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Monitoring programme: Biodiversity - Fish  
Programme topic: Fish, shellfish and fisheries

## SUB-PROGRAMME: FISHERIES BY-CATCH

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### REGIONAL COORDINATION

The monitoring of this sub-programme is: **not coordinated**.

### PURPOSE OF MONITORING (Q4K)

Follow up of progress towards:

<b>Baltic Sea Action Plan (BSAP)</b>	Segments	Biodiversity
	Ecological objectives	Natural landscapes and seascapes Thriving and balanced communities of plants and animals Viable populations of species
<b>Marine strategy framework directive (MSFD)</b>	Descriptors	D1 Biodiversity D4 Food webs

Criteria ( <a href="#">Q5a</a> )	<p>1.1 Species distribution</p> <p>1.2 Population size</p> <p>1.3 Population condition</p> <p>1.6 Habitat condition</p> <p>1.7 Ecosystem structure</p> <p>4.3. Abundance/distribution of key trophic groups/species</p>
Features ( <a href="#">Q5c</a> )	<p>Biological features:</p> <p>A description of the population dynamics, natural and actual range and status of species of marine mammals and reptiles occurring in the marine region or subregion.</p> <p>A description of the population dynamics, natural and actual range and status of species of seabirds occurring in the marine region or subregion.</p>
Pressures and impacts, MSFD Annex III Table 2 ( <a href="#">Q5c</a> )	Selective extraction of species, including incidental non-target catches (e.g. by commercial and recreational fishing).
Activities ( <a href="#">Q7a</a> , <a href="#">7b</a> )	Extraction of living resources: Fisheries
<b>Other relevant legislation (<a href="#">Q8a</a>)</b>	<p>Birds and Habitats Directives</p> <p>Common Fisheries Policy (DCF)</p> <p>EU regulation 812/2004</p>

**Assessment of: (Q4K)**

State/Impacts	<b>X</b>	temporal trends, spatial distribution, status classification
Pressures	<b>X</b>	
Human activities causing the pressures	<b>X</b>	
Effectiveness of measures		

**Scale of data aggregation for assessments: (Q10a)**

HELCOM assessment unit Level 1: Baltic Sea	
HELCOM assessment unit Level 2: Subbasin	
HELCOM assessment unit Level 3: Subbasins with coastal and offshore division	
HELCOM assessment unit Level 4: Subbasins with coastal WFD division	
Other: National waters	<b>X</b>

**MONITORING CONCEPTS TABLE**

Coordination	Elements <u>Q9a (Q5c)</u>	Parameter <u>Q9a (Q5c)</u>	Method <u>Q9c, Q9d</u>	QA/QC <u>Q9e, 9f</u>	Frequency <u>Q9h, 9i</u>	Spatial resolution <u>Q9g, 9i</u>	Link to HELCOM core indicators	Link to MSFD GES characteristics <u>Q5b</u>	Spatial scope <u>Q4i</u>	Monitoring started <u>Q4h</u>	CPs monitoring
None. Irregular research projects	By-catch of sea mammals	Composition and number of incidental/by-catch	Interviews with fishermen, observer programmes, TV surveillance (only as irregular research projects)		Yearly	Partial fleet metier coverage	<u>Number of drowned mammals and water birds in fishing gear</u>	4.3.1 Abundance trends of functionally important selected groups/species	EEZ	2004	DK, EE, DE, FI, LV, LT, PL

None. Irregular research projects	By-catch of seabirds	Composition and number of incidental/by-catch	Interviews with fishermen, observer programmes, TV surveillance (only as irregular research projects)	Yearly	Partial fleet metier coverage	<u>Number of drowned mammals and water birds in fishing gear</u>	4.3.1	EEZ	2008	DK, EE, DE, FI, LV, LT, PL, SE
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## Brief description of monitoring

Detailed information on monitoring frequency and spatial resolution has not yet been collected from all countries but will be added.

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### Element / parameter

**Harbour porpoise / number of specimens by-caught**

**Seals / number of specimens by-caught**

**Wintering seabirds / number of by-caught birds**

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### Method

Currently methods are still in development and not standardized across the region. The main methods are onboard observer coverage, interviews with fishermen (both commercial and recreational) and TV monitoring of catches onboard (only in research projects/ case studies so far). Beached bird surveys can be conducted in appropriate sub-regions and are known from Lithuania.

Examples of current monitoring:

Harbour porpoise: number of specimens by-caught and reported by fishermen: In countries with a low on-board observer coverage - observer programmes conducted by the Baltic countries under Regulation 812/2004 in 2006 covered 0.1% to 9% of the national fleets concerned, gillnet coverage was at the lower end (Korpinen & Bräger 2013, ICES 2013, 2014).

Seals: number of specimens by-caught and reported by fishermen

Wintering seabirds: number of by-caught birds only in research projects (stranded birds, observers, cameras).

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**QA/QC**

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**Frequency** Some data are currently collated on a regular basis from across the range of methods (e.g. monitoring obligations with regard to EU habitats directive, DCF, 812/2004). However, not all member states fulfil monitoring or reporting obligations. Observer coverage is much lower than required by 812/2004. This is the main reason why data gaps are so big. Other data is only collected sporadically.

**Spatial Scope** The monitoring is not consistent across Contracting Parties and the metiers of fishing activity are not consistently covered either.

**Spatial resolution** Wintering seabirds: Currently, some limited data are collected for protected taxa under DCF, but it is not possible to give an estimate concerning effort or coverage. A regionally and fishing method differentialized metier approach that considers fishing activity per spatial unit rather than spatial coverage alone is recommended for the future.

Marine mammals: Currently, the coverage with respect to 812/2004 obligations is 0.1 to 9% of national fleets concerned (Korpinen & Bräger 2014). Besides national differences there are large differences between coverage in fishing metiers. For the future, a regionally and fishing method differentialized metier approach is recommended (but it has not been agreed), that mainly considers fishing activity. However, in the case of the harbour porpoise which has two sub-populations within the Baltic Sea, it must be possible to differentiate between areas which are inhabited by the Baltic Proper subpopulation and the Inner Danish Waters (Western Baltic) subpopulation, respectively.

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## ASSESSMENT REQUIREMENTS

### Monitoring requirements and gaps

Monitoring is to be carried out to fulfill assessment requirements of HELCOM ecological objectives that are specified through HELCOM core indicators. The requirements on monitoring can include number of stations, the sampling frequency and replication.

## Monitoring requirements

The current monitoring under DCF and 812/2004 seems more or less "opportunistic" as not all fisheries are adequately covered. Observer coverage focuses on larger vessels although the majority in Baltic gillnet fisheries are small vessels. Also fishing metiers under DCF have been selected with respect to fishery data needs rather than bird and mammal bycatch data needs. A monitoring of by-caught marine mammals and seabirds would rather need an approach allowing to estimate annual (seasonal) mortality from all kinds of specific fisheries to be compared to the population dynamics of the respective species. Due to the high mobility of the species involved, monitoring should be implemented for the whole Baltic Sea region, considering that fishing methods causing drowning of mammals and birds differ between sub-regions or even on a local level. Also different species may be affected in various sub-regions. Therefore, a mix of monitoring methods with subsequent aggregation of results is more promising than relying on only one method (on-board observers as under DCF and 812/2004). The general results (e.g. the number of drowned animals compared to model approaches such as potential biological removal PBR, catch limit algorithm CLA, or (in case of harbour porpoises) 1 % or 1.7 % as proposed by ASCOBANS) will allow to assess the state of the populations compared to GES, to identify the pressure in more detail and to propose relevant management measures.

Besides the unsatisfactory data collection of the DCF and 812/2004 there are currently only case studies regarding the number of drowned mammals and birds available. Also effort data is needed in a meaningful metric (e. g., net length \* hours soaked instead of kW \* days at sea) on a fine spatial scale in order to relate by-catch to fishing effort. Hitherto existing results enable to address the problem of by-catch in general, but do not allow to quantify impacts in order to propose management measures such as (temporary) closures of specific fisheries. Thus, the core indicator 'Number of drowned mammals and waterbirds in fishing gear' has to be developed further to define GES, define reference points and to give guidelines for a monitoring programme covering the whole region and suitable for the variety of fisheries involved. This would also help to fulfill the overdue obligation of EU Council regulation 812/2004 (concerning incidental catches of cetaceans) which states that "monitoring schemes shall be designed on an annual basis and established to monitor cetacean by-catch, in a representative manner...". As a general rule 812/2004 defines a variation coefficient of less than 0.3 to be reached by the sampling strategy. This would mean a high observer coverage which is impossible in fisheries in which mostly small vessels are involved. Innovative monitoring approaches such as onboard cameras may be needed to get data sufficient to answer the open questions in a cost-effective manner. Similar considerations apply to bird bycatch.

<b>Gaps</b>	<p>There is currently no coordinated monitoring of by-catch.</p> <p>In Germany, only 0.01% of effort of static gillnet vessels &lt;15 m were monitored in 2013 (ICES 2014), whereas only 7 out of 1200 vessels in the Baltic Sea, which fish with passive gears are longer than 15 m and thus covered by regular monitoring using on-board observers regarding obligations of 812/2004.</p> <p>Minor gillnet effort was monitored in Latvia and Poland (ICES 2014).</p> <p>No gillnet monitoring is operated under 812/2004 in Estonia, Finland, Lithuania and Sweden (ICES 2014). As alternatives to onboard observers, interviews with fishermen and onboard cameras (e.g. Germany, Denmark) have been used in research projects only.</p> <p>Under DCF, bird by-catch was monitored in Denmark, Germany, Poland and Sweden. Under DCF cetacean by-catch was monitored in Denmark, Germany, Latvia, Lithuania, Poland and Sweden (ICES 2013).</p>
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### Adequacy for assessment of GES (Q5d)

Monitoring should provide adequate data and information to enable the periodic assessment of environmental status, and distance from and progress towards GES as required by MSFD Article 9 and 11.

<b>Adequate data?</b>	No
<b>Established methods for assessment?</b>	No
<b>Adequate understanding of GES?</b>	No
<b>Adequate capacity to perform assessments?</b>	No

### Assessment of natural variability (Q5e)

Question not applicable. Most variability in bycatch is not natural. It strongly depends on specific properties of the fishing gear used and on fishing effort. Since in the existing monitoring programme not even the effort is monitored in a meaningful way (cf. ICES 2014), there is no way to account for additional natural (individual behaviour specific) variability. Further, the current monitoring effort in the gillnet fisheries in the Baltic Sea is much too low to detect any variability.

## Adequacy for assessment of Targets

Monitoring should provide adequate data and information to enable the periodic assessment of environmental status, and distance from and progress towards Targets as required by the MSFD Article 10.

### Description of Targets (Q6d)

By comparing the impact of pressures (here: mortality from drowning in fishing gear) to GES limits, it appears possible to adjust targets in the future if suitable monitoring programmes are developed. The DCF specifies the collective data that are required for the EU as a whole, as well as setting out targets for the precision of data within these different areas. These targets mainly focus on fisheries aspects such as size and species selectivity with respect to fish, but are not specific for cetaceans and birds. Such data is acquired more or less as a by-product.

<b>Suitable and sufficient data? (Q6b)</b>	No
<b>Established methods for assessment?(Q6b)</b>	No
<b>Adequate capacity to perform assessments?(Q6b)</b>	No
<b>Will the data and information collected enable the regular updating of targets? (Q6c)</b>	No
<b>When will the programme be considered fully adequate? (Q6e)</b>	In time for the updating of monitoring programmes due in 2020.

### Plans for targets (Q6f)

In order to get the programme fully adequate for (re)defining targets there is the overriding need to implement a monitoring programme dealing with fisheries bycatch, allowing to assess this pressure quantitatively. This is the aim of CORESET II.

## DATA PROVIDERS AND ACCESS

<b>Data access point</b>	Data collated by ICES and database is currently being constructed.
<b>Data type (Q10c)</b>	Unprocessed/raw Data Processed Data sets

<b>Data availability (Q10c)</b>	Restricted (on request and by CFP only)
<b>Data access (Q10c)</b>	Restricted by specific licence – currently these data are associated with the DCF so access is unclear.
<b>INSPIRE standard (Q10c)</b>	Species distribution
<b>When will data become available? (Q10c)</b>	This is uncertain
<b>Data update frequency (Q10c)</b>	Yearly
<b>Describe how the data and information from the programme will be made accessible to the EC/EEA</b>	These data will be provided to DGMARE every year
<b>Contact points in the Contracting parties</b>	Contact point to national monitoring programmes will be added
<b>Has the data been used in HELCOM assessments?</b>	No

## REFERENCES

[ICES 2013, ICES 2014 Working Group on Bycatch of Protected Species \(WGBYC\)](#)

[ICES 2013b Workshop to Review and Advise on Seabird Bycatch \(WKBYCS\)](#)

[HELCOM \(2015\) Number of drowned mammals and waterbirds in fishing gear. HELCOM core indicator report. Online.](#)

[Methods and protocols are being developed by Workshop on Bycatch of Cetaceans and other Protected Species \(WKBYC\)](#)

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