Document title	Draft HELCOM proposal as end user, for data to be collected under DC-MAP in order to effectively assess the impact of Baltic fisheries on the marine ecosystem in the Baltic Sea
Code	6-2
Category	CMNT
Agenda Item	6 – Interactions between fisheries and marine ecosystems
Submission date	21.04.2017
Submitted by	Poland
Reference	Final outcome of the HELCOM FISH meeting 5/2016 (par. 5.36)

Background

The European Commission adopted a new Data Collection Multiannual Plan DC-MAP for years 2017-2019 dated 12 July 2016. As a new approach, it also requires the collection of data to assess the impact of Union fisheries on marine ecosystems in Union waters and outside Union waters. This includes[1]:

- For all types of fisheries, incidental by-catch of all birds, mammals and reptiles and fish protected under Union legislation and international agreements,
- Data to assist in the assessment of the impact of fisheries in Union waters and outside Union waters on marine habitats and
- Data for estimating the level of fishing and the impact of fishing activities on marine biological resources and on marine ecosystems, such as effects on non-commercial species, predator-prey relationships and natural mortality of fish species in each marine region[2].
- Detailed data on the activity of Union fishing vessels in Union waters and outside Union waters as recorded under Regulation (EC) No 1224/2009.

The Commission Decision leaves room for a regional coordination e.g., with respect to appropriate data collection methods and the collection of additional fishing activity variables[3], particularly if data collected under Regulation (EC) No 1224/2009 are not at the correct resolution or are not of sufficient quality or coverage for the intended scientific use.

Taking into account the EC delegated act on DC-MAP, HELCOM FISH 5/2016 decided to prepare a detailed *Draft HELCOM proposal as end user, for data to be collected under DC-MAP in order to effectively assess the impact of Baltic fisheries on the marine ecosystem in the Baltic Sea* (par. 5.36 of the Outcome of the HELCOM FISH 5/2016 meeting).

[1] chapters III3(a-c) and III4 of the Commission Decision on the DC-MAP
[2] to be assessed in pilot studies first and later determined and coordinated at marine region level and based on end-user needs
[3] refer to table 4 of the Commission Decision on the DC-MAP

The current proposal was preceded by a Letter to the European Commission on HELCOM data needs in the context of the ongoing Reform of the European Union system for fisheries data collection which had been sent to the DG MARE Director General Bernhard Friess in May 2016.

When the current draft proposal had been prepared, it has been sent for intersessional consultation to the HELCOM FISH group members.

Comments received during the HELCOM FISH intersessional consultation

Comments to the draft HELCOM proposal were received from Finland and Estonia.

General Finnish comments/questions

- How should this proposal be considered from the institutional point of view (in the light of HELCOM Convention)?
- Does HELCOM fall under the definition of "end user of scientific data" and can thus be considered as observer during the meetings of the Regional Coordination Group for the Baltic Sea, dealing with the fisheries data collected under DC-MAP?
- How can Russia be involved in collection and dissemination of fisheries data (of the same information or equal nature) in order to effectively assess the impacts of Baltic fisheries as a whole on the marine ecosystem in the Baltic Sea, and as a result to ensure assessments such as HELCOM HOLAS II and future holistic assessments?
- Should DC –MAP only be used to evaluate the impact of fisheries on the marine ecosystem or to be used in order to evaluate the status of some species which are, for example, caught as a bycatch?
- Can these (additional) activities be covered by available funds? What is the rough estimate of costs of this additional data collection? With clear additional costs involved with the work expected, what could be the source of the this extra funding needed?
- Finally, bearing in mind the exclusive competence of the EC regarding the management of fish resources, what is (or is there) the expected management action (HELCOM recommendation?) based on this draft proposal?

General Estonian comments/questions

- The HELCOM proposal requires the collection of additional data, to what has been decided within national work plans for DC-MAP. Due to financial constraints, that means that these plans have to be remodelled (the collection of some data will probably have to be cancelled, or the quality of collected data will probably decrease);
- What will be the final outcome (recommendation/obligation) of this data request from HELCOM?

- What is the timeline and working groups where the discussion regarding this proposal should take place?

Other, more detailed Finnish and Estonian comments were already taken into account by amending the text in the current proposal.

Action requested

The meeting is invited to comment the draft HELCOM proposal as end user, for data to be collected under DC-MAP in order to effectively assess the impact of Baltic fisheries on the marine ecosystem in the Baltic Sea in general, including the Finnish and Estonian comments/questions to the current draft proposal.

Further, the meeting is invited to comment on the compilation of data necessary for assessing the impact of fisheries on marine ecosystems which should be collected under the DC-MAP[4] based on the needs of HELCOM as an end-user of scientific data. Red listed species as well as biotopes/habitats listed as CR, EN and VU in HELCOM Red List, should be taken into account.

The meeting is also invited to comment on the methodology and necessary variables to be collected under the DC-MAP, in order to ensure that the collected data on the impact of fisheries on the marine environment serve the scientific purpose intended for HELCOM holistic assessments and the operationalisation of the HELCOM Core Indicator "Number of drowned mammals and waterbirds in fishing gear" as well as possibly other purposes in the focus of HELCOM.

Additionally, the meeting is requested to comment on the relevant fleet segments and coverage suggested for dedicated incidental catch monitoring programmes.

Specific commenting requirements, are marked in yellow.

[4] DC-MAP – 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.

Draft HELCOM

proposal as end user, for data to be collected under DC-MAP in order to effectively assess the impact of Baltic fisheries on the marine ecosystem in the Baltic Sea

Introduction

The European Commission adopted a new Data Collection Multiannual Plan DC-MAP for years 2017-2019 dated 12 July 2016. As a new approach, it also requires the collection of data to assess the impact of Union fisheries on marine ecosystems in Union waters and outside Union waters. This includes[5]:

- For all types of fisheries, incidental by-catch of all birds, mammals and reptiles and fish protected under Union legislation and international agreements,
- Data to assist in the assessment of the impact of fisheries in Union waters and outside Union waters on marine habitats and
- Data for estimating the level of fishing and the impact of fishing activities on marine biological resources and on marine ecosystems, such as effects on non-commercial species, predator-prey relationships and natural mortality of fish species in each marine region[6].
- Detailed data on the activity of Union fishing vessels in Union waters and outside Union waters as recorded under Regulation (EC) No 1224/2009.

The Commission Decision leaves a room for a regional coordination e.g., with respect to appropriate data collection methods and the collection of additional fishing activity variables[7], particularly if data collected under Regulation (EC) No 1224/2009 are not at the correct resolution or are not of sufficient quality or coverage for the intended scientific use.

Data requirements by HELCOM

The DC-MAP can serve HELCOM data needs for HOLAS II (holistic assessment of the ecosystem health of the Baltic Sea) and CORE indicator assessments in the frame of the MSFD reporting obligations as much of the data needed are currently lacking. In order to make use of data to assess the impact of Union fisheries on the marine ecosystem and detailed data on the activity of Union fishing vessels collected within the DC-MAP and further data collection initiatives (such as national scientific studies or pilot projects), its Contracting Parties being also EU Member States, have identified a set of data needs related to the impact of fisheries on the marine environment.

In order to avoid duplication of work already done by ICES, HELCOM utilises information already analysed by ICES in the frame of their advice to the European Union. However, in some cases (such as assessments done in the frame of HOLAS II or MSFD) the same underlying data (or subsets thereof) may serve a purpose with a different focus. Collected data can be further utilised for evaluations within the scope of certain HELCOM working groups If more advanced analysis is required than is within the capacity and possibilities of HELCOM groups, one option would be that this is done by ICES on a HELCOM request.

[5] chapters III3(a-c) and III4 of the Commission Decision on the DC-MAP
[6] to be assessed in pilot studies first and later determined and coordinated at marine region level and based on end-user needs
[7] refer to table 4 of the Commission Decision on the DC-MAP

Fisheries management data is covered by the DC-MAP and thus eligible for funding by the European Maritime Fisheries Fund (data collection). The collection of merely environmental data however is not covered by the DC-MAP and thus, financial constraints for collecting additional environmental data not mentioned in the DC-MAP may exist. Financial constrains could be addressed by the Regional Coordinating Meeting (RCM Baltic) if necessary. On a basis of end users' needs the RCM could assess additional funds needed and explore possible other ways for funding in order to fulfil the data demands.

Below, HELCOM is proposing what kind of data to assess the impact of Union fisheries on marine ecosystems in Union waters, would be required by HELCOM, to provide relevant assessments of the state of the marine environment in the Baltic Sea region. These data are grouped into various aspects. A species list for which a dedicated incidental catch monitoring programme is necessary in the Baltic is given in table 1. The term "dedicated monitoring" is used here to define programs that are **specifically aimed** (through sampling design and data collection protocols) to obtain data for the typically rare incidental catch events of protected species (ICES 2016). Fisheries variables characterising fishing effort of gear known to cause incidental catch of protected species are given in table 2. Table 3 characterises the relevant fleet segment for incidental catch of certain ecosystem components (i. e. species groups) and lists the suggested coverage for dedicated incidental catch monitoring of protected species. Data needs to assist in the assessment of the impact of fisheries on marine habitats are given in table 4. Additional data requirements not included in DC-MAP which could be derived from national scientific projects and pilot studies are given in Annex 1.

What kind of fisheries data would be essential for HELCOM activities

(to be filled in cooperation between HELCOM FISH and HELCOM STATE&CONSERVATION WG)

A prerequisite for the assessment of the HELCOM Core Indicator "Number of drowned mammals and waterbirds in fishing gear" is a sufficient knowledge of incidental catch rate of each species to be assessed as well as fishing effort. From this and from effort data an estimate of the absolute by-catch numbers can be derived.

The list of species to be monitored under protection programmes in the Union or under international obligations presented in the DC-MAP[8] has been criticised for missing species on the one hand and for species irrelevant for the Baltic Sea on the other hand (HELCOM 2016).Thus, the most relevant species affected by incidental catch in fishing gears may have to be reconsidered for some geographic areas with the aim of getting an operable list of species for which aggregated and anonymized data on unwanted catches is needed for assessments (table 1). This includes mortality rate and incidental catch assessments but available information on by-caught species can also aid in assessing their population abundance, demography and distributional range and pattern as well as supporting habitat. These criteria are to be assessed within biodiversity indicators still to be developed or finalised under MSFD Descriptor 1 (Revised Commission Decision (2010/477/EU), DG Environment 2016). The species list is based on Chapter III 3(a)[9] of the DC-MAP and also includes following

[8] table D1 in the DC-MAP

[9] III3. Data to assess the impact of Union fisheries on marine ecosystems in Union waters and outside Union waters: Those data shall consist of the following: (a) For all types of fisheries, incidental by-catch of all birds, mammals and reptiles and fish protected under Union legislation and international agreements, including the species listed in Table 1D, including absence in the catch, during scientific observer trips on fishing ships or by the fishers themselves through logbooks.

criteria: protection status, listing in the HELCOM Red lists[10], including data deficient species, species with declining populations, species which have been identified as being affected by incidental catch.

To determine catch rates of these species it is essential that incidental catch data is collected in dedicated monitoring programs using either on-board observers or other means of data acquisition (e. g. Remote Electronic Monitoring REM using on-board CCTV cameras, cf. Kindt-Larsen et al. 2012). The collection of data must cover a sufficient proportion of the Baltic Sea fisheries using any type of gill nets, trammel nets and entangling nets. So far no adequate observer coverage has been achieved in the net fishery with existing monitoring programmes such as DCF and EU Regulation 812/2004. In order to calculate absolute incidental catch numbers, it is further necessary to calculate data on fishing effort in the métier "nets" in a relevant metric (net length * soak time). To account for different gear-specific risks of entanglement or to identify local hot-spots of incidental catches, it is also necessary to collect additional fishery data (table 2) including data on gear type, mesh size, technical settings of the net (e.g. drop and slack of the net), vessel size, location and date.

Where the deployment of observers or on-board CCTV cameras is not possible, other means of data collection must be found which also secure a high quality of data.

Table 1. List of species for which dedicated incidental catch monitoring is necessary in the Baltic Sea (Status on the HELCOM Red List of species in danger: CR Critically endangered, EN Endangered, VU Vulnerable, NT Near Threatened).

Fish[11]
European eel *Anguilla Anguilla* (CR)
European whitefish *Coregonus maraena (*EN)
Habitat Directive Annex I and II species
Baltic sturgeon *Acipenser oxyrhynchus* (RE: reintroduction programme in the Baltic Sea)
Twaite shad *Alosa fallax*
Allis shad *Alosa alosa*
River lamprey *Lampetra fluviatilis* (NT)
Sea lamprey *Petromyzon marinus* (VU)Atlantic salmon *Salmo salar* (VU)
Additional fish species from the HELCOM Red List of fish and lamprey species still to be added. This is especially important for data deficient species (Red List category DD). Since fish biodiversity indicators are under development, it may be necessary to include more species (as suggested in Table 1D of the DC_MAP) in some geographical areas. Typical marine fish species of the HELCOM Red List however, may not be added for areas in the Baltic Proper, Gulf of Finland and Gulf of Bothnia.

[10] The 2013 HELCOM Red List of species in danger of becoming extinct. http://www.helcom.fi/Lists/Publications/BSEP140.pdf,

[11] Protected fish species under Bonn Convention: Eel, under Annex V of the EU Habitats Directive: Allis shad, twaite shad, European whitefish, Baltic sturgeon, river lamprey

Mammals[12]

Harbour porpoise *Phocoena phocoena* (Western Baltic population: VU, Baltic Proper population: CR)

Grey seal *Halichoerus grypus* (LC)

Harbour seal *Phoca vitulina vitulina* (Kalmarsund population: VU, Southern Baltic population: LC)

Baltic ringed seal *Phoca hispida botnica* (VU)

European otter *Lutra lutra* (NT)

Birds[13]

Black-throated diver *Gavia arctica* (wintering population, CR)

Red-throated diver *Gavia stellata* (wintering population, CR)

Long tailed duck *Clangula hyemalis* (wintering population, EN)

Razorbill *Alca torda* (breeding population; wintering population)

Greater Scaup *Aythya marila* (wintering population)

Common guillemot *Uria aalge* (breeding population; wintering population)

Black guillemot *Cepphus grylle* (breeding population, NT; wintering population, VU)

Goosander *Mergus merganser* (breeding population; wintering population)

Red-breasted merganser *Mergus serrator* (breeding population; wintering population, VU)

Smew *Mergellus albellus* (wintering population)

Common goldeneye *Bucephala clangula* (wintering population)

Velvet scooter *Melanitta fusca* (breeding population, VU; wintering population, EN)

Common scooter *Melanitta nigra* (wintering population, EN)

Common eider *Somateria mollissima* (breeding population, VU; wintering population, EN)

Steller's eider *Polysticta stelleri* (wintering population, EN)

Tufted duck *Aythya fuligula* (wintering population)

Common pochard *Aythya ferina* (wintering population)

Slavonian grebe *Podiceps auritus* (wintering population, NT)

Red-necked grebe *Podiceps grisegena* (wintering population, EN)

Great crested grebe *Podiceps cristatus* (wintering population)

Great cormorant *Phalacrocorax carbo* (breeding population; wintering population)

[12] All mammals in the list are protected under the EU Habitats Directive, further Bonn Convention (harbour porpoise, Baltic grey and harbour seals) and Berne Convention (harbour porpoise, European otter)
[13] All birds in the list are protected under the EU Bird Protection Directive, Bonn Convention (AEWA), Berne Convention

Table 2. Variables[14] necessary to ensure that the collected data on the impact of fisheries on the marine environment serve the scientific purpose intended for HELCOM and the HELCOM Core Indicator "Number of drowned mammals and waterbirds in fishing gear" becomes fully operable.

Variables	Explanation
incidental catch rate	Incidental catch rates of important marine mammals, waterbirds and protected fish species in numbers per fishing effort in relevant gears
Fishing effort data	For the métier "nets": km net and soaked hours (including data from small vessels and part-time fishermen, if possible also from recreational fisheries using nets) - this variable is urgently needed to calculate incidental catch numbers from the catch rate (see above)
Date and location of incidental catches	This variable needs to be collected more detailed than ICES statistical rectangle only and as detailed as possible. The incidental catch position serves to identify possible local hot spots for incidental catches to be compared to distribution of species. Such Bycatch Risk Assessment (BRA) is being followed by ICES WGBYC (ICES 2015) and could be conducted in scientific studies or pilot projects (e.g., Kindt-Larsen et al. 2016)
Delivery of specimen for scientific investigations	Chosen samples of incidentally caught individuals should be delivered for scientific investigations such as species, sex, age, health status, genetics in order to identify population structure and spatial distribution of populations as well as health data[15]. Some of these investigations can be conducted in scientific studies or pilot projects.
Type of gear with unwanted catch, mesh size	Incidental catch rates are gear specific. For an analysis it is important to collect gear data at métier level[16] 4 (Gear code), level 5 (Target species) and level 6 (Mesh size) at least. Further variables of importance could be technical settings of the net

[14] Variables are collected under Control Regulation 1224/2009 and utilized for the purposes of the DC-MAP (some needed variables may not be obligatory under Control Regulation e.g. soak time, detailed location of catches for the vessels below 12 m. For smaller vessels, DC-MAP allows certain additional variables to be collected at marine region level (DC-MAP Chapter III 4 and Table 4: Fishing activity variables).

[15] The projected Technical Regulation (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) allows delivery of by-caught species for scientific investigations (art. 12).

[16] for definition of métier level refer to table 2 in Commission Decision

Vessel size	The accuracy and amount of effort data may vary between vessels of different size classes as data can be derived from different sources (VMS/VMS, logbooks and landing declarations, see Control Regulation 1224/2009). Vessels below 12 m are the majority of gillnetting vessels in the Baltic Sea. In order to get more detailed information on effort it is necessary to collect additional (more detailed) data beyond control regulation obligations. This could be done in pilot studies such as the German project STELLA (Annex 1)
Others if necessary **e.g., weather conditions during the incidental catch** to be supplemented by FISH and State & Conservation Groups	incidental catches of birds could be weather dependent

Table 3. Relevant fleet segment and suggested coverage suggested for dedicated[17] incidental catch monitoring programmes

Relates to ecosystem component	Relevant fleet segment to be monitored (*proposed percentage of fishing effort to be monitored*)
Birds	
Incidental catches of birds	vessels using gillnets, trammel nets and entangling nets, push-up traps or fyke nets (*EU Action Plan Seabirds (European Commission 2012) proposed a coverage of 10%*)
Marine mammals	
Incidental catches of harbour porpoises	vessels using gillnets, trammel nets and entangling nets (*EU Reg. 812/2004: As a general rule, monitoring schemes shall be based on a sampling strategy designed to allow the estimation of the by-catch rates of cetaceans, for the most frequent species in the by-catch per unit effort by a given fleet to achieve a coefficient of variation not exceeding 0,30. The sampling strategy shall be designed on the basis of*

[17] 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 species (ICES WGBYC 2016).

	existing information on the variability of previous by-catch observations.)
Incidental catches of seals	vessels using gillnets, trammel nets and entangling nets, push-up traps or fyke nets
Incidental catches of otters	vessels using push-up traps or fyke nets
Fish	
Incidental catches of protected fish species	To be added by HELCOM FISH and State & Conservation group

Fishery impact on marine habitats

For assessments in the frame of the Habitats Directive and the Marine Strategy Framework Directive it is further necessary to collect anonymized data (anonymized) on the impact of fishing gears on the seafloor (habitats/biotopes). A prerequisite for such assessments is precise effort data with respect to gear type, vessel size, length and width of trawl track, location and date for the following habitats[18]:

List to be completed by HELCOM FISH and HELCOM S & C groups possibly taking biotopes/habitats listed as CR, EN and VU in HELCOM Red List into account.

AA.D and AB.D Baltic photic and aphotic maerl beds

AB.H2T1 Baltic aphotic muddy sediment characterized by sea-pens

AB.H1I2 Baltic aphotic muddy sediment dominated by Haploops spp.

1130 Estuaries

1170 Reef structures (stone reefs)

1180 Submarine structures made by leaking gases

1150 Coastal lagoons

1110 Sandbanks which are slightly covered by seawater all the time

Data collected under the DC-MAP in order to assist the assessment of the impact of fisheries on marine habitats (see Chapter III 3.(b) of DC-MAP) is given in table 4. Disaggregation at métier level 3 is required by DC-MAP. Also a lower level of aggregation may be required at regional level, in particular in the case of marine protected areas.

Table 4. Data needs to assist in the assessment of the impact of fisheries on marine habitats.

table to be completed by HELCOM FISH and S&C groups

[18] Listed habitats are categorized in the 2013 HELCOM Red List of Baltic Sea underwater biotopes, habitats and biotope complexes (BSEP 138)
http://www.helcom.fi/Documents/Ministerial2013/Associated%20documents/Supporting/Red%20List_Baltic%20Sea%20underwater%20biotopes%20habitats%20and%20biotope%20complexes_BSEP138.pdf

Variables	Description
Habitat affected (comparison with reference site needed)	Biodiversity/biomass/structure
Gear type/size[19]	Gear group (level 3) (but preferred gear code e.g. OTB - level 4 or more detailed)
Size of a vessel	
Location of the studied impact	ICES statistical rectangle or more detailed e.g. AIS/VMS positions
Fishing effort	number of fishing operations e.g. number of hauls, haul duration, length and width of trawl track
Date of operation	
Others	

In Annex 1 a table is provided to compile information on national data collection programmes from National Work Plans under DC-MAP as well as additional ongoing or planned monitoring work which is not under DC-MAP.

Reasons for HELCOM data needs from DC-MAP

Data from fishing activities concerning incidental catch of protected and endangered species as well as data on the impact of certain fishing gears and fishing techniques on the sea floor, is essential for HELCOM in the future work in order to assess the impact of different pressures on the marine environment. Fisheries data can be efficiently used in many activities and assessments of the marine environment and the state of marine environment in particular.

Fisheries data coming from DC –MAP would be essential in the development of a **holistic assessments of the ecosystem health of the Baltic Sea marine environment (HOLAS)**, which are one of the major HELCOM products. In 2014, HELCOM established a project for the preparation of a second Holistic Assessment of the ecosystem health of the marine environment of the Baltic Sea, which will give an update on the overall state of ecosystem health in the Baltic Sea (HOLAS II), planned until 2018. One of the elements of HOLAS II will be the assessment of marine biodiversity. The status assessments will build on HELCOM core indicators that provide quantitative definitions of Good Environmental Status. The project also addresses studies on human activities and distribution of pressures in the Baltic Sea, including spatial cumulative impacts using the Baltic Sea Pressure and Impact Indices. Obtaining fisheries data on unwanted catches is considered crucially important for a high confidence comprehensive evaluation.

[19] See DC-MAP, Table 2

Data deriving from DC-MAP on unwanted catches will also provide information about the presence of threatened species and supplement scientific inventories from existing monitoring programs. It is especially important in **designation and management of Marine Protected Areas and analysis of ecological coherence of the Marine Protected Areas network in the Baltic Sea done by HELCOM.**

To study the impact of fisheries on the seafloor habitats, is one of the themes under a HELCOM project BalticBOOST (Baltic Sea project to boost regional coherence of marine strategies through improved data flow, assessments, and knowledge base for development of measures, 2015-2016). Data on the impacts of fisheries on the sea floor is not easily available at a suitable resolution. Therefore, it is of vital interest for many countries to obtain more detailed information on this pressure e.g. from DC-MAP. Additionally, data are necessary to assess impacts on the seafloor in accordance with the methodology devised under the BENTHIS project (which estimated impact on a large scale only). The data necessary to assist in assessments is regularly collected by the STECF, the EU fleet register and the Member States. It is derived from VMS/AIS and logbook data. Data quality is dependent on vessel size, however. Future efforts under DC-MAP will help to improve the fisheries data quality and collection from member states and its dissemination to data end-users like ICES and HELCOM.

Fisheries data from national work plans under DC-MAP could be combined with data on species and habitats which are in particular sensitive to fishing activities and in special need of protection against pressures from fishing activities. This would be in support of the ***development of HELCOM regional recommendations for protection of marine nature and Baltic Sea Red List assessments.*** In 2013 HELCOM has prepared two threat assessments: HELCOM Red List of Baltic Sea species in danger of becoming extinct (BSEP 140) as well as Red List of Baltic Sea underwater biotopes, habitats and biotope complexes (BSEP 138). The Red Lists set the basis for preparation of the HELCOM Recommendation on conservation of Baltic Sea species categorized as threatened and the HELCOM Recommendation on conservation of underwater biotopes, habitats and biotope complexes agreed by the 2013 HELCOM Ministerial Meeting. Access to the fisheries data collected in a way dedicated to their scientific purposes (which is one aim of the DC-MAP), will also support the process of the revision of the HELCOM Red Lists which is planned in the future.

There is also a need for better data to be obtained on **recreational fisheries** in the Baltic Sea[20]. The HELCOM 2013 Ministerial Meeting, recognizing that recreational fisheries conducted, e.g. from boats using commercial gears at a certain scale may contribute to impacts on biodiversity, agreed to 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. The aim would be to assess the impacts of such recreational fisheries on the marine environment as well as to further develop and implement a comparable methodology for data collection through dedicated surveys.

Finally, fisheries data derived from DC-MAP can be part of the **implementation of the EU Marine Strategy Framework Directive (MSFD) in the Baltic Sea region.** HELCOM has provided a regional platform to support the work of those Contracting Parties being also EU Member States in preparation of regionally coordinated marine strategies for the Baltic Sea region (art. 5 Marine strategies), including development of indicators for the assessment of the marine environment towards achieving a Good Environmental Status (examples of indicators: see table 4). Fisheries data could provide or supplement information under the MSFD's descriptors

[20] See DC-MAP Chapter III. 1. 1.1 (a.

(D1) biodiversity, (D2) non –indigenous species, (D3) commercially exploited fish species, (D4) food webs and (D6) sea-floor integrity.

Table 4. HELCOM Core Indicators and Candidate Core Indicators for which data to be collected under DC-MAP is required

Type of data needed	**Indicator**
Incidental catch data and effort data, see tables 2 and 3 above	Number of drowned mammals and waterbirds in fishing gear
	To be further completed, e.g. MSFD Descriptor 1 fish indicators (under development)

Examples how data from DC-MAP should be used

Data of incidental catches of birds, marine mammals and threatened fish species including information on the type of the gear, net length, soak time, location etc. as well as data on impact of fisheries on habitats and biotopes, should be used by HELCOM for the:

- Assessment of the impact of certain fishing gears, fishing methods on the marine environment (data necessary in order to develop alternative fishing gears or other mitigating devices, or change fishing methods most relevant for incidental catch);
- Identification of hot spot areas (spatial data on the areas with highest conflicts between specific fisheries and nature conservation, will give an indication where to put the highest effort into mitigation measures);
- Assessment of cumulative pressures on the marine environment and linking the evaluation to the status of biodiversity (necessary in preparation of HOLAS II);
- Supplementing information on the presence and distribution of species with scarce distribution data (supportive in the revision of the HELCOM Red Lists);
- Assessment of the impact of recreational fisheries using commercial gears on the marine environment (such assessment will be supportive in designing measures to reduce their impact on the marine environment, where possible);
- Full development and operationalisation of the Core Indicator on by-catch for the Baltic Sea (criterion D1C1) under the MSFD and the assessment of GES. This could be also used for proposals for specific thresholds for by-catch of certain species.

Taking into account that data derived from DC-MAP could be the only reliable fisheries data collected on a regular basis, they are the most important source of data to be utilized for HELCOM purposes. However, it should be further considered if some additional pilot programs can be implemented under the DC-MAP framework, in order to fulfil growing requirements for fisheries data related to the environment.

How fisheries data could be made available for HELCOM[21]

To be able to discuss on the environmental data requirements, HELCOM should join the Regional Coordination Group Meeting for the Baltic Sea (RCM Baltic) as an observer. In order to do that, HELCOM should prepare a request to the chair of the RCM Baltic – Uwe Krumme, PhD (Deputy director of the Institute of Baltic Sea Fisheries, Thünen Institute, Germany).

The following proposal should set the basis for the discussion within the RCM Baltic on the HELCOM data needs as end-user. The requirement for necessary adjustment of collected data to the end-user needs is also included in the DC-MAP (Chapter III art. 3 (a)).

In addition, during the participation in the RCM Baltic, representatives of HELCOM and participants of the RCM Baltic, could discuss what data, how and in what format could be made available for HELCOM, taking into account the confidentiality of primary data.

It should also be considered if HELCOM could be involved and contribute to the development of the regional database FishFrame which is currently being developed under ICES. This database should include all data collected under DC-MAP, including relevant variables, and as a result is needed for end-users in order to obtain fisheries data.

[21] Issue of necessary cooperation between different data users regarding data coming from DCF process, was also discussed during the workshops organized by EFARO on 23 of November 2016.

References

DG Environment 2016 Draft Art. 8 MSFD assessment guidance. Doc. GES_16-2016-02. 157 pp.

European Commission 2012 Action Plan for reducing incidental catches of seabirds in fishing gears. Brussels, 16 pp.

HELCOM 2016 Outcome of the fifth meeting of the HELCOM Group on Ecosystem-based Sustainable Fisheries (FISH 5-2016), Copenhagen, Denmark, 16-17 November 2016. 19 pp.

ICES 2015 Report of the Working Group on Bycatch of Protected Species (WKBYC). 80 pp.

ICES 2016 Working Group on Bycatch of Protected Species (WKBYC). 77 pp.

Kindt-Larsen et al. 2012 Observing incidental harbour porpoise Phocoena phocoena bycatch by remote electronic monitoring. Endang. Species Res. 19, 75-83.

Kindt-Larsen et al. 2016 Identification of high-risk areas for harbour porpoise Phocoena phocoena bycatch using remote electronic monitoring and satellite telemetry data. Mar. Ecol. Prog.Ser. 555: 261–271

Annex 1

Environmental data to be collected under the National Work plans for DC-MAP 2017-2019 as well as additional ongoing or planned monitoring work which is not under DC-MAP (to be filled in by the HELCOM Contracting Parties).

	Bird species **Mammals** **Protected fish species** (please add information on fishing metier to be monitored and method i.e. cameras, observers)	**What kind of variables for by-catches available** (location, net length, soak time etc.) **biological data available** (such as age, sex, size etc.)	**Monitoring on small boats without VMS (below 12 m)** how many boats included, **methods, sampling scheme**	**Targeted studies to monitor impact of fisheries on marine habitats** (changes in structure, biodiversity, biomass, species distribution etc.) **what kind of activities mapped**		**Variables available for impact of fisheries on habitats** (gear details, location, number of hauls, haul duration etc.)	**Others** (e.g. monitoring of recreational fisheries)
Denmark							
Estonia	Pilot study will be conducted to study fisheries effect on biological resources. Study will cover all major fishing methods in Estonia (pelagic	By-catch data can come from scientific and commercial fisheries catch reports (comments field). We thus	Only questionnaires from fishermen.			Fishermen are urged to report incidental by-catches in the catch reports. From the catch reports information	

	trawl and coastal fishery (trap and gill netting)). Data would be collected by observes on boeard and by fisherman (questionnaires).	know the location, soak time, net length, mesh size from the reports. Biological data is only available from scientific catches – but due to the seasonality of scientific catches the possibilities of by-catches are rare.				about gear type, location, soak time or haul duration are available.	
Finland							
Germany			Fishing effort monitoring on small boats, pilot study (e.g. STELLA project)				
Latvia							
Lithuania							

Poland	**Protected fish species:** Eel **Pilot study 2** By-catch of birds By-catch of cetaceans **Not defined yet depends on end users' needs**	Data from scientific, commercial and recreational catches: biological variables available abundance of recruits and standing stock, stock dynamics, number of emigrating silver eels					**Monitoring of recreational fisheries** Development of a map of the Polish Exclusive Economic Zone with spatial and temporal distribution of salmon, seatrout and eel recreational fisheries by species and fishing techniques. **Module 1** Monitoring of salmon and sea trout trolling activities from the shore using remote CCTV cameras in ports (Gdynia, Hel, Jastarnia). Monitoring of sea trout and salmon trolling activities at sea with observers (late winter early spring). Contracts with trolling boats skippers/owners'. On site and off site questionnaire interviews. Collection of information on permits/licenses issued. **Module 2** Monitoring of eel and sea trout's recreational fisheries using fishing rods, from the shore. On side and off side questionnaire interviews and field observations. Catch volume, spatial and temporal distribution of recreational catches, categories of recreational fisheries, size and etc. will be assessed.

							Pilot study 1- inland waters Monitoring of sea trout recreational fisheries (angling) on three mixed sea trout rivers of different size (Ina, Słupia and Rega) in 2017. Study will last 9 months.

Sweden							