-trends-measures, and ranking their relative contributions to pressures. Gaps in these areas of knowledge or information will also be highlighted to ensure confidence in any assessment can be provided. This information will directly support the SOM analysis and the overall update of the Baltic Sea Action Plan.