

Manual for Marine Monitoring in the

COMBINE

Programme of HELCOM

Part B

General guidelines on **quality assurance** for monitoring in the Baltic Sea

Annex B-4

Standard Operating Procedures



Last updated: 4.1.2008

ANNEX B-4 STANDARD OPERATING PROCEDURES

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HELCOM/OSPAR COMBINE/JAMP manual Part L Annex L-00	<i>Title of Standard Operating Procedure</i>	Issue no.: 1 Revision 0: 0 Page no: 1 (19) Issue date: 07-02-15 Approved by: Signature:
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1. INTRODUCTION

Presentation of the method and its relevance as an environmental quality factor. Relevant references are provided.

1.1 BACKGROUND

General description of the basis for the method for non-experts with some detail and references.

1.2 PRINCIPLE

Detailed description of the principle behind the method for e.g. technicians.

1.3 EXTENT

Present under what environmental conditions the method is applicable. For example present limitation due to salinity, temperature, concentrations, rates or other factors.

1.4 DISTURBANCES

Present factors that may cause erroneous results by the method

1.5 CONTAMINATION RISK

Present compounds that may contaminate the sample, distort specimens or hamper growth.

1.6 SAFETY

Present hazardous substances used in the method and precautions that should be applied.

2. PREPARATIONS

2.1 CLEANING AND PURIFICATION

2.2 IDENTIFICATION OF SAMPLE

2.3 REAGENTS

2.4 BEFORE CRUISE/SAMPLING

2.5 PROTOCOL

Identify protocols for e.g. logistic data, incubation conditions that should be used.

3. SAMPLING

3.1 SAMPLING

3.1.1 SAMPLING STRATEGY

Provide advice on sampling frequency in time and spatial coverage of stations that is recommended based on statistical considerations.

3.1.2 SAMPLING METHOD

3.2 PRESERVATION/PROCESSING

Give time limits within which sample processing or analysis should have been completed.

3.3 STORAGE

4. METHOD DESCRIPTION

4.1 REAGENTS

4.2 CALIBRATION SOLUTIONS

4.3 PROCESSING

4.4 CALIBRATION

Define calibrations of instruments that should be performed routinely.

4.5 ANALYSIS

5. CALCULATIONS

5.1 CALCULATION FUNCTIONS

5.2 CALCULATIONS

Present how calculations are best performed by e.g. manually, by data bases or distributed software.

5.3 MEASUREMENT UNCERTAINTY

Provide extended measurement uncertainty estimates of the method and detection limit according to current international standards and guidelines.

6. QUALITY ASSURANCE AND EVALUATION

6.1 CONTROL CHARTS

Recommend suitable control charts according to international scientific guidelines.

6.2 EVALUATION

Describe quality criteria for approval of a measurement value.

7. REPORTING

Present variables and other information that should be supplied with measurement values of the operating procedure.

Table 2. Primary database variables and units.

Parameter	SI-unit	Valid digits	Calculation function	Category	Database acronym	Value example
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† footnote.

Define what primary (raw) data that should be reported.

Table 3. Calculated parameters.

Parameter	SI-unit	Valid digits	Calculation function	Category	Database acronym	Value example
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Define what secondary (calculated) data that should be possible to derive from the primary data and used in status assessment.

8. EQUIPMENT

Detailed presentation of equipment, its performance, model number and brand.

9. CHEMICALS AND SOLUTIONS

Detailed description of solutions and chemicals, their quality requirements, distributor, concentrations, preparations procedure and storage.

10. REFERENCES

Give full traceable reference to scientific literature, reports or links to web sites.