

Implementation plans for regional actions in the RAP Noise

Action 1

Lead country	<p><i>Germany to lead</i></p> <p><i>(Estonia and Sweden to contribute to parts of the action)</i></p> <p><i>Germany responsible of implementing Task 1</i></p>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	1				
Action	Improve the quality of data submitted to the HELCOM impulsive noise registry by updating and improving the common HELCOM guidelines for monitoring impulsive noise events in the Baltic Sea.				
Further specification	Based on the reporting to the registry already available. Main aim of action is to increase the completeness, spatio-temporal resolution and quality of submissions to the registry.				
Main outcome	Monitoring guidelines for impulsive noise events				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Revise guidance for reporting pile driving noise	EG-Noise	Lead country	2024	End of 2024	Revised guidance available
2) Revise guidance for reporting air gun noise	EG-Noise	Lead country	2024	[End of 2024]	Revised guidance available
3) Adapt guidelines to include other hydroacoustic surveys	EG-Noise	Lead country	2024	[End of 2024]	Topic included in the guidance
[Discuss and agree with navies on procedures for recording explosions]			To be discussed by the end of 2024		
[Initiate discussion with NATO and/or CPs regarding reporting of sonar]			To be discussed by the end of 2024		

Action 2

Lead country	<i>Lead needed.</i> <i>CCB to take the lead of Task 1</i> <i>(Poland to contribute with overlaying data on noise sensitive species and noise input on maps)</i>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	2				
Action	Improve assessment of impact of impulsive noise by identifying 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.				
Further specification	Based on HELCOM identified noise sensitive marine animal species (HELCOM 2019), 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)				
Main outcome	Approved map on noise sensitive species in the Baltic Sea				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Joint workshop (on impulsive and continuous noise related to action 2 , 14 and 24) with EG-MAMA, WG BioDiv and WG-FISH (in person, jointly)	Lead country/host Secretariat	EG-Noise EG MaMa WG BioDiv WG Fish	Workshop during second half of 2024		
2) Identify and fund dedicated projects	CPs	Lead country EG-Noise SAMBAH 2 project			

Projects contributing: HORIZON project, where UK is involved, AquaPLAN (“Aquatic Pollution from Light and Anthropogenic Noise: management of impacts on biodiversity”), to begin in January 2024. It will focus on artificial light and noise as well as on underwater noise in relation to further development of the D11 indicator in the EU MSFD.

Action 3

Lead country	<i>Germany (Co-Lead) and Denmark (Co-Lead)</i>				
Date	<i>11 March 2024</i>				
Contact person	<i>Carina Juretzek (DE) and Siri Lander Elmegaard (DK)</i>				
Affiliation	<i>BSH and MIM</i>				
E-mail	Carina.Juretzek@bsh.de and silae@mim.dk				
Code of action	3				
Action	Establish common methodology for the assessment of negative impact from impulsive noise				
Further specification	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).				
Main outcome	Best practice document				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1.0 Collection/summary of existing best practices	DK, DE	DE, DK	11/2023	09/2024	Written summary of existing BEP's in DK, DE finalized
2.0 Sharing of 1.0 among HELCOM CP's and collection of other BEP	DK, DE	All CP's (written input expected)	09/2024	11/2024	Written summary of existing BEP's and contribution and review by CP's finalized
3.0 Review of experience with BEP's and scientific developments	DK, DE	All CP's (written input expected)	11/2024	03/2025	Evaluation of BEP application performed
4.0 Development of common methodology recommendations	DK, DE	DK, DE	03/2025	09/2025	Common methodology recommendations proposed
4.0 Review and finalization of common methodology recommendations	DK, DE	All CP's (written input expected)	09/2025	11/2025	Common methodology recommendations developed

Action 4

Lead country					
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	4				
Action	Further develop the HELCOM impulsive noise pre-core indicator towards an operational core indicator				
Further specification	This includes development of methods to assess environmental status based on the indicator as well as definition of thresholds and targets.				
Main outcome	HELCOM Core indicator on impulsive underwater noise				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Identify gaps preventing acceptance as CORE indicator	Secretariat; Sea-Based Pressures		2023	End of 2023	
2) Evaluate HOLAS3 assessment	Lead country	EG Noise; Input from EU TG Noise and OSPAR ICG Noise needed	Q2 of 2024	End of 2025	
3) Update indicator report	EG Noise	Germany to consider leading the task	In alignment with HOLAS 4 timeline	In alignment with HOLAS 4 timeline	

Action 5

Lead country	<i>Lead needed.</i> <i>Sweden to support work on other relevant species groups different from marine mammals.</i> <i>Estonia to support.</i>				
Date					
Contact person					
Affiliation					
E-mail					
Code of action	5				
Action	Develop and implement one or more HELCOM impact indicators for impulsive noise				
Further specification	Based on the current pressure indicator, but with the inclusion of information about distribution of sensitive species and habitats. This work is a continuation of the work described in the noise sensitivity report (HELCOM 2019) and should preferably be along the same lines as the impact indicator currently under development in OSPAR and in accordance with the recommendations by EU TG-NOISE.				
Main outcome	HELCOM (pre-core) impact indicator on impulsive underwater noise.				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Evaluate OSPAR impact indicator	Lead	EG Noise; Input from OSPAR ICG Noise and EU TG Noise	2025		
2) Adapt OSPAR indicator, paying attention to TG-Noise guidance	Lead	EG Noise; Input from OSPAR ICG Noise and EU TG Noise	In alignment with HOLAS 4	In alignment with HOLAS 4	
3) Suggest indicator for one or more fish species	Lead	EG Noise WG Fish	In alignment with HOLAS 4	In alignment with HOLAS 4	

Links: the action depends on action 1, 2 and 4 (Operational pressure indicator + habitats)

Projects contributing:

- [JPI Project SONORA](#) - Filling the gap: Thresholds assessment and impact beyond acoustic pressure level linked to emerging blue-growth activities, coordinated by Jaime Ramis Soriano, University of Alicante (Spain).
- Swedish work is ongoing related to risk levels and risk distances for fish, which could be used in the development of this indicator.

Action 6

Lead country	Germany				
Date	11 March 2024				
Contact person	Carina Juretzek				
Affiliation	BSH				
E-mail	Carina.Juretzek@bsh.de				
Code of action	6				
Action	Identify Best Available Technologies (BAT) related to the abatement of impulsive noise. Among these collect existing national regulations and guidelines aimed to reduce the impact of underwater impulsive noise on the ecosystems of the Baltic Sea and related observations in order to form relevant HELCOM guidelines.				
Further specification	Including noise abatement systems and alternative installation methods for offshore wind farms, spatio-temporal exclusion of UXO clearing and alternatives to detonation, commercial sonars and test/training/exercise of military sonars, alternative seismic sources, and sub-bottom profilers.				
Main outcome	HELCOM BAT Guidelines				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
Create and provide a summary for BEP & BAT for pile driving in Germany	DE	DE	2022	2022	Summary shared with IC PRESSURE 2-2022
Complete questionnaire on national BAT and BEP	DE	All contracting parties, EG Noise	04.2024	05.2024	Acquire information basis for a first draft of available BAT/BEP
Expert-workshop on BAT and national experiences (optional)	DE	Interested contracting parties	06.2024	09.2024	Acquire information and experience basis for draft BAT guideline
Create first draft of HELCOM BAT guideline	DE	DE using collected information from the questionnaire and expert-workshop	07.2024	11.2024	HELCOM BAT guideline drafted
Review and amendment of the draft HELCOM BAT guideline	DE	All contracting parties	12.2024	02.2025	HELCOM BAT guideline reviewed
Finalizing HELCOM BAT guideline	DE	All contracting parties	03.2025	07.2025	HELCOM BAT guideline finalized

Action 7

Lead country	Germany				
Date	11 March 2024				
Contact person	Carina Juretzek				
Affiliation	BSH				
E-mail	Carina.Juretzek@bsh.de				
Code of action	7				
Action	Increase the use of Best Environmental Practice (BEP) and Best Available Technology (BAT) in mitigation of impact from impulsive noise by establishing common HELCOM best practice guidelines in methods for mitigation of impact from impulsive noise				
Further specification	Implementation of the knowledge gained from action 6.				
Main outcome					
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone

Please note that due to its linkage with action 6, the implementation plan of this action will be developed at a later stage.

Action 8

Lead country	<i>Lead needed. Sweden co-leading, Germany and Denmark consider co-leading. Finland considers co-leading if the Aurora Interreg project is granted</i>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	8				
Action	Improve regional and cross-border coordination of the spatio-temporal planning and permitting by establishing a common reporting system for planned activities likely to produce impulsive noise.				
Further specification	This constitutes an extension of the impulsive noise registry to include future activities that are currently only recorded after they occurred.				
Main outcome	Regional planning tool for permitting and reporting planned activities				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Organize a workshop to plan a pilot project	Lead(s): Sweden considers co-leading. Germany and Denmark to consider co-leading.	EG Noise HELCOM-VASAB MSP WG EU TG Noise	First half of 2024	Second half of 2024	
2) Fund and conduct pilot project for example in the Arkona Basin towards a planning tool for the regional level	Lead Secretariat		TBD based on the outcome of the workshop		
3) Establish a regional planning tool			TBD based on the outcome of the possible project		

Links: Depends on action 5 (impact indicator)

Action 9

Lead country	Finland to contribute				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	9				
Action	Improve protection of areas, which have already been defined as important or critical habitat for noise sensitive species, by obligating the adoption of adequate operational and technical noise mitigation measures.				
Further specification	<p>HELCOM (2019) already identified a number of important areas which are important for noise sensitive species (such as the core habitat of the critically endangered harbour porpoise population of the Baltic proper or spawning areas of fishes using sound for communication).</p> <p>If the area is already protected as an MPA, this can be included as part of the management. This does not imply that measures (such as those identified in action 6) are not required in other areas not specifically protected.</p> <p>Depends on action 6 (BAT) and 10 (common criteria)</p>				
Main outcome	HELCOM Recommendations for individual types of activities				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Identify and agree on appropriate mitigation measures for different activities	EG Noise WG Sea-based pressures	EG MaMa EG MPA WG BioDiv	Following completion of Action 6		
2) Prepare and submit HELCOM Recommendations for individual types of activities	Leads tbd upon completion of task 1)	EG-Noise Secretariat			

Projects and available documentation contributing:

- Comparison between Danish and German guidelines for mitigation of pile driving noise. New project comparing the two sets of guidelines directly through modelling of realistic scenarios for pile driving. Funded by the Danish Energy Agency. Conducted by Aarhus University and NIRAS A/S. To be reported in early 2024. The final report to be ready shortly.
- Input from OSPAR work on the matter expected.
- [Best Available Technology \(BAT\) and Best Environmental Practice \(BEP\) for Mitigating Three Noise Sources: Shipping, Seismic Airgun Surveys, and Pile Driving, CMS Technical Series Publication No. 46, 2023](#)

Action 10

Lead country	Denmark (Lead) and Germany (Co-Lead)				
Date	29 October 2024				
Contact person	Martin Nielsen (DK), Carina Juretzek (DE)				
Affiliation	Danish Environment Protection Agency, BSH				
E-mail	martn@mstdk , Carina.Juretzek@bsh.de				
Code of action	10				
Action	Reduce injury and behavioural disturbance from impulsive noise by establishing common HELCOM criteria for injury and disturbance, as well as common exposure limits.				
Further specification	These criteria and exposure limits are not identical to the GES-thresholds to be established under point 4, but are operational criteria that can be applied to individual activities generating impulsive noise.				
Main outcome					
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone

Please note that due to its linkage with action 3, the implementation plan of this action will be developed at a later stage.

Action 11

Lead country	<i>The Secretariat to lead in cooperation with joint contact group of HELCOM and OSPAR representatives</i>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	11				
Action	Improving accessibility and sharing of monitoring data by operationalisation of the common database for monitoring data on continuous underwater noise				
Further specification	As decided by HOD 55-2019 and implemented by database hosted by ICES.				
Main outcome	Improved regular uploading of national monitoring data to database				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Review experience to date on the database on continuous noise	Secretariat	EG Noise OSPAR ICG Noise	October 2024 (joint HELCOM EG Noise /OSPAR ICG Noise session)	Meeting held	Regular meetings with OSPAR on the topic
2) Agree on changes/updates to the database on continuous noise, coordinated with OSPAR	Lead: Denmark, Germany [and Sweden]	EG-Noise OSPAR Joint contact group made up of representatives from both HELCOM and OSPAR together with ICES	Continuous activity	Continuous activity	Connection with action 12

Projects contributing: Poland: "Concept of building metrological infrastructure in the area of underwater acoustics at GUM" project which aims to create a concept and maybe in the future get funds for this kind of infrastructure. This is national project and a website in English can be found. Some information in Polish may also be found here: <https://ug.edu.pl/strona/120658/polska-metrologia>.

Action 12

Lead country	<i>Lead needed</i>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	12				
Action	Development of common guidelines for reporting of continuous noise levels in the Baltic Sea.				
Further specification	Linked to and in progress in connection to establishment of common database hosted by ICES.				
Main outcome	Common guidelines for reporting of continuous noise levels in the Baltic Sea				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Review experience from HOLAS 3 (lack of spatial coverage in certain areas) and elsewhere (incl. OSPAR)	Lead	EG Noise	Q3 2024	Q4 2024	Review conducted
2) Contribute to evaluation by TG-Noise			Q3 2024	Q4 2024	EG Noise members are part of the dedicated subgroup on the topic within TG Noise
3) Identify funding opportunities (consider document 5-4 to IC SEA-BASED PRESSURES 2-2023)	Lead	Secretariat CPs	Q3 2024	Q4 2024	
4) Conduct intercalibration events (consider document 5-4 to IC SEA-BASED PRESSURES 2-2023)			2025	2025	
4) Update monitoring guidelines and agree on guidelines for reporting of continuous noise	EG Noise	Lead Secretariat EU TG Noise	To be made available for use at HOLAS 4		

Action 13

Lead country	<i>Lead needed</i>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	13				
Action	Increase regional coordination and management of continuous noise sources by establishing a common framework for modelling past, present and future noise levels in the Baltic.				
Further specification	Continuation of the Soundscape planning tool developed under the BIAS project, as decided by HOD 55-2019 ¹ . 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.				
Main outcome	Common approach for modelling past, present and future noise levels in the Baltic Sea for the development of regional assessments				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Review experience from HOLAS 3 and elsewhere (incl. JOMOPANS)	Lead	EG Noise; coordinate with EU TG Noise and OSPAR ICG Noise			Revision is conducted
2) Contribute to evaluation by TG-Noise	Lead	CPs			EG Noise members are part of the dedicated subgroup on the topic within TG Noise
3) Provide a description of a common approach for modelling past, present and future noise levels in the Baltic Sea enabling the development of regional assessments	EG-Noise	Lead	Aligned with HOLAS 4 timeline		
4) A common approach for modelling past, present and future noise levels in the Baltic Sea enabling the development of regional assessments is developed	Sea-based pressures WG	EG Noise	Aligned with HOLAS 4 timeline		

¹ Please note that the planning tool was supported by Sweden until two years ago.

Action 14

Lead country	CCB to take the lead of Task 1				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	14				
Action	Improve assessment of impact of continuous noise by identifying important habitats and biologically sensitive areas and periods in the Baltic Sea region, vulnerable to elevated levels of continuous noise.				
Further specification	Some information available (HELCOM 2019). To be amended based on biological data and science-based criteria and in cooperation with other HELCOM working and expert groups (such as EG-MAMA).				
Main outcome	Approved map on noise sensitive species in the Baltic Sea				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Joint workshop (on impulsive and continuous noise related to action 2, 14 and 24) with EG-MAMA, WG BioDiv and WG-FISH (in person, jointly)	Lead country/host Secretariat	EG-Noise EG MaMa WG BioDiv WG Fish			
2) Identify and fund dedicated projects	CPS	Lead country EG-Noise SAMBAH 2 project			

Links: action 2.

Action 15

Lead country					
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	15				
Action	Establishment of a common methodology for assessment of impact of activities generating continuous noise.				
Further specification	Applies to for example shipping, offshore wind farms, offshore installations, construction works (other than pile driving and similar impulsive sources) and offshore infrastructure, etc.				
Main outcome	Guidelines for assessment of impact of activities generating continuous noise.				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Compile and evaluate national guidelines and current practice	Lead	EG Noise	Q4 2025	Q2 2026	
2) To draft guidelines (possible HELCOM Recommendation)	Lead	EG Noise	Q3 2026 tentatively	Q4 2026 tentatively	

Links: depends on 17 (effects studies)

Projects contributing:

- [JPI Project ORCHESTRA](#) - Ecosystem responses to constant offshore sound spectra, coordinated by Maarten Boersma, Alfred Wegener Institute for Polar and Marine Research (Germany).
- [JPI Project PURE WIND](#) - Impact of sound on marine ecosystems from offshore wind energy generation, coordinated by Ana Širović, Norwegian University of Science and Technology (Norway). The Gdynia Maritime University is part of the consortium of the PURE WIND JPI Ocean project.
- Energy Island North Sea and North Sea Lot 1 offshore wind farms. Strategic Impact Assessments of potential areas for wind farm development. Includes passive acoustic monitoring of cetaceans, monitoring of current underwater noise levels and modelling of future underwater noise levels. Funded by Energinet.dk. Conducted by NIRAS A/S and Aarhus University. To be reported in 2024 and 2025.
- Strategic mapping of potential sites for offshore wind development in Danish waters, including mapping of marine mammal abundance and modelling of future underwater noise pressure layers. Funded by the Danish Energy Agency. Conducted by NIRAS A/S, Aarhus University, DMI and others. To be reported in 2024-2025.
- An Estonian project on effects of offshore wind turbine noise on Baltic herring with the University of Tartu (marine biology) and Tallinn University of Technology (acoustics). The project aims at using a robotic boat to map fish distribution around low-frequency sound source; the boat is equipped with hydrogen batteries for extended reproduction of low frequency noise as well as with a particle motion sensor.
- WindSound – (project in Sweden with the Swedish Defence Research Institute (FOI) and the Royal Institute of Technology (KTH), 2024-2026), that will carry out measurements and modelling of the radiated operational noise (both sound pressure and sound particle motion) in the water and vibrations in the seabed from a large offshore wind farm (OWF). This work will form the basis of a framework and guidance for how the acoustic footprint from an OWF in an EIA should be estimated and how a monitoring program should be implemented, both regarding sound in water and vibrations in the seabed. The project will also ensure that the framework delivers the necessary data

for the Swedish Navy to be able to carry out its own risk analyses on the impact on the defence capability.

Action 16

Lead country	Denmark tbc				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	16				
Action	Further develop the HELCOM continuous low-frequency noise pre-core indicator towards an operational core indicator.				
Further specification	This includes development of methods to assess environmental status based on the indicator (action 15) as well as definition of thresholds and targets.				
Main outcome	HELCOM core indicator continuous low-frequency noise				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Identify gaps preventing acceptance as CORE indicator	Secretariat		Q4 2023	Q4 2023	Review conducted
2) Evaluate HOLAS 3 assessment	Lead country	EG Noise	Q2 2024	Q3 2024	
3) Update indicator report	EG Noise	Lead country	In alignment with HOLAS 4	In alignment with HOLAS 4	

Action 17

Lead country	Denmark (Co-Lead) (Contributions by Estonia and Sweden)				
Date	5.11.2024				
Contact person	Kim Lundgreen				
Affiliation	Danish Environmental Protection Agency				
E-mail	kilun@mst.dk				
Code of action	17				
Action	Increase the knowledge and encourage data sharing on impact of noise by supporting research on sources and effects of continuous noise on marine biota				
Further specification	<p>Impact studies as detailed in the HELCOM science agenda. Encourage exchange of statistical information about continuous low frequency sources, including frequencies' spectrum characteristics.</p> <p>Action related to action S57b) in the BSAP:</p> <p><i>Initiating and supporting pilot projects to study efficacy of vessel slow down, rerouting and other operational measures, on noise emissions and responses of target species by the end of 2026. Results are to be communicated to the International Maritime Organization (IMO) for follow-up and further action.</i></p>				
Main outcome	Research will contribute to scientific basis for future discussions and decisions regarding noise reducing actions and programmes				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Specific research project on re-routing in Kattegat (TANGO). The project investigates how splitting a big shipping route into two smaller affects surrounding noise levels and harbor porpoise activity.	DK	SE, EE	12/2020	04/2024	Report shared with EG Noise and Sea-based Pressures to support further work on the subject
2) Investigation into potential policy measures that the Swedish authorities could adopt to lower URN, including speed restrictions. The report presents an interdisciplinary analysis using a case study of an area in the southern Kattegat with a shipping lane and significant conservation value.	SE	SE	11/2022	08/2023	Report published and shared with EG NOISE & ICG NOISE: Management measures to reduce continuous underwater noise from shipping

3) Regular updates to Sea-based pressures Working Group on national and international research activities contributing to this action	All Contracting Parties	All Contracting Parties	Continuous	Continuous	Updated information on research activities available.
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Action 18

Lead country	<i>Lead needed. Estonia to support. Sweden to support work on other relevant species groups different from marine mammals. Finland may be able to contribute</i>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	18				
Action	Develop and implement one or more HELCOM impact indicators for continuous low-frequency noise.				
Further specification	Based on the current pressure indicator (action 16), but with the inclusion of information about distribution of sensitive species and habitats (action 14).				
Main outcome	HELCOM impact indicator (pre-core) for continuous low-frequency noise				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Evaluate HOLAS 3 and guidance from EU TG Noise	Lead	EG Noise	Q3 2024	Q1 2025	
2) Test indicator towards HOLAS 4	Lead of indicator	EG Noise; Input from EU TG Noise, OSPAR ICG Noise and additional projects	In alignment with HOLAS 4	In alignment with HOLAS 4	
3) To draft indicator report	Lead of indicator	EG Noise	In alignment with HOLAS 4	In alignment with HOLAS 4	
4) Test indicator in HOLAS 4	Lead of indicator	EG Noise	In alignment with HOLAS 4	In alignment with HOLAS 4	

Links: Depends on action 13 (noise maps), 14 (habitats), 15 (assessment methods), 16 (pressure indicator) and 17 (effects studies).

Projects contributing:

- [JPI Project DEUTERONOISE](#) - Characterization of maritime noise in different European basins and its impact on ecological relevant deuterostome invertebrates, coordinated by Lucia Manni, University of Padua (Italy).
- [JPI Project DIAPHONIA](#) - Diagnostic framework to assess and predict the impact of underwater noise on marine species, coordinated by Sandro Mazzariol, University of Padua (Italy).
- “**BIODIVERSEA LIFE-IP Project – Sub-Action A8.2 Underwater noise and effects on fish and invertebrates**”: it is an 8 years project, which contains a Finnish national project sub-task description on underwater noise measurements and experiments to assess impacts of underwater noise. Available here: <https://www.metsa.fi/en/project/biodiversea-eng/>

Action 19

Lead country	Germany				
Date	8 March 2024				
Contact person	Susanne Heitmüller and Nicole Heibeck				
Affiliation	Federal Maritime and Hydrographic Agency (BSH)				
E-mail	susanne.heitmueller@bsh.de and nicole.heibeck@bsh.de				
Code of action	19				
Action	Expand and improve the existing and potential operational and technical measures to reduce the impact of continuous noise to form a basis for common guidelines on management. Suitable technical measures to reduce input of continuous noise should be identified (BAT/BEP), based on a scientific justification, and taking into account socioeconomic impacts.				
Further specification	Collection of experience from HELCOM members and abroad and collection of new information through research and development, as detailed in the HELCOM science agenda.				
Main outcome	Management Guidelines and BAT/BEP				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
National project (work package 1)	Germany		November 2022	March 2024	Project Report -> Inventory of mitigation measures
Identification of Management Guidelines and BAT/BEP	Germany	All CPs, EG Noise	March 2024	2025	Management Guidelines and BAT/BEP

Lead country	<i>Lead needed. Sweden considering leading. Possible input from CCB in connection with a pilot project on mitigation measures. Finland can very likely contribute.</i>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	20				
Action	Reduction of elevated continuous noise levels in noise sensitive and biologically important areas in the Baltic Sea by adoption of guidelines on management, based on the "HELCOM input to the establishment of environmental targets for underwater noise" (2018). The environmental targets for underwater noise should take into account the target values set by TG Noise at EU level				
Further specification	Implementation of knowledge gained under action 19.				
Main outcome	Management guidelines (possible HELCOM Recommendation) on continuous noise in noise sensitive and biologically important areas in the Baltic Sea.				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Evaluate results of action 19 and pilot studies	Lead		Q4 2024	Q1 2025	
2) Evaluate IMO guidelines and applicability to Baltic bearing in mind its experience building phase and, if relevant, inform IMO accordingly	Lead	EG Noise Maritime WG	Q4 2024	Q4 2026	
3) Conduct workshops with stakeholders to establish consensus on regulation	Lead	Secretariat	2027	2027	
4) Write and submit HELCOM recommendation	EG-Noise	Lead	2027	2027	

Projects and available documentation contributing:

- **TANGO project:** study of the effect on underwater soundscapes by rerouting a major shipping lane into the Baltic. Link to end report: <http://dce2.au.dk/pub/SR535.pdf>
- Swedish Institute for the Marine Environment Report No. 2023:3 (2023-08-22)². Management Measures to Reduce Continuous Underwater Noise from Shipping. Available here:

² By: Mathias Andersson, Swedish Defence Research Agency, FOI; Rickard Bensow, Chalmers University of Technology; Dag Glebe, IVI Swedish Environmental Research Institute; Ida-Maja Hassellöv, Chalmers University of Technology; Emilia Lalander, Swedish Defence Research Agency, FOI; David Langlet, Uppsala University; Kjell Larsson, Linnaeus University; Lars-Göran Malmberg, University Of Gothenburg; Eva-Lotta Sundblad, Swedish Institute for the Marine Environment; Mikael Svedendahl, Swedish Defence Research Agency, FOI.

<https://havsmiljoinstitutet.se/publikationer/havsmiljoinstitutets-rapportserie/atgarder-for-att-minska-undervattensbuller-fran-fartygstrafik> (please note that the report is available in English, even though the landing page is not). The project covers:

- legal aspects of underwater noise from shipping;
 - cavitation noise generation and its impact on ship propulsion design and operation;
 - modelling of ships as point sources of noise; and
 - a case study on the effect of restricting ship speed.
- Swedish Environmental Research Institute report C743, (2023)³. Underwater noise from fairways – policies, incentives and measures to reduce the environmental impact. Available here: <https://www.ivl.se/english/ivl/publications/publications/underwater-noise-from-fairways---policies-incentives-and-measures-to-reduce-the-environmental-impact.html>. The project covers:
- overview of noise from ships;
 - overview of effects on marine life;
 - ship noise mitigation techniques;
 - stakeholder analysis and network activities;
 - fairway design for reduced noise transmission; and
 - a financial incentive for underwater noise reduction in Swedish waters.
- Report about the rerouting in Kattegat (2022): <https://www.foi.se/rest-api/report/FOI-R--5334--SE>
- Silent@Sea – IVL project funded by Trafikverket, 4,5 Mkr, which ends in late 2023. The report will be published in English. The project is organizing a seminar on ship noise, with a focus on electrical and LNG ships to be held on 7 November 2023. Available here: https://comm.ri.se/b/v?event=1962&ucrc=8B76B84035&utm_campaign=Welcome+to+a+seminar+on+ship+noise%2c+with+a+focus+on+electrical+and+LNG+ships-SMTF+Nyheter&utm_medium=email&utm_source=lime-newsletter
- [Best Available Technology \(BAT\) and Best Environmental Practice \(BEP\) for Mitigating Three Noise Sources: Shipping, Seismic Airgun Surveys, and Pile Driving, CMS Technical Series Publication No. 46, 2023](#)

³ By: Torbjörn Johansson, Sara Sköld, Carl Andersson, Anna-Sara Krång, Hulda Winnes, Cecilia Andersson and Sabina Hoppe.

Action 21

Lead country	<p><i>Lead needed.</i> <i>CCB taking the lead of Task 1 in connection with a pilot project on mitigation measures as well as on material towards raising awareness, depending on funding available.</i> <i>Finland can very likely contribute.</i></p>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	21				
Action	Inciting national and voluntary actions with respect to raising awareness of ship and boat operators and cooperation with shipping companies and boat owners on speed management for their vessels including different aspects of adjusting and planning for vessel speed and engine load optimised for the reduction of underwater noise.				
Further specification	This can include installing monitoring systems at strategic locations (for example at outer approaches to ports) with real-time feedback to the ship's crew, to raise awareness and to aid in optimizing vessel and engine operations for reduced underwater noise radiation.				
Main outcome	Information material inciting national and voluntary actions to reduce underwater noise				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Workshop to identify the type of material needed to raise awareness depending on the targeted stakeholders and sharing of national experiences (e.g. from roundtables, IMO)	CCB considering leading	CPs	Q3 2024	Q4 2024	
2) Develop information material inciting national and voluntary actions to reduce underwater noise, including real-time monitoring	Lead	CPs			

Projects contributing:

- CCB together with research institutions from Germany, Latvia and Poland are involved in the [Red Noise Baltship](#) project working on awareness raising and establishing dialogue with relevant stakeholders. CCB is also working on a bigger project application to pilot mitigation measures and invited Contracting Parties to take part in the project application.
- The INCITESHIP project (IVL and FOI in Sweden is lead with support from SMHI and Aarhus University (DK)) will demonstrate how an incentive system that can be used to reward quiet ships based on

their underwater radiated noise level and its relation to newly developed thresholds for impact on marina animals. The system includes a new type of measurement station for quality-assured and cost-effective noise measurements of ships in commercial traffic.

Action 22

Lead country	<i>Lead needed</i>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	22				
Action	Enhance Baltic Sea wide cooperation of port authorities to introduce novel initiatives, such as harbour fee systems, in order to set incentives for voluntary quiet vessel operation.				
Further specification	See Port of Vancouver (2017), ECHO Program				
Main outcome	Implementation plan for port authorities to introduce initiatives towards voluntary quiet vessel operations.				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Conduct a stakeholder workshop to share the Vancouver experience	Lead	Secretariat EG Noise Maritime WG	Q1 2025	Q2 2025	
2) Define areas in the Baltic Sea and conduct pilot studies in these areas	CPs	Lead EG Noise Maritime WG	Q2 2025	Q3 2026	
3) Draft implementation plan / management recommendations	Lead	EG Noise Maritime WG			

Action 23

Lead country	<i>Lead needed</i>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	23				
Action	Identification of other noise sources with significant impact on the marine ecosystems but not covered by the measures targeting impulsive and continuous noise				
Further specification	This includes, but is not limited to, sources with main energy above 10 kHz: echosounders, military and non-military sonars, sub-bottom profilers, net pingers, and hydroacoustic instruments.				
Main outcome					
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Review sources (document prepared by EG Noise and submitted to IC Sea-based pressures session for consideration)	Lead	EG Noise	Q2 2024	Q3 2024	Living document to be prepared for the IC RAP NOISE 2-2024

Action 24

Lead country	<i>CCB to take the lead of Task 1. Finland can very likely contribute</i>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	24				
Action	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.				
Further specification	Based on biological data and science-based criteria and in cooperation with other HELCOM working and expert groups (such as EG-MAMA)				
Main outcome					
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Joint workshop (on impulsive and continuous noise related to action 2, 14 and 24) with EG-MAMA, WG BioDiv, WG-FISH, HELCOM VASAB-MSP WG (in person, jointly)	Lead country/host Secretariat	EG-Noise EG MaMa WG BioDiv WG Fish HELCOM VASAB-MSP WG	Workshop during second half of 2024		
2) Identify and fund dedicated projects	CPs	Lead country EG-Noise SAMBAH 2 project			

Lead country	<i>Sweden to lead. Possible input from CCB in connection with a pilot project on mitigation measures. Finland can very likely contribute</i>				
Date	6 November 2024				
Contact person					
Affiliation					
E-mail					
Code of action	25				
Action	Compile and assess available information about potential impact caused by noise from leisure boats				
Further specification	As detailed in the HELCOM science agenda				
Main outcome	Management recommendations for noise caused by leisure boats.				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Undertake a project to review and produce new information on the potential impact of noise caused by leisure boats	Lead	EG Noise	tbd	tbd	
2) Develop management recommendations, based on the outputs of the project.		EG Noise	tbd	tbd	

Projects contributing:

- Swedish Project title: “Environmental Impact of underwater noise from leisure boats - quantifying impact and estimating efficiency of measures (2022-2024)”. Available here: <https://www.ivl.se/vart-erbjudande/forskning/vatten/miljopaverkan-fran-fritidsbatars-undervattensbuller.html>. It is a national funded project that studies the radiated noise from recreational boats. There are no deliveries yet available, but a lot of fieldwork has been performed.
- [DEMASK project](#) - Development and evaluation of noise management strategies to keep the North Sea healthy, started in January 2024, will run for three years. The aim of the project is to bring together policy makers, scientists, non-governmental organizations (NGOs), and the maritime industry in the management of the underwater soundscape of the North Sea. The project will enable stakeholders to facilitate a well-managed soundscape and strengthen the marine ecosystem. DEMASK will develop an approach for defining policy scenarios for underwater noise management and a method to quantify the effectiveness of those scenarios to mitigate noise pollution and its effects on marine life.

Action 26

Lead country					
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	26				
Action	Development of HELCOM indicators suitable for monitoring noise sources identified under measure 23.				
Further specification	Existing indicators cover impulsive noise under 10 kHz and continuous low-frequency noise, but does not include echosounders, most sonars and sub-bottom profilers, net pingers, etc.				
Main outcome					
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Develop and fund pilot/development projects					
2)					
3)					

To be considered at a later stage, once action 23 is implemented.

Action 27

Lead country					
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	27				
Action	Development of common guidelines for assessing impact from echosounders, sonars and other sources not covered by 2.1 and 2.2				
Further specification	Such as to apply to environmental impact assessments (EIAs) and assessment of environmental status (GES).				
Main outcome					
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
Contracting Parties to provide information on these projects to the Secretariat				Continuous	
To review the information from national projects and decide on further tasks based on this information					

Action 28

Lead country	Denmark (Co-Lead)				
Date	5.11.2024				
Contact person	Kim Lundgreen				
Affiliation	Danish Environmental Protection Agency				
E-mail	kilun@mst.dk				
Code of action	28				
Action	Support for research on pressure and impact from echosounders and other low-level, but abundant noise sources.				
Further specification	<p>As detailed in the HELCOM science agenda regarding improved knowledge of pressures from sources currently not monitored, such as recreational activities/vessels, echosounders, sonars and sub-bottom profilers, to support assessment of impact both on small scale (EIAs on specific projects) and large scale (sub-basin scale).</p> <p>Action related to action S57c) in the BSAP:</p> <p><i>By 2027 Mapping the contribution of recreational craft to the noise in the marine environment; supporting studies on efficiency of mitigation measures, such as speed limitations and time-area restrictions; and studies on impact from echo sounders and fish-finders. Based on available evidence and new results, developing guidelines for implementing regulation to reduce impact on sensitive species. Simultaneously, establishing a discussion with the industry and relevant international standardization bodies and aiming at developing industry or/and application standards for underwater noise emissions of engines with respect to recreational craft echo-sounders and fish finders, which can be utilized in national regulation of activities in marine protected areas (MPAs) and other noise sensitive areas in the Baltic Sea.</i></p>				
Main outcome	Research contributions to increase our understanding of the pressures from noise sources, that are not monitored. This will feed into and enable potential future decisions on how to account for other noise sources				
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Research pilot project aiming to quantify the pressure from echosounders as measured at Danish noise monitoring stations. The pilot project has been initiated.	DK		07/2022	12/2024	Report shared with EG Noise and Sea-based pressures to support further work on the subject
2) Regular updates to Sea-based pressures Working Group on national and international research activities contributing to this action	All Contracting Parties	All Contracting Parties	Continuous	Continuous	Updated information on research activities available.

Action 29

Lead country					
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	29				
Action	Reduce the impact from acoustic deterrent devices by developing and agreeing on common guidelines and regulation of the design and use of deterrent devices				
Further specification	Action proposed for BSAP update				
Main outcome					
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Review national guidelines and empirical evidence in cooperation with WG Fish (responsible for the implementation of action S61)	Lead	EG Noise			

Action 30

Lead country	<i>The Secretariat assisted by Germany</i>				
Date	4.11.2024				
Contact person	<i>Marta Ruiz and Susanne Heitmüller</i>				
Affiliation	<i>Secretariat and Federal Maritime and Hydrographic Agency</i>				
E-mail	marta.ruiz@helcom.fi ; Susanne.Heitmueller@bsh.de				
Code of action	30				
Action	Strengthen coordination with IMO on the development of actions, as appropriate, to reduce underwater noise from commercial shipping and cooperate with other relevant actors as needed in the development of technical and operational solutions to reduce such noise in line with the aforementioned IMO actions.				
Further specification	Includes, but it is not limited to, discussions on current and future quiet ship design as well as on shipping's contribution to underwater noise and the impact of underwater noise on marine species. Initiate discussions on feasibility of reducing or otherwise regulate the emissions 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.				
Main outcome					
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Collection of lessons learned/best practices in the implementation of the revised IMO Guidelines	Contracting parties			2025	Documents submitted to MARITIME
2) Discussion of submitted material by EG-Noise and Maritime Working Group	HELCOM Secretariat			2026	Feedback to contracting parties
3) Submission of lessons learned/best practices in the implementation of the revised IMO Guidelines to MEPC 83-85	Contracting Parties			2026 ⁴	Documents submitted to MEPC 83-85
4) Keeping track of the developments and outputs of tasks 1, 3 and 3	Germany and the Secretariat	Contracting Parties	2025	2026	To be updated after the conclusion of the MEPC Experience Building Phase on the Revised Guidelines for the reduction

⁴ The ultimate deadline is MEPC 85 but submission to MEPC 83 and 84 should be made earlier, if documents are available.

					of underwater radiated noise from shipping to address adverse impacts on marine life
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This action is connected to actions 17, 19, 20, 21, 22 and 28; the link comes from the output from these actions which are of relevance to IMO.

Action 31

Lead country	<i>Germany to contribute and CCB to co-lead</i>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	31				
Action	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.				
Further specification	For example, issuing a bulletin on best practices and policy options in the region and in the world.				
Main outcome					
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
Share national experiences as well as other experiences to EG Noise and WG Sea-based pressures	All CPs		Q4 2024 (SBP 4-2024)	Continuous	
Evaluate how to build an online platform	All CPs		Q1 2025 (SBP 5-2025)	Q4 2025	

Action 32

Lead country	<i>No lead needed (Secretariats and Chair to lead)</i>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	32				
Action	Strengthen the cooperation with OSPAR on development of common and/or compatible indicators, databases and assessment methodologies				
Further specification	As agreed on an overall level in the 2018 HELCOM Brussels declaration				
Main outcome					
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Conduct regular joint meetings, including ICES	EG-Noise	OSPAR ICG Noise	Continuous	Continuous	Joint meetings

Action 33

Lead country	<i>No lead needed</i>				
Date	<i>11 March 2024</i>				
Contact person					
Affiliation					
E-mail					
Code of action	33				
Action	Maintain and strengthen cooperation with the European Union expert group TG-Noise on issues of mutual interest				
Further specification	In particular to assure consistency in development of indicators and criteria and methods for establishing thresholds and targets				
Main outcome					
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Assure exchange of information between representatives	CPS	Secretariat	Continuous	Continuous	EG Noise members are part of TG Noise

Action 34

Lead country	<i>Lead needed. Possible input from CCB in connection with a pilot project on mitigation measures. Finland may be able to contribute.</i>				
Date	11 March 2024				
Contact person					
Affiliation					
E-mail					
Code of action	34				
Action	Reduce the impact from leisure boats by establishing a discussion with producers of echosounders and fishfinders with the goal of introducing standards for noise emission from echosounders, fishfinders and engines of leisure boats.				
Further specification	This aims for example at installing on/relates to the ability to turn off and adjust source level and frequency of echosounders and fish-finders, as well as developing industry standards for underwater noise emissions for boat engines.				
Main outcome					
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone

To be considered at a later stage in conjunction with additional action on leisure boat (action 25).

Lead country	Lead needed. CCB to contribute. <i>Finland can very likely contribute if the Aurora Interreg project is granted</i>				
Date					
Contact person					
Affiliation					
E-mail					
Code of action	35				
Action	Reduce the impact from underwater explosions in connection to munition clearance, by developing international guidelines for the safe removal and detonation of ammunition. The guidelines should be established through consultation with the Ministry of Defence of the Russian Federation and NATO and lead actions for use of noise mitigation technologies and operating practices in the Baltic Sea.				
Further specification	Initiate discussions on the use of noise mitigation measures, as well as informing nature protection institutions about planned detonations and mitigation methods. Including, but not limited to, discussions on deterrent measures, abatement technologies, spatio-temporal planning of clearance operations in relation to ecosystem sensitivity. Initiate discussions on feasibility of reducing the impact on biota without compromising navigational safety.				
Main outcome					
Sequential task description	Responsible	Contribution from	Begin date	Due date	Milestone
1) Conduct workshop with representatives from national navies and other stakeholders		EG Submerged Relevant projects			
2) Review empirical evidence for BAT/BEP and national guidelines					
3) Draft HELCOM recommendations					

Links: Connected with action BSAP action S34.

Projects and activities contributing:

- Finnish application to an Aurora Interreg call, where the main focus of the project for 2025-2027 would be EIAs from marine explosions (potentially also piling, but this is tbc). If the project is funded, Finland would be happy to contribute to impulsive noise actions, particularly related to explosions, EIAs, and also modelling and measuring noise from impulsive sources/explosions. Aurora Interreg region does not cover all the Baltic Sea, but it would be ideal to align this project with HELCOM RAP Noise.
- A **joint ACCOBAMS-ASCOBANS workshop with navies and NATO** (workname) envisaged to take place on 8-9 October 2024 in Toulon. The workshop will build on the ACCOBAMS 2019 *workshop on sonars and cetacean interactions* (report [here](#)) and include ASCOBANS [AC26/AP3](#) request to “consider navies' mitigation protocols for use of military sonar and management of other activities that can contribute to potentially harmful underwater noise, including the removal and/or detonation of Unexploded Ordnance (UXO); and solutions for acoustic monitoring and bycatch mitigation (deterrent devices) in synergy with national security activities”.