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Monitoring programme: Contaminants

Programme topic: Concentration of contaminants

## SUB-PROGRAMME: CONTAMINANTS IN WATER

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### REGIONAL COORDINATION

The monitoring of this sub-programme is: **partly coordinated**.

- Common monitoring guidelines: [HELCOM COMBINE manual](#), [MORS Guidelines](#), [Guidelines for determination of POPs in seawater](#) and different approaches e.g. CEMP manual, ICES guidelines, ISO/CEN standards (see [References](#)).
- Common quality assurance programme: [HELCOM COMBINE manual](#), [ISO/CEN standards](#) and [QUASIMEME](#).  
Radioactive substances: [MORS Guidelines](#) defines methodologies for sample treatment, analysis and intercomparison. Reported data is manually quality assured by the HELCOM Secretariat and results are reported and verified in annual MORS EG meetings.
- Common database: [COMBINE](#).

There is no current plan for coordinated monitoring of contaminants in water, other than radionuclides, unless national EQS are established for another matrix.

**PURPOSE OF MONITORING (Q4K)**

Follow up of progress towards:

<b>Baltic Sea Action Plan (BSAP)</b>	Segments	Hazardous substances
	Ecological objectives	Concentrations of hazardous substances close to natural levels Radioactivity at pre-Chernobyl level
<b>Marine strategy framework directive (MSFD)</b>	Descriptors	D8 Contaminants
	Criteria (Q5a)	8.1 Concentration of contaminants
	Features (Q5c)	Other features: A description of the situation with regard to chemicals, including chemicals giving rise to concern, sediment contamination, hotspots, health issues and contamination of biota (especially biota meant for human consumption)
<b>Other relevant legislation (Q8a)</b>	Water Framework Directive	

**Assessment of: (Q4k)**

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

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

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

**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, 9i</u>	<b>Link to HELCOM core indicators</b>	<b>Link to MSFD GES characteristics</b> <u>Q5b</u>	<b>Spatial scope</b> <u>Q4j</u>	<b>Monitoring started</b> <u>Q4h</u>	<b>CPs monitoring</b>
Regional (COMBINE)	PCB	Concentration of chemical/nutrient/pollutant in water column	HELCOM COMBINE manual, <u>PartD</u> and different approaches e.g. CEMP manual, ICES guidelines, ISO/CEN standards (see <u>References</u> )	<u>HELCOM COMBINE manual Part B, Annex B12, Appendix 1, ISO/CEN standards and QUASIMEME</u>	Other. See "Brief description of monitoring"	<u>See map for details</u>		8.1.1 Concentration of the contaminants measured in the relevant matrix	EEZ	DE: 2005 (also data from 1998) LT: 2010 LV: 2010 (data also from 1998 and 2005)	DE, LT, LV
Regional (COMBINE)	PAH	Concentration of chemical/nutrient/pollutant in water column	HELCOM COMBINE manual, <u>PartD</u> and different approaches e.g. CEMP manual, ICES guidelines, ISO/CEN standards (see <u>References</u> )	<u>HELCOM COMBINE manual Annex B11, Appendix 1 and 2, ISO/CEN standards and QUASIMEME</u>	LT 1 time per year (summer); from 2011 4 times per year (1 time per season)	<u>See map for details</u> EE: few places close to WWTP outfalls		8.1.1 Concentration of the contaminants measured in the relevant matrix	Coastal Waters, Territorial waters, Transitional waters EEZ	LT: 2007	EE, LT

Regional (COMBINE)	Metals	Concentration of chemical/nutrient/pollutant in water column	HELCOM COMBINE manual, PartD and different approaches e.g. CEMP manual, ICES guidelines, ISO/CEN standards (see <a href="#">References</a> )	<a href="#">HELCOM COMBINE manual Annex B11, Appendix 1</a> and <a href="#">2, ISO/CEN standards and QUASIMEME</a>	Other. See "Brief description of monitoring"	<a href="#">See map for details</a>	8.1.1 Concentration of the contaminants measured in the relevant matrix	EEZ	DE: 2005 (also data from 1998) FI: 1979 LT: 2007 LV: 2005 (data also from 1998) SE: 2005 (data also from 1998)	DE, FI, LT, LV, SE	
National	PBDE	Concentration of chemical/nutrient/pollutant in water column	Different approaches e.g. CEMP manual, ICES guidelines, ISO/CEN standards (see <a href="#">References</a> )	Other	Other		8.1.1 Concentration of the contaminants measured in the relevant matrix	EEZ	DE: 2011	DE	
Other	Harmful and priority substances	Concentration of chemical/nutrient/pollutant in water column	<a href="#">ISO 5667-3, ISO 5667-9</a>	<a href="#">ISO TS 13530, ISO 11352, DIN EN ISO/IEC 17025</a>	As needed	WWTP outfalls	8.1.1 Concentration of the contaminants measured in the relevant matrix	Coastal sea	2014	EE	
Regional (MORS)	Radionuclides: Radiocesium and Sr-90	Concentration of chemical/nutrient/pollutant in water column	<a href="#">MORS Guidelines</a>	<a href="#">MORS Guidelines</a>	Yearly	<a href="#">See map for details</a>	<a href="#">Radioactive substances: Cs-137 in fish and surface waters</a>	8.1.1 Concentration of the contaminants measured in the relevant matrix	EEZ	1984	All HELCOM Contracting Parties

## Brief description of monitoring

Full description in [HELCOM COMBINE manual](#). Detailed information on monitoring frequency and spatial resolution has not yet been collected from all countries but will be added.

Element / parameter	All contaminants / Concentration of chemical/pollutant in water column
<b>Method</b>	All contaminants listed are measured in the water column. Sampling and analytical methods are reported per sample and per parameter respectively. See <a href="#">HELCOM COMBINE manual</a> . Finland monitors oil concentration in water in offshore stations in all the sub-basins yearly. The monitoring started in 1979.
<b>QA/QC</b>	See Part B Annex B11 of <a href="#">HELCOM COMBINE manual</a>
<b>Frequency</b>	Varies from 1-2 to 24 samples/station/year, depending on country.
<b>Spatial Scope</b>	EEZ / Whole Baltic Sea for assessment
<b>Spatial resolution</b>	<a href="#">See map for details</a>
Element / parameter	PCB / Concentration of chemical/pollutant in water column
<b>Method</b>	All contaminants listed are measured in the water column. Sampling and analytical methods are reported per sample and per parameter respectively. See <a href="#">HELCOM COMBINE manual</a> .
<b>QA/QC</b>	See Part B Annex B11 of <a href="#">HELCOM COMBINE manual</a> .
<b>Frequency</b>	Varies from 1-2 to 24 samples/station/year, depending on country. DE: regular sampling through: <ul style="list-style-type: none"> <li>• BSH: May/June, Aug/Sept and Oct/Nov, annually</li> <li>• IOW: Jan/Feb and Jul/Aug, annually</li> <li>• LLUR: Jan/Feb and Jul/Aug, annually</li> </ul>
<b>Spatial Scope</b>	EEZ / Whole Baltic Sea for assessment

**Spatial resolution**[See map for details](#)

Polychlorinated biphenyls (PCB) are measured in the Bay of Mecklenburg, Kiel Bay and Southern Baltic Proper.

**Element / parameter****Metals / Concentration of chemical/pollutant in water column****Method**

All contaminants listed here are measured in the water column. Sampling and analytical methods are reported per sample and per parameter respectively. See [HELCOM COMBINE manual](#)

**QA/QC**

See Part B Annex B11 of [HELCOM COMBINE manual](#).

**Frequency**

Varies from 1-2 to 24 samples/station/year, depending on country.

DE: regular sampling for metals as specified in the measuring programme:

- BSH: Jan/Feb, Mar, Aug/Sep and Oct/Nov, annually
- LLUR: Jan/Feb and Jul/Aug, annually

**Spatial Scope**

EEZ / Whole Baltic Sea for assessment

**Spatial resolution**[See map for details](#)

Metals are measured in the Southern Baltic Proper, Bay of Mecklenburg, Kiel Bay, Bothnian Bay, the Quark, Bothnian Sea, Archipelago Sea, Åland Sea, Northern Baltic Proper, Gulf of Finland.

**Element / parameter****Radionuclides / Concentration of chemical/pollutant in water column**

<b>Method</b>	Obligatory radionuclides: Radiocesium: Cs-137 and Cs-134, if possible. Sr-90. Voluntary radionuclides: H-3; Tc-99; Pu-239, 240; Am-241; natural radionuclides (e.g. Po-210)  Sampling and analytical methods are reported per sample and per parameter respectively. See <a href="#">MORS Guidelines</a> .
<b>QA/QC</b>	Quality assurance is a laboratory's whole sampling and analytical process from start to finish. <a href="#">MORS Guidelines</a> define methodologies for sample treatment, analysis and intercomparison. Reported data is manually quality assured by HELCOM secretariat and results reported and verified in annual MORS EG meeting.
<b>Frequency</b>	Annual. DE: season: Aug/Sep and Jun/Jul
<b>Spatial Scope</b>	EEZ / Whole Baltic Sea for assessment
<b>Spatial resolution</b>	<a href="#">See map for details</a>

## 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.

<b>Monitoring requirements</b>	Core indicators are primarily based on monitoring samples from biota, secondarily from sediments and lastly from water.
<b>Gaps</b>	Assessment of gaps has not been carried out.

### Adequacy for assessment of GES ([Q5d](#))

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

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**Adequate data?** Yes for determination of state. No for temporal changes.

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**Established methods for assessment?** Yes

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**Adequate understanding of GES?** Yes for metals i.e. EQS for metals in water.

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**Adequate capacity to perform assessments?** Nationally

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## Assessment of natural variability (Q5e)

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## DATA PROVIDERS AND ACCESS

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**Data access point** Contaminants: ICES DOME  
Radioactive substances: HELCOM MORS

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**Data type (Q10c)** Processed Data sets

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**Data availability (Q10c)** Contaminants: ICES DOME  
Radioactive substances: HELCOM MORS

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<b>Data access</b> ( <a href="#">Q10c</a> )	Open access
<b>INSPIRE standard</b> ( <a href="#">Q10c</a> )	
<b>When will data become available?</b> ( <a href="#">Q10c</a> )	Contaminants: Annually Radioactive substances: Annually
<b>Data update frequency</b> ( <a href="#">Q10c</a> )	Yearly
<b>Describe how the data and information from the programme will be made accessible to the EC/EEA</b>	
<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>	Yes, e.g. <a href="#">BSEP120B</a> Hazardous substances in the Baltic Sea.

## REFERENCES

Common implementation strategy for the Water Framework Directive (2000/60/EC). Guidance Document No. 19. European Commission 2010. Guidance on surface water chemical monitoring under the Water Framework Directive. Luxemburg: office for Official Publications of the European Communities

Determination of Hexabromocyclododecane (HBCD) in sediment and biota. ICES TIMES No. 44 (2)

Determination of parent and alkylated polycyclic aromatic hydrocarbons (PAHs) in biota and sediment. ICES TIMES No. 45 (2009)

Determination of perfluoroalkyl compounds in water, sediment, and biota – ICES TIMES No. 48 (2010)

Determination of polybrominated diphenyl ethers (PBDEs) in sediment and biota. ICES TIMES No. 46 (2009)

DIN EN ISO/IEC 17025

DIN EN ISO 5667-3, 2004-05

ISO TS 13530, ISO 11352

ISO 5667-9, 1992-10

JAMP Guidelines for the analysis of PFCs in water

LST EN ISO 17993:2004

[MORS Guidelines](#)

[QUASIMEME](#)

Technical guidance on monitoring for the MSFD

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