

HELCOM Monitoring Programme topic

Fish, shellfish and fisheries

Programme:

Offshore fish

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a. Metadata on monitoring strategies and monitoring programmes

a.1 Responsible HELCOM subsidiary body

Please indicate the relevant expert group/network if available, otherwise the responsible HELCOM Working Group.

Permanent Groups	
<input type="checkbox"/>	Gear – Group on the Implementation of the Ecosystem Approach
<input type="checkbox"/>	Maritime – Maritime Working Group
<input type="checkbox"/>	Pressure – Working Group on Reduction of Pressures from the Baltic Sea Catchment Area
<input type="checkbox"/>	Response – Response Working Group
<input checked="" type="checkbox"/>	State and Conservation – Working Group on the State of the Environmental and Nature Conservation
Time-limited Groups	
<input type="checkbox"/>	Agri – Group on Sustainable Agricultural Practices
<input checked="" type="checkbox"/>	Fish – Group on Ecosystem-based Sustainable Fisheries
<input type="checkbox"/>	HELCOM-VASAB MSP WG - Joint HELCOM-VASAB Maritime Spatial Planning Working Group
Expert Groups	
<input type="checkbox"/>	AIS EWG – Expert Working Group for Mutual Exchange and Deliveries of AIS data
<input type="checkbox"/>	EN Hazardous Substances – Expert Network on hazardous substances
<input type="checkbox"/>	EN Marine Litter – Expert Network on Marine Litter
<input type="checkbox"/>	EN Noise – Expert Network on Underwater Noise
<input type="checkbox"/>	ESA – Expert Network on Economic and Social Analyses
<input type="checkbox"/>	EWG OWR – Expert Working Group on Oiled Wildlife Response
<input type="checkbox"/>	EWG SHORE – Expert Working Group on Response on the Shore
<input type="checkbox"/>	Green Technology and Alternative Fuels Platform for Shipping
<input type="checkbox"/>	HELCOM/OSPAR TG BALLAST – Joint HELCOM/OSPAR Task Group on Ballast Management Convention Exemptions
<input type="checkbox"/>	IN Benthic habitat – Intersessional Network on habitat monitoring

- IN-EUTROPHICATION - Intersessional Network on Eutrophication
- IWGAS – Informal Working Group on Aerial Surveillance
- JWG Bird – HELCOM-OSPAR-ICES Joint Working Group on Seabirds
- MORS EG – Expert group on monitoring of radioactive substances in the Baltic Sea
- PRF Cooperation Platform – Cooperation Platform on Port Reception Facilities in the Baltic Sea
- SAFE NAV – Group of Experts on Safety of Navigation
- SUBMERGED – Expert Group on Environmental Risks of Hazardous Submerged Objects

a.2 Regional Cooperation (Regional Cooperation)

The monitoring of this programme is:

- Fully coordinated
- Partly coordinated. Indicate missing component(s):
- Coordinated monitoring is under development. Indicate by which group/project and by when a recommendation on coordinated monitoring can be expected.

- Common monitoring guidelines: Monitoring is coordinated under ICES following the [Manual for the Baltic International Trawl Surveys](#) (BITS) and [Manual for International Baltic Acoustic Surveys](#) (IBAS).
- Common quality assurance programme: QA/QC and assessments are performed annually by [ICES Baltic International Fish Survey Working Group](#) (WGBIFS).
- Common database: hosted by ICES for sprat, herring and cod.

b. Monitoring strategies

b.1 Descriptor

The programme supports the following obligatory MSFD Monitoring Strategies. Tick one or more relevant boxes.

- D1** Biodiversity
- D2** Non-indigenous Species
- D3** Commercial fish and shellfish
- D4** Food webs
- D5** Eutrophication

- D6** Seafloor integrity
- D7** Hydrographical conditions
- D8** Contaminants
- D9** Contaminants in seafood
- D10** Marine litter
- D11** Energy including underwater noise

b.2 BSAP segments

The sub-programme serves the following BSAP segments. Tick one or more relevant boxes.

- Eutrophication
- Hazardous substances
- Biodiversity
- Maritime activities

b.3 Monitoring strategy description

Monitoring strategy :

b.4 BSAP Ecological objectives

Choose only the most relevant option(s). Tick one or more boxes below.

Eutrophication

- Concentrations of nutrients close to natural levels
- Clear water
- Natural level of algal blooms
- Natural distribution and occurrence of plants and animals
- Natural oxygen levels

Hazardous substances

- Concentrations of hazardous substances close to natural levels
- All fish safe to eat
- Healthy wildlife
- Radioactivity at pre-Chernobyl levels

Biodiversity

- Natural landscapes and seascapes

Thriving and balanced communities of plants and animals

Viable populations of species

Maritime activities

No illegal pollution

Safe maritime traffic without accidental pollution

Efficient response capability

No introductions of alien species from ships

Minimum air pollution from ships

Zero discharges from offshore platforms

b.5 Gaps in monitoring

In relation to the GES criteria addressed, indicate when sufficient monitoring was in place or by when sufficient coverage will be in place ([Coverage_GEScriteria](#)):

Adequate monitoring was in place in 2014

Adequate monitoring was in place by 2018

Adequate monitoring is in place by July 2020

Adequate monitoring will be in place by 2024

Monitoring is not being put in place for this descriptor due to a low risk

Monitoring for this descriptor is not relevant

Description of the implementation gaps and plans to complete the establishment and implementation of this descriptor monitoring strategy ([Gaps_Plans](#)):

The Large fish indicator (LFI) for the Baltic Sea has been developed for both the pelagic and the demersal community, but as with all LFIs it is developed using trawl survey information only. The trawl survey of the Baltic Sea covers the area inhabited by cod (the southern and western Baltic) as the survey is used to create indices for commercial demersal fish and all fish species are measured. The acoustic survey of the Baltic covers a greater area. However, there are no methods for combining trawl surveys and acoustic surveys to determine an LFI index for the entire fish community or Maximum Mean Length (MML). Also, the spatial distribution of commercial catches needs to be better quantified.

At present there is no central database for acoustic surveys (both for trawl information and acoustic signals). ICES is developing a database to hold this information.

The monitoring of non-commercial fish species according to MSFD Descriptor 1 is still a gap and needs to be improved.

c. Monitoring programmes

c.1 Purpose of monitoring

c.1a Assessment purpose in general

The programme supports the assessment of:

Tick the relevant box.

Temporal trends	Spatial distribution	State classification
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

The **programme** supports the assessment of: (MonitoringPurpose).

Note that the answer to this question will be decisive for whether to answer upcoming questions e.g. upcoming questions on pressures should only be answered if the monitoring is defined as supporting the assessment of pressures.

Tick the relevant boxes.

Environmental state and impacts	Pressures in the marine environment	Pressures at source (land-based, riverine, sea-based ¹ and atmospheric sources)	Human activities causing the pressures	Effectiveness of measures
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If this is selected fill in the following questions: c.1b	If this is selected fill in the following questions: c.1c, d	If this is selected fill in the following questions: c.1c, d	If this is selected fill in the following questions: c.1c, d	If this is selected fill in the following questions: c.1c, d

Give any other monitoring purpose e.g. if the programmes include supporting parameters for other monitoring programmes

For questions 1b-1d, select when applicable for the sub-programme, the link from the Reporting on the 2020 update of Article 11 for the Marine Strategy Framework Directive ([MSFD Guidance Document 17, 2020](#)) (Features) to:

- Ecosystem components (relevant for monitoring and assessment for Article 8(1a) for D1C2-C5, D3, D4, D6C3-C5, D7C2)
- Pressures and impacts in the marine environment (relevant for monitoring and assessment for Article 8(1b) for D1C1, D2, D5, D6C1-C2, D7C1, D8, D9, D10, D11)
- Pressure inputs to the marine environment (relevant for monitoring and assessment for Article 10)
- Uses and human activities (relevant for monitoring and assessment for Article 8(1c) and 13)

¹ Sea-based 'Pressures at source' refers to monitoring pressures from sea-based activities where the monitoring is directly at the activity rather than at a distance from or time period after it is generated by the activity (e.g. D1 incidental by-catch when fishing, D2 ballast water discharges, D6 use of bottom fishing gear, D8 contaminant discharges and pollution events from a vessel or pipeline, D11 impulsive sound events from a vessel or platform).

c.1b • Ecosystem components (Features)

Choose only the most relevant option(s). Tick one or more boxes below.

Theme	Sub-theme	Label feature
Species	<input type="checkbox"/> Birds	<input type="checkbox"/> Grazing birds
		<input type="checkbox"/> Wading birds
		<input type="checkbox"/> Surface-feeding birds
		<input type="checkbox"/> Pelagic-feeding birds
		<input type="checkbox"/> Benthic-feeding birds
	<input type="checkbox"/> Mammals	<input type="checkbox"/> Small toothed cetaceans
		<input type="checkbox"/> Deep-diving toothed cetaceans
		<input type="checkbox"/> Baleen whales
		<input type="checkbox"/> Seals
	<input type="checkbox"/> Reptiles	<input type="checkbox"/> Turtles
<input checked="" type="checkbox"/> Fish	<input type="checkbox"/> Coastal fish	
	<input checked="" type="checkbox"/> Pelagic shelf fish	
	<input checked="" type="checkbox"/> Demersal shelf fish	
	<input type="checkbox"/> Deep-sea fish	
	<input checked="" type="checkbox"/> Commercially exploited fish and shellfish	
<input type="checkbox"/> Cephalopods	<input type="checkbox"/> Coastal/shelf cephalopods	
	<input type="checkbox"/> Deep-sea cephalopods	
Habitats	<input type="checkbox"/> Benthic habitats	<input type="checkbox"/> Benthic broad habitats
		<input type="checkbox"/> Other benthic habitats
	<input type="checkbox"/> Pelagic habitats	<input type="checkbox"/> Pelagic broad habitats
		<input type="checkbox"/> Other pelagic habitats
Ecosystems	<input type="checkbox"/> Physical and hydrological characteristics	
	<input type="checkbox"/> Chemical characteristics	
	<input type="checkbox"/> Ecosystems, including food webs	<input type="checkbox"/> Coastal ecosystems
		<input type="checkbox"/> Shelf ecosystems
		<input type="checkbox"/> Oceanic/deep-sea ecosystems

c.1c • Pressures and impacts in the marine environment (Features)

Choose only the most relevant option(s). Tick one or more boxes below.

Theme	Label: Feature
Biological	<input type="checkbox"/> Newly introduced non-indigenous species

	<input type="checkbox"/> Established non-indigenous species
	<input type="checkbox"/> Species affected by incidental by-catch
Physical and hydrological	<input type="checkbox"/> Hydrographical changes
	<input type="checkbox"/> Physical disturbance to seabed
	<input type="checkbox"/> Physical loss of the seabed
Substances, litter and energy	<input type="checkbox"/> Eutrophication
	<input type="checkbox"/> Contaminants - non UPBT substances
	<input type="checkbox"/> Contaminants - UPBT substances
	<input type="checkbox"/> Contaminants – in seafood
	<input type="checkbox"/> Adverse effects on species or habitats
	<input type="checkbox"/> Acute pollution events
	<input type="checkbox"/> Litter in the environment
	<input type="checkbox"/> Impulsive sound in water
	<input type="checkbox"/> Continuous low frequency sound

c.1d • Pressure inputs to the marine environment (Features)

Theme	Label: Feature
Biological	<input type="checkbox"/> Input or spread of non-indigenous species
	<input type="checkbox"/> Input of microbial pathogens
	<input type="checkbox"/> Input of genetically modified species and translocation of native species
	<input type="checkbox"/> Loss of, or change to, natural biological communities due to cultivation of animal or plant species
	<input type="checkbox"/> Disturbance of species (e.g. where they breed, rest and feed) due to human presence
	<input checked="" type="checkbox"/> Extraction of, or mortality/injury to, wild species (by commercial and recreational fishing and other activities)
Substances, litter and energy	<input type="checkbox"/> Input of nutrients — diffuse sources, point sources, atmospheric deposition
	<input type="checkbox"/> Input of organic matter — diffuse sources and point sources
	<input type="checkbox"/> Input of other substances (e.g. synthetic substances, non-synthetic substances, radionuclides) — diffuse sources, point sources, atmospheric deposition, acute events
	<input type="checkbox"/> Input of litter (solid waste matter, including micro-sized litter)
	<input type="checkbox"/> Input of anthropogenic sound (impulsive, continuous)
	<input type="checkbox"/> Input of other forms of energy (including electromagnetic fields, light and heat)

Input of water — point sources (e.g. brine)

c.1e • Uses and human activities (Features)

Choose only the most relevant option(s). Tick one or more boxes below.

Theme	Label: Feature
Physical restructuring of rivers, coastline or seabed (water management)	<input type="checkbox"/> Land claim
	<input type="checkbox"/> Canalisation and other watercourse modifications
	<input type="checkbox"/> Coastal defence and flood protection
	<input type="checkbox"/> Offshore structures (other than for oil/gas/renewables)
	<input type="checkbox"/> Restructuring of seabed morphology, including dredging and depositing of materials
Extraction of non-living resources	<input type="checkbox"/> Extraction of minerals (rock, metal ores, gravel, sand, shell)
	<input type="checkbox"/> Extraction of oil and gas, including infrastructure
	<input type="checkbox"/> Extraction of salt
	<input type="checkbox"/> Extraction of water
Production of energy	<input type="checkbox"/> Renewable energy generation (wind, wave and tidal power), including infrastructure
	<input type="checkbox"/> Non-renewable energy generation
	<input type="checkbox"/> Transmission of electricity and communications (cables)
Extraction of living resources	<input checked="" type="checkbox"/> Fish and shellfish harvesting (professional, recreational)
	<input type="checkbox"/> Fish and shellfish processing
	<input type="checkbox"/> Marine plant harvesting
	<input type="checkbox"/> Hunting and collecting for other purposes
Cultivation of living resources	<input type="checkbox"/> Aquaculture — marine, including infrastructure
	<input type="checkbox"/> Aquaculture — freshwater
	<input type="checkbox"/> Agriculture
	<input type="checkbox"/> Forestry
Transport	<input type="checkbox"/> Transport infrastructure
	<input type="checkbox"/> Transport — shipping
	<input type="checkbox"/> Transport — air
	<input type="checkbox"/> Transport — land
Urban and industrial uses	<input type="checkbox"/> Urban uses
	<input type="checkbox"/> Industrial uses
	<input type="checkbox"/> Waste treatment and disposal

Tourism and leisure	<input type="checkbox"/> Tourism and leisure infrastructure
	<input type="checkbox"/> Tourism and leisure activities
Security/defence	<input type="checkbox"/> Military operations (subject to Article 2(2))
Education and research	<input type="checkbox"/> Research, survey and educational activities

c.2 Other legislation

The sub-programme links with the following other international legislation ([OtherPoliciesConventions](#)). Tick one or more relevant boxes.

- Bathing Water Directive
- Common Fisheries Policy and Data Collection Framework
- Habitats Directive
- Birds Directive
- Nitrates Directive
- Urban Waste Water Treatment Directive
- Water Framework Directive
- OSPAR Convention
- Trilateral Wadden Sea Convention
- Other, Specify:

c.3 Implementation of Regional Cooperation ([RegionalCooperation_implementation](#))

Indicate the level of implementation by selecting one of the following:

- Agreed data collection methods
- Common monitoring strategy (spatial and temporal design of programme)
- Coordinated data collection (delivered separately by each country)
- Joint data collection (multinational delivery using same platform and/or algorithms)

c.4 Monitoring concepts

Monitoring concepts table²:

Current means of coordination	Features or elements	Parameter	Method	QA/QC	Frequency ³	Spatial resolution (density) of sampling	Link to HELCOM core indicators ⁴	Spatial scope	Monitoring started (year)	CPs monitoring ⁵
	Elements (Features) (Features_enum)	Parameters (Parameter) (ParametersOther)	MonitoringMethod (MonitoringMethod) MonitoringMethodOther)	(Free text)	MonitoringFrequency	(ProgrammeDescription)	(RelatedIndicator) (RelatedIndicator_name)	(SpatialScope)	(TemporalScope)	(CountryCode_Enum)
Regional (ICES)	Fish abundance & biology	Population size (abundance) Size of individuals (length or weight) Species distribution al range/pattern Diet	Baltic International trawl survey Q1 (see WGBIFS and WGBFAS) and HELCOM COMBINE manual	Other	Yearly	Stratified fixed station grid		EEZ	1992 (SE 1988)	All HELCOM Contracting Parties

² Needed codelists can be found on 2020 update of Article 11 for the Marine Strategy Framework Directive (MSFD Guidance Document 17, 2020).

³ The option “Different for each country - see MORE overview” refers to the [overview](#) carried out in 2013

⁴ Give the name of HELCOM core indicators that are based on the monitoring parameter.

⁵ Provide information on the Contracting Partie(s) that are monitoring the parameter.

Current means of coordination	Features or elements	Parameter	Method	QA/QC	Frequency ³	Spatial resolution (density) of sampling	Link to HELCOM core indicators ⁴	Spatial scope	Monitoring started (year)	CPs monitoring ⁵
Regional (ICES)	Fish abundance & biology	Population size (abundance) Size of individuals (length or weight) Species distribution al range/pattern Diet	Baltic International trawl survey Q4 (see WGBIFS and WGBFAS) and HELCOM COMBINE manual	Other	Yearly	Stratified fixed station grid		EEZ	1992	All HELCOM Contracting Parties
Regional (ICES)	Fish abundance & biology in water column	Population size (abundance) Size of individuals (length or weight) Species distribution al range/pattern Migration patterns	Baltic International Acoustic Survey	Other	Yearly	Stratified acoustic transects		EEZ	1991	All HELCOM Contracting Parties

Current means of coordination	Features or elements	Parameter	Method	QA/QC	Frequency ³	Spatial resolution (density) of sampling	Link to HELCOM core indicators ⁴	Spatial scope	Monitoring started (year)	CPs monitoring ⁵
Regional (ICES)	Fish abundance & biology in water column	Population size (abundance) Size of individuals (length or weight) Species distributional range/pattern Migration patterns	Baltic International Spring Acoustic Survey	Other	Yearly	Stratified acoustic transects		EEZ	2001	All HELCOM Contracting Parties
Regional (ICES)	Fish abundance & biology in water column	Population size (abundance) Size of individuals (length or weight) Species distributional range/pattern Migration patterns	ICES coordinates acoustic survey for herring	Other	Yearly	Stratified acoustic transects		EEZ	1991	All HELCOM Contracting Parties

Current means of coordination	Features or elements	Parameter	Method	QA/QC	Frequency ³	Spatial resolution (density) of sampling	Link to HELCOM core indicators ⁴	Spatial scope	Monitoring started (year)	CPs monitoring ⁵
Regional (ICES)	Fish abundance & biology	Population size (abundance) Size of individuals (length or weight) Species distributional range/pattern Diet	International Bottom Trawl Survey – Q1	Other	Yearly	Stratified fixed station grid		EEZ	1983 (SE: 1972)	All HELCOM Contracting Parties
Regional (ICES)	Fish abundance & biology	Population size (abundance) Size of individuals (length or weight) Species distributional range/pattern Diet	International Bottom Trawl Survey (see WGBIFS and WGBFAS) – Q3	Other	Yearly	Stratified fixed station grid		EEZ	1991 (SE: 1972)	DK, SE

Current means of coordination	Features or elements	Parameter	Method	QA/QC	Frequency ³	Spatial resolution (density) of sampling	Link to HELCOM core indicators ⁴	Spatial scope	Monitoring started (year)	CPs monitoring ⁵
Regional (ICES)	Herring larvae abundance	Life story stage (e.g. egg, juvenile, adult) Size of individuals (length or weight) Population size (abundance) Reproduction rate	N20 larval survey, Grefswalder Botten	Other	Yearly	Stratified fixed station grid		EEZ	1977	DE
Regional (ICES)	Fish abundance & biology	Population size (abundance) Size of individuals (length or weight) Species distributional range/pattern Diet	Havfisken – Q1	Other	Yearly	Stratified fixed station grid		Territorial waters	1996	DK

Current means of coordination	Features or elements	Parameter	Method	QA/QC	Frequency ³	Spatial resolution (density) of sampling	Link to HELCOM core indicators ⁴	Spatial scope	Monitoring started (year)	CPs monitoring ⁵
Regional (ICES)	Fish abundance & biology	Population size (abundance) Size of individuals (length or weight) Species distributional range/pattern Diet	Havfisker – Q4	Other	Yearly	Stratified fixed station grid		Territorial waters	1994	DK
Regional (ICES)	Fish abundance & biology	Population size (abundance) Size of individuals (length or weight) Species distributional range/pattern Diet	Solea – Q4	Other	Yearly	Stratified fixed station grid		Territorial waters	1992	DE

Current means of coordination	Features or elements	Parameter	Method	QA/QC	Frequency ³	Spatial resolution (density) of sampling	Link to HELCOM core indicators ⁴	Spatial scope	Monitoring started (year)	CPs monitoring ⁵
Regional (ICES)	Commercial monitoring of catch	Composition and number of retained/landed catch Composition and number of discards Age at maturity Size of individuals (length or weight)	RBD - Baltic	Other	Monthly or quarterly	Sampling meters of the fishing fleet		EEZ	1970s	All HELCOM Contracting Parties
Regional (ICES)	VMS fishing fleet	Disturbance rates by human activities Mortality/damage rates to species from a pressure	ICES/HELCOM data call	Other	Monthly	Sampling meters of the fishing fleet	Cumulative impact of benthic biotopes (pre-core)	EEZ	2009	All HELCOM Contracting Parties

Current means of coordination	Features or elements	Parameter	Method	QA/QC	Frequency ³	Spatial resolution (density) of sampling	Link to HELCOM core indicators ⁴	Spatial scope	Monitoring started (year)	CPs monitoring ⁵
Regional (ICES)	Population dynamics cod, herring, sprat	Population size (biomass) Mortality rate Size of individuals (length or weight) Reproduction rate	Stock assessment	Other	Yearly	Fish stock time series		EEZ	Varies by stock – aprox. 1970	All HELCOM Contracting Parties
Regional (ICES)	Population dynamics plaice, flounder, dab, brill, turbot	Population size (biomass) Mortality rate Size of individuals (length or weight) Reproduction rate	Stock assessment (data limited)	Other	Yearly	Fish stock time series		EEZ	Varies by stock – aprox. 2001	All HELCOM Contracting Parties

PARAMETER

Element/Parameter pair

Demersal fish communities/Abundance, distribution, size, age, maturity, sex ratios.

METHOD (MonitoringDetails)

Element/parameter

The trawl surveys monitor the demersal fish community and some of the benthos. They are used to estimate the distribution and abundance of fish, the size and age of fish, the maturity and sex ratios. The sampling effort is standardised to provide input to stock assessments.

The surveys are carried out by research vessels with fixed station or transect design. The monitoring of catches usually takes place at ports or in laboratories. Samples of the catch are sampled using a range of protocols which have all been documented by ICES PGCCDBS. The stock assessment methods are documented in stock annexes for each stock and the approach is determined by an internationally peer reviewed benchmark process.

Boom trawl surveys are not carried out north of Gotland-Hiiumaa line.

QA/QC

Element/Parameter pair

ICES ensures the quality assurance for the sampling methods through the use of protocols, technical blind exchanges, workshops, international peer review and stakeholder engagement in some of the processes. A national approach is followed in Sweden.

FREQUENCY

Frequency

Element/Parameter pair

Almost all information collected gives input into the annual fisheries quota considerations. To ensure standardization, the surveys occur at the same time of year and are dependent on the life cycle of the fish and fish migrations.

SPATIAL SCOPE

Spatial Scope

Element/Parameter pair

The spatial scope varies and is dependent of the targeted fish stocks. Many surveys overlap and some, such as the herring larvae survey, are very specific to a particular site and season.

SPATIAL RESOLUTION (DENSITY) OF SAMPLING

Spatial resolution

Element/Parameter pair

Surveys and monitoring of the catches offer the finest resolution, but these data integrate more observation noise into the time series. The stock assessments are considered more robust in terms of observation noise, but provide the coarsest time series in terms of spatial resolution.

PARAMETER

Element/Parameter pair

Pelagic fish communities/Abundance, distribution, size, age, maturity, sex ratios

METHOD (MonitoringDetails)

Element/parameter

The acoustic surveys monitor the community in the water column. They are used to estimate the distribution and abundance of fish, the size and age of fish, the maturity and sex ratios. The sampling effort is standardized to provide input to stock assessments.

The surveys are carried out by research vessels with fixed station or transect design. Methods should follow ICES survey protocols. The monitoring of catches usually takes place at ports or in laboratories. Samples of the catch are sampled using a range of protocols that have all been documented by ICES PGCCDBS. The stock assessment methods are documented in stock annexes for each stock and the approach is determined by an internationally peer reviewed benchmark process.

QA/QC

Element/Parameter pair

ICES ensures the quality assurance for the sampling methods through the use of protocols, technical blind exchanges, workshops, international peer review and stakeholder engagement in some of the processes. A national approach is followed in Sweden.

FREQUENCY

Frequency

Element/Parameter pair

Almost all information collected provides input to the annual fisheries quota considerations. To ensure standardisation, the surveys occur at the same time of year and are dependent on the life cycle of the fish and the fish migrations.

SPATIAL SCOPE

Spatial Scope

Element/Parameter pair

The spatial scope varies and is dependent of the targeted fish stocks. Many surveys overlap, some, such as the herring larvae survey, are very specific to a particular site and season.

SPATIAL RESOLUTION (DENSITY) OF SAMPLING

Spatial resolution

Element/Parameter pair

Surveys and monitoring of the catches offer the finest resolution, but integrate more observation noise into the time series. The stock assessments are considered more robust in terms of observation noise, but provide the coarsest time series in terms of spatial resolution.

PARAMETER

Element/Parameter pair

Fish Larvae

METHOD (MonitoringDetails)

Element/parameter

The surveys of larvae specifically monitor the abundance and size of the larvae.

QA/QC

Element/Parameter pair

ICES ensures the quality assurance for the sampling methods through the use of protocols, technical blind exchanges, workshops, international peer review and stakeholder engagement in some of the processes. A national

approach is followed in Sweden.

FREQUENCY

Frequency

Element/Parameter pair
Almost all information collected gives input into the annual fisheries quota considerations. To ensure standardization, the surveys occur at the same time of year dependent on the life cycle of the fish and the fish migrations.

SPATIAL SCOPE

Spatial Scope

Element/Parameter pair
Pelagic is done through ICES, national do the demersal.
The spatial scope varies dependent of the targeted fish stocks. Many surveys overlap, some, such as the herring larvae survey, are very specific to a particular site and season.

SPATIAL RESOLUTION (DENSITY) OF SAMPLING

Spatial resolution

Element/Parameter pair
Surveys and monitoring of the catches offer the finest resolution, but these data integrate more observation noise into the me series. The stock assessments are considered more robust in terms of observation noise, but provide the coarsest time series in terms of spatial resolution.

PARAMETER

Element/Parameter pair
Commercial catch monitoring

METHOD (MonitoringDetails)

Element/parameter
The commercial catch monitoring takes place across the whole Baltic Sea and monitors the size, age and maturity status of caught fish. Sampling is distributed representatively across fleet metiers (segments). The monitoring of catches usually takes place at ports or in laboratories. Samples of the catch are sampled using a range of protocols which have all been documented by ICES PGCCDBS. The stock assessment methods

are documented in stock annexes for each stock and the approach is determined by an internationally peer reviewed benchmark process.

QA/QC

Element/Parameter pair

ICES ensures the quality assurance for the sampling methods through the use of protocols, technical blind exchanges, workshops, international peer review and stakeholder engagement in some of the processes. A national approach is followed in Sweden.

FREQUENCY

Frequency

Element/Parameter pair

Almost all information collected gives input into the annual fisheries quota considerations. To ensure standardization, the surveys occur at the same time of year dependent on the life cycle of the fish and the fish migrations. The monitoring of landings is monthly and usually raised to quarters to provide an overview of annual age/length composition.

SPATIAL SCOPE

Spatial Scope

Element/Parameter pair

The spatial scope varies dependent of the targeted fish stocks. Many surveys overlap, some, such as the herring larvae survey, are very specific to a particular site and season.

SPATIAL RESOLUTION (DENSITY) OF SAMPLING

Spatial resolution

Element/Parameter pair

Surveys and monitoring of the catches offer the finest resolution, but integrate more observation noise into the me series. The stock assessments are considered more robust in terms of observation noise, but provide the coarsest time series in terms of spatial resolution.

PARAMETER

Element/Parameter pair

VMS-data

METHOD (MonitoringDetails)

Element/parameter
The VMS time series provides information on fishing fleet activity and distribution.

QA/QC

Element/Parameter pair
ICES ensures the quality assurance for the sampling methods through the use of protocols, technical blind exchanges, workshops, international peer review and stakeholder engagement in some of the processes. A national approach is followed in Sweden.

FREQUENCY

Frequency

Element/Parameter pair
Continually (the data are collected every two hours by actual location).

SPATIAL SCOPE

Spatial Scope

Element/Parameter pair
Sampling metiers of the fishing fleet

SPATIAL RESOLUTION (DENSITY) OF SAMPLING

Spatial resolution

Element/Parameter pair
0.05 x 0.05 aggregated grid within the EEZ

Provide considerations for the scale of aggregation of data for an indicator-based assessment Tick one or more relevant boxes below:

- HELCOM assessment unit Level 4: Subbasins with coastal WFD division
- HELCOM assessment unit Level 3: Subbasins with coastal and offshore division
- HELCOM assessment unit Level 2: Subbasin
- HELCOM assessment unit Level 1: Baltic Sea

- MSFD Region
- EU
- Other (specify)
- Unknown

c.5 Monitoring and assessment requirements

Monitoring requirements:

There are annual Baltic wide (EEZ) ICES coordinated surveys taking place for offshore fish that support data collection for CFP (DCF). For territorial waters Member States carry out national surveys.

The trawl surveys (Baltic International trawl survey/ International boom trawl survey) monitor the demersal fish community and some of the benthos. It is used to estimate the distribution and abundance of fish, the size and age of fish, the maturity and sex ratios. The sampling effort is standardized to provide input into stock assessments.

The acoustic surveys monitor the community in the water column. It is used to estimate the distribution and abundance of fish, the size and age of fish, the maturity and sex ratios. The sampling effort is standardised to provide input to stock assessments.

The surveys of larvae specifically monitor the abundance and size of the larvae.

The commercial catch monitoring takes place across the Baltic and monitors the size, age and maturity status of caught fish. Sampling is distributed representatively across fleet meers (segments).

The VMS time series provides information on fishing fleet activity and distribution.

The stock assessments should be seen as a synthesis of monitoring information to inform on the trends in population size and productivity and the exploitation impact. These assessments are used to inform decision makers for set TACs and quotas. WGBFAS meets annually to assess the state of Baltic stocks. For stocks with sufficient data this leads to a forecast of catch options in the next year, while with data limited stocks, other approaches will be used, such as an analysis of trends in abundance estimates or catches.

The 14 fish stocks presently covered by the working group are:

- 3 cod stocks (Kaegat, western, and eastern Balc)
- 3 herring stocks (SD25-32, SD30, and SD31)
- 2 plaice stocks (SD21-23 and SD24-32)
- Sprat stock (SD22-32)
- Sole stock in 21-32
- 4 flounders stocks (SD22-23, SD 24-25, SD26 and 28, and SD 27nad 29-32)
- brill stock (SD22-32)
- dab stock (SD22-32)
- turbot stock (SD22-32)

Adequacy for assessment of GES:

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 under Article 9 and Article 11.

	Yes	No
Adequate data? Yes for D3. No for D1 and D4.	<input type="checkbox"/>	<input type="checkbox"/>
Adequate understanding of GES? Yes for D3. No for D1 and D4.	<input type="checkbox"/>	<input type="checkbox"/>
Adequate capacity to perform assessments? Yes for D3. No for D1 and D4.	<input type="checkbox"/>	<input type="checkbox"/>

Assessment of natural variability

Quantitative and Expert opinion. The programme (ICES advises EU through a Memorandum of Understanding) uses internationally accepted methods for monitoring and assessing fish stocks. These focus on the population dynamics of individual fish stocks and the pressure of fishing. The weakness in this approach is that the methods are not so well developed for considering D1, D3 and D4.

c.6 Data providers and access

From which database the data can be made available? Tick the relevant boxes below:

HELCOM HELCOM PLC HELCOM MORS
COMBINE

Other: ICES databases (DATRAS, ichthyoplankton, BALTIC RDB, secure VMS database, ICES standard graphs).

If the previous answer is "Other" please fill in the next questions (In case the answer is a HELCOM database, the HELCOM Secretariat will do it)

Data type Tick the relevant boxes below:

- Unprocessed/raw Data
- Processed Data sets
- Data Products
- Modelled data

Data management: General description of data management ([DataManagement](#), Free text)

Open access for survey and stock assessment time series (covered by ICES data policy)
 Restricted by specific licence for monitoring of commercial catches and the VMS data (excluded from ICES data policy and covered by DCF). Data only available for agreed specific tasks and agreement of national data collection bodies is required to access and use the data.

What method/mechanism will be used to make the data available? Tick the relevant boxes below and provide location ([DataAccess](#)):

- Providing URL to view data:
- Providing URL to download data:
- Provide location of data in national data centre: [Click here to enter text.](#)
- Provide location of data in international data centre (e.g. RSC, ICES, EEA, EMODnet):
https://datras.ices.dk/Data_products/Download/Download_Data_public.aspx;
<http://ices.dk/data/Pages/default.aspx>;
<http://ecosystemdata.ices.dk/inventory/index.aspx?HELCOM=0&Area=HELCOM>

When will the data first become available? ([DataPublicationDate](#))

Enter the date of reporting, or even a past date if desired (MM/YYYY):

Data are available annually at different times for different surveys.

How frequently are the data expected to be updated thereafter? Tick the relevant box below:

- | | |
|--|--|
| <input type="checkbox"/> Every 6 years | <input type="checkbox"/> Weekly |
| <input type="checkbox"/> Every 3 years | <input type="checkbox"/> Daily |
| <input type="checkbox"/> Every 2 years | <input type="checkbox"/> Hourly |
| <input checked="" type="checkbox"/> Yearly | <input type="checkbox"/> Continually |
| <input type="checkbox"/> 6-monthly | <input type="checkbox"/> One-off |
| <input type="checkbox"/> 3-monthly | <input type="checkbox"/> As needed |
| <input type="checkbox"/> Monthly | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> 2-weekly | <input type="checkbox"/> Unknown |

List providing contact points in the Contracting Parties

Contact point to national monitoring programmes will be added.

Has the data been used or is it planned to be used in HELCOM assessments? Tick the relevant box below:

- Yes No

Select if data is used in the following Baltic Sea Environment Fact Sheets (BSEF) Tick the relevant boxes below:

Biodiversity

- Abundance and distribution of marenzelleria species
- Abundance and distribution of Round goby
- Abundance and distribution of the Zebra mussel

- Biopollution level index
- Observed non-indigenous and cryptogenic species in the Baltic Sea
- Population development of Great Cormorant
- Population development of Sandwich Tern
- Population development of Southern Dunlin
- Population Development of White-tailed Sea Eagle
- Temporal development of Baltic coastal fish communities and key species

Eutrophication

- Bacterioplankton growth
- Chlorophyll-a concentrations, temporal variations and regional differences from satellite remote sensing
- Cyanobacteria biomass
- Cyanobacterial blooms in the Baltic Sea
- Cyanobacteria bloom index
- Impacts of invasive phytoplankton species on the Baltic Sea ecosystem in 1980-2008
- Nitrogen atmospheric deposition to the Baltic Sea
- Nitrogen emissions to the air in the Baltic Sea area
- Phytoplankton biomass and species succession
- Shifts in the Baltic Sea summer phytoplankton communities in 1992-2006
- Spatial distribution of the winter nutrient pool
- Unusual phytoplankton event

Hazardous substances

- Atmospheric deposition of heavy metals on the Baltic Sea
- Atmospheric deposition of PCDD/Fs on the Baltic Sea
- Atmospheric emissions of heavy metals in the Baltic Sea region
- Atmospheric emissions of PCDD/Fs in the Baltic Sea region
- Cesium-137 in Baltic Sea sediments
- Temporal trends in contaminants in Herring in the Baltic Sea in the period 1980-2010
- Emissions from Baltic Sea shipping
- Illegal discharges of oil in the Baltic Sea
- Liquid discharges of Cs-137, Sr-90 and Co-60 into the Baltic Sea
- Trace metal concentrations and trends in Baltic surface and deep waters

Hydrography

- Development of Sea Surface Temperature in the Baltic Sea
- Hydrography and Oxygen in the Deep Basins
- Ice season
- Total and regional runoff to the Baltic Sea
- Water Exchange between the Baltic Sea and the North Sea, and conditions in the Deep Basins
- Wave climate in the Baltic Sea

c.7 MSFD Criteria (GES criteria)

Choose only the most relevant option(s). Tick one or more boxes below.

Descriptor 1	<p><input checked="" type="checkbox"/> D1C1 – Primary:</p> <p>The mortality rate per species from incidental by-catch is below levels which threaten the species, such that its long- term viability is ensured.</p> <p>Member States shall establish the threshold values for the mortality rate from incidental by-catch per species, through regional or subregional cooperation.</p> <p><input checked="" type="checkbox"/> D1C2 – Primary:</p> <p>The population abundance of the species is not adversely affected due to anthropogenic pressures, such that its long-term viability is ensured.</p> <p>Member States shall establish threshold values for each species through regional or subregional cooperation, taking account of natural variation in population size and the mortality rates derived from D1C1, D8C4 and D10C4 and other relevant pressures. For species covered by Directive 92/43/EEC, these values shall be consistent with the Favourable Reference Population values established by the relevant Member States under Directive 92/43/EEC.</p> <p><input checked="" type="checkbox"/> D1C3 – Primary for commercially- exploited fish and cephalopods and secondary for other species:</p> <p>The population demographic characteristics (e.g. body size or age class structure, sex ratio, fecundity, and survival rates) of the species are indicative of a healthy population which is not adversely affected due to anthropogenic pressures.</p> <p>Member States shall establish threshold values for specified characteristics of each species through regional or subregional cooperation, taking account of adverse effects on their health derived from D8C2, D8C4 and other relevant pressures.</p> <p><input type="checkbox"/> D1C4 – Primary for species covered by Annexes II, IV or V to Directive 92/43/EEC and secondary for other species:</p> <p>The species distributional range and, where relevant, pattern is in line with prevailing physiographic, geographic and climatic conditions.</p> <p>Member States shall establish threshold values for each species through regional or subregional cooperation. For species covered by Directive 92/43/EEC, these shall be consistent with the Favourable Reference Range values established by the relevant Member States under Directive 92/43/EEC.</p> <p><input type="checkbox"/> D1C5 – Primary for species covered by Annexes II, IV and V to Directive 92/43/EEC</p>
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	<p>and secondary for other species:</p> <p>The habitat for the species has the necessary extent and condition to support the different stages in the life history of the species.</p> <p><input type="checkbox"/> D1C6 – Primary</p> <p>The condition of the habitat type, including its biotic and abiotic structure and its functions (e.g. its typical species composition and their relative abundance, absence of particularly sensitive or fragile species or species providing a key function, size structure of species), is not adversely affected due to anthropogenic pressures.</p> <p>Member States shall establish threshold values for the condition of each habitat type, ensuring compatibility with related values set under Descriptors 2, 5 and 8, through regional or subregional cooperation.</p>
Descriptor 2	<p><input type="checkbox"/> D2C1 – Primary:</p> <p>The number of non-indigenous species which are newly introduced via human activity into the wild, per assessment period (6 years), measured from the reference year as reported for the initial assessment under Article 8(1) of Directive 2008/56/EC, is minimised and where possible reduced to zero.</p> <p>Member States shall establish the threshold value for the number of new introductions of non-indigenous species, through regional or subregional cooperation.</p> <p><input type="checkbox"/> D2C2 – Secondary:</p> <p>Abundance and spatial distribution of established non-indigenous species, particularly of invasive species, contributing significantly to adverse effects on particular species groups or broad habitat types.</p> <p><input type="checkbox"/> D2C3 – Secondary:</p> <p>Proportion of the species group or spatial extent of the broad habitat type which is adversely altered due to non-indigenous species, particularly invasive non-indigenous species.</p> <p>Member States shall establish the threshold values for the adverse alteration to species groups and broad habitat types due to non-indigenous species, through regional or subregional cooperation.</p>
Descriptor 3	<p><input checked="" type="checkbox"/> D3C1 – Primary:</p> <p>The Fishing mortality rate of populations of commercially-exploited species is at or below levels which can produce the maximum sustainable yield (MSY). Appropriate scientific bodies shall be consulted in accordance with Article 26 of Regulation (EU) No 1380/2013.</p> <p><input checked="" type="checkbox"/> D3C2 – Primary:</p> <p>The Spawning Stock Biomass of populations of commercially-exploited species are above biomass levels capable of producing maximum sustainable yield. Appropriate scientific bodies shall be consulted in accordance with Article 26 of Regulation (EU) No 1380/2013.</p> <p><input checked="" type="checkbox"/> D3C3 – Primary:</p> <p>The age and size distribution of individuals in the populations of commercially-exploited species is indicative of a healthy population. This shall include a high proportion of</p>

	<p>old/large individuals and limited adverse effects of exploitation on genetic diversity.</p> <p>Member States shall establish threshold values through regional or subregional cooperation for each population of species in accordance with scientific advice obtained pursuant to Article 26 of Regulation (EU) No 1380/2013.</p>
<p>Descriptor 4</p>	<p><input checked="" type="checkbox"/> D4C1 — Primary:</p> <p>The diversity (species composition and their relative abundance) of the trophic guild is not adversely affected due to anthropogenic pressures.</p> <p>Member States shall establish threshold values through regional or subregional cooperation.</p> <p><input checked="" type="checkbox"/> D4C2 — Primary:</p> <p>The balance of total abundance between the trophic guilds is not adversely affected due to anthropogenic pressures.</p> <p>Member States shall establish threshold values through regional or subregional cooperation.</p> <p><input checked="" type="checkbox"/> D4C3 — Secondary:</p> <p>The size distribution of individuals across the trophic guild is not adversely affected due to anthropogenic pressures.</p> <p>Member States shall establish threshold values through regional or subregional cooperation.</p> <p><input type="checkbox"/> D4C3 — Secondary (to be used in support of criterion D4C2, where necessary):</p> <p>Productivity of the trophic guild is not adversely affected due to anthropogenic pressures.</p> <p>Member States shall establish threshold values through regional or subregional cooperation.</p>
<p>Descriptor 5</p>	<p><input type="checkbox"/> D5C1 — Primary:</p> <p>Nutrient concentrations are not at levels that indicate adverse eutrophication effects.</p> <p>The threshold values are as follows:</p> <ul style="list-style-type: none"> (a) in coastal waters, the values set in accordance with Directive 2000/60/EC; (b) beyond coastal waters, values consistent with those for coastal waters under Directive 2000/60/EC. Member States shall establish those values through regional or subregional cooperation <p><input type="checkbox"/> D5C2 — Primary:</p> <p>Chlorophyll a concentrations are not at levels that indicate adverse effects of nutrient enrichment.</p> <p>The threshold values are as follows:</p> <ul style="list-style-type: none"> (c) in coastal waters, the values set in accordance with Directive 2000/60/EC; (d) beyond coastal waters, values consistent with those for coastal waters under Directive 2000/60/EC. Member States shall establish those values through regional or subregional cooperation.

D5C3 — Secondary:

The number, spatial extent and duration of harmful algal bloom events are not at levels that indicate adverse effects of nutrient enrichment.

D5C4 — Secondary:

The photic limit (transparency) of the water column is not reduced, due to increases in suspended algae, to a level that indicates adverse effects of nutrient enrichment.

The threshold values are as follows:

- (e) in coastal waters, the values set in accordance with Directive 2000/60/EC;
- (f) beyond coastal waters, values consistent with those for coastal waters under Directive 2000/60/EC. Member States shall establish those values through regional or subregional cooperation.

D5C5 — Primary (may be substituted by D5C8):

The concentration of dissolved oxygen is not reduced, due to nutrient enrichment, to levels that indicate adverse effects on benthic habitats (including on associated biota and mobile species) or other eutrophication effects.

The threshold values are as follows:

- (g) in coastal waters, the values set in accordance with Directive 2000/60/EC;
- (h) beyond coastal waters, values consistent with those for coastal waters under Directive 2000/60/EC. Member States shall establish those values through regional or subregional cooperation.

D5C6 — Secondary:

The abundance of opportunistic macroalgae is not at levels that indicate adverse effects of nutrient enrichment.

The threshold values are as follows:

- (a) in coastal waters, the values set in accordance with Directive 2000/60/EC;
- (b) should this criterion be relevant for waters beyond coastal waters, values consistent with those for coastal waters under Directive 2000/60/EC. Member States shall establish those values through regional or subregional cooperation.

D5C7 — Secondary:

The species composition and relative abundance or depth distribution of macrophyte communities achieve values that indicate there is no adverse effect due to nutrient enrichment including via a decrease in water transparency, as follows:

- (a) in coastal waters, the values set in accordance with Directive 2000/60/EC;
- (b) should this criterion be relevant for waters beyond coastal waters, values consistent with those for coastal waters under Directive 2000/60/EC. Member States shall establish those values through regional or subregional cooperation.

D5C8 — Secondary: (except when used as a substitute for D5C5):

The species composition and relative abundance of macrofaunal communities, achieve values that indicate that there is no adverse effect due to nutrient and organic

	<p>enrichment, as follows:</p> <p>(a) in coastal waters, the values for benthic biological quality elements set in accordance with Directive 2000/60/EC;</p> <p>(b) beyond coastal waters, values consistent with those for coastal waters under Directive 2000/60/EC. Member States shall establish those values through regional or subregional cooperation.</p>
<p>Descriptor 6</p>	<p><input type="checkbox"/> D6C1 – Primary:</p> <p>Spatial extent and distribution of physical loss (permanent change) of the natural seabed.</p> <p><input type="checkbox"/> D6C2 – Primary:</p> <p>Spatial extent and distribution of physical disturbance pressures on the seabed.</p> <p><input type="checkbox"/> D6C3 – Primary:</p> <p>Spatial extent of each habitat type which is adversely affected, through change in its biotic and abiotic structure and its functions (e.g. through changes in species composition and their relative abundance, absence of particularly sensitive or fragile species or species providing a key function, size structure of species), by physical disturbance.</p> <p>Member States shall establish threshold values for the adverse effects of physical disturbance, through regional or subregional cooperation.</p> <p><input type="checkbox"/> D6C4 – Primary:</p> <p>The extent of loss of the habitat type, resulting from anthropogenic pressures, does not exceed a specified proportion of the natural extent of the habitat type in the assessment area.</p> <p>Member States shall establish the maximum allowable extent of habitat loss as a proportion of the total natural extent of the habitat type, through cooperation at Union level, taking into account regional or subregional specificities.</p> <p><input type="checkbox"/> D6C5 – Primary:</p> <p>The extent of adverse effects from anthropogenic pressures on the condition of the habitat type, including alteration to its biotic and abiotic structure and its functions (e.g. its typical species composition and their relative abundance, absence of particularly sensitive or fragile species or species providing a key function, size structure of species), does not exceed a specified proportion of the natural extent of the habitat type in the assessment area.</p> <p>Member States shall establish threshold values for adverse effects on the condition of each habitat type, ensuring compatibility with related values set under Descriptors 2, 5, 6, 7 and 8, through cooperation at Union level, taking into account regional or subregional specificities. Member States shall establish the maximum allowable extent of those adverse effects as a proportion of the total natural extent of the habitat type, through cooperation at Union level, taking into account regional or subregional specificities.</p>
<p>Descriptor 7</p>	<p><input type="checkbox"/> D7C1 – Secondary:</p> <p>Spatial extent and distribution of permanent alteration of hydrographical conditions</p>

	<p>(e.g. changes in wave action, currents, salinity, temperature) to the seabed and water column, associated in particular with physical loss(1) of the natural seabed.</p> <p><input type="checkbox"/> D7C2 – Secondary:</p> <p>Spatial extent of each benthic habitat type adversely affected (physical and hydrographical characteristics and associated biological communities) due to permanent alteration of hydrographical conditions.</p>
Descriptor 8	<p><input type="checkbox"/> D8C1 – Primary:</p> <p>Within coastal and territorial waters, the concentrations of contaminants do not exceed the following threshold values:</p> <ul style="list-style-type: none"> (a) for contaminants set out under point 1(a) of criteria elements, the values set in accordance with Directive 2000/60/EC; (b) when contaminants under point (a) are measured in a matrix for which no value is set under Directive 2000/60/EC, the concentration of those contaminants in that matrix established by Member States through regional or subregional cooperation; (c) for additional contaminants selected under point 1(b) of criteria elements, the concentrations for a specified matrix (water, sediment or biota) which may give rise to pollution effects. Member States shall establish these concentrations through regional or subregional cooperation, considering their application within and beyond coastal and territorial waters. <p>Beyond territorial waters, the concentrations of contaminants do not exceed the following threshold values:</p> <ul style="list-style-type: none"> (a) for contaminants selected under point 2(a) of criteria elements, the values as applicable within coastal and territorial waters; (b) for contaminants selected under point 2(b) of criteria elements, the concentrations for a specified matrix (water, sediment or biota) which may give rise to pollution effects. Member States shall establish these concentrations through regional or subregional cooperation. <p><input type="checkbox"/> D8C2 – Secondary:</p> <p>The health of species and the condition of habitats (such as their species composition and relative abundance at locations of chronic pollution) are not adversely affected due to contaminants including cumulative and synergetic effects.</p> <p>Member States shall establish those adverse effects and their threshold values through regional or subregional cooperation.</p> <p><input type="checkbox"/> D8C3 – Primary:</p> <p>The spatial extent and duration of significant acute pollution events are minimised.</p> <p><input type="checkbox"/> D8C4 – Secondary (to be used when a significant acute pollution event has occurred):</p> <p>The adverse effects of significant acute pollution events on the health of species and on the condition of habitats (such as their species composition and relative abundance) are minimised and, where possible, eliminated.</p>
Descriptor 9	<p><input type="checkbox"/> D9C1 – Primary:</p>

	<p>The level of contaminants in edible tissues (muscle, liver, roe, flesh or other soft parts, as appropriate) of seafood (including fish, crustaceans, molluscs, echinoderms, seaweed and other marine plants) caught or harvested in the wild (excluding fin-fish from mariculture) does not exceed:</p> <p>(a) for contaminants listed in Regulation (EC) No 1881/2006, the maximum levels laid down in that Regulation, which are the threshold values for the purposes of this Decision;</p> <p>(b) for additional contaminants, not listed in Regulation (EC) No 1881/2006, threshold values, which Member States shall establish through regional or subregional cooperation.</p>
<p>Descriptor 10</p>	<p><input type="checkbox"/> D10C1 – Primary:</p> <p>The composition, amount and spatial distribution of litter on the coastline, in the surface layer of the water column, and on the seabed, are at levels that do not cause harm to the coastal and marine environment.</p> <p>Member States shall establish threshold values for these levels through cooperation at Union level, taking into account regional or subregional specificities.</p> <p><input type="checkbox"/> D10C2 — Primary:</p> <p>The composition, amount and spatial distribution of micro-litter on the coastline, in the surface layer of the water column, and in seabed sediment, are at levels that do not cause harm to the coastal and marine environment.</p> <p>Member States shall establish threshold values for these levels through cooperation at Union level, taking into account regional or subregional specificities.</p> <p><input type="checkbox"/> D10C3 — Secondary:</p> <p>The amount of litter and micro-litter ingested by marine animals is at a level that does not adversely affect the health of the species concerned. Member States shall establish threshold values for these levels through regional or subregional cooperation.</p> <p><input type="checkbox"/> D10C4 — Secondary:</p> <p>The number of individuals of each species which are adversely affected due to litter, such as by entanglement, other types of injury or mortality, or health effects. Member States shall establish threshold values for the adverse effects of litter, through regional or subregional cooperation.</p>

Descriptor 11	<p><input type="checkbox"/> D11C1 – Primary:</p> <p>The spatial distribution, temporal extent, and levels of anthropogenic impulsive sound sources do not exceed levels that adversely affect populations of marine animals.</p> <p>Member States shall establish threshold values for these levels through cooperation at Union level, taking into account regional or subregional specificities.</p> <p><input type="checkbox"/> D11C2 – Primary:</p> <p>The spatial distribution, temporal extent and levels of anthropogenic continuous low-frequency sound do not exceed levels that adversely affect populations of marine animals.</p> <p>Member States shall establish threshold values for these levels through cooperation at Union level, taking into account regional or subregional specificities.</p>
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d. References

Make a list of cited references and literature for further supportive information.

<p>Baltic International fish Survey Working Group</p> <p>Baltic International fish Survey Working Group (WGBIFS)</p> <p>Baltic Fisheries Assessment Working Group (WGBFAS)</p> <p>Herring Assessment Working Group (HAWG)</p> <p>International Bottom Trawl Survey Working Group (IBTSWG)</p> <p>Planning Group on Commercial Catches, Discards and Biological Sampling (PGCCDBS)</p> <p>Report of the Regional Coordination Meeting for the Baltic (RCM Baltic 2013)</p> <p>Stock assessment output data</p> <p>Working Group of International Pelagic Surveys (WGIPS)</p>
