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| Document title | Input to evaluation of accomplishment of HELCOM actions related to underwater sound |
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This document has been revised as agreed by the Meeting.

Background

The 2018 HELCOM Ministerial Meeting will be held 6 March in Brussels, Belgium. To support the planning of the Ministerial Meeting a background report is being prepared that summarizes the status of the Baltic Sea and the accomplishment of actions agreed in HELCOM across different themes. The background report for the Ministerial Meeting will include a section on ‘Underwater sound’. The report will primarily be based on the results of the ‘State of the Baltic Sea report, first version 2017’ and the national reporting of implementation of HELCOM actions related to measures that was carried out in 2016 (see [HELCOM Explorer](#)). However, since there are no agreements on HELCOM actions related to measures or mitigation of underwater sound the focus is in this case placed on actions and activities related to knowledge activities in HELCOM.

Action requested

The Meeting is invited to:

- review the text from point of view of correctness.

Input to evaluation of accomplishment of HELCOM actions related to underwater sound

Chapter on ‘Underwater sound’ for Ministerial Meeting report

Introduction

Underwater sound is a relatively new focal area in HELCOM and there are no HELCOM actions related to mitigation measures or management of underwater noise. At the HELCOM Ministerial Meeting 2013 the objective was agreed that “the level of ambient and distribution of impulsive sounds in the Baltic Sea should not have negative impact on marine life and that human activities that are assessed to result in negative impacts on marine life should be carried out only if relevant mitigation measures are in place”.

Shipping is one source of human introduction of underwater sounds and thus, the BSAP goal on “Environmentally friendly maritime activities’ is applicable. Other examples of sources of human introduced sound are underwater construction work [and explosions](#), [bridges](#), as well as deliberate use of [echo-sounders](#), sonars and seismic airguns, which are not directly covered by specific HELCOM agreements.

The 2013 HELCOM Ministerial Declaration agreed on a number of steps to enhance the knowledge on extent and impacts of underwater sound in the Baltic Sea that were to be implemented through the HELCOM ‘Regional Baltic Underwater Noise Roadmap’ in 2015-2017. The current status of implementation of the knowledge and data related actions are briefly presented here.

Status and trends

Two indicators on underwater sound are under development but not yet operational or agreed as HELCOM core indicators: ‘Continuous low frequency anthropogenic sound’ and ‘Distribution in time and space of loud low- and mid-frequency impulsive sound’.

Harbour porpoise and seals are species that are likely to be especially affected by human generated sound and Baltic fish species also hear and produce sound at low frequencies (i.[ae.](#) sprat, cod and herring). There is no assessment on how [ambient sound noise level](#) in the Baltic Sea may affect the [sound noise](#) sensitive populations.

Implementation of HELCOM actions related to knowledge, data and information

Joint actions

Mapping the levels of ambient underwater sound across the Baltic Sea was accomplished in 2014 through the Life+_-project ‘Baltic Sea Information on the Acoustic Soundscape’ (BIAS) (Folegot et al 2016). The data were used to develop modelled soundscape maps which show the spatial and temporal distribution of continuous sound in different frequency bands across the Baltic Sea (Table 2.4.1).

In 2016, HELCOM and OSPAR established a joint **register for the occurrence of impulsive sounds**. Countries have agreed to report the occurrence of activities associated with loud impulsive sounds, such as sonar events, airguns and underwater explosions and pile driving.

The agreement from the 2013 Ministerial Declaration to **establish a set of indicators including technical standards which may be used for monitoring ambient and impulsive underwater noise in the Baltic Sea** is in progress. The indicators are currently being developed with the aim to define threshold levels for noise that are consistent with good status of the species that are affected by noise. A proposal for HELCOM monitoring guidelines for underwater sound, based on the technical standards developed by the BIAS project, is under preparation. A proposal for a regional programme for monitoring continuous underwater sound has also been presented to and is under discussion by the State and Conservation Working Group.

Table 2.4.1. Joint actions to enhance information and knowledge on underwater sound in the Baltic Sea ‘Status’ indicates the level of accomplishment. Blue=accomplished, Orange=partly accomplished (ongoing activity).

| Action | Status |
|---|--------|
| Map the levels of ambient underwater noise across the Baltic Sea | Blue |
| Set up a register of the occurrence of impulsive sounds | Blue |
| Establish a set of indicators including technical standards which may be used for monitoring ambient and impulsive underwater noise in the Baltic Sea | Orange |

Other HELCOM activities related to underwater noise

In recent years HELCOM has been able to establish a knowledge base for further work on underwater sound in the Baltic Sea region. A priority list of noise sensitive species in the Baltic Sea¹ has been developed and a map of noise sensitive areas derived from biological data on noise sensitive species so far identified has been developed. The results will be published as a HELCOM BSEP in 2017 (HELCOM 2017x).

[Based on work initiated by the BalticBOOST project, HELCOM EN-Noise has developed HELCOM input for contributing to the process establishing environmental targets for underwater noise (HELCOM 2017x). The HELCOM input includes two decision support trees, one for impulsive and one for continuous noise. The decision support trees aim at identifying the need of establishing environmental targets for underwater noise based on a risk-based approach, taking into account e.g. sensitive biological time periods and the status of priority species. The HELCOM input was agreed at HOD 52-2017 as a regional input to other fora, including other Regional Sea Conventions as well as European processes]².

An inventory of noise mitigating measures already used in the Baltic Sea region has been compiled (HELCOM 2017x). The inventory shows that at least three countries are already implementing measures to reduce the impact of noise on the marine environment, including i.a. exclusion of noise generating activities for a certain time period or from certain areas, restriction of anthropogenic underwater noise to a certain level, use of noise reducing techniques.

References

Folegot T., Clorennec D., Chavanne R., R. Gallou (2016). [Mapping of ambient noise for BIAS](#). Quiet-Oceans technical report QO.20130203.01.RAP.001.01B, Brest, France, December 2016.

HELCOM, 2017x, Noise Sensitivity of Animals in the Baltic Sea, Baltic Sea Environment Proceeding, Publication pending.

HELCOM, 2017x, HELCOM HOD 52A, Meeting [document 3-1](#), Revised HELCOM Input to the process of establishing environmental targets for underwater noise.

HELCOM, 2017x, Final report of the HELCOM coordinated EU co-financed project BalticBOOST, [WP 4.1 Deliverable 5](#): Compilation report on internationally available mitigation measures and Baltic Sea country specific information.

¹ Harbour porpoise, harbour seal, ringed seal, grey seal, cod, herring and sprat.

² Pending study reservation by Russia