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

## SUB-PROGRAMME: COMMERCIAL SHELLFISH

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### REGIONAL COORDINATION

The monitoring of this sub-programme is: **partly coordinated**. Monitoring of bivalve populations is not coordinated Baltic wide. Nephrops are monitored through ICES under the [ICES Study Group on Nephrops Surveys \(SGNEPS\)](#) and the [Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak \(WGNSSK\)](#).

- Common monitoring guidelines: ICES
- Common quality assurance programme: ICES
- Common database: missing, national databases exist

### PURPOSE OF MONITORING (Q4K)

Follow up of progress towards:

<b>Baltic Sea Action Plan (BSAP)</b>	Segments	Biodiversity
	Ecological objectives	Viable populations of species
<b>Marine strategy framework directive (MSFD)</b>	Descriptors	D1 Biodiversity D3 Commercial fish and shellfish D4 Food webs
	Criteria ( <u>Q5a</u> )	1.1 Species distribution 1.2 Population size 1.3 Population condition 3.1 Level of pressure of the fishing activity 3.2 Reproductive capacity of the stock 3.3 Population age and size distribution
	Features ( <u>Q5c</u> )	Biological features: Information on angiosperms, macro-algae and invertebrate bottom fauna, including species composition, biomass and annual/seasonal variability.
	Activities (Q7a, 7b)	Extraction of living resources: Fisheries
<b>Other legislation (Q8a)</b>	Common Fisheries Policy (DCF)	

### Assessment of: (Q4k)

State/Impacts	<b>X</b>	temporal trends, spatial distribution, status classification
Pressures		
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

**MONITORING CONCEPTS TABLE**

<b>Coordination</b>	<b>Elements</b> <u>Q9a (Q5c)</u>	<b>Parameter</b> <u>Q9a (Q5c)</u>	<b>Method</b> <u>Q9c, Q9d</u>	<b>QA/QC</b> <u>Q9e, 9f</u>	<b>Frequency</b> <u>Q9h, 9i</u>	<b>Spatial resolution</b> <u>Q9g, 9j</u>	<b>Link to HELCOM core indicators</b>	<b>Link to MSFD GES characteristics</b> <u>Q5b</u>	<b>Spatial scope</b> <u>Q4i</u>	<b>Monitoring started</b> <u>Q4h</u>	<b>CPs monitoring</b>
ICES	Nephrops burrow density	Population size (abundance)	<u>ICES coordinated Nephrops underwater TV surveys</u>	ICES groups: <u>WGNSSK</u> and <u>SGNEPS</u>	Yearly	Stratified station survey design		<u>1.1.1, 1.1.2, 1.1.3, 1.2.1, 1.3.1, 3.1.1, 3.2.1</u>	EEZ	2008 (2010 full series)	DK, SE
National	Shellfish assessment	Population size (biomass)	Danish Blue mussel and oyster survey	Other	Yearly	Limfjord stratified fixed sampling		<u>1.1.1, 1.1.2, 1.1.3, 1.2.1, 1.3.1, 3.1.1, 3.2.1</u>	Territorial waters	1993	DK
National	Shellfish assessment	Population size (biomass)	Danish Blue mussel survey	National	Yearly	Little Belt stratified fixed sampling		<u>1.1.1, 1.1.2, 1.1.3, 1.2.1, 1.3.1, 3.1.1, 3.2.1</u>	Territorial waters	2008	DK
ICES	Population dynamics Nephrops	Population size (abundance)	ICES stock assessment	Other	Yearly	ICES FU3 and FU4 (joint assessment Skagerrak and Kattegat)		<u>1.1.1, 1.1.2, 1.1.3, 1.2.1, 1.3.1, 3.1.1, 3.2.1</u>	EEZ	1990	DK
ICES	Commercial landings of Nephrops catch	Composition and number of retained/landed catch	ICES PGCCDBS approach to commercial sampling	Other	Monthly	Sampling metiers of the fishing fleet		3.1.1 Fishing mortality, 3.2.1 Spawning Stock Biomass (SSB)	EEZ	1991	SE, DK

**Brief description of monitoring**

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

<b>Element / parameter</b>	<b>Nephrops/Population abundance, biomass and distribution</b>
<b>Method</b>	<p>Nephrops are monitored through underwater TV surveys, measuring the landings and discards and this is synthesised together using a stock assessment. Nephrops in the Kattegat is assessed and surveyed jointly with Nephrops in the Skagerrak (what ICES denote as functional units 3 and 4 (FU)). The Danish surveys for blue mussels and oysters occur in Limfjord and the Little Belt. These annual surveys measure abundance, distribution and density of shellfish.</p> <p>Research vessels are used to carry out the underwater TV surveys for Nephrops. The TV camera is attached to a sledge and the density of the burrows is enumerated. The sampling design is stratified relative to know population variability.</p>
<b>QA/QC</b>	The <u>Nephrops surveys</u> are carried out using described ICES protocols (under ICES groups: <u>WGNSSK</u> and <u>SGNEPS</u> ) which have been peer reviewed.
<b>Frequency</b>	All surveys, assessment and monitoring are annual.
<b>Spatial Scope</b>	Function Units (FU 3 and 4) in the Kattegat and Skagerrak.
<b>Spatial resolution</b>	Nephrops- Kattegat (mostly eastern side)
<b>Element / parameter</b>	<b>Blue mussels and oysters/Population abundance, biomass and distribution</b>
<b>Method</b>	The Danish surveys for blue mussels and oysters occur in Limfjord and the Little Belt. These annual surveys measure abundance, distribution and density of shellfish. The mussel and oyster surveys are carried out using international norms for bivalve sampling.
<b>QA/QC</b>	National
<b>Frequency</b>	All surveys, assessment and monitoring are annual.
<b>Spatial Scope</b>	For mussels and oysters the scope are the entire Limfjord and Lesser Belt area.
<b>Spatial resolution</b>	Mussels – Great Belt (20% as Little Belt only surveyed).

## 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.

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<b>Monitoring requirements</b>	Monitoring of population state and fishing pressure on bivalves are carried out through local national projects. These are not coordinated Baltic Sea wide. The Nephrops populations and fishery are monitored through an ICES coordinated programme.
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<b>Gaps</b>	There is no central database for shellfish populations in the Baltic Sea. There is no central coordination of monitoring of bivalve populations. Outside Denmark and Sweden, there are no other surveys of shellfish. There is a need for databases and coordination under D3.
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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 under Article 9 and 11.

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<b>Adequate data?</b>	No
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<b>Established methods for assessment?</b>	No
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<b>Adequate understanding of GES?</b>	No
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<b>Adequate capacity to perform assessments?</b>	No
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## Assessment of natural variability (Q5e)

If shellfish need to be considered within the Baltic Sea area, there is little coordinated monitoring on any species other than Nephrops.

### DATA PROVIDERS AND ACCESS

<b>Data access point</b>	National databases held at institutes
<b>Data type (Q10c)</b>	Unprocessed/raw data Processed datasets Modelled data
<b>Data availability (Q10c)</b>	By request
<b>Data access (Q10c)</b>	Open access – Nephrops stock assessment outputs Restricted by specific licence – sampling data on surveys covered by CFP- DCF
<b>INSPIRE standard (Q10c)</b>	Species distribution
<b>When will data become available? (Q10c)</b>	No agreement on data access
<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>	Unclear
<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 Study Group on Nephrops Surveys \(SGNEPS\)](#)

[Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak \(WGNSSK\)](#)

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