HELCOM Approach to Underwater Noise

IMO-WMU Workshop on Underwater Radiated Noise Reduction Policies
And Strategies with a Focus on Developing Countries

15-16 October 2024

Marta Ruiz

By Marta Ruiz
Wednesday, October 30, 2024

HELCOM

Who we are and what we do

By Marta Ruiz
Wednesday, October 30, 2024

Baltic Marine Environment Protection Commission

Photo by Gatis Orlickis
HELCOM 50 years – HELCOM

The Baltic Sea is: young, shallow, isolated, small –

- **Young:** The most recent configuration of the Baltic Sea was established between 7,500 and 4,000 years ago -> younger than the pyramids of Giza!
- **Shallow:** More than one third of the Baltic Sea is shallower than 30 meters
- **Isolated:** It takes approximately 30 years for the Baltic Sea waters to be fully exchanged.
- **Small:** surface area of 420,000 km2
  = 16% of the size of the Mediterranean sea.

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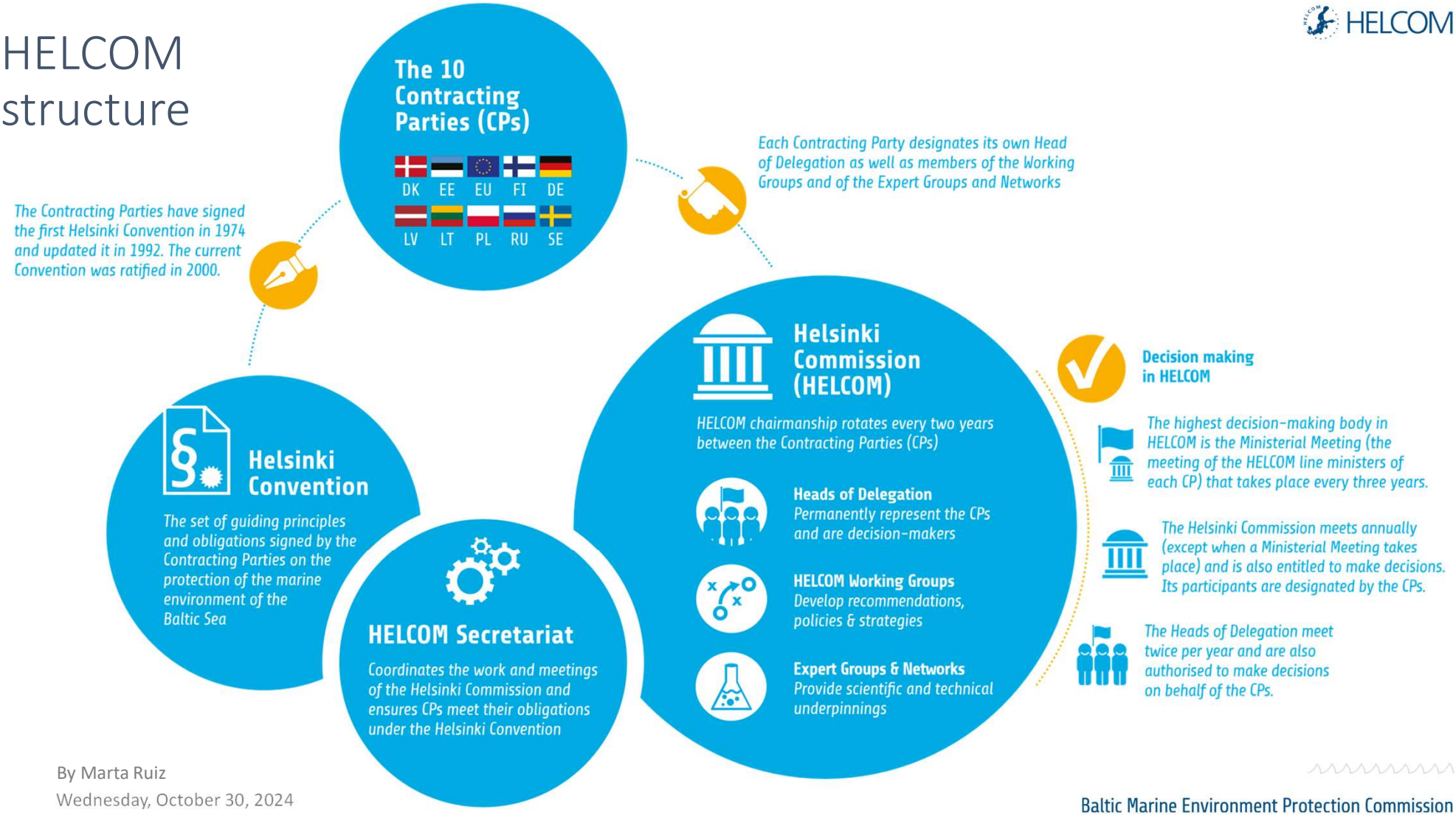
HELCOM structure



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HELCOM tools - how we get things done

The Helsinki Convention
Instrument of int. law, containing objectives & obligations. Annexes: technical guidelines and regulations.

Recommendations on measures to address areas of concern, implementable through national legislation. In total, about 260 recommendations have been adopted so far.

Action plans & projects
Contain actions and measures with such as **Baltic Sea Action Plan**, **Regional Action Plan on Underwater Noise**, and most HELCOM projects.

Monitoring & assessments

- Indicators (pressures on and state of the environment)
- Thematic assessments
- **Holistic assessments**

Ministerial Meetings
Set the major strategic directions and provide the necessary political commitment.

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etc)

- Applied circa every 6 years and covers a 6-year data period

https://stateofthebalticsea.helcom.fi/

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Baltic Marine Environment Protection Commission

How we do it

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THIRD HELCOM HOLISTIC ASSESSMENT OF THE BALTIC SEA 2016-2021

HOLAS 3

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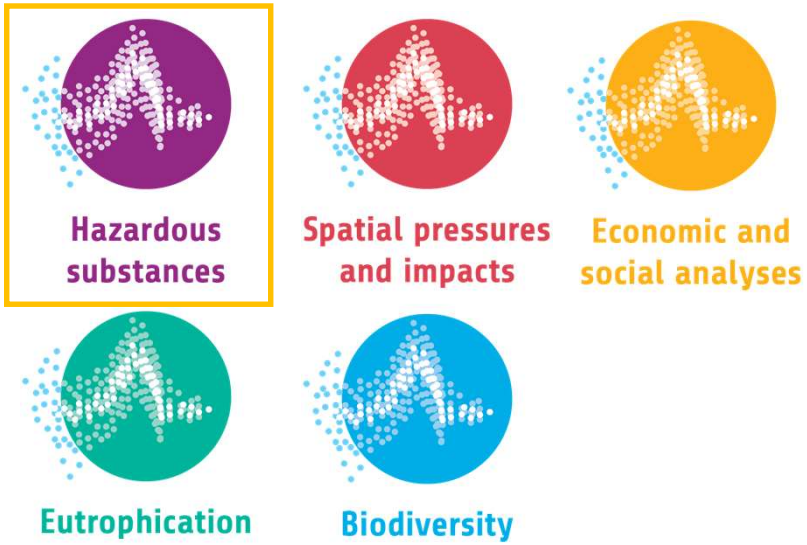
Thematic assessments:

- Focusing on presenting methods and results in detail (focusing on the **WHAT** and the **HOW**).
- New topics introduced, expanding from those topics included in the integrated assessments.

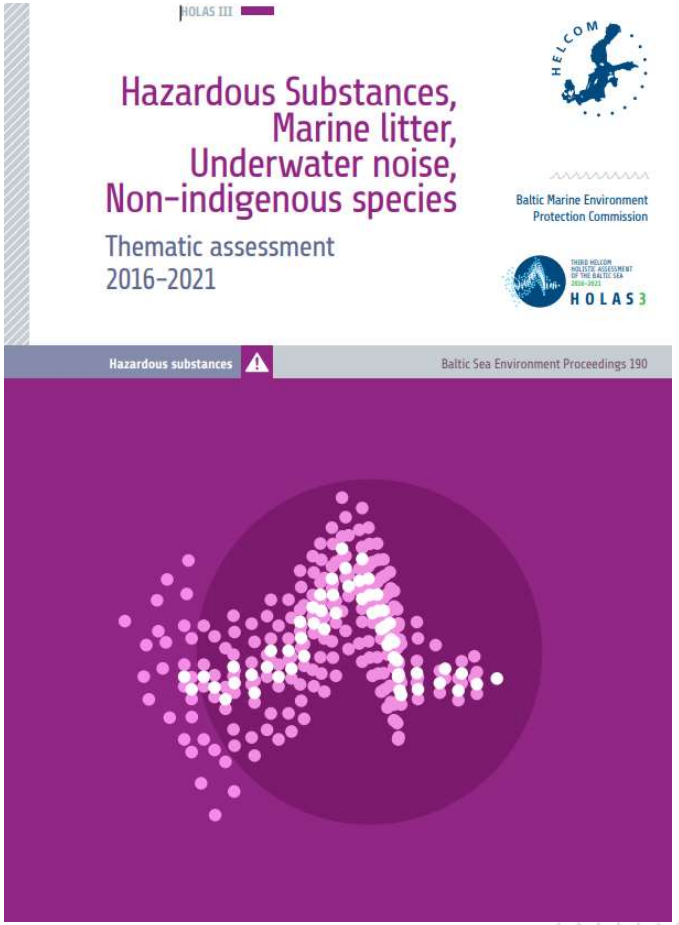


Continuous noise

INDICATOR TYPE: Pressure
INDICATOR CATEGORY: Pre-core
BSAP SEGMENT: Sea-based activities
MSFD CRITERIA: D11C2

Impulsive noise

INDICATOR TYPE: Pressure
INDICATOR CATEGORY: Pre-core
BSAP SEGMENT: Sea-based activities
MSFD CRITERIA: D11C1



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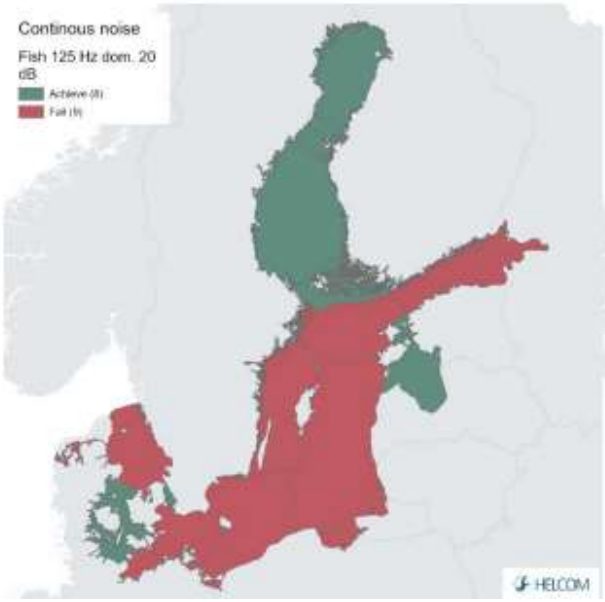
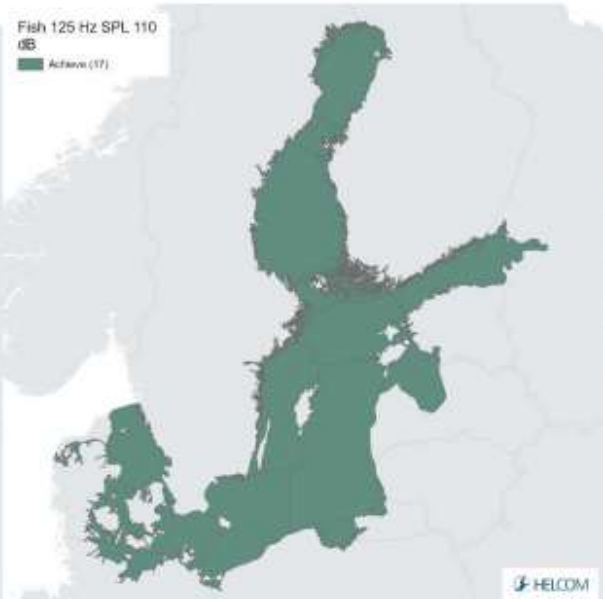
Continuous noise



Masking of fish communication



Fish behavioural disturbance

Marine mamals both for behavioural disturbance and masking

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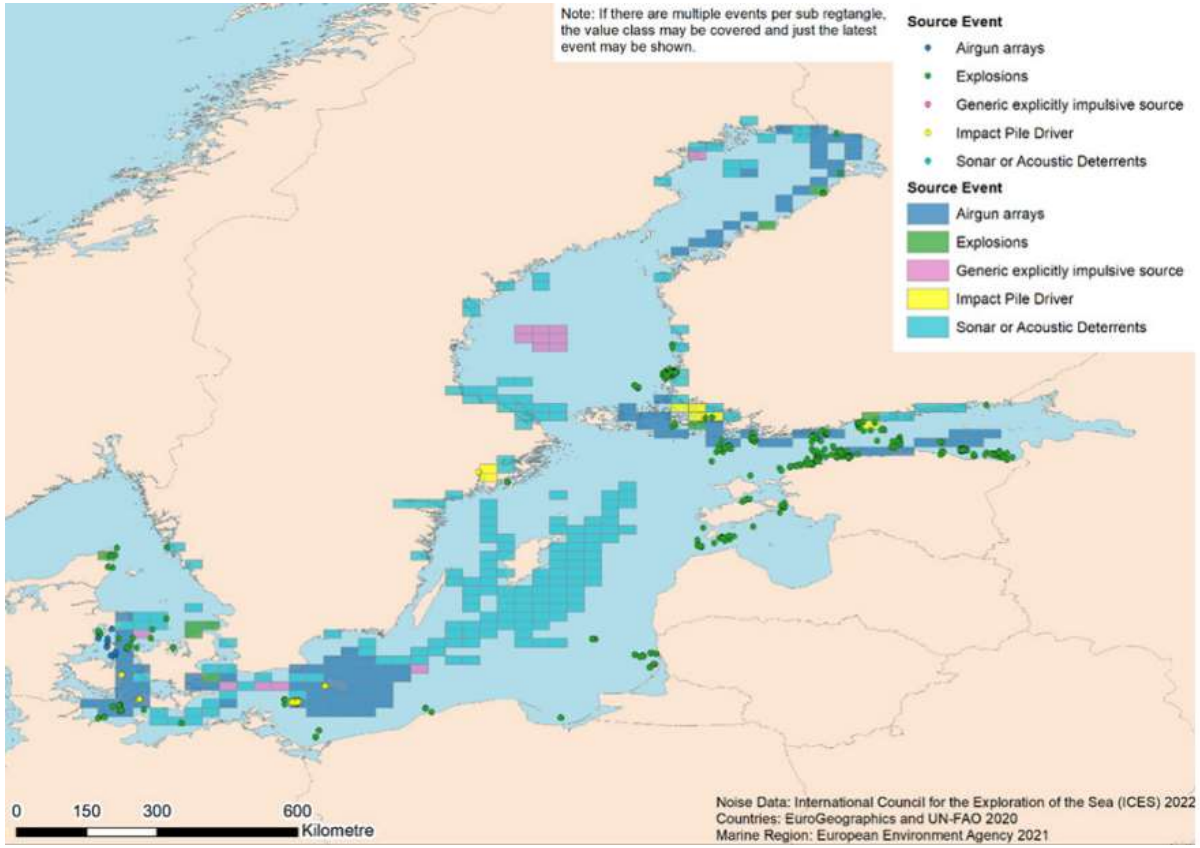
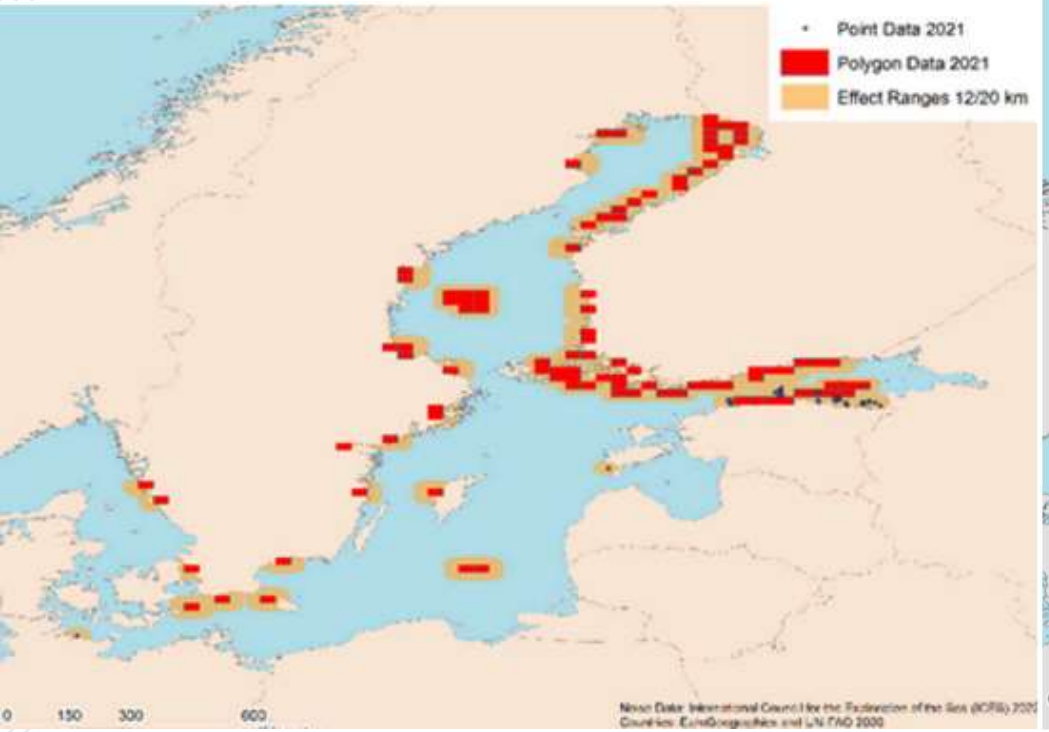
Impulsive noise

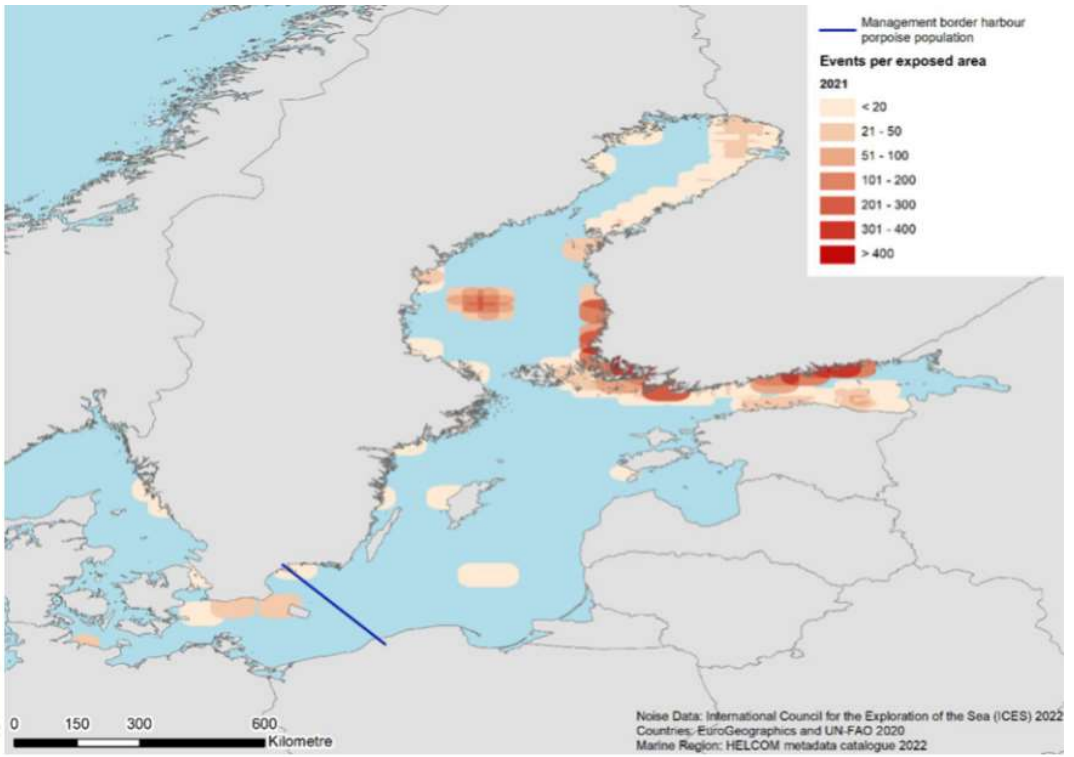


Overview of impulsive noise activities with respect to their source event type in 2016-2021 reported for the HELCOM area

Impulsive noise: 2021



Overview of exposed areas/habitats due to impulsive noise activities for 2021



Events per exposed area for the year 2021

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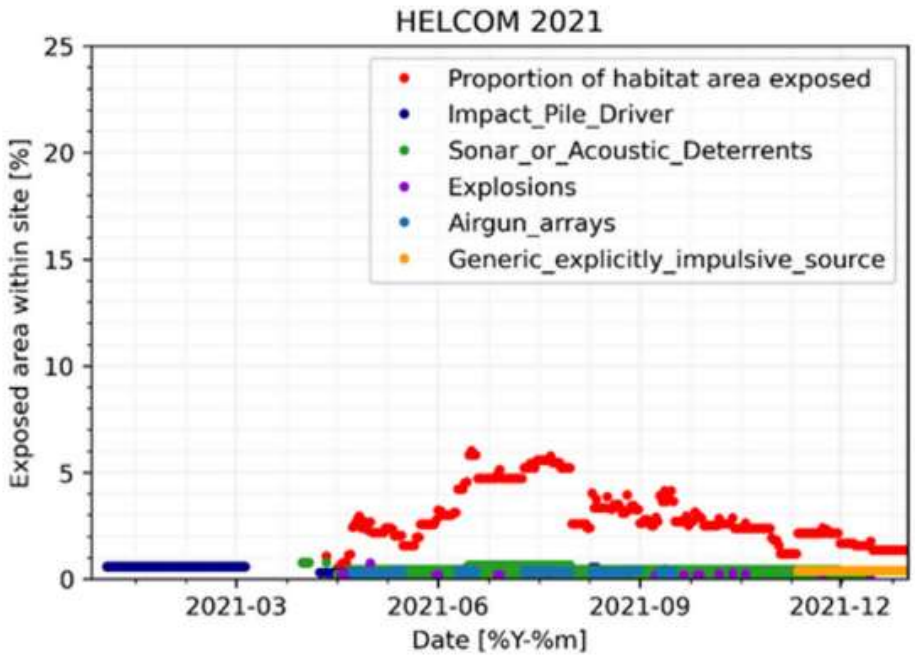
Impulsive noise: 2021



Overview of daily exposed area/habitat due to impulsive noise activities in 2021 reported for the HELCOM area.

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From knowledge to action

By HELCOM staff
Wednesday, October 30, 2024

Baltic Marine Environment Protection Commission

Background

Ministerial Meeting 2013

BIAS
Baltic Sea Information on the Acoustic Soundscape

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Baltic Marine Environment Protection Commission

HELCOM Ministerial Meeting (2013)

- the level of ambient and the distribution of impulsive sounds in the Baltic Sea **should not have negative impact on marine life**;
- **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.

…asap and **by the end of 2016** to:

- establish a set of **indicators** for monitoring ambient and impulsive underwater noise;
- **encourage research** on the cause and effects of underwater noise on biota;
- **map** the levels of **ambient underwater noise** across the BS;
- **set up a register** of the occurrence of **impulsive sounds**;
- **consider regular monitoring** on ambient and impulsive underwater noise as well as **possible options for mitigation measures**.

Background

Ministerial Meeting 2013

EG Noise & Roadmap on Noise 2015-2017

BIAS
Baltic Sea Information on the Acoustic Soundscape

Baltic BOOST
Co-funded by the European Union

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EG Noise & Roadmap on Noise 2015-2017

- **goal:** to make every effort to prepare a knowledge base towards a regional action plan on underwater noise in 2017/2018 to meet the objectives of the 2013 Ministerial Meeting, and of the EU MSFD for HELCOM countries being EU members;
- **five steps**:
    1. Knowledge gathering
    2. Indicators
    3. Explore possibility to determine acceptable levels of underwater noise for marine species
    4. Evaluation and follow-up
    5. Updated working timetable
- **EG Noise** (at that time EN Noise) is established to facilitate the implementation of the Roadmap.

Background

Ministerial Meeting 2013

EG Noise & Roadmap on Noise 2015-2017

Ministerial Meeting 2018

BIAS
Baltic Sea Information on the Acoustic Soundscape

Baltic BOOST
Co-funded by the European Union

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HELCOM Ministerial Meting (2018)

- welcome the progress made in the **implementation of the Regional Baltic Roadmap**;
- **emphasize** the need to further improve our understanding of the adverse impacts of noise on those **identified noise sensitive marine species**;
- **agree** to **develop an action plan, preferably by 2021**, and regionally coordinated actions on noise, aiming, in the long-term, at addressing adverse effects of noise on marine species identified as sensitive to noise, whilst safeguarding the potential of the BS for sustainable human activities;
- **commit** to **continuing fruitful cooperation** between EU RSCs, 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 BS, in close coordination with work undertaken by CPs in other relevant fora.

Background

Ministerial Meeting 2013

EG Noise & Roadmap on Noise 2015-2017

Ministerial Meeting 2018

Ministerial Meeting 2021 & BSAP update

BIAS
Baltic Sea Information on the Acoustic Soundscape

Baltic BOOST
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BLUES
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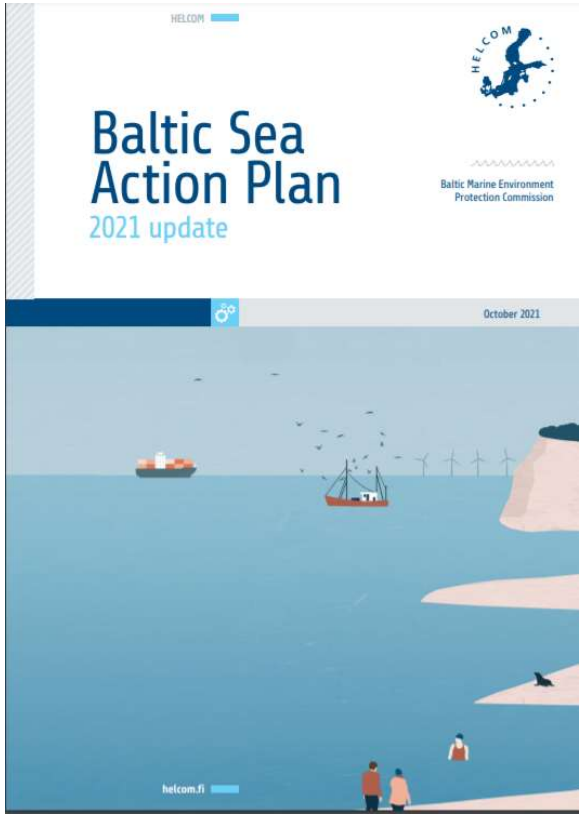
Ministerial Meeting 2021 & BSAP update



Sea-based activities goal

"Environmentally sustainable sea-based activities"

Ecological objectives

- *No or minimal disturbance to biodiversity and the ecosystem*
- *Activities affecting seabed habitats do not threaten the viability of species' populations and communities*
- *No or minimal harm to marine life from man-made noise*

Management objectives

- *Minimize loss and disturbance to seabed habitats*
- *Minimize noise to levels that do not adversely affect marine life*
- *No introductions of non-indigenous species*
- *Minimize the input of nutrients, hazardous substances and litter from sea-based activities*
- *Enforce international regulations – no illegal discharges*
- *Safe maritime traffic without accidental pollution*
- *Effective emergency and response capabilities*
- *Minimize harmful air emissions*
- *Zero discharges from offshore platforms*
- *Ensure sustainable use of the marine resources*

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Noise in the BSAP

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S55	Identify at the latest by 2025, as well as regularly update every two years, mitigation measures according to Best Environmental Practice and Best Available Technique for continuous underwater noise in the Baltic Sea and implement thereafter in line with recommendations and regulations of the international Maritime Organization (IMO).
S56	Actively support and contribute to the ongoing discussions on underwater noise at the International Maritime Organization (IMO) by, amongst other things, working towards regionally coordinated implementation of actions by 2028.
S57	Start working as soon as possible towards regionally coordinated actions on underwater noise, aiming in the long term towards 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 by: a. Supporting a swift implementation of the Regional Action Plan on Underwater Noise. b. Initiating and supporting pilot projects to study efficacy of vessel slowdown, 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. c. 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 regulations 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.

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Noise in the BSAP

S58	Study by 2026 the impacts of continuous underwater noise from the installation, operation and decommissioning of offshore windfarms on marine biota, including cumulative effects of multiple windfarms. Based on the results, take relevant action, if necessary, in developing appropriate mitigation measures for the continuous underwater noise generated by offshore wind farms by 2029.
S59	Reduce the impact of impulsive underwater noise on marine biodiversity.
S60	Identify at the latest by 2023, as well as regularly update every two years, mitigation measures according to Best Environmental Practice and Best Available Technique for impulsive underwater noise in the Baltic Sea and implement thereafter without delay.
S61	Develop and implement guidelines for the design and use of acoustic deterrent devices to avoid detrimental impacts on the environment from underwater noise by 2024.
S62	Develop and implement threshold values and assessment methods for adverse effects of impulsive and ambient noise for marine life, in cooperation with OSPAR, the EU and other relevant expert groups, by 2023 at latest for marine mammals and by 2026 for other relevant species groups.
S63	Implement regular and regional harmonized monitoring of ambient and impulsive noise by 2023 to follow up effects of mitigation measures.

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Implementing the BSAP

- **Lead country** approach
- Working Groups would consider the **progress** of implementing their workplans including relevant BSAP actions in **autumn 2024**
- **HELCOM Explorer** serves to follow-up on the implementation of the actions

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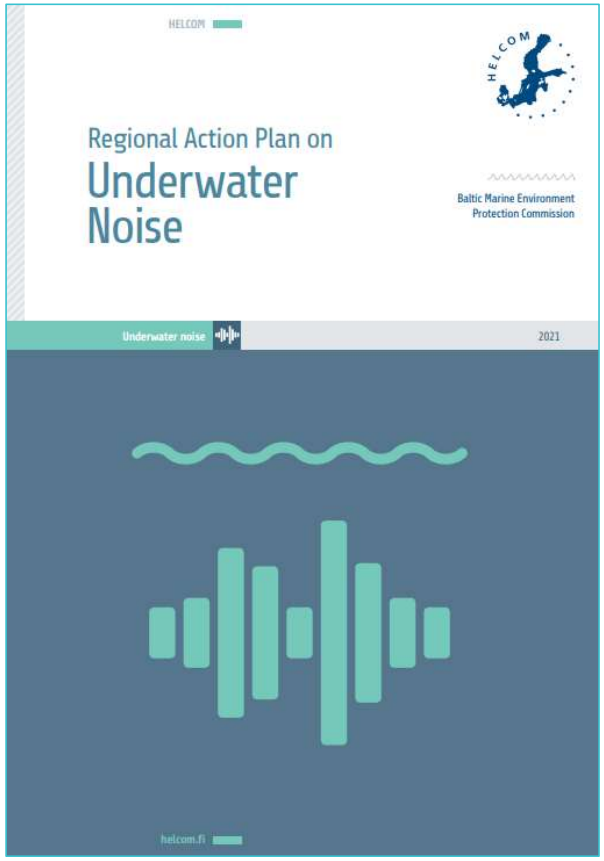

35 Regional actions

17 voluntary national actions

Lead country approach

Facilitated by the HELCOM EG Underwater Noise

[HELCOM Recommendation 42-43/1]

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The HELCOM RAP Noise: regional actions

Actions addressing:

- reduction of **pressures and impacts from impulsive** noise sources (actions 1-10);
- reduction of **pressures and impacts from continuous** noise (actions 11-22);
- reduction of **pressures and impact from other noise sources** (actions 23-29);
- **third parties** (actions 30-35).

Sections within each group of actions:

- **monitoring** of pressure and collection of ecological data;
- measures to improve **assessment of impact** from noise;
- measures to **reduce impact** of noise.

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Implementing the RAP Noise

- Several countries and HELCOM Observers offered to lead some actions
- **Short list** of actions to be addressed on the first place

No	Text
6-I	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
3-I	Establish common methodology for the assessment of negative impact from impulsive noise
7-I	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
10-I	Reduce injury and behavioural disturbance from impulsive noise by establishing common HELCOM criteria for injury and disturbance, as well as common exposure limits
13-C	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
19-C	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
20-C	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
29-O	Reduce the impact from acoustic deterrent devices by developing and agreeing on common guidelines and regulation of the design and use of deterrent devices
9-I	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

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Implementing the RAP Noise

- Implementation plans adopted for most of the actions in March 2024
- Regular reporting on implementation of actions (May 2024)

Follow up on action 10 on common criteria for injury and disturbance from impulsive noise

Country	*Denmark (Lead) and Germany (Co-Lead)*
Date	*19 September 2021*
Contact person	*Siri Lander Elmegaard (DK), Carina Juretzek (DE)*
Affiliation	*MIM, BSH*
E-mail	*silae@mim.dk, 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.
Status of the action	On-going
Justification of the achieved progress	Denmark and Germany are planning to initiate national and/or bilateral research projects to support the implementation of Action 10 of the HELCOM RAP on Underwater Noise. These national projects will be closely coordinated to create synergies between expert capacities and effectively work towards common criteria and exposure limits for the HELCOM area.
Estimation of the achieved reduction of the environmental pressure where appropriate	Not feasible
Estimation of additional costs of the implementation, if feasible	Not feasible

Lead country	*Germany to lead* *(Estonia and Sweden to contribute to parts of the action)* *Germany responsible of implementing Task 1*
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		

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THANK YOU