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Background

The Tenth Meeting of the HELCOM Group on Ecosystem-based Sustainable Fisheries (FISH 10-2019), was held on 25-26 June 2019 in Copenhagen, Denmark. The Outcome of the Meeting is set out in the Annex to this document.

Matters related to the update of the Baltic Sea Action Plan (BSAP) considered under Agenda Item 3 and further detailed in Annex 2 of the Outcome. In discussing existing HELCOM actions (BSAP and Ministerial Declarations) to be considered for further development and uptake in the proposed Baltic Sea Action Plan, the Meeting finalized and agreed on the rephrasing of several such actions. It may be noted, however, that actions related to migratory fish were for the most part not resolved by FISH 10-2019.

Action requested

The Meeting is invited to take note of the Outcomes of FISH 10-2019 and use the information as appropriate.



Outcome of the Tenth Meeting of the HELCOM Group on Ecosystem-based Sustainable Fisheries (FISH 10-2019)

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Outcome of the Tenth Meeting of the HELCOM Group on Ecosystem-based Sustainable Fisheries (FISH 10-2019)

Introduction

01. With reference to the decision of FISH 9-2019 (Outcome paragraph 10.5), the Tenth Meeting of the HELCOM Group on Ecosystem-based Sustainable Fisheries (FISH 10-2019), was held on 25-26 June 2019 at the premises of the Ministry of Foreign Affairs in Copenhagen, Denmark.
02. The Meeting was attended by delegations from Denmark, Finland, Germany, Poland, Russia and Sweden, as well as observers from BSAC, CCB, FEAP and ICES as well as invited guests from DTU-Aqua. Consent for publication of the list of participants and the information contained therein (**Annex 1**) was received by all participants.
03. In the absence of Chair, Ms. Marianne Goffeng Raakil (Swedish Ministry of Enterprise and Innovation), the Meeting was chaired by the Vice-Chair of the Fish Group Ms. Katarzyna Kaminska (Ministry of Maritime Economy and Inland Navigation, Poland). Mr. Markus Helavuori, HELCOM Professional Secretary, acted as secretary of the Meeting.
04. Mr. Mikkel Stage, Senior Advisor, Fisheries Policy Unit, Danish Ministry of Foreign Affairs, welcomed the participants to the Meeting and to Copenhagen.

Agenda Item 1 Adoption of the Agenda

Documents: 1-1, 1-2

- 1.1 The Meeting adopted the Agenda of the Meeting as contained in document 1-1.

Agenda Item 2 Matters arising from HELCOM work of relevance for the group

Documents: 2-1, 2-2

- 2.1 The Meeting took note of information on the outcomes of recent HELCOM meetings (document 2-1), including [HELCOM 40-2019](#) and [HOD 56-2019](#), as presented by the Secretariat.
- 2.2 The Meeting agreed to discuss issues of relevance to the Fish Group under relevant Agenda Items.
- 2.3 The Meeting took note of the Outcome of HELCOM FISH-PRO III 1-2019 (12-14 February 2019, Helsinki, Finland) and the work plan for FISH-PRO III 2019-2023 (document 2-2).

Agenda Item 3 Implementation and update of the Baltic Sea Action Plan

Documents: 3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-6-Rev.1, 3-7

Progress on analyzing sufficiency of measures

- 3.1 The Meeting took note of the BSAP Update Work Plan for the Fish Group (document 3-4, **Presentation 1**).
- 3.2 The Meeting took note of the information on the analyses of sufficiency of measures to support the BSAP update (document 3-3 and **Presentation 2**), to be carried out in 2019-2020 through the HELCOM platform for analyzing sufficiency of measures (SOM Platform) and the HELCOM ACTION project, which is co-funded by the EU.

3.3 In considering document 3-3, the Meeting also took note of a presentation by the Secretariat on the approach for the SOM analysis (**Presentation 3**). The Meeting noted that the reference year for the SOM analysis is 2016, being based on the state of the environment as assessed through the State of the Baltic Sea report (HOLAS II). The Meeting further noted that HOD 56-2019 agreed on the use of the approach to support the BSAP update as presented in document 3-3.

3.4 The Meeting took note that HELCOM subsidiary bodies and observers, Contracting Parties, and international projects, have been invited to prepare synopses on potential new HELCOM actions for the updated BSAP according to a template that has been distributed to the Working Groups.

3.5 The Meeting took note of the information on updated plans for SOM analyses for biodiversity component fish (document 3-7 and **Presentation 4**). The Meeting took note that the Fish Group will be involved in the contribution and validation of data to be used in the SOM analyses. The time and form of the contribution will be clarified by the Secretariat by the end of August 2019.

3.6 The Meeting recognized that the matter of EU competency needs to be considered and discussed before selection of actions for the updated BSAP, as the Contracting Parties that are also EU Member States have limited possibilities to take action on their own with regard to fisheries.

3.7 The Meeting also noted the view by Finland that coastal fish species are difficult to assess in a coordinated manner and that measures related to those would mainly be national.

3.8 The Meeting took note that measures included in the business as usual (BAU) scenario in the context of the SOM analysis are existing measures, e.g. existing HELCOM actions and the latest MSFD programme of measures and existing national measures, and that the BAU will identify the potential need for new measures to reach good status in the Baltic Sea. Later on in the process new HELCOM actions as proposed through the BSAP update process will be included in an updated model run to assess the sufficiency of measures if including the new actions in the updated BSAP.

3.9 The Meeting recalled that the Fish Group is to guide and review the work of the HELCOM ACTION Project, in particular Work Package 1 related to by-catch and Work Package 2 related to impacts on benthic habitats.

3.10 The Meeting noted that Finland informed HOD 56-2019 about their intention to possibly take the lead on migratory fish in the SOM analysis.

3.11 The Meeting took note of the information on planned work to evaluate the effect of spatial fishery regulation measures on seafloor integrity and by-catch in the HELCOM coordinated ACTION Project, utilizing the DISPLACE model (document 3-6-Rev.1) which can be used to evaluate the effect of closure of areas for fishing, both in terms of impact on benthic habitats and impacts on catch/revenue/profit for fisheries (Bastardie et al 2014). The results are meant to support the identification of areas most suitable for implementing spatial fishery regulations.

3.12 In this context, the Meeting took note of the information in **Presentation 5** provided by the Project Partner DTU Aqua, detailing ACTION Work Package 2 on impacts on the seafloor. The work also includes assessing the cost and effectiveness of measures.

3.13 The Meeting acknowledged that the effectiveness of measures and seeking alternatives, as is being done in the ACTION project, is very important. In discussing Work Package 2 of the ACTION Project, the Meeting, *inter alia*, noted that:

- the project uses Best Available Data from ICES and the sensitivity of various areas is being accounted for in the work;
- practical implementation of fisheries restrictions or closures may benefit from detailed discussions with fishermen, as authorities do not necessarily have all information available about the spatial distribution of habitat types, e.g., reefs outside Natura 2000 areas;
- better mapping of benthic habitats is an emerging issue also in the HELCOM EN BENTHIC.; and
- alternative fishing gears may be an option in addition to fishery restrictions.

3.14 The Meeting took note of the information on Work Package 1 of the ACTION Project regarding by-catch (**Presentation 6**). This Work Package is also cooperating with Work Package 2, e.g., with regard to assessing the cost and effectiveness of fisheries closures or displacements. The Meeting noted that with regard to harbour porpoises the focus is currently on Danish and Swedish waters due to better availability of density data, but the project will also make efforts to assess the situation elsewhere in the Baltic Sea, e.g. using data from the SAMBAH Project.

3.15 The Meeting took note that measures to reduce by-catch may be expensive (in particular the development of alternative fishing gears) and that coordination between countries is necessary to optimize resources.

3.16 The Meeting took note of the view that ongoing HELCOM work on by-catch, including the Roadmap on fisheries data, should be coordinated and developed to contribute to the update of the BSAP.

3.17 The Meeting noted that preparations are being made for a possible SAMBAH II Project, with HELCOM as coordinator, which would be important considering future data needs on harbour porpoise by-catch in the Baltic Sea.

3.18 In concluding the discussions related to document 3-6-Rev.1 and Presentations 5 and 6, the Meeting discussed the possibilities of implementing spatial fisheries closures in the Baltic Sea. It was recognized that such restrictions may be feasible if they are sufficiently justified and that with regard to spatial management, fisheries closures in essential fish habitats could in the long term lead to increased stocks in surrounding areas.

3.19 The Meeting noted the scenarios described in document 3-6 Rev.1 and was invited to provide suggestions on additional scenarios that could be tested using the model used. The Meeting agreed that assessing the effect of fisheries restrictions imposed in MPAs would be an important addition to the work.

3.20 The Meeting noted that the [ICES Workshop](#) on Tradeoff Scenarios between the Impact on Seafloor Habitats and Provisions of catch/value (WKTRADE2) will meet 4-6 September 2019.

3.21 The Meeting took note of the task for HELCOM Working Groups to review existing HELCOM objectives and to develop new objectives for marine litter, underwater noise, and loss and disturbance to the seabed as presented by the Secretariat (document 3-5, **Presentation 7**). The Meeting took note that HELCOM objectives are meant to be of aspirational character and used as a communication tool on HELCOM aims and core activities with the wider community.

3.22 The Meeting considered the already proposed ecological and management objectives related to the loss and disturbance to the seabed by the Pressure Group and made the following initial reflections:

- Ecological objectives; “Undisturbed seabed from human activities” was discussed as an alternative objective but a preferred option by the Meeting was to develop an objective related to maintaining resilience and functions of seabed, along the lines of Descriptor 6 of the MSFD, i.e. “Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems”; and
- Management objectives; “Sustainable fishery practices” was considered as potential candidate but other more specific proposals related to impact from fisheries were also discussed e.g. “Gear with less impact on the seabed”, and “Gear avoiding by-catch of marine mammals, seabirds and protected fish species”.

3.23 The Meeting took note that the aim is to agree on revised and new HELCOM objectives at HOD 57-2019 in December 2019 and that the Fish Group may wish to set up an intersessional correspondence or online meeting to review the further developed objectives in autumn 2019.

Concretization of existing measures

3.24 The Meeting considered the reporting results on HELCOM Recommendations under the Fish Group and noted that the results of this evaluation will be used for the update of the BSAP, through the

development of possible new actions, as well as in the SOM analysis where the effectiveness of existing measures will be assessed.

3.25 A general comment was made, that it was difficult to respond to some of the questions, as there was no option to respond that part of an action in a specific Recommendation had been implemented.

3.26 Responding to questions on implementation of Recommendation 32-33/1 on Conservation of Baltic Salmon (*Salmo salar*) and Sea Trout (*Salmo trutta*) populations by the restoration of their river habitats and management of river fisheries was also seen as difficult with regard to river restoration measures, fish passes, etc.

3.27 In discussing Recommendation 37/3 on Sustainable Aquaculture in the Baltic Sea Region, the Meeting noted that the related BAT/BEP should have been developed already by 2018. In addition, the Meeting questioned the possibilities of using hormones in aquaculture without impacting on the environment negatively. The Meeting noted that FEAP will look into the matter of hormone use in aquaculture in the Baltic Sea and inform the Fish Group in due course.

3.28 The Meeting discussed clarifications regarding remaining uncertainties in evaluation of implementation (document 3-2), but concrete issues were not brought to the attention of the Meeting. The Meeting encouraged those Contracting Parties that have not yet responded to the reporting request by the Secretariat (sent out in February 2019) to do so as soon as possible. The Meeting further encouraged those Contracting Parties that have not yet responded to requests for clarification, also to provide those to the Secretariat (susanna.kaasinen@helcom.fi) at their earliest convenience.

3.29 The Meeting agreed on the evaluation of implementation of HELCOM Recommendations, as detailed in document 3-2.

3.30 The Meeting did not have suggestions on the possibilities of implementing the remaining recommended actions by 2021.

3.31 The Meeting discussed the existing HELCOM actions to be considered for further development and uptake in the proposed Baltic Sea Action Plan and considered the proposals for concretized actions provided by the Secretariat in Annex 1 of document 3-1. A drafting group was established in order to develop concretized actions, as set out in the column entitled "Outcome of FISH 10-2019" in Tables 1 and 2 of Annex 2. Following discussion, the Meeting agreed as detailed further in **Annex 2** of this Outcome.

3.32 The Meeting further discussed the concretization of actions that were previously deemed to be too general, as set out in Annex 2 of document 3-1. The Meeting agreed as described in more detail in **Annex 2** of this Outcome.

3.33 The Meeting agreed to convene a workshop, tentatively in November 2019 in Warsaw, Poland, to support the analyses of sufficiency of measures and update of the BSAP with regard to fish. The Meeting further agreed that careful consideration should be given to the planning of the workshop, as appropriate, in order to achieve an outcome that will support these ongoing processes.

3.34 The Meeting noted that BSAC will organize a meeting of the EBM Working Group 18- 19 September 2019 in Gdynia, Poland, to consider, *inter alia*, the update of the BSAP and relating with the MSFD and preparing input from the BSAC. The invitation will be distributed in the near future and the Contracting Parties and interested stakeholders were encouraged to attend.

Agenda Item 4 Regional cooperation on fisheries and environment

Documents: 4-1, 4-2, 4-3

Cooperation between HELCOM and BALTFISH

4.1 The Meeting took note of the HELCOM-BALTFISH meeting organized on 29 January 2019 in Tallinn, Estonia (document 4-1).

4.2 The Meeting took note of the information on the BALTFISH Symposium on seal – fish/fisheries interactions held on 19-20 March 2019 in Gothenburg, Sweden.

4.3 The Meeting considered the possible contribution of the Fish Group in supporting the cooperation between BALTFISH and HELCOM and supported, inter alia, mutual attendance of HELCOM and BALTFISH in relevant workshops and meetings, as well as possible involvement of BALTFISH in the process of updating the BSAP.

Cooperation with the BSAC sub-group on ecosystem-based fisheries management

4.4 The Meeting took note of the questionnaire on alternative fishing gears and fishing techniques as published in a dedicated [Workspace](#) on the HELCOM Meeting Portal (document 4-2).

4.5 The Meeting considered the introductory text and disclaimer, to be published on the dedicated Workspace on the HELCOM Meeting Portal. The Meeting agreed that any further comments should be sent to the Secretariat (markus.helavuori@helcom.fi) **by the end of August 2019**.

4.6 The Meeting considered whether also trials on gear selectivity should remain in the questionnaire and agreed that they should be deleted.

4.7 The Meeting encouraged the Contracting Parties and observers to continuously keep the questionnaire up to date on the dedicated Workspace.

4.8 The Meeting discussed how to promote the questionnaire outside HELCOM (e.g. BALTFISH and BSAC), to enable wide usage of the information and addition of new information and invited the Secretariat to share the questionnaire with relevant organizations, as appropriate.

Cooperation with other organizations

4.9 The Meeting took note of the information on a Joint OSPAR-HELCOM workshop to examine possibilities for developing indicators for incidental by-catch of birds and marine mammals to be held on 3-5 September 2019 in Copenhagen (c.f. Agenda Item 9).

4.10 The Meeting took note of the Resolution of the sectional session “Fisheries, aquaculture and conservation of fish stocks”, of the XX International Environmental Forum "Baltic Sea Day" (21 March 2019, St. Petersburg, Russia) (document 4-3).

Agenda Item 5 BAT/BEP for sustainable aquaculture

Documents: 5-1

5.1 The Meeting took note of information by the Lead countries on the ongoing work regarding the development of BAT/BEP for sustainable aquaculture. A German project on developing BAT/BEP for nutrients and hazardous substances from aquaculture has recently started and will contribute to this work. The project will be carried out by the AquaBio Tech Group and will run for approximately five months.

5.2 The Meeting noted that FEAP has expressed interest to contribute to this project and is liaising with Germany in this regard.

5.3 The Meeting took note of the information on recent activities relevant to the development of sustainable aquaculture in the Baltic Sea as well as the BAT/BEP for sustainable aquaculture. The Meeting took note of the recent publication of an [Overview of farming techniques for aquaculture in Sweden](#).

5.4 The Meeting discussed document 5-1 “Mussels to combat eutrophication” submitted by FEAP. The Meeting also noted that a law (L111) on the matter has recently been passed in Denmark, and that such compensation measures should be based on scientific and practical knowledge supporting that the measure is sufficiently efficient. The Meeting noted that in some countries, mussel farming is not seen as a viable solution to combat eutrophication in the Baltic Sea, nor to compensate for nutrient input from fishfarming. The Meeting also noted a comment by CCB, that mussels could be used to address internal nutrient load in

enclosed sea areas, but should not be used to compensate for nutrient input from new fish farms or other new sources.

5.5 The Meeting noted that the BONUS Optimus Project is also studying the matter and may be invited to present their results at a future meeting.

5.6 The Meeting noted a comment by ICES that naturally occurring bivalves and associated healthy seafloor habitats, via the function they provide, are some of the most cost effective reducers of nutrients. ICES further commented that both impact from bottom contacting fishing gear and oxygen depletion affect this natural filtering capacity. Focusing management measures to improve the health and functioning of seafloor habitats, may help reduce further nutrients from the system.

Agenda Item 6 HELCOM data interests

Documents: 6-1, 6-2

6.1 The Meeting considered the draft Roadmap on fisheries data in order to assess incidental by-catches and fisheries impact on benthic biotopes in the Baltic Sea, submitted by Denmark, Finland, Germany, Poland, and Sweden (document 6-1).

6.2 The Meeting agreed that a timeline of due MSFD and HD assessments should not be included in the Roadmap.

6.3 The Meeting took note of the contribution by ICES to the draft Roadmap (document 6-2) and agreed that the Annex from that document will be included as annex to the draft Roadmap. The Meeting did not see the need for any additional annexes to be included in the Roadmap.

6.4 Having drafted and agreed on a new text for Chapter 5 of the draft Roadmap, and having made some additional minor amendments to the draft set out in document 6-1, the Meeting agreed on the final version of the Roadmap as contained in **Annex 3**. The Meeting also agreed that there should be a strong link with the Roadmap and the update of the BSAP.

6.5 The Meeting agreed that the agreed Roadmap should be submitted for agreement also to STATE&CONSERVATION 11-2019 (October 2019), as Chapter 1 of the Roadmap requests State&Conservation to ensure that the collected data serve the scientific purpose of the HELCOM indicators. The Meeting further proposed that the draft Roadmap should subsequently be submitted to HOD 57-2019 for approval and HELCOM 41-2020 for adoption.

Agenda Item 7 Salmon and sea trout including HELCOM Recommendation 32-33/1

Documents: 7-1, 7-2

7.1 The Meeting took note of the outcome of partnership mid-term meeting for the RETROUT project, held on 8-9 May 2019 in Gdansk, Poland (document 7-1).

7.2 The Meeting took note of recent and upcoming activities of the RETROUT project (Work Package 4 - Assessment of status and management of seatrout rivers and stocks), as submitted by HELCOM RETROUT Project Manager Mr. Henri Jokinen (document 7-2).

7.3 The Meeting noted that CCB will have a meeting together with RETROUT in August 2019.

Agenda Item 8 Interactions between fisheries and marine ecosystems

8.1 The Meeting took note of the Agenda of the HELCOM Workshop on Seal-Fisheries Interactions, to be hosted by Denmark on 27 June 2019 in Copenhagen.

8.2 The Meeting noted that the Fourth Workshop on implementation of the Regional Action Plan on Marine Litter (WS RAP ML 4-2019) will be organized on 22 October 2019, where one of the topics to be discussed is abandoned, lost or otherwise discarded fishing gear (ALDFG). Contacts and observers of the Fish Group will be invited and are encouraged to attend, recognizing that the Workshop will, *inter alia*, consider the development of a regional approach to addressing ALDFG.

8.3 In this context, the Meeting requested that the Fish Group would be provided the opportunity to comment on the draft agenda of the Workshop.

Agenda Item 9 Work on indicator development

Documents: 9-1, 9-2

HELCOM indicators

9.1 The Meeting took note of the Outcome of the First HELCOM Indicator Workshop (INDICATOR WS 1-2019), held on 14-15 May 2019 back-to-back with GEAR 20-2019 in Berlin, Germany.

9.2 The Meeting took note of the information on progress related to future work on HELCOM Indicators (document 9-1), as briefly introduced by the Secretariat.

9.3 The Meeting recognized the relevance of the Roadmap considered under Agenda Item 6 for the work on HELCOM indicators.

HELCOM-OSPAR by-catch workshop

9.4 The Meeting took note of the Terms of Reference and information regarding the progress in planning the OSPAR-HELCOM Joint By-catch Workshop, to be held on 3-5 September 2019 in Copenhagen, Denmark (document 9-2).

9.5 The Meeting discussed the workshop in more detail and noted that formal communication and request of advice may need to be submitted jointly by HELCOM and OSPAR to the ICES Advisory Committee (ACOM), in case there are needs for involving ICES working groups or the ICES Data Centre on the basis of the outcome of the workshop.

Agenda Item 10 Election of Chair and Vice-Chairs

10.1 The Meeting recalled that FISH 6-2017 elected Ms. Marianne Goffeng Raakil, Sweden, as Chair of the HELCOM Group on Ecosystem-based Sustainable Fisheries (Fish) for 2017-2019 as well as elected Ms. Katarzyna Kaminska, Poland, as Vice-Chair for the same period.

10.2 The Meeting re-elected the Chair and Vice-Chair of HELCOM FISH for the next two-year period (2020-2021).

Agenda Item 11 Future work

Documents: 11-1

11.1 The Meeting considered and updated the Work Plan for the HELCOM Fish Group, based on document 11-1 and agreed on a new Work Plan for 2020-2021, taking into account also the update of the Baltic Sea Action Plan, as contained in **Annex 4** for approval by HOD 57-2019.

11.2 The Meeting invited the Contracting Parties to consider hosting the next meeting of the Group.

11.3 The Meeting welcomed the offer by Sweden to consider hosting the next HELCOM Fish Group meeting (FISH 11-2020), and agreed tentatively that it will be held in Gothenburg on 11-12 March 2020.

Agenda Item 12 Any other business

Documents: 12-1, 12-2

12.1 The Meeting took note of a survey on HELCOM knowledge and research needs (document 12-1).

12.2 The Meeting took note that experts are invited to submit proposals by the end of June 2019 (ullali.zweifel@helcom.fi), noting that the proposals will be discussed at the next meeting of the Fish Group. Considering the tight schedule and the summer holiday season, the Meeting invited the Contracting Parties and experts to provide input at their earliest convenience but at the latest **by the end of July 2019**.

12.3 The Meeting reviewed and updated the list of nominated contacts for the HELCOM Fish Group (document 12-2). Taking into account the EU General Data Protection Regulation (GDPR, (EU) 2016/679), the Meeting agreed that the contact address list will be made available on the HELCOM Meeting Portal upon receipt of consent for publication by all contact persons.

12.4 The Meeting invited the Contracting Parties and Observer organizations to inform of any new, or changed, nominations to the Secretariat (markus.helavuori@helcom.fi).

12.5 The Meeting took note of the information by BSAC on the BSAC EBM Working Group meeting on fisheries measures in Natura 2000 areas held in Copenhagen, Denmark, on 13 March 2019. The Meeting further noted that BSAC agreed to share these recommendations with contacts and observers of the Fish Group, once formally adopted, through the Secretariat.

Agenda Item 13 Outcome of the Meeting

13.1 The Meeting adopted the draft Outcome of the Meeting. The Outcome of the Meeting, together with the documents and presentations considered by the Meeting are available on the [FISH 10-2019 meeting site](#).

Annex 1 List of participants

Representing	Name	Organization	E-mail
Contracting Parties			
Denmark	Janne Palomino Dalby	Ministry of Foreign Affairs	jadalb@um.dk
Denmark	Lonnie Mikkelsen	Ministry of Environment and Food of Denmark	lomik@mfvm.dk
Denmark	Lotte Kindt-Larsen	DTU Aqua, Technical University of Denmark	lol@aqua.dtu.dk
Denmark	Mads Nørgaard Larsen	Ministry of Foreign Affairs	manola@um.dk
Denmark	Kim Rægaard	Ministry of Foreign Affairs, Fisheries	kimrag@um.dk
Denmark	Mikkel Stage	Ministry of Foreign Affairs Fisheries Policy Unit	mikkst@um.dk
Finland	Penina Blankett	Ministry of the Environment	penina.blankett.ym.fi
Finland	Heikki Lehtinen	Ministry of Agriculture and Forestry	heikki.lehtinen@mmm.fi
Germany	Christian Pusch	Federal Agency for Nature Conservation	christian.pusch@bfn.de
Germany	Sven Koschinski	on behalf of the Federal Agency for Nature Conservation	sk@meereszoologie.de
Poland	Katarzyna Kaminska	Ministry of Maritime Economy and Inland Navigation	k.kaminska@mgm.gov.pl
Russia	Andrey Pedchenko via Skype	Federal State Budget Scientific Institution "All-Russian Research Institute of fisheries and oceanography"	pedchenko@vniro.ru
Sweden	Gry Sagebakken	Swedish Agency for Marine and Water Management	gry.sagebakken@havochvatten.se
Observer organizations			
Observer	Ewa Milewska	Baltic Sea Advisory Council (BSAC)	em@bsac.dk
Observer	Lennart Gladh	Coalition Clean Baltic (CCB)*	lennart.gladh@tele2.se
Observer	Torben Wallach	Federation of European Aquaculture Producers (FEAP)	torben@danskakvakultur.dk
Observer	Sebastian Valanko	International Council for the Exploration of the Sea (ICES)	sebastian.valanko@ices.dk
Invited guest			
	Francois Bastardie	DTU-Aqua	fba@aqua.dtu.dk
HELCOM Secretariat			
Secretariat	Markus Helavuori	Secretariat	markus.helavuori@helcom.fi
Secretariat	Ulla Li Zweifel via Skype	Secretariat	ullali.zweifel@helcom.fi
Secretariat	Luke Dodd	Secretariat	luke.dodd@helcom.fi

Annex 2 Concretization of existing HELCOM actions

Table 1: Joint actions related to Fish

Action (origin)	Current status	Comments from FISH 9-2019	Proposal	Outcome of FISH 10-2019
Further development and implementation of common practices for breeding, rearing and releasing salmon and sea trout as reintroductions in potential salmonid rivers (MD 2013)	Not accomplished	<p>Still a relevant HELCOM action; important for consideration of genetic affects and spreading of parasites and deceases.</p> <p>Sweden informed that a national strategy will be updated shortly that can contribute to the work. There are also guidelines developed within NASCO (North Atlantic Salmon Conservation Organization) that could inform the process. ICES WGPDMO (Working Group on Pathology and Diseases of Marine Organisms) could also give advice.</p> <p>The Meeting:</p> <ul style="list-style-type: none"> - <u>agreed</u> to take the action forward through the FISH-M, e.g. through organizing a dedicated workshop. - <u>proposed</u> to aim for development of common guidelines rather than common practices since the latter term can cover a broad range of issues that are necessarily essential for the activities. 	<p>Aim to develop common guidelines for breeding, rearing and releasing salmon and sea trout as reintroductions in potential salmonid rivers by 2021. Lead country needed. If this is not accomplished, revision in the wording needed as proposed by FISH 9 (Category 3). Consideration could also be given to organizing a dedicated FISH-M workshop on such common guidelines (lead country and host country needed).</p>	<p>The Meeting <u>agreed</u> that although it is ambitious, the aim should be to develop common guidelines by 2021. For this purpose, a FISH-M workshop should be organized in early 2020, possibly back to back with the next meeting of the Fish Group.</p> <p>Furthermore, the Meeting <u>encouraged</u> Contracting Parties to take the lead in this work.</p>
Further development and implementation of comparable methodology for data collection (salmon and sea trout) through	Partly accomplished	<p>The Meeting <u>noted</u> that there are several activities established under DCF that address this topic and furthermore that HELCOM FISH-M and the RETROUT project have discussed methodological issues</p>	<p>Guiding principles for data harmonization to be developed by 2021. If this is not accomplished, revision in the wording needed as proposed by FISH 9 (Category 3).</p>	<p>The Meeting <u>proposed</u> that this action should not be carried forward to the updated BSAP as the methodology for collecting data is up to the Contracting Parties and as the matter is already sufficiently covered through other for a.</p>

surveys, especially on recreational fisheries (MD 2013)		<p>regarding seatrout. Harmonization of methodology also takes place in ICES WGBAST (Assessment Working Group on Baltic Salmon and Trout).</p> <p>If was furthermore underlined that development of such methodology would be resources demanding. National data collection is however still not harmonized so it is relevant that comparable methodology for data collection is developed. The Meeting <u>agreed</u> that it would be useful to receive information on whether FISH PRO also considers this to be an issue or whether the action is still considered to be valid and if there are any suggestions on further steps to be taken (Outcome paragraph 2.4).</p> <p>The Meeting:</p> <ul style="list-style-type: none"> - <u>agreed</u> to change the status of accomplishment to partly accomplished - <u>proposed</u> to change the formulation of the HELCOM action; HELCOM is proposed to signal the need for data harmonization development, e.g. by establishing guiding principles, but not to develop the methodology as such. 		
Further development and implementation of recommendations for riverine and estuarine management and conservation measures, such as fish	Partly accomplished	The RETROUT project will collate information on the effect of restoration measures for seatrout in the Baltic Sea region including, e.g. for spawning sites, fish ways. The Meeting further <u>noted</u> that FISH-M 4-2017 addressed a number of cases	Updated recommendation 32/33-1 to be adopted in 2021. Secretariat to draft a first proposal to the next Fish meeting.	<p>The Meeting <u>noted</u> that the Secretariat has unfortunately not managed to draft a revision of the Recommendation.</p> <p>The Meeting <u>agreed</u> to invite the Secretariat to do so by adding guidelines on restoration measures to a draft revised Recommendation</p>

ways for up and down migration, restoration and protection of spawning grounds, concerning fisheries within rivers and estuaries (MD 2013)		<p>and best practices for river restoration.</p> <p>The Meeting:</p> <ul style="list-style-type: none"> - <u>agreed</u> to change the status of accomplishment to partly accomplished - <u>proposed</u> to update HELCOM Recommendation 32/33-1 by adding guidelines on restoration measures, taking into account conclusions from FISH-M 4-2017 and the RETROUT project. The Secretariat will draft a first proposal. When such guidelines are in place the action can be considered as accomplished. - <u>noted</u> that the action is originally related to salmon 		32/33-1, taking into account the outcome of FISH-M 4-2017 and developments within the RETROUT Project. The Meeting also <u>agreed</u> that the draft revised Recommendation should be considered by FISH 11, with a view to approval at HOD 58-2020. The Meeting furthermore <u>agreed</u> that Estonia should be invited to contribute to the work as they have recent experience from several dam removal projects.
The further development and testing of the HELCOM generic decision-support tool to map possible negative impacts of specific gear types on threatened or declining species and habitats, and which helps to develop and/or recommend measures to address these (MD 2013)	Partly accomplished	<p>The HELCOM BalticBOOST project developed a tool to evaluate impacts of fishing gear on benthic communities but the specific tool that is referred to in the action (the 'HELCOM generic tool') has not been further developed. The Meeting <u>did not find it relevant</u> to continue working on the existing tool but found it relevant to share experience and compile information from different existing sources regarding the impacts of different gear types on species and habitats.</p> <p>The Meeting:</p> <ul style="list-style-type: none"> - <u>proposed</u> to delete the action in its current formulation but to keep the 	<p>FISH 10-2019 to propose to HOD that this action is deleted, but to be kept on the Work Plan of the Fish Group.</p> <p>Level of implementation on management measures in MPAs, as discussed by FISH 9-2019, could be done as part of the action on "Development and implementation of fisheries management measures for fisheries inside marine protected areas (BSAP)" below.</p>	<p>The Meeting <u>noted</u> that a comment had been made at HOD 56-2019, that the Fish Group should consider that joint recommendations are being developed through a process linked to the EU Habitats Directive and Common Fisheries Policy and that guidelines will be developed for fisheries measures in Natura 2000 areas.</p> <p>The Meeting <u>proposed</u> to redraft the action as follows: <i>To update and harmonize the 2016 decision-support tool approach with ongoing initiatives e.g. in ICES on a seafloor assessment framework for the Baltic Sea. This tool should also provide options on how to reduce the environmental impact of bottom fishing on seafloor habitats, and reducing the impact of fisheries inside marine protected areas in the most cost effective way.</i></p>

		<p>topic on the work plan of the Fish Group.</p> <ul style="list-style-type: none"> - <u>agreed</u> to convene a dedicated session on how far countries have come in implementing fisheries management measures in MPAs, how such measures are linked to other processes such as MSP, HOLAS, MSFD implementation and how information on impacts of fishing gear is used for management. 		<p>The Meeting <u>noted</u> that work completed in 2016 under the HELCOM project BalticBOOST included several deliverables of which a generic decision-support tool was one. It was recognized that since 2016 significant steps have been taken on this topic (c.f. document 6-2).</p> <p>The Meeting <u>agreed</u> that future efforts should be to update and harmonize the generic decision-support tool approach with ongoing initiatives in ICES on a seafloor assessment framework for the Baltic Sea (c.f. document 6-2). This work should also suggest to Fish options on how to most cost effectively reduce the environmental impact of bottom fishing on seafloor habitats.</p> <p>The Meeting <u>noted</u> the 2015 ICES advice to HELCOM on fishing effort and fishing abrasion pressure have been summarized within the 174 HELCOM marine protected areas (MPAs).</p> <p>As such, the Meeting <u>recalled</u> that FISH 9-2019 agreed to convene a dedicated session on how far countries have come in implementing fisheries management measures in MPAs. Work on updating and harmonizing the decision-support tool should also be used to inform this session. On the basis of such information the Fish Group could be better informed to further the update and harmonization of the decision-support tool.</p>
Development and implementation of effective monitoring	Partly accomplished	The HELCOM roadmap on collection of fisheries data is under way. It was however noted that implementation	Category 3. Action to be revised to reflect implementation of Roadmap,	The Meeting <u>noted</u> that a comment had been made at HOD 56-2019, that the Fish Group should consider adding to the proposed

for by-caught birds and mammals (BSAP)		<p>of such monitoring may not be in place by 2021.</p> <p>The Meeting:</p> <ul style="list-style-type: none"> - agreed to change the status of accomplishment to partly accomplished. - proposed as a first step to finalize the roadmap on collection of fisheries data. - agreed to change the wording to the supporting information in column F of the excel-file to: "...is not considered as sufficient data for assessments of by-catch" 	and Contracting Parties to implement effective monitoring.	<p>further work: "After development of the roadmap on collection of fisheries data, promotion of suggestions and recommendations contained in the document, in order to improve the monitoring of by-catch of protected species, should take place as soon as possible."</p> <p>The Meeting <u>proposed</u> that the action should be revised to reflect the Roadmap and work carried out by ICES as follows: <i>Development and implementation of effective monitoring for by-caught birds and mammals in line with the assessment method by ICES WGBYC and the identified data-gaps outlined in the HELCOM Roadmap on fisheries data.</i></p>
Development and implementation of effective reporting systems for by-caught birds and mammals (BSAP)	Partly accomplished	<p>Reporting on by-catch takes place by EU MS to the EC and is further submitted to ICES. The reporting is however done in different ways by the countries and there is a need to further develop existing reporting systems. If a fit for purpose reporting system to support HELCOM work (e.g. indicator assessment) is in place it is however not necessary for HELCOM to set up a separate reporting system.</p> <p>The Meeting:</p> <ul style="list-style-type: none"> - <u>agreed</u> to specify what the reported data should be used for within HELCOM. - <u>proposed</u> to change the wording of the action to "Further development of existing reporting systems". 	Category 3. This action could be combined with the above, and rephrased to focus on development of existing reporting systems. Contracting Parties to implement effective monitoring and reporting as appropriate.	<p>The Meeting <u>proposed</u> that this action should be revised as follows: <i>Further development and implementation regionally coordinated fit for purpose reporting systems for by-caught birds and mammals.</i></p> <p>The Meeting also <u>noted</u> that there is a need to develop in the framework of this action a close cooperation with relevant regional fisheries management bodies (BALTFISH and BSAC). The Meeting <u>proposed</u> that this should be a new HELCOM BSAP action and <u>agreed</u> to revisit the matter in due course, considering the work plan for the update of the BSAP.</p>

<p>Development and implementation of fisheries management measures for fisheries inside marine protected areas (BSAP)</p>	<p>Partly accomplished</p>	<p>A relevant HELCOM action where several countries mentioned their implementation of such measures. The Meeting <u>was however of the view</u> that it is not suitable to assess the action in terms of being accomplished or not. It was furthermore proposed to label the action as 'national'. The Meeting <u>noted</u> that BALTFISH will also consider management measures in MPAs in the Baltic Sea.</p> <p>The Meeting:</p> <ul style="list-style-type: none"> - <u>agreed</u> to consider the action as "national" and to request countries to report on the implementation of fisheries management measures in MPAs. The Secretariat will explore if it is suitable to use the HELCOM MPA database for this reporting purpose. Since the action is not suitable for assessing the level of accomplishment this should be indicated in the follow-up system with a link to relevant source of information. 	<p>Category 3, some rewording needed and the action should become national rather than joint.</p> <p>Subject to funding being available, the Secretariat is planning to update the MPA Database to enable inclusion of data on measures (including fisheries management measures). At current, the MPA Database is not a practical tool for such data. Contracting Parties are encouraged to report on fisheries management measures in MPA already now, so that it can be included in the MPA Database in due course.</p>	<p>The Meeting <u>noted</u> that a comment had been made at HOD 56-2019 that the Fish Group should consider that joint recommendations are being developed through a process linked to the EU Habitats Directive and Common Fisheries Policy and that guidelines will be developed for fisheries measures in Natura 2000 areas. There is, in addition, a need to consider how to improve the harmonization of reporting of fisheries related measures to the HELCOM MPA database, including associated guidance, when updating the MPA database. These processes should be taken into account in the further implementation of relevant actions by the Fish and State & Conservation WGs</p> <p>The Meeting <u>noted</u> that BSAC organized a workshop on fisheries management measures in MPAs earlier this year. The workshop was successful and recommendations have been developed based on the outcome. BSAC agreed to share these recommendations, once formally adopted, through the Secretariat.</p> <p>The Meeting <u>recalled</u> that FISH 9-2019 had agreed that this action should be a national rather than joint action. However, the Meeting <u>noted</u> that to some extent this may still need to be considered as a joint action, especially when it comes to the development of fisheries management measures within MPAs in the EEZ.</p> <p>The Meeting <u>noted</u> that the HELCOM MPA Managers Network will have its first meeting in September 2019.</p>
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				The Meeting <u>proposed</u> to revise the action as follows: <i>Development, implementation and documentation of fisheries management measures for fisheries inside marine protected areas.</i>
Continue the efforts underway and enhance co-ordination and evaluation of measures within the Baltic Sea as well as with other European countries, for the conservation of eel stocks, in line with national eel management plans (BSAP)	Partly accomplished	The Meeting <u>acknowledged</u> that further coordination of measures in the Baltic Sea region is essential and proposed that this should be considered as a joint action to be followed-up regularly by the Fish Group. The Meeting also <u>noted</u> that BALTFISH will organize a workshop on eel in spring 2019	This action has been moved from national actions to joint actions. Proposal to organize a workshop on developing measures for migratory fish species in autumn 2019 (focus on eel, salmon and seatrout). Based on the outcome, develop new or strengthened actions. (Category 3). Such workshop should also serve the ongoing SOM work, i.e. to evaluate the effect of current measures to improve the state of migratory fish (see also document 3-3)	The Meeting <u>noted</u> that the European Commission is revising the Eel Regulation, and that it may be premature for FISH 10-2019 to make decisions on revising this action. The Meeting also <u>noted</u> that the organization of a workshop would be costly and time-consuming. The Meeting nevertheless <u>agreed</u> that this is a matter of great importance and urgent measures are needed to protect the eel.

Table 2: National actions related to Fish

Action (origin)	Status in March 2018	Comments from FISH 9-2019	Proposal	Outcome of FISH 10-2019
Competent authorities to take immediate action for development of long-term management plans for commercially exploited fish stocks so that they are within safe biological limits and reach agreed targets, such as maximum sustainable yield, improve their distribution and	Partly accomplished (implemented by 2/9)	Sweden: A national management plan on salmon as well as seatrout was developed in 2016 and is under implementation. Targets for salmon rivers exist and concerning trout conservation limits exist for rivers on the west coast of Sweden and are under development for the east coast. Progress has been made in implementing the national programme for eel recovery and work to classify eel rivers is being initiated.	Category 1. Proposal to organize a workshop* on developing measures for migratory fish species in autumn 2019 (focus on eel, salmon and seatrout). Based on the outcome of the workshop project, proposals could be made for how to fully accomplish this action. Such workshop should also serve the ongoing SOM work, i.e. to evaluate the effect of current measures to improve the state of migratory fish (see also document 3-3).	

size/age range (salmon)		<p>Poland: Development of management plans for plans for salmon and seatrout is ongoing. Classification and inventory of rivers with European eel has started.</p> <p>Finland: Finland has adopted national strategies for salmon and seatrout and a strategy for the migratory fish species. A priority for the present Government has been the recovery and re-establishment of migratory fish population in inland rivers and in rivers with inflow to the sea. New resources have been allocated to these activities.</p>		
Competent authorities to take immediate action for development of long-term management plans for commercially exploited fish species (sea trout) so that they are within safe biological limits	Partly accomplished (implemented by 2/9)	<p>Sweden: A national management plan on salmon as well as seatrout was developed in 2016 and is under implementation. Targets for salmon rivers exist and concerning trout conservation limits exist for rivers on the west coast of Sweden and are under development for the east coast. Progress has been made in implementing the national programme for eel recovery and work to classify eel rivers is being initiated.</p> <p>Poland: Development of management plans for plans for salmon and seatrout is ongoing. Classification and inventory of rivers with European eel has started.</p> <p>Denmark: With regard to management plans for seatrout,</p>	<p>Category 1. Proposal to organize a workshop* on developing measures for migratory fish species in autumn 2019 (focus on eel, salmon and seatrout). Based on the outcome of the workshop and RETROUT project, proposals could be made for how to fully accomplish this action. Such workshop should also serve the ongoing SOM work, i.e. to evaluate the effect of current measures to improve the state of migratory fish (see also document 3-3).</p>	

		<p>there are national measures to limit recreational fisheries on seatrout, but to have long-term management plans for commercial sea trout fisheries is not relevant for Denmark since there is very limited commercial fishing on seatrout. Denmark therefore proposed that the action should be considered as not applicable for Denmark. With regard to eel, Denmark has e.g. reduced gear, more than required by the eel regulation.</p> <p>Finland: Finland has adopted national strategies for salmon and seatrout and a strategy for the migratory fish species. Regional strategies for sea trout are close to being finalized during 2019. A priority for the present Government has been the recovery and re-establishment of migratory fish population in inland rivers and in rivers with inflow to the sea. New resources have been allocated to these activities.</p>		
Competent authorities to implement national programs for the conservation of eel stocks as a contribution to a Baltic coordinated programme to ensure successful eel migrations from the Baltic Sea drainage	Partly accomplished (implemented by 8/9)	Finland: Finland has adopted a strategy for the migratory fish species. A priority for the present Government has been the recovery and re-establishment of migratory fish population in inland rivers and in rivers with inflow to the sea. New resources have been allocated to these activities. Finland has been implementing the national eel management plan and has	Proposal to organize a workshop* on developing measures for migratory fish species in autumn 2019 (focus on eel, salmon and seatrout). Based on the outcome, develop new or strengthened actions (Category 3). Such workshop should also serve the ongoing SOM work, i.e. to evaluate the effect of current measures to improve the state of migratory fish (see also document 3-3).	The Meeting <u>noted</u> that the reference to “national spawning” grounds in the original actions is erroneous and does not make sense.

basin to national spawning grounds		implemented fishing ban during certain months beyond the EU requirements.		
Competent authorities to take action to implement existing long-term management plans for eel	Partly accomplished (ongoing)		Remaining Contracting Parties are encouraged to accomplish the action by 2021, in which case the action can be deleted. Consideration should be given to strengthening the action or developing new concrete actions e.g. based on the outcome of FISH-M 5-2017 and the BALTFISH workshop on eels, as well as proposed workshop* on developing measures for migratory fish species in autumn 2019 (focus on eel, salmon and sea trout) (Category 3).	
Classify and make inventories of rivers with European eel	Partly accomplished (implemented by 2/9)		Remaining Contracting Parties are encouraged to accomplish the action by 2021, in which case the action can be deleted.	
Develop restoration plans (including restoration of spawning sites and migration routes) in suitable rivers to reinstate migratory fish species	Partly accomplished (implemented by 7/9)		Proposal to organize a workshop* on developing measures for migratory fish species in autumn 2019 (focus on eel, salmon and sea trout). Based on the outcome, as well as results of the RETROUT project, develop new or strengthened actions (Category 3). Such a workshop should also serve the ongoing SOM work, i.e. to evaluate the effect of current measures to improve the state of migratory fish (see also document 3-3).	
Consider additional measures if necessary, such as reducing fishing mortality in accordance with the	Partly accomplished (implemented by 3/9)		Proposal to organize a workshop* on developing measures for migratory fish species in autumn 2019 (focus on eel, salmon and sea trout). Based on the outcome, develop new or	

ICES advice, removing migration barriers, and re-stocking in eel-safe river systems, e.g. utilising the outcomes of co-operation between ICES, HELCOM and other stakeholders on this issue			strengthened actions (Category 3). Such workshop should also serve the ongoing SOM work, i.e. to evaluate the effect of current measures to improve the state of migratory fish (see also document 3-3)	
Implementation of non-lethal mitigations measures for seals-fisheries interactions (HELCOM Recommendation 27-28/2) (2012)	Partly accomplished (implemented by 2/9)		Outcomes of HELCOM SFI WS 1-2019 and the BALTFISH Symposium on seal to be used for revising this action (Category 3).	The Meeting <u>noted</u> that the HELCOM Workshop on seal-fisheries interactions will take place on 27 June 2019 back to back with FISH 10-2019. The Meeting <u>agreed</u> that this action should be considered intersessionally based on the outcome and recommendations of that workshop.
Implement existing long-term management plans for eel to improve their distribution size/age-range	Future target year (2021)		Category 1 . Proposal to organize a workshop* on developing measures for migratory fish species in autumn 2019 (focus on eel, salmon and seatrout). Based on the outcome, new concrete actions may be proposed.	
Implement long-term management plans for cod to improve their distribution size/age-range	Future target year (2020)		Category 1 . Consider possibly options for revising and strengthening the action.	The Meeting <u>noted</u> that the Baltic cod is in such a state that focusing on improvement of size/age range is not sufficient. The Meeting <u>proposed</u> to revise the action as follows: <i>Define necessary completion of multi-annual plans of cod, within the framework of the CFP for Contracting Parties which are also EU Member States, in order to improve cod size/age-range</i>

Existing commitments that are not included in the follow-up system

The Meeting considered commitments that were previously assigned as “too general”, with a view to their possible concretization in the process of the update of the BSAP and inclusion in the update BSAP. The Meeting discussed and agreed as follows:

- Introduction of additional fisheries management measures to achieve: - that all caught species and by-catch are landed and reported - continued designation of additional/improved spatial and/or temporal closures; designation of additional permanent closures - further development and application in all cases of appropriate breeding and restocking practices for salmon and sea trout (overlap with MD13 19B) - minimisation of by-catch of under-sized fish and non-target species (by 2008) and to introduce adequate new technologies and measures. *FISH 10-2019 agreed that this is a relevant action. Landing obligations are not implemented in the Baltic Sea. Revision needed not only to concretize, but also to ensure alignment with the CFP. The Meeting proposed to revise the action as follows: Improvement of compliance with the landing obligation regarding commercial fish species with a TAC. Identify species on which there is a need for better data and encourage fishermen to record by-caught specimen of these species in dedicated programmes.*
- Ask for advice from Regional Coordination Groups within the EU Data Collection Framework and ICES on how to improve data collected on such recreational fisheries, with a view to evaluate the impacts of such recreational fisheries on the marine environment. *FISH 10-2019: The Meeting proposed to revise the action as follows: Develop guidance in cooperation with the Regional Coordination Groups within the EU Data Collection Framework and ICES on how to improve data collected on such recreational fisheries, with a view to evaluate the impacts of such recreational fisheries on the marine environment.*
- Reduce the negative impacts of fishing activities on the marine ecosystem and to this end, support the development of fisheries management and technical measures to minimize unwanted by-catch of fish, birds and mammals in order to achieve the close to zero target for by-catch rates of the Baltic Sea Action Plan and minimize damage to sea bed habitats. *FISH 10-2019 discussed when by-catch rates become meaningful for the by-caught species. A comment was made that for some species and/or populations the close to zero target should stay in the BSAP.*

The Meeting further agreed that the following actions are still of value and could be included e.g. in preambular paragraphs of the updated BSAP.

- Baltic Sea shall become a model of good management of human activities; all fisheries management be developed and implemented based on the Ecosystem Approach in order to enhance the balance between the sustainable use and protection of marine resources
- Elimination of illegal, unregulated and unreported (IUU) fisheries and further development of landing control.
- Additional measures to reinstate migratory fish species.
- Reduce the negative impacts of fishing activities on the marine ecosystem and to this end ensure good cooperation with BALTFISH in order to promote development of fisheries management and technical measures to minimize unwanted by-catch of protected fish, birds and mammals in order to achieve the close to zero target for by-catch rates of the Baltic Sea Action Plan and minimize damage to sea bed habitats.
- Ensure that measures to address fisheries practices which have a negative impact on conservation goals and/or threatened or declining species and habitats are continued, including new measures to be initiated by 2015.

The Meeting also agreed that the matter of cooperating with BALTFISH, BSAC and other fisheries management bodies is a matter of great importance and further consideration is needed on how to address this in the updated BSAP. The Meeting invited Contracting Parties and observer organizations to submit proposals on new actions to the next Meeting of the Fish Group, taking into account the comments and views set out in this Annex as well as the instructions and synopsis for new actions described on the [HELCOM Website](#).

Annex 3 Draft Roadmap on fisheries data in order to assess incidental bycatches and fisheries impact on benthic biotopes in the Baltic Sea

1. Introduction

The HELCOM Fish Group initiated a discussion in 2016 (FISH 5-2016) on the provision of fisheries data to facilitate assessment of the HELCOM core indicator “Number of drowned mammals and water birds in fishing gear” as well as the pre-core indicator “Cumulative impacts of fisheries on benthic biotopes”, related to the assessment of Descriptor 1 and 6 of the Marine Strategy Framework Directive and taking into account the EU Data Collection Framework for the collection of fisheries and aquaculture data (DCF)¹ and its implementation regulation (EU-MAP)². The aim is to facilitate an assessment of the indicators as part of the HOLAS III assessment planned to be developed by 2021, which will serve as an element for EU Member States to report nationally on MSFD Art. 8 and 9 assessment in 2024.

Furthermore, recognizing the role of the State&Conservation Working Group in coordinating work on the HELCOM indicators, HELCOM FISH invited State&Conservation to give advice on data necessary for assessing the impact of fisheries on marine ecosystems, in order to ensure that the collected data serve the scientific purpose of the HELCOM indicators (STATE&CONSERVATION 6-2017).

HELCOM FISH 7-2017 established a Correspondence Group for Fisheries Data (CG FISHDATA) tasked with developing a draft Roadmap on fisheries data in order to assess incidental bycatches and fisheries impact on benthic biotopes in the Baltic Sea to be submitted to HELCOM Fish. After several meetings and discussion the Fishdata group agreed that the Roadmap should identify available fisheries data that could be used to meet data needs for assessing the indicators (section 3); and propose potential options for addressing any remaining demands for data gaps or improved data quality (section 4). Section 5 describes how the Roadmap will be communicated and taken forward.

2. Context

Monitoring by-catch of marine mammals and sea birds as well as well as impact of fisheries on the sea bottom and benthic communities is important in order to assess the two indicators.

This Roadmap on collection of fisheries data, not only should deliver answers to the questions included in the two HELCOM core and pre-core indicators, but it also reflects several HELCOM and EU commitments which put an emphasis on a necessity to monitor by-catch of protected species as well as impact of fisheries on a sea bottom and benthic communities. These are especially:

The HELCOM Baltic Sea Action Plan and Ministerial Declarations

The **Baltic Sea Action Plan (BSAP)** and HELCOM **Ministerial Declarations from 2010 and 2013** include commitments related to assessing different pressures on the marine environment, including fisheries, within the context of HELCOMs role as the coordinating platform for the regional implementation of the EU Marine Strategy Framework Directive (EU MSFD) in the Baltic Sea. By-catches of marine mammals and sea birds as well as the impact of fisheries on the benthic habitats in the Baltic Sea are an integrate part of these assessments.

¹ REGULATION (EU) 2017/1004 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2017 on the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy and repealing Council Regulation (EC) No 199/2008 (recast)

² COMMISSION IMPLEMENTING DECISION (EU) 2016/1251 of 12 July 2016 adopting a multiannual Union programme for the collection, management and use of data in the fisheries and aquaculture sectors for the period 2017-2019

The Marine Strategy Framework Directive, Habitats and Birds directives

The EU **Marine Strategy Framework Directive** (2008/56/EC) (MSFD), and specifically the Commission Decision COM 2017/848/EU, instructs Member States to establish threshold values and assess the status and pressures on the marine environment in accordance with several criteria.

Criterion D1C1 concerns bycatch of sea mammals, birds, and non-commercially exploited fish species³. The MSFD prescribes that Member states shall establish threshold values for the mortality rate from incidental by-catch of species of birds and mammals, which are at risk from incidental by-catch. Criterion D1C2 states that Member States shall establish a set of species representative of each species group according to the criteria laid down in the Commission Decision.

Criterion D6C2, D6C3 and D6C5 concerning sea-floor integrity and the impacts of physical disturbance to seabed requires Member states to assess the extent and distribution of physical disturbance pressures on the seabed.

Reporting under Art. 8 of the MSFD is currently based on national MSFD indicator assessments (where they exist) and otherwise on evaluation criteria according to other EU Directives.

The **Habitats Directive** (92/43/EEC), obliges EU members to monitor bycatch of protected species (Art. 12: Member States shall establish a system to monitor the incidental capture and killing of the animal species listed in Annex IV). In the light of the information gathered, Member States shall take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned.

The system of protection set out in Article 5 of the **Birds Directive** (2005/147/EC) requires clear, effective and well monitored measures to prevent deliberate killing or capture of birds, also from incidental catch in fishing gear. This applies to the whole territory of a Member State and additional rules apply in special protection areas (SPAs) which are part of the Natura 2000 network under the Habitats Directive.

The Common Fisheries Policy and related commitments

EU **Common Fisheries Policy** includes overarching commitments to be coherent with the Union environmental legislation, in particular with the objective of achieving a good environmental status by 2020 (EU 1380/2013, Art. 2.5.j). It also puts emphasis on assessing the impact of fisheries on marine environment (EU 1380/2013, Art.25.1.b). This includes for instance national data collection and monitoring activities, as well as data collection under the multiannual Union programme for the collection, management and use of data in the fisheries and aquaculture sectors (**EU-MAP**) for the period 2017-2019, for those countries which are EU members (EC Implementing Decision 2016/1251). The table 1D included into the EU-MAP, specifies which bird species and marine mammal species (also other groups of protected species such as fish and reptiles) have to be monitored as bycatch in fishing gears. The present EU-MAP has been rolled over for the period 2020-2021. Any new data collection under the DC-MAP will therefore only be considered in the preparation of a new programme starting 2022. In accordance with the EU-MAP, EU Member States collect data if these data are not collected in accordance with other EU regulations e.g. the EU Control Regulation (1224/2009) and its Implementing Regulation (404/2011). The EU Control Regulation specifies what type of fishing vessel tracking system is mandatory and how fishing effort shall be reported. Vessels ≥ 12 m in length must have a Vessel Monitoring System (VMS) and an electronic logbook. Vessels > 10 m in length (> 8 m in the Baltic Sea when they have a cod quota⁴) must have a logbook. Smaller vessels are not required to carry a logbook or fill out a landing declaration. For smaller vessels estimates of effort are derived by individual EU Member States in a variety of ways, such as monthly journals (Sweden), sales records (Denmark) or extrapolated sampling data.

³ Non-commercially exploited fish species not part of the scope of this roadmap.

⁴ According to Reg. 2016/1139

In addition, according to Directive 2002/59/EC, vessels ≥ 15 m in length must carry Automated Identification System (AIS)⁵. VMS signals implemented by the **EU Control Regulation** including a vessel's position, speed and course are usually transmitted once every 2 hrs⁶, AIS system allows assessment of the vessels' position every few seconds.

Requirements concerning fishing gears and techniques allowed for the Baltic Sea, as well as other environmental monitoring requirements, are included into the **Technical Measures Regulation**⁷ repealing, among others, EU Regulation 812/2004. According to this regulation, Member States shall design and implement monitoring schemes for incidental catches of cetaceans using observers on vessels ≥ 15 m in length providing representative data of the fisheries concerned. Observer reports shall include fishing effort (expressed as total net length x fishing hours for passive gear and numbers of fishing hours for towed gear). For vessels < 15 m cetacean bycatch data shall be collected by means of appropriate scientific studies or pilot projects⁸. Technical Measures Regulation also puts more emphasis on regional cooperation (under the Common Fisheries Policy regionalisation). That allows the development of specific solutions (e. g., for the Baltic Sea under the Baltic Sea Fisheries Forum BALTFISH), what can also include optimising bycatch monitoring of marine mammals and waterbirds.

Financing of the data collection under the DCF/EU-MAP has been already covered by **the European Fisheries and Maritime Fund** for years 2014-2020. In the new EMFF financial perspective for years 2021-2027, higher emphasis should be put on data collection and control activities and the perspectives are such, that at minimum 15% of the future EMFF allocation is to be given to this scope of support. Some Member States already allocate a much higher fraction of their EMFF funds for this purpose. After entry into force of the new EMFF for years 2021-2027, new monitoring requirements can be decided under EU-MAP. Whether, this new financial perspective provides additional monitoring opportunities for Member States, will also depend on decision taken in each MS, which will be given higher flexibility in deciding on their new EMFF financing priorities.

The indicators

HELCOM core indicators such as the Core indicator "Number of drowned mammals and water birds in fishing gear" and relevant seafloor and benthic habitats indicators (e.g. "Cumulative impacts on benthic biotopes") are relevant to the work of EG Fishdata. Furthermore, other processes such as the outcomes of ICES workshops WKBEDPRES1, WKBEDLOSS, the autumn 2019 WKBEDPRES2, and the work of WGFBIT may be relevant. These existing indicators will contribute to overall assessments of by-catch and seafloor integrity/benthic habitats for the purposes of the Baltic Sea Action Plan and in evaluation progress towards Good Environmental Status (GES) under the EU Marine Strategy Framework Directive⁹, for those HELCOM Contracting parties that are also EU Member States.

To support HELCOM indicator assessments and ensure that functional data flows are available, the HELCOM Monitoring and Assessment Strategy, adopted by the 2013 Copenhagen HELCOM Ministerial Meeting, exists, and is supported by Monitoring and Assessment Guidelines defining the best practices and acceptable data collection required to support each relevant indicator assessment. This strategy outlines that the core indicators are to be regularly updated, a process involving a lead/co-lead country approach, which allows for periodical thematic and holistic assessments, such as the State of the Baltic Sea second Holistic Assessment adopted in 2018, to occur. In order for each HELCOM core indicator to be fully regionally coordinated, each indicator should have common monitoring guideline, which is followed by Contracting Parties, quality

⁵ According to Directive 2002/59/EC of the European Parliament and of the Council of 27 June 2002 establishing a Community vessel traffic monitoring and information system and repealing Council Directive 93/75/EEC.

⁶ According to Implementing Regulation (404/2011)

⁷ REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the conservation of fishery resources and the protection of marine ecosystems through technical measures, amending Council Regulations (EC) No 1967/2006, (EC) No 1098/2007, (EC) No 1224/2009 and Regulations (EU) No 1343/2011 and (EU) No 1380/2013 of the European Parliament and of the Council, and repealing Council Regulations (EC) No 894/97, (EC) No 850/98, (EC) No 2549/2000, (EC) No 254/2002, (EC) No 812/2004 and (EC) No 2187/2005

⁸ from Reg. 812/2004. At the time of writing the revised Technical Measures Regulation has not been published.

⁹ <http://www.helcom.fi/baltic-sea-trends/indicators/background>

assurance programme and working data flow arrangements including common database / access point where data resulting from monitoring programmes should be reported (doc. 3J-20, STATE&CONSERVATION 8-2018).

The existing [by-catch indicator](#) is generally descriptive due to the need for better data flows to support a full and operational assessment. Other relevant aspects that will follow, include defining and gaining approval on threshold values (e.g. via State and Conservation then HOD), and issues raised during the 'Future work on HELCOM indicators' process (HOD 54-2018 Outcomes paragraph 4.25, document 4-5), a process overseen by the GEAR Working Group. At the first HELCOM Indicator workshop in this process (HELCOM Indicator WS 1-2019) by-catch was considered to be a priority area on which developments should take place to have an operational indicator ready in advance of the third holistic assessment, with a deadline for development in autumn 2021. A supporting summary related to the topic of [indicator development on by-catch](#) is available as part of this ongoing process. One further issue discussed at the first indicator workshop was the potential need to consider by-catch of non-commercial fish and relevant regionally agreed lists of species to consider.

The pre-core HELCOM indicator "Cumulative impacts on benthic biotopes" is being further developed and with recent developments being [presented at State and Conservation](#), providing an overview of test cases carried out in German waters. The topic of benthic habitats has also been identified as an area of high priority by HELCOM Indicator WS 1-2019, with a view to defining what assessment can be developed in time for the third holistic assessment of the Baltic Sea. Further work on this topic is underway.

3. Meeting data needs with currently available fisheries data

State&Conservation has coordinated work on the development of indicator reports with descriptions of optimal monitoring (HELCOM INDICATORS)¹⁰. On the basis of these reports, Poland and the indicator lead for the bycatch indicator further outlined data that could be used for an assessment of the indicators, which was included in an inventory of HELCOM data needs¹¹ submitted to STATE&CONSERVATION 6-2017 and to FISH 6-2017 for consideration.

Considering the indicator reports and the inventory, EG Fishdata has identified the following fisheries data that may be required for assessing the two indicators; the core indicator "Number of drowned mammals and water birds in fishing gear" and the pre-core indicator "Cumulative impacts on benthic biotopes".

For both indicators it is imperative to have information on the distribution of fisheries on an appropriate spatiotemporal scale, with what gear and with what effort in relation to the impact. Some of the key data sources for this information are:

- Logbook recordings, sales notes, monthly journals, coastal logbooks, etc.
- VMS, AIS or other sources of GPS data (Black box¹², etc.)
- Vessel register data (in some cases for assuming gear use)

In order to be able to produce a regionally comparable assessment of the indicators it would be useful if the metric of effort was comparable between all vessels fishing in the same métier, regardless of their size.

Section 3a and 3b describe fisheries data needs for the two indicators, how they could be addressed using fisheries data that is already being collected, and what issues remain to be addressed in terms of data gaps and data quality. Suggestions for how to address remaining issues are elaborated on in section 4. In cases where environmental data is required in order for the fisheries data to be useful, this is highlighted.

¹⁰ CORE Indicator: Number of drowned mammals and water birds in fishing gear: <http://www.helcom.fi/baltic-sea-trends/indicators/number-of-drowned-mammals-and-waterbirds-in-fishing-gear/>

¹¹ Inventory of HELCOM data needs (last version): <https://portal.helcom.fi/meetings/CG%20FISHDATA%201-2018513/MeetingDocuments/Document%205%20Inventory%20of%20HELCOM%20data%20needs%20to%20assess%20incidental%20by-catches,%20fisheries%20impact%20on%20benthic%20biotopes.pdf>.

¹² Black box is used in a Danish mussel dredge fishery as a precise vessel tracking system, especially in Natura 2000 sites.

3a Core indicator on bycatch – “Number of drowned mammals and water birds in fishing gear”

Overview of data needs

For both marine mammals and water birds, drowning in fishing gears is considered a significant pressure for some populations.

The indicator “Number of drowned mammals and water birds in fishing gear” aims to estimate the mortality of mammals and birds due to fisheries bycatch. The indicator is to deliver a bycatch rate. Data on bycatch in order to assess whether the mortality of marine mammals and seabirds due to bycatch in fishery is at a level threatening the population status are necessary. Such an assessment allows for decisions on if further management actions in fisheries management are required. For such assessments, it is essential that bycatch numbers are related to monitoring or sampling effort (ICES Advice 2017). Otherwise, no extrapolations to total bycatch numbers are possible.

Data needs in relation to temporal and spatial distribution of passive fisheries (e.g. gillnets, trammel nets, traps) is dependent on availability and resolution of VMS, AIS, logbook data and vessel register data.

In order to use available data in the best possible way and to assess ways to gather additional data in a cost effective manner different initiatives are relevant.

Since 2018, the ICES Working Group on bycatch of protected species (WGBYC) issues an annual data call on total fishing effort, monitoring/sampling effort and protected species bycatch incidents. The data supports ICES annual advice on the impact bycatch on small cetaceans and other marine animals to answer a standing request from the European Commission for advice on the impacts of fisheries on the marine environment. The majority of the countries submitted data but the quality and quantity of the data provided varies widely among nations. There are also difficulties in estimating the total effort of all vessel segments (different size classes) as their effort is reported in different metrics

It is important to note that to assess the conservation threat posed by fishery bycatch to a particular protected species three bits of information are required, these are:

1. the susceptibility of that population to bycatch in particular fisheries (based on sufficient observed effort data and recording of bycatch incidents for each fishing gear);
2. the spatiotemporal scale of the fisheries concerned (based on total fishing effort for each fishing gear);
3. the resilience of the population to bycatch (based on population abundance and recovery potential and other pressures). This analysis is outside the scope of this Roadmap but is however very important when estimating the threat to different species related to incidental bycatch.

The WGBYC data call gathers information to estimate 1) and 2). The WGBYC data call does not provide data to estimate 3), since resilience depends on the population abundance and its ability to grow and recover. Data to assess 3) is also needed to set targets for the indicator but is not the focus of this Roadmap and may originate from scientific studies on birth and mortality rates, as well as national and international scientific surveys to estimate trends of bird and mammal population abundances. The ICES/OSPAR/HELCOM JWGBIRD has initiated work to enable assessment of 3). The basis for the ICES advice on “Bycatch of cetaceans and other marine animals” is available online¹³.

In conclusion, the following types of data are needed to further operationalize this indicator the:

- data on bycatch
- regional, temporal and spatial overview of fishing effort for specific métiers, especially but not limited to gillnetters and fleet segments

¹³http://ices.dk/sites/pub/Publication%20Reports/Guidelines%20and%20Policies/16.3.3.2_Basis_for_the_advice_on_Bycatch_of_small_cetaceans_and_other_marine_animals.pdf

- data on the distribution and population size of the relevant species (not dealt with within the context of this roadmap as not fisheries data)

Data on bycatch

ICES collects effort related information on bycatch of protected species from monitoring under Reg. 812/2004 and other monitoring programmes (currently mainly DCF). ICES Advice (2017)¹⁴ ¹⁵state that bycatch observations “are insufficient to enable any assessment of the overall impact of EU fisheries on [marine mammals]”. But such assessments are required: COM DEC 848/2017 states that bycatch data needs to be on species level in order to assess the impact of fisheries on marine mammal and waterbird species. The species to be assessed under primary Criteria D1C1 and D1C2 are to be selected on the basis of scientific and other additional criteria. Therefore, it is important to record on species level in monitoring programmes that already exist and also take this into account when designing new monitoring programmes or scientific studies.

It has been highlighted in the ICES Advice (2017) that EU Member States need accurate bycatch rates to assess whether or not species are at risk from fisheries. Monitoring effort must concentrate on relevant fisheries. E. g., for seabirds in the Baltic Sea priority should be given to monitoring in trammel nets and set gillnets (ICES Advice 2015)¹⁶. Assessment of and Advice on the bycatch of protected species will also need information on both monitored and total effort in the relevant fisheries to allow for extrapolations (ICES Advice 2017).

The annual *ICES Advice on bycatch of small cetaceans and other marine animals* evaluates the bycatch of cetaceans in selected sea areas using a bycatch risk assessment approach (BRA). In their impact assessments, data from the ICES WGBYC database is pooled over many years. E.g., the bycatch of harbour porpoises in static nets in the Kattegat and the Belt Sea has been evaluated in 2015 and 2016 based on bycatch data pooled for the years 2006-2013 and 2006-2014, respectively (ICES Advice 2015, 2016)¹⁷. This is due to a very low observed effort in national bycatch monitoring programs. Observed effort could be significantly increased using Remote Electronic Monitoring (REM) (ICES WGBYC 2015)¹⁸. Often, ICES does not raise bycatch observations reported by Member States to assess total mortality due to uncertainties in fishing effort data (see section “overview of data needs”, this chapter) and as a consequence, no assessments are possible (e.g., ICES Advice 2015, 2016). ICES reiterate that available information is insufficient to evaluate the impact of fisheries on seabirds and other vertebrates (ICES Advice 2018)¹⁹.

¹⁴ <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/byc.eu.pdf>

¹⁵ ICES 2017 ICES Advice (Ecoregions in the Northeast Atlantic and adjacent seas Published 29 August 2017). Bycatch of small cetaceans and other marine animals – review of national reports under Council Regulation (EC) No. 812/2004 and other information. 4 pp.

¹⁶ http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2015/2015/Bycatch_of_PETS_Advice_2015.pdf#search=wgbyc

¹⁷ . [ICES 2015 ICES Advice \(Ecoregions in the Northeast Atlantic and adjacent seas Published 15 April 2015\). 1.6.1.1 Bycatch of small cetaceans and other marine animals – Review of national reports under Council Regulation \(EC\) No. 812/2004 and other published documents. 5 pp.](#)

[ICES 2016 ICES Advice \(Ecoregions in the Northeast Atlantic and adjacent seas Published 15 April 2016\). 1.6.1.1 Bycatch of small cetaceans and other marine animals – review of national reports under Council Regulation \(EC\) No. 812/2004 and other information. 6 pp.](#)

¹⁸ [ICES WGBYC 2015. ICES ACOM COMMITTEE ICES CM 2015\ACOM:26 Report of the Working Group on Bycatch of Protected Species \(WGBYC\). 2-6 February 2015. ICES Headquarters, Copenhagen, Denmark. 80pp.](#)

¹⁹ [ICES 2018. ICES Advice \(Ecoregions in the Northeast Atlantic and adjacent seas Published 11 September 2018\). Bycatch of small cetaceans and other marine animals – review of national reports under Council Regulation \(EC\) No. 812/2004 and other information. 4 pp.](#)

The BRA approach explicitly recognizes the uncertainty in the overall bycatch rate estimate (its precision) by presenting estimates as 95% confidence intervals. This would result in a very wide range of annual bycatch totals where data are scarce (ICES WGBYC 2015). This limits the possibility to make precise statements about possible population consequences²⁰. Sources for potential bias have been identified by ICES (observations cover a wide range of vessel types and métiers, sampling concentrates on larger vessels with higher fishing effort, smaller vessels not fully represented, data not representative of the nature and diversity of the gillnet fisheries) but are not specifically addressed. Further, no account is taken of spatial heterogeneity, mesh size or other gear characteristics (ICES Advice 2015) which would be extremely helpful to inform management as this would enable concentrating management action in the most relevant fisheries.

Sampling under the current DCF can contribute to the assessment of bycatch of Protected, Endangered and Threatened Species (PETS), but is largely insufficient on its own as currently implemented by Member States. Assessments carried out by WKBYC (2013) and WGBYC (2018) showed that bottom trawling is generally relatively oversampled with respect to monitoring of protected species bycatch, while in the Baltic Sea gears subject to under sampling include fyke nets (FYK), trammel nets (GTR), set gillnets (GNS), set longlines (LLS), pots and traps (FPO) (ICES WGBYC 2015, 2018, 2019)^{21,22}.

Regional, temporal and spatial overview of fishing

There is a need to improve recording of bycaught marine mammals and sea birds on vessel level in the Baltic Sea. In the meantime, assessments of the total amount of the different species, by-caught in fisheries effort related data on static gears and information from scientific projects and surveys are used in order to have best possible estimates. Currently, no comparable effort data from all vessels of different sizes is available (VMS: hours fished, logbook: days at sea). In reporting total effort of static nets to ICES, Member States choose between five different metrics (ICES WGBYC 2018). “**Days at sea**” (DaS) is the only aggregated unit of fishing effort that is consistently reported among Member States (mandatory for vessels >15 m but often provided also for some smaller vessels) and hence, ICES WGBYC is reporting bycatch rate estimates in units associated with DaS. ICES WGBYC (2019) however, concluded that due to inconsistencies the 2017 fishing effort data from the ICES Regional DataBase and Estimation System (RDBES) could not be used for their PETS bycatch estimates. RDBES is intended to be the data basis for future advice on bycatch of cetaceans and other marine vertebrates.

For describing bycatch risk, however DaS is only a very rough proxy for the dimensions of nets and thus a very inaccurate variable. This is because a day at sea could be either the setting or the recovery or both of any net of a few 100 m up to 21 km (9 km if vessel is ≤12m) length of the net. To increase the precision of extrapolations (from bycatch rate per effort to total bycatch) the preferred metric would be total “*soak time of nets in kilometer hours*” as required in Reg. 812/2004) for the observed effort already.

To that end, fishing effort needs to be measured sufficiently accurately to be able to make reliable assessments. Although soak time and net length may not be fully available for the necessary fleet segments. In the Baltic Sea a comparable methods across the region and across fishing fleet segments is important to be able to make coherent assessments.

The current obligations for the recording rate of fishing positioning systems give a limited view of where and when the fisheries takes place and with what effort. Furthermore, small vessels are not obliged to carry VMS equipment. These currently only report effort at the resolution of Baltic Squares (1/9 of the basic Baltic Sea ICES statistical rectangle). The positioning of fishing effort is especially important in relation to a hotspot approach to by-catch mitigation fisheries management measures.

²⁰ Further uncertainties are on the side of the population model which is not the focus of this document.

²¹ [ICES WGBYC 2018. ICES ADVISORY COMMITTEE. ICES CM 2018/ACOM:25. Report from the Working Group on Bycatch of Protected Species \(WGBYC\). 1–4 May 2018, Reykjavik, Iceland. 128pp.](#)

²² [ICES WGBYC 2019. ICES ADVISORY COMMITTEE. ICES CM 2019/ACOM:xx. Report from the Working Group on Bycatch of Protected Species \(WGBYC\). 5-8 March 2019. Faro, Portugal. xxpp.](#)

Data aggregated on a monthly basis would enable extrapolations from observed bycatch rate per effort on total effort during months in which a species occurs in the area (especially important for overwintering birds) as an extrapolation to yearly effort could result in an overestimation of bycatch numbers (ICES WGBYC 2019).

3b Pre-core indicator on cumulative impacts on benthic biotopes

The HELCOM pre-CORE indicator “Cumulative impact on benthic biotopes”, aims to assess the impact of fisheries on marine benthic habitats/biotopes, among the impacts of other human activities.

The benthic biotopes in the Baltic are adversely affected by several human activities causing physical disturbance to the sea floor. Fisheries with mobile bottom contacting gear is a widespread activity in many parts of the Baltic Sea. In order to assess the total cumulative impacts on benthic habitats in the Baltic Sea, data on the distribution and effects of mobile bottom contacting gear on the seabed is essential.

In general, the EG Fishdata finds that data is available to deliver on the indicator on cumulative impacts.

ICES has different Working Groups that work with sea floor impact from fishing gear (WGFBIT, WGSFD). On the basis of the work done in these working groups, ICES advises on the environmental impacts of fishing and the use of space in the North East Atlantic and Baltic Sea. VMS data from vessels, coupled with log book data, is currently the most practical and cost-effective way to describe the spatial dynamics of fishing activities (ICES 2018)²³.

Data flows and quantitative methodologies for assessing the physical disturbance from bottom fishing, currently exist within ICES and were deemed appropriate for EU, e.g. MSFD purposes for assessing the seafloor. The ICES assessment framework consists of three main components: fishing pressure (footprint), benthic habitat sensitivity and the resulting benthic impact. The framework is also capable of estimating trade-offs relating to the distribution of impact with other factors important for management (e.g. fisheries economics).

Regional impact assessments as well as further methodological development takes place within the three year (2018-2020) ICES Working Group on Fisheries Benthic Impact and Trade-offs (WGFBIT). On the basis of the WGFBIT work (see WGFBIT three-year work plan), ICES has the objective that the respective indicators become operational across the whole EU and ICES areas (also the Baltic).

The basis for ICES assessment on “sea bottom integrity” - is available within the WGFBIT report as “*Annex 4 Technical guidelines document for assessing fishing impact from mobile bottom-contacting fishing gears*”.

The described methods build on ICES (2017a,²⁴ 2017b²⁵) advice that has established a set of indicators to assess seafloor integrity, in terms of the spatial extent and distribution of pressures classed under both assessment criteria (physical loss D6C1 and physical disturbance D6C2) and their impact for each broad habitat type, within each ecoregion and subdivision. The seafloor assessment framework suggested by ICES (Figure 1, below) also allows for evaluation of trade-offs between catch/value of landings per unit area and the environmental impact and recovery potential of the seafloor.

²³ ICES. 2018. *Report of the Working Group on Spatial Fisheries Data (WGSFD), 11–15 June 2018, Aberdeen, Scotland, UK. ICES CM 2018/HAPISG:16. 79 pp*

²⁴ ICES, 2017a. *Report of the Workshop to evaluate regional benthic pressure and impact indicator(s) from bottom fishing (WKBENTH), 28 February–3 March 2017, Copenhagen, Denmark. ICES CM 2017/ACOM:40. 233 pp.*

²⁵ ICES. 2017b. *EU request on indicators of the pressure and impact of bottom-contacting fishing gear on the seabed, and of trade-offs in the catch and the value of landings. ICES Special Request Advice - sr.2017.13. Published 6 July 2017*

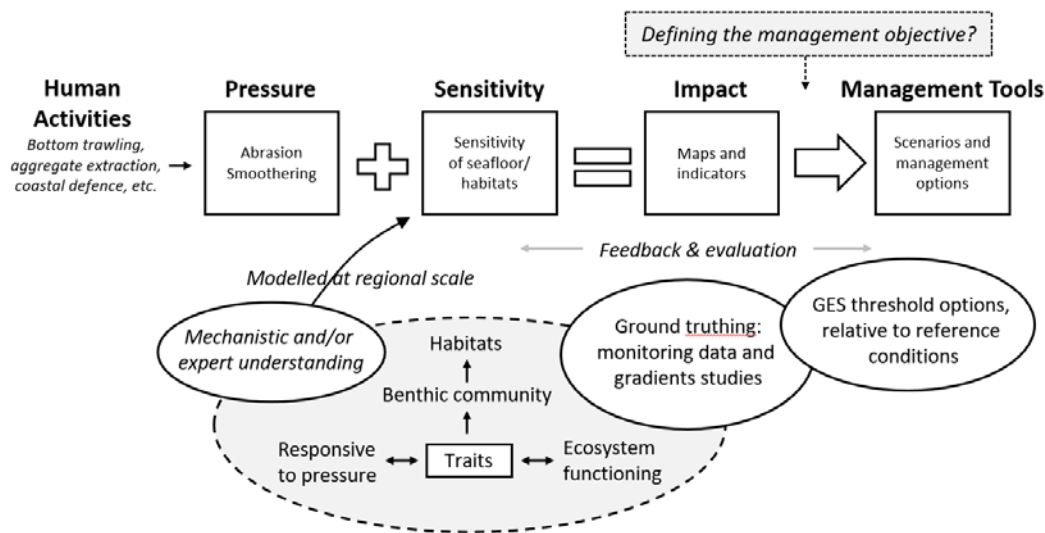


Figure 1. Conceptual diagram of the steps taken in developing management tools for assessing pressure and impact on the seafloor (ICES 2019).

ICES regularly calls for data from Member States in order to have the most relevant and up to date data for their work.

When interpreting fishing pressure maps for mobile bottom contacting gears, a number of factors are relevant with regard to the precision of the results of the work done by ICES:

Fishing vessels without VMS

The ICES data call requests VMS data, but part of the European fishing fleet is not covered by VMS. Fishing vessels smaller than 12 meters are not required to have VMS. According to EU (1224/2009, article 9) fishing vessels of less than 15 meters length fishing in territorial waters of the flag Member State or never spending more than 24 hours at sea from the time of departure to the return to port are not required to have VMS. Member States are implementing this article differently, some requiring VMS on all vessels above 12 m.

The vessels without VMS are often fishing in coastal areas, and many of the smaller vessels are using passive gears. Although there is currently no EU requirements for the vessels without VMS to have vessel position data, there are several examples of national legislation requiring part of this fleet to have vessel position data.

AIS data is only a requirement for fishing vessels larger than 15 m, but some smaller vessel are using the AIS security system, and these data can give information on fishing activity for a proportion of the fleet without VMS. One of the ToRs proposed for WGSFD 2019 is to evaluate inclusion of AIS data in the ICES data call.

For vessels, carrying VMS-equipment the frequency of a signal varies between different Member States (every 1 or 2 hours). A more frequent signal or cumulated position data packages and improving the reporting concerning gear types and fishing effort in the logbooks would increase the accuracy of the pressure maps.

The EU GDPR regulation²⁶ puts some limitations on the use and publication of fisheries data. Agreements and systems for handling of fisheries data are needed in order to allow for the best possible use of this data.

4. Addressing remaining demands for improved data and data quality

Section 3 of this roadmap highlights that the existing data are not sufficient to give precise estimates of sea bird and mammal bycatches to operationalize the indicator “Number of drowned mammals and waterbirds

²⁶ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)

in fishing gear". There are also some shortcomings in the data used for the indicator on "Cumulative impact on benthic biotopes".

Generally, logbook and VMS data (>12 meter) are available. For vessels above 15 meter, AIS is also available. Several smaller vessels (<12 meter) may carry AIS although this is not mandatory.

ICES has for years issued data calls on fishery effort. Hence, data is available at diverse temporal resolutions. Overlaying data layers on fisheries with other anthropogenic data layers may be challenged by 'scale', which several studies have and is currently addressing in relation to MFSD.

In general, data is available to deliver on the indicator on cumulative impacts. Work can be done to improve data quality (VMS data for vessels <12 m etc.) as well as data availability to data users. As for the indicator on bycatch, available data will not deliver on the indicator. In this section, the Roadmap outlines what is required in relation to data collection, if HELCOM Contracting Parties and/or EU Member states are to deliver on this indicator.

A number of possible actions are suggested to improve the data availability and data quality. These initiatives will also contribute to fulfilling requirements under the MSFD and the Habitats Directive.

Actions related to fisheries effort

- Increase precision of monitoring fisheries effort. E.g. by changes in reporting intervals (VMS) or using aggregated position information in transmissions.
- Expand the obligation to keep a logbook which would contain the most needed information for all vessels independent of their size: Essential information are length, height (drop) and soak time of the net.

Actions related to bycatch data

- Initiate dedicated research projects to collect data on bycatch in relevant fishing métiers coordinated between Contracting Parties.
- Initiate dedicated bycatch monitoring of protected species (marine mammals and relevant sea bird) or research projects dedicated to estimate bycatch rates and /or for identifying hot-spot bycatch areas.
- Bycatch monitoring can be conducted with onboard observers or - more cost-effective - with Remote Electronic Monitoring (REM)
- Focus of bycatch monitoring of most relevant métiers (gill- and entangling nets)
- Main focus should be on regions identified as hotspots
- Identifying possible national and international funds for bycatch data collection especially in the new EMFF financial perspective for years 2021-2027

Increase precision of tracking

- The current revision of the EU Control Regulation provides an opportunity to ensure better monitoring and control of fishing operations, including implementation of a tracking system for vessels below 12 m.
- With respect to locating effort using passive gears such as gillnets, the use of smartphone apps by fishermen would provide the opportunity to enhance data quality and quantity. This is especially the case for small vessels.

Possible actors involved: fisheries authorities of HELCOM Contracting Parties, BALTFISH to discuss possible regional initiatives, MEP's, DG Mare, DG Environment.

The Commission has presented a proposal for a new EU Control Regulation in May 2018. Negotiations expected continue during the coming 1-2 years.

Increase precision of effort monitoring

Harmonisation of data entries in logbooks with respect to a metric more useful than “days at sea” (DaS) would increase the precision of effort assessments. To increase the precision of extrapolations (from bycatch rate per effort to total bycatch) the preferred metric would be total “**soak time of nets in kilometer hours**”. This simple but very effective improvement in logbook requirements can be addressed in the revision process of the control regulation and also at BALTFISH in order to harmonise this at a regional level. It is useful that vessels of all sizes record the same metrics. In order to make use of ICES WGBYCs database covering a long time but based on DaS it would be desired to keep DaS as additional variable for reporting.

The drop of the net is also relevant information with respect to bycatch risk but this is not required to be recorded in logbooks. The current Control Regulation 1224/2009 (Article 14) does not specify how the dimensions of a net must be recorded in a log book. From the perspective of bycatch risk it should be length and height (drop) of a net.

Since logbooks are only kept on fishing vessels >10 m (or 8 m if vessels have a cod quota), a large number of vessels using gillnets and other passive gear do not provide the information needed for a precise effort estimation. Expanding the obligation to keep a logbook which would contain the most needed information to be used specifically to estimate by-catch would further increase the precision of bycatch estimates. This can also be addressed in the revision process of the control regulation and also at BALTFISH.

Actors involved: fisheries authorities of HELCOM Contracting Parties, BALTFISH, MEP’s, DG Mare, DG Environment

Initiate research projects to collect data on bycatch in relevant fishing métiers coordinated between Contracting Parties

Regionally coordinated research projects on bycatch would much enhance the data quality and be a first step to fulfill the data requirements according to the Habitats- and Bird Directive and the MSFD. This can be achieved with onboard observers or - more cost-effective - with remote electronic monitoring (REM) (Kindt-Larsen et al. 2013). As the main focus of DCF on-board sampling is on different métiers than those known to produce most of the bird and mammal bycatch in the Baltic Sea, additional bycatch information is needed especially for passive fishing methods such as gillnets and trammel nets in order to have better by-catch data. If this has to be done in a cost-effective way, it is possible to do this in a cycle of e.g. 3 or 6 years²⁷. A longer than annual cycle could provide added value as the monitored effort in a particular year could then be larger using less money compared to a regular monitoring (e. g., in the DCF at-sea-sampling programme) in which bycatch is only one of many aspects observers have to deal with. In order to get the best benefit out of this it would be desirable to coordinate such projects between Contracting Parties and include as many Contracting Parties as possible. This is because e.g., harbour porpoise by-catch rates are expected to differ along a gradient of density/occurrence and also with respect of regional/local differences in fishing practices.

Actors involved: fisheries and environmental authorities of HELCOM Contracting Parties, funding agencies, scientific institutions

Dedicated bycatch monitoring of protected marine mammal and relevant sea bird species

A comparison of bycatch data collected by dedicated²⁸ observers with data obtained through other monitoring programmes (such as DCF) revealed that bycatch rates in programmes dedicated to bycatch, resulted in much higher bycatch estimates. Although the monitoring programmes compared were not in the same fisheries or precisely the same areas or at the same time, the scale of the difference has been so large that ICES advises that specifically designed monitoring schemes including dedicated observers or REM are required if good estimates of protected species bycatch are required (ICES Advice 2016). Reasons for this could be that in DCF monitoring bycatch (e.g., bycaught animals slipping out of a net before entering the vessel) can be overlooked by observers when performing other tasks (ICES WGBYC 2018, 2019).

²⁷ MSDF and HBD reporting is every 6 years.

²⁸ The term “dedicated monitoring” is used to define programs that are specifically aimed (through sampling design and data collection protocols) to obtain data for the typically rare bycatch events of protected, endangered or threatened species.

Actors involved: fisheries and environmental authorities of HELCOM Contracting Parties, funding agencies, scientific institutions, RCG Baltic

Give the DCF Observer programme a stronger focus on métiers more relevant for bycatch

Currently, DCF Observer programmes focuses mainly on trawl fisheries. If DCF monitoring were to provide data on bycatch of mammals and birds in a quality suitable for precise bycatch assessments, it would be necessary to increase the observer coverage in gillnet and trammelnet fisheries as well as traps, longlines and other passive gear (ICES WGBYC 2018). It may be challenging to include a large number of small vessels, which cannot carry an additional person on board into the programme. For this purpose, additional monitoring using REM-schemes can provide a cost-effective solution. Further, including bycatch monitoring into DCF monitoring will require very careful consideration of sampling regimes and, as such, monitoring will require significant adjustments from that used for commercial fish bycatch (ICES Advice 2016). E. g., the observed effort must have to be corrected for times during which the observer was focused on different tasks than observing bird or mammal bycatch (for details see ICES WGBYC 2018 and 2019). It should though be noted that the EU funding for carrying out the national DCF programs for several years have been fully utilized and already today prioritization of what can be done in order to fulfill the CFP article 25 obligations are made.

ICES suggest that Regional Coordination Groups will need to adapt at-sea sampling designs to include data on frequency of protected species bycatch events in all relevant fisheries. In particular, gillnet fisheries are currently receiving little observation overall (ICES Advice 2017).

It is important that EU and national funding for collection of data on protected marine mammal and relevant sea bird species are made available. Collection of data for the MSFD monitoring in addition to the DCF monitoring could be made available through the new EMFF program period 2021-2027. This is important, in order to enable additional monitoring to the DCF-monitoring with a focus on bycatch of birds and mammals, fulfilling relevant MSFD monitoring requirements. EMFF negotiations are currently in progress.

Actors involved: fisheries and environmental authorities of HELCOM Contracting Parties, funding agencies (EMFF and co-funding), DG MARE, DG ENV, RCG Baltic.

Improve regional co-ordination on data collection for Union policies through EMFF direct management funding

EMFF provides a possibility for the European Commission to finance various measures through Integrated Maritime Policy (IMP). The purpose of such possibilities, among others, is to increase co-operation between different policy sectors. IMP enables a number of measures to address issues where different Union policies interface with each other and the stakeholder interest are common in different policy areas.

IMP direct management funding possibilities could improve regional co-operation on data collection for the purpose of the CFP and MSFD simultaneously. Such co-operation could consist e.g. developing or improving regional databases and assessments, pilot projects and studies and promoting dialogue between stakeholders. HELCOM, together with other regional actors such as BALTFISH and BSAC, could take the lead and form a partnership to advance such initiatives.

It is essential to maintain and preferably, improve the financing possibilities through the IMP direct management in the ongoing discussion in EU institutions on the new EMFF.

Actors involved: fisheries and environmental authorities of HELCOM Contracting Parties, BALTFISH, BSAC, funding agencies (EMFF and co-funding), DG MARE, DG ENV.

5. Follow-up and Communication

Process towards promotion and communication of the Roadmap within HELCOM

- **Contribution from work done by the HELCOM ACTION project.** HELCOM ACTION to examine/look into data availability according to the data needs identified in the Roadmap (mainly fishing effort for smaller boats) and suggest what should be done to be able to identify bycatch hot spots of harbour porpoise, as well as matters related to seabed disturbance, which is currently in the focus of the ACTION Project which is going to terminate at the end of 2020). There is a link between the ACTION Project and the update of the BSAP (see below and **Annex**).

- **Ensure relevant input to the updated Baltic Sea Action Plan.** The adopted Roadmap should be used to identify, in the updated Baltic Sea Action Plan, future actions related to bycatch and seabed disturbance. Such new actions are to be adopted in the updated BSAP by 2021. The exclusive competence of the European Union in conservation of marine biological resources under the Common Fisheries Policy, should be taken into account as appropriate.
- **HELCOM work on indicators.** Using information from the Roadmap to initiate actions to make the bycatch and seabed disturbance indicators operational by the planned HOLAS III assessment in 2021.

Process towards coordination and communication of the Roadmap outside HELCOM

- **OSPAR:** In general it is very important to coordinate work with OSPAR. Due to the fact that the Kattegat area will be assessed by OSPAR and the overlap of bird and sea mammal populations between HELCOM and OSPAR area, it is necessary to harmonise OSPAR and HELCOM indicators. A first opportunity to discuss the draft Roadmap and further joint indicator work will be the *Joint OSPAR/HELCOM Workshop to examine possibilities for developing indicators for incidental bycatch of birds and marine mammals*, (3-5 September 2019).
- **BALTFISH:** Communicate and present the Roadmap to the BALTFISH forum in the context of the envisaged communication process between BALTFISH and HELCOM regarding closer cooperation between fisheries management and the protection of the marine environment. Some technical issues connected with data needs identified in the Roadmap (e.g. to increase precision of effort monitoring) may be suggested to BALTFISH **in the first half of 2020**.
- **Regional Coordination Group (DCF) for the Baltic Sea:** Submit the Roadmap to the RCG meeting with the aim for RCG to discuss it **by first half of 2020**. RCG is suggested to discuss possible improvement of bycatch monitoring, and note the seafloor disturbance assessment in Chapter 3b of the Roadmap.
- **BSAC:** the Roadmap should be presented during discussions at upcoming meetings of the groups: (BSAC Working Group on Ecosystem based Management **by second half of 2020**, and possibly EXCOM **by first half of 2020**. Advice on solutions to address remaining data needs should be sought.
- **ICES:** HELCOM should communicate to the Advisory Committee of ICES (ACOM) and the ICES data centre on ongoing work of HELCOM FISH to harmonize a data collection roadmap to operationalize a bycatch and seafloor disturbance indicators for the Baltic Sea. Communication should note HELCOMs wish to cooperate to find solutions on existing data gaps in the Baltic Sea, in particular for bycatch monitoring for a “Number of drowned mammals and waterbirds in fishing gear” indicator. HELCOM could enquire how to best support the work of ICES working groups WGSFD and WGBYC to help resolve existing gaps in data. The intention is to harmonize ongoing work with regard to ICES’ seabed assessment framework (WGFBIT) for the Baltic Sea. This can be used to provide options on how to reduce the environmental impact of bottom fishing on seafloor habitats and marine protected areas in a cost effective way.
- **ASCOBANS:** The Roadmap should be shared with the Joint bycatch Working Groups of ACCOBAMS and ASCOBANS, ASCOBANS Advisory Committee and the JASTARNIA group, as well as the ASCOBANS Meeting of Parties in 2020.
- **European Union institutions:** Communicate the Roadmap to relevant bodies of the EU (e.g. DG Environment and DG MARE) **by the first half of 2020**.
- **EU Marine, Nature and Fisheries Directors:** Aim to present the Roadmap at the next meetings, preferably in 2020, to ensure linkage between MSFD and CFP processes.

ICES contribution to the draft Roadmap on fisheries data in order to assess incidental bycatches and fisheries impact on benthic biotopes in the Baltic Sea

ICES notes that the data requirements may be very different in order to operationalize the respective indicators being put forward by HELCOM-FISH, 1) bycatch of mammals/birds and, 2) sea bottom integrity. We note that the FISHDATA draft roadmap is well developed with regard bycatch of mammals/birds, and provide some further input as to ongoing work within ICES. For sea bottom integrity the roadmap is underdeveloped, and we thus provide some more substantive input on the ongoing ICES work.

Bycatch assessment data and methods

The basis for the ICES advice on “Bycatch of cetaceans and small marine mammals” is available online:

[http://ices.dk/sites/pub/Publication%20Reports/Guidelines%20and%20Policies/16.3.3.2 Basis for the advice on Bycatch of small cetaceans and other marine animals.pdf](http://ices.dk/sites/pub/Publication%20Reports/Guidelines%20and%20Policies/16.3.3.2%20Basis%20for%20the%20advice%20on%20Bycatch%20of%20small%20cetaceans%20and%20other%20marine%20animals.pdf)

Since 2018, the ICES Working Group on bycatch of protected species (WGBYC) issues an annual data call on total fishing effort, monitoring/sampling effort and protected species bycatch incidents. The data supports ICES annual advice on the impact bycatch on small cetaceans and other marine animals to answer a standing request from the European Commission for advice on the impacts of fisheries on the marine environment. Data are requested from 18 ICES countries and six additional Mediterranean non-ICES countries. The majority of the countries submitted data but the quality and quantity of the data provided varied widely among nations.

It is important to note that to assess the conservation threat posed by fishery bycatch to a particular protected species three bits of information are required, these are:

1. the susceptibility of that population to bycatch in particular fisheries (based on observer effort data and number of bycatch incidents recorded by fishing gear);
2. the scale of the fisheries concerned (based on total fishing effort by fishing gear);
3. the resilience of the population to bycatch (based on population abundance and recovery potential).

The WGBYC data call gathers information to estimate 1) and 2). The WGBYC data call does not provide data to estimate 3), since resilience depends on the population abundance and its ability to grow and recover. Data to assess 3) may originate from national and international scientific surveys to estimate bird and mammal population abundances.

Sea floor assessment data and methods

The basis for ICES assessment on “sea bottom integrity” - is available within the WGFBIT report as “*Annex 4 Technical guidelines document for assessing fishing impact from mobile bottom-contacting fishing gears*”.

<http://ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/HAPISG/2018/01%20WGFBIT%20-%20Report%20of%20the%20Working%20Group%20on%20Fisheries%20Benthic%20Impact%20and%20Trade-offs.pdf>

The described methods are based on ICES (2016, 2017) advice that has established a set of indicators to assess seafloor integrity, in terms of the spatial extent and distribution of pressures classed under both assessment criteria (physical loss D6C1 and physical disturbance D6C2) and their impact for each broad habitat type, within each ecoregion and subdivision. This work builds on from the old DCF Annex XII indicators 5, 6, and 7 (see 2015 ICES advice), but now also includes benthic impact estimate (biomass relative to carrying capacity) indicators. The suggested seafloor assessment framework by ICES (Figure 1, next page) also allows for evaluation of trade-offs between catch/value of landings per unit area and the environmental impact and recovery potential of the seafloor (see e.g. 2017 ICES workshop WKTRADE). Such information will be required

in the exploration of management scenarios under different policy requirements (e.g. MSFD, CFP, and the deep-sea access regulation EU 2016/2336).

Based on this ongoing (2018-2020) work, ICES is working to operationalize the suggested seafloor assessment framework (see [WGFBIT three-year work plan](#)), with respective indicators becoming operational across the whole EU and ICES areas (also the Baltic). The indicators and data collected need to be appropriate to the assessment of benthic habitats (D1) and seafloor integrity (D6) as set out in the Commission Decision 2017/848/EU. The Marine Strategy Framework Directive (MSFD) sets the broad requirement under Descriptor 6 that sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected (Directive 2008/56/EU), and the indicators will also need to serve this purpose.

Assessing the seafloor?

A newly established ICES working group WGFBIT, who met in November 2018, will be taking forward (2018-2020) the operationalizing of the ICES seafloor assessment framework (see [WGFBIT three-year work plan](#)) - with respective indicators across the whole EU, ICES areas, including the Baltic.

In addition to the established and suggested pressure data flows (see below section), WGFBIT has in their draft report recommended the integration of benthic datasets that are linked to specific functional traits (longevity/biomass) of the species. These data are required not only for a wider range of taxa, but also across a specific range of habitats within for example Barents Sea, Celtic Sea, Baltic Sea, Norwegian Shelf and the Mediterranean Sea (and others). Where data does not exist, targeted gradient studies – rather than traditional monitoring - will be required. Some data does exist via EMODnet biology data portal, but this needs to be greatly expanded. With this in mind there may be a need in the near future to establish new initiatives and/or project to target some of the identified gaps.

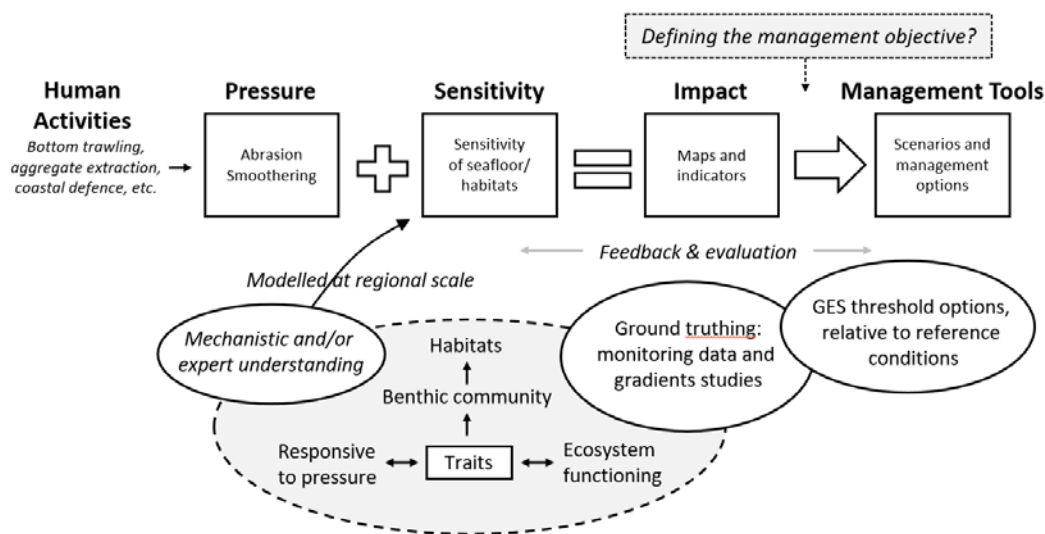


Figure 1. Conceptual diagram of the steps taken in developing management tools for assessing pressure and impact on the seafloor.

Activities to pressure data, service seafloor assessment indicators?

Pressure data gaps and requirements

Parallel to the process of indicator development, ICES has received a number of EU advice requests to map out the data needs necessary to the service seafloor assessment framework and to demonstrate its operationality. This work has already highlighted some specific data needs to service the underlying methods of the indicators. If these data needs are met, this would ensure the overall assessment of the seafloor (impact and pressure) can be featured in the future iterations of, for example, the ICES Fisheries Overviews and Ecosystem Overviews for each ecoregion (e.g. in 2020).

A recent ICES workshop ([WKBEDPRES1](#), October 2018) has identified the benthic physical disturbance (D6C2) pressure layers available within ICES and the European and wider marine community across four EU regions – including the mapping of pertinent data flows and the establishment of criteria needed to ensure the practical use of the data in assessing benthic impact. See conclusions and recommendations [page 44-46](#) of the WKBEDPRES1 workshop report.

Preliminary analysis indicated that the key human activities that resulted in physical disturbance on the seabed are very similar for the 4 EU regions examined (Baltic Sea, North East Atlantic, Mediterranean and Black Sea). Here fishing was found to be the most extensive cause of physical abrasion, with aggregate extraction and dredging also of relevance in most regions, but much less extensive.

Data flows and quantitative methodologies for the processing of physical disturbance from bottom fishing currently exist within ICES and were deemed appropriate for EU e.g. MSFD purposes for assessing the seafloor. These methodologies are in line with previous ICES advice on indicators (ICES 2016, 2017). However, similar data flows are yet to be established for the Mediterranean and Black Sea. Future calls should also take into account other sources of data reflecting activity causing seabed abrasion to allow for better coverage (e.g. AIS). Relevant data from HELCOM, OSPAR and the EMODnet human activities data portal may also be of use in the assessment and should be explored. Similar to the ICES VMS/logbook data call, data flows for other pressure (e.g. aggregate extraction and dredging) need to be better established to ensure consistent collation at the regional scale from national level. This needs to be done using data management practices, for which ICES's TAF ([transparent assessment framework](#)) is an integral part of.

In addition to physical disturbance pressures data, ICES has in 11-13 March 2019 run a similar workshop ([WKBEDLOSS](#)) to identify data flows for activities resulting in physical loss (D6C1/C4) pressures, i.e. permanent alteration of the habitat from which recovery is impossible, such as construction activities (e.g. offshore windfarms).

What about the trade-offs? To ensure more realistic scenarios will be developed under the assessment framework, a series of workshops are planned to bring together experts from ICES working groups WGFBIT, WGMARS, and WGECON. These management scenarios will have cross policy relevance (e.g. MSFD, CFP, and the deep-sea access regulation (EU) 2016/2336). Data improvements will also be at the heart of these workshops: for example, where countries might agree on standard methods in assigning landings values when answering the ICES VMS/logbook data calls.

Annex 4 Draft Work Plan 2020-2021 for the HELCOM Group on Ecosystem-based Sustainable Fisheries (FISH)

Follow-up, evaluation and revision: Progress in implementation will be followed-up annually by FISH and reported to HOD, highlighting any underlying reasons for lack of progress in meeting targets and how these may be addressed. The work programme will be evaluated and reviewed by the end of 2021. Any revisions to the Work Plan during the implementation period need to be motivated and agreed by FISH and HOD.

Emerging issues not mentioned in this Work Plan, as well as sharing of experiences related to the Terms of Reference of the group, may be raised at meetings of the Fish Group if they are communicated to the Secretariat in advance of meetings (so that such a topic can be included in a draft agenda in advance). Such items may also be raised under Any Other Business, in connection with the adoption of the agenda at meetings of the Fish Group, to be included on the agenda of the meeting subject to agreement and time permitting.

It is to be noted that some of the tasks described in the Work Plan are based on actions from the 2007 HELCOM Baltic Sea Action Plan and relevant Ministerial Declarations.

No.	TASK	STEPS/LEAD/TIMING	INTERLINKED ACTIVITIES	OUTCOME and TIME FRAME
Implementation and follow-up of actions in BSAP and Ministerial Declarations concerning fish and fisheries				
1.	Further development and implementation of common practices for breeding, rearing and releasing salmon and sea trout as reintroductions in potential salmonid rivers	2020 FISH-M workshop(s) /correspondence develop draft guidelines 2021 FISH review and agree 2021 HOD approve	WGBAST, WGTRUTTA, RETROUT, ongoing work with EU salmon plan	Common guidelines developed by 2021
2.	Further development and implementation of recommendations for riverine and estuarine management and conservation measures, such as fish ways for up and down migration, restoration and protection of spawning grounds, concerning fisheries within rivers and estuaries	2020 FISH to update recommendation 32/33-1, taking into account FISH-M 4-2017 and RETROUT outcomes 2021 FISH to review and agree 2021 HOD to approve Lead: Secretariat	RETROUT, FISH-M	Updated Recommendation 32/33-1 to be adopted in 2021
3.	Assess how far countries have come in implementing fisheries management measures in MPAs, how such measures are linked to other processes such as MSP, HOLAS, MSFD implementation and how information on impacts of fishing gear is used for management.	Dedicated session to be convened in 2020 Contracting Parties to report on development and implementation of fisheries management measures in MPAs. 2020- 2021 HELCOM MPA TG State&Conservation	Questionnaire on alternative fishing gears (HELCOM Meeting portal workspace) ICES 2015 advice on pressure from fishing activity in MPAs	Assessment of fisheries management measures in MPAs by 2021

4.	Further development and implementation of effective monitoring and reporting systems for by-caught birds and mammals inter alia by implementing the Roadmap on fisheries data.	2020-2021 EG Fishdata to follow up Roadmap on fisheries data Contracting Parties to implement monitoring and report to EG Fishdata Cooperation with EG MAMA on reporting of data on bycatch of mammals Lead:?	EG Fishdata ACTION Project	Results to be fed into relevant processes (e.g. State of the Baltic Sea Report and possible updates of the Roadmap) starting 2021
5.	Report on the development and implementation of fisheries management measures for fisheries inside marine protected areas	Secretariat to update the MPA Database to enable inclusion of data on measures (including fisheries management measures), subject to funding being available. Contracting Parties to report on measures inside MPAs already before update of MPA Database.	State & Conservation Working Group and the MPA Task Group to be involved.	Updated MPA database with reports from all Contracting Parties by 2021.
6.	Continue the efforts underway and enhance co-ordination of measures within the Baltic Sea as well as with other European countries, for the conservation of eel stocks, in line with national eel management plans.	2020-2021 FISH All Contracting Parties to implement national eel management plans by 2021	Outcome of Baltfish Workshop on eel 7-8 May 2019 (Gothenburg, Sweden), EU Eel Regulation, CMS	Implementation of eel management plans by all Contracting Parties by 2021
7.	Contribute to the update of the BSAP in accordance with the strategic plan and work plan for the update, as approved by HOD.	In accordance with Work Plan for the update of the BSAP	HELCOM SOM Platform ACTION Project	Updated BSAP by 2021
Development, review, follow-up and implementation of HELCOM Recommendations concerning fish and fisheries				
8.	Review and report on implementation of HELCOM Recommendations 32-33/1 and 19/2 on salmon and trout	2020 FISH-M workshop and correspondence to develop revise/merged draft 2021 FISH review and agree 2021 HOD adopt Contracting Parties to report by 2021 Lead: Secretariat to coordinate reporting	WGBAST, WGTRUTTA, RETROUT, ongoing work with an EU salmon plan	Report on implementation of HELCOM Recommendation 32-33/1 by 2021

Assessment of fish, cumulative impacts on fish and fisheries impacts on food webs				
9.	Review and contribute to the development and assessment of HELCOM indicators related to fish, cumulative impacts on fish, fisheries impacts on food webs, incidental bycatches and fisheries impacts on benthic biotopes	Communicate with relevant HELCOM Groups and projects regarding planning of development and assessment of indicators on fish (including threatened species), impacts on fish and fisheries impacts on foodwebs – and how FISH can contribute EG Fishdata to consider in follow up of Roadmap	Gear, State & Conservation, EG Fishdata, FISH-PRO, HELCOM Indicator Workshops, HOLAS III HOD ICES Fisheries Overviews	Contribution to updated HELCOM indicator catalogue by 2021
Cooperation between HELCOM and fisheries bodies				
10.	Improve cooperation, coordination and transparency with relevant fisheries bodies in the Baltic Sea (in particular BALTFISH, BSAC)	Steps: Communicate regularly with relevant fisheries bodies in the Baltic Sea (in particular BALTFISH and BSAC) on relevant HELCOM processes/meetings that might have an impact on or be impacted by fisheries and coordinate on issues of common concern. Consider at every FISH-meeting if relevant fisheries bodies should be invited or involved in upcoming HELCOM events or processes and how HELCOM can contribute to improved cooperation, coordination and transparency. Timing: Regularly by the Secretariat, and for consideration by FISH at every FISH meeting Lead: Secretariat	BALTFISH, BSAC	Improved cooperation, coordination and transparency as an ongoing activity.

Sustainable aquaculture				
11.	Develop and agree on BAT/BEP for Sustainable aquaculture	2020 CG Aquaculture to finalize 2020 FISH to agree 2020 HOD to approve Lead: Germany and Finland	CG Aquaculture	BAT/BEP descriptions for sustainable aquaculture in the Baltic Sea by 2020
12.	Review and report on implementation of HELCOM recommendations 25/4 and 37-3 on sustainable aquaculture	Contracting Parties to report on implementation of Recommendation 25/4 2020 FISH to consider	CG Aquaculture	Reports on implementation of Recommendation 25/4 provided by all Contracting Parties by 2020.

List of documents

Name	Agenda Item	Category	Submitted by
1-1 Provisional Agenda.pdf	Adoption of the Agenda	DEC	Secretariat
1-2 Annotations to the Provisional Agenda.pdf	Adoption of the Agenda	CMNT	Secretariat
2-1 Information on the outcomes of recent HELCOM meetings.pdf	Matters arising from HELCOM work of relevance of the group	INF	Secretariat
2-2 Outcome and work plan of FISH-PRO III 1-2019.pdf	Matters arising from HELCOM work of relevance of the group	INF	Secretariat
3-1 Concretization of existing HELCOM actions.pdf	Implementation and update of the Baltic Sea Action Plan	DEC	Secretariat
3-2 Reporting on HELCOM Recommendations under Fish Group.pdf	Implementation and update of the Baltic Sea Action Plan	DEC	Secretariat
3-2-Att.1 Reporting on HELCOM Recommendations under Fish Group.xlsx	Implementation and update of the Baltic Sea Action Plan	DEC	Secretariat
3-3 Analyses of sufficiency of measures to support the BSAP update.pdf	Implementation and update of the Baltic Sea Action Plan	INF	Secretariat
3-4 BSAP Update Work Plan for the Fish Group.pdf	Implementation and update of the Baltic Sea Action Plan	INF	Secretariat
3-5 Review of existing HELCOM objectives and development of new objectives.pdf	Implementation and update of the Baltic Sea Action Plan	CMNT	Secretariat
3-6 Seafloor integrity and by-catch in the HELCOM ACTION Project.pdf	Implementation and update of the Baltic Sea Action Plan	CMNT	Secretariat
3-6-Rev.1 Seafloor integrity and by-catch in the HELCOM ACTION Project.pdf	Implementation and update of the Baltic Sea Action Plan	CMNT	Secretariat
3-7 Updated plans for SOM analyses for biodiversity component fish.pdf	Implementation and update of the Baltic Sea Action Plan	INF	Secretariat
4-1 Note from HELCOM-BALTFISH meeting.pdf	Regional cooperation on fisheries and environment	CMNT	Secretariat
4-2 Questionnaire on alternative fishing gears and fishing techniques.pdf	Regional cooperation on fisheries and environment	DEC	Secretariat
4-3 Resolution of the sectional session on Fisheries, aquaculture and conservation of fish stocks of the XX Baltic Sea Day.pdf	Regional cooperation on fisheries and environment	INF	Secretariat
5-1 Mussels to combat eutrophication FEAP.pdf	BAT/BEP for sustainable aquaculture	DEC	FEAP
6-1 Draft Roadmap on fisheries data.pdf	HELCOM data interests	DEC	Denmark, Finland, Germany, Poland, and Sweden
6-2 ICES contribution to the draft Roadmap on fisheries data.pdf	HELCOM data interests	INF	ICES
7-1 Outcome of partnership mid-term meeting for the RETROUT project.pdf	Salmon and sea trout including HELCOM Recommendation 32-33/1	INF	Secretariat
7-2 Recent and upcoming activities of the RETROUT project.pdf	Salmon and sea trout including HELCOM Recommendation 32-33/1	INF	Secretariat
9-1 Progress related to future work on HELCOM Indicators.pdf	Work on indicator development	INF	Secretariat

9-2 OSPAR-HELCOM Joint Bycatch Workshop ToR.pdf	Work on indicator development	INF	Secretariat
11-1 Draft updated Work Plan 2020-2021.pdf	Future work	DEC	Chair and Secretariat
12-1 A survey on HELCOM knowledge and research needs.pdf	Any other business	CMNT	Secretariat
12-1-Att.1 HELCOM survey of knowledge and research needs template.xlsx	Any other business	CMNT	Secretariat
12-2 List of Contacts and Observers of Fish.pdf	Any other business	CMNT	Secretariat