1. General Information

1.1. Objectives of the Waterborne Pollution Load Compilation (PLC-Water)

According to Paragraph 1 of Article 6 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (the Helsinki Convention), the Contracting Parties undertake to prevent and reduce pollution of the marine environment of the Baltic Sea Area from land-based sources by using, inter alia, Best Environmental Practice for all sources and Best Environmental Technology for point sources. The relevant measures to this end shall be taken by each Contracting Party in the catchment area of the Baltic Sea without prejudice to its sovereignty. According to Paragraph 2 of Article 6 of the Helsinki Convention in 1992 the Contracting Parties undertake to co-operate in the development and adoption of specific programmes concerning emissions and inputs of harmful substances into water.

In implementing the objectives of the Convention, the Helsinki Commission needs reliable data on inputs to the Baltic Sea from land-based sources in order to develop its environmental policy and to assess the effectiveness of measures taken to abate the pollution in the Baltic Sea catchment area. Such data are also required for evaluation of the state of the open sea and coastal waters.

The objectives of periodic waterborne pollution load compilations (PLC-Water) regarding pollution of the Baltic Sea from land-based sources are:

1. to compile information on the water-borne inputs via rivers and direct discharges of important pollutants entering the Baltic Sea from different sources in the Baltic Sea catchment area on the basis of harmonised monitoring methods;
2. to follow up the long-term changes in the pollution load from various sources;
3. to determine the priority order of different sources of pollutants for the pollution of the Baltic Sea;
4. to assess overall the effectiveness of measures taken to reduce the pollution load in the Baltic Sea catchment area; and
5. to provide information for assessment of the state and long-term changes of the marine environment in the open sea and the coastal zones.

HELCOM 26 by adopting HELCOM Recommendation 26/2 “Compilation of Waterborne Pollution Load (PLC-Water)” decided that the waterborne pollution load compilations will be carried out in two phases:

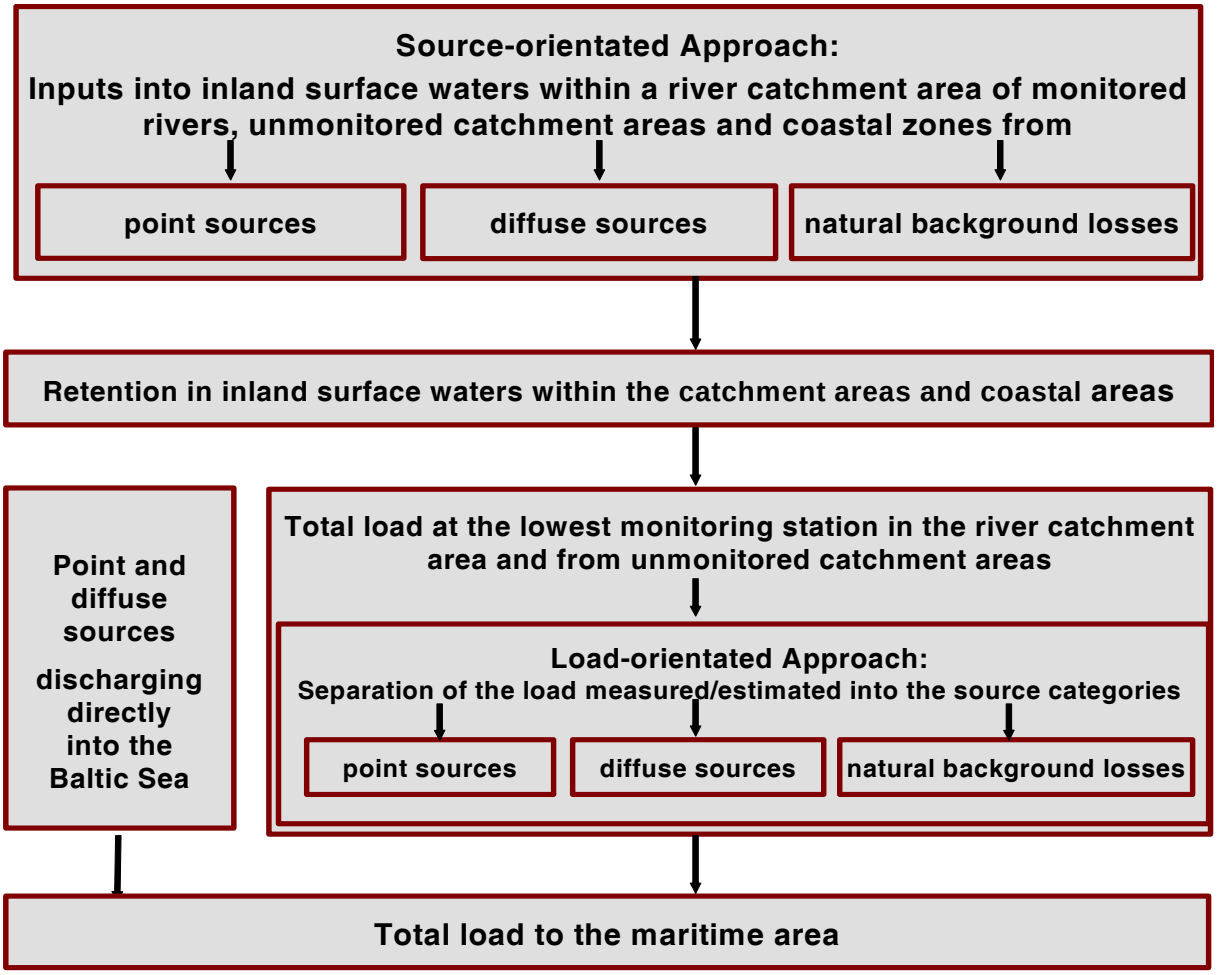
1. Total waterborne loads (rivers, unmonitored and coastal areas as well as point sources and diffuse sources discharging directly to the Baltic Sea) of nutrients and hazardous substances are reported to HELCOM annually and assessed as annual Indicator reports, while
2. Comprehensive Waterborne Pollution Load Compilations quantifying waterborne discharges from point sources and losses from non-point pollution sources as well as natural background losses into inland surface waters within the catchment area of the Baltic Sea located within the borders of the Contracting Parties are reported to HELCOM every sixth year starting in 2006.

These pollution load compilations should be carried out in accordance with the present Guidelines for the Waterborne Pollution Load Compilation adopted by HELCOM 26/2005.

These Guidelines are based on the PLC-4 Guidelines and modified to meet the new requirements. To meet the topical requirements these Guidelines should be regularly evaluated and updated by experts and adopted by the responsible subsidiary body of HELCOM.

1.2. Classification of the Inputs in PLC-Water

The Waterborne Pollution Load Compilation is dealing with point and non-point pollution sources located within the catchment area of the Baltic Sea located within the borders of the Contracting Parties. The approach to quantify the main pollution sources are presented below (see also Figure 1.1). The annual reporting only concerns those indicated by blue colour:



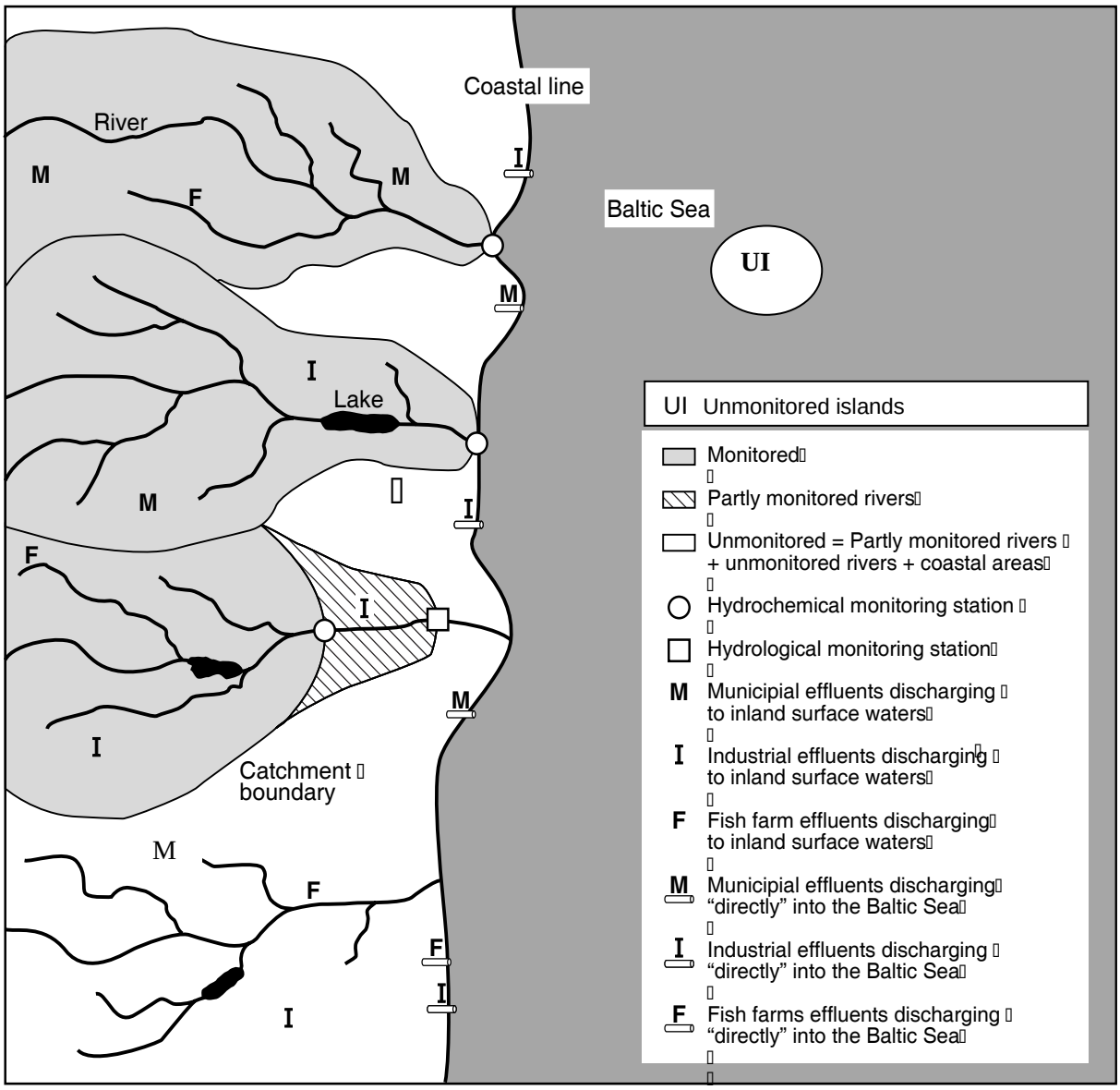


Figure 1.1: Monitored and unmonitored rivers and coastal areas considered in PLC-Water

1.3. Variables to be reported in PLC-Water

The parameters to be reported are agreed by the Contracting Parties as either obligatory or voluntary (Table 1.1). Further, the detection limits for the different parameters are taken into account when evaluating if they must be reported.

Table 1.1: Variables to be reported in PLC-Water (annually).

Parameters	Point sources discharging directly to the Baltic Sea[8]			Diffuse sources entering directly to the Baltic Sea[6]*	Monitored rivers*	Unmonitored areas
	Municipal Effluents*	Industrial Effluents*	Fish farming*			
BOD_5[4]	+	+[3]	+	+	+[1]	+[1]
P_{total}	+	+	+	+	+	+
P_{PO4}	+[9]	v[3]			+	+
N_{total}	+	+	+	+	+	+
N_{NH4}	+	v[3]			+	+
N_{NO2}[5]	v	v[3]			+	+
N_{NO3}[5]	v	v[3]			+	+
Hg	+[2]	+[3]			+[1]	+[1]
Cd	+[2]	+[3]			+[1]	+[1]
Zn	+[2]	+[3]			+[1]	+[1]
Cu	+[2]	+[3]			+[1]	+[1]
Pb	+[2]	+[3]			+[1]	+[1]
Ni	+[2]	+[3]			v[1]	v[1]
Cr	+[2]	+[3]			v[1]	v[1]
Flow	+	+	+[7]	+	+	+

Footnotes:

+obligatory
v voluntary

[1] Except for rivers where all BOD_5 and heavy metal concentrations are below the detection limit

[2] Heavy metals are obligatory for municipal WWTPs larger than 10000 PE.

[3] BOD_5, nutrients and heavy metals are obligatory variables for relevant industries if these variables are regulated by sector-wise HELCOM Recommendations or exceeding the threshold according to Annex A1 of the EPER decision (Commission Decision 2000/479/EC).

[4] If BOD_7 is measured, a conversion factor ($BOD_5 = BOD_7/1.15$) should be used in order to calculate BOD_5.

[5] Can be monitored and reported as $NO_{2,3}$-N.

[6] Diffuse sources entering directly to the sea encounter loads from scattered dwellings and from rainwater overflows.

[7] For fish farms where it is relevant (outlet for discharges).

[8] Point sources discharging directly to the Baltic Sea can be reported either individually or as a sum for every Baltic Sea sub-region for municipal effluents, industrial effluents, and fish farming, respectively.

[9] Should be measured or calculated

* In those cases where the recorded concentrations are below the detection limit, the estimated concentration should be calculated using the equation: Estimation = (100%-A) x LOQ, where A=percentage of samples below LOQ. This is according to one of the options listed in the guidance document on monitoring adopted by EU under the IPPC Directive.

Table 1.2: Variables to be reported in PLC-Water (periodically in every sixth year).

Parameters	Point sources (discharging either to inland surface waters or directly to the Baltic Sea)			Diffuse sources[8] (entering either to inland surface waters or directly to the Baltic Sea) [9]*	Natural back-ground losses	Monitored rivers*	Unmonitored areas
	Municipal Effluents*	Industrial Effluents*	Fish farming*				
BOD_5[5]	+	+[3]	+	+[10]		+[1]	+[1]
COD_{Cr}	v	v[4]					
TOC		v[4]				v	v
AOX	v	+[3]					
P_{total}	+	+	+	+	+	+	+
P_{PO4}	+[12]	v[3]				+	+
N_{total}	+	+	+	+	+	+	+
N_{NH4}	+	v[3]				+	+
N_{NO2}[7]	v	v[3]				+[7]	+[7]
N_{NO3}[7]	v	v[3]				+[7]	+[7]
Hg	+[2]	+[3]				+[1]	+[1]
Cd	+[2]	+[3]				+[1]	+[1]
Zn	+[2]	+[3]				+[1]	+[1]
Cu	+[2]	+[3]				+[1]	+[1]
Pb	+[2]	+[3]				+[1]	+[1]
Ni	+[2]	+[3]				v[1]	v[1]
Cr	+[2]	+[3]				v[1]	v[1]
Oil[6]		+[6]				+[6]	+[6]
Flow	+	+	+[11]	+		+	+

Footnotes:

+ obligatory

v voluntary

[1] Except for rivers where all BOD_5 and heavy metal concentrations are below the detection limit

[2] Heavy metals are obligatory for municipal WWTPs larger than 10000 PE.

[3] BOD_5, AOX, nutrients and heavy metals are obligatory variables for relevant industries if these variables are regulated by sector-wise HELCOM Recommendations or exceeding the threshold according to Annex A1 of the EPER decision (Commission Decision 2000/479/EC).

[4] Only for untreated industrial effluents

[5] If BOD_7 is measured, a conversion factor ($BOD_5 = BOD_7/1.15$) should be used in order to calculate BOD_5.

[6] Oil should be reported for the following rivers: Neva, Vistula, Nemunas, Daugava, Oder, Narva, Göta älv and at the largest oil refinery in each Contracting Party using the analytical method ISO 9377-2.

[7] Can be monitored and reported as $NO_{2,3}$-N

[8] Nutrient losses from diffuse sources can be estimated either as the total for all delivery pathways without dividing on pathways or as losses by every individual pathway

[9] Diffuse sources entering directly to the sea encounter loads from scattered dwellings and from rainwater overflows.

[10] Only from diffuse sources discharging directly to the Baltic Sea

[11] For fish farms where it is relevant (outlet for discharges)

[12.] Should be measured or calculated

* In those cases where the recorded concentrations are below the detection limit, the estimated concentration should be calculated using the equation: Estimation = (100%-A) x LOQ, where A=percentage of samples below LOQ. This is according to one of the options listed in the guidance document on monitoring adopted by EU under the IPPC Directive.

1.4. Division of the Baltic Sea Drainage Area

An overview of the entire catchment area and the sub-basins is presented in Figure 1.2. In order to take into account the harmonisation process within the HELCOM assessment products dealing with pollution load and their effect in the marine environment it is proposed to subdivide the Baltic Sea in the following sub-basins (Table 1.2).

Table 1.3: Sub-basins of the Baltic Sea for which data have to be reported.

Sub-basins	Abbreviation	sub-basins for PLC-Water
1. GULF of BOTHNIA	**GUB**	**X**
1.1 Bothnian Bay	BOB	X
1.2 Bothnian Sea	BOS	X
1.3 Archipelago Sea	ARC	X
2. GULF of FINLAND	**GUF**	**X**
3. GULF of RIGA	**GUR**	**X**
4. BALTIC PROPER	**BAP**	**X**
4.1 Northern Baltic Proper	BPN	
4.2 Southern Baltic Proper	BPS	
5. BELT SEA and KATTEGAT	**BSK**	**X**
5.1 Belt Sea	BES	
5.1.1 Western Baltic	WEB	X
5.1.2 The Sound	SOU	X
5.2 The Kattegat	KAT	X

For improving assessments the load figures must be presented separately for each sub-basin by each Contracting Party.

Figure 1.2: The Baltic Sea catchment area and sub-basins as defined for PLC-Water.

1.5. Quantification and reporting obligations

The Waterborne Pollution Load Compilation is dealing with point and diffuse sources within the catchment area of the Baltic Sea located within the borders of the Contracting Parties as well as with the total load to the Baltic Sea.

1.5.1. Quantification and reporting obligations on an annual basis

The quantification of the total load to the Baltic Sea from:

1. Monitored rivers (chapter 2.1.1);
2. Unmonitored areas (partly monitored rivers, unmonitored part of monitored rivers, unmonitored rivers and coastal areas including unmonitored islands, chapter 2.1.2); and
3. Point sources and diffuse sources discharging directly into the Baltic Sea (chapter 2.1.4).

has to be carried out and reported every year for each main Baltic Sea sub-region catchment area by each Contracting Party for the variables listed in table 1.1. In chapter 2.1.1.5, 2.1.2.3, 2.1.4, 3.1.3.1.3, 3.1.3.2.3, 3.1.3.3.3 and 3.2.2 further details on reporting are given. All data have to be reported electronically according to the reporting format prepared by the data consultant (see Annex 4.1).

1.5.2. Quantification and reporting obligations every 6 years

Comprehensive Waterborne Pollution Load Compilations, comprising the source-orientated approach and the load-orientated approach has to be carried out and reported every six year starting in 2006.

Within the **source-orientated approach** according to chapter 3 the quantification of the point and diffuse sources from:

1. Municipal waste water treatment plants (chapter 3.1.3.1);
2. Industrial plants (chapter 3.1.3.2);
3. Fish farming plants (chapter 3.1.3.3);
4. Nutrient Losses from diffuse sources (chapter 3.2); and
5. Natural background nutrient losses (chapter 3.3)

into inland surface waters within the catchment area of the Baltic Sea located within the borders of the Contracting Parties has to be carried out and reported every six year starting in 2006. The variables to report are listed in table 1.2. In chapter 2.1.1.5, 2.1.2.3, 2.1.4, 3.1.3.1.3, 3.1.3.2.3, 3.1.3.3.3 and 3.2.2 further details on reporting are given. All data have to be reported electronically according to the reporting format prepared by the data consultant (see Annex 4.2).

Within the **load-orientated approach** according to chapter 2 the quantification of the total load to the Baltic Sea from:

1. Monitored rivers (chapter 2.1.1);
2. Unmonitored areas (partly monitored rivers, unmonitored part of monitored rivers, unmonitored rivers and coastal areas including unmonitored islands, chapter 2.1.2); and

3. Point sources and diffuse sources discharging directly into the Baltic Sea (chapter 3).

and the quantification of the importance of different sources of riverine nutrient load:

4. Retention (chapter 2.2) and
5. Riverine load apportionment (chapter 2.3).

has to be carried out and reported every six year starting in 2006. The variables to report are listed in table 1.2. In chapter 2.1.1.5, 2.1.2.3, 2.1.4, 3.1.3.1.3, 3.1.3.2.3, 3.1.3.3.3 and 3.2.2 further details on reporting are given. All data have to be reported electronically according to the reporting format prepared by the data consultant (see Annex 4.3).