

Monitoring Specifications

Date: 2010-01-14

Pollutants





ARGE BLMP - Working Group for the North Sea and Baltic Sea Monitoring Programme

At the 34th North German Environmental Ministerial Meeting held on 17 April 1997, the competent departments of the German Federal Government and of the federal states of Hamburg, Mecklenburg-Vorpommern, Lower Saxony and Schleswig-Holstein agreed to establish a joint working group co-ordinating the monitoring of the marine environment of the North and Baltic Seas (ARGE BLMP Nord- und Ostsee).

Members of ARGE BLMP are:

- Federal Ministry of Food, Agriculture and Consumer Protection
- Federal Ministry of Transport, Building and Urban Development
- Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
- Federal Ministry of Education and Research
- Authority for Urban Development and Environment of the Free and Hanseatic City of Hamburg
- Mecklenburg-Vorpommern Ministry for Agriculture, the Environment and Consumer Protection
- Lower Saxony Ministry for the Environment and Climate Protection
- Schleswig-Holstein Ministry for Agriculture, the Environment and Rural Areas

The Monitoring Manual describes the current measuring programme implemented under BLMP. The monitoring requirements of the different EC Directives (Marine Strategy Framework Directive, Water Framework Directive, FFH, Birds Directive), marine protection conventions (OSPAR, HELCOM, Trilateral Monitoring and Assessment Program) and other bodies of regulations have been taken into account in the Manual. The Monitoring Manual is available free of charge on the BLMP website at www.blmp-online.de/Seiten/Monitoringhandbuch.htm

Editorial information

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1 General

1.1 Subject area

Chemical Monitoring - Pollutants

1.2 Definition

Monitoring of concentrations of organic pollutants, heavy metals and organometallic compounds in biota, sediment/suspended material and water.

Scope: Monitoring areas in the North Sea and Baltic Sea for which the German Federation and the Länder are responsible on the basis of current legislation and the commitments that have been entered into, as a rule inland waters, coastal and transitional waters and the high sea in the EEZ.

1.3 Competent authority/ies

Federal Government:	vTI , BfG , BSH , UBA
Hamburg:	BSU
Mecklenburg-Vorpommern:	Lfa-Fischerei MV , IOW , LUNG
Lower Saxony:	NLWKN
Schleswig-Holstein:	LLUR

1.4 Working group

Ad Hoc Working Group on Pollutants and Biological Effects

2 Monitoring requirements

Both the programmes established under the regional sea conventions and the European Union's Marine Strategy involve the monitoring of pollutants in the sea as an essential component that facilitates the determination of its environmental status, the setting of targets for the achievement of a good environmental status and the derivation of measures with which inputs can be reduced and the effectiveness of the measures taken controlled.

2.1 Necessity

EU

It has been necessary for pollutants to be monitored in various ways for a long time under various European directives. The main directives in this field include Directive 2006/11/EC of the European Parliament and of the Council on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community (Water Protection Directive, codifies 76/464/EEC) and its daughter directives, Directive 79/923/EEC on the quality required of shellfish waters (Shellfish Directive), Directive 2000/60/EC establishing a framework for Community action in the field of water policy (Water Framework Directive, WFD) with its daughter directive 2008/105/EC (on environmental quality standards) and Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive, MSFD).

Ultimately, the intention is for the Water Protection Directive, the Shellfish Directive and the Fish Directive to be codified by the WFD.

The MSFD is intended to implement the requirements laid down in the European Marine Strategy (EMS [7]); JRC/ICES task groups have been established for each of the descriptors listed in the MSFD and are drawing up recommendations concerning criteria and methodological standards for the implementation of the MSFD. The regional sea conventions will be involved as appropriate in the initial assessment and future monitoring.

[MSFD \[1\]](#)

Comments

DIRECTIVE 2008/56/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)

Investigations of pollutants are necessary in order to carry out the initial assessment required by Article 8(1), to define environmental targets on the basis of this initial assessment (Article 10) and to establish ongoing environmental monitoring programmes (Article 11).

The investigations necessary in order to describe the chemical status for the initial assessment and in the monitoring programmes that are to be established cover the following issues:

- problem chemicals,
- sediment contamination,
- hot spots,
- health issues,
- contamination of biota (in particular biota intended for human consumption).

To this end, the following pressures and impacts must be surveyed:

- Introduction of synthetic compounds (e.g. priority substances under the Water Framework Directive that are relevant for the marine environment, biologically active substances, pesticides, antifoulants and pharmaceuticals, resulting from losses from diffuse sources, pollution by ships and atmospheric deposition);
- introduction of non-synthetic compounds (e.g. heavy metals and hydrocarbons, resulting from pollution by ships and atmospheric deposition);
- introduction of radionuclides.

[HD \[2\]](#)

Article 11 [3]

Comments

The Member States shall undertake surveillance of the conservation status of the natural habitats and species referred to in Article 2 with particular regard to priority natural habitat types and priority species.

Inputs of pollutants are to be taken into consideration in the assessment of impairments to habitats. See the assessment matrices for habitat types (in preparation).

[WFD \[4\]](#)

General

Comments

The WFD regulates the monitoring of pollutants in inland, transitional and coastal waters, in the course of which their chemical status is determined by means of

- surveillance monitoring,
- operational monitoring and
- investigative monitoring.

The provisions set out in the following directives are due to be incorporated into the WFD. The intention is for the provisions set out in the Water Protection Directive (76/464/EEC) to be incorporated into the WFD by 2013; in the mean time, the Water Protection Directive has been codified by a revised version, 2006/11/EC. The environmental quality standards to be observed are set out in its daughter directive, 2008/105/EC.

Water Protection Directive

2006/11/EC (codifies 76/464/EEC) and its daughter directives

Shellfish Directive (Articles 1, 2 and 7, and Annex)

Directive 79/923/EEC on the quality required of shellfish waters

The Member States must monitor organohalogenated compounds at least every six months in the designated shellfish waters.

Fish Directive

Directive 2006/44/EC on the quality of fresh waters needing protection or improvement in order to support fish life (codifies 78/659/EEC) prescribes the monitoring of zinc and dissolved copper; examination by taste only is prescribed for phenolic compounds, while visual examination and, where necessary, examination by taste are prescribed for petroleum hydrocarbons.

[HELCOM](#)

Baltic Sea Action Plan [\[5\]](#)

Comments

The Baltic Sea Action Plan sets out four targets that relate to hazardous substances:

- Concentrations close to background levels
- All fish safe to eat
- Healthy wildlife
- Radioactivity at pre-Chernobyl level

A procedure (CHASE) has been developed for the integrated assessment of these targets. The data on hazardous substances obtained in the course of environmental monitoring are incorporated into this procedure. In this respect, these monitoring specifications focus on the first of the targets cited above and the comparison of measured values to background or background reference values.

Pollution caused by hazardous substances refers to the discharge to, and presence of, a number of different anthropogenic substances in the marine environment. These substances include those that do not occur naturally in the environment but also natural substances, whose concentrations exceed natural levels.

Hazardous substances have adverse effects on the ecosystem, such as:

- Impaired general health status of animals
- Impaired reproduction of animals, especially top predators
- Increased pollutant levels in fish for human food.

Although monitoring indicates that the loads of some hazardous substances have been reduced considerably over the past 20 - 30 years, problems still persist; and concentrations in the marine environment of some new substances have even increased.

COMBINE

Comments

The COMBINE programme involves the monitoring of selected contaminants in selected species and selected organs from various regions of the Baltic Sea. The substances, compartments and areas to be investigated, and the minimum monitoring frequencies are set out in Part D of the Combine Manual and its annexes.

OSPAR

JAMP RID Monitoring Programme [6]

Comments

Joint Monitoring and Assessment Programme for the monitoring of riverine inputs and direct discharges.

JAMP-CAMP

Comprehensive Atmospheric Monitoring Programme

Comments

The Comprehensive Atmospheric Monitoring Programme requires the monitoring of inputs into the marine environment via atmospheric deposition.

JAMP-CEMP [7]

Joint Monitoring and Assessment Programme - Co-ordinated Environmental Monitoring Programme

Comments

The Coordinated Environmental Monitoring Programme is intended to monitor the concentrations of chemical contaminants (not including radionuclides) in marine biota (primarily fish and shellfish), sediments and marine waters, biological effects, nutrients, and direct and indirect eutrophication effects.

TMAP [8]

Wadden Sea Plan (Stade Declaration, 1997)

Comments

<http://www.waddensea-secretariat.org/TMAP/Monitoring.html>

Wadden Sea Plan (Stade Declaration, 1997)

With regard to pollutants, TMAP requires the surveying of the temporal development and spatial distribution of TBT in water and sediments, and the concentrations of pollutants in blue mussels, flounder and bird eggs in the Wadden Sea area. In this respect, the monitoring is carried out in accordance with the OSPAR JAMP guidelines.

Chemical variables

- Nutrients
- Pollutants in sediment
- Pollutants in shellfish (blue mussels), flounder and seabird eggs

CMS/Seal Agreement

Seal Agreement, Articles V and VIII

Agreement on the Conservation of Seals in the Wadden Sea

Comments

The Wadden Sea States shall "monitor [...], in particular in seal tissues and in organisms which are preyed upon by seals, the levels of those substances which in the light of the results of research appear to play a major role in the conservation status of the seal population."

2.2 Environmental targets

MSFD

(Article 1(2))

By 2020, the Member States shall

- achieve or maintain good environmental status in the marine environment;
- protect and preserve the marine environment, prevent its deterioration or, where practicable, restore marine ecosystems in areas where they have been adversely affected;
- prevent and reduce inputs in the marine environment, with a view to phasing out pollution as defined in Article 3(8), so as to ensure there are no significant impacts on or risks to marine biodiversity, marine ecosystems, human health or legitimate uses of the sea.

HD

Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

The main objectives of the Habitats Directive (HD) are the conservation and restoration of biological diversity. The intention is for these objectives to be achieved with the creation of a European network of nature protection areas, Natura 2000. The Member States are obliged to designate, conserve and develop sites at which species and habitats of European significance occur.

WFD

- Protection of ALL waters - groundwater and surface waters, including coastal waters
- "Good status" for all waters within 15 years; ecological quality is the essential criterion for surface waters; the essential criteria for groundwater are its quantity and chemical purity
- Integrated water resources management based on river basin districts
- Development of emissions criteria for the prevention and reduction of pollution at source; also development of immissions criteria (quality targets for waters)
- "Phasing-out" of particularly hazardous substances
- Setting of appropriate water prices in order to encourage the careful handling of this precious resource
- Closer involvement of citizens in planning and decision-making processes

HELCOM

http://www.helcom.fi/helcom/en_GB/aboutus/

HELCOM's main goal is to protect the marine environment of the Baltic Sea from all sources of pollution, and to restore and safeguard its ecological balance.

HELCOM's vision for the future is a healthy Baltic Sea environment with diverse biological components functioning in balance, resulting in a good ecological status and supporting a wide range of sustainable economic and social activities.

Targets relating to hazardous substances

[HELCOM Recommendation 19/5](#)

The Objective of the Commission with regard to hazardous substances is

- to prevent pollution of the Convention Area by continuously reducing discharges, emissions and losses of hazardous substances, with the ultimate aim of concentrations in the environment near background values for naturally occurring substances and close to zero for man made synthetic substances,
- to reduce discharges, emissions and losses of hazardous substances likely to reach the marine environment, to levels that are not harmful to man or nature,
- to move towards the target of the cessation of discharges, emissions and losses of hazardous substances [...] by the year 2020.

COMBINE

The aims of COMBINE, as decided by HELCOM (HELCOM 14/18, Paragraph 5.27) and further elaborated by BMP-WS 2/96, are:

- To identify and quantify the effects of anthropogenic discharges/activities in the Baltic Sea, in the context of the natural variations in the system, and
- To identify and quantify the changes in the environment as a result of regulatory actions.

This general statement, which is equally valid for monitoring of inputs as well as monitoring of environmental conditions, is then converted into more specific aims for the different types of monitoring. More specifically the aims of COMBINE mean: for contaminants:

- To compare the level of contaminants in selected species of biota (including different parts of their tissues) from different geographical regions of the Baltic Sea in order to detect possible contamination patterns, including areas of special concern (or "hot spots").
- To measure levels of contaminants in selected species of biota at specific locations over time in order to detect whether levels are changing in response to the changes in inputs of contaminants to the Baltic Sea.
- To measure levels of contaminants in selected species of biota at different locations within the Baltic Sea, particularly in areas of special concern, in order to assess whether the levels pose a threat to these species and/or to higher trophic levels, including marine mammals and seabirds.

Baltic Sea Action Plan (BSAP)

The agreed goal of HELCOM on hazardous substances is a Baltic Sea undisturbed by hazardous substances. The goal is described by four ecological objectives:

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

In order to have operational ecological objectives, indicators have been identified. The agreed objectives will be monitored by the state of the environment (State and Impact). The indicators are represented by concentrations of selected heavy metals, organic substances and radioactive substances in different environmental compartments such as in sediment and fish, as well as health aspects of white-tailed eagle and seals.

OSPAR

1992 OSPAR Convention: ARTICLE 2: GENERAL OBLIGATIONS: 1

The Contracting Parties shall, in accordance with the provisions of the Convention, take all possible steps to prevent and eliminate pollution and shall take the necessary measures to protect the maritime area against the adverse effects of human activities so as to safeguard human health and to conserve marine ecosystems and, when practicable, restore marine areas which have been adversely affected.

To this end Contracting Parties shall, individually and jointly, adopt programmes and measures and shall harmonise their policies and strategies.

ANNEX IV: ON THE ASSESSMENT OF THE QUALITY OF THE MARINE ENVIRONMENT: ARTICLE 1

For the purposes of this Annex "monitoring" means the repeated measurement of:

- the quality of the marine environment and each of its compartments, that is, water, sediments and biota;
- activities or natural and anthropogenic inputs which may affect the quality of the marine environment;
- the effects of such activities and inputs.

Monitoring may be undertaken either for the purposes of ensuring compliance with the Convention, with the objective of identifying patterns and trends or for research purposes.

Objectives relating to hazardous substances

Objectives of the Hazardous Substances Committee (HSC)

In accordance with the general objective, the objective of the Commission with regard to hazardous substances is to prevent pollution of the maritime area by continuously reducing discharges, emissions and losses of hazardous substances, with the ultimate aim of achieving concentrations in the marine environment near background values for naturally occurring substances and close to zero for man-made synthetic substances.

Objectives of the ASMO Joint Assessment and Monitoring Programme (JAMP)

4. The main objectives of the JAMP are:

- the preparation of environmental assessments of the status of the marine environment of the OSPAR maritime area or its regions, including the exploration of new and emerging problems in the marine environment;
- the preparation of contributions to overall assessments of the implementation of the OSPAR strategies, including in particular the assessment of the effects of relevant measures on the improvement of the quality of the marine environment. Such assessments will help inform the debate on the development of further measures;

supported by:

- the implementation of collective OSPAR monitoring, including the development of the necessary methodologies;
- the preparation of environmental data and information products needed to implement the OSPAR strategies.

CEMP

The Coordinated Environmental Monitoring Programme (CEMP) is that part of the monitoring within the JAMP where the national contributions overlap and are co-ordinated.

The aim of the CEMP is to deliver comparable data from across the OSPAR maritime area, which can be used in assessments to address the specific questions raised in the JAMP.

TMAP

Trilateral cooperation between the Netherlands, Germany and Denmark.

<http://www.waddensea-secretariat.org/TMAP/Monitoring.html>

Trilateral policy and management aims "to achieve, as far as possible, a natural and sustainable ecosystem in which natural processes proceed in an undisturbed way" (Guiding Principle).

The aim of the TMAP is:

- To provide a scientific assessment of the status and development of the Wadden Sea ecosystem and
- To assess the status of implementation of the trilateral Targets of the Wadden Sea Plan.

Targets relating to pollutants

Monitoring the contamination of pollutants in biota in the Wadden Sea is carried out in order

- to detect and assess the response of natural processes in the ecosystem to changes in pollution levels. The processes concerned here are food chain fluxes and reproduction (including recruitment). There are links with primary production and decomposition;
- to detect and assess the response of species to changes in pollution levels which may affect the abundance and physiological functioning of species leading to structural changes in the ecosystem.

With respect to the "Quality of Water and Sediment" the following Target applies to pollutants in biota (Wadden Sea Plan):

- Background concentrations of natural micropollutants
- Concentrations of man-made substances as resulting from zero-discharges

The monitoring of sediment is carried out to assess the effects of changes in contaminant inputs on

- chemical processes,
- natural processes (primary production, food chain fluxes, production, decomposition),
- selected key species (effects on the abundance and physiological functioning of species),
- selected communities (as indicators of changes in the environmental conditions).

Furthermore, the monitoring has the aim to assess

- the effectiveness of measure take [sic] for reduction of contamination (temporal trend monitoring),
- the existing level of marine contamination (spatial distribution monitoring).

EMS

COM(2002) 539 final: COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

The overall aim [is] "to promote sustainable use of the seas and conserve marine ecosystems", given that the marine environment is subject to a variety of threats.

The MSFD is intended to contribute to this aim.

2.3 Threats

COM(2002) 539 final: COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

The threats to the marine ecosystem include the loss or degradation of biodiversity and changes in its structure, loss of habitats, contamination by dangerous substances and nutrients and possible future effects of climate change. They are the consequences of various pressures such as commercial fishing, oil and gas exploration, shipping, waterborne and atmospheric deposition of dangerous substances, waste dumping, physical degradation of the habitat due to interventions such as dredging, and extraction of sand and gravel.

2.4 Spatial allocation

	Inland surface waters	Inner coastal/transitional waters	Neritic zone (12-nm zone)	Open sea (EEZ)
Water Framework Directive 2000/60/EC	x	x Baseline + 1 nm	x 1)	
Water Protection Directive 2006/11/EC	x	x	x	
Shellfish Directive	x	x	x	
Fish Directive	x (Freshwater)			
Marine Strategy Framework Directive 2008/56/EC			x	x
OSPAR		x	x	x
TMAP		x	x Wadden Sea	
HELCOM			x	x

	EEZ	12- nm zone	Coastal waters 1)	Transitional waters
MSFD	x	x	-	-
HD	x	x	x	x
WFD	-	x	x	x
HELCOM	x	x	x	-
OSPAR	x	x	x	x
TMAP	-	-	x	x
EMS	x	x	-	-

1) Under the WFD: baseline plus one nautical mile

3 Monitoring concept

3.1 Description of monitoring network

Only some of the parameters included in the following lists are components of regular monitoring programmes. Most of the substances on the "Priority Lists" are investigated in the course of projects, baseline studies, one-off surveys, etc. in order to obtain information about their occurrence and concentrations. Decisions are then taken about the further monitoring of these substances on the basis of the information that has been obtained. In so far as this is the case, the lists and programmes are subject to constant review and, where necessary, revision.

North Sea

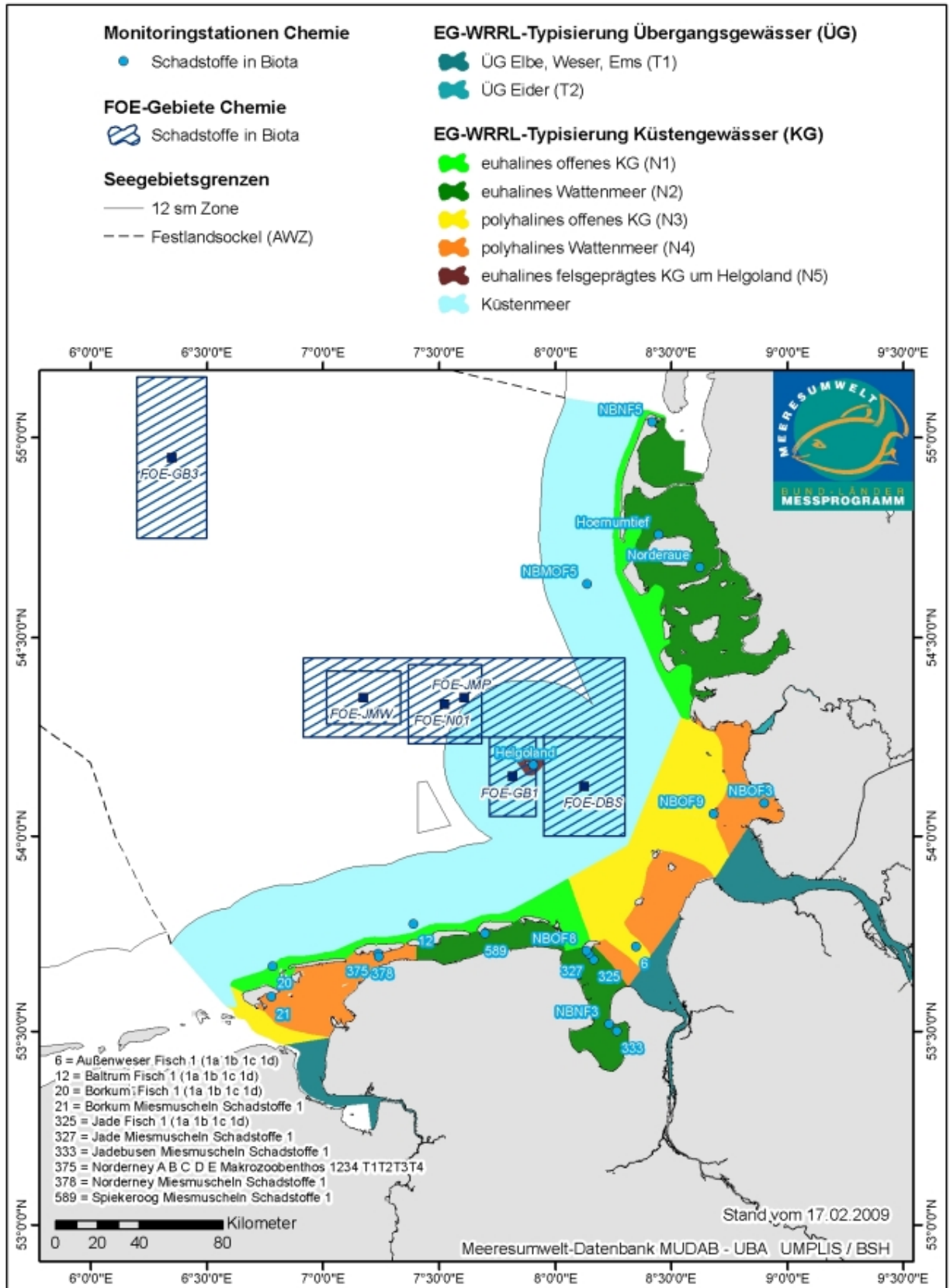


Figure 1: Map of stations intended for the monitoring of pollutants in biota in the North Sea.

[Figure 1 as PDF-document](#)

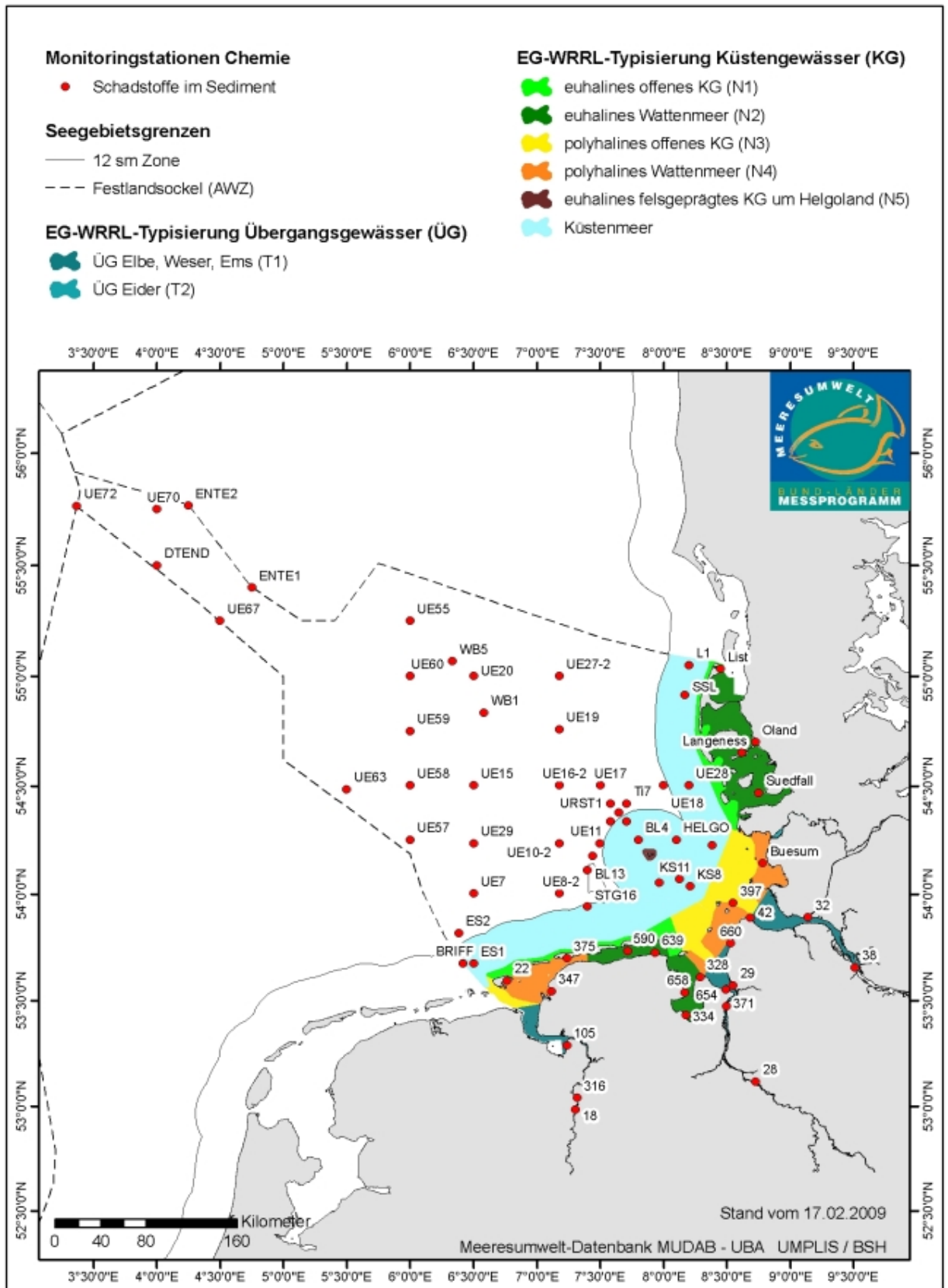


Figure 2: Map of stations intended for the monitoring of pollutants in sediment in the North Sea.

[Figure 2 as PDF-document](#)

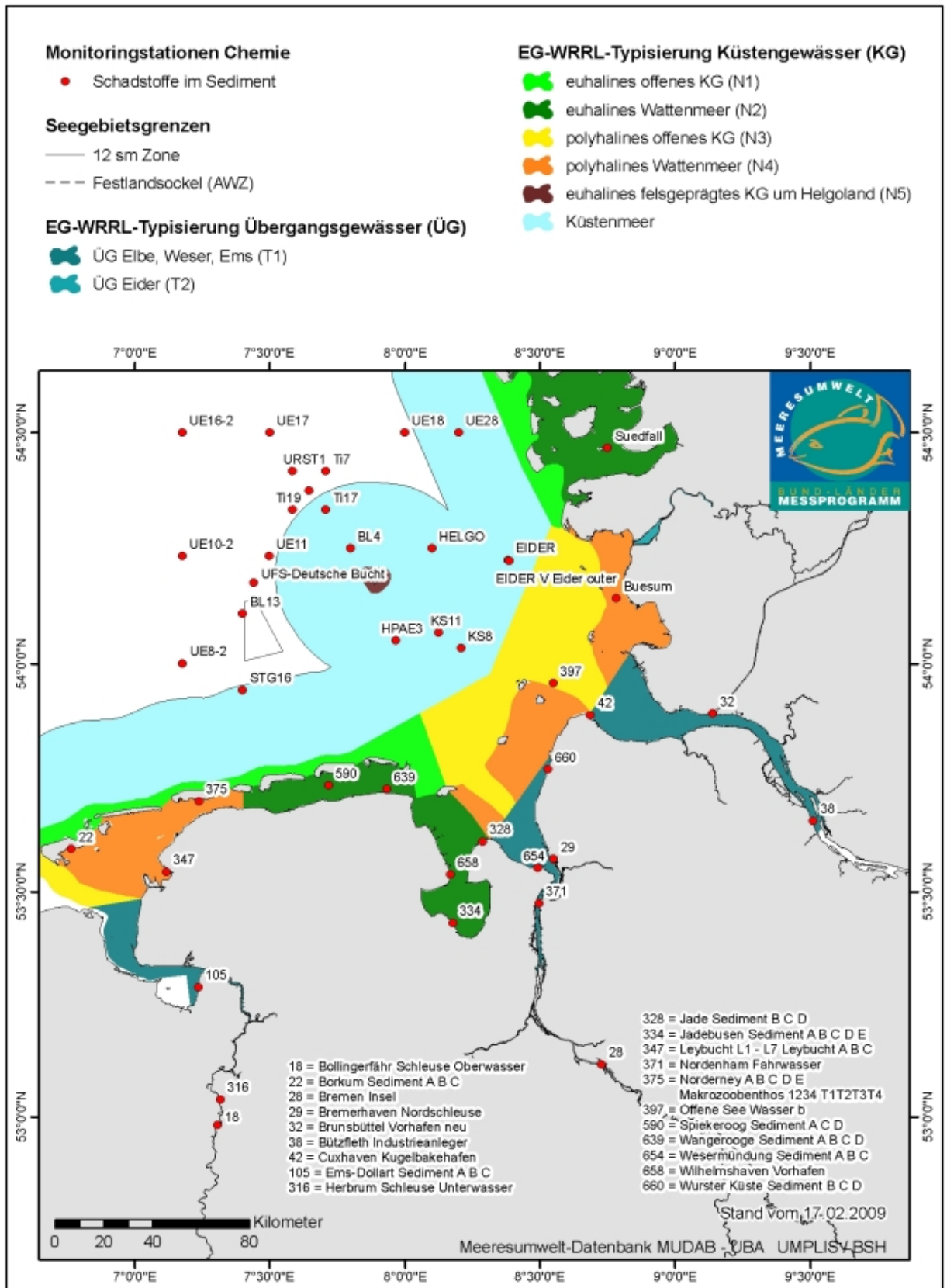


Figure 3: Map of stations intended for the monitoring of pollutants in sediment in the North Sea.

[Figure 3 as PDF-document](#)

Baltic Sea

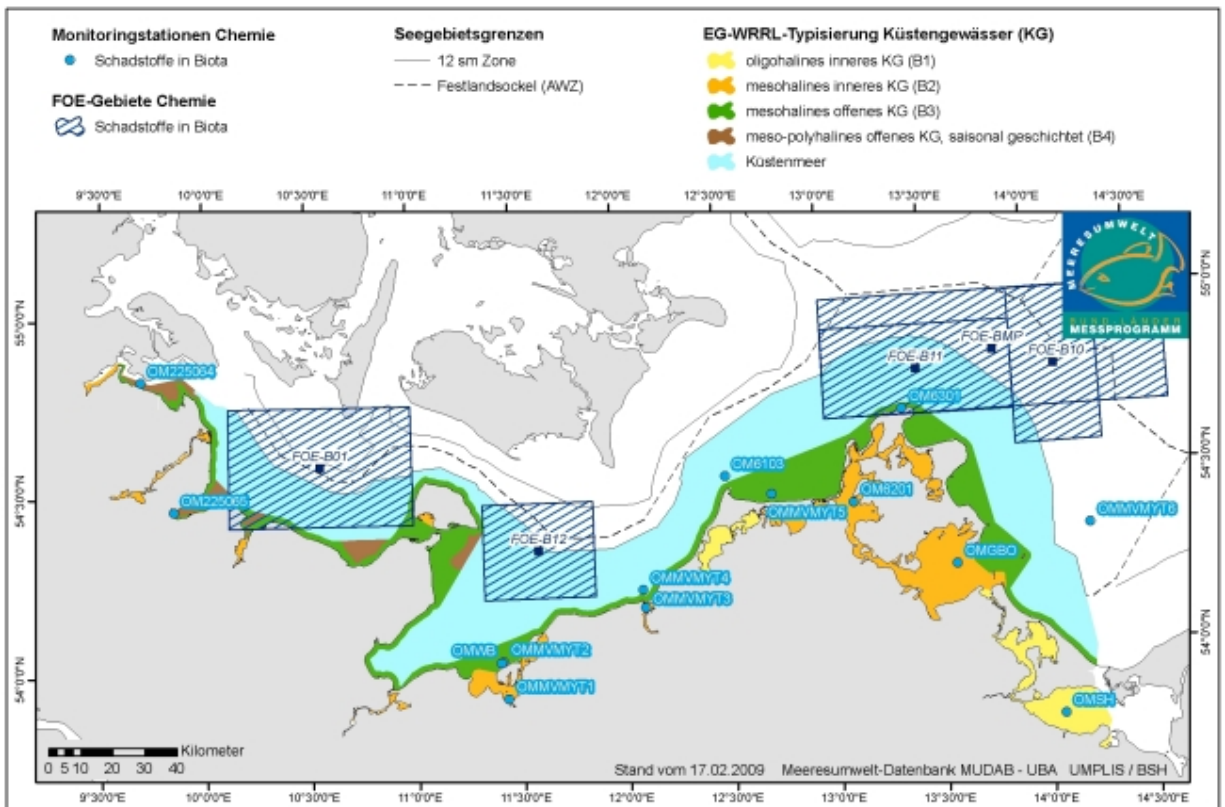


Figure 6: Map of stations intended for the monitoring of pollutants in biota in the Baltic Sea.

[Figure 6 as PDF-document](#)

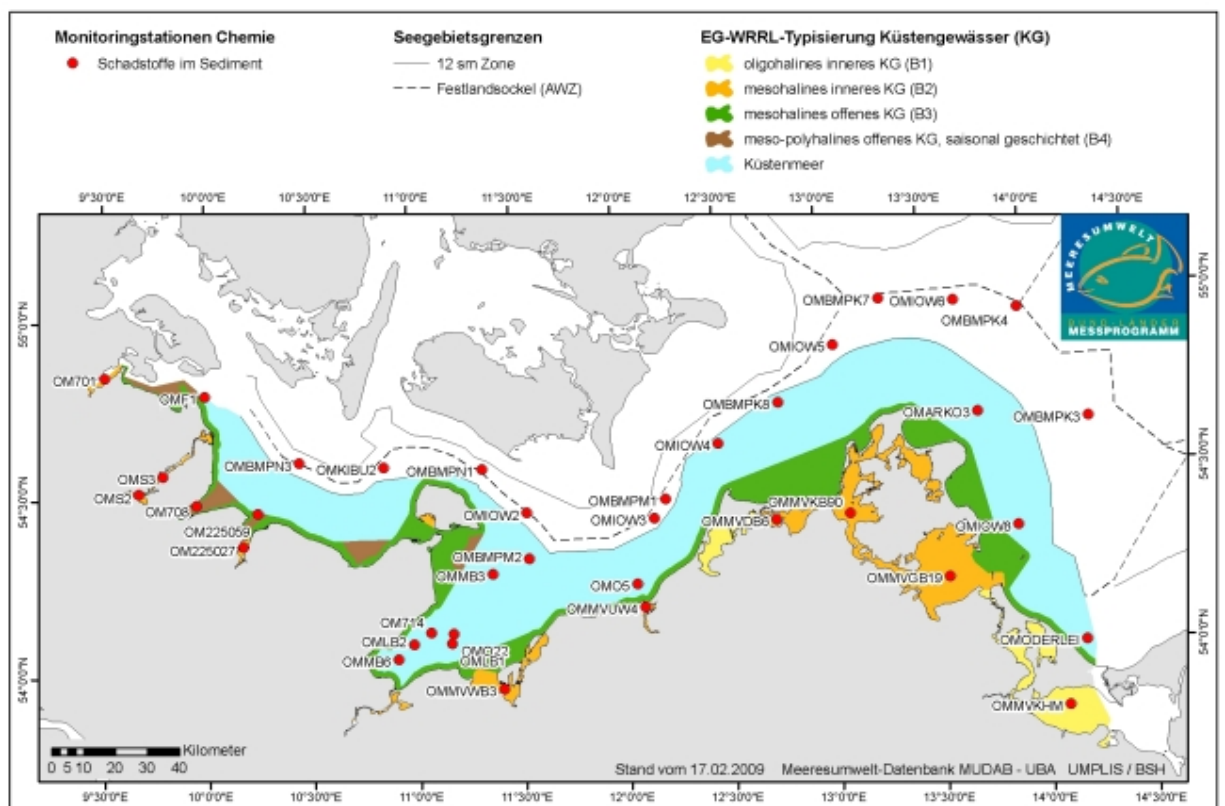


Figure 7: Map of stations intended for the monitoring of pollutants in sediment in the Baltic Sea.

[Figure 7 as PDF-document](#)

4 Assessment

Under the Water Framework Directive and the current marine conventions, OSPAR in particular, criteria have been developed for the assessment of the quality of waters in terms of chemical pollutants. These pollutants, which have been selected as priority substances on account of their toxic, persistent and bioaccumulating characteristics, are to be compared with the assessment criteria adopted for each particular monitoring programme.

4.1 Assessment procedures

North Sea and Baltic Sea

Title

Assessment procedure WRRL

Guideline:

WFD

Comments:

Under the WFD, chemical status is assessed in line with the Environmental Quality Standards (EQSs) laid down in [Directive 2008/105/EC](#), expressed as the total concentration in the whole water sample:

- Organic priority substances: the concentration in the dissolved phase (filtration through 45-µm filter)
- Priority metals and three priority substances: the concentration in biota tissue (wet weight)

At present, EQSs have been set for 33 priority substances and eight further substances (cf. [Directive 2008/105/EC](#)). The method by which the EQSs are derived is described in [Lepper 2005](#). The EQSs take account of direct ecotoxicological effects in various habitats (water, sediment), as well as indirect ecotoxicological effects as a result of bioaccumulation in biota (secondary poisoning of top predators). In order to be able to monitor both long-term and short-term effects, two types of EQS have been derived:

- (a) the annual average EQS-AA) for protection against chronic effects and
- (b) the maximum allowable concentration (EQS-MAC) for protection against chronic toxic effects caused by short-term pollution peaks.

The EQS-MACs must never be exceeded at any time.

Furthermore, the provisions set out in [Directive 2009/90/EC](#) apply when monitoring is carried out.

If a water body satisfies all environmental quality standards, its chemical status is categorised as good. In order to assess the impacts of anthropogenic activities over longer periods of time and facilitate their reduction where possible, it is necessary to carry out long-term trend surveys with which exposure to pollutants that tend to accumulate in biota or sediments can be monitored.

North Sea and Baltic Sea

Title

Assessment procedure MSFD

Guideline:

MSFD

Comments:

Qualitative descriptors for the determination of good environmental status are set out in Annex I MSFD. Descriptor 8 is formulated as follows: "Concentrations of contaminants are at levels not giving rise to pollution effects." This means that contaminants, i.e. substances or groups of substances that are toxic, persistent and bioaccumulating, must not cause any direct and/or indirect adverse effects in the marine environment.

A good environmental status in terms of this descriptor would be achieved if contaminants had no pollution effects on the marine environment and it were possible to prevent these habitats from becoming progressively more vulnerable. A corresponding assessment strategy that covers the relevant contaminants and assessment criteria is currently being developed on the basis of the current marine assessment strategies (cf. OSPAR), subject to consideration of the WFD.

Monitoring should, on the one hand, survey concentrations of pollutants in the relevant matrices (biota, sediment, water) and, on the other hand, quantify biological effects in the ecosystems that are being observed. In this context, the threshold values used for the risk assessment must be selected in such a way that no contradictory effects are to be expected. In this respect, the temporal development of concentrations should also be observed in order to register critical values in good time. The selection of regionally significant contaminants, the taxa to be observed and biological parameters may differ from one marine region to the next. At the same time, harmonised observation and assessment methods at the European level should ensure a uniform degree of environmental protection.

North Sea and Baltic Sea

Title

Assessment procedure TMAP

Guideline:

TMAP

Comments:

Under this monitoring programme, pollutants in biota and sediment are monitored and assessed in accordance with the current OSPAR and WFD assessment criteria. When assessments are carried out, pollutant concentrations are analysed from the river mouth to their accumulation in sediment or biota. The data are evaluated visually, organised to show temporal and spatial trends.

North Sea

Title

Assessment procedure OSPAR

Guideline:

OSPAR

Comments:

Two types of assessment criteria are used as the basis for the assessment of concentrations of pollutants in sediment and biota under the OSPAR Joint Assessment and Monitoring Programme (JAMP).

- Background concentrations (BCs) are concentrations of contaminants in remote and pristine ecosystems based on contemporary or historical data. Background assessment concentrations (BACs), which are derived from background concentrations by statistical methods, have been developed in order to assess real background levels. Background concentrations of anthropogenic substances should not be detectable in pristine ecosystems. On the derivation of background concentrations and background assessment concentrations, cf. [CEMP Assessment Manual \(OSPAR 2008\)](#).
- Environmental assessment criteria (EACs) are chosen in such a way that no chronic effects are expected to occur in the most sensitive marine species when contaminant concentrations are below these levels in the relevant matrices (mostly biota and sediment). It has been possible for these assessment criteria to be derived for individual substances by drawing on data from toxicological investigations, while in some cases environmental quality standards for water have had to be converted into EACs using a coefficient of distribution.

Assessment criteria for the assessment of CEMP monitoring data on hazardous substances were developed for the first time for the QSR 2010 in order to allow the data to be visualised in the form of a three-level traffic-light system (blue/green/red). According to OSPAR Document [2009/461](#), "green" stands for a "good ecological status" as defined by the MSFD, in which case the concentrations of pollutants represent little or even no risk.

Baltic Sea

Title

Assessment procedure HELCOM

Guideline:

HELCOM

Comments:

HELCOM has not developed any assessment criteria of its own, but leaves it up to its members to set individual limit values for the concentrations of pollutants in the Baltic Sea.

5 Quality assurance

- [QUASIMEME](#) (provider of intercalibration exercises on anorganic and organic pollutants in water, sediments and biota)
- Quality Assurance Panel ((GMMP) (at the UBA) (workshops, standardisation with DIN, CEN and ISO, support for the establishment and administration of QM systems, drafting of sample SOPs, definition of minimum requirements for analytical procedures.)

Comments

Each of the monitoring institutions bears responsibility for establishing and administering its own DIN EN ISO/IEC 17025 quality management systems. The Quality Assurance Panel at the Federal Environment Agency is responsible for the coordination of quality assurance under the GMMP. The institutions involved in the GMMP coordinate their activities within the framework of the Working Group on Quality Assurance and the Ad Hoc Working Group on Pollutants and Biological Effects.

5.1 Monitoring institutions

- [IOW](#)
- [LLUR](#)
- [BSH](#)
- [NLWKN](#)
- [vTI](#)
- [BfG](#)
- [IAR](#)
- [UPB](#)
- WGEIbe
- [LVA-MV](#)

5.2 Guidance documents

- *AQS-Merkblätter für die Wasser-, Abwasser- und Schlammuntersuchung*, updatable collection of data sheets on the framework analytical quality assurance recommendations issued by the Federation/Länder Joint Water Commission (LAWA), updated 2009.
- *DEV zur Wasseruntersuchung, 1997: 39. und 45. Lieferung: I: Strategien für die Wasseranalytik: Verfahrensentwicklung, Validierung und Qualitätssicherung in der Routine*; 74 pp.
- Federal Environment Agency, *UPB-Standardarbeitsanweisungen: [Standardarbeitsanweisungen Umweltproben](#)*
- Federal Environment Agency, GMMP Quality Assurance Panel, 2004: [Leitlinie zur Methodvalidierung](#).
- Federal Environment Agency, GMMP Quality Assurance Panel, 2008: *Muster-Qualitätsmanagementhandbuch für Laboratorien des Bund/Länder-Messprogramms nach DIN EN ISO/IEC 17025 (GMMP Sample Quality Management Manual)*, Version: 01 of 1 February 2008
- HELCOM, *COMBINE Manual*, "Part B. [General guidelines on quality assurance for monitoring in the Baltic Sea](#)".
- HELCOM, *COMBINE Manual*, "Part D: [Programme for monitoring of contaminants and their effects](#)".
- JAMP, [Guidelines for Monitoring Contaminants in Biota](#) (agreement 1999-2)
- JAMP, [Guidelines for Monitoring Contaminants in Sediments](#) (agreement 2002-16)

5.3 Standards

- ISO 5667-9, 1992-10: Water quality - Sampling - Part 9: Guidance on sampling from marine waters.
- DIN EN ISO/IEC 17025, 2005: General requirements for the competence of testing and calibration laboratories.
- DIN EN ISO 5667-3, 2004-05: Water quality - Sampling - Guidance on the preservation and handling of water samples (ISO 5667-3: 2003).

5.4 Current status

A GMMP Study Group decision (2006) obliged the GMMP laboratories to establish DIN EN ISO/IEC 17025 quality management systems. For this purpose, a Sample Quality Management Manual was drawn up in 2006/2007 by the Quality Assurance Panel in cooperation with the Quality Assurance Sub-Working Group on Quality Management. This manual has been available for subscription from the Quality Assurance Panel at the UBA since mid-2008 and is to be used as the basis for internal QM documentation at laboratories. The manual is designed as a loose-leaf collection, so that regular updates can be added as required. Where necessary, it is to be gradually supplemented with sample SOPs and documented processes agreed within the GMMP.

In order to guarantee and harmonise the quality and comparability of the analytical results reached under the GMMP, target values for lower limits of application (LOAs) were introduced in 2006 (Study Group decision of 30 January 2006). When the frequency distributions of concentrations of selected chemical parameters were investigated in various matrices, it became apparent that a large proportion of the concentrations measured lay below the limits of application that had been defined and the target values for the LOAs had therefore been set too high. Since, apart from this, sufficient consideration was still not being given to background values and the assessment criteria to be monitored, the target values for lower limits of application were to be replaced by minimum requirements for determination limits, subject to consideration of relevant provisions in the field of water protection, given that clear definitions for such determination limits had been defined internally as validation parameters at laboratories and they had also been introduced into international provisions (decision adopted at the 38th meeting of the Working Group on Quality Assurance on 2 December 2008).

6 Literature

7 Activities required to implement the concept

7.1 Changes to the current monitoring programme

7.2 Working steps required

Footnotes

(1) Marine Strategy Framework Directive; Directive 2008/56/EC of 17 June 2008. This also applies to transitional waters and coastal waters covered by Directive 2000/60/EC, where pertinent aspects of the protection of the marine environment not dealt with in Directive 2000/60/EC are at issue.

(2) Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

(3) Article 11 (monitoring of habitats and all species listed in Annexes II, IV and V) imposes the obligation to monitor the conservation status of all habitats (listed in Annex I) of Community interest. In consequence, this provision is not limited to NATURA 2000 areas, but habitat types outside the Habitat Directive areas are also to be included in the monitoring as appropriate.

(4) EC Water Framework Directive; Directive 2000/60/EC. The coastal waters subject to ecological assessment under the WFD extend 1 nautical mile beyond the baseline.

(5) Baltic Sea Action Plan, HELCOM 2007

(6) Annual surveying of surface runoff and riverine inputs of selected substances into the marine environment. See also the information on nutrients and pollutants. The parameters to be monitored under OSPAR are listed in the documents cited.

(7) Coordination of national monitoring programmes for the surveying of various parameters, including the Nutrient Monitoring Programme.

(8) The monitoring requirements under TMAP were specified in the Wadden Sea Plan ([Sylt, 2010](#)) (see also [TMAP Manual, section 2](#)).