

CONVENTION ON THE PROTECTION OF THE MARINE
ENVIRONMENT OF THE BALTIC SEA AREA

BALTIC MARINE ENVIRONMENT PROTECTION HELCOM 14/18
COMMISSION - HELSINKI COMMISSION - Annex 12

14th Meeting
Helsinki, 2-5 February 1993

HELCOM RECOMMENDATION 14/1

Adopted 3 February 1993, having regard to Article 13, Paragraph b) of the Helsinki Convention
This Recommendation supersedes HELCOM Recommendation 11/1

MONITORING OF AIRBORNE POLLUTION LOAD

THE COMMISSION,

RECALLING Article 6 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1974 (Helsinki Convention), in which the Contracting Parties undertake to take all appropriate measures to control and minimize land-based pollution of the marine environment of the Baltic Sea Area, and to endeavour to use best practicable means in order to minimize the airborne pollution of the Baltic Sea Area by noxious substances,

RECALLING ALSO Paragraph 3 of the Article 16 of the Helsinki Convention, in which the Contracting Parties undertake directly, or when appropriate, through competent regional or other international organizations and other basis of information and data acquired pursuant to Paragraphs 1 and 2 of Article 16, to cooperate in developing intercomparable observation methods, in performing baseline studies and in establishing complementary of joint programmes for monitoring,

NOTING the increasing concern on harmful effects on pollutants in the environment and that an essential amount of various contaminants is transported via the atmosphere,

NOTING FURTHER the decision by the Commission to start joint monitoring programme as adopted as the HELCOM Recommendation 7/1,

DESIRING to limit the pollution of the Baltic Sea due to atmospheric transport of harmful substances,

BEING MINDFUL of the need of reliable data on the amounts of harmful substances carried by the air to the Baltic Sea,

RECOMMENDS to the Governments of the Contracting Parties to the Helsinki Convention that:

a) each Baltic Sea State should have at least one monitoring station on the sea (or on the coast), to be included in the joint monitoring programme;

b) the list attached to this Recommendation (Appendix 1) should be used as the basis for the monitoring programme in all Baltic Sea States, bearing in mind that the list contains minimum requirements;

c) in order to substantiate monitoring methods for persistent organic pollutants emitted primarily to air, corresponding research activities should be encouraged in the Baltic Sea States; and

d) whenever possible, also experimental monitoring of those substances which are now included in the present list attached to this Recommendation, should be started,

RECOMMENDS ALSO that all laboratories involved would apply reliable analytical procedures taking into account also the development in other relevant international organizations concerning analytical, technological and data quality assurance,

RECOMMENDS FURTHER that as a prerequisite for accomplishing reliable estimates from suitable dispersion and deposition models for atmospheric inputs to the Baltic Sea Area of harmful substances, emissions inventories should be appropriately provided by all Baltic Sea States on these relevant substances. The purpose of such estimates is to establish an assessment of inputs for which priority control action should be taken, and to facilitate decisions concerning emission reductions,

RECOMMENDS FURTHERMORE that the Baltic Sea States would report their monitoring data to the Commission or to the consultant in charge of the data bank using the form attached to this Recommendation (Appendix 2),

RECOMMENDS FURTHERMORE that:

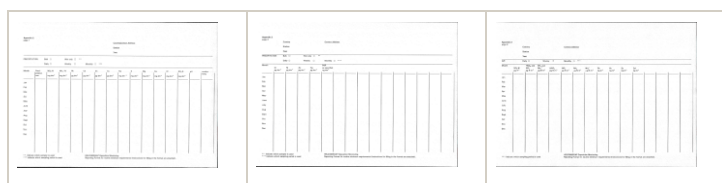
- a) the annual monitoring data be submitted 1 July of the following year to the Secretariat or to the consultant;
- b) the methodological and other relevant additional information concerning monitoring be submitted every third year/or when there will be changes in the methods or in the monitoring network, following the procedure started in 1986 and using the form attached to this Recommendation (Appendix 3); and
- c) The emissions inventories be submitted for 1990 and updated as appropriate by the Baltic Sea States, and be based on a methodology harmonized with other relevant international bodies.

Appendix 1

RECOMMENDED LIST OF PARAMETERS FOR THE MONITORING OF AIRBORNE POLLUTION LOAD			
Monthly concentration values		Routine Minimum Requirements	Experimental
N	NO ⁻ precipitation	+	
	NH ₄ ⁺ precipitation	+	
	NO ₂ gas	+ *)	
	HNO ₃ gas + NO ₃ ⁻		HNO ₃ gas
	particles	+ *)	NO ₃ ⁻ particles
	NH ₃ gas + NH ₄ ⁺		NH ₃ gas
	particles+ *)	+ *)	NH ₄ ⁺ particles
Pb	precipitation	+ *)	
	particles	-	+
Cd	precipitation	+ *)	
	particles	-	+
Cu,Zn	precipitation	+ *)	
	particles	-	+
Cr			
Ni			
As	precipitation		

Hg		-	+
POP**	precipitation		+
+	monitored on routine or experimental basis		
-	not monitored on routine basis		
*)	monitored on routine basis, from at least one station of each country		
**)	Persistent Organic Pollutants selected from the Baltic Sea priority list of harmful substances that are emitted primarily to air		
For quality assurance purposes the Countries are encouraged to report the concentrations in precipitation of the major ions: (Na, K, Ca, Mg, SO4=, Cl- pH and electrical conductivity)			

Appendix 2



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TENTATIVE INSTRUCTIONS FOR REPORTING MONITORED DATA TO THE BALTIC MARINE ENVIRONMENT PROTECTION COMMISSION

Monthly mean values should be reported in the following way:

Precipitation

The precipitation amount should preferably be based on the volume collected in the actual deposition sampler; if not, the base should be given.

Concentrations of precipitation

Sampling periods less than a month

The concentration of each species should be precipitation amount weighted arithmetic mean values, i.e. calculated with the following formula:

$$C_M = \frac{\sum P_i C_i}{\sum P_i}$$

Where C_M is the weighted monthly mean. P_i is the precipitation amount (mm) collected at each sampling period and C_i is the corresponding concentration. $P_i C_i$ is thus the total collected amount per unit area and month and $\sum P_i$ the total precipitation amount for the month in question.

Weekly sampling

If weekly sampling is used and if a week includes two adjacent months, the measured data should be allocated to the month which contains the largest number of days in the week in question.

Concentrations below the detection limit

When the concentrations are below the detection limit the value zero should be used for the mean calculations. When sampling or analysis have failed due to a too small sample this should be neglected. If sampling and analysis have failed due to other reasons this should be marked with an asterisk after the concentration values.

Units

The concentrations should be expressed in mg, g or ng of the element in question (e.g. N or S) per dm³ precipitation or per m³ air as indicated in the reporting format.

Appendix 3

REPORTING FORMAT FOR THE EVALUATION OF DATA WITH RESPECT TO AIRBORNE DEPOSITION TO THE BALTIC SEA

Background information about each station

Country: _____

Name of the station: _____

Latitude: _____ Longitude: _____

Elevation: _____

Responsible national institute: _____

Full Address: _____

Country: _____ Tel.no.: _____

Surrounding area (agricultural land forest, important sources, etc., if possible. If the monitoring station is within a monitoring network, this should be indicated):

Monitored parameters:

Sampling technique for those components specified in the reporting format that are monitored at the station

Precipitation (give a short description including material, dimensions, height above ground, whether bulk or wet-only collector is used, sampling time, whether the funnel is heated wintertime and whether the precipitation is refrigerated):

Air concentrations Type of analyses, averaging time, a description of the air inlet and its height above ground, flowrate and materials used should be specified for all of the following components that are monitored.

NO₂: (if wet chemical sampling is used the NO₂⁻/NO₂ factor used for calculating the NO₂ concentration should be specified):

gaseous NH₃ and /or (height above ground level is here a very important parameter. If gaseous and particulate forms are sampled separately the technique should be specified):

Gaseous HNO₃ and/or (an accurate description of the sampling inlet particulate NO₃⁻: is here a very important parameter. If the gas and particles phases are separated the technique used should be specified):

Chemical analyses

Please specify the methods used and if possible give a literature reference. The detection limit expressed in the units specified in the reporting format should be given (they are here given within brackets).

Precipitation _____

NO₃⁻ (mg N 1-1): _____

NH₄⁺ (mg N 1-1): _____

SO₄²⁻ (mg S 1-1): _____

Cl⁻ (mg 1-1): _____

Na⁺ (mg 1-1): _____

K⁺ (mg 1-1): _____

Ca²⁺ (mg 1-1): _____

Mg²⁺ (mg 1-1): _____

Pb (g 1-1): _____

Cd (g 1-1): _____

Cu (g 1-1): _____

Zn (g 1-1): _____

Cr (g 1-1): _____

Ni (g 1-1): _____

As (g 1-1): _____

Hg (g 1-1): _____

POP's and other compounds

as specified: _____

Has the laboratory participated in national or international intercalibrations concerning the above mentioned species? If yes, please give a reference if possible.

Chemical analyses

Please specify the methods used and if possible give a literature reference. The detection limit expressed in the units specified in the reporting format should be given (they are here given within brackets).

Air concentration

NO₂ (g N m⁻³): _____

HNO₃/NO₃⁻ (g N m⁻³): _____

NH₃/NH₄⁺ (g N m⁻³): _____

Pb (ng m⁻³): _____

Cu (ng m⁻³): _____

Zn (ng m⁻³): _____

Cd (ng m⁻³): _____

HNO₃ (gas) (g N m⁻³): _____

NO₃⁻ (part.) (g N m⁻³): _____

NH₃ (gas) (g N m⁻³): _____

NH₄⁺ (part.) (g N m⁻³): _____

Other compounds as

specified: _____

Has the laboratory participated in national or international intercalibrations concerning the above specified species?

If yes, please give a reference if possible.