

# Eurowaternet

## Technical guidelines for implementation in transitional, coastal and marine waters

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# 1. Introduction

Eurowaternet-Transitional, coastal and marine waters was implemented in 2002 as a priority data flow for the collection of timely, targeted, relevant and reliable information on Europe's transitional, coastal and marine waters.

These Eurowaternet-Transitional, coastal and marine waters technical guidelines detail the content and format of data required by the European Environment Agency (EEA) from both the marine conventions and national sources.

It is recognised that whilst countries already make a data supply to the marine conventions, the time series are somewhat incomplete. It is not the EEA's intention that the Eurowaternet data flow should require countries to make duplicate supplies of data. Any data already submitted to the marine conventions need not be re-supplied through the Eurowaternet process as these will be requested directly from the marine conventions. However, it is necessary to ask each country to supply any missing or additional data. The content and format of

the data request are the same for both the marine conventions and national sources.

The Eurowaternet priority data flow is an annual event. Data provided by the marine conventions and national sources are stored in the Waterbase-Transitional, coastal and marine waters database (this has replaced Marinebase). The data are used to produce indicator factsheets, the basis of EEA assessments and reports, and are not used for compliance testing. All Eurowaternet data will be made available to the public via the Internet in the near future. The reference Waterbase is currently being developed as a tool for disseminating all water data collected through the Eurowaternet process, including transitional, coastal and marine waters.

In the future, data will also be requested on the biological communities of transitional, coastal and marine waters, rivers and lakes. A new data flow and database will be developed to collect and store this data, for which separate guidance documentation will be produced.

## 2. Eurowaternet concept

Eurowaternet is designed to give a representative assessment of water body types and human pressures affecting the quality and quantity of water within each member country and across the EEA area.

Eurowaternet is firmly based on existing national and international water monitoring networks. However, there are often large differences in national water monitoring networks, making them incomparable, because:

- they are established to meet national needs and priorities;
- many are only 'impact' networks with stations sited to monitor major point source discharges;
- many only monitor nationally large or important water bodies.

There are, therefore, very large differences in existing networks in terms of:

- objectives;
- water body types monitored;
- numbers of monitoring stations;
- determinands measured.

This is why the implementation of Eurowaternet has been and will remain a step-by-step process, evolving and extending

as national networks develop and change across Europe.

Data provided by the marine conventions and national sources through Eurowaternet-Transitional, coastal and marine waters are stored in the Waterbase-Transitional, coastal and marine waters database and are used in the production of indicator-based reports and other environmental assessments at both the regional and European scale. The database reflects the general format and appearance of the other Waterbase databases which store European rivers, lakes and groundwater data, also collected through the Eurowaternet priority data flow procedure. There are four main elements to Waterbase-Transitional, coastal and marine waters:

- details of the monitoring stations' and water bodies' physical characteristics;
- disaggregated water column, biota and sediment chemical quality data;
- details of proxy pressures applicable to each monitoring station;
- data on riverine and direct input loads.

It is hoped that the continued collaborations with the marine conventions in gathering data through Eurowaternet will prevent countries from making duplicate submissions of data.

### 3. Water types — Water framework directive definitions

The water framework directive (WFD) definitions have been used to define transitional and coastal waters:

‘Transitional waters are bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by freshwater flows.’

‘“Coastal water” means surface water on the landward side of a line, every point of which is at a distance of 1 nautical mile on the seaward side from the nearest point of the baseline from which the breadth of territorial waters is measured, extending where appropriate up to the outer limit of transitional waters.’

Marine waters would then by default be ‘waters seaward of coastal waters’.

The WFD CIS Working Group 2.4 (COAST) provides further details in *Guidance on typology, reference conditions and classification systems for transitional and coastal waters*.

(To access this document, self-register at the following CIRCA location:

<http://forum.europa.eu.int/Public/irc/env/Home/main>.

Follow the instructions to log on, change and verify password. The above document can be found at: [http://forum.europa.eu.int/Members/irc/env/wfd/library?l=/framework\\_directive/guidance\\_documents/transitional\\_classificat&vm=detailed&sb=Title](http://forum.europa.eu.int/Members/irc/env/wfd/library?l=/framework_directive/guidance_documents/transitional_classificat&vm=detailed&sb=Title).)

One key physical characteristic distinguishing transitional waters from riverine waters (based on the WFD definition) is the level of salinity. The width of coastal waters varies as the baseline from which the breadth of territorial waters is measured differs from country to country. Some include offshore islands as the baseline, which can mean that the coastal water can extend tens of kilometres offshore, and certainly more than the 1 nautical mile limit in the definition. For each monitoring station, we require both the distance from the nearest mainland and the distance from nearest land (if it is close to an offshore island).

## 4. Types of monitoring stations

A station classification system is applied to ensure that data from the same types of station are compared. The definitions of the types of monitoring stations to be included in Eurowaternet-Transitional, coastal and marine waters are as follows.

**Reference stations** would occur in waters that are minimally impacted by human activity. Some countries will not have reference stations.

Reference stations in transitional waters have catchments or drainage basins with little or no human activity and the percentage of natural landscape is higher than 90 %. They are expected to be minimally impacted through inflow of water from the adjacent coastal or marine waters, themselves impacted by human activity.

Reference stations in coastal waters are also associated with river basin districts with little or no human activity and the percentage of natural landscape is higher than 90 %. In addition, it is expected that the adjacent marine waters, with which water is exchanged, would be minimally impacted by human activity.

In terms of physico-chemical determinands and hazardous substances (including the WFD priority substance list, Lists I and II of the dangerous substances directive, and the marine conventions' lists of priority substances) that occur naturally, it is expected that the concentrations measured at these stations would give an indication of 'background levels'.

Transitional, coastal and marine waters which are remote from the main centres of human activity may still be impacted by the atmospheric deposition of contaminants, in particular volatile synthetic substances. This may be the principal or only pollution source in these waters and data from such areas might be used to assess the significance of atmospheric deposition. However, stations in

such waters do not qualify as reference stations if the deposited contaminants resulted in a measurable ecological effect.

**Representative stations** <sup>(1)</sup> reflect the general quality of the transitional and coastal water bodies and marine water areas with respect to pressures placed upon them.

Stations selected under Eurowaternet are representative of the physico-chemical quality elements, such as nutrients and organic pollution indicators, and also representative of hazardous substances, including those detailed on the WFD priority substance list, Lists I and II of the dangerous substances directive and the marine conventions' lists of priority substances (see Annex 1). The water quality at these stations is influenced by diffuse and/or point sources of pollution depending on human activities upstream and in adjacent waters. It is expected that pollutants from point sources would be fully mixed and diluted within the ambient water flow/volume. These stations might be included in national networks used to obtain an overview of the numbers and concentrations of hazardous substances present and of the general levels of nutrients and organic pollution indicators. This type of station is likely to be included in 'surveillance' monitoring programmes as required by the WFD. Many of these stations may, therefore, have long time series of data.

**Impact stations** are monitoring stations within the zone (area or volume of water) where initial mixing of emissions from a particular discharge or concentrated group of discharges takes place with the receiving waters (sometimes called 'hot spots'). Concentrations of determinands are expected to be relatively high ('worst-case' concentrations) at these stations. These stations may be used by the regulatory authorities to assess the compliance of discharges within standards or limits. Thus, monitoring at these stations may in some cases be limited to those substances present

(1) Harmonised selection methodology and criteria for representative stations in transitional waters, including, for example, the salinity question for nutrients and other dissolved substances, will be crucial. Guidelines are available from the marine conventions or the International Council for the Exploration of the Sea (ICES).

within any particular discharge. Stations of this type are likely to be included in 'operational' monitoring programmes as required by the WFD. Many of these stations may, therefore, have a relatively long time series of data and should be included in the Eurowaternet reporting procedure.

Data are not requested from monitoring stations established for ad hoc purposes, such as for investigative monitoring, and which are sampled for only a limited time period.

**Countries should report data from all of the above station types.** Comparisons will be made by station type in order that like is compared with like.



## 5. Number of stations

The aim is not only to make Eurowaternet representative of the pressures on transitional, coastal and marine waters, but also of the numbers and types of water bodies and areas. This is consistent with the aim of surveillance monitoring under the WFD, which requires the monitoring of ‘sufficient water bodies to provide an assessment of the overall surface water status within each catchment or sub-catchment within the river basin district’.

EU Member States have started the process of typifying their transitional and coastal waters to establish the number of water body types which will require assessment and/or monitoring under the WFD. As every national river basin district will require a plan, it is likely that the assessment and/or monitoring of quality in some countries will become more geographically spread at the national level than at present.

The EEA is currently reliant on information submitted by the marine convention

contracting parties to ICES and/or commissions, supplemented by additional national data. It is likely that there is more information available at the national level than is submitted to the marine conventions and ICES.

Eurowaternet <sup>(2)</sup> requests monitoring data for any of the specified determinands from **all** representative, reference and impact stations included in national transitional and coastal water monitoring programmes, with the exception of data from investigative monitoring. Ultimately, an assessment will have to be undertaken to determine how representative this information is of the transitional and coastal water bodies at the national level. For example, it will be of use to know how many transitional waters are monitored compared with the total number of transitional waters in a country, or the length of coastal waters monitored as a proportion of the total national coastline.

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(2) Eurowaternet is based on existing national monitoring programmes and there is no requirement to undertake additional monitoring solely for Eurowaternet purposes.

## 6. Determinands and supporting information required for Eurowaternet

The Eurowaternet-Transitional, coastal and marine waters data flow is consistent as far as possible with other requirements and initiatives such as the WFD and EUNIS (EUropean Nature Information System). Data are requested from three different environmental compartments of transitional, coastal and marine waters: water column, sediment and biota. It is necessary to know what compartments are sampled at each station. Not all stations will sample all compartments.

The following tables list the information requested under Eurowaternet- Transitional, coastal and marine waters.

Table 6.1 denotes the physical characteristic data required for each transitional, coastal

and marine water body and monitoring station.

Tables 6.2, 6.3 and 6.4 contain details of the data relating to concentrations of determinands in water column, biota and sediment measured at each station. The concentration values of each determinand are requested.

Table 6.5 contains a list of the proxy pressure information required.

It is recommended that data be submitted in the format and structure of the templates (**EWN\_TCM\_Concentrations.xls** and **EWN\_TCM\_Inputs.xls**) in Excel spreadsheets or ASCII text files (tab or semi-colon separated).

Table 6.1

**Physical characteristics of Eurowaternet-Transitional, coastal and marine waters stations (to be submitted only once but updated if appropriate)**

Field name	Description	Type/Format
WATER_TYPE	<b>Water body type</b> As defined by the WFD: T = Transitional water C = Coastal water M = Marine water.	Text 1 char.
TYPE_DESC	<b>Water body type description</b> Additional water body description, e.g. estuary, coastal lagoon, embayment.	Text 50 chars
STN_ID	<b>National station ID</b> Station/sampling area identifier unique at national level. This should be the same ID as previously supplied. A station may be a geographically fixed location. A station may also be a broader area in which actual sampling locations may vary from survey to survey. A station may also be an area with a defined salinity range within which samples have to be taken. Areas will, however, be recorded and reported as a discrete sampling location.	Text 50 chars
STN_NAME	<b>National station name</b>	Text 50 chars
STN_REPORTING	<b>Station reporting purpose</b> The monitoring station is used for the following reporting purposes: N = National purposes MC = Marine conventions EC = European Commission. Multiple entries separated by commas are allowed (e.g. N,EC).	Text 10 chars
CRY_CD	<b>Country code</b> ISO 3166 two-digit country code (see Annex 6).	Text 2 chars
WATER_NAME	<b>Water body name</b>	Text 50 chars
SEA_NAME	<b>Marine water body name</b> Consistent with marine convention nomenclature.	Text 50 chars

Field name	Description	Type/Format
CATCH_NAME	<b>Catchment name</b> Major river catchment/basin draining into transitional or coastal water.	Text 50 chars
COAST_MAIN	<b>Mainland coast</b> Distance from nearest mainland coast expressed in kilometres (km).	Number 1 decimal place
COAST_CLOSE	<b>Closest coast</b> Distance from closest coast expressed in kilometres (km) (if different from COAST_MAIN).	Number 1 decimal place
REGION	<b>Region</b> Region where the transitional or coastal water is located.	Text 50 chars
LONG	<b>Longitude (X)</b> International geographical coordinates of the monitoring station/area in decimal degrees format.	Number 5 decimal places
LAT	<b>Latitude (Y)</b> International geographical coordinates of the monitoring station/area in decimal degrees format.	Number 5 decimal places
STN_TYPE	<b>Eurowaternet station type</b> B = Reference station R(PHYS) = Station representative of general conditions in terms of physico-chemical quality elements (e.g nutrients, organic matter) I(PHYS) = Station impacted directly by discharges affecting physico-chemical conditions R(HZ) = Station representative of general conditions in terms of hazardous substances I(HZ) = Station impacted directly by specific discharges containing hazardous substances Station can be of more than one type — separate entries with commas (e.g. B,R(PHYS)).	Text 30 chars
MatRIX	<b>Matrix</b> Environmental compartments measured at station. Any combination of codes: W = Water column B = Biota S = Sediment. Separate entries with commas (e.g. W,B,S).	Text 10 chars
Salinity_mean	<b>Mean annual salinity</b> Expressed in practical salinity units (psu).	Number 1 decimal place
Salinity_min	<b>Minimum annual salinity</b> Expressed in practical salinity units (psu).	Number 1 decimal place
Salinity_max	<b>Maximum annual salinity</b> Expressed in practical salinity units (psu).	Number 1 decimal place
TEMPERATURE	<b>Mean annual temperature</b> Expressed in degrees Celsius (°C).	Number 1 decimal place
TIDAL_MEAN	<b>Mean tidal range</b> At the transitional or coastal station expressed in metres (m).	Number 1 decimal place
DEPTH	<b>Mean annual depth</b> Expressed in metres (m).	Number 1 decimal place
RESIDENCE	<b>Residence time</b> Of transitional or coastal water body, expressed in number of days.	Integer
MIXING	<b>Mixing characteristics</b> At transitional water monitoring station: FM = Fully mixed PM = Partially mixed VS = Vertically stratified	Text 2 chars
REMARKS	<b>Remarks</b> Additional comments.	Text 100 chars

Table 6.2 Concentrations of physico-chemical and hazardous substances in water (to be submitted annually)

Field name	Description	Type/Format
STN_ID	<b>National station ID</b> Station identifier unique at national level. This should be the same ID as supplied in Table 6.1.	Text 50 chars
CRY_CD	<b>Country code</b> ISO 3166 two-digit country code (see Annex 6).	Text 2 chars
YEAR	<b>Year</b> Calendar year when sample was taken (YYYY).	Integer
MONTH	<b>Month</b> Month when sample was taken (1–12).	Integer
DAY	<b>Day</b> Day of month when sample was taken (1–31).	Integer
DEPTH	<b>Sampling depth</b> Expressed in metres (m).	Number 1 decimal place
THERM_POS	<b>Vertical position relative to thermocline</b> AT = Above thermocline IT = In thermocline BT = Below thermocline	Text 2 chars
HALO_POS	<b>Vertical position relative to halocline</b> AH = Above halocline IH = In halocline BH = Below halocline	Text 2 chars
SAMPLE_ID	<b>Sample identifier</b> Unique number required if multiple samples taken within station-country-date-depth.	Text 8 chars
CAS_No	<b>Chemical abstract service number</b> Of hazardous substance listed in Annex 1.	Text 20 chars
DETERMINAND	<b>Determinand</b> Name of element or chemical component analysed in format as detailed in Annexes 1 and 2.	Text 50 chars
UNIT	<b>Unit of measurement</b> Hazardous substances listed in Annex 1 expressed in micrograms per litre (µg/l) or nanograms per litre (ng/l) as appropriate. Only one unit of measurement should be used for individual substances, <b>not</b> both. Physico-chemical substances expressed in format as detailed in Annex 2.	Text 20 chars
CONC	<b>Concentration</b> Of determinand in sample.	Number 2 decimal places
SALINITY	<b>Salinity</b> Of sample or salinity to which sample concentration is normalised, expressed in practical salinity units (psu).	Number 1 decimal place
<LoD	<b>Less than limit of detection flag</b> Flag to indicate sample below analytical limit of detection in format - 999.	Integer
LoD	<b>Limit of detection</b> That concentration for which there is a desirably small probability that the determinand will not be detected (usually detected with 95 % confidence). Expressed in same units as CONC.	Number 2 decimal places
DTR_LMT	<b>Limit of determination</b> The smallest concentration that can be distinguished from the analytical blank at a chosen level of statistical confidence (usually 95 %). Expressed in same units as CONC.	Number 2 decimal places
REMARKS	<b>Remarks</b> Any additional comments.	Text 100 chars

Concentrations of hazardous substances in biota (to be submitted annually)

Table 6.3

Field name	Description	Type/Format
STN_ID	<b>National station ID</b> Station identifier unique at national level. This should be the same ID as supplied in Table 6.1.	Text 50 chars
CRY_CD	<b>Country code</b> ISO 3166 two-digit country code (see Annex 6).	Text 2 chars
YEAR	<b>Year</b> Calendar year when sample was taken (YYYY).	Integer
MONTH	<b>Month</b> Month when sample was taken (1–12).	Integer
DAY	<b>Day</b> Day of month when sample was taken (1–31).	Integer
SPECIES	<b>Species code</b> See Annex 4.	Text 8 chars
TISSUE	<b>Tissue code</b> See Annex 5.	Text 2 chars
SAMPLE_ID	<b>Sample identifier</b> Unique number required if multiple samples taken within station-country-date-species-tissue.	Text 8 chars
CAS_No	<b>Chemical abstract service number</b> Of hazardous substances listed in Annex 1.	Text 20 chars
DETERMINAND	<b>Determinand</b> Name of element or chemical component analysed from the list in Annex 1.	Text 50 chars
UNIT	<b>Unit of measurement</b> Expressed as weight ratio micrograms per kilogram dry weight ( $\mu\text{g}/\text{kg dw}$ ) or nanograms per kilogram dry weight ( $\text{ng}/\text{kg dw}$ ); or, micrograms per kilogram fresh weight ( $\mu\text{g}/\text{kg fw}$ ) or nanograms per kilogram fresh weight ( $\text{ng}/\text{kg fw}$ ), as appropriate. Weights should be measured in either $\mu\text{g}/\text{kg}$ or $\text{ng}/\text{kg}$ , but <b>not</b> both.	Text 20 chars
BASIS	<b>Basis of measurement</b> D = Dry W = Wet L = Lipid (fat)	Text 1 char.
CONC	<b>Concentration</b> Of determinand in sample.	Number 2 decimal places
<LoD	<b>Less than limit of detection flag</b> Flag to indicate sample below analytical limit of detection in format - 999.	Integer
LoD	<b>Limit of detection</b> That concentration for which there is a desirably small probability that the determinand will not be detected (usually detected with 95 % confidence). Expressed in same units as CONC.	Number 2 decimal places
DTR_LMT	<b>Limit of determination</b> The smallest concentration that can be distinguished from the analytical blank at a chosen level of statistical confidence (usually 95 %). Expressed in same units as CONC.	Number 2 decimal places
DRY_FRESH_RATIO	<b>Ratio of dry weight to fresh weight</b> Expressed as percentage (%).	Number 1 decimal place
FAT_PRC	<b>Fat content</b> Expressed as percentage (%) of total dry matter.	Number 1 decimal place
REMARKS	<b>Remarks</b> Any additional comments.	Text 100 chars

Table 6.4 Concentrations of hazardous substances in sediment (to be submitted annually)

Field name	Description	Type/Format
STN_ID	<b>National station ID</b> Station identifier unique at national level. This should be the same ID as supplied in Table 6.1.	Text 50 chars
CRY_CD	<b>Country code</b> ISO 3166 two-digit country code (see Annex 6).	Text 2 chars
YEAR	<b>Year</b> Calendar year when sample was taken (YYYY).	Integer
MONTH	<b>Month</b> Month when sample was taken (1–12).	Integer
DAY	<b>Day</b> Day of month when sample was taken (1–31).	Integer
SAMPLE_ID	<b>Sample identifier</b> Unique number required if multiple samples taken within station-country-date.	Text 8 chars
CAS_No	<b>Chemical abstract service number</b> Of hazardous substances listed in Annex 1.	Text 20 chars
DETERMINAND	<b>Determinand</b> Name of element or chemical component analysed from the list in Annex 1.	Text 50 chars
UNIT	<b>Unit of measurement</b> Expressed as weight ratio micrograms per kilogram dry weight ( $\mu\text{g}/\text{kg dw}$ ) or nanograms per kilogram dry weight ( $\text{ng}/\text{kg dw}$ ); or, micrograms per kilogram fresh weight ( $\mu\text{g}/\text{kg fw}$ ) or nanograms per kilogram fresh weight ( $\text{ng}/\text{kg fw}$ ), as appropriate. Weights should be measured in either $\mu\text{g}/\text{kg}$ or $\text{ng}/\text{kg}$ , but <b>not</b> both.	Text 20 chars
CONC	<b>Concentration</b> Of determinand in sample.	Number 2 decimal places
<LoD	<b>Less than limit of detection flag</b> Flag to indicate sample below analytical limit of detection in format -999.	Integer
LoD	<b>Limit of detection</b> That concentration for which there is a desirably small probability that the determinand will not be detected (usually detected with 95 % confidence). Expressed in same units as CONC.	Number 2 decimal places
DTR_LMT	<b>Limit of determination</b> The smallest concentration that can be distinguished from the analytical blank at a chosen level of statistical confidence (usually 95 %). Expressed in same units as CONC.	Number 2 decimal places
BOTTOM_DEPTH	<b>Bottom depth</b> At sampled site expressed in metres (m).	Number 1 decimal place
SAMPLER	<b>Sampling equipment used</b>	Text 50 chars
SED_DEPTH_TOP	<b>Top of analysed sediment layer</b> Measured from the sediment surface, expressed in centimetres (cm). Value will be zero if same as sediment surface.	Integer
SED_DEPTH_BOTTOM	<b>Bottom of analysed sediment layer</b> Measured from top of analysed sediment layer, expressed in centimetres (cm).	Integer
ORG_C	<b>Organic carbon</b> Expressed as percentage (%) of total dry weight.	Number 1 decimal place
GRAIN_TYPE	<b>Sediment type</b> Sediment-type description if no analysis of grain size: M = Mud FS = Fine sand MS = Middle sand CS = Coarse sand G = Gravel.	Text 2 chars
FRACTION	<b>Size fraction analysed</b> Upper limit of particle size in analysed fraction, expressed in micrometres ( $\mu\text{m}$ ). Blank if whole sediment has been analysed.	Integer

Field name	Description	Type/Format
DRY_WET_RATIO	<b>Ratio of dry weight to wet weight</b> Expressed as percentage (%).	Number 1 decimal place
BASIS	<b>Dry/wet weight result flag</b> D = Dry weight W = Wet weight	Text 1 char.
REMARKS	<b>Remarks</b> Any additional comments.	Text 100 chars

Proxy pressure information required for each monitoring station  
(to be submitted once and updated if appropriate)

Table 6.5

Field name	Description	Type/Format
STN_ID	<b>National station ID</b> Station identifier unique at national level. This should be the same ID as supplied in Table 6.1.	Text 50 chars
CRY_CD	<b>Country code</b> ISO 3166 two-digit country code (see Annex 6).	Text 2 chars
POPULATION	<b>Population density</b> In the catchment/drainage basin upstream of the transitional water or within the river basin district to which the coastal water has been assigned. Expressed as capita per square kilometre (capita/km <sup>2</sup> ).	Number 1 decimal place
<b>Land-use information based on Corine Land Cover or equivalent</b>		
URBAN	<b>Urban area</b> Urbanisation in the catchment/drainage basin upstream of the transitional water or within the river basin district to which the coastal water has been assigned. Expressed as percentage (%).	Number 1 decimal place
WETLAND	<b>Wetland</b> Wetland in the catchment/drainage basin upstream of the transitional water or within the river basin district to which the coastal water has been assigned. Expressed as percentage (%).	Number Decimal place
NATURE	<b>Natural land</b> Natural land in the catchment/drainage basin upstream of the transitional water or within the river basin district to which the coastal water has been assigned. Expressed as percentage (%).	Number 1 decimal place
FOREST	<b>Forest</b> Forest in the catchment/drainage basin upstream of the transitional water or within the river basin district to which the coastal water has been assigned. Expressed as percentage (%).	Number 1 decimal place
AGRI_TOT	<b>Total agricultural land</b> Total agricultural area in the catchment/drainage basin upstream of the transitional water or within the river basin district to which the coastal water has been assigned. Expressed as percentage (%).	Number 1 decimal place
AGRI_OTHER	<b>Other agricultural land</b> Other agricultural area in the catchment/drainage basin upstream of the transitional water or within the river basin district to which the coastal water has been assigned. Expressed as percentage (%).	Number 1 decimal place
ARABLE	<b>Arable land</b> Arable land in the catchment/drainage basin upstream of the transitional water or within the river basin district to which the coastal water has been assigned. Expressed as percentage (%).	Number 1 decimal place
PASTURE	<b>Pasture land</b> Pasture land area in the catchment/drainage basin upstream of the transitional water or within the river basin district to which the coastal water has been assigned. Expressed as percentage (%).	Number 1 decimal place
OTHER_USE	<b>Other land use</b> Other land use in the catchment/drainage basin upstream of the transitional water or within the river basin district to which the coastal water has been assigned. Expressed as percentage (%).	Number 1 decimal place
<b>Other anthropogenic activities (if any)</b>		
SEWAGE_DISCHARGE	<b>Sewage discharge</b> Direct discharges (!) from sewage treatment works to the water body. U = UWWT NU = Non-UWWT BU = Both	Text 10 chars

Field name	Description	Type/Format
INDUST_DISCHARGE	<b>Industrial discharge</b> Direct discharges <sup>(1)</sup> from industry to the water body. E = EPER NE = Non-EPER BE = Both	Text 10 chars
OTHER_DISCHARGE	<b>Other discharge</b> Direct discharges <sup>(1)</sup> from other sources to the water body. Y = Yes N = No	Text 1 char.
OIL_EXTRACT	<b>Oil extraction</b> Exploration for or extraction of oil. Y = Yes N = No	Text 1 char.
GAS_EXTRACT	<b>Gas extraction</b> Exploration for or extraction of gas. Y = Yes N = No	Text 1 char.
SPOIL	<b>Dredged spoil disposal ground</b> Y = Yes N = No	Text 1 char.
WASTE	<b>Waste disposal ground</b> Y = Yes N = No	Text 1 char.
LANDFILL	<b>Landfill</b> Water body directly impacted by leachate from landfill disposal sites. Y = Yes N = No	Text 1 char.
MARICULTURE	<b>Mariculture</b> Fish and shellfish farming. Y = Yes N = No	Text 1 char.
FISHING	<b>Fishing</b> Commercial fishing activity. Y = Yes N = No	Text 1 char.
MARINA	<b>Marina</b> Presence of a marina. Y = Yes N = No	Text 1 char.
PORT	<b>Port</b> Presence of port facilities. Y = Yes N = No	Text 1 char.
OTHER_ACTIVITIES	<b>Any other activities</b> Y = Yes N = No	Text 1 char.
REMARKS	<b>Remarks</b> Any additional comments.	Text 100 chars

<sup>(1)</sup> The OSPAR RID guidelines define direct discharge as:  
a mass of a determinand discharged to the maritime area from land-based sources (sewage effluents, industrial effluents or other) per unit of time at a point on a coast or to an estuary downstream of the point at which the riverine estimate of input is made'.



# 7. Riverine loads and direct discharges into marine waters

Determinands required for riverine and direct load assessments for marine conventions

Table 7.1

Determinand	Units	OSPAR RID	Helcom PLC	MAP	Black Sea
Nitrate	tonnes/yr	✓M	✓M1, V4		✓
Nitrite	tonnes/yr		✓V		✓
Orthophosphate	tonnes/yr	✓M	✓M1, V4		✓
Total nitrogen	tonnes/yr	✓M	✓M6	✓1, 2, 7, 8	✓
Total phosphorus	tonnes/yr	✓M	✓M6	✓1, 2, 7, 8	✓
Ammonia	tonnes/yr	✓M	✓M1, V4		✓
Total mercury	kg/yr	✓M	✓M	✓1, 2, 7	
Total cadmium	kg/yr	✓M	✓M		✓
Total zinc	kg/yr	✓M	✓M	✓1, 2, 7	
Total lead	kg/yr	✓M	✓M	✓1, 2, 7	✓
Copper	kg/yr		✓M		✓
Nickel	kg/yr		✓M2, V5		
Chromium	kg/yr		✓M2, V5	✓1, 2, 7	
Gamma-HCH	kg/yr	✓M			
Suspended particulate matter	tonnes/yr	✓M	✓V1, M3	✓1, 2, 7, 8	✓
Salinity (in saline waters)	psu	✓M			
Flow	m <sup>3</sup> /s	✓			
Volume				✓1, 2, 7, 8	
Hydrocarbons	tonnes/yr	✓R (PAHs <sup>(1)</sup> and mineral oil <sup>(2)</sup> strongly recommended)		✓1, 2, 7	✓
PCBs (the following congeners: IUPAC Nos 28, 52, 101, 118, 153, 138, 180);	kg/yr	✓R			
Other hazardous substances (particularly organohalogen compounds)	kg/yr	✓R		✓1, 8	
BOD-7	tonnes/yr		4M		
BOD-5				✓1, 2, 7, 8	✓
COD-Mn	tonnes/yr		✓V1		
COD-Cr	tonnes/yr		✓M2	✓1, 2, 7, 8	
TOC	tonnes/yr		✓V	✓8	
AOX	tonnes/yr		✓V1, M2		
Radioactivity				✓1, 2	

RID Joint Oslo and Paris Commissions' (OSPAR) comprehensive study on riverine inputs and direct discharges

PLC3 Helsinki Commission's (Helcom) pollution load compilation 1995

MAP Survey of pollutants from land-based sources in the Mediterranean

M Mandatory

R Recommended

V Voluntary

1 Riverine inputs

2 Industrial effluents

3 Untreated municipal or industrial effluents

4 Municipal and industrial effluents

5 Riverine inputs and municipal effluents

6 Includes diffuse inputs from the coastal zone

7 Domestic sewage

8 Agricultural run-off

<sup>(1)</sup> These are as follows: phenanthrene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(a)pyrene, benzo(ghi)perylene, indeno(1,2,3-cd)pyrene.

<sup>(2)</sup> Provided that a suitable method is available.

Aggregated data are also required on riverine loads and loads from direct discharges to Europe's seas. These should be based on the information submitted to the regional sea conventions and are summarised below in Table 7.1. Some of this information is reported on an annual basis (such as for the OSPAR RID programme) whilst information for the Baltic pollution load compilation is only collected on a five-yearly basis. The aim is to gain as complete a temporal and spatial coverage as possible.

Annually aggregated load information is requested for each river station used in calculating riverine loads entering the sea (see Table 7.2). National station identifiers are requested, along with details of the sea area into which the river discharges and the regional sea of which it is a part (e.g. Celtic Sea, Bothnian Bay). The average discharge and flow at each river station for each year (either measured or calculated) should be provided, as well as the long-term annual averages for each station (see Table 7.3). The flow information is required in order to interpret the riverine load data. For direct discharges, annually aggregated load data are required for each sea area. Thus the identifier used for the sea area in terms of direct discharges **must** equate to the identifier used for the sea area into which the

riverine load discharges. This is to ensure that riverine loads can be related to direct discharge loads.

As regards the Eurowaternet-Transitional, coastal and marine waters data, this information is used to formulate indicators for use in the EEA's assessments and reports.

It should be noted that the EEA and the European Topic Centre on Water (ETC-WTR) are in the process of developing the Eurowaternet-Emissions data flow and methodology, which will be used in the future to collect disaggregated source-oriented information on pollutant loads to surface waters. This will eventually be used to supplement the load information requested here. Eurowaternet-Emissions is also consistent with the requirements of the integrated pollution prevention and control (IPPC) directive (e.g. for a European pollutant emission register) and with the HARP initiative.

Each country is asked to supply data using the templates provided (**EWN\_TCM\_Inputs.xls**). Each template refers to one marine convention and details the relevant countries and sea areas for which data are required.

Table 7.2

Yearly riverine input loads

Field name	Description	Type/Format
CRY_CD	<b>Country code</b> ISO 3166 two-digit country code (see Annex 6).	Text 2 chars
YEAR	<b>Year</b> Of aggregation period.	Integer
STN_ID	<b>National station ID</b> Station/sampling area identifier unique at national level.	Text 50 chars
LONG	<b>Longitude (X)</b> International geographical coordinates of the monitoring station in decimal degrees format.	Number 5 decimal places
LAT	<b>Latitude (Y)</b> International geographical coordinates of the monitoring station in decimal degrees format.	Number 5 decimal places
STN_NAME	<b>National station name</b>	Text 50 chars
RIVER_NAME	<b>River name</b> In which loads are measured.	Text 50 chars
CATCH_NAME	<b>Catchment name</b> Major river catchment or river basin name.	Text 50 chars
SEA_AREA_NAME_ID	<b>Sea area name or ID</b> Into which river discharges.	Text 50 chars
SEA_REGION_NAME	<b>Regional sea name</b> Of which sea area is a part.	Text 50 chars
SEA_CONVENTION_AREA	<b>Marine convention sea area name</b>	Text 50 chars

Field name	Description	Type/Format
Estimate	<b>Estimate</b> Lower estimate based on treating determinand values that are less than the limits of detection as zero. Upper estimate based on treating determinand values that are less than the limits of detection as values equivalent to the limit of detection value.	Number 1 decimal place
Nitrate	<b>Nitrate</b> Load of nitrate expressed in kilotonnes (kt).	Number 1 decimal place
Nitrite	<b>Nitrite</b> Load of nitrite expressed in kilotonnes (kt).	Number 1 decimal place
Orthophosphate	<b>Orthophosphate</b> Load of orthophosphate expressed in kilotonnes (kt).	Number 1 decimal place
Total nitrogen	<b>Total nitrogen</b> Load of total nitrogen expressed in kilotonnes (kt).	Number 1 decimal place
Total phosphorus	<b>Total phosphorus</b> Load of total phosphorus expressed in kilotonnes (kt).	Number 1 decimal place
Ammonia	<b>Ammonia</b> Load of ammonia expressed in kilotonnes (kt).	Number 1 decimal place
Total mercury	<b>Total mercury</b> Load of total mercury expressed in tonnes (t).	Number 1 decimal place
Total cadmium	<b>Total cadmium</b> Load of total cadmium expressed in tonnes (t).	Number 1 decimal place
Total zinc	<b>Total zinc</b> Load of total zinc expressed in tonnes (t).	Number 1 decimal place
Total lead	<b>Total lead</b> Load of total lead expressed in tonnes (t).	Number 1 decimal place
Copper	<b>Copper</b> Load of copper expressed in tonnes (t).	Number 1 decimal place
Nickel	<b>Nickel</b> Load of nickel expressed in tonnes (t).	Number 1 decimal place
Chromium	<b>Chromium</b> Load of chromium expressed in tonnes (t).	Number 1 decimal place
Gamma-HCH	<b>Gamma-HCH</b> Load of gamma-HCH expressed in tonnes (t).	Number 1 decimal place
Suspended particulate matter	<b>Suspended particulate matter</b> Load of suspended particulate matter expressed in tonnes (t).	Number 1 decimal place
Hydrocarbons	<b>Hydrocarbons</b> Load of hydrocarbons expressed in kilotonnes (kt).	Number 1 decimal place
Detergents	<b>Detergents</b> Load of detergents expressed in kilotonnes (kt).	Number 1 decimal place
Phenols	<b>Phenols</b> Load of phenols expressed in kilotonnes (kt).	Number 1 decimal place
PCB-28	<b>PCB-28</b> Load of PCB-28 expressed in tonnes (t).	Number 1 decimal place
PCB-52	<b>PCB-52</b> Load of PCB-52 expressed in tonnes (t).	Number 1 decimal place

Field name	Description	Type/Format
PCB-101	<b>PCB-101</b> Load of PCB-101 expressed in tonnes (t).	Number 1 decimal place
PCB-118	<b>PCB-118</b> Load of PCB-118 expressed in tonnes (t).	Number 1 decimal place
PCB-153	<b>PCB-153</b> Load of PCB-153 expressed in tonnes (t).	Number 1 decimal place
PCB-138	<b>PCB-138</b> Load of PCB-138 expressed in tonnes (t).	Number 1 decimal place
PCB-180	<b>PCB-180</b> Load of PCB-180 expressed in tonnes (t).	Number 1 decimal place
Total PCBs	<b>Total PCBs</b> Load of total PCBs expressed in tonnes (t).	Number 1 decimal place
Other hazardous substances	<b>Other hazardous substances</b> Load of other hazardous substances expressed in tonnes (t). Provide name and CAS No of any additional hazardous substances monitored.	Number 1 decimal place
BOD-7	<b>BOD-7</b> Load of BOD-7 expressed in kilotonnes (kt).	Number 1 decimal place
BOD-5	<b>BOD-5</b> Load of BOD-5 expressed in kilotonnes (kt).	Number 1 decimal place
COD-Mn	<b>COD-Mn</b> Load of COD-Mn expressed in kilotonnes (kt).	Number 1 decimal place
COD-Cr	<b>COD-Cr</b> Load of COD-Cr expressed in kilotonnes (kt).	Number 1 decimal place
Total organic carbon	<b>Total organic carbon</b> Load of total organic carbon expressed in kilotonnes (kt).	Number 1 decimal places
Organic compounds	<b>Organic compounds</b> Load of organic compounds expressed in kilotonnes (kt).	Number 1 decimal places
Tritium	<b>Tritium</b> Load of tritium expressed in becquerels (Bq).	Number 1 decimal places
Radionuclides	<b>Radionuclides</b> Load of radionuclides expressed in becquerels (Bq). Provide name of any additional radionuclides monitored.	Number 1 decimal place
Average riverine flow for the year	<b>Average riverine flow for the year</b> Expressed in cubic metres per second (m <sup>3</sup> /s).	Number 2 decimal places
Long-term annual average riverine flow	<b>Long-term annual average riverine flow</b> Expressed in cubic metres per second (m <sup>3</sup> /s).	Number 2 decimal places
Remarks	<b>Remarks</b> Additional comments.	Text 100 chars

Yearly direct discharges

Table 7.3

Field name	Description	Type/Format
CRY_CD	<b>Country code</b> ISO 3166 two-digit country code (see Annex 6).	Text 2 chars
YEAR	<b>Year</b> Of aggregation period.	Integer
SEA_AREA_NAME_ID	<b>Sea area name or ID</b> Into which river discharges.	Text 50 chars
SEA_REGION_NAME	<b>Regional sea name</b> Of which sea area is a part.	Text 50 chars
SEA_CONVENTION_AREA	<b>Marine convention sea area name</b>	Text 50 chars
Estimate	<b>Estimate</b> Lower estimate based on treating determinand values that are less than the limits of detection as zero. Upper estimate based on treating determinand values that are less than the limits of detection as values equivalent to the limit of detection value.	Number 1 decimal place
Nitrate	<b>Nitrate</b> Direct discharges of nitrate expressed in kilotonnes (kt).	Number 1 decimal place
Nitrite	<b>Nitrite</b> Direct discharges of nitrite expressed in kilotonnes (kt).	Number 1 decimal place
Orthophosphate	<b>Orthophosphate</b> Direct discharges of orthophosphate expressed in kilotonnes (kt).	Number 1 decimal place
Total nitrogen	<b>Total nitrogen</b> Direct discharges of total nitrogen expressed in kilotonnes (kt).	Number 1 decimal place
Total phosphorus	<b>Total phosphorus</b> Direct discharges of total phosphorus expressed in kilotonnes (kt).	Number 1 decimal place
Ammonia	<b>Ammonia</b> Direct discharges of ammonia expressed in kilotonnes (kt).	Number 1 decimal place
Total mercury	<b>Total mercury</b> Direct discharges of total mercury expressed in tonnes (t).	Number 1 decimal place
Total cadmium	<b>Total cadmium</b> Direct discharges of total cadmium expressed in tonnes (t).	Number 1 decimal place
Total zinc	<b>Total zinc</b> Direct discharges of total zinc expressed in tonnes (t).	Number 1 decimal place
Total lead	<b>Total lead</b> Direct discharges of total lead expressed in tonnes (t).	Number 1 decimal place
Copper	<b>Copper</b> Direct discharges of copper expressed in tonnes (t).	Number 1 decimal place
Nickel	<b>Nickel</b> Direct discharges of nickel expressed in tonnes (t).	Number 1 decimal place
Chromium	<b>Chromium</b> Direct discharges of chromium expressed in tonnes (t).	Number 1 decimal place
Gamma-HCH	<b>Gamma-HCH</b> Direct discharges of gamma-HCH expressed in tonnes (t).	Number 1 decimal place
Suspended particulate matter	<b>Suspended particulate matter</b> Direct discharges of suspended particulate matter expressed in tonnes (t).	Number 1 decimal place
Hydrocarbons	<b>Hydrocarbons</b> Direct discharges of hydrocarbons expressed in kilotonnes (kt).	Number 1 decimal place

Field name	Description	Type/Format
Detergents	<b>Detergents</b> Direct discharges of detergents expressed in kilotonnes (kt).	Number 1 decimal place
Phenols	<b>Phenols</b> Direct discharges of phenols expressed in kilotonnes (kt).	Number 1 decimal place
PCB-28	<b>PCB-28</b> Direct discharges of PCB-28 expressed in tonnes (t).	Number 1 decimal place
PCB-52	<b>PCB-52</b> Direct discharges of PCB-52 expressed in tonnes (t).	Number 1 decimal place
PCB-101	<b>PCB-101</b> Direct discharges of PCB-101 expressed in tonnes (t).	Number 1 decimal place
PCB-118	<b>PCB-118</b> Direct discharges of PCB-118 expressed in tonnes (t).	Number 1 decimal place
PCB-153	<b>PCB-153</b> Direct discharges of PCB-153 expressed in tonnes (t).	Number 1 decimal place
PCB-138	<b>PCB-138</b> Direct discharges of PCB-138 expressed in tonnes (t).	Number 1 decimal place
PCB-180	<b>PCB-180</b> Direct discharges of PCB-180 expressed in tonnes (t).	Number 1 decimal place
Total PCBs	<b>Total PCBs</b> Direct discharges of total PCBs expressed in tonnes (t).	Number 1 decimal place
Other hazardous substances	<b>Other hazardous substances</b> Direct discharges of other hazardous substances expressed in tonnes (t). Provide name and CAS No of any additional hazardous substances monitored.	Number 1 decimal place
BOD-7	<b>BOD-7</b> Direct discharges of BOD-7 expressed in kilotonnes (kt).	Number 1 decimal place
BOD-5	<b>BOD-5</b> Direct discharges of BOD-5 expressed in kilotonnes (kt).	Number 1 decimal place
COD-Mn	<b>COD-Mn</b> Direct discharges of COD-Mn expressed in kilotonnes (kt).	Number 1 decimal place
COD-Cr	<b>COD-Cr</b> Direct discharges of COD-Cr expressed in kilotonnes (kt).	Number 1 decimal place
Total organic carbon	<b>Total organic carbon</b> Direct discharges of total organic carbon expressed in kilotonnes (kt).	Number 1 decimal place
Organic compounds	<b>Organic compounds</b> Direct discharges of organic compounds expressed in kilotonnes (kt).	Number 1 decimal place
Tritium	<b>Tritium</b> Direct discharges of tritium expressed in becquerels (Bq).	Number 1 decimal place
Radionuclides	<b>Radionuclides</b> Direct discharges of radionuclides expressed in becquerels (Bq). Provide name of any additional radionuclides monitored.	Number 1 decimal place
Volume for the year	<b>Volume for the year</b> Expressed in cubic metres (m <sup>3</sup> ).	Number 2 decimal places
Long-term annual discharge volume	<b>Long-term annual discharge volume</b> Expressed in cubic metres per second (m <sup>3</sup> /s).	Number 2 decimal places
Remarks	<b>Remarks</b> Additional comments.	Text 100 chars

## 8. Delivery of data files

The supplied templates should be used as the basis of data exchange.

Data files for the Eurowaternet-Transitional, coastal and marine waters priority data flow should be uploaded to the national repository of each country. This is the delivery point for all national data requested under EIONET priority data flows.

The national repository is either the appropriate country folder in the central data repository or a designated Circle interest group on the national EIONET server. The location depends on the choice made at national level, detailed on the EIONET portal.

If the central data repository (CDR) is to be used, Eurowaternet data deliveries should be uploaded to the appropriate country folder under EEA Requests. The online Help ('Help Area' button) explains how to create new envelopes and upload data files.

If a Circle interest group on the national EIONET server is to be used, deliveries should be uploaded to the appropriate library subsection. Use the 'File Upload' button to upload the data files.

File upload permissions to country folders on the CDR or to the national Circle interest group for data deliveries are organised by the national focal point (NFP). The NFP should be contacted to answer any questions on this.





# 10. Summary

In summary, this is what is requested from the data provider.

1. The application of the Eurowaternet criteria described in these guidelines to national monitoring networks for the identification and selection of transitional, coastal and marine waters for inclusion in Waterbase-Transitional, coastal and marine waters.
2. The submission of national information on transitional, coastal and marine waters to the ETC/WTR electronically, using the central data repository on the Circle or national EIONET server. If the latter option is used, the ETC/WTR core team should be notified of the location of the information and access should be arranged. Excel templates will be provided, detailing the preferred data exchange formats. Data should be supplied in Excel or ASCII text format.
3. The most recent quality data available should be submitted, ideally from **year xx-1**. In addition, data from as many previous years as are available and/or comparable are required in order to produce as **long a time series** as possible.
4. Confirmation that the data request letter for submission of Eurowaternet-Transitional, coastal and marine waters data was received should be provided by **15 November of year xx**.
5. Receipt of Eurowaternet-Transitional, coastal and marine waters data from marine conventions and national sources by **31 January of year xx+1**.

For any **further information** on these guidelines or for technical assistance, please contact Steve Nixon of the **ETC/WTR Core Team**, based at the Water Research Centre, Swindon, UK. Contact details are:

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# Annex 1

## Priority substances identified by the water framework directive, Lists I and II of the dangerous substances directive and by the marine conventions

WFD-PS	Water framework directive priority substance
WFD-PHS	Water framework directive priority hazardous substance
WFD-PSR	Water framework directive priority substance under review
DSD	Dangerous substances directive
Helcom OSPAR	} Priority substances as listed by Helcom and OSPAR

Table A.1

CAS No	Substance	WFD-PS	WFD-PHS	WFD-PSR	DSD	Helcom	OSPAR
	<b>Aliphatic hydrocarbons</b>						
4904-61-4	1,5,9 cyclododecatriene						✓
294-62-2	Cyclododecane						✓
	<b>Brominated diphenylethers</b>		✓				
1163-19-5	Bis(pentabromophenyl) ether						
32536-52-0	Diphenyl ether, octabromo deviate						
32534-81-9	Diphenyl ether, pentabromo derivative						
	<b>Metallic compounds</b>						
7440-43-9	Cadmium and its compounds		✓		✓	✓	✓
7440-47-3	Chromium and its compounds					✓	✓
7440-50-8	Copper and its compounds				✓		
7439-92-1	Lead and its compounds			✓	✓	✓	✓
7439-97-6	Mercury and its compounds		✓		✓	✓	✓
7440-02-0	Nickel and its compounds	✓			✓		
7782-49-2	Selenium and its compounds					✓	
7440-66-6	Zinc and its compounds				✓		
	<b>Organic ester</b>						
51000-52-3	Neodecanoic acid, ethanyl ester						✓
	<b>Organic nitrogen compound</b>						
55525-54-7	3,3'-(ureylenedimethylene)bis (3,5,5-trimethylcyclohexyl) diisocyanate						
793-24-8	4-(dimethylbutylamino) diphenylamin (6PPD)						✓
	<b>Organohalogens</b>						
79-94-7	Tetrabromobisphenol A (TBBP-A)						✓
77-47-4	Hexachlorocyclopentadiene (HCCP)						✓
87-61-6	(1,2,3-trichlorobenzene)			✓			✓
120-82-1	(1,2,4-trichlorobenzene)			✓			✓
108-70-3	(1,3,5-trichlorobenzene)			✓			✓
85535-84-8	C <sub>10-13</sub> -chloralkanes		✓			✓	✓
67-66-3	Trichloromethane	✓			✓	✓	
85-22-3	Pentabromoethylbenzene						✓

CAS No	Substance	WFD-PS	WFD-PHS	WFD-PSR	DSD	Helcom	OSPAR
2440-02-0	Heptachloronorborene						✓
1825-21-4	Pentachloroanisole						✓
36065-30-2	2,4,6-bromophenyl 1-2(2,3-dibromo-2-methylpropyl)						✓
	<b>Polychlorinated naphthalenes:</b>						
1321-65-9	Trichloronaphthalene						✓
1335-88-2	Tetrachloronaphthalene						✓
1321-64-8	Pentachloronaphthalene						✓
1335-87-1	Hexachloronaphthalene						✓
32241-08-0	Heptachloronaphthalene						✓
2234-13-1	Octachloronaphthalene						✓
70776-03-3	Naphthalene, chloro derivatives			✓	✓		✓
	<b>Organophosphate</b>						
603-35-0	Triphenyl phosphine						✓
	<b>Organosilicane</b>						
107-46-0	Hexamethyldisiloxane (HMDS)						✓
	<b>Organotin compounds</b>						
36643-28-4	(TBT-ion)		✓				
688-73-3	Tributyltin compounds		✓		✓		✓
	<b>Pesticides and biocides</b>						
106-93-4	1,2-dibromoethane					✓	
93-76-5	2,4,5-Trichlorophenoxy acetic acid					✓	
107-13-1	Acrylonitrile					✓	
309-00-2	Aldrin				✓	✓	
140-57-8	Aramite					✓	
319-86-8	beta-HCH					✓	
57-74-9	Chlordane					✓	
1034-41-9	Chlordecone (Kepone)					✓	
6164-98-3	Chlordimeform					✓	
789-02-6	DDT, o, p'				✓	✓	
50-29-3	DDT, p, p'				✓	✓	
72-55-9	DDE, p, p'				✓		
72-54-8	DDD, p, p'				✓		
53-19-0	DDD, o, p'				✓		
60-57-1	Dieldrin				✓	✓	
72-20-8	Endrin				✓	✓	
144-49-0	Fluoroacetic acid and derivatives					✓	
608-73-1	Hexachlorocyclohexane		✓			✓	✓
58-89-9	(gamma-isomer, Lindane)		✓		✓	✓	✓
76-44-8	Heptachlor					✓	
118-74-1	Hexachlorobenzene		✓		✓	✓	
297-78-9	Isobenzane					✓	
465-73-6	Isodrin				✓	✓	✓
4234-79-1	Kelevan					✓	
2385-85-5	Mirex					✓	
4636-83-3	Morfamquat					✓	
1836-75-5	Nitrophen					✓	
87-86-5	Pentachlorophenol			✓	✓	✓	✓
82-68-8	Quintozene					✓	
8001-35-2	Toxaphene					✓	

CAS No	Substance	WFD-PS	WFD-PHS	WFD-PSR	DSD	Helcom	OSPAR
115-32-2	Dicofol						✓
115-29-7	Endosulfan			✓			✓
959-98-8	(alpha-Endosulfan)			✓	✓		
72-43-5	Methoxychlor						✓
1582-09-8	Trifluralin			✓	✓		✓
2104-64-5	Ethyl O-(p-nitrophenyl) phenyl phosphonothionate (EPN)						✓
70124-77-5	Flucythrinate						✓
2227-13-6	Tetrasul						
	<b>Pharmaceutical</b>						
512-04-9	Diosgenin						✓
23593-75-1	Clotrimazole						✓
	<b>Phenols</b>						✓
9016-45-9	Nonylphenoethoxylate and degradation/transformation products					✓	
84852-15-3	4-Nonylphenol					✓	
732-26-3	2,4,6-tri-tert-butylphenol						✓
1806-26-4	Octylphenols			✓			
140-66-9	(para-tert-octylphenol)						✓
25154-52-3	Nonylphenols		✓				
104-40-5	(4-(para)-nonylphenol)						
8452-15-3	(4-nonylphenol, branched)						
	<b>Phthalate esters</b>						
	Diethylhexylphthalate					✓	
84-74-2	Dibutylphthalate			✓		✓	
117-81-7	Di (2-ethylhexyl) phthalate (DEHP)			✓		✓	
84-66-2	Diethyl phthalate			✓			
84-69-5	Di-iso-butyl phthalate			✓			
85-68-7	Butyl benzyl phthalate (BBP)			✓			
	<b>Polycyclic aromatic hydrocarbons</b>		✓			✓	✓
50-32-8	(benzo-a-pyrene)						
205-99-2	(benzo-b-fluoranthene)						
191-24-2	(benzo-g,h,i-perylene)						
207-08-9	(benzo-k-fluoranthene)						
206-44-0	(fluoroanthene)						
193-39-5	(indeno(1,2,3-cd) pyrene)						
98-51-1	4-tert-butyltoluene						✓
	<b>Polycyclic halogenated aromatic compounds</b>						
36355-01-8	Hexabromobiphenyl					✓	
1336-36-3	Polychlorinated biphenyls				✓	✓	✓
7012-37-5	2,4,4'-trichlorobiphenyl (CB28)						
35693-99-3	2,2',5,5'-tetrachlorobiphenyl (CB52)						
32598-13-3	3,3',4,4'-tetrachlorobiphenyl (CB77)				✓		
37680-73-2	2,2',4,5,5'-pentachlorobiphenyl (CB101)						
32598-14-4	2,3,3',4,4'-pentachlorobiphenyl (CB105)						

CAS No	Substance	WFD-PS	WFD-PHS	WFD-PSR	DSD	Helcom	OSPAR
31508-00-6	2,3',4,4',5-pentachlorobiphenyl (CB118)				✓		
35065-28-2	2,2',3,4,4',5'-hexachlorobiphenyl (CB138)						
35065-27-1	2,2',4,4',5,5'-hexachlorobiphenyl (CB153)						
38380-08-4	2,3,3',4,4',5-hexachlorobiphenyl (CB156)						
32774-16-6	3,3',4,4',5,5' HexCB (PCB169)				✓		
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl (CB180)						
2051-24-3	5,5',6,6'-decachlorobiphenyl (CB209)						
106-43-4	PCT (mixtures)					✓	
1746-01-6	TCDD (dioxins and furans)					✓	
	<b>Brominated flame retardants</b>						✓
	<b>Polychlorinated dibenzodioxins (PCDDs)</b>					✓	✓
136677-10-6	Polychlorinated dibenzofurans (PCDFs)					✓	✓
	<b>Synthetic musk</b>						
81-15-2	Musk xylene					✓	✓
15972-60-8	Alachlor	✓					
120-12-7	Anthracene			✓	✓		
1912-24-9	Atrazine			✓	✓		
71-43-2	Benzene	✓			✓		
470-90-6	Chlorfenvinphos	✓					
2921-88-2	Chlorpyrifos			✓			
107-06-2	1,2-dichloroethane	✓			✓		
75-09-2	Dichloromethane	✓			✓		
919-86-8	Demeton-S-methyl				✓		
62-73-7	Dichlorvos				✓		
60-51-5	Dimethoate				✓		
330-54-1	Diuron	✓					
87-68-3	Hexachlorobutadiene		✓		✓		
34123-59-6	Isoproturon	✓					
330-55-2	Linuron				✓		
608-93-5	Pentachlorobenzene		✓				
122-34-9	Simazine	✓			✓		
12002-48-1	Trichlorobenzenes			✓	✓		

# Annex 2

## Physico-chemical determinands required for chemical quality

Table A.2

Determinand	Abbreviation	Unit	Water body (1)
BOD-5	BOD-5	$\mu\text{Mol O}_2$	T
BOD-7	BOD-7	$\mu\text{Mol O}_2$	T
Chlorophyll a	Chl-a	$\mu\text{g/l}$	T, C, M
COD	COD	$\mu\text{Mol O}_2$	T
Dissolved oxygen (2)	$\text{O}_2$	$\mu\text{Mol O}_2$	T, C, M
Nitrate	$\text{NO}_3\text{-N}$	$\mu\text{Mol N}$	T, C, M
Nitrate to orthophosphate ratio	$\text{NO}_3/\text{PO}_4$	Molar ratio	T, C, M
Organic nitrogen	$\text{mg/l N}$	$\mu\text{Mol N}$	T, C, M
Orthophosphate	$\text{PO}_4\text{-P}$	$\mu\text{Mol P}$	T, C, M
Oxygen saturation (2)	$\text{O}_2$	%	T, C, M
Silicate	$\text{SiO}_3\text{-Si}$	$\mu\text{Mol Si}$	T, C, M
Total ammonium	$\text{NH}_4\text{-N}$	$\mu\text{Mol N}$	T, C, M
Total nitrogen	TOT-N	$\mu\text{Mol N}$	T, C, M
Total nitrogen to total phosphorus ratio	TOT-N/TOT-P	Molar ratio	T, C, M
Total organic carbon	TOC	$\mu\text{Mol C}$	T
Total oxidised nitrogen	$\text{NO}_3\text{-N} + \text{NO}_2\text{-N}$	$\mu\text{Mol N}$	T, C, M
Total phosphorus	TOT-P	$\mu\text{Mol P}$	T, C, M

(1) Water body:

T = Transitional water

C = Coastal water

M = Marine water.

(2) Particularly in relation to measuring and detecting low oxygen concentrations in bottom layers of water.

# Annex 3

## Species codes used in sampling of biota

Biota data should use the species codes detailed in this list, based on the ICES coding method of the first four characters of the genus name followed by a space and the first three characters of the species name. The primary list is based on the recommended

species for the different marine conventions. Please also include data for other species that are included in long-term monitoring programmes, using the same coding convention as detailed above.

Table A.3

Species code	Systematic name	English name	MC (1)
ARIS ANT	<i>Aristeus antennatus</i>	Blue and red shrimp	M
BOOP BOO	<i>Boops boops</i>	Bogue	M
CLUP HAR	<i>Clupea harengus</i>	Atlantic herring	B
CRAS GIG	<i>Crassostrea gigas</i>	Giant cupped oyster	O
GADU MOR	<i>Gadus morhua</i>	Atlantic cod	B, O
FUCU VES	<i>Fucus vesiculosus</i>	Bladderwrack	B
LIMA LIM	<i>Limanda limanda</i>	Common dab	O
MACO BAL	<i>Macoma balthica</i>	Baltic tellin	B
MERL MCC	<i>Merluccius merluccius</i>	European hake	M, O
MERL MNG	<i>Merlangius merlangus</i>	Whiting	O
MULL BAR	<i>Mullus barbatus</i>	Red mullet	M
MULL SUR	<i>Mullus surmuletus</i>	Striped red mullet	M
MYTI EDU	<i>Mytilus edulis</i>	Common mussel	B, O
MYTI GAL	<i>Mytilus galloprovincialis</i>	Mediterranean mussel	M
NEPH NOR	<i>Nephrops norvegicus</i>	Norway lobster	M, O
PERC FLU	<i>Perca fluviatilis</i>	Perch	B
PLAT FLE	<i>Platichthys flesus</i>	European flounder	B, O
SADU ENT	<i>Saduria entomon</i>		B
THUN THY	<i>Thunnus thynnus</i>	Northern bluefin tuna	M
ZOAR VIV	<i>Zoarces viviparus</i>	Viviparous blenny	B

(1) MC = Marine convention  
 B = Baltic, Helcom combined programme  
 M = Mediterranean MAP  
 O = OSPAR, JAMP.

# Annex 4

## Tissue codes used in sampling of biota

Biota data should be reported using the tissue codes in this list.

Table A.4

Tissue code	English name
LI	Liver
MU	Muscle
SB	Soft parts (homogenised whole body without carapace or shell)
WO	Whole body



# Annex 5

## Selected ISO country codes

The country code should be reported using the ISO 3166 A2 codes in this list.

Table A.5

Official name of country	ISO A2
Albania	AL
Armenia	AM
Austria	AT
Azerbaijan	AZ
Belarus	BY
Belgium	BE
Bosnia and Herzegovina	BA
Bulgaria	BG
Croatia	HR
Cyprus	CY
Czech Republic	CZ
Denmark	DK
Estonia	EE
Finland	FI
Former Yugoslav Republic of Macedonia	MK
France	FR
Georgia	GE
Germany	DE
Gibraltar	GI
United Kingdom	GB
Greece	GR
Hungary	HU
Iceland	IS
Ireland	IE
Italy	IT
Kazakhstan	KZ
Kyrgyzstan	KG
Latvia	LV
Liechtenstein	LI
Lithuania	LT
Luxembourg	LU
Malta	MT
Moldova	MD
Netherlands	NL
Norway	NO
Poland	PL
Portugal	PT
Romania	RO
Russian Federation	RU
Serbia and Montenegro	YU
Slovakia	SK
Slovenia	SI

Official name of country	ISO A2
Spain	ES
Sweden	SE
Switzerland	CH
Tajikistan	TJ
Turkey	TR
Turkmenistan	TM
Ukraine	UA
Uzbekistan	UZ

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