# BALTIC SEA ENVIRONMENT PROCEEDINGS

# No. 27 A

# GUIDELINES FOR THE BALTIC MONITORING PROGRAMME FOR THE THIRD STAGE

# PART A. INTRODUCTORY CHAPTERS



BALTIC MARINE ENVIRONMENT PROTECTION COMMISSION – HELSINKI COMMISSION –

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PART A. **INTRODUCTORY CHAPTERS** 

BALTIC MARINE ENVIRONMENT PROTECTION COMMISSION — HELSINKI COMMISSION — December 1988 1

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The Guidelines for the Third Stage of the Baltic Monitoring Programme (BMP) are based on the Guidelines for the Second Stage of the BMP, published by the Commission as Baltic Sea Environment Proceedings No. 12 (BSEP No.12). They have been revised by an expert group nominated by the Commission. The group was chaired by Dr. Gunni Aertebjerg and experts from all the Baltic Sea States participated in the work, with assistance from the International Council for Exploration of the Sea (ICES) and experts of the Baltic Marine Biologists (BMB).

The ninth meeting of the Helsinki Commission (15-19 February 1988) accepted the Guidelines in general as HELCOM Recommendation 9/7. The Commission recommends that the Governments of the Contracting Parties to the Helsinki Convention should apply the Guidelines for the Third Stage of the BMP, i.e. from 1989 to 1993, and also, whenever possible, to follow the Guidelines in the monitoring of the internal waters as well. The data is to be submitted to the data bases of the Commission, as specified in the Guidelines.

The Guidelines for the Third Stage of the BMP are published in the BSEP series as four separate volumes (27 A, 27 B, 27 C, 27 D) and also as one combined volume of loose sheets.

The contents of the Guidelines for the Third Stage of the BMP is as follows: BSEP 27 A; Part A; Introductory Chapters 27 B; Part B; Physical and Chemical Determinands in Sea

- Water 27 C; Part C; Harmful Substances in Biota and Sediments
- 27 D; Part D; Biological Determinands

Volumes B, C and D are intended to be used together with Part A which contains general information on e.g. station networks, sampling requirements and data submission.

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Any corrections or proposals for improvements concerning the content of these Guidelines are welcomed, and to be addressed to:

Baltic Marine Environment Protection Commission

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Possible comments concerning the formats prepared by the ICES should be addressed to the ICES, accordingly, as indicated in the formats.

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#### INTRODUCTORY CHAPTERS A.

### 1. Introduction

### a) The aim of the Baltic Monitoring Programme

The aim of the Baltic Monitoring Programme (BMP) is to follow the long-term (annual and long periods) change (trends) of selected determinands in the Baltic ecosystem.

Monitoring data form a part of the background information for an appropriate assessment of the state of the marine environment and for a forecast of possible man-induced changes. In order to register such man-induced changes, the natural changes of different elements of the ecosystem must be known. Therefore, monitoring will often include registration of more or less "natural" conditions. In its more restricted sense, the term is applied to the regular measurement of contaminant levels in relation to set standards or in order to judge the effectiveness of a system of regulation and control. Monitoring does not encompass experimental laboratory studies and scientific investigations, which, nevertheless, may be of importance in the planning of future monitoring activities.

#### General outline of the programme b)

The monitoring programme is intended for implementation in several stages.

The first stage (1979-1983) was experimental in character and served as a pilot programme comprising a limited number of stations and measurements but, nevertheless, providing a basic coverage of the major aspects concerned. The second stage (1984-1988)

provided for a more frequent coverage of representative stations in the main sub-areas of the Baltic, in addition to the requirements of the first stage.

The experience gained during the two previous stages has now been used to further improve the programme for the third stage, that will start in 1989. The duration of the third stage will be five years.

The objective of the third and further stages is an optimization of the programme according to the experience gained and knowledge available in order to provide data for the preparation of more comprehensive assessments of the state of the Baltic marine environment.

#### Monitoring in coastal waters c)

Bearing in mind that the Baltic Monitoring Programme in the open sea (outside territorial waters) is in general supplemented by national monitoring programmes and input studies in coastal waters in accordance with Article 4, Paragraph 3 of the Convention, it is recommended that the determinands and methods included in the Guidelines should be used whenever possible. In addition, other determinands may be used when deemed necessary for the understanding of regional problems.

In order to achieve an appropriate assessment of the state of the marine environment of the Baltic Sea Area, the Contracting Parties are requested to report compiled results of coastal monitoring in a generalized form. The status of coastal waters should be reported on a voluntary basis every fifth year, in order to be available for the preparation of the periodic assessments. The first reports should be available in 1993.

To facilitate the comparability of such reports, their contents should preferably be arranged as follows:

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- Introductory remarks 1.
- programme for coastal waters
- carried out during the preceding 5 years
- 2. Information on results of monitoring in coastal waters and related studies

- 2.3 Harmful substances in selected species
- 2.4 Biological determinands
- assessments, and other related proposals
- 4. Conclusions

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d) Monitoring programme for the third stage

The Baltic Monitoring Programme is described in the Guidelines in four main parts, as follows:

- A. Introductory Chapters
- B. Physical and Chemical Determinands in Sea Water
- C. Harmful Substances in Biota and Sediments
- D. Biological Determinands

In these revised Guidelines, a new code system for BMP stations is applied with references given to the former names of the stations.

The list of determinands to be monitored is divided into two groups: determinands which are essential for

1.1 General description of the national monitoring 1.2 General review of national monitoring activities 1.3 Introductory review of other available information

2.1 Hydrographic and basic hydrochemical determinands 2.2 Harmful substances in sea water and sediments

3. Potential items for the periodic and/or specific

inclusion in the programme (obligatory determinands), and determinands which are desirable, but for certain reasons cannot be made obligatory at this stage (tentative determinands). The tentative determinands include determinands for which suitable intercalibration among laboratories should be carried out successfully before their inclusion as obligatory in the general monitoring programme, and determinands which still require considerable effort with regard to both development of methods and intercalibration.

The analysis of harmful substances in sediments is not at present included in the BMP. However, consideration of this item is under way within ICES, and advice in relation to studies of sediments will be provided later. A reporting format for data on contaminants in sediments has been inserted in the present Guidelines (Section C.III.2.).

The species chosen as test organisms and the sampling procedures recommended for monitoring harmful substances in biota are intended to provide a picture of the levels of harmful substances in the organisms studied, and to determine trends in their levels over time.

Human health aspects associated with the consumption of contaminated fish are covered to a certain extent by the sampling of fish species of importance in human consumption, but they have not been given primary consideration in the selection of sampling procedures for the BMP. The sampling requirements directly concerned with human health are generally different from those for the assessment of trends in contaminant levels in the marine environment and, therefore, both cannot be fully covered in the same programme. Thus, it has been assumed that human health aspects will be dealt with more directly in national programmes concerned with fish and shellfish taken for human consumption. In terms of joint or co-ordinated programmes, it can still be difficult to obtain results which are comparable from country to country. Such comparability should be a long-term goal associated with a coordinated monitoring programme and it should be facilitated by the use of good laboratory practice and quality assurance programmes, including the conduct of intercalibration exercises when appropriate. For the present, emphasis can best be placed on the development of trend analysis in each country, which has been shown to provide very valid results.

Part C of the Guidelines contains recommendations for only those species of organisms which are specifically selected for the BMP. However, sampling procedures have also been drawn up for selected coastal water species in order to enable comparability of the results obtained on the national level.

Part D concerns biological determinands. For the purpose of assessing the nature, extent and effects of pollution in the Baltic Sea Area, regular monitoring of ecological determinands forms an important basis. Microbiological determinands are a new subject of the BMP, included in the present Guidelines.

It seems realistic to implement the BMP on a moderate basis with a few strategic stations in different parts of the Baltic Sea, but with enough determinands to give a reasonable overall picture of the ecological changes in the sea.

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### 2. Station grid and maps

whenever practicable.

The Contracting Parties to the Helsinki Convention are invited to participate in the Baltic Monitoring Programme on a national, bilateral and multilateral basis in order to achieve an optimal spatial and temporal coverage of the Baltic Sea Area.

The Contracting Parties have agreed to implement the Baltic Monitoring Programme generally according to a responsibility principle reflecting their wishes to concentrate the main part of their monitoring activities on certain areas.

The main responsibilities are as follows:

- The Baltic Proper	Finland, the German Democratic Republic, Poland, Sweden and the	K L	1.4.3 South 1.4.3.1 Ba
	USSR	2	. BELT SEA
- The Gulf of Bothnia	Finland and Sweden	М	2.1 BAY OF MECKLENE
- The Gulf of Finland	Finland and the USSR	N	2.2 KIEL BAY
- The Sound and the Kattegat	Denmark and Sweden	о	2.3 LITTLE BELT
- The Great Belt	Denmark	Р	2.4 GREAT BELT
- The Bay of Kiel and the Bay of Mecklenburg	The German Democratic Republic and the Federal Republic of Germany	Q 3	. THE SOUND
Apart from their main respo	nsibilities, however, the	R 4	. KATTEGAT
Contracting Parties are enco	ouraged to participate in	S 5	. SKAGERRAK
the programme in other region	is of the Baltic Sea Area		

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a) Division of the Baltic and adjacent waters

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1.1.4

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1.3 GULF OF RIGA

1.4 BALTIC PROPER

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AREA 1. BALTIC SEA

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1.1 GULF OF BOTHNIA

Bothnian Bay The Quark Bothnian Sea Åland Sea Archipelago Sea

1.2 GULF OF FINLAND

Northern Baltic Proper Central Baltic Proper Western Gotland Basin Eastern Gotland Basin nern Baltic Proper ay of Gdansk

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1.4 BALTIC PROPER:

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1. BALTIC SEA: The waters bordered by the Swedish, Finnish, Soviet, Polish, German and Danish coasts to the lines FALSTERBO -STEVN KLINT and GEDSER - DARSSER ORT. 1.1 GULF OF BOTHNIA: The waters north of a line between SIMPNÄS KLUBB - SÖDERARM - SVENSKA BJÖRN - KÖKARSÖREN - HANGÖ PENINSULA. 1.1.1 Bothnian Bay: Gulf of Bothnia north of the line RATAN - ST. FJÄDERÄGG - HÄLSINGKALLAN -STUBBEN - MONÄS. 1.1.2 The Quark: Gulf of Bothnia between the lines RATAN - MONÄS as above and HÖRNEFORS - VAASA. 1.1.3 The Bothnian Sea: Gulf of Bothnia between the lines HÖRNEFORS - VAASA and ORMÖN - UNDERSTEN - EMSKÄR - ECKERÖ - SÄTSKÄR -UUSIKAUPUNKI. 1.1.4 Åland Sea: Gulf of Bothnia between Sweden and Aland, bordered to the north by a line ORMÖN - UNDERSTEN- EMSKÄR - ECKERÖ and to the south by a line SIMPNÄS KLUBB -SÖDERARM - SVENSKA BJÖRN - KÖKARSÖREN -NYHAMN. 1.1.5 Archipelago Sea: Gulf of Bothnia between Åland and Finland, bordered to the north by a line SÄLSKÄR - UUSIKAUPUNKI and to the south by a line NYHAMN - KÖKARSÖREN -HANGÖ PENINSULA. 1.2 GULF OF FINLAND: Baltic Sea east of the line HANGÖ PENINSULA - PÕÕSAPEA. 1.3 GULF OF RIGA: Baltic Sea east of the lines OVISI -SÕRVE - PAMMANA - SÕRU - TAHKUNA -

PÕÕSAPEA.

Baltic Sea within the lines SIMPNÄS KLUBB - SÖDERARM - SVENSKA BJÖRN -KÖKARSÖREN - HANGÖ PENINSULA - PŐŐSAPEA - TAHKUNA - SÕRU - PAMMANA - SÕRVE -OVISI - Soviet, Polish and German coasts up to DARSSER ORT - GEDSER -Danish coast to STEVNS KLINT -FALSTERBO - Swedish coast to SIMPNÄS KLUBB. 1.4.1 Northern Baltic Proper: Baltic Proper north of a line ARKÖSUND - GOTSKA SANDÖN - VILSANDI - SAAREMAA. 1.4.2 Central Baltic: Baltic Proper between the lines ARKÖSUND - GOTSKA SANDÖN - VILSANDI -SAAREMAA and UTLÄNGAN - southern end of ÖLAND - PAPE. 1.4.2.1 The division lines between the Eastern 1.4.2.2 and Western Central Basins (Gotland Basins) are GOTSKA SANDÖN - FÅRÖ and HOBURG to the coordinate N 56 11.00' E 18 09.00'. 1.4.3 Southern Baltic Proper: Baltic Proper south of the line UTLÄNGAN - southern end of OF ÖLAND to PAPE. 1.4.3.1 Bay of Gdansk: Baltic Proper south of the line ROSEWIE - TARAN (Brusterort). 2. BELT SEA: The waters between the lines HASENÖRE -GNIBEN in the north and GEDSER -DARSSER ORT in the south. 2.1 BAY OF MECKLENBURG: Baltic Sea between the lines GEDSER -DARSSER ORT and HYLLEKROG MARIENLEUCHTE. 2.2 KIEL BAY: The waters between the lines FALSHÖFT -VEJSNES NAKKE - GULSTAF - KAPPELS CHURCH - and MARIENLEUCHTE - HYLLEKROG.

2.3 LITTLE BELT: The waters between the lines FALSHÖFT -VEJSNÄS NAKKE - GULSTAF in the south to the line between AEBELÖ - BJÖRNS KNUDE in the north.

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2.4 GREAT BELT: The waters between the line HASENÖRE -GNIBEN in the north, and in the south the line GULSTAF - KAPPELS CHURCH.

#### 3. THE SOUND:

The waters between the Danish and Swedish coasts between the lines STEVNS KLINT - FALSTERBO and GILLEJE - KULLEN.

### 4. KATTEGAT:

The waters between the Danish and Swedish coasts from the lines HASENORE - GNIBEN and GILLEJE - KULLEN to a line SKAGEN - MARSTRAND.

#### 5. SKAGERRAK:

The waters between the Danish, Swedish and Norwegian coasts from the line SKAGEN - MARSTRAND to the line LINDESNES - HANSTHOLM.

#### b) Stations

As indicated, the stations listed below and shown in the maps shall be used for sampling hydrographic and basic hydrochemical determinands, harmful substances in sea water, and biological determinands as well as for sampling selected species for analysis of harmful substances. The Decca co-ordinates are given in addition to the geographical co-ordinates for convenience of the users.

#### National shallow water zoobenthos stations C)

Due to periodic oxygen deficiency, the macrozoobenthos in the deeper parts of the Baltic Proper often vanish almost completely. Thus, sampling of macrozoobenthos in these areas mirrors the oxygen situation, and cannot be used in long-term trend monitoring. Therefore, the Contracting Parties have agreed to include national shallow water macrozoobenthos stations in the BMP.

The responsibility for sampling at the other macrozoobenthos stations is indicated in the lists of BMP monitoring stations.

#### Remark:

It is essential that sampling of macrozoobenthos be accompanied by some hydrographic measurements to provide information about the hydrographic situation. Therefore, as a minimum requirement, water should be sampled as close to the sea bottom as possible for determination of salinity, temperature and oxygen/H2S concentration. Preferably a complete hydrographic series should be taken.







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FIGURE A.4. BMP stations for the Sound, the Kattegat, the Great Belt, the Belt Sea, the Bay of Kiel and the Bay of Mecklenburg

# TABLE A.1.

New York

National shallow water stations for sampling macrozoobenthos

Sea	area	Stat	ion	code	Posit	ion	Depth	State	01d code
Botl	nnian	Sea I	ЗМР	C10	63°26.15'	20°03.00	)' 43	SE	N 15
		I	BMP	C11	61°14.00'	17°40.00	<b>)'</b> 64	SE	SR lA
Nort Prop	chern i ber	Baltic H	BMP	H10	58°46.55'	17°41.60	)' 45	SE	Askö 6004
East	ern G	otland I	3MP	J2	55°55.00'	20°20.00	)' 47	SU	
Basi	Ln	I	BMP	J10	57°10.00'	18°50.00	) <b>'</b> 46	SE	ESE När
Sout	hern	Baltic H	BMP	K10	55°33.50'	18°40.80	)' 30	PL	SM-1
rtoper	E	3MP	Kll	54°52.50'	18°05.00	)' 17	PL	SM-2	
		E	BMP	K12	54°38.00'	16°48.00	20	PL	SM-3
		E	BMP	Kl3	54°27.00'	15°59.00	<b>'</b> 40	PL	SM-4
		E	BMP	Kl4	54°19.50'	14°18.00	)' 8	PL	SM-5

TAB	<u>LE</u> A.2.	HELCOM	BMP 1				
Code	9		Posit				
A. BMP BMP BMP	<b>Bothnian Bay</b> Al A2 A3	65°23.5 65°14.1 64°18.3	50' .6' 30'				
C. BMP BMP BMP BMP	Bothnian Sea Cl C2 C3 C4	62°35.2 62°35.9 61°54.0 61°05.0	20' 90' 90'				
D. BMP	<b>Åland Sea</b> Dl	60°11.(	0'				
F. BMP BMP BMP BMP BMP	Gulf of Finland F1 F2 F3 F4 F5	64°04.4 60°00.0 59°50.5 59°37.5 59°35.0	0 ' 0 ' 50 ' 0 '				
H. BMP BMP BMP	Northern Baltic H1 H2 H3	<b>Proper</b> 59°29.0 59°02.0 58°35.0	00' 00' 00'				
I. BMP	Western Gotland Il	<b>Basin</b> 57°07.0	0 <b>'</b>				
J. BMP BMP	Eastern Gotland Jl J2	<b>Basin</b> 57°19.2 55°55.0	0 ' 0 '				
K. BMP BMP BMP BMP BMP BMP BMP	Southern Baltic Kl K2 K3 K4 K5 K6 K7 K8	<b>Proper</b> 55°33.3 55°15.0 54°38.0 55°00.0 54°55.5 55°16.3 55°00.0 54°43.4	0 ' 0 ' 0 ' 0 ' 0 '				
L. BMP	Bay of Gdansk	54°50.0	0'				
M. BMP BMP	Bay of Mecklenbu Ml M2	arg 54°29.0 54°18.9	01				

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## POSITIONS

## ltion

Old code

23°30.00'	F 2
23°33.60'	C VI
22°21.50'	BO 3
19°58.50'	US 5b
20°15.50'	US 6b
19°06.40'	B VII
19°35.00'	SR 5
19°09.00'	F 64
26°20.50'	LL 3a
26°05.00'	LL 4a
24°50.30'	LL 7
23°19.70'	LL 11a
23°18.00'	LL 11
22°54.00'	LL 12
21°05.00'	BY 28
18°14.00'	BY 31
17°40.00'	BY 38
20°03.00'	BY 15
20°20.00'	-
18°24.00'	BCS III 10
15°59.00'	BY 5
14°17.00'	P 38
14°05.00'	BY 2
13°30.00'	GDR 113
12°34.50'	441
13°18.00'	BY 1
12°47.00'	GDR 30
19°20.00'	Pl
12°17.00' 11°33.00'	954 Mecklenburger Bucht

## TABLE A.3.

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Code	Position		Old code	Areas for collecting biota for analysis of harmful su				
N. Kiel Bay				ICES Statistical Rectangles				
BMP N1 BMP N2 BMP N3 BMP N4	54°34.20' 54°32.00' 54°36.00' 54°42.00'	11°20.00' 10°42.10' 10°27.00' 10°46.00'	952 Süderfahrt Kieler Bucht 450	Sea area	Stat. Rect.	Species Coa	stal state	
	<b>L</b>			Bothnian Bay	60 H2	herring	SE	
BMP P1 BMP P2	55°22.60' 55°39.34'	11°00.00' 10°45.70'	939 935	Bothnian Sea	57 H2-3 55 H0	herring Mesidotea	FI FI	
Q. The Sound					51 H0-1	herring, cod	FI	
BMP Q1 BMP Q2	55°51.05'	12°40.12'	31 S 431		50 G8	herring	SE	
	55 52.00	12 43.00	421	Gulf of Finland	49 H6	herring, cod	FI	
R. Kattegat		11000 601	0.05		48 H3	herring, cod	FI	
BMP RI BMP R2	56°14.00'	12°22.20'	925 921		48 H5	fish	SU	
BMP R3	56°40.00'	12007.00'	413	Baltic Proper	46 Hl	fish	SU	
BMP R4 BMP R5	56°51.40' 57°17 60'	10°47.50' 10°44 50'	409		46 G7	herring	SE	
BMP R6	57°11.50'	11°40.00'	Fladen		43 G7	quillemot eggs	SE	
BMP R7	57°33.00'	11°31.50'	GF 4		42 G8	cođ	SE	
					40 G5	herring	SE	
					38-39 G8	herring, cod	PL	
					38 G6	herring, cod	PL	
					37 G4	herring, cod	PT.	
				Belt Sea	39 Gl	flounder, blue musse		
				Sound	40 G2	flounder, blue muss	את ו	
				Kattegat	43 Gl	herring, cod.	SE	
				-		dab, blue mussel	~	

Note

In the Quark (B), the Gulf of Riga (G) and the Little Belt (O) no observation stations have been located. Therefore, the letters B, G and O, respectively, are lacking from the alphabetical order of the station codes.

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## TABLE A.5.

and the Gulf of Finland

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the	Gulf	of	Bothnia,	the	Åland	Sea	anđ	the	Gulf	of	Finland	I	Эе
												;	a۲

Depth Chemist.,

Physics,

Macro-

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Positions for monitoring

Station	Old code	Pos	ition	Depth	range	Pelagic	zoobenthos			
		N	E	m	m	biology	3	Station	Old code	Chain
								BMP Al	F 2	5 F
BMP Al	F 2	65°23.50'	23°30.00'	86	85-91	x	(x)	BMP A2	C VI	5 F
BMP A2	C VI	65°14.16'	23°33.60'	70	68-72		FI, SE	DMD N3	BO 3	5 5
BMP A3 *	BO 3	64°18.30'	22°21.50'	105	103-108	x	FI Me, SE	DMP AJ	5 OG	Jr
	**~ <i>*</i> *1		10050 501	01.0	000 000		<i>/ \</i>	BMP Cl	US 5b	8 C
RWL CT	US 55	62035.201	19,28.20,	210	208-220	x	(X)	BMP C2	ÚS 6b	8 C
BMP C2	US 6b	62°35.90'	20°15.50'	80	77-83		FI, SE	BMP C3	B VIT	8 C
BMP C3	B VII	61°54.00'	19°06.40'	42	49-57		FI Me/Mb	PMD C4		8 0
BMP C4 *	SR 5	61°05.00'	19°35.00'	120	119-125	x	FI, SE	DHr C4	SK J	0 0
BMP Dl	F 64	60°11.00'	19°09.00'	290	280-293	x	FI	BMP D1	F 64	4 B
RMP F1	Т.Т. За	64°04 40'	26020 501	65	64-66	v		BMP F1	LL 3a	6 E
		64 64.40	20 20,00	00	54 00	Α		BMP F2	LL 4a	бЕ
BMP FZ	ப்ப 4a	60,00.00.	26.05.00	60	58-64		FI MD, SU	BMP F3	LL 7	6 E
BMP F3 *	LL 7	59°50.50'	24°50.30'	90	80-100	х		BMP F4	T.T. 11a	6 E
BMP F4	LL lla	59°37.50'	23°19.70'	59	59		FI Mb	DMD FF	TT 11	<u>د</u> ت
BMP F5	LL 11	59°35.00'	23018.00'	67	66-69		FI, SU	DMP FD	لمبل بلابل	οĿ

\*) - Representative station

(x) - not obligatory

Me - Mesidotea entomon

Mb - Macoma baltica

-20-

ecca positions for monitoring the Gulf of Bothnia, the Åland Sea

Ređ	Green	Purple
E 03.40	A 39.30	
E 11.50	I 42.00	
E 06.00	C 34.50	
D 01.00	A 30.20	
D 07.00	A 41.50	
F 10.80	E 38.93	
B 01.50	D 47.90	
D 09.30		B 56.80
B 06.50	G 31.00	
в 17.40	E 31.00	
F 00.00	в 46.00	
в 02.30	A 45.70	
B 03.80	A 46.70	

## -23-

## TABLE A.7.

## Decca positions for monitoring the Baltic Proper

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TABLE A.6.

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# Positions for monitoring the Baltic Proper

Station	Old code	e Pos N	ition E	Depth m	Depth range	Physics, Chemist., Pelagic biology	Macro- zoobenthos	Station	Old code	Chain	Red	Green	Purple
					_	2101091				6 E	C 02.10	A 45.60	
								BMD H	T.T. 12	4 B	C 17 80	G 32 00	
BMP H1	LL 12	59°29.00'	22°54.00'	81	81-84	x			DU 12		T 19 00	G 35.00	
BMP H2 *	BY 28	59°02.00'	21°05.00'	166	160-170	x	x	BMP H2	BI 20	4 D	J 19.00	G 33.00	
ВМР НЗ *	BY 31	58°35.00'	18°14.00'	450	420-450	x		BWD H3	BI 3T	4 B	A 20.00	E 31.00	
BMP Il	BY 38	57°07.00'	17°40.00'	106	106-109	x	SE	BMP 11	BY 38	OA/MP	D 00.30	A 33.30	
BMP J1 *	BY 15	57°19.20'	20°03.00'	230	220-249	x		BMP J1	BY 15	4 B	D 13.00		B 66.40
BMP J2	-	55°55.00'	20°20.00'	47	47		SU	BMP Kl	BCSIII10	OA/MP	J 13.30	D 43.00	
BMP Kl *	BCSITT10	55033.301	18024 001	90	88-01	v	DI	BMP K2	BY 5	OA/MP	C 23.00	H 45.30	
BMP K2 *	BV 5	55915 001	15 24.00	00	07 00	*	РL	BMP K3	P 38	OA/MP	B 05.60	D 34.80	
	D 30	53-15.00	11017.001	90	87-93	x	PT	BMP K4	BY 2	OA/MP	A 18.00	D 42.80	
DHP KJ	P 38	54-38.00	14017.00				DD Mb			7 B	E 09.30		C 55.60
BMP K4 *	BY 2	55°00.00'	14°05.00'	47	46-48	x	SE/DD	BMP K5	GDR 113	7B/MP	E 20.15		B 68.80
BMP K5	GDR 113	54°55.50'	13°30.00'	48	48	x		BMP K6	441	,			
BMP K6	441	55°16.30'	12°34.50'	24	23-25	x		DMI KO		7 13	E 17 20	01 10	B 67 20
BMP K7	BY 1	55°00.00'	13°18.00'	45	44-46	x	DK/DD	DMP K7	DI I	7 D	E 17.30	D 31.10	B 67.20
BMP K8	GDR 30	54°43.40'	12°47.00'	21	21		DD	BWD K8	GDR 30	/В	C 23.10		B 00.80
BMP T.] *	Гa	54950 001	19020 001	110	110			BMP L1	P 1				
	÷ +	JT JU.UU	T2.50.00.	TTO	ττŲ	х	РL						

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\*) - Representative station

Mb - Macoma baltica

## TABLE A.9.

Decca positions for monitoring the Belt Sea, the Sound and the Kattegat

TABLE	A.8	•
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Positions for monitoring the Belt Sea, the Sound and the Kattegat

Station	Old code	Pos: N	ition E	Depth m	Depth range m	Physics, Chemist., Pelagic biology	Macro- zoobenthos	44320	Station	Old code	Chain	Red	Green	Purple
								1. 						
	054	E 4000 001	10017 001	2.2	22.24			2046 Mare	BMP M1	954	7 В	E 10.00	F 37.70	A 61.00
BMP ML	954	54°29.00	12-17.00	23	22-24	x			BMP M2	Meckl.B.	7 B	C 9.59	н 31.25	
BMP M2	Meckl.B.	54°18.90'	11°33.00'	24	23-27	х	DD							
									BMP N1	952	7 B	в 7,30	G 42.40	
BWD NT *	952	54°34.20'	11°20.00'	27	25-29	x	DE		BMP N2	Süderf.	7 B	J 7.23	I 34.77	
BMP N2	Süderf.	54°32.00'	10°42.10'	22			DE		BMP N3	Kiel B.	7 в	I 9.17	I 44.33	
BMP N3	Kiel.B.	54°36.00'	10°27.00'	18		x	DE		BMP N4	450	7 R	т 7.10	H 40 60	
BMP N4	450	54°42.00'	10°46.00'	31	29-34	x				100	, 2	0 /.10		
									BMP Pl	939	7В	F 23.90	D 39.20	
BMP Pl *	939	55°22.60'	11°00.00'	38	36-40	x	DK		BMD D2	935	7 19		C 31 40	a 50 40
BMP P2	935	55°39.34'	10°45.70'	48	46-50	х				555	<i>,</i> D	D 0.00	0 51.40	11 00.40
									BMP Ol	31 S	7 B	л 3.60		C 78.40
BMP Ql	31 S	55°51.05'	12°40.12'	17	17-18		DK			431	7 12	J 6 40		D 52 50
BMP Q2	431	55°52.00'	12°45.00'	51	48-51	x			DMI Q2	491	7 15	0 0.40		0 52.50
									BMP R1	925	7 в	C 7.80		C 62.40
BMP Rl	925	56°07.90'	11°09.60'	43	41-45	x			BMP R2	921	7 B	G 10 90		E 59 30
BMP R2	921	56°14.00'	12°22.20'	24	23-25	x			DMD D2	110	7 D	E 12 20		C 73 10
BMP R3 *	413	56°40.00'	12°07.00'	56	53-57	x	DK		DMP NJ	415		E 12.50		3 75.10
BMP R4	409	56°51.40'	10°47.50'	14	13-15	x			BMP R4	409	/ B	B 8.60	A 44.60	J 55.40
BMP R5	403	57°17.60'	10°44.50'	43	42-44	x			BMP R5	403	7 B	B 11.70		D 53.80
BMP R6	Flader	57011.501	11040.001	77	75-78	x	SE		BMP R6	Fladen	7 B	C 22.00		A 71.00
		57022 001	11021 501	70	76-00	A	<u>.</u>		BMP R7	GF 4	7 B	C 15.00	A 41.60	C 74.00
DRIC K/	GF 4	57-55.00'	TT-2T'20,	19	/0-00	X	25							

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\*) - Representative station

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#### Sampling frequency and timetable 3.

Sampling frequency a)

Det	erminands	Attempted frequency	Most important period of sampling
1.	Hydrography Hydrochemistry		
a)	Long-term trend monitoring purposes	Four seasons	Nutrients: Winter time Oxygen: Late summer - autumn
b)	In connection with biological determinands	See below for pelagic biology	See below for pelagic biology
2.	Harmful substances		
a)	In sea water: Organochlorines PHCs Heavy metals	Once a year Once a year Once a year	None Summer Research needed
b)	In biota	Once a year	Late summer - autumn
3.	Pelagic biology		
a)	Baltic Proper	l2 times a year	Summer time, but should
b)	Other areas	6 times a year	the productive season; winter less important
4.	Macrozoobenthos	Once a year	Late winter -

early spring

The Contracting Parties are encouraged to try, on a national basis, to increase the sampling frequency on BMP stations close to or on their national waters.

At the representative stations the minimum frequency of sampling shall be 6 times per year. By coordination of timetables, a higher frequency at the representative stations should be aimed at. At the other stations, a higher frequency of sampling should be encouraged. Another way to increase the sampling frequency could be to use automatic sampling devices (in buoys or caisson lighthouses). The Contracting Parties are encouraged to develop methods for this kind of monitoring.

such as

- satellite imaging
- large-scale surveying methods
- side-scan sonar
- underwater-video/stills
- sediment profiling cameras (REMOTS)

are encouraged for monitoring purposes.

While remote sensing should be used as often as possible, the other methods mentioned above should be employed several times per year.

#### Timetable b)

It is recommended that all Contracting Parties give a high priority to the Baltic Monitoring Programme (BMP).

Station lists as well as full monitoring plans for the following year for the respective parts of the Baltic Sea Area according to the responsibility list (see Section A.2) shall be prepared by the Contracting Parties concerned and submitted to the Secretariat by 1 September for coordination.

The coordination of the BMP is considerably facilitated if the Contracting Parties would follow the same timetable for their monitoring cruises from year to year. Thus, having once established a well-coordinated timetable, any further annual reports are needed from the Contracting Parties only if they change their undertakings concerning the monitoring.

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## The development and use of remote / non-impact methods

The timetables will be compiled and coordinated every year by the Secretariat according to the national plans so that for the following year the whole geographic area of the Baltic, as well as the whole year, will be covered as well as possible. The proposal for the compiled and coordinated timetables for the following year shall be discussed at the annual meetings of the STC.

On the basis of these discussions and any possible further comments by the Contracting Parties to be submitted before 20 October the same year, the compiled and coordinated timetables for the following year should be prepared by the Secretariat and distributed to the Contracting Parties before 15 November.

#### Cruise reports c)

The Contracting Parties are encouraged to draft a short cruise report shortly after each BMP-cruise. The cruise reports should contain a table listing the stations visited and the determinands measured at each station, together with a short description of the cruise in general and the most important findings. The cruise report could also contain a map showing the cruise track and stations visited, and maps or drawings showing interesting observations, e.g., areas with H<sub>2</sub>S or low 0, concentrations.

The cruise reports should be mailed directly to the following addresses:

Marine Pollution Laboratory National Agency of Environmental Protection Jaegersborg Alle 1 B DK-2920 CHARLOTTENLUND Denmark

Finnish Institute of Marine Research P.O. Box 33 SF-00931 HELSINKI Finland

Institute of Marine Research Academy of Sciences of the GDR DDR-2530 ROSTOCK-WARNEMÜNDE German Democratic Republic

Institute of Marine Research Düsternbrooker Weg 20 D-2300 KIEL 1 Federal Republic of Germany

Deutsches Hydrographisches Institut P.O. Box 220 D-2000 HAMBURG 4 Federal Republic of Germany

Maritime Branch Waszyngtona 42 81 342 GDYNIA Poland

Swedish Meteorological and Hydrological Institute Oceanographical Laboratory P.O. Box 2212 S-403 14 GÖTEBORG Sweden

Institute of Applied Geophysics Baltic Branch Järvevana tee 5 200 001 TALLINN Union of Soviet Socialist Republics

Palaegade 2-4 DK-1261 COPENHAGEN K Denmark

Baltic Marine Environment Protection Commission Mannerheimintie 12 A SF-00100 HELSINKI Finland

The Contracting Parties are also encouraged to send the usual ROSCOP cruise reports to ICES.

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Institute of Meteorology and Water Management
International Council for the Exploration of the Sea
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#### 4. Data

Results of measurements carried out according to the agreed monitoring programme shall be reported and exchanged as follows:

### a) Data reporting

The deadline for the delivery of data to the Secretariat is 1 May for hydrographic and hydrochemical data and 1 September for biological data and harmful substances. The data for each calendar year shall be delivered to the Secretariat preferably on magnetic tapes.

Physical and hydrochemical data shall be reported according to the ICES format for hydrographic and hydrochemical data (cf. Section B.I.11). This format should be used until the new form is finalized and introduced to the Contracting Parties.

Data on harmful substances in sea water should be reported according to the ICES Reporting Format for Contaminants in Sea Water, given in Sections B.II.6 and B.II.7.

Data on harmful substances in biota should be reported according to the ICES Reporting Format for Contaminants in Marine Biota, given in Section C.I.5 and advice given in Section C.I.6.

Any data Contracting Parties wish to provide on harmful substances in sediments should be submitted according to the ICES Interim Reporting Format for Contaminants in Sediments, given in Section C.III.3. Biological data should be reported according to the Biological Data Reporting Format and the reporting forms given in Sections D.10 and D.11 of the Guidelines.

Technical details concerning the data reporting should be elaborated by experts responsible for the BMP data processing in consultation with experts from the consultant organization agreed upon. The ICES formats must be used, otherwise inclusion of the data will be delayed.

The data should, if necessary, be supplemented with information on methods used, conditions in which measurements were carried out as well as other relevant data.

The Secretariat, after receiving the data, will submit it to the consultant agreed upon for compilation.

#### b) Data distribution

The status report on ongoing monitoring activities (for the previous year) will be prepared by the Secretariat annually and submitted for consideration by the STC.

An inventory of data submitted during the year, listed according to cruise and station, will be included in the status report.

The complete set of data stored in the data base, including calculations such as actual primary production and values per  $m^2$  or per  $m^3$  for taxonomic data (totals as well as values for each taxa), will be distributed to the Contracting Parties (through the Secretariat) on magnetic tapes and microfiches. Graphical presentations on the depth distribution of e.g., salinity, relevant determinands, oxygen, phosphate, nitrate and chlorophyll-a from the stations BMP C4 (SR5), BMP F3 (LL7), BMP J1 (BY15), BMP K2 (BY5), BMP N1 (952) and BMP R3 (413) will be submitted to the Contracting Parties (HELCOM 9/16, Annex 20).

### c) Use of data

The BMP data, once reported to the Commission, stored and controlled, are available to all the Contracting Parties (Governmental authorities) (HELCOM 6/16, Paragraph 4.7 and HELCOM 9/16, Paragraph 6.21). The Contracting Parties may in scientific work use data reported by other Contracting Parties - in addition to the use of these data in joint assessment work subject to obtaining permission from the data originator according to the practices in common use. After the publication of the periodic assessment, data from the period covered by that assessment become available to all potential users.

Denmark       fishing zone       30 days in advance       Ministry Foreign         Finland       fishing zone       well in advance       Ministry Foreign         German Democratic Republic       fishing zone       6 months in advance       Ministry Foreign         Federal Republic       fishing zone       - (no requirements) -       -         Foreign       fishing zone       60 days in advance       Ministry Foreign         Poland       fishing zone       4 weeks in advance       Ministry Foreign         Sweden       fishing zone       6 months in advance       Ministry Foreign         Union of Soviet       economic zone       6 months in advance       USSR Sta Science Technolc	Country	Zone	Notification to be made	Request for a permission to be made	Notification request for permission be addresse
Finland       fishing zone advance       well in advance       Ministry Foreing         German Democratic Republic       fishing zone       6 months in advance       Ministry Foreign         Federal Republic of Germany       fishing zone       - (no requirements) -       -         Poland       fishing zone       60 days in advance       Ministry Foreign         Sweden       fishing zone       4 weeks in advance       Ministry Foreign         Union of Soviet Socialist Republics       economic zone       6 months in advance       USSR Sta Committe Science Technolc	Denmark	fishing zone		30 days in advance	Ministry fo Foreign Aff
German Democratic Republic       fishing zone       6 months in advance       Ministry Foreign         Federal Republic of Germany       fishing zone       - (no requirements) - edvance       -         Poland       fishing zone       60 days in advance       Ministry Foreign         Sweden       fishing zone       4 weeks in advance       Ministry Foreign         Union of Socialist Republics       economic zone       6 months in advance       USSR Sta Committe Science Technolo	Finland	fishing zone	well in advance		Ministry fo Foreing Aff
Federal Republic of Germany       fishing zone       - (no requirements) -         Poland       fishing zone       60 days in advance       Ministry Foreign         Sweden       fishing zone       4 weeks in advance       Ministry Foreign         Union of Socialist       economic zone       6 months in advance       USSR Sta Science Technolc	German Democratic Republic	fishing zone		6 months in advance	Ministry fo Foreign Aff
Polandfishing zone60 days in advanceMinistry ForeignSwedenfishing zone4 weeks in advanceMinistry advanceUnion of Soviet Socialist Republicseconomic zone6 months in advanceUSSR Sta Committe Science Technolc	Federal Republic of Germany	fishing zone	- (no requirem	ents) -	
Sweden       fishing zone       4 weeks in advance       Ministry Foreign         Union of soviet Socialist Republics       economic zone       6 months in advance       USSR Sta Committe Science Technolo	Poland	fishing zone		60 days in advance	Ministry fo Foreign Aff
Union of economic zone 6 months in USSR Sta Soviet advance Committe Socialist Republics Technolo	Sweden	fishing zone		4 weeks in advance	Ministry fo Foreign Aff
	Union of Soviet Socialist Republics	economic zone		6 months in advance	USSR State Committee f Science and Technology
•		<i>i</i> . 1			

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## 6. Format for notification of proposed research cruises

The present format for notification of proposed research cruise, attached to the Guidelines, is the one used by ICES, and it will be revised as requested by the Commission.

### NOTIFICATION OF PROPOSED RESEARCH CRUISE

# GENERAL Part A 1. Name of research ship ..... Dates of cruises 2. From ... 3. Operating authority . . . . . . . . . . . . . . • • • • • • • Telepho 4. Owner (if different . . . . . . . (from para 3) ..... ..... ...... 5. Particulars of ship: Name ... National Overall Maximum Net ton Propuls Call sid 6. Crew Name of No. of 7. Scientific personnel Name an scien . .

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No. of

	Cruise No
	. To
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one	. Telex
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uity	• • • • • • • • • • • • • • • • • • • •
length	metres
n draught	metres
nage	•••••••
sion	• • • • • • • • • • • • • • • • • • • •
.gn	
master	
crew	•••••
nd address of	• • • • • • • • • • • • • • • • • • • •
tist in charge	•••••
	Telephone
	Telex
scientists	
	· · · · · · · · · · · · · · · · · · ·

- Geographical area in which ship will operate (with reference in latitude 8. and longitude)
- Brief description of purpose of cruise 9.

10. Dates and names of intended ports of call

11. Any special logistic requirements at ports of call

#### DETAIL

### Part B

- Dates of cruise 2.
- Purpose of research and general operational methods 3.

- of moored/seabed equipment
- Types of samples required, 5.

and methods by which samples will be obtained (including dredging/coring/drilling)

6. Details of moored equipment: -

### Dates

Laying	Recove	ry	Desc
		·	
	. 1	,	
· · .			ï

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1. Name of research ship ..... Cruise No. ..... From ..... To .....

4. Attach chart showing (on an appropriate scale) the geographical area work, positions of intended stations, tracks of survey lines, positions

e.g. Geological/Water/Plankton/Fish/Radioactivity/Isotope ...

ription

Latitude

Longitude

## SCIENTIFIC EQUIPMENT

11. Complete the following table - SEPARATE COPY FOR EACH COASTAL STATE

	List all major Marine	Within	On con-	DIST	ISTANCE FROM/COAST			
	Scientific Equipment proposed to be used and indicate waters in which it will be deployed	fishing limits	tinental shelf	Within 3 NM	Between 3-12 NM	Between 12-50 NM	Between 50-200 NM	
-								
		i						
	;							

7.	Explosives:

- (a) Type and trade name
- (b) Chemical content
- (c) Depth of trade class and storage
- (d) Size
- (e) Depth of detonation
- (f) Frequency of detonation(g) Position in latitude and longitude
- (h) Dates of detonation
- 8. Detail and reference of
  - (a) Any relevant previous/future cruises
  - (b) Any previously published research data relating to the proposed cruise (Attach separate sheet if necessary)
- 9. Names and addresses of such scientists with whom previous contact has been made in the coastal state in which the waters where the proposed cruise is to take place are

#### 10. State:

- (a) Whether visits to the ship in port by scientists of the coastal state concerned will be acceptable
- (b) Whether it will be acceptable to carry on board an observer from the coastal state for any part of the cruise and dates and ports of embarkation/disembarkation
- (c) When research data from intended cruise is likely to be made available to the coastal state and if so by what means

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### (INDICATE "YES" OR "NO")

# 7. Research vessels operating in the Baltic Sea Area

Information received from the International Council for the Exploration of the Sea (ICES) in 1988.

		In op from	er
Denmark (26)			
* Dana "Dana" (new vessel)		1001	
*"Biologen"		1201	
"Havfisken"		1971	
*"Jens Vaever"			
Research vessels in Greenland			
"Fvrholm"		1970	
111101		1910	
*"Martin Knudsen"		1974	
*Station Bornholm Deep Fishery protection vessels "Havkatten"			
*"T C 51220		1961	
"Magnus Heinason"		1981	
5			
* Route Copenhagen-Greenland * Route Esbjerg-Grimsby			
"Gunnar Thorson"		1981	
"Ophelia" "Thurø"			A
* T. V "Skadens Rev"			
* " "L sø Nord"			M
* " "Læsø Trindel"	Mar	1975	N
* "Læsø Rende"			
<pre>^ "Alborg Bugt" * " "Kattegat SW"</pre>			Ċ
* " "Anholt Nord"			M
" "Anholt Knob"	Mar	1975	
* "E.R."			• •
* " "Vyl" * " "Horne Peur"		1075	Ma N
* " "Halsskov Rev"		13/3	A
* "Gedser Rev"			A
* " "Kadetrenden"		1976	
" "Møn Sydøst"	Apr	1979	
* " "Kattegat S" '			Ma
Lappegrund; Coastal Station "Drogden"			ال
Coastal Station "Christiansø	÷		
couper station childciansy			
Finland (34)			
K/V "Aranda" * Route Helsinki-Cononhagon			
Ice Breakers			
Coast Guard vessels			
R/V "Protector"			
* Vessels or routes no longer	in o	nerati	Λn
· · · · · · · · · · · · · · · · · · ·	VI		

gc m	eration to	Code No.	Operating Agency
1	1977 1964 1969	01 01 02 02 03 04 05	Danmarks Fiskeri - og Havundersøgelser, Charlottenlund
4	1981	06	Miljøstyrelsen, Copenhagen
		07 08 09	Danmarks Fiskeri - og Havundersøgelser, Charlottenlund
4 1	1980	10 10	Fiskirannsóknarstovan Torshavn,Faroe Islands
		11 12	Danmarks Fiskeri - of Havundersøgelser, Charlottenlund
1		13	Miljøstyrelsen, Copenhagen
		PH	
	Aug 1979	14	Danish Navy
5	Mar 1975 Nov 1977 1966 Sep 1971 Mar 1975	63 64 65 66 67 68 68	Det Danske Meteorologiske Institut, Copenhagen
5	Mar 1975 Apr 1980	69 70 70 72	
5	Apr 1976 1979 Mar 1975	74 74 74 75	
	Jul 1969	76 78 79	
		01 02 03 04 01	Merentutkimuslaitos, Helsinki (1983 only - in place of Aranda)

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	In operat from	to 1	ode No.	Operating Agency		In ope from	ration to	Code No.	Operating Agency
<u>German Democratic Republic</u> (96) "Professor Albrecht Penck"			40	Institut für Meeres-	<u>Germany, Federal Rep. of (06</u> "Poseidon"	6) (cont'd) 30/08/76		07	Ifm Kiel
				der Wissenschaften	* "Meerkatze"	/11/72	1977	08	BFA Hamburg
ttipusfaggen Otto Uniumali			A 1	der DDR, Rostock- Warnemünde	"Valdivia"	1970		09	Bundesministerium für Forschung und Techno-
** PIOLESSOL OLLO KLUMMEL		·	71	direktion, Küste, Stralsund	Collective code for steam-tr	awlers		10	
* "Karl Liebknecht" "Ernst Haeckel"			42 43	Institut für Hochsee- fischerei und Fisch- verarbeitung, Rostock -Warnemünde	*"Gauss 1"	06/12/49	20/12/79	11	Deutsches Hydrogra- phisches Institut, Hamburg
					*"Hermann Wattenberg	1946	1976	12	Institut für Meeres-
"Alexander von Humboldt"			44	Institut fur Meeres- kunde der Akademie der Wissenschaften					kunde an der Univer- sität Kiel
				der DDR, Rostock- Warnemünde	*"Meteor 1" *"Meteor 2" "Meteor"	1925 24/03/64 15/03/86	01/11/46 03/12/85	13 13 13	Deutsches Hydrogra- phisches Institut, Hamburg etc
* "C.F. Gauss"	19	977 -	45	Seehydrographischer Dienst der DDR, Rostock	"Alkor"	02/03/66		14	Institut für Meeres- kunde an der Univer-
Survey ships	1978		45						sität Kiel
* "Gadus"			46	Fischkombinat Sassnitz	"Planet"	15/04/67		15	Forschungsanstalt der Bundeswehr für Wasser -schall und Geophysik
Fishing vessels			4/	Rostock-Marienehe					KIEI
"Polar"		:	50	VEB Bagger-, Bugsier- und Bergungsreederei,	* "Victor Hensen 1" "Victor Hensen"	07/01/56 1975	1975	16 16	Institut fur Meeres- forschung,Bremerhaven
				Rostock	"Friedrich Heincke	1968		17	Biologische Anstalt Helgoland
"Eisbär"		!	51	Institut für Hochsee- fischerei und Fisch- verarbeitung, Rostock	"Komet"	26/08/69		18	Deutsches Hydrogra- phisches Institut,
Chartered vessels		:	52	-Marlenene					Hamburg
<u>Germany, Federal Republic of</u> (( * "Anton Dohrn 1" * "Anton Dohrn"	06) 05/03/55 26, 30/10/72 30,	/07/72 /07/86	01 01	Bundesforschungs- anstalt für	*"Astarte"	1953	08/11/76	19	Institut für Meeres- geologie und Meeres- biologie"Senckenberg" Wilhelmshaven
* "Walther Herwig 1" "Walther Herwig"	28/10/63 16, 30/10/72	/10/72	02 02	Fischerel, Hamburg und Deutsche Wiss. Komm. für Meeres- forschung	*"Eems" and * "Oste" Chartered vessels	1970	1968	20 20	Institut für Meeres- kunde, Kiel
"Aade" * "Ellenbogen" * "Uthörn 1" "Uthörn"	1960 1947 1947 20, 21/08/82	197 <b>4</b> /08/82	03 03 04 04	Biologische Anstalt Helgoland	*Route Hamburg-Hull/Wash	<sub>։</sub> 1953	1974	21	Deutsches Hydrogra- phisches Institut, Hamburg
* "Augusta"	1912	/10/36	05						
* "Kolmar"	1940	1944	06	Deutsche Seewarte					
* "Poseidon 1"	15/05/02	1945	07	DWK					

	In operation from to	Code No.	Operating Agency	
<u>Germany, Federal Rep. of (06)</u> * Lubeck-Finland * Translubeca * Transfindlandia	( <u>cont'd)</u> 1973 1975 1970 1975 1973 1974	22 22.1 22.2	Deutsches Hydrogra- phisches Institut, Hamburg	<u>Germany, Federal Rep. of (06)</u> LH Kiel *LV Fehmarnbelt LB Fehmarnbelt
*"Makrele" *"Börgen"	/11/36 1945 /09/40 /01/45	23 24	Deutsche Seewarte, Hamburg	RP Nordsee *RP Sylt ('Pisa') *LV Adlergrund
*"Neptun"	14/03/61 12/11/84	25	Staatl.Fischereiamt, Bremerhaven	*LV Amrumbank *LV Ausseneider *LV Aussenjade
*"Walter Körte"	27/04/57 25/01/84	26	Wasser- und Schiff- fahrtsamt, Cuxhaven	*LV Elbe 4 *LV Minsener Sand *LV Norderney
"Solea"	29/05/74	27	BFA Hamburg	*LV S 2 CS Alte Liebe Cuxhaven CS Teredo Versuchsstand
"Senckenberg"	08/11/76	28	Institut für Meeres- biologie und Meeres- geologie"Senckenberg" Wilhelmshaven	*CS Neuwerk CS Helgoland-Reede
"Littorina"	27/06/75	29	IfM Kiel	A number following a decimal column
Ships of opportunity		30		
"Nige Wark"	08/06/64	31	Strom- und Hafenbau, Cuxhaven	
"Fridtjof"	06/09/68	32	BFA Hamburg	<u>Poland</u> (67) * "Baltyk" * "Wantak"
"Sonne"	1977	33	BGR Hannover	* "Delta" * "Bere"
"Gauss"	06/05/80	34	DHI Hamburg	* "Kra" "Hudromet"
"Polarstern"	09/12/82	35	AWI Bremerhaven	* "Kopernik"
Ships of German WSA/WSD		40	Wasser- und Schiff- fahrtsämter	* "Birkut" * "Siedlecki" * "Fwa"
* Atair Wega	04/05/62 29/04/87 04/05/62	41 42	DHI Hamburg	"Wieczno" "Dr. Lubecki"/GDY-100" "Dr. Giedlerbei"
"Haithabu"		HT		* "Professor Siedlecki" * "Professor Bogucki"
LV Borkumriff *LV P 11/ P 8 *LV TW/EMS *LV P 15/P 12 LV Deutsche Bucht *LV Weser *LV Bremen LV Elbe 1 *LV Elbe 2 *LV Elbe 3 *LV Flensburg *CS Langballigau *LV Kiel	01/04/21 02/11/47 14/11/72 14/11/72 12/03/78 17/04/48 02/11/69 07/11/69 07/07/21 23/09/81 10/03/22 1966 09/11/20 01/01/35 1975 01/01/35 1977 01/07/36 11/06/63 01/01/75 13/03/85 01/07/36 05/07/67	60 61 62.1 63 64 65 66 67 70 70.1 71	WSD Aurich WSA Wilhelmshaven WSA Emden WSA Toenning WSA Aurich/ WSA Wilhelmshaven WSA Bremerhaven WSA Bremerhaven WSA Aurich/WSA Cuxhav WSA Cuxhaven WSA Cuxhaven WSA Cuxhaven WSD/WSA Kiel BFA Hamburg WSD/WSA Kiel	"Z-9"

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(cont'd) 05/07/67 01/10/22 01/04/84 01/01/76 /06/70 03/09/21 01/04/21 01/04/21 01/04/21 01/01/35 09/11/20 24/03/21 01/11/21 01/09/47 02/06/47 01/10/52 1968 1872	29/03/84 /10/73 1941 1939 1939 1945 1939 1940 1939 09/11/53	71.1 72 72.1 73 74 77 78.0 78.1 78.2 78.3 78.4 78.5 78.6 79.0 79.1 79.2 79.3	WSD/WSA Kiel WSA Kiel/Luebeck WSD Kiel DHI Hamburg DHI Hamburg WSA Stettin WSA Wilhelmshaven WSA Toenning WSA Wilhelmshaven WSA Wilhelmshaven WSA Emden WSA Emden BFA Cuxhaven BFA Cuxhaven BFA Cuxhaven BFA Cuxhaven BFA Cuxhaven BFA Cuxhaven
l point is th	ne first : ration	figure (	of the station number Operating Agency
from	to	No.	operating Agency
		01 02 03 04 05 06 07	Instytut Meteorologii i Gospodarki Wodnej, Oddzial Morski (Institute of Meteor- ology and Water Management, Maritime Department),Gdynia
449.5		11 12 13 14 15 16 17	Morski Instytut Rybacki (Sea Fisheries Institute) Gdynia
1986	CI	E 21	Polish Academy of Sciences SOPOT
ł		41	Instytut Mete- orologii i Gospodarki Wodnej, Oddzial Morski (Institute of Meteorology and Water Management, Maritime Department), Gdynia

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	In ope	eration	Code	Operating Agency		<b>T</b> 12 - 212		C a d a	Oneveting Based
	from	to	No.			in ope		Loue	Operating Agency
<u>Sweden</u> (77)			··· ··· ··· ···			LIOM	ιO	NO.	
* "Skagerak"		1973	11	National Board of	ПССР (00)				
* "Eystrasalt"		1958	12	Fisheries, Göteborg	$\frac{0.5.5.K.}{10}$	1050	1070	01	Dolon Tugtituto for
* "Thetis	1961	1984	13		^ A. UTKUPSHISHIKOV	1950	1072	01	Forar institute for
"Argos"	1974		14		* Topseda "	1900	1973	02	Fishery and Oceano~
-									grapny, Murmansk
"Svanic"			15	University of					
				Göteborg		7 14075		0.0	
					Harbour to OWS CHARLIE	JUT18/2		02	Hydromet. Service of
* "Ulla Rinman"	1974	1977	16	Chartered vessel					USSR
* "Arcona"		1977	17		1.4 m · · · · · ·				
					* "Sevastopol"	1951	1967	03	Polar Institute for
F9	1982		40.01	Swedish	* "Professor Somov"	1954	1972	04	Fishery and Oceano-
* Skellefteå	1973	1981	40.02	Meteorological and	* "Akademik Berg"	1952	19/1	05	graphy, Murmansk
Biuröklubb	1973		40.03	Hydrological					
Vảgön	1971		40.04	Institute.	"Ajsberg"	1956		06	Hydrometservice
* Högbonden	1971	1981	40.05	Norrköping and	*"Poljarnik"	1953	1978	07	Murmansk
1152	1982		40.06	······································					F
* Sundsvall	1975	1982	40.07		. "Derjugin"			08	Laboratory of the
* Brämön	1975	1982	40.08		**				Lake Authority of the
MS2	1982		40.09	: :					USSR Academy of
* Söderhamn	1975	1982	40 10						Sciences, Leningrad
SR1A	1982	1502	40 11						ł
* Storiunafrun	1975	1981	40 12		"Okeanolog"			09	Hydrometservice
Ålande Hav	1970	1501	40.12	· · ·					Leningrad
Gingö	1970		40.13						1
Suangba Biörn	1975		40.14	· · · · · · · · · · · · · · · · · · ·	*"Orion"	1963	1967	10	Hydrometservice,
Vanholmafjärden	1975		40.15		"A. Smirnov"	1967		10	Tallin
Cunnargtonarna	1975		40.10						,
Gunnal Stenatha	1070		40.17		*"Persej-II"	1944	1962	11	Polar Institute for
BIJ I Cušagkšnou	1970		40.10						Fishery and Oceano-
DV22	1075		40.13						graphy, Murmansk
DIJZ Nëvedaakën	1975		40.20						
Halausskal	1975	1092	40.21		*"Zvezda"	1957	1975	12	Atlantic Institute
° DIJO * Väctorvik	1075	1303	40.22		"Zvezda"				for Fishery and
" VdStelvik Kunacamundot	1975	1302	40.23		*SRT-1045 "Artemovsk"	1959	1963	14	Oceanography,
Kungsgrundet	1979	1006	40.24						Kaliningrad
	1974	1000	40.25						
" Jille Hanöbukton	1070	1902	40.20		*"Bespokojnyj"	1969	1969	15	Baltic Institute for
Kanlaknona	1070		40.27		*"Mazirbe"	1960	1970	15	Fishery, Riga
Kaliskiolla	1972		40.20						
	1972		40.25		*SRT-129	1958	1961	16	Atlantic Institute
BIZ	1072		40.30	Sudich Meteorolo-					for Fishery and
* St Middolanund	1001	1082	40.31	aical and					Oceanography,
Aupolt E	1001	1302	40.JZ 10.22	Hudrologicel					Kaliningrad
Eladar	102		40.33	Thetitute Norrköning					,
	1970		40.34	and Suddich Coast	"Okeanograf"	1956		17	Hydrometservice
t W Wingo	1970	1092	40.35						Leningrad
W. VINGA	1000	1902	40.30						
	102	1000	40.37		* "SNL-2"	1962	1962	18	Hydrometservice
* JW DOLLO	1000	1302	40.30		* "Voskhod"	1962	1979	18	Murmansk
AIJ D20	1002		40.33		·				
1111 1	1505		40,40	I	"Jurate"	1962		19	Hydrometservice
Nevel chine			A 1	Swedich News					Vilnjus
Tao proskora Tao proskora			12	Ducaron navà					1
TCE DIGAVELS			42	I	"Ajtodor" )	1960			1
* Tight maggal Howevers nothing			6 1	National Board of	"Ekvator")	1949			
* Light voggol "Hörriggo"			66	Ficharias Cätabara	"Kruzenshtern" )	1961		20	Hydrographic
Euclich Coast Cuard massel for	monle C	do Nor	20-26	ribuerres, occenory	*"Lots-60" )	1959	1962		Directorate
weursh coast quard vessels IO	cmerty CC	JUE 1105.	20~20 are	- HOW THETAGED TH 40	"G. Nevelskoj" )	1962			
vessels of routes no longer in Numbers following - desired and	operation	ЛІ. -ho finel	figuras	of the station	"Sedov")	1958			1
number columns	ruc aie i	NG TTTAP	rtAntes	or the station					
MARINGE COLUMNS									

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II S S R (90) (continued)		~~~~	~~~~~	II S S R (90) (continued)		~~~~		
*"S. Andreev" ) *"Olonets" ) *"SRT-308 "Alazeja" )	1955 1960 1959 1970 1958 1960			"Passat" "Musson" "Ernst Krenkel"	1968 1968 1972	37 38 39	State Oceanographic Institute of the USSR, Odessa Branch	
SRT-9159 "Olojtsjan" ) SRT-4179 ) *"SRT-4234 "Lomonosov" ) *"SRT-4178 "Muinak" )	1962 1954 1966 1953 1966	21	Atlantic Institute for Fishery and Oceanography, Kaliningrad	"Vasilij Golovnin"	1968	40	Hydrographic Directorate	
* "SRT-4170 "Mujnak ) * "SRT-4170 "Mosalsk" ) * "SRT-4191 "Mjag-Ostrov" ) SRT-4309 " ) * "Kazan" )	1953 1966 1953 1966 1959 1965 1960 1957 1959		Kallithylau	*"Poryv" "V. Bugaev"	1971 19 1975	975 41 41	State Oceanographic Institute of the USSR Odessa Branch	
"Ak. Kovalevskij )	1957 1955			"Otto Schmidt"	1979	42	Hydrometservice of USSR	
"Ak. S. Vavilov" ) *"Vitjaz" ) "Vitjaz" )	1959 1939 1978 1981	22	USSR Acadamey of Sciences	"Nerej"	1968	43	Hydrometeorological Institute,Leningrad	
"M. Lomonosov" )	1957		i -	"Okoon"	4000			
"Ob"	1956	23	Arctic-Antarctic Institute, USSR Hydrometservice	"Akademik Korolev"	1969 1968	44 45	Main Directorate of the Hydrometeorol- ogical Service, Far-Eastern Branch	
*"Prof. Rudovits"	1957 1960	24	State Oceanographic Institute,Leningrad Branch	"Professor Zubov"	1969	46	Main Directorate of the USSR Hydromet Service	
"A.I. Voejkov"	1959	25	Hydrometservice, Vladivostock	"Arnold Veimer" "Georgi Ushakov"		LW 47 48	Tallin Academy of Sciences	
"Akademik Knipovíts" ) *"Novorossijsk", RT-99 ) *"F. Nansen" ) "Atlantida"	1962 1958 1970 1965 1978	26	Polar Institute for Fishery and Oceano-	"Levtitov"	T-14075	LV 49	Riga	
"Boris Davydov"	1968	27	Hydrometservice,	"Korifena"	JUL 1975	52 99	Hydrometservice of   USSR	
-			Leningrad					
I Duch seen Sticcoll	10.00	20	Justia and Interation	* Vessels no longer in operation	n			
Prolessor viese"	8961	20	Research Institute, Leningrad	A number following a decimal figure of the station number	A number following a decimal point is the first figure of the station number column			
"Vsevolod Berezkin"	1975	29	Hydrometservice, Murmansk					
"SRTM-8002 "Vjandra" "Antares"	1963 1967	30 31	Atlantic Institute					
"Vaida"	1969	32	Oceanography,					
"Bakchisaraj"	1968	33	Kaliningrad	,				
"Albatros"	1964	34						
"Akademik Shirshov"	1968	35	Maritime Department of the Hydrometeor- ological Service		\$			
"Sergej Vavilov"	1962	36	USSR Academy of Sciences					

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#### BALTIC SEA ENVIRONMENT PROCEEDINGS

No. 1 (1979)\* No. 2 MARINE ENVIRONMENT PROTECTION COMMISSION (1981)No. 3 ACTIVITIES OF THE COMMISSION 1980 - HELCOM Recommendations passed during 1980 (1981)No. 4 (1981) , NO. 5A ASSESSMENT OF THE EFFECTS OF POLLUTION ON THE NATURAL RESOURCES OF THE BALTIC SEA, 1980 PART A-1: OVERALL CONCLUSIONS (1981)\* No. 5B RESOURCES OF THE BALTIC SEA, 1980 PART A-1: OVERALL CONCLUSIONS PART A-2: SUMMARY OF RESULTS PART B: SCIENTIFIC MATERIAL (1981)No. 6 1981 (1982) ACTIVITIES OF THE COMMISSION 1981 No. 7 16-19 February 1982 (1982) ACTIVITIES OF THE COMMISSION 1982 No. 8 - Report of the activities of the Baltic Marine Envi-Helsinki 1-3 February 1983 (1983) 

\* out of print

JOINT ACTIVITIES OF THE BALTIC SEA STATES WITHIN THE FRAMEWORK OF THE CONVENTION ON THE PROTECTION OF THE MARINE ENVIRONMENT OF THE BALTIC SEA AREA 1974-1978

REPORT OF THE INTERIM COMMISSION (IC) TO THE BALTIC

- Report on the activities of the Baltic Marine Environment Protection Commission during 1980

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ASSESSMENT OF THE EFFECTS OF POLLUTION ON THE NATURAL

WORKSHOP ON THE ANALYSIS OF HYDROCARBONS IN SEAWATER Institut für Meereskunde an der Universität Kiel, Department of Marine Chemistry, March 23 - April 3,

- Report of the activities of the Baltic Marine Environment Protection Commission during 1981 including the Third Meeting of the Commission held in Helsinki - HELCOM Recommendations passed during 1981 and 1982

ronment Protection Commission during 1982 including the Fourth Meeting of the Commission held in - HELCOM Recommendations passed during 1982 and 1983

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- No. 13 ACTIVITIES OF THE COMMISSION 1983 - Report of the activities of the Baltic Marine Environment Protection Commission during 1983 including the Fifth Meeting of the Commission held in Helsinki 13-16 March 1984 - HELCOM Recommendations passed during 1983 and 1984

(1984)

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- FIRST PERIODIC ASSESSMENT OF THE STATE OF THE MARINE No. 17B ENVIRONMENT OF THE BALTIC SEA AREA, 1980-1985; BACKGROUND DOCUMENT (1987)

- No. 18 ACTIVITIES OF THE COMMISSION 1985 Helsinki 11-14 February 1986 - HELCOM Recommendations passed during 1986 (1986)\*
- No. 19 BALTIC SEA MONITORING SYMPOSIUM Tallinn, USSR, 10-15 March 1986 (1986)
- No. 20 FIRST BALTIC SEA POLLUTION LOAD COMPILATION (1987)\*
- No. 21 CONVENTION National Swedish Administration of Shipping Sweden (1987)
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- No. 24 (1987)
- No. 25 7-9 September 1986, Visby, Sweden (1987)
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  - (1988)

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Baltic Marine Environment Protection Commission — Helsinki Commission — Mannerheimintie 12 A SF-00100 Helsinki

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