



Baltic Marine Environment Protection Commission

Working Group on the State of the Environment and Nature
Conservation

STATE & CONSERVATION
11-2019

Riga, Latvia, 21-25 October 2019

Document title	Draft HELCOM Regional Action Plan on Underwater Noise
Code	2J-3
Category	INF
Agenda Item	2J - Matters of relevance for the Meeting and information from the Secretariat
Submission date	10.10.2019
Submitted by	Secretariat
Reference	Outcome of PRESSURE 10-2019, paras 4.6-4.7

Background

PRESSURE 10-2019 took note of the draft structure of the HELCOM Regional Action Plan (RAP) on Underwater Noise and agreed on the proposed structure of the RAP on Underwater Noise with the understanding of the preliminary character of proposed actions and the need for further development. Also, the meeting agreed that the EN-Noise will further elaborate the preliminary actions of the RAP and invited countries to provide written proposals on the matter to the Secretariat by 7 June 2019 ([Outcome of PRESSURE 10-2019](#), paras 4.4-4.5).

PRESSURE 10-2019 was of the opinion that the draft action plan should be considered also by HELCOM working groups for their contribution on actions linked to their mandate, and agreed that a further elaborated version of the draft RAP on Underwater Noise will be submitted to MARITIME 19-2019 for consideration ([Outcome of PRESSURE 10-2019](#), pars. 4.6-4.7).

EN-Noise 2-2019 further discussed the draft action plan and agreed on the revised Draft HELCOM RAP on Underwater Noise ([document 3-1 Rev. 1](#)). The meeting agreed to further elaborate the document based on the input of the meeting (Annex 2 of the [Outcome of EN-Noise 2-2019](#)) for consideration of the EN-Noise in the on-line meeting to be held in August aiming at the submission of an improved draft to MARITIME 19-2019 for consideration. Denmark provided an improved document to the on-line meeting which benefitted from additional input from the meeting, enabling its improvement and leading to the current version of the document ([Memo of the on-line meeting of the EN-Noise](#) held on 19 August 2019).

MARITIME 19-2019 considered the further elaborated draft RAP on Underwater Noise ([document 13-6](#)) and provided input to the proposed actions under the scope of the Maritime Working Group as follows ([Outcome of MARITIME 19-2019](#), para 13.4):

- the meeting was supportive of the work done and commented that the proposed regional actions in the draft Action Plan should be prioritized;
- a robust database and analysis of consequences of the proposed actions is needed;
- any proposed actions related to ships' speed reductions and routeing actions need thorough analysis. In that context reference to proposed regional action 17 in number 16 was suggested;
- offshore wind farms and aquaculture should also be considered as they could also create underwater noise;
- it was noted that Russia does not support the consideration of any binding requirements for underwater noise before IMO decisions on the matter and proposed that regional action nr 24 of the draft should be deleted or redrafted;

- it was noted that leisure boating may contribute to continuous noise, but consideration should be given to the practical difficulties in mandating AIS transponders to be used onboard leisure boats. The Meeting invited AIS EWG to consider the matter; and
- also with regard to leisure boats, the meeting noted the views by EBA that in most Baltic Sea states there are national laws regulating noise. EBA proposed that the proposed regional actions nr 6 and 7 may need to be softened.

This document contains a revised draft Regional Action Plan on Underwater Noise based on the feedback provided by MARITIME 19-2019. Amendments made to address the input provided by MARITIME 19-2019 are included with track changes together with footnotes clarifying the reasoning behind.

Further work on the prioritization of actions within the draft document is foreseen with the addition of a column where target years for the accomplishment of each of the actions is provided.

This document has been submitted to PRESSURE 11-2019 ([document 4-1](#)) for consideration.

Action requested

The Meeting is invited to take note of the information.

Draft HELCOM Regional Action Plan on Underwater Noise

Preamble

In 2013 it was agreed in the HELCOM Copenhagen Ministerial Declaration that

- the level of ambient noise 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.

By this is meant that HELCOM should commit to monitor and manage man-made (anthropogenic) underwater noise in the Baltic and actively assure that levels do not exceed targets established to secure that man-made noise does not prevent recovery of the Baltic Sea ecosystems.

This commitment resulted in the development and implementation of the Regional Baltic Underwater Noise Roadmap 2015-2017, which includes the establishment of a joint HELCOM/OSPAR registry of licenced impulsive sound events and development of a regional monitoring programme for continuous noise.

Furthermore, in the HELCOM Brussels Ministerial Declaration in 2018 it was agreed to

- develop an action plan, preferably by 2021, and regionally coordinated actions on underwater noise, aiming, in the long-term, at addressing adverse effects of underwater noise on marine species identified as sensitive to noise, whilst safeguarding the potential of the Baltic Sea for sustainable human activities
- continuing fruitful cooperation between European Regional Seas Conventions, and in particular OSPAR, in order to exchange good practices and to fill knowledge gaps, and to continuing regional work in developing scientifically sound threshold values for underwater noise that are consistent with GES for species identified as sensitive to noise in the Baltic Sea, in close coordination with work undertaken by Contracting Parties in other relevant fora including UNEP Regional Seas Programme.

The present document lists current activities and proposed new ones directed at achieving these goals. These activities take their natural outset in the current work on developing and maturing indicators to be used in assessment of GES with respect to underwater noise and establishment of associated thresholds and management targets.

[Implementation of measures to reduce pressure and impact from underwater noise must be based on acquired knowledge on efficiency of these measures. Compilation of such documentation, as well as consideration of costs involved in implementation has been initiated in connection with revision of the BSAP, through the ACTION and SOM-Platform projects.](#)¹

Types of actions

HELCOM Contracting Parties agreed to start implementation of actions to reduce the negative impacts of underwater noise to be further developed jointly, assisted by the relevant HELCOM subsidiary bodies including lead countries. The actions on reduction of pressures of underwater noise are an inherent part of the RAP on Underwater Noise, having the scope to define and achieve good environmental status by member states towards 20XX².

The actions are divided into regional actions and national actions.

¹ Addressing point 1: *a robust database and analysis of consequences of the proposed actions is needed.*

² To be in agreement with the BSAP update.

The regional actions are to be jointly implemented on a regional scale by the Contracting Parties to the Helsinki Convention. The national actions are actions to be implemented nationally on a voluntary basis.

Both type of actions (regional and national) are focused on reduction of pressures and impacts from underwater noise sources of different types. Actions are thus further subdivided into four subcategories, three addressing different source types and a fourth addressing measures involving third parties.

Actions addressing reduction of pressures and impacts from impulsive noise sources

These actions relate to impulsive³ noise sources, such as those covered by the Joint HELCOM/OSPAR impulsive noise register, hosted by ICES. The relevant impacts from these sounds are primarily disturbance of behaviour, leading to an effective habitat loss (temporary or permanent) and possible direct injury and/or damage to the auditory system of animals. The relevant sources include pile driving, air gun surveys, underwater explosions, sonars, acoustic deterrence devices and other impulsive sources with significant energy below 10 kHz and are currently addressed by the pre-core indicator “Distribution in time and space of loud low- and mid-frequency impulsive sounds”. Suggested actions for this group of sound sources relate to improving the coverage and quality of the data supplied to the ICES impulsive noise register and to development of impact indicators, which will allow inclusion of information about relevant and sensitive ecosystem components (i.e. noise sensitive animals). An important unresolved issue with regard to the ICES impulsive noise register is the difficulties related to inclusion of military sonar activities in the register and subsequent assessments. From an assessment point of view, it is essential to have at least some information about military sonar activities, but due to the obvious national security issues involved in such a reporting, there is a need for pragmatic, yet useful solutions to closing this gap in reporting.

Actions addressing reduction of pressures and impacts from continuous noise

These actions relate to sources emitting continuous low frequency sound, which means sources, whose main impact on the environment relates to the increase of noise levels above natural ambient. Primary impact is believed to be through a temporary or permanent reduction in communication distances for animals, as well as other masking effects, such as reduced ability to detect prey, predators and obstacles (e.g. gill nets) acoustically. The primary sources are ships and boats but may also be noise from offshore installations of various kinds, such as offshore renewables and aquaculture. All these⁴ sources are currently addressed by the pre-core indicator “Continuous low-frequency anthropogenic sound. Suggested actions for this group of sound sources relate to maturing the pressure indicators and develop impact indicators, which, as above, will allow inclusion of information about relevant and sensitive ecosystem components (i.e. noise sensitive animals).

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Actions addressing reduction of pressures and impact from other noise sources

These actions relate to pressures from sources not covered under the above categories, but with reason for concern regarding negative impact on the marine ecosystem. This includes sources such as echosounders, sonars and other surveying equipment, acoustic deterrence devices and other continuous or impulsive sources with primary energy above 10 kHz. Some of these sources are sufficiently loud to have effects at long range (such as seal scarers and sonars), whereas others raise concern primarily because of their ubiquitous abundance (such as echosounders). Relevant effects of these sources include both behavioural disturbance and masking of communication/passive hearing. Suggested actions for this group of sources relate to increasing the knowledge about abundance and impact of sources and, if relevant, develop specific indicators that can quantify the pressure from this group of sources and capture the impact on ecosystem components.

³ There is no clear definition of impulsive sounds, but the sources included under this category all emit short pulses (not more than a few seconds in duration) and typically with a sharp onset. In addition they are loud enough to potentially affect sensitive animals at distances of hundreds of meters to several kilometers.

⁴ Addressing point 3: *offshore wind farms and aquaculture should also be considered as they could also create underwater noise.*

Actions with third parties

These actions require involvement of third parties, which include national and international stakeholders (such as IMO, fisheries organisations, NGO's, OSPAR and the EU Technical Group on Underwater Noise). An important aim for these actions relate to coordination of work with indicators, thresholds and targets across regional seas conventions and with ongoing work at EU level. A similarly important aim relates to developing useful frameworks for regulating cross-border activities, in particular ship traffic, through close cooperation with relevant organisations, in particular IMO.

Regional actions – HELCOM Collective Actions

The following tables contain preliminary lists of actions for the Contracting Parties to the Helsinki Convention for joint implementation on the regional scale. The lists are to be further elaborated and amended. Actions are grouped, but not prioritized.

2.1 Regional actions addressing impulsive noise sources

CODE	REGIONAL ACTION	FURTHER SPECIFICATION
Monitoring of pressure and collection of ecological data		
1	Update and improve common HELCOM guidelines for register of impulsive noise events in the Baltic Sea	Based on the reporting to the register already available. Main aim of action is to increase the completeness and quality of submissions to the register.
2	Identify important habitats and biologically sensitive areas and periods in the Baltic Sea region, where the introduction of high energy impulsive noise is likely to have negative impact.	Based on HELCOM identified noise sensitive marine animal species, which are to be delineated based on biological data and science-based criteria and in cooperation with other HELCOM working and expert groups (such as EG-MAMA)
Measures to improve assessment of impact from impulsive noise		
3	Establish common methodology for the assessment of negative impact from impulsive noise	Development and description of best practice for assessing potential injury and behavioural disturbance (habitat loss) in relation to for example environmental impact assessments (EIAs) and strategic impact assessments (SIAs)
4	Further develop the HELCOM impulsive noise pre-core indicator towards an operational core indicator	This includes development of methods to assess environmental status based on the indicator as well as definition of thresholds and targets.
5	Develop and implement one or more HELCOM impact indicators for impulsive noise	Based on the current pressure indicator, but with inclusion of information about distribution of sensitive species and habitats. This work is a continuation of the work described in the noise sensitivity report (BSEP 167) and should preferably be along the same lines as the impact indicator currently under development in OSPAR and in accordance with the recommendations by TG-NOISE.
Measures to reduce impact of impulsive noise		
6	Assessment of effectivity of potential measures as basis for HELCOM best practice guidelines in	Including noise abatement systems, alternative methods and spatio-temporal

	methods for mitigation of impact from impulsive noise	exclusion of UXO clearing, commercial sonars and test/training/exercise of military sonars, alternative seismic sources, and sub-bottom profilers
7	Establishment of common HELCOM best practice guidelines in methods for mitigation of impact from impulsive noise	Implementation of the knowledge gained from action 6.

2.2 Regional actions addressing continuous low frequency sound

CODE	REGIONAL ACTION	FURTHER SPECIFICATION
Monitoring of pressure and collection of ecological data		
8	Operationalisation of the common database for monitoring data on continuous underwater noise	As decided by HOD 55-2019 and currently under implementation through hosting of database by ICES.
9	Development of common guidelines for reporting of continuous noise levels in the Baltic Sea	Linked to and in progress in connection to establishment of common database hosted by ICES
10	Establish a common framework for modelling past, present and future noise levels in the Baltic	Continuation of the Soundscape planning tool developed under the BIAS project, as decided by HOD 55-2019". Such modelling is based on AIS and other relevant information about sources, such as source levels and frequency spectra. Includes developing methods to include noise from leisure boats without AIS transmitters as well as natural ambient noise.
11	Identification of important habitats and biologically sensitive areas and periods in the Baltic Sea region, vulnerable to elevated levels of continuous noise introduction	Based on biological data and science-based criteria and in cooperation with other HELCOM working and expert groups (such as EG-MAMA)
Measures to improve assessment of impact from continuous noise		
12	Establishment of a common methodology for assessment of impact of activities generating continuous noise	Applies to shipping, offshore installations, construction works, etc.
13	Further develop the HELCOM continuous low-frequency sound pre-core indicator towards an operational core indicator	This includes development of methods to assess environmental status based on the indicator as well as definition of thresholds and targets.
14	Support research on effects of continuous noise on marine biota	As detailed in the HELCOM science agenda
15	Develop and implement one or more HELCOM impact indicators for continuous low-frequency sound	Based on the current pressure indicator, but with inclusion of information about distribution of sensitive species and habitats
16	Assessment of effectivity of potential measures as basis for the guidelines on management	Collection of experience from HELCOM members and abroad and collection of new information through research and development, as detailed in the HELCOM science agenda, and supplemented by

		thorough analyses of costs involved in implementation (regional action 17) ⁵
Measures to reduce impact from continuous noise		
17	Preparation of guidelines on management of introduction of elevated continuous noise levels in noise sensitive and biologically important areas in the Baltic Sea based on the HELCOM input to the establishment of environmental targets for underwater noise	Implementation of knowledge gained under 16. Guidelines may encompass rerouting and speed limiting of heavy shipping traffic passing biologically important areas in the Baltic Sea. Guidelines should be harmonized with the IMO EEDI principles describing optimal management of vessels speeds

2.3 Regional actions addressing other noise sources

CODE	REGIONAL ACTION	FURTHER SPECIFICATION
Monitoring and collection of ecological data		
18	Identification of other noise sources with significant impact on the marine ecosystems but not covered by the measures targeting impulsive and continuous noise	This includes, but is not limited to: echosounders, military and non-military sonars, sub-bottom profilers, net pingers, and hydroacoustic instruments with main energy above 10kHz.
19	Identification of important habitats and biologically sensitive areas and periods in the Baltic Sea region, vulnerable to elevated levels of noise from other sources than those covered by existing pressure indicators.	Based on biological data and science-based criteria and in cooperation with other HELCOM working and expert groups (such as EG-MAMA)
Measures to improve assessment of impact from other noise sources		
20	Compile and assess available information about potential impact caused by noise from leisure boats	As detailed in the HELCOM science agenda
21	Development of HELCOM indicators suitable for monitoring noise sources identified under measure 18.	Existing indicators cover impulsive noise under 10 kHz and continuous low-frequency noise, but does not include echosounders, most sonars and sub-bottom profilers, netpingers, etc.
22	Development of common guidelines for assessing impact from echosounders, sonars and other sources not covered by 2.1 and 2.2	Such as to apply to environmental impact assessments (EIAs) and assessment of environmental status (GES).
23	Support for research on pressure and impact from echosounders and other low-level, but abundant sound sources.	As detailed in the HELCOM science agenda

2.4 Regional actions involving third parties

CODE	REGIONAL ACTION	FURTHER SPECIFICATION
24	Establish a discussion between HELCOM and IMO about possible actions related to the use of noise	Includes, but not limited to, discussions on vessel quieting technologies, speed and routing regulation, including on voluntary basis . ⁷ Initiate discussions on feasibility of reducing or otherwise regulate the emissions

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⁵ Addressing point 2: *any proposed actions related to ships' speed reductions and routeing actions need thorough analysis.*

⁷ Further softening the wording.

	reducing technologies and operating practices for ships in the Baltic ⁶	from echosounders (in general or restricted to sensitive areas) without compromising navigational safety. Discuss feasibility of systems providing real-time feedback to bridge about noise emissions from the ship.
25	Establish platforms to share best practices on policy options within member states and between authorities, the private sector and NGO's. Improve public awareness, so that political decision makers, local administrations and civil society are adequately informed about the underwater noise challenges.	For example, issuing a bulletin on best practices and policy options in the region and in the world.
26	Strengthen the cooperation with OSPAR on development of common and/or compatible indicators, databases and assessment methodologies	As agreed on an overall level in the 2018 HELCOM Brussels declaration
27	Maintain and strengthen cooperation with the European Union expert group TG-Noise on issues of mutual interest	In particular to assure consistency in development of indicators and criteria and methods for establishing thresholds and targets

Voluntary national actions

The following tables provide preliminary lists of proposed actions for the Contracting Parties to the Helsinki Convention for voluntary implementation. These actions aim at information exchange and coordination but are primarily of national concern and in the responsibility of the Contracting Parties.

3.1 Voluntary national actions addressing impulsive noise sources

CODE	PROPOSED NATIONAL ACTIONS
1	Propose national legislation to reduce impact of impulsive noise from activities such as: <ul style="list-style-type: none"> • Pile driving • Underwater explosions • Sonars and surveying equipment
2	Create a national forum for stakeholders on issues related to underwater noise
3	Share national experiences on the implementation of national legislation to reduce impact of impulsive noise
4	Conduct research into new solutions to reduce impulsive noise, including alternatives to pile driving, seismic sources, sonars
5	Conduct research on impact of impulsive noise on marine life and provide qualitative and quantitative information to assist in prioritizing and optimizing measures

3.2 Voluntary national actions addressing continuous noise sources

CODE	PROPOSED NATIONAL ACTIONS
6	Establishment of national regulation for mandatory use of AIS transmitters on leisure boats likely to emit high levels of underwater noise, <u>such that the contribution of noise from these boats can be included in the continuous noise indicators</u> ⁸ . Could be as a requirement based

Deleted: Inclusion of leisure boats without

⁶ Addressing point 4: it was noted that Russia does not support the consideration of any binding requirements for underwater noise under IMO and proposed that regional action nr 24 of the draft should be deleted or redrafted;

⁸ The intention here is not to monitor the activity of individual vessels with respect to compliance of speed regulation etc, but solely to collect information about the total abundance of leisure boats, to be included in modelling of underwater noise distribution in the same way as is being done for commercial ships with AIS.

	on engine power or equivalent, with due attention to the practical difficulties involved in such legislation . ⁹
7	Propose national legislation regulating the use of leisure boats with the objective of reducing impact from underwater noise on noise sensitive and biologically important areas and species. Such regulation must be based on acquired knowledge of effects and efficiency of measures and must be adapted to local conditions. A wide range of approaches, such as emission standards for underwater noise from inboard and outboard engines, speed and routing regulations and time-area restrictions. ¹⁰
8	Participation in and active contribution to common platforms for sharing best practices on policy options within HELCOM countries (gaps in national legislation etc.)
9	Establish a database of source information about ships, to serve as input for spatiotemporal modelling of continuous noise.
10	Improve awareness among ship owners and the public about the actual noise level radiated by their ships, by means of for example real time in-situ measurements close to ports.

3.3 Voluntary national actions addressing other noise sources

CODE	PROPOSED NATIONAL ACTIONS
11	Development and implementation of national regulations addressing the use of acoustic deterrent devices (including seal scarers)
12	Development and implementation of national regulations for the use of echosounders and fishfinders on leisure boats, in particular in sensitive areas
13	Development and implementation of national regulation and permitting procedures for use of sub-bottom profiling and similar instruments
14	Discussion of possible regulation of use of military sonars during testing, training and exercises
15	Development and implementation of national regulation on permitting of underwater explosions and implementation of mitigation measures

3.4 Voluntary national actions involving third parties

CODE	PROPOSED NATIONAL ACTIONS
16	Establish national stakeholder fora for issues involving underwater noise

Reporting on effectiveness of actions by member states & analysis of the feedbacks

[To be further elaborated].

⁹ Addressing point 5: *it was noted that leisure boating may contribute to continuous noise, but consideration should be given to the practical difficulties in mandating AIS transponders to be used onboard leisure boats. The Meeting invited the AIS EWG to consider the matter.*

¹⁰ Addressing point 5 as well and point 6: EBA proposed that the proposed regional actions nr 6 and 7 may need to be softened.