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## EN-HZ 15-2021 Outcomes

### Agenda item 1: Adoption of the agenda.

1.1 The Meeting adopted the agenda.

### Agenda item 2: Chairs/co-Chairs.

2.1 The Meeting noted that there remained a need to identify a Chair or Chairs for the group.

2.2 The Meeting noted that State and Conservation would be informed of the current status related to the open issue of Chair(s).

2.3 The Meeting expressed their gratitude to retiring co-Chair Jaakko Mannio, Finland, for his contribution to the Expert Group and for his Chairing during the previous years.

### Agenda item 3: Information from other processes (Secretariat).

3.1 The Meeting briefly discussed the input from State and Conservation and GEAR Working Groups, noting that relevant issues would be raised under separate agenda items during the meeting and that information would be shared directly with indicator leads.

3.2 The Meeting noted that the indicator leads event ([IND INF 1-2021](#)) had recently taken place, providing an overview toward HOLAS III, and that a template for indicator reporting to State and Conservation 15-2021 was available at the site.

3.3 The Meeting noted the need to provide an update on progress to State and Conservation 15-2021, in particular related to the template introduced above addressing issues such as threshold values. It was noted that the deadline of 7 September was critical as this represented a joint approval process at State and Conservation and HOD.

3.4 The Meeting noted that [all reports from HELCOM ACTION](#) were now available, including those addressing hazardous substances.

3.5 The proposed approach for dealing with threshold values tied to EU processes (i.e. Diclofenac and PBDEs in biota), as presented at GEAR 24-2021, were introduced, noting that the issue was dependent on HOD approval. In general, the proposal is that if the relevant EU processes on those EQS values has not progressed by 7 September then the existing threshold values will be maintained, and should new EQS values be available after 7 September but before the MIME tool is run to evaluate the indicators (possibly circa May 2022) then the new EQS values would be presented to HODs for approval via an intersessional process.

3.6 It was noted that the process outlined above was only relevant to the two identified substances and their threshold values due to the fact that the relevant threshold values would have already undergone a rigorous approval process (including at national level) under the EU processes.

#### Agenda item 4: Threshold values (Document to support discussion by Denmark).

4.1 Newly developed threshold values by Denmark were introduced (including documents 4-1 and 4-2, and relevant attachments), noting how the developments undertaken were generally based on larger data sets and Baltic Sea specific data sets that had not previously been available when earlier threshold values were developed.

4.2 Related discussion that had taken place on similar issues in OSPAR was also introduced (document 4-3).

4.3 Sweden welcomed the new proposals and additional scientific advancement that had been carried out by Denmark.

4.4 Sweden noted that nationally there had been much focus on providing input to the ongoing EU EQS review process and requested additional time to review the proposals. The meeting noted that for many HELCOM Contracting Parties which are also EU Member States, it is important that the threshold value changes remain viable and applicable under the MSFD.

4.5 The Meeting noted the ongoing review of MSFD priority substances and noted that input to that process from a HELCOM or regional perspective may also be valuable.

4.6 The Meeting considered it possible that a good approach may be to discuss these threshold value related issues within the regional Expert Group and provide input to State and Conservation and EU processes consecutively.

4.7 The added value of providing regional input to EU processes was discussed, with other issues such as the need to review threshold values for dioxins being raised. It was noted that the current EQS values for dioxins adopt a food stuffs threshold value directly and are thus derived in a very different manner for the majority of other EQS values applied.

4.8 It was noted that the current QS for fluoranthene in sediments appears to have an error in the calculation at that the new proposal corrects this issue.

4.9 The Meeting noted that replacing OSPAR BACs with more regionally derived EQS or QS values appeared to be a good proposal.

4.10 The Meeting discussed how current EU processes are commonly focussed on threshold values in biota and how regional processes could support development for sediment threshold values.

4.11 The Meeting noted that the proposals from Denmark have also been shared with relevant expert groups in HELCOM, OSPAR, and the EU (MSFD Contaminants group and WG Chemicals).

4.12 The Meeting agreed to the need for further review of the proposals and national discussion before conclusions could be made. It was proposed that relevant issues could be returned to under Agenda item 8 and that the issue would be considered at the next meeting of the group, prior to the State and Conservation deadline of 7 September to determine if it was possible to provide a united opinion from the group.

### Agenda item 5: Copper (Sweden and Denmark to introduce)

5.1 The Meeting took note the presentation by Chalmers University, Sweden (**Presentation 1**), including an overview of the data, the methodology and the proposed threshold values.

5.2 The Meeting thanked Chalmers University, Sweden and Denmark for their efforts in developing the copper indicator.

5.3 The Meeting discussed the potential to utilise total carbon in preference to only where organic carbon data is reported, if for example the organic fraction of the total carbon is well established in an assessment area. The Meeting concluded that ideally such values would be reported with the data when submitted to the COMBINE database.

5.4 The Meeting noted the evaluation from Sweden that to further improve the indicator in the future additional information would be needed, including from a research perspective, such as: bioavailability, the role of acid volatile substances, toxicity studies, and local and subregional information on background concentrations.

5.5 The Meeting noted the opinion of Sweden (as outlined in document 5-2) that based on the uncertainties involved, the closeness to background levels in the region, and following the guidance set out for establishing EQS values, the assessment factor (AF) applied should be set as 2, not 3 (as proposed).

5.6 The Meeting note the opinion of Denmark (as outlined in document 5-3) that the assessment factor of 3 was considered most appropriate.

5.7 The issue of natural background concentrations was discussed, noting that more regional information would also be needed an that this aspect could influence the need to an assessment factor of 2.

5.8 It was noted that the BAC of 27 mg/kg used by OSPAR is normalised to 5% Aluminium and is not normalised to organic carbon, so it is unsure how it compares to the proposed EQS for Cu.

5.9 It was noted that the normalised concentrations (5% TOC) when comparing the proposed EQS to potential background concentrations was critical to take into account as background concentrations are not directly comparable directly.

5.10 It was noted that despite the current difference of opinion between Sweden and Denmark with regard to the assessment factor applied in the threshold value setting process (essentially representing a difference in the threshold value of either 20 or 30 mg/kg dw sediment – corrected to 5% CORG) there was agreement on all other aspects of the proposed approach.

5.11 The Meeting agreed to return to the issue at the next meeting of the group to allow for intersessional discussions between Denmark and Sweden and also for other Contracting Parties to consider national positions in light of the discussion at this meeting.

### Agenda item 6: CORG supporting parameter (Secretariat to introduce)

6.1 The Meeting discussed if CORG should be maintained as a supporting parameter applied in the calculation of certain indicator components (e.g. generally the assessment of organic contaminants in sediments). It was noted that CORG had been utilised in HOLAS II.

6.2 The Meeting discussed that CORG was commonly considered in the EQS threshold value setting approach (e.g. as for copper above) and that this offered support to maintain CORG in the indicator calculation.

6.3 It was discussed that CORG is applied to act as a 'normaliser' since contaminants for which it is applied attach directly to organic matter in sediments and thus without applying this procedure the evaluations may be skewed.

6.4 It was noted that CORG normalisation is applied in a number of national approaches amongst the Contracting Parties and that harmonisation was also relevant to consider.

6.5 It was concluded that CORG should be maintained in the indicator calculation process for HOLAS III and beyond.

6.6 It was noted that updating the HELCOM Monitoring and Assessment Guidelines to clearly state such needs was also vital.

6.7 The use of other parameters should CORG not be reported was discussed, focussing on the option to utilise Loss on Ignition data or local/regional default values as alternatives.

6.8 It was noted that modelled data or an overview of data on sediment carbon content may be available, for example from SGU, Sweden:

*<https://resource.sgu.se/dokument/publikation/sgurapport/sgurapport202005rapport/s2005-rapport.pdf> Modelling organic matter content in Surface sediment Figure 48.*

6.9 It was concluded that discussion with the MIME tool developer on the potential to include Loss On Ignition (LOI) would be valuable but that application of proxies or default values was not preferable.

6.10 It was discussed that the MIME tool evaluates data and currently provides a list of reasons for why data were excluded. The possibility to review these issues from a recent test run would be explored for the next meeting to allow Contracting Parties the opportunity to provide missing supporting parameters by re-reporting data to COMBINE.

#### Agenda item 7: Inclusion of zebra mussels (Secretariat to introduce).

7.1 The issue of including zebra mussels into the indicator evaluations, i.e. to all categories where mussels are already monitored, was discussed.

7.2 The issue of salinity tolerance (e.g. growth in more fresh water areas) and thus potential differences in the uptake of contaminants was discussed. It was noted that this may be an issue but that the feeding mode and general function was not considered to be significantly different from other mussels.

7.3 No comparative studies between species and directly addressing this issue were known to have taken place.

7.4 The group reviewed the available data from the recent test assessment (see document 7-1), noting that all current data was from Germany, that it represented 3 stations (one in the Arkona Basin and two in the Bornholm Basin. It was also noted that these stations/samples also addressed a range of other contaminants.

7.5 The Meeting concluded that despite possible small differences in the evaluations (though the data set on which any conclusions can be based is small) that the zebra mussel should be included in the HOLAS III assessment (and 'extracting table').

7.6 It was considered possible that in the future once more data was available this issue could be revisited to further evaluate the issue, if needed.

#### Agenda item 8: Extraction table (Secretariat, ICES, Baltic Data Flows project to introduce)

8.1 The 'extraction table', the document forming the basis for the data extraction from COMBINE that enters the MIME tool for indicator evaluation, was reviewed.

8.2 Decisions related to the inclusion of zebra mussels and the maintain of CORG as a supporting parameter were included.

8.3 Supporting parameters critical for the data to pass through the MIME indicator evaluation script were identified.

8.4 The new proposals from Denmark were also reflected in the extracting table (i.e. those addressed under agenda item 5).

8.5 The Meeting agreed to review the open issues (e.g. new proposals etc) nationally so that decisions could be made at the next meeting, prior to the State and Conservation 7 September deadline.

#### Agenda item 9: CHASE progress (Secretariat, Baltic Data Flows project to introduce).

9.1 The Meeting considered the planned work on the CHASE tool to be carried out under the Baltic Data Flows project.

9.2 The Meeting discussed the issue of applying the CHASE integrated assessment at Scale 3 or Scale 4 HELCOM assessment units, the former as applied in HOLAS II and the latter the scale at which the individual hazardous substances indicators were generally carried out.

9.3 It was noted that if applied at Scale 4 it was expected that more of the smaller assessment units would now be assessed by fewer individual indicators and thus would likely to have lower confidence in the evaluations.

9.4 The Meeting concluded that it would be beneficial to run both options if it can be developed under the Baltic Data Flows project. It was discussed how such a solution would support policy application and presentation of the scientific assessment applied.

9.5 The Meeting briefly discussed new developments related to the Radioactive Substances HELCOM indicator, noting that to meet the requirements of the updated BSAP the threshold values had been redeveloped. The Meeting proposed that the evaluation set to the pre-Chernobyl levels (i.e. as had been applied under HOLAS II) would be most suitable to maintain in the CHASE integration process as it reflects the environmental aspects of the indicator (i.e. MSFD Descriptor 8), while the dose-based evaluation was more suited to assessing human health aspects (i.e. MSFD Descriptor 9).

#### Agenda item 10: Sediment cores (Subgroup to introduce)

10.1 The Meeting discussed information available related to hazardous substances in sediment cores and how this could be utilised in HOLAS III.

10.2 The Meeting was introduced to some recent and ongoing research in Finland that identified decreasing concentrations of numerous hazardous substances in upper layers (i.e. more recent years) that were at lower concentrations than in lower layers (older years). However, the opposite trend was detected for the PFAS group, these appearing to increase in more recent years.

10.3 The Meeting discussed how this type of information would make a valuable addition to the HOLAS III thematic assessment of hazardous substances as not only does it offer a potential contextual understanding of the impact of measures but it may also highlight new and emerging issues that are increasing and may in the future influence good environmental status.

10.4 The Meeting discussed the focus of the sub-group working on sediment cores and concluded that in addition to the need to develop a suitable HELCOM Monitoring and Assessment Guideline to support harmonised data in the future, then it was also critical to present a short overview of what could be used in HOLAS III to State and Conservation 15-2021 (deadline 7 September 2021) so that the approach to include sediment core data in the HOLAS III thematic assessment could be endorsed.

10.5 In relation to the sediment cores the Meeting discussed information related to hazardous substances sources and drivers. The following potential information sources were shared so that they could be considered under the MetDev project, if relevant for development under that project: the HAZ BREF project, the ECHA Chemicals Database (though the data available are not easily usable), the national reporting under the WFD emissions inventory, and recent scientific publications.

10.6 The Meeting was invited to provide additional input should relevant data sources, in particular with relevance to the existing HELCOM indicators, to the Secretariat ([owen.rowe@helcom.fi](mailto:owen.rowe@helcom.fi)).

#### [Agenda item 11: COMBINE data check \(Document from ICES and Baltic Data Flows project, plus introduce\)](#)

11.1 Document 11-1 was introduced by the Baltic Data Flows project. The document provides a short overview of a planned document to support data reporting and data checking in the COMBINE database (**Presentation 2**).

11.2 The Meeting was invited to provide additional comments and input to the document at the latest by 13 August 2021 ([owen.rowe@helcom.fi](mailto:owen.rowe@helcom.fi)).

11.3 Document 11-2 and attachment was introduced (**Presentation 2**). The document provides an overview of potential errors in station naming that may in turn influence the indicator evaluations as the station name is often a key identifier in constructing time series.

11.4 The Meeting was invited to review the identified issues and where relevant follow up on issues as identified in the presentation and document. Resolving such issues was considered to improve the potential for data to be fully and correctly incorporated under HOLAS III.

11.5 The Meeting was invited to consider if the approach applied in OSPAR (and by Sweden and Denmark), where the station name parameter is the main determinant for establishing position, could be applied in the HELCOM region.

11.6 The Meeting discussed the possibility for ICES to host a workshop for HELCOM data submitters, i.e. to support accurate data submission and review. The Meeting supported the proposal, requesting that the workshop invitation be sent to ICES data submitters and to EN-HZ contacts, and

invited ICES to explore the possibility to organise such an event, ideally in February/March 2022 to align with the HELOCM HOLAS III data call.

### Agenda item 12: Monitoring and Assessment Guidelines (Document from Baltic Data Flows project)

12.1 The Meeting considered the proposal to update the Monitoring and Assessment Guidelines based on the proposal from the Baltic Data Flows project. The Meeting agreed that the proposal was valid and should be aligned with the information for example in the 'extraction table'.

12.2 The Meeting agreed that the approach for Baltic Data Flows to provide a proposed updated text to the Monitoring and Assessment Guidelines, followed by the national leads to implement the proposed text via review at EN-HZ was a good solution. The leads or EN-HZ would then submit the updated guidelines to State and Conservation for approval.

### Agenda item 13: Other information and projects of relevance (short presentations, if time available)

13.1 The flowing projects or items were introduced, and the following questions or guidance were provided:

- a. Baltic Data Flows project.
  - A Possible approach to establish a confidence evaluation per assessment unit and per indicator was discussed.
  - Pragmatic confidence categories are valuable.
  - Gridded approach does not account fully for heterogeneity and on this basis a larger grid may be applied to the open sea areas to reflect the difference between coastal and open sea areas.
  - Sampling matrix may also influence the temporal spatial confidence as frequency in sediment data may not need to be at the same level as water or biota to receive the same confidence.
  - Similarly, fish species may differ due to their behaviour as pelagic fish may disperse more widely than bottom-feeding species.
  - Noted that mussels also require hard substrate so this is already a separate categorisation of the seafloor.
  
- b. Screening project.
  - A brief overview of the currently planned screening samples was introduced.
  - It was noted that more sampling information would be available shortly.
  
- c. Antimicrobial Resistance project .
  - The initial draft was introduced, noting that the focus was to examine what is known in the Baltic Sea region and what could represent potential indicators for future assessment in the Baltic Sea region.
  - The Meeting proposed that the document should be reworked to correct certain inaccuracies but to also focus on the sources and not on the environmental interactions.
  - The issue relates to releases from agriculture and health primarily and these should be directly addressed.

- The meeting proposed that the CWPharma project results would be good to consider, available here: <https://www.cwpharma.fi/en-US/Publications>
  
- d. MIME tool and links with OSPAR and AMAP.
  - The ongoing work was introduced in association with the Baltic Data Flows project.
  - It was informed that any further developments would be presented once available.
  
- e. HAZ BREF.
  - The Meeting welcomed the presentation of HAZ BREF (**Presentation 3**).
  - [https://www.syke.fi/en-US/Research\\_Development/Research\\_and\\_development\\_projects/Projects/Hazardous\\_industrial\\_chemicals\\_in\\_the\\_IED\\_BREFs\\_HAZBREF/Publications](https://www.syke.fi/en-US/Research_Development/Research_and_development_projects/Projects/Hazardous_industrial_chemicals_in_the_IED_BREFs_HAZBREF/Publications)
  - The Meeting welcomed the project and its outcomes, noting that it has provided valuable input to several processes.
  - It was noted that the IED (Industrial Emissions Directive) is undergoing review and input has been provided to that process by the project.
  - The question was raised on how the project had provided input to the BSAP update process, noting that a proposal had been made to suggest that HELCOM recommendations for industrial emissions should be updated and they might promote a more ambitious industrial emissions regulation regionally, if Contracting Parties support this proposal.
  
- f. BaltHEALTH.
  - The project was briefly introduced, noting that it may be valuable to present information related to the project as supporting contextual information in HOLAS III.
  - Top predators were noted to be an end point for many contaminants, in a similar way to how sediments are.
  - The question was raised as to if work in the project could support the overall assessment of the harbour porpoise.
  - It was noted that this in HOLAS III the interlinkages with other topics, for example biodiversity and hazardous substances, would be valuable to explore.

#### Agenda item 14: Any other business

14.1 The Meeting agreed to hold the next meeting in late August or early September to focus on the key issues where information needs to be submitted to State and Conservation on 7 September.

14.2 The Meeting invited the Secretariat to provide a poll to set the date for the meeting.

*The biological effects section of the meeting is provided below.*

## Biological Effects section draft agenda.

### Agenda item 1: Adoption of the agenda.

1.1 The Meeting adopted the agenda.

### Agenda item 2: Someone to lead the process.

1.1 The Meeting welcomed the offer of Zhanna Tairova, Denmark, to lead this section of the meeting and support progress on the topic of biological effects.

### Agenda item 3: Information from other processes (Secretariat).

3.1 The Meeting noted that in general there had not been strong support for a joint Correspondence Group on Biological Effects with OSPAR at State and Conservation, with one possible solution suggested being to invite OSPAR/HELCOM biological effects experts to join designated sections of existing EN-HZ/MIME meetings. It was noted that it is understood that a similar proposal will be submitted to OSPAR MIME and that further discussion at State and Conservation may result if there is follow up from that process.

3.2 The Meeting noted the broad support at State and Conservation for Biological Effects to be represented as supporting contextual information in the HOLAS III thematic assessment of hazardous substances.

3.3 The Meeting noted the need for an update to be provided on HOLAS III plans to State and Conservation 15-2021, with a deadline of 7 September.

3.4 The Meeting discussed the need for each individual indicator for biological effects to have a lead in place, noting that this would add value since the overarching integration/aggregation approach still relied on each individual methodology.

3.5 It was noted that the majority of indicators have leads in place: TBT and ImPOSEX (DMK), White-tailed sea eagle productivity (SWE and FIN), Reproductive disorders: Malformed amphipod embryos (SWE), Acetylcholinesterase inhibition (FIN), Lysosomal membrane stability (FIN), PAHs and their metabolites (DMK and GER), Fish disease index (GER – to be confirmed). The indicators requiring leads were: EROD activity, Micronucleus test, and Estrogenic-like chemicals and effects.

3.6 Sweden offered to lead the EROD activity indicator.

3.7 The Meeting discussed a series of issues raised during the preceding EN-HZ section of the meeting, as follows:

- a) PAH metabolite threshold values: the issue was raised as to if additional species specific threshold values should be included in the extraction table and the Meeting considered it relevant to also represent other species from the HELCOM region where Contracting Parties were also monitoring.

- b) PAH metabolite data coverage: It was noted that currently only Germany, Poland and some limited data from Denmark were available in COMBINE (see data summary in [document 2-3 BE from EN-HZ 13-2020](#)), but that a broad range of species were included.
- c) PAH metabolite indicator presentation: It was proposed that the HELOCM indicator for PAHs and their metabolites should be run using the MIME indicator evaluation tool and that all results should be reported within the indicator report results section. However, it was suggested that the metabolites component should not be included in the overall indicator evaluation that entered CHASE, with the metabolites component being preferentially included in the aggregated/integrated biological effects section.
- d) Reproductive disorders in amphipod embryos move to core: There was general support for furthering the proposal to move the indicator to core status, noting that it would likely require clear documentation on aspects such as threshold values, species included, data years available, and expected spatial coverage (e.g. assessment units) for State and Conservation 15-2021 (deadline 7 September) to make such a decision. The indicator lead, supported by relevant national experts agreed to prepare the relevant document for State and Conservation.
- e) Reproductive disorders in amphipod embryos progress: The Meeting welcomed the presentation by Estonia (**Presentation 4 BE**) on ongoing work related to the indicator and the ensuing discussion on inclusion of other species and how to address linkages between the sampled species and the environment. The Meeting noted that there was the possibility to include data from Latvia, Lithuania, Estonia, pilot studies from Denmark, and possibly data from Russia in the HOLAS III indicator.
- f) Commonalities in biological effects indicators: the overview of biological effects indicators was revisited ([document 3-1 Att.1 BE from EN-HZ 13-2020](#)) noting that there is no string commonalities outside of the more established indicators: White-tailed sea eagle productivity ('core'), Reproductive disorders: Malformed amphipod embryos ('Supplementary').

#### [Agenda item 4: Update on data call for biological effects data for HOLAS III \(Secretariat\).](#)

4.1 The Meeting noted that the biological effects topic had been included in the [HOLAS III data call](#), with the request encouraging all data viable in COMBINE to be submitted there and with a free-form reporting of other relevant data encouraged. The Meeting also noted that the period of HOLAS III (2016-2021) would be the focus, with data from 2011-2016 (i.e. HOLAS II period) also requested if available.

4.2 It was noted that if the biological effects sub group develops a suitable data matrix/structure in advance of State and Conservation 15-2021 then this would be a valuable addition to the document to be submitted as it would support countries in their HOLAS III reporting.

#### [Agenda item 5: Potential links with EG MAMA health experts \(Secretariat\).](#)

5.1 The Meeting noted the input from the EG MAMA expert involved with mammal health work and indicators, including information that in Sweden data has been collected as far back as the 70s related to aspects such as bone loss, occlusions, ulcers and other aspects.

5.2 The Meeting noted that in Sweden there had been initial discussions to use a similar structure to the Fish Disease Index to develop a Baltic Sea Seal Syndrome Index for the grey seal that incorporated the various data types available.

5.3 It was noted that other Contracting Parties may also have available data but there is a current lack of harmonisation, an issue currently being addressed in the EG MAMA health team.

5.4 The Meeting welcomed the possibility to build links with mammal experts and encouraged a continuation of the process that had been initiated, in particular with the work towards HOLAS III.

**Agenda item 6: Progress of sub-group towards proof of concept test cases (Sub-group on Biological Effects).**

6.1 The Meeting discussed the progress made in the sub group noting their aim to work towards test cases in the Bothnian Sea, Gulf of Finland, Gulf of Riga, and Kattegat-Sound-Belt Sea regions.

6.2 The Meeting discussed the first version of the data compilation table and concluded that further discussion was needed to refine the approach or clarify the aim (e.g. selecting individual samples or summarising mean values per assessment, identical to the OSPAR approach or a variant of it).

6.3 As part of the clarification it was also noted that it would be important to define if the template was for data collection (i.e. just the data not possible to report to COMBINE) or the template for calculating the overarching assessment.

6.4 The sub group decided to review the details intersessionally to further develop the template and initiate pre-filling it with data.

**Agenda item 7: Further needs of sub-group to develop the work further (Sub-group on Biological Effects).**

7.1 No specific needs were noted at this stage.

**Agenda item 8: Plan towards State and Conservation 15-2021 (7 September deadline).**

8.1 The Meeting noted the three main items required for State and Conservation 15-2021 related to Biological Effects are:

- a) A proposal on how biological effects will be utilized in the HOLAS III thematic assessment of hazardous substances.
- b) A proposal related to any change (i.e. to 'core') for the Reproductive disorders indicator.
- c) A clear proposal, possibly as part of 'a', on how PAH metabolites will be utilized.

## Annex 1: List of participants

Country	Name	Contact	EN-HZ and/or BE meeting
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