



Baltic Marine Environment Protection Commission

Science Agenda Task Group

Science Agenda TG 5-2020

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Background

The update of the Baltic Sea Action Plan is ongoing in parallel with the development of the HELCOM Science Agenda. The aim is that the Science Agenda should support the implementation of the BSAP, as well as other HELCOM commitments such as Recommendations.

At Science Agenda TG 4-2020 it was agreed to 1) check that there are no duplications in the two documents 2) check the links between the BSAP and Science Agenda.

This document includes five cases where there is a clear overlap between current formulations of highlighted science needs in the Science Agenda and the draft formulation of actions in the BSAP. The annex also include an overview of highlights and actions that are directly linked to each other and where the Science Agenda can support the implementation of the BSAP. Since the actions for the BSAP have not been agreed yet this is a preliminary overview to be updated at a later stage.

Action requested

The Meeting is invited to:

- provide views on the proposal by the Secretariat on how to address the five cases of overlapping highlights/actions.
- take note of the preliminary overview of direct links between the Science Agenda and the BSAP.

Overlap between highlighted science needs and draft BSAP actions

Draft Science Agenda	Draft BSAP action	Comment/Proposal/Question
Underwater noise		
<p>Research on impact of noise on marine mammals, fish populations and benthic communities; in particular long-term consequences of masking, disturbance and hearing loss on survival and reproduction of marine mammals, and population-level consequences of impact at different life stages in species with pelagic larvae.</p> <p>Development of impact indicator(s) for impulsive noise and assessment methods for impulsive noise applicable to the Baltic Sea.</p> <p>Development of impact indicator(s) for continuous low frequency noise and assessment methods for impulsive noise applicable to the Baltic Sea as required by the EU Marine Strategy Framework Directive and as tool for the regional assessment (HOLAS).</p>	<p>Develop and implement threshold values and assessment methods for adverse effect of impulsive and ambient noise for marine life, in cooperation with OSPAR and relevant EU expert groups, by [2023] at latest for marine mammals and by [2026] for other relevant species groups.</p>	<p>The first draft highlight in the SA (research on impact) does not create any overlap.</p> <p>With regard to indicator development, if there is a requirement to cooperate with “OSPAR and relevant EU expert group” this could make it difficult to place this as an issue in the SA to be financed through external resources.</p> <p>Proposal: Keep indicator and assessment development in the updated BSAP. If it is clear what underlying knowledge is missing to achieve this then these needs should be included in the SA.</p>
Hazardous substances		
<p>Screening of environmental matrices and land and sea-based sources such as wastewater, industries, urban areas, shipping and off-shore activities for contaminants of emerging concern, using both target and non-target analysis, potentially coupled to effect directed analysis and modelling to facilitate identification of emerging threats and function as early warning mechanism</p>	<p>Address substances of emerging concern by commencing recurrent screening campaigns [starting from 2021] including broad analytical techniques such as suspect screening and non-target screening methods.</p>	<p>The highlight and actions is formulated somewhat differently but clearly overlapping in their objective.</p> <p>Proposal: This relates more to monitoring and establishing an early warning system to flag the need to implement measures and as such would be more relevant for the BSAP.</p>
Marine litter		
<p>Need for a harmonized methodology (EU and RUS) for monitoring of beach litter, and microplastics in water and in bottom sediments, including field sampling, sample pre-treatment and plastics</p>	<p>Develop harmonised monitoring methods to evaluate quantities, composition, distribution and sources (including riverine input), of marine litter, including microlitter, by [2022], where applicable and for the rest no</p>	<p>The SA and BSAP overlap in the proposal to develop methods to quantify litter in the sea. The BSAP action further extends to monitoring of sources, while the SA mentions sources as something to identify and</p>

Draft Science Agenda	Draft BSAP action	Comment/Proposal/Question
<p>identification in laboratory. This methodology must be cost-effective and applicable in all countries, including RUS.</p> <p>Identification and quantification of sources and pathways of macro-, mesolitter and microplastics, including identification of the sources at sea and on land;</p>	<p>later than [2026]. Work should be done in close coordination with work undertaken by Contracting Parties in other relevant fora.</p>	<p>quantify, but not in relation to development of monitoring methods.</p> <p>Development of monitoring methods could be placed in the SA. However, the requirement to coordinate “with work undertaken by Contracting Parties in other relevant fora” (e.g. TG Marine litter) could make it difficult to place this as an issue in the SA to be financed through external resources.</p> <p>Proposal: Retain the development of monitoring methods in the SA but the establishment of regional monitoring and agreement on harmonised methodology should be included in the BSAP as these are not knowledge needs. However this might need further discussion in HELCOM.</p>
Fisheries		
<p>Development and testing of new technical measures, alternative gear and modifications to existing gear to decrease bycatch of seabirds, marine mammals and protected fish species.</p>	<p>Continually test new by-catch mitigation measures, with evaluation of measures every 5 years starting in [2022], continually introduce new technical and operational by-catch mitigation measures, in cooperation with competent authorities and regularly update HELCOM questionnaire on trials of alternative fishing gears and fishing techniques.</p>	<p>Currently an overlap but could be avoid if the SA formulation removes the word “testing” – then the SA would focus on development and BSAP on testing and implementing measures.</p> <p>Proposal: to remove the word ‘testing’ from the SA action.</p>
<p>Analysis of the recovery process of benthic habitats and species in areas closed for fishing to assess management effectiveness;</p>	<p>Reduction of fishing pressure and development of Good Environmental Status delineation, supported by no go areas to determine benthic species recovery and potentially natural communities</p>	<p>The second part of the BSAP action is overlapping with the SA highlight in that it refers to determining benthic species recovery.</p> <p>Proposal: To keep the highlight in the SA but include “analysis and determination...” and proposal to remove “benthic species recovery” from the BSAP action.</p>

Annex 1. Preliminary overview of complementary highlighted science needs and draft BSAP actions

These tables present highlighted sciences needs that are closely linked to each other, as formulated in document 2-1 and document 2-2 and draft actions for the updated BSAP as of late September 2020. The Secretariat has evaluated that they are complementary to each other and thus should be kept in both the Science Agenda and the BSAP. There are also other topical links between the SA highlight and BSAP actions that will be clarified at a later stage. Note that the BSAP actions have not been decided yet.

Species

Highlighted knowledge needs	BSAP equivalent	Comment
Research on impact of macrolitter and microplastics on species and communities;	Review existing knowledge of the impact of marine litter by [2022]	To keep in both. The Science Agenda can't include "deadlines" so if it considered important to have this review done by 2022; then it should be kept in the BSAP.
Better knowledge and understanding of the needs for development of effective species conservation plans, in particular for marine mammal, bird and fish populations;	Existing measures By [2027] assess the effectiveness of conservation efforts to protect seabirds against threats and pressures Develop ecologically relevant conservation plans or other relevant programmes or environmental measures (e.g. habitat restoration, MPAs), limiting direct and indirect pressures stemming from human activities for threatened and declining species, biotopes and habitats, if not already done then by 2020, by [2025], including joint or regionally agreed conservation measures for migrating species;	To keep in both They are complementary to each other; the SA highlight indicates knowledge needs, the BSAP action a commitment to assess and develop conservation plans.

Habitats

Highlighted knowledge needs	BSAP equivalent	Comment
Develop and test criteria for regionally coordinated mapping of habitats/biotopes, taking into consideration the relevant assessment needs, to facilitate data exchange and support national and regional assessments and reporting as well as Maritime Spatial Planning (MSP);	Map biotopes and habitats nationally, including key habitats and habitat forming species, and identify gaps in spatial coverage of mapping efforts, with the aim to produce Baltic-wide models, including production of maps, of distribution of habitats and biotopes by [2028]. Development of standards for quality of seafloor habitat mapping and products	To keep the first proposals in both. Mapping per se will not be part of the Science Agenda. Thus, the BSAP action as currently formulated is not covered by the SA but the SA has a highlight that can contribute to this work i.e. they complement each other. It is however proposed to remove the second proposal from the BSAP since this is about development of standards which presumably is covered by the highlighted knowledge needs.

Development of criteria for estimating the contribution of benthic habitats to ecosystem services to provide evidence that healthy ecosystems benefit human well-being;	Map ecosystem services and the present and potential spatial distribution of key ecosystem components, including habitat forming species such as bladder wrack, eelgrass, blue mussel and stoneworts Baltic-wide, by [2025].	To keep in both. They are complementary to each other; the SA indicates the need for development of criteria, the BSAP action a commitment to carry out mapping
Analyses of the role of traits for functioning of pelagic and benthic habitats/biotopes, including the link to food webs, with special focus on a changing climate and oxygen depletion, to improve the holistic aspect of assessments and the causal link between pressures, impact and state.	To include information on functional and lifehistory traits for the species in the HELCOM Biodiversity Database, by [XXXX].	To keep in both. A science project related to traits will not automatically provide info suitable for the HELCOM database. The update of the database rather needs to be based on existing information.
Identify areas, as well as develop and improve methods, for the restoration of benthic habitats/biotopes, e.g. habitat-forming species such as seagrass beds, macrophyte stands and reefs, along with improving the understanding of the wider synergistic effects of habitat restoration efforts, to support the effectiveness of measures to improve biodiversity and nature based-solutions for tackling climate change and its impacts.	Measures related to restoration of coastal habitats: Restoration of eelgrass, <i>Zostera marina</i> ; restoration of stony reefs; restoration of blue mussel reefs	To keep in both Development of methods belongs to the SA TG; but any kind of commitment needs to come in the BSAP.

Marine protected areas

Highlighted knowledge needs	BSAP equivalent	Comment
Identifying parameters which justify the designation of new or expansion of existing MPAs in order to achieve and maintain coherence of the MPA network in relation to climate change;	By [2027] use results from the coherence analysis to identify possible spatial conservation expansion needs to improve coherence, including with regards to possible effects and impacts of climate change.	To keep in both They are complementary to each other; SA is about identifying parameters, BSAP about identifying possible expansion needs (presumably based on such parameters).

Eutrophication

Highlighted knowledge needs in the Science Agenda	BSAP equivalent	Comment
Improved understanding and quantification of nutrient sources that leads to inputs to the sea and quantification of efficiency of measures that can curb these sources. This should result in estimations of reduction potential from different areas and sectors of the Baltic Sea countries;	Submit to HELCOM by [2023] a detailed account list of planned and implemented measures in different sectors and catchments alongside an estimation of their effectiveness in order to share practical information demonstrating how country-wise nutrient inputs ceilings can be achieved.	To keep in both. The request to submit information to HELCOM is completely different from the SA highlight.
Development of efficient and environmentally sustainable nutrient salvaging techniques	Implement adequate measures to achieve the objectives of the Baltic Sea Regional Nutrient Recycling Strategy	To keep in both BSAP actions is related to implementation, optimization of use

	<p>Optimize the use of recycled nutrients in agriculture making use of best available [recovery] technologies and fertilize according to crop needs</p> <p>Develop the knowledge and promote education and advisory on nutrient recycling and share experiences between various actors to learn from each other</p>	of resources and information – SA is about development of methods.
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Hazardous substances

Highlighted knowledge needs in the Science Agenda	BSAP equivalent	Comment
Improved knowledge on use patterns and emissions of hazardous substances from various sources, both land-and sea-based, and modelling of relative importance of different transport routes to support development of efficient measures targeting chemical contamination of the Baltic Sea in general, such as advanced wastewater- and storm water treatment, and identification of specific substance groups of concern;	Identify priority pharmaceuticals utilising the best available knowledge on their releases into the aquatic environment, environmental effects and data on the use in the region with subsequent integration of these substances to HELCOM assessments as indicators of the state of the Baltic sea and environmental pressure.	To keep both Pharmaceuticals could be considered as covered by “specific substance groups of concern” so there is a link. However, to identify priority substances is a specific task and as the action is linked to indicator development it us proposed to be kept in the BSAP.

Underwater noise

Highlighted knowledge needs in the Science Agenda	BSAP equivalent	Comment
Improvement of methods for long-term acoustic monitoring, including modelling in shallow waters	<p>Implement regular and regional harmonized monitoring of ambient and impulsive noise [by 2023] to follow up effects of mitigation measures.</p> <p>New proposal: Supporting ongoing IMO work on underwater noise by implementing the HELCOM Regional Action Plan on underwater noise and assessing the impacts and efficiency of mitigation measures to reduce the impact from underwater noise from commercial shipping and leisure boating on Baltic marine biodiversity</p>	To keep both The SA highlight is about improvement of methods. The existing BSAP formulation about implementation of monitoring and the new action seem to be convoluted actions related to assessing impacts and implementing measures.

Shipping

Highlighted knowledge needs in the Science Agenda	BSAP equivalent	Comment

Identification and feasibility assessment of Best available Technique (BAT) and Best Environmental Practice (BEP) for underwater noise reduction;	Identify and implement Best Available Technique (BAT) and Best Environmental Practice (BEP) to mitigate noise emitting activities	To keep in both. They complement each other since the SA highlight is about feasibility assessment and the BSAP action about implementation. Possibly the BSAP actions could take out the word "Identify".
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Climate change

Highlighted knowledge needs	BSAP equivalent	Comment
Development of ways to incorporate climate change aspects to the HELCOM Nutrient Reduction Scheme to ensure that BSAP eutrophication objectives can be reached even under climate change;	Identify the needs and possibilities to further adapt HELCOM's policies and recommendations to account for effects and impacts on the environment under the changing climate and to develop and carry out a climate change policy review process as part of the work of HELCOM, starting e.g. with indicators and open recommendations.	To keep in both They complement each other since the SA highlight is about the development of how to incorporate climate change aspects and the BSAP action about possibilities to adapt HELCOM policies. Possibly the BSAP action could take out the word "identify".
Regional effects of climate change induced water temperature increase, oxygen decline, sea level rise and changes in pH on biota, biodiversity and ecosystem functioning should be assessed;	HELCOM/Baltic Earth Joint Expert Network on Climate Change as a platform, improve access to the latest scientific information on the impacts of climate change together with multiple other pressures on the Baltic Sea marine environment through periodic updates of the HELCOM Climate Change Factsheet, and incorporate the possible effect of climate change into the holistic assessment of status as well as effectiveness of measures by [2030] at latest	To keep in both They complement each other in that the SA highlight could provide information on effect of climate changes and the BSAP action is about updated of fact sheets and assessments.

Ecosystem approach

Highlighted knowledge needs	BSAP equivalent	Comment
Evaluation of how far has the ecosystem approach in the Baltic Sea Region has been implemented	Joint action to form a common understanding of ecosystem based management by 2023)	To keep in both They do not immediately overlap but can reinforce each other.
Establishing rules of procedure and approaches for implementation of the precautionary principle in the Ecosystem Approach, ensuring compatibility with other assessments	Joint action to form a common understanding of ecosystem based management by 2023	To keep in both They do not immediately overlap but can reinforce each other.

Maritime Spatial Planning

Highlighted knowledge needs	BSAP equivalent	Comment
Identify an appropriate collection of transparent spatial planning tools for a comprehensive consideration of ecosystem components.	Maritime Spatial Planning (MSP) applying an ecosystem-based approach to support BSAP-objectives and targets and contributing to sustainable sea-based activities.	To keep in both They are complementary: the BSAP action can be reinforced by the SA highlight.
Investigate how Maritime Spatial Planning, applying the guiding principles of the ecosystem approach, can incorporate independent sectoral plans into a regional and holistic plan that is fully aligned with conservation and good status objectives in the Baltic Sea region.	Maritime Spatial Planning (MSP) applying an ecosystem-based approach to support BSAP-objectives and targets and contributing to sustainable sea-based activities.	To keep in both They are complementary: the BSAP action can be reinforced by the SA highlight.
Develop a common methodology for indicating areas of high natural value (as a basis for steering harmful activities away from such areas);	MSP to signal areas of high nature value	To keep in both The new BSAP actions is still rather vaguely formulated but it appears that they are complementary to each other i.e. that the knowledge identified in the SA will be needed to implement the BSAP action.

Fisheries

Highlighted knowledge needs	BSAP equivalent	Comment
Intensified research on bycaught species of all métiers to assess bycatch rates of seabirds, marine mammals and protected fish species;	Collect representative data on by-catch of birds, mammals and non-targeted fish species on species level	To keep in both The SA formulation is about research, the BSAP formulation about data collection; no overlap.
Intensified research on bycaught species of all métiers in order to advance bycatch mitigation measures;	Collect representative data on by-catch of birds, mammals and non-targeted fish species on species level	To keep in both The SA formulation is about research, the BSAP formulation about data collection; no overlap.
Evaluation of management measures (e.g. spatial-temporal closures of fisheries, No-take areas) to avoid or reduce bycatch of threatened and declining species.	A set of 7 measures for coastal fish Coastal fish measure 4 Establishment of no-take areas	To keep in both They are complementary: SA highlight is about evaluation of no take areas as a measure; BSAP action is about establishing no take areas.