BALTIC SEA ENVIRONMENT PROCEEDINGS

No. 20

# FIRST BALTIC SEA POLLUTION LOAD COMPILATION

BALTIC MARINE ENVIRONMENT PROTECTION COMMISSION
– HELSINKI COMMISSION –

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No. 20

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BALTIC MARINE ENVIRONMENT PROTECTION COMMISSION
– HELSINKI COMMISSION –
January 1987

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# Preface

This document contains the results of the first attempt to compile the very heterogeneous data on the pollution load to the Baltic Sea submitted to the Helsinki Commission in various occasions. Consequently, due to various sources of information, there are differences in the reliability and age of the data and gaps in the data sets. Assuming that the values are often preliminary or based on very rough background data, this compilation should be used with great caution. However, there has been an obvious need for an officially published evaluation of the pollution load to the Baltic Sea. Therefore, this estimation, however rough it is, should be seen as a first step towards further, more reliable evaluations.

The document has been prepared by the Secretariat of the Helsinki Commission with the assistance of the Federal Republic of Germany, especially the Deutsches Hydrographisches Institut and Mr. Rainer Rudloff, who, as consultant of the Commission, has compiled and evaluated the data and planned the graphic presentations.

# Introduction

The Baltic Marine Environment Protection Commission - Helsinki Commission, during its interim period (1974-1980), initiated an exercise to compile the information in relation to the pollution load from land-based sources to the Baltic Sea. The Commission accepted a rough questionnaire (1980) which was to be used in collecting national information on a voluntary basis according to the given time-table. During the past years several attempts were made to receive enough data for even a rough estimation of the total pollution load to the Baltic Sea. The information originally requested concerned organic matter (BOD, COD) and nutrients (nitrogen and phosphorus) discharged from the municipalities and via rivers. Later on the need for information on the load of harmful substances of highest priority was stressed. Therefore, these substances as well as the load from industrial sources were included in the list of substances requested to be reported to the extent possible.

The 5th meeting of the Commission (1984) decided that the pollution load evaluation be published in the Baltic Sea Environment Proceedings. Since then corrections and new values to the information submitted earlier have been made by several Baltic Sea States. Due to the long history of the preparation of the first compilation and the various sources of the data used for the evaluation, as well as for practical reasons, the age of the data differs from country to country as well as from source to source.

The first rough estimation concerning atmospheric fallout to the Baltic Sea was available in 1986 but, due to several gaps in the knowledge, as well as the different origin of the data and the sources of the load, this estimation has been included in this document only in the table presenting preliminary values of the total pollution load. A proposal has been made to the Commission that the first evaluation

of the atmospheric fallout be published separately in the Baltic Sea Environment Proceedings in the nearest future.

It should be emphasized that the data contained in this first pollution load compilation must be interpreted and used with great care owing to at least the following factors:

- the values are not strictly comparable due to different history of the origin of the data, and the data relate to different years depending on their origin,
- there are many gaps in the data, both in terms of a lack of information on the inputs of some substances to certain areas and also in terms of incomplete information on the inputs from the various sources within one area,
- in some cases the data provided for a large geographical area have had to be divided up to obtain values for the sub-areas covered in the report.

It is natural that these factors influence the validity of the individual input values given for each area and the relative proportions of inputs among the various areas.

Although this document should be considered to be a first attempt at an overall compilation of inputs to the Baltic Sea, the future work will aim at developing an agreed methodology and a basis for the estimation of inputs. It will also aim at obtaining as complete information as possible on the input of each substance of concern from the various sources in each sub-area of the Baltic Sea.

Several estimations and "guesses" already exist about the pollution load to the Baltic Sea published in open literature. This synopsis is, however, generating from the information submitted only via offical channels to the Commission by the Contracting Parties to the Helsinki Convention. The distribution of the reference documents prepared for the internal use of the Commission and its

subsidiary bodies is restricted, and the documents are not available in open literature. The number of sub-areas chosen for this document is 20, and one or more riparian states are responsible for the information concerning each sub-area. The pollution load is considered in four categories according to the source: municipalities, industry, rivers and atmosphere. The sources may not be strictly defined due to overlapping in some cases.

The latest comments on the data included in this document were submitted by the Contracting Parties and processed by the consultant in 1986. In many cases, however, new information has continuously been collected on a national level and the data published in this document might be "out-of-date" already from the first beginning. Keeping this in mind the document might, however, give some notion of the order of magnitude of the load estimated to be discharged to the Baltic Sea.

# Table Presentations of the Load

*Comments on the Tables of Load Compilation*

*According to STC decisions, the Baltic Sea Area is divided into nine sub areas. One or more riparian nations are responsible for the information given from each sub area. Thus, there are twenty different areas to be considered.*

*The pollution load is divided into three different load sources : the municipal, the industrial and the river load. The dividing of the pollution load into just three sources is not binding, because the Contracting Parties are using different value collecting methods; therefore the particular sources are not quite comparable.*

*The values used in this compilation are delivered via official channels to the HELCOM Secretariat, no other sources have been used. For verification and completion the first draft has been mailed to the Contracting Parties. From the information returned a new compilation has been made.*

*There are a lot of data, but many gaps still remain. In some cases, overlapping data is given, which has to be divided up in order to obtain the necessary values for the sub areas.*

*For this first attempt at a complete evaluation and computation of the pollution load to the Baltic Sea Area the data is very heterogeneous. Data of different reliability and age must be used. With the help of the Contracting Parties, the next revision may be more reliable.*

*The graphics should be interpreted with caution. The values are preliminary, some are calculated from very rough data where the estimations may be far away from the real values.*

LIST OF SUB-AREAS

| ABBR. | SUB-AREA | CONTRACTING PARTY |
|---|---|---|
| BAP-DAN | BALTIC PROPER, BORNHOLM | DENMARK |
| KAT-DAN | KATTEGAT | DENMARK |
| SOU-DAN | THE SOUND | DENMARK |
| WEB-DAN | BELT SEA AND WESTERN BAYS | DENMARK |
| ARC-FIN | ARCHIPELAGO SEA | FINLAND |
| BOB-FIN | BOTHNIAN BAY | FINLAND |
| BOS-FIN | BOTHNIAN SEA | FINLAND |
| GUF-FIN | GULF OF FINLAND | FINLAND |
| BAP-GDR | BALTIC PROPER | GDR |
| WEB-GDR | WESTERN BALTIC BAYS | GDR |
| WEB-GER | WESTERN BALTIC BAYS | GER |
| BAP-POL | BALTIC PROPER | POLAND |
| BAP-SWE | BALTIC-PROPER | SWEDEN |
| BOB-SWE | BOTHNIAN BAY | SWEDEN |
| BOS-SWE | BOTHNIAN SEA | SWEDEN |
| KAT-SWE | KATTEGAT | SWEDEN |
| SOU-SWE | THE SOUND | SWEDEN |
| BAP-SUN | BALTIC PROPER | USSR |
| GUF-SUN | GULF OF FINLAND | USSR |
| GUR-SUN | GULF OF RIGA | USSR |

# P O L L U T I O N  L O A D  C O M P I L A T I O N

A r e a  a b b r e v i a t i o n :  BAP-DAN

BALTIC PROPER, BORNHOLM - DENMARK

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 800(1 | 1800(1 | 0(1 | 2600 |
| PHOSPHORUS | TOT-P | T/A | 270(1 | 30(1 | 0(1 | 300 |
| B O D | BOD | T/A | 3000(1 | 1200(1 | 0(1 | 4200 |
| MERCURY | HG | KG/A | 20(1 | ( | ( | 20 |
| CADMIUM | CD | KG/A | 40(1 | 25(1 | 5(1 | 70 |
| ZINC | ZN | T/A | 30(2 | ( | ( | 30 |
| LEAD | PB | T/A | ( | ( | ( | |
| COPPER | CU | T/A | 5(2 | ( | ( | 5 |
| OIL | OIL | T/A | 11(4 | 6(4 | 0(4 | 17 |
| ARSENIC | AS | T/A | ( | ( | ( | |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details
of the annual discharges

# P O L L U T I O N  L O A D  C O M P I L A T I O N

A r e a  a b b r e v i a t i o n :  KAT-DAN

KATTEGAT - DENMARK

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 4500(1 | 13000(1 | 500(1 | 18000 |
| PHOSPHORUS | TOT-P | T/A | 1400(1 | 300(1 | 200(1 | 1900 |
| B O D | BOD | T/A | 16000(1 | 19000(1 | 4300(1 | 39300 |
| MERCURY | HG | KG/A | 125(1 | ( | ( | 125 |
| CADMIUM | CD | KG/A | 250(1 | 210(1 | 80(1 | 540 |
| ZINC | ZN | T/A | 120(3 | ( | ( | 120 |
| LEAD | PB | T/A | ( | ( | ( | |
| COPPER | CU | T/A | 20(3 | ( | ( | 20 |
| OIL | OIL | T/A | 150(4 | 35(4 | 0(4 | 185 |
| ARSENIC | AS | T/A | ( | ( | ( | |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details
of the annual discharges

# P O L L U T I O N  L O A D  C O M P I L A T I O N

A r e a  a b b r e v i a t i o n :  SOU-DAN

THE SOUND - DENMARK

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 6200(1 | 2900(1 | 200(1 | 9300 |
| PHOSPHORUS | TOT-P | T/A | 1400(1 | 100(1 | 10(1 | 1510 |
| B O D | BOD | T/A | 9000(1 | 5400(1 | 9700(1 | 24100 |
| MERCURY | HG | KG/A | 300(1 | 50(1 | 4(1 | 354 |
| CADMIUM | CD | KG/A | 810(1 | 50(1 | 30(1 | 890 |
| ZINC | ZN | T/A | 41(1 | 3(1 | 1(1 | 45 |
| LEAD | PB | T/A | 7(1 | 0(1 | 0(1 | 7 |
| COPPER | CU | T/A | 11(1 | 0(1 | 2(1 | 13 |
| OIL | OIL | T/A | 208(4 | 95(4 | 13(4 | 316 |
| ARSENIC | AS | T/A | 4(1 | 0(1 | 0(1 | 4 |
| NICKEL | NI | T/A | 10(1 | 0(1 | 0(1 | 10 |
| VANADIUM | V | T/A | 0(1 | 0(1 | 0(1 | 0 |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details
of the annual discharges

# P O L L U T I O N  L O A D  C O M P I L A T I O N

A r e a  a b b r e v i a t i o n :  WEB-DAN

BELT SEA AND WESTERN BAYS - DENMARK

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 10000(1 | 27100(1 | 2100(1 | 39200 |
| PHOSPHORUS | TOT-P | T/A | 3200(1 | 600(1 | 2000(1 | 5800 |
| B O D | BOD | T/A | 41000(1 | 32600(1 | 18500(1 | 92100 |
| MERCURY | HG | KG/A | 430(1 | ( | ( | 430 |
| CADMIUM | CD | KG/A | 860(1 | 325(1 | 125(1 | 1310 |
| ZINC | ZN | T/A | 120(3 | ( | ( | 120 |
| LEAD | PB | T/A | ( | ( | ( | |
| COPPER | CU | T/A | 20(3 | ( | ( | 20 |
| OIL | OIL | T/A | 228(4 | 50(4 | 68(4 | 346 |
| ARSENIC | AS | T/A | ( | ( | ( | |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details of the annual discharges

REFERENCES TO THE LOAD COMPILATION
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CONTRACTING PARTY : DENMARK

EACH SUBSTANCE VALUE INDICATED HAS A REFERENCE INDEXED
TO INDICATE FROM WHICH DOCUMENT THE VALUE HAS BEEN TAKEN.

THESE ARE THE LATEST VALUES AVAILABLE ( 86/10/30.).

IF THE VALUE IS THE RESULT OF ESTIMATIONS THE DISTRIBUTION
RELATION USED IS INDICATED. NORMALLY AN EQUAL DISTRIBUTION
IS USED FOR THE FIRST APPROXIMATION.
BOD MAY BE BOD 5 OR BOD 7 A TRANSFER-FACTOR HAS NOT BEEN USED.

| NO. | DOCUMENT NUMBER | DOCUMENT DATE | ALGORITHM USED REMARKS |
|---|---|---|---|
| 1 | NOTE TO SC. SECR. | 86/04/18. | FROM DETAILED NATIONAL MATERIAL |
| 2 | STC 11/7/4 | 84/11/06. | ESTIMATED IN PARTS OF 40:40:10:10 |
| 3 | STC 11/6/18 | 84/11/13. | ESTIMATED FROM EQUAL + AREAL PARTS |
| 4 | NOTE FROM MIN.ENV. | 86/07/24. | FROM NATIONAL RECALCULATIONS REF.NO. M 83-88/B19-2 MR/ED/13 |

# P O L L U T I O N  L O A D  C O M P I L A T I O N

Area abbreviation: ARC-FIN

ARCHIPELAGO SEA - FINLAND

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 1160(1 | 5800(2 | 200(2 | 7160 |
| PHOSPHORUS | TOT-P | T/A | 64(1 | 540(2 | 10(2 | 614 |
| B O D | BOD | T/A | 1950(2 | 1100(2 | 900(2 | 3950 |
| MERCURY | HG | KG/A | 30(3 | ( | ( | 30 |
| CADMIUM | CD | KG/A | 30(3 | 30(6 | 0(2 | 60 |
| ZINC | ZN | T/A | 12(3 | 8(6 | 4(4 | 24 |
| LEAD | PB | T/A | 1(3 | 1(6 | ( | 2 |
| COPPER | CU | T/A | 2(3 | 3(6 | 1(4 | 6 |
| OIL | OIL | T/A | 70(5 | 0( | 5(2 | 75 |
| ARSENIC | AS | T/A | ( | 3(6 | ( | 3 |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | 5(6 | ( | 5 |

Please see references for details of the annual discharges

# POLLUTION LOAD COMPILATION

Area abbreviation: BOB-FIN

BOTHNIAN BAY - FINLAND

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 1140(2 | 28000(2 | 1970(2 | 31110 |
| PHOSPHORUS | TOT-P | T/A | 75(2 | 1700(2 | 134(2 | 1909 |
| B O D | BOD | T/A | 2480(2 | 69000(2 | 46000(2 | 117480 |
| MERCURY | HG | KG/A | 20(3 | ( | 60(2 | 80 |
| CADMIUM | CD | KG/A | 40(3 | 1500(6 | 100(2 | 1640 |
| ZINC | ZN | T/A | 7(3 | 240(6 | 79(2 | 326 |
| LEAD | PB | T/A | 1(3 | 25(6 | ( | 26 |
| COPPER | CU | T/A | 1(3 | 96(6 | 17(2 | 114 |
| OIL | OIL | T/A | 70(5 | 500(9 | 70(9 | 640 |
| ARSENIC | AS | T/A | ( | 21(6 | 1(2 | 22 |
| NICKEL | NI | T/A | ( | ( | 60(2 | 60 |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | 55(6 | ( | 55 |

Please see references for details of the annual discharges

# P O L L U T I O N  L O A D  C O M P I L A T I O N

A r e a  a b b r e v i a t i o n :  BOS-FIN

BOTHNIAN SEA - FINLAND

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 604(1 | 14000(2 | 348(1 | 14952 |
| PHOSPHORUS | TOT-P | T/A | 38(1 | 900(2 | 110(2 | 1048 |
| B O D | BOD | T/A | 1660(1 | 32000(2 | 17000(2 | 50660 |
| MERCURY | HG | KG/A | 30(3 | ( | 64(2 | 94 |
| CADMIUM | CD | KG/A | 50(3 | 1200(6 | 420(2 | 1670 |
| ZINC | ZN | T/A | 8(3 | 140(6 | 170(2 | 318 |
| LEAD | PB | T/A | 2(3 | 19(6 | 4(2 | 25 |
| COPPER | CU | T/A | 2(3 | 39(6 | 24(2 | 65 |
| OIL | OIL | T/A | 60(5 | 1000(9 | 0(2 | 1060 |
| ARSENIC | AS | T/A | ( | 28(6 | 4(2 | 32 |
| NICKEL | NI | T/A | ( | ( | 36(2 | 36 |
| VANADIUM | V | T/A | ( | ( | 290(2 | 290 |
| CHROMIUM | CR | KG/A | ( | 37(6 | 78(2 | 115 |

Please see references for details
of the annual discharges

# P O L L U T I O N  L O A D  C O M P I L A T I O N

A r e a  a b b r e v i a t i o n :  GUF-FIN

GULF OF FINLAND - FINLAND

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 3800(1 | 12000(10 | 495(1 | 16295 |
| PHOSPHORUS | TOT-P | T/A | 200(1 | 620(10 | 42(1 | 862 |
| B O D | BOD | T/A | 5400(1 | 47000(10 | 25300(1 | 77700 |
| MERCURY | HG | KG/A | 80(3 | ( | ( | 80 |
| CADMIUM | CD | KG/A | 80(3 | 300(8 | ( | 380 |
| ZINC | ZN | T/A | 19(3 | 100(8 | ( | 119 |
| LEAD | PB | T/A | 2(3 | 10(8 | ( | 12 |
| COPPER | CU | T/A | 3(3 | 50(8 | 1(7 | 54 |
| OIL | OIL | T/A | 200(9 | 1000(9 | 34(9 | 1234 |
| ARSENIC | AS | T/A | ( | 20(8 | ( | 20 |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | 30(8 | ( | 30 |

Please see references for details
of the annual discharges

REFERENCES TO THE LOAD COMPILATION
==========

CONTRACTING PARTY : FINLAND

EACH SUBSTANCE VALUE INDICATED HAS A REFERENCE INDEXED
TO INDICATE FROM WHICH DOCUMENT THE VALUE HAS BEEN TAKEN.

THESE ARE THE LATEST VALUES AVAILABLE ( 86/10/30.).

IF THE VALUE IS THE RESULT OF ESTIMATIONS THE DISTRIBUTION
RELATION USED IS INDICATED. NORMALLY AN EQUAL DISTRIBUTION
IS USED FOR THE FIRST APPROXIMATION.
BOD MAY BE BOD 5 OR BOD 7 A TRANSFER-FACTOR HAS NOT BEEN USED.

| NO. | DOCUMENT NUMBER | DOCUMENT DATE | ALGORITHM USED REMARKS |
|---|---|---|---|
| 1 | STC 11/7/6 | 84/11/13. | |
| 2 | STC 11/INF.12 | 84/11/05. | |
| 3 | STC 11/7B | 85/08/21. | |
| 4 | STC 12/7/4 | 84/11/06. | |
| 5 | STC 11/7/3 | 84/10/12. | ESTIMATED |
| 6 | NOTE TO SC. SECR. | 86/04/28. | ANNUAL REPORT (IN SWEDISH)<br>THE COMMITTEE OF THE GULF OF BOTHNIA |
| 7 | NOTE TO SC. SECR. | 86/04/28. | OFFICIAL STATISTICS<br>FINNISH NATIONAL BOARD OF WATERS |
| 8 | NOTE TO SC. SECR. | 86/04/28. | OFFICIAL STATISTICS<br>FINNISH NATIONAL BOARD OF WATERS |
| 9 | WGS 9/2/2 | 86/06/09. | LEAD COUNTRY MAX. ESTIMATES |
| 10 | STC 11/INF.13 | 84/11/06. | HALF PARTED WHOLE AMOUNT |

# P O L L U T I O N  L O A D  C O M P I L A T I O N

A r e a  a b b r e v i a t i o n :  BAP-GDR

BALTIC PROPER - GDR

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 465(1 | 750(1 | ( | 1215 |
| PHOSPHORUS | TOT-P | T/A | 65(1 | 60(1 | ( | 125 |
| B O D | BOD | T/A | 2050(1 | 2400(1 | ( | 4450 |
| MERCURY | HG | KG/A | ( | ( | ( | |
| CADMIUM | CD | KG/A | ( | ( | ( | |
| ZINC | ZN | T/A | ( | 4(2 | ( | 4 |
| LEAD | PB | T/A | ( | ( | ( | |
| COPPER | CU | T/A | ( | 1(2 | ( | 1 |
| OIL | OIL | T/A | 10(5 | 100(5 | 0(4 | 110 |
| ARSENIC | AS | T/A | ( | ( | ( | |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details
of the annual discharges

# P O L L U T I O N  L O A D  C O M P I L A T I O N

Area abbreviation: WEB-GDR
WESTERN BALTIC BAYS - GDR

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 930(1 | 1500(1 | ( | 2430 |
| PHOSPHORUS | TOT-P | T/A | 130(1 | 120(1 | ( | 250 |
| B O D | BOD | T/A | 4100(1 | 4800(1 | ( | 8900 |
| MERCURY | HG | KG/A | ( | 7(1 | ( | 7 |
| CADMIUM | CD | KG/A | ( | 88(1 | ( | 88 |
| ZINC | ZN | T/A | ( | 9(1 | ( | 9 |
| LEAD | PB | T/A | ( | 1(1 | ( | 1 |
| COPPER | CU | T/A | ( | 2(1 | ( | 2 |
| OIL | OIL | T/A | 770(5 | 35(1 | 0(1 | 805 |
| ARSENIC | AS | T/A | ( | ( | ( | |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details
of the annual discharges

REFERENCES TO THE LOAD COMPILATION
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CONTRACTING PARTY : GERMAN DEMOCRATIC REPUBLIC

EACH SUBSTANCE VALUE INDICATED HAS A REFERENCE INDEXED
TO INDICATE FROM WHICH DOCUMENT THE VALUE HAS BEEN TAKEN.

THESE ARE THE LATEST VALUES AVAILABLE ( 86/10/30.).

IF THE VALUE IS THE RESULT OF ESTIMATIONS THE DISTRIBUTION
RELATION USED IS INDICATED. NORMALLY AN EQUAL DISTRIBUTION
IS USED FOR THE FIRST APPROXIMATION.
BOD MAY BE BOD 5 OR BOD 7 A TRANSFER-FACTOR HAS NOT BEEN USED.

| NO. | DOCUMENT NUMBER | DOCUMENT DATE | ALGORITHM USED REMARKS |
|---|---|---|---|
| 1 | WGS 7/3/1 | 84/05/18. | CALCULATED VALUES PARTED EQUAL |
| 2 | STC 11/7/4 | 84/11/06. | CALCULATED AS HALF AMOUNT OF WHOLE |
| 3 | STC 11/7/6 ANNEX | 84/11/13. | |
| 4 | STC 11/7/3 | 84/10/12. | ESTIMATED |
| 5 | WGS 9/2/2 | 86/06/09. | LEAD COUNTRY MAX. ESTIMATES |
| - | NOTE TO SC. SECR. | 86/04/28. | AREA BAL-GDR IS NOT CONFIRMED |

# P O L L U T I O N  L O A D  C O M P I L A T I O N

Area abbreviation: WEB-GER
WESTERN BALTIC BAYS - GER

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 3300(1 | 11000(2 | 2080(1 | 16380 |
| PHOSPHORUS | TOT-P | T/A | 480(1 | 1830(2 | 61(1 | 2371 |
| B O D | BOD | T/A | 5540(1 | 17000(2 | 140(1 | 22680 |
| MERCURY | HG | KG/A | 8(1 | ( | ( | 8 |
| CADMIUM | CD | KG/A | 6(1 | 12(3 | ( | 18 |
| ZINC | ZN | T/A | ( | ( | ( | |
| LEAD | PB | T/A | ( | ( | ( | |
| COPPER | CU | T/A | ( | ( | ( | |
| OIL | OIL | T/A | 15(1 | 100(4 | ( | 115 |
| ARSENIC | AS | T/A | ( | ( | ( | |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details
of the annual discharges

REFERENCES TO THE LOAD COMPILATION
==========

CONTRACTING PARTY : FEDERAL REPUBLIC OF GERMANY

EACH SUBSTANCE VALUE INDICATED HAS A REFERENCE INDEXED
TO INDICATE FROM WHICH DOCUMENT THE VALUE HAS BEEN TAKEN.

THESE ARE THE LATEST VALUES AVAILABLE ( 86/10/30.).

IF THE VALUE IS THE RESULT OF ESTIMATIONS THE DISTRIBUTION
RELATION USED IS INDICATED. NORMALLY AN EQUAL DISTRIBUTION
IS USED FOR THE FIRST APPROXIMATION.
BOD MAY BE BOD 5 OR BOD 7 A TRANSFER-FACTOR HAS NOT BEEN USED.

| NO. | DOCUMENT NUMBER | DOCUMENT DATE | ALGORITHM USED REMARKS |
|---|---|---|---|
| 1 | NOTE TO SC. SECR. | 86/04/21. | |
| 2 | STC 11/7/6 | 84/11/13. | |
| 3 | HELCOM 6/4C/11 | 85/02/22. | CALCULATED ON AREAL PARTS |
| 4 | WGS 9/2/2 | 86/06/09. | LEAD COUNTRY MAX. ESTIMATES |

P O L L U T I O N  L O A D  C O M P I L A T I O N
A r e a  a b b r e v i a t i o n :  BAP-POL
BALTIC PROPER - POLAND

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 17200(2 | 92500(6 | 240(2 | 109940 |
| PHOSPHORUS | TOT-P | T/A | 3000(1 | 11500(8 | 4600(2 | 19100 |
| B O D | BOD | T/A | 53800(2 | 324500(8 | 14300(8 | 392600 |
| MERCURY | HG | KG/A | ( | ( | ( | |
| CADMIUM | CD | KG/A | ( | 10000(3 | 6000(3 | 16000 |
| ZINC | ZN | T/A | ( | 1140(4 | 1440(4 | 2580 |
| LEAD | PB | T/A | ( | ( | ( | |
| COPPER | CU | T/A | ( | 780(4 | 48(4 | 828 |
| OIL | OIL | T/A | 200(5 | 2700(7 | 15(7 | 2915 |
| ARSENIC | AS | T/A | ( | ( | ( | |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details
of the annual discharges

REFERENCES TO THE LOAD COMPILATION
==========

CONTRACTING PARTY : POLISH PEOPLE´S REPUPLIC

EACH SUBSTANCE VALUE INDICATED HAS A REFERENCE INDEXED
TO INDICATE FROM WHICH DOCUMENT THE VALUE HAS BEEN TAKEN.

THESE ARE THE LATEST VALUES AVAILABLE ( 86/10/30.).

IF THE VALUE IS THE RESULT OF ESTIMATIONS THE DISTRIBUTION
RELATION USED IS INDICATED. NORMALLY AN EQUAL DISTRIBUTION
IS USED FOR THE FIRST APPROXIMATION.
BOD MAY BE BOD 5 OR BOD 7 A TRANSFER-FACTOR HAS NOT BEEN USED.

| NO. | DOCUMENT NUMBER | DOCUMENT DATE | ALGORITHM USED REMARKS |
|---|---|---|---|
| 1 | STC 11/7/6 | 84/11/13. | |
| 2 | STC 11/7/5 | 84/11/12. | |
| 3 | HELCOM 6/4C/11 | 85/02/22. | CALCULATED ON AREAL PARTS |
| 4 | STC 11/7/4 | 84/11/06. | |
| 5 | STC 11/7/6 ANNEX | 84/11/13. | |
| 6 | STC 12/7C/9 | 85/09/17. | |
| 7 | WGS 9/2/2 | 86/06/09. | LEAD COUNTRY MAX. ESTIMATES |
| 8 | STC 13/6A/5 | 86/09/17. | GIVEN AT STC 13 |

# POLLUTION LOAD COMPILATION

Area abbreviation: BAP-SWE
BALTIC PROPER - SWEDEN

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 6140(1 | 21000(1 | 900(1 | 28040 |
| PHOSPHORUS | TOT-P | T/A | 240(1 | 750(1 | 140(1 | 1130 |
| B O D | BOD | T/A | 4200(1 | 23200(1 | 28000(1 | 55400 |
| MERCURY | HG | KG/A | ( | ( | ( | |
| CADMIUM | CD | KG/A | 318(7 | 2200(2 | 1200(2 | 3718 |
| ZINC | ZN | T/A | 23(4 | 135(4 | 8(4 | 166 |
| LEAD | PB | T/A | ( | ( | ( | |
| COPPER | CU | T/A | 5(4 | 240(4 | 1(4 | 246 |
| OIL | OIL | T/A | 610(8 | 1300(8 | 136(8 | 2046 |
| ARSENIC | AS | T/A | ( | ( | ( | |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details
of the annual discharges

P O L L U T I O N  L O A D  C O M P I L A T I O N
A r e a  a b b r e v i a t i o n :  BOB-SWE
BOTHNIAN BAY - SWEDEN

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 490(5 | 21500(5 | 396(5 | 22386 |
| PHOSPHORUS | TOT-P | T/A | 65(5 | 1540(5 | 40(5 | 1645 |
| B O D | BOD | T/A | 1350(5 | 61000(5 | 16000(5 | 78350 |
| MERCURY | HG | KG/A | ( | ( | 140(5 | 140 |
| CADMIUM | CD | KG/A | 35(7 | 2200(2 | 760(5 | 2995 |
| ZINC | ZN | T/A | 3(4 | 685(4 | 33(5 | 721 |
| LEAD | PB | T/A | ( | ( | 4(5 | 4 |
| COPPER | CU | T/A | 1(4 | 750(4 | 1(5 | 752 |
| OIL | OIL | T/A | 150(8 | 500(8 | 90(8 | 740 |
| ARSENIC | AS | T/A | ( | ( | 96(5 | 96 |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details
of the annual discharges

P O L L U T I O N  L O A D  C O M P I L A T I O N
A r e a  a b b r e v i a t i o n :  BOS-SWE
BOTHNIAN SEA - SWEDEN

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 1320(5 | 31600(5 | 1330(5 | 34250 |
| PHOSPHORUS | TOT-P | T/A | 161(5 | 1450(5 | 240(5 | 1851 |
| B O D | BOD | T/A | 1900(5 | 80700(5 | 95000(5 | 177600 |
| MERCURY | HG | KG/A | ( | ( | ( | |
| CADMIUM | CD | KG/A | 79(7 | 2200(2 | 200(2 | 2479 |
| ZINC | ZN | T/A | 9(4 | 2320(4 | 10(3 | 2339 |
| LEAD | PB | T/A | ( | ( | ( | |
| COPPER | CU | T/A | 2(4 | 900(4 | 2(3 | 904 |
| OIL | OIL | T/A | 155(8 | 1400(8 | 40(8 | 1595 |
| ARSENIC | AS | T/A | ( | ( | ( | |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details
of the annual discharges

# P O L L U T I O N  L O A D  C O M P I L A T I O N

A r e a  a b b r e v i a t i o n :  KAT-SWE

KATTEGAT - SWEDEN

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 2440(6 | 33000(6 | 90(6 | 35530 |
| PHOSPHORUS | TOT-P | T/A | 335(6 | 820(6 | 40(6 | 1195 |
| B O D | BOD | T/A | 4160(6 | 33400(6 | 6900(6 | 44460 |
| MERCURY | HG | KG/A | ( | ( | ( | |
| CADMIUM | CD | KG/A | 164(7 | 2200(2 | 200(2 | 2564 |
| ZINC | ZN | T/A | 12(3 | 640(3 | 10(3 | 662 |
| LEAD | PB | T/A | ( | ( | ( | |
| COPPER | CU | T/A | 4(3 | 390(3 | 2(3 | 396 |
| OIL | OIL | T/A | 280(8 | 2300(8 | 40(8 | 2620 |
| ARSENIC | AS | T/A | ( | ( | ( | |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details
of the annual discharges

# POLLUTION LOAD COMPILATION

Area abbreviation: SOU-SWE

THE SOUND - SWEDEN

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 1850(6 | 7200(6 | 200(6 | 9250 |
| PHOSPHORUS | TOT-P | T/A | 220(6 | 210(6 | 600(6 | 1030 |
| B O D | BOD | T/A | 2380(6 | 3300(6 | 100(6 | 5780 |
| MERCURY | HG | KG/A | ( | ( | ( | |
| CADMIUM | CD | KG/A | 54(7 | 2200(2 | 200(2 | 2454 |
| ZINC | ZN | T/A | 12(3 | 640(3 | 10(3 | 662 |
| LEAD | PB | T/A | ( | ( | ( | |
| COPPER | CU | T/A | 4(3 | 390(3 | 2(3 | 396 |
| OIL | OIL | T/A | 280(8 | 100(8 | 65(8 | 445 |
| ARSENIC | AS | T/A | ( | ( | ( | |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details of the annual discharges

REFERENCES TO THE LOAD COMPILATION
==========

CONTRACTING PARTY : SWEDEN

EACH SUBSTANCE VALUE INDICATED HAS A REFERENCE INDEXED
TO INDICATE FROM WHICH DOCUMENT THE VALUE HAS BEEN TAKEN.

THESE ARE THE LATEST VALUES AVAILABLE ( 86/10/30.).

IF THE VALUE IS THE RESULT OF ESTIMATIONS THE DISTRIBUTION
RELATION USED IS INDICATED. NORMALLY AN EQUAL DISTRIBUTION
IS USED FOR THE FIRST APPROXIMATION.
BOD MAY BE BOD 5 OR BOD 7 A TRANSFER-FACTOR HAS NOT BEEN USED.

| NO. | DOCUMENT NUMBER | DOCUMENT DATE | ALGORITHM USED REMARKS |
|---|---|---|---|
| 1 | STC 11/7/6 | 84/11/13. | VERIFIED VALUES |
| 2 | HELCOM 6/4C/11 | 85/02/22. | CALCULATED ON AREAL PARTS |
| 3 | STC 11/6/18 | 84/11/13. | EQUAL PARTED |
| 4 | STC 11/7/4 | 84/11/06. | |
| 5 | STC 11/INF.12 | 84/11/05. | |
| 6 | NOTE TO COMMISSION | 83/08/11. | |
| 7 | HELCOM 6/4C/11 | 85/02/22. | COMPUTED FROM WHOLE DIVIDED INTO PARTS ACCORDING TO POPULATION |
| 8 | WGS 9/2/2 | 86/06/09. | LEAD COUNTRY MAX. ESTIMATES |

# P O L L U T I O N  L O A D  C O M P I L A T I O N

A r e a  a b b r e v i a t i o n :  BAP-SUN

BALTIC PROPER - USSR

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 175(1 | 24600(1 | ( | 24775 |
| PHOSPHORUS | TOT-P | T/A | 38(1 | 791(1 | ( | 829 |
| B O D | BOD | T/A | 2190(1 | 188000(1 | ( | 190190 |
| MERCURY | HG | KG/A | 0(2 | ( | ( | 0 |
| CADMIUM | CD | KG/A | 400(1 | ( | ( | 400 |
| ZINC | ZN | T/A | 4(1 | 165(1 | ( | 169 |
| LEAD | PB | T/A | ( | ( | ( | |
| COPPER | CU | T/A | 5(1 | 105(1 | ( | 110 |
| OIL | OIL | T/A | 1050(3 | 2500(3 | ( | 3550 |
| ARSENIC | AS | T/A | ( | ( | ( | |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details
of the annual discharges

# P O L L U T I O N  L O A D  C O M P I L A T I O N

A r e a  a b b r e v i a t i o n :  GUF-SUN

GULF OF FINLAND - USSR

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 4700(1 | 52500(1 | 500(1 | 57700 |
| PHOSPHORUS | TOT-P | T/A | 360(1 | 3460(1 | 170(1 | 3990 |
| B O D | BOD | T/A | 29500(1 | 208000(1 | 13300(1 | 250800 |
| MERCURY | HG | KG/A | 50(1 | 3650(1 | 0(2 | 3700 |
| CADMIUM | CD | KG/A | 0(2 | 21600(1 | 0(2 | 21600 |
| ZINC | ZN | T/A | 40(1 | 480(1 | 0(2 | 520 |
| LEAD | PB | T/A | 5(1 | 176(1 | 0(2 | 181 |
| COPPER | CU | T/A | 48(1 | 178(1 | 0(2 | 226 |
| OIL | OIL | T/A | 3500(3 | 9300(3 | 0(2 | 12800 |
| ARSENIC | AS | T/A | ( | ( | ( | |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details
of the annual discharges

# P O L L U T I O N  L O A D  C O M P I L A T I O N

A r e a  a b b r e v i a t i o n :  GUR-SUN

GULF OF RIGA - USSR

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL.(REF. | THROUGH RIVERS(REF. | FROM INDUST.(REF. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 438(1 | 47400(1 | ( | 47838 |
| PHOSPHORUS | TOT-P | T/A | 60(1 | 1000(1 | ( | 1060 |
| B O D | BOD | T/A | 4950(1 | 58800(1 | ( | 63750 |
| MERCURY | HG | KG/A | 0(2 | 0(2 | ( | 0 |
| CADMIUM | CD | KG/A | 0(2 | 0(2 | ( | 0 |
| ZINC | ZN | T/A | 0(2 | 0(2 | ( | 0 |
| LEAD | PB | T/A | 0(2 | 7(1 | ( | 7 |
| COPPER | CU | T/A | 0(2 | 38(1 | ( | 38 |
| OIL | OIL | T/A | 960(3 | 3000(3 | ( | 3960 |
| ARSENIC | AS | T/A | ( | ( | ( | |
| NICKEL | NI | T/A | ( | ( | ( | |
| VANADIUM | V | T/A | ( | ( | ( | |
| CHROMIUM | CR | KG/A | ( | ( | ( | |

Please see references for details
of the annual discharges

REFERENCES TO THE LOAD COMPILATION
==========

CONTRACTING PARTY : UNION OF SOVIET SOCIALIST REPUBLICS

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TO INDICATE FROM WHICH DOCUMENT THE VALUE HAS BEEN TAKEN.

THESE ARE THE LATEST VALUES AVAILABLE ( 86/10/30.).

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RELATION USED IS INDICATED. NORMALLY AN EQUAL DISTRIBUTION
IS USED FOR THE FIRST APPROXIMATION.
BOD MAY BE BOD 5 OR BOD 7 A TRANSFER-FACTOR HAS NOT BEEN USED.

| NO. | DOCUMENT NUMBER | DOCUMENT DATE | ALGORITHM USED REMARKS |
|---|---|---|---|
| 1 | NOTE TO SC. SECR. | 86/05/19. | MOSTLY ON BASIS OF WGS 6/3/3 |
| 2 | NOTE TO SC. SECR. | 86/05/19. | VALUE GIVEN IS "-" |
| 3 | WGS 9/2/2 | 86/06/09. | LEAD COUNTRY MAX. ESTIMATES |

## The Total Pollution Load

The next Table gives the sums of all the sub-area values of this compilation. The amounts are the values from the addition of all information available. The values should be rounded off, as otherwise they seem to show a certainty of value, which is not correct.

The rounded off estimates according to this compilation are as follows :

| | | input from land | | | atmospheric input ( EGAP 3/8 ) | |
|---|---|---|---|---|---|---|
| Nitrogen | TOT-N | 530 000 | t/a | | 413 000 | t/a |
| Phosphorus | TOT-P | 42 000 | t/a | | 6 000 | t/a |
| B O D | | 1 640 000 | t/a | | | |
| Mercury | Hg | 5 | t/a | (* | | |
| Cadmium | Cd | 60 | t/a | | 80 | t/a |
| Zinc | Zn | 9 000 | t/a | | 3 200 | t/a |
| Lead | Pb | 300 | t/a | (* | 2 900 | t/a |
| Copper | Cu | 4 200 | t/a | | 380 | t/a |
| Oil | | 36 000 | t/a | (* | | |
| Arsenic | As | 180 | t/a | (* | | |
| Nickel | Ni | 110 | t/a | (* | | |
| Vanadium | V | 290 | t/a | (* | | |
| Chromium | Cr | 0.2 | t/a | (* | | |

(* The dataset of these substances is not complete; therefore, the given values are very preliminary and not representative.

# P O L L U T I O N  L O A D  C O M P I L A T I O N

A r e a  a b b r e v i a t i o n :  TOTAL

THE BALTIC SEA AREA

| PARAMETER SUBSTANCE | | UNIT | FROM MUNICIPAL. | THROUGH RIVERS | FROM INDUST. | TOTAL SUM |
|---|---|---|---|---|---|---|
| NITROGEN | TOT-N | T/A | 67652 | 449150 | 11549 | 528351 |
| PHOSPHORUS | TOT-P | T/A | 11801 | 28321 | 8397 | 48519 |
| B O D | BOD | T/A | 196610 | 1212400 | 295440 | 1704450 |
| MERCURY | HG | KG/A | 1093 | 3707 | 268 | 5068 |
| CADMIUM | CD | KG/A | 3216 | 46340 | 9320 | 58876 |
| ZINC | ZN | T/A | 460 | 6709 | 1765 | 8934 |
| LEAD | PB | T/A | 18 | 239 | 8 | 265 |
| COPPER | CU | T/A | 133 | 3962 | 101 | 4196 |
| OIL | OIL | T/A | 8977 | 26021 | 576 | 35574 |
| ARSENIC | AS | T/A | 4 | 72 | 101 | 177 |
| NICKEL | NI | T/A | 10 | 0 | 96 | 106 |
| VANADIUM | V | T/A | 0 | 0 | 290 | 290 |
| CHROMIUM | CR | KG/A | | 127 | 78 | 205 |

Please see references for details
of the annual discharges

# Graphic Presentations of the Load

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*Comments on the Figures*

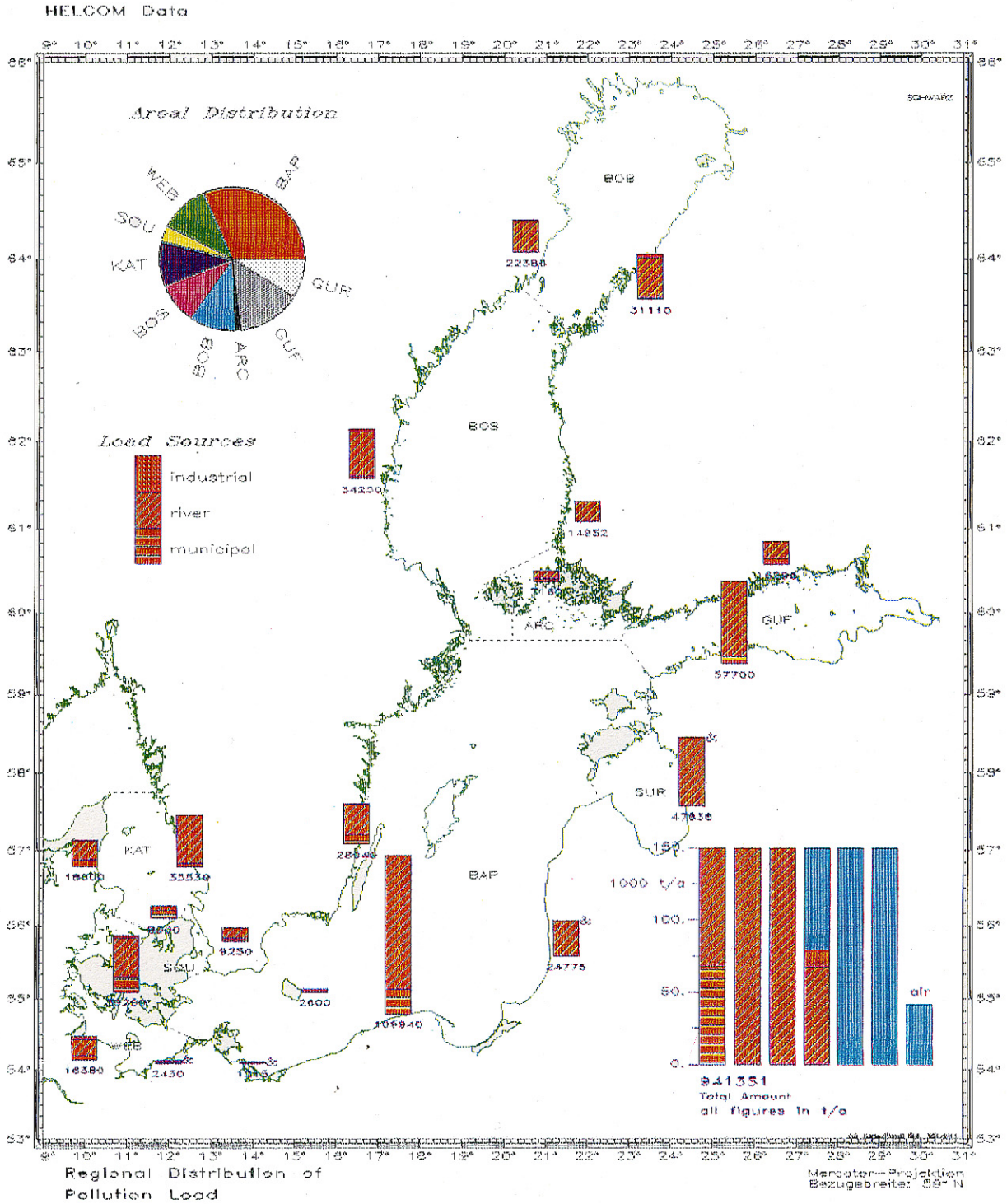
*From the Tables, the following Figures show the regional distribution of the pollution load into the Baltic Sea.*

*Columns are given which indicate the pollution amount, at the different sub-areas of the Baltic Sea, from the different substances considered. The upper coloured circle represents the regional distribution in parts of the nine Baltic Sea sub areas. The total amount column includes the atmospheric input into the Baltic Sea, as estimated by EGAP 3/8.*

*For reasons of better comparison, several general distribution charts are added. Additionally, two charts about the relationship between the input load of Total Phosphorus and the number of inhabitants in the catchment area, and the input load of Total Nitrogen versus the catchment area, are given.*

*The dataset of several substances is not complete; therefore, the given values were not used for drawing graphic presentations. Even the Figures given should be interpreted with caution, because the data base is very heterogeneous for this First Pollution Load Compilation of the Baltic Sea Area.*

# BALTIC SEA

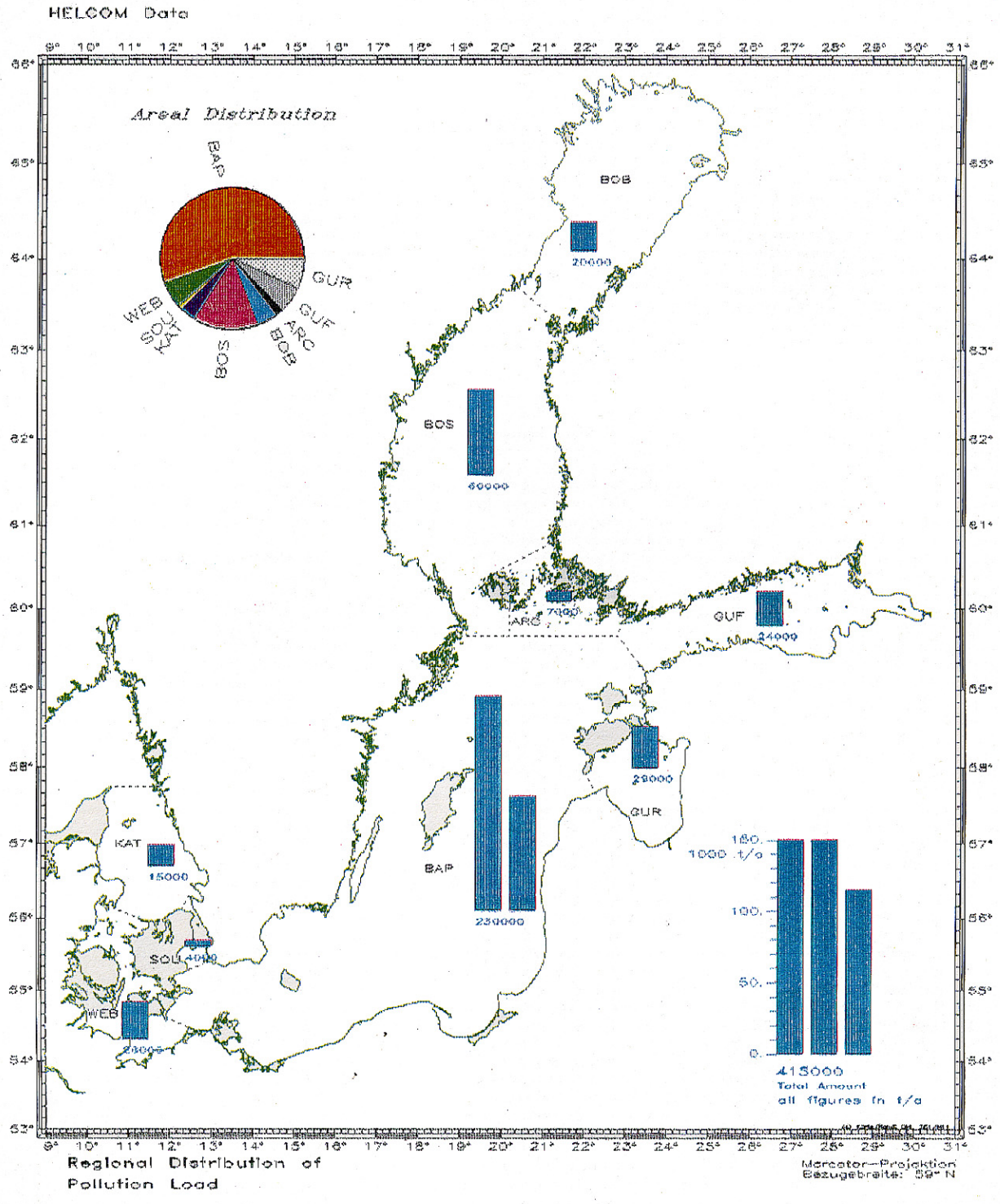



# TOTAL NITROGEN

4 values of industrial load missing (&).

Compilation 30 October 1986

# BALTIC SEA

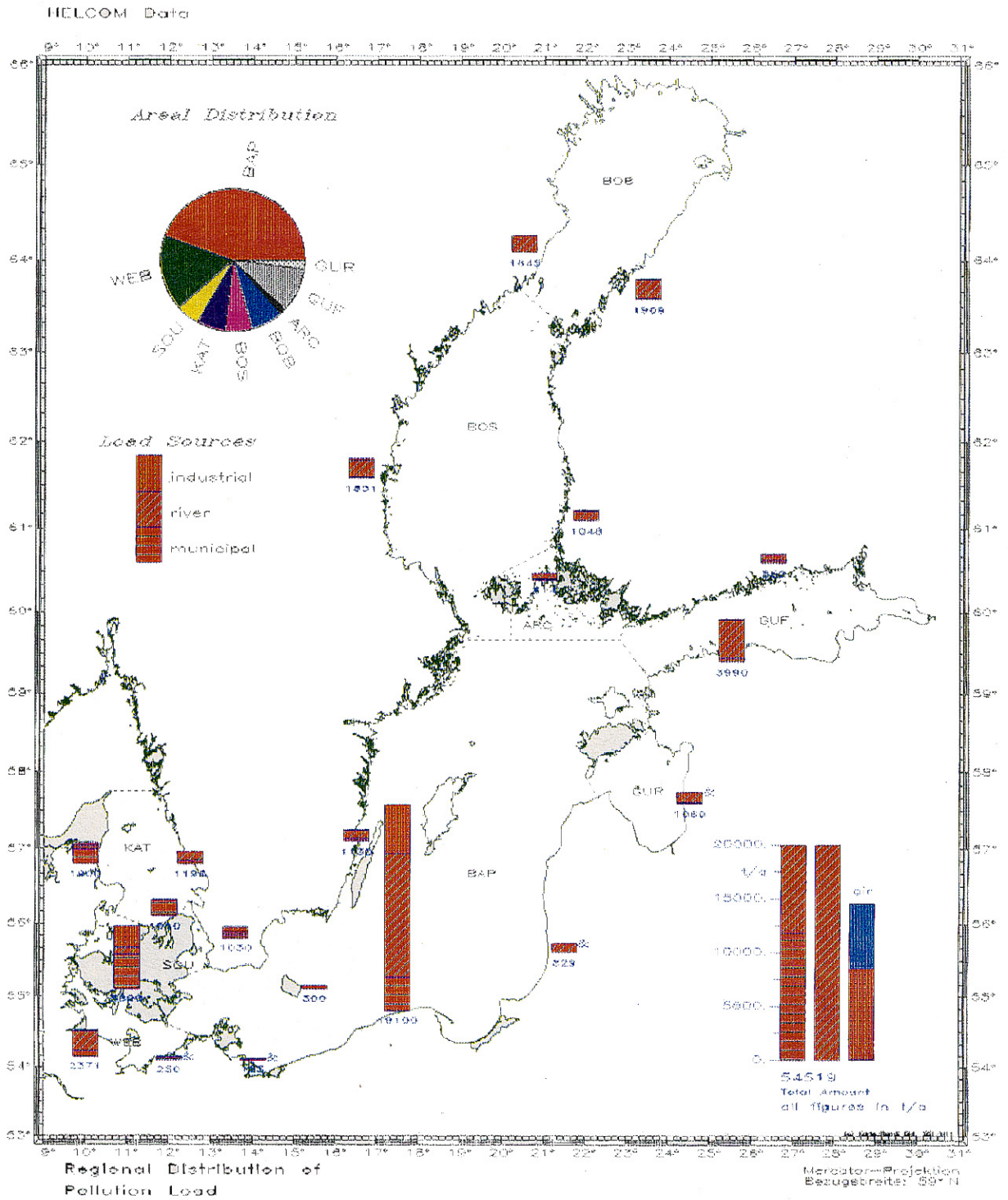



## TOTAL NITROGEN, ATMOSPHERIC INPUT

Data estimated by EGAP 3/8

Compilation 30 October 1986

# BALTIC SEA

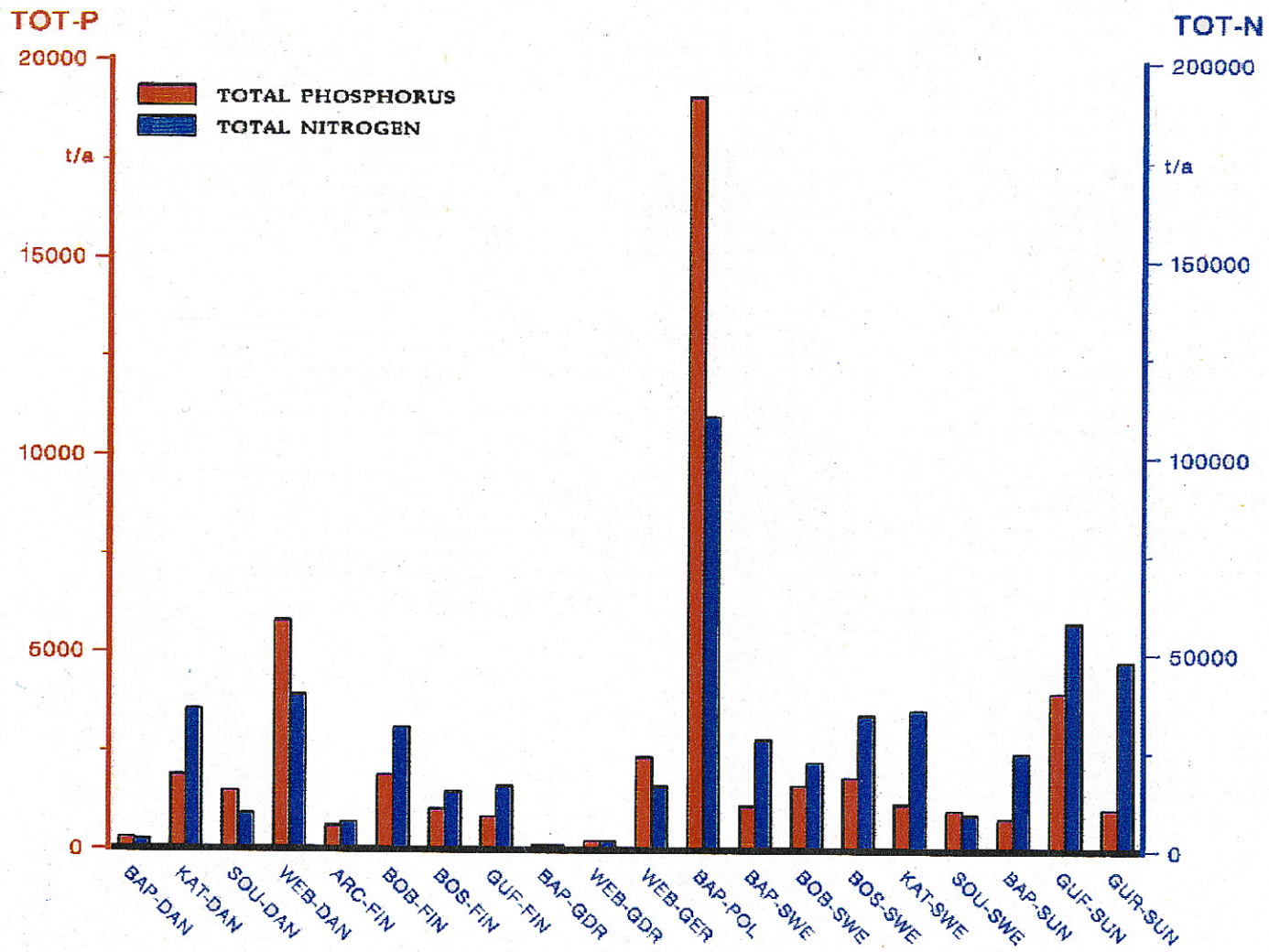



# TOTAL PHOSPHORUS

4 values of industrial load missing (&).

Compilation 30 October 1986

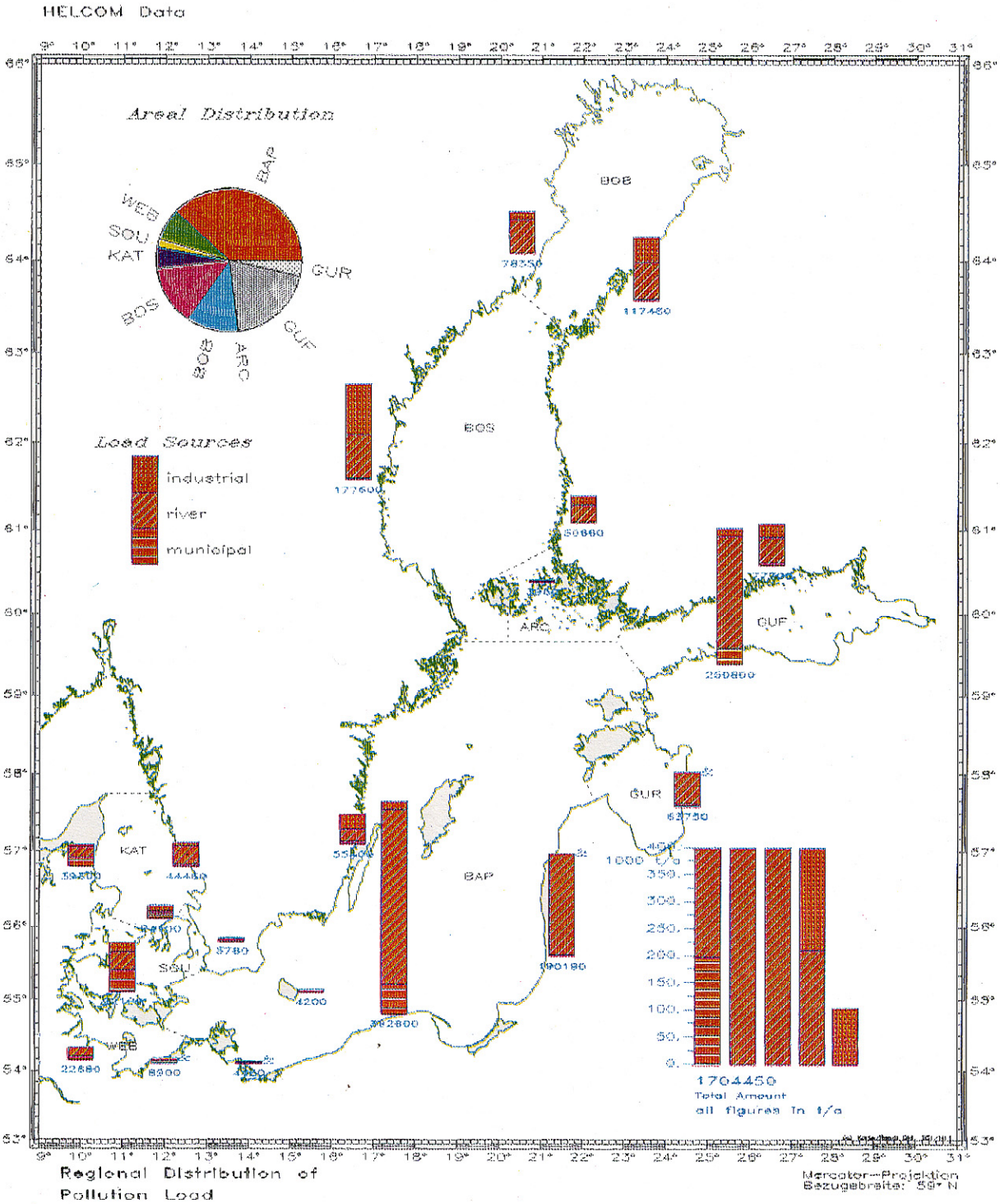
# BALTIC POLLUTION LOAD




HELCOM-DATA

Compilation 30 October 1986

# BALTIC SEA



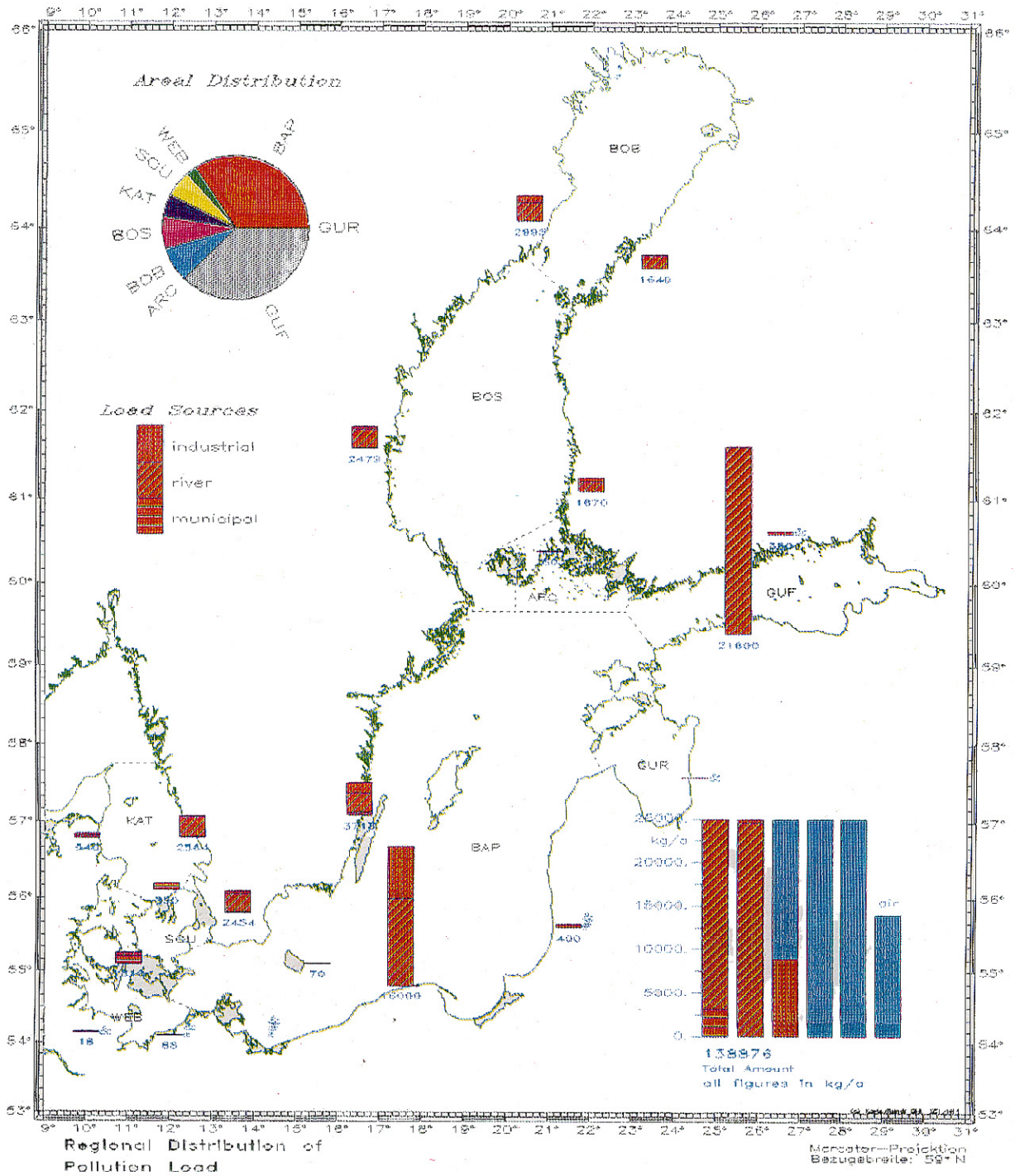

# BIOLOGICAL OXYGEN DEMAND

May be BOD 5 or BOD 7, no Transfer Factor has been used.
4 values of industrial load missing (&).

Compilation 30 October 1986

# BALTIC SEA

HELCOM Data




Regional Distribution of Pollution Load

Mercator-Projektion
Bezugsbreite: 59° N

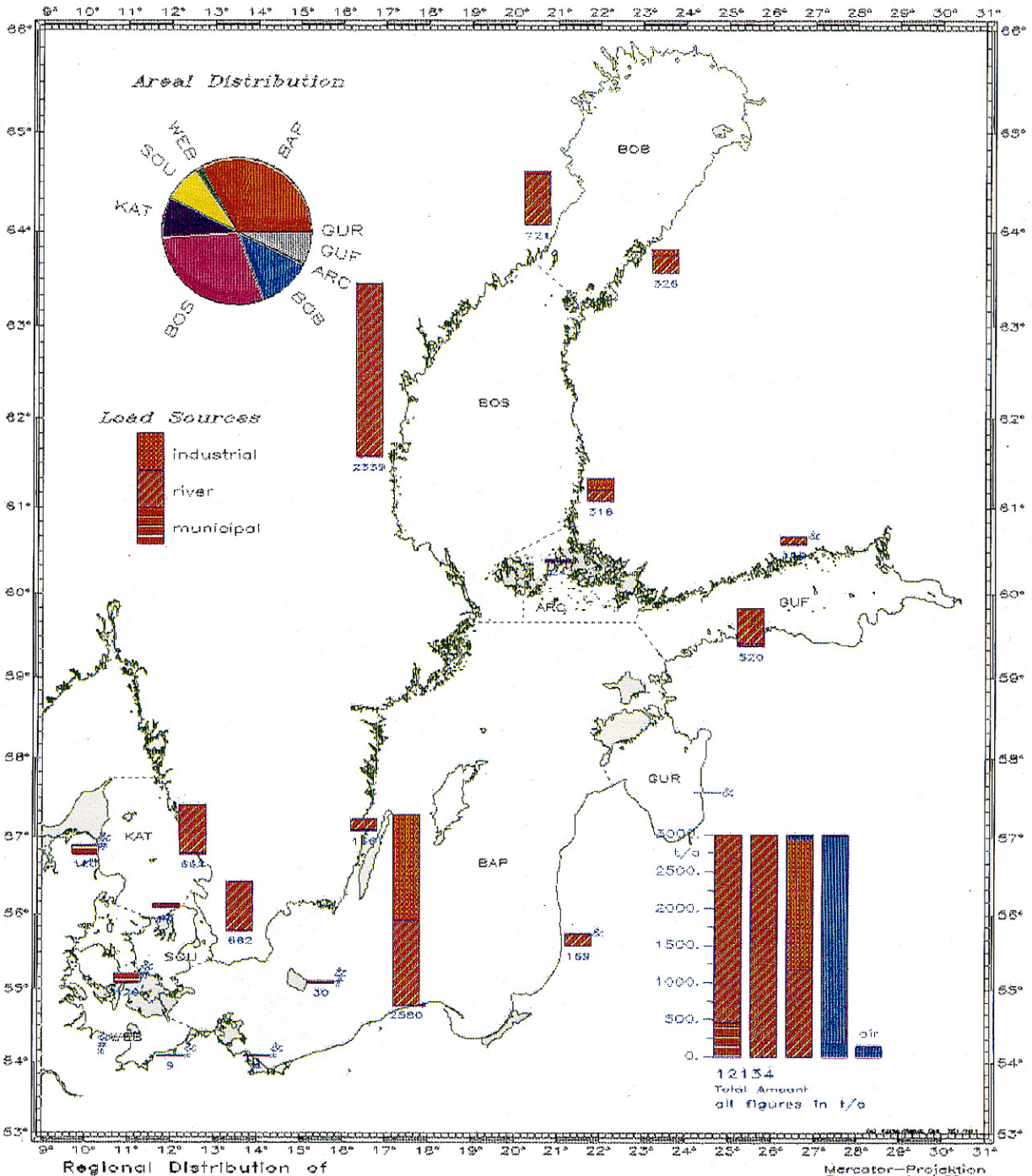
# CADMIUM

6 values of industrial load missing (&).
2 values of river load missing (#).
3 values of municipal load missing (*).

Compilation 30 October 1986

# BALTIC SEA

HELCOM Data




Regional Distribution of Pollution Load

Mercator-Projektion
Bezugsbreite: 59° N

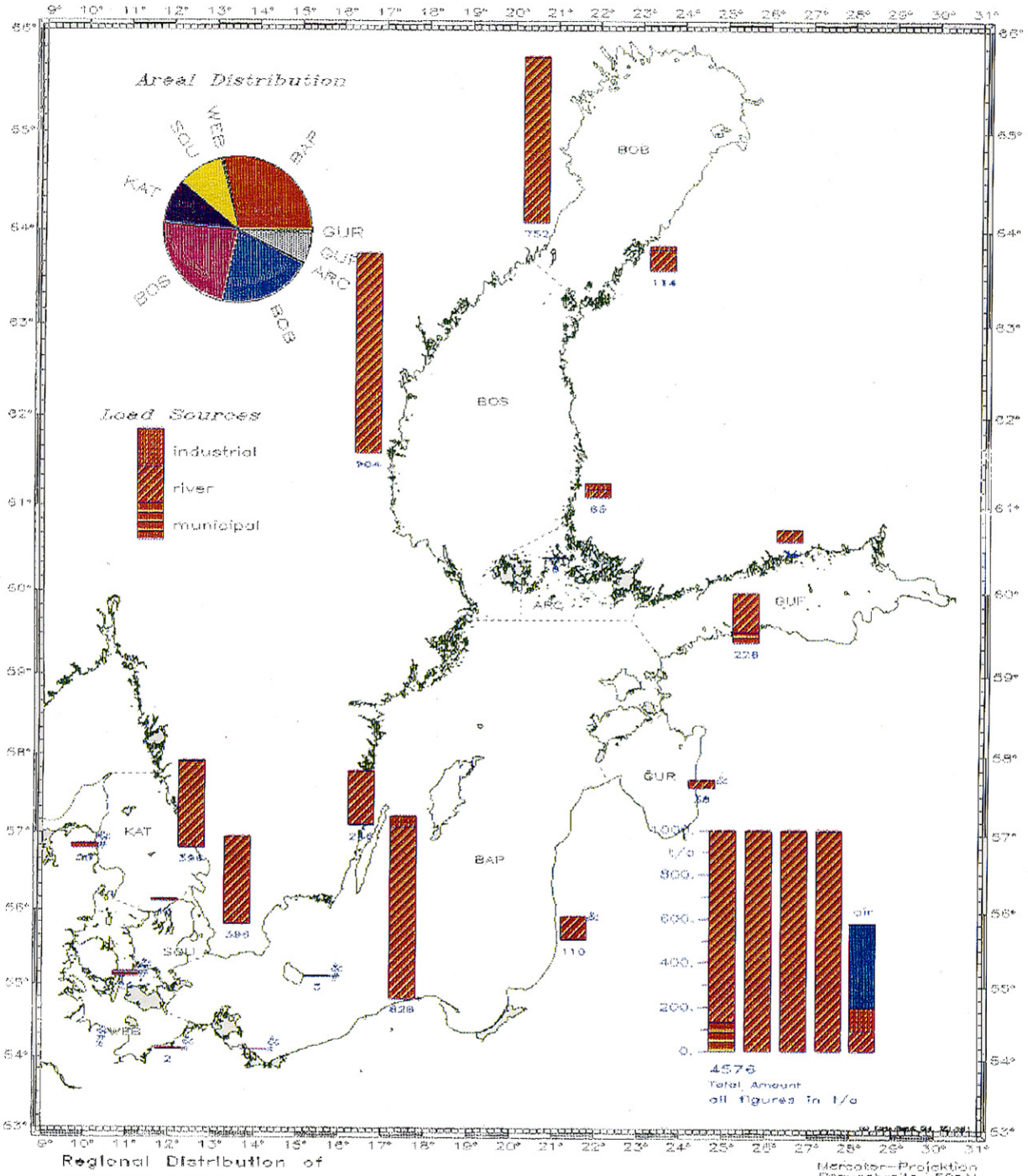
## ZINC

9 values of industrial load missing (&).
4 values of river load missing (#).
4 values of municipal load missing (*).

Compilation 30 October 1986

# BALTIC SEA

HELCOM Data

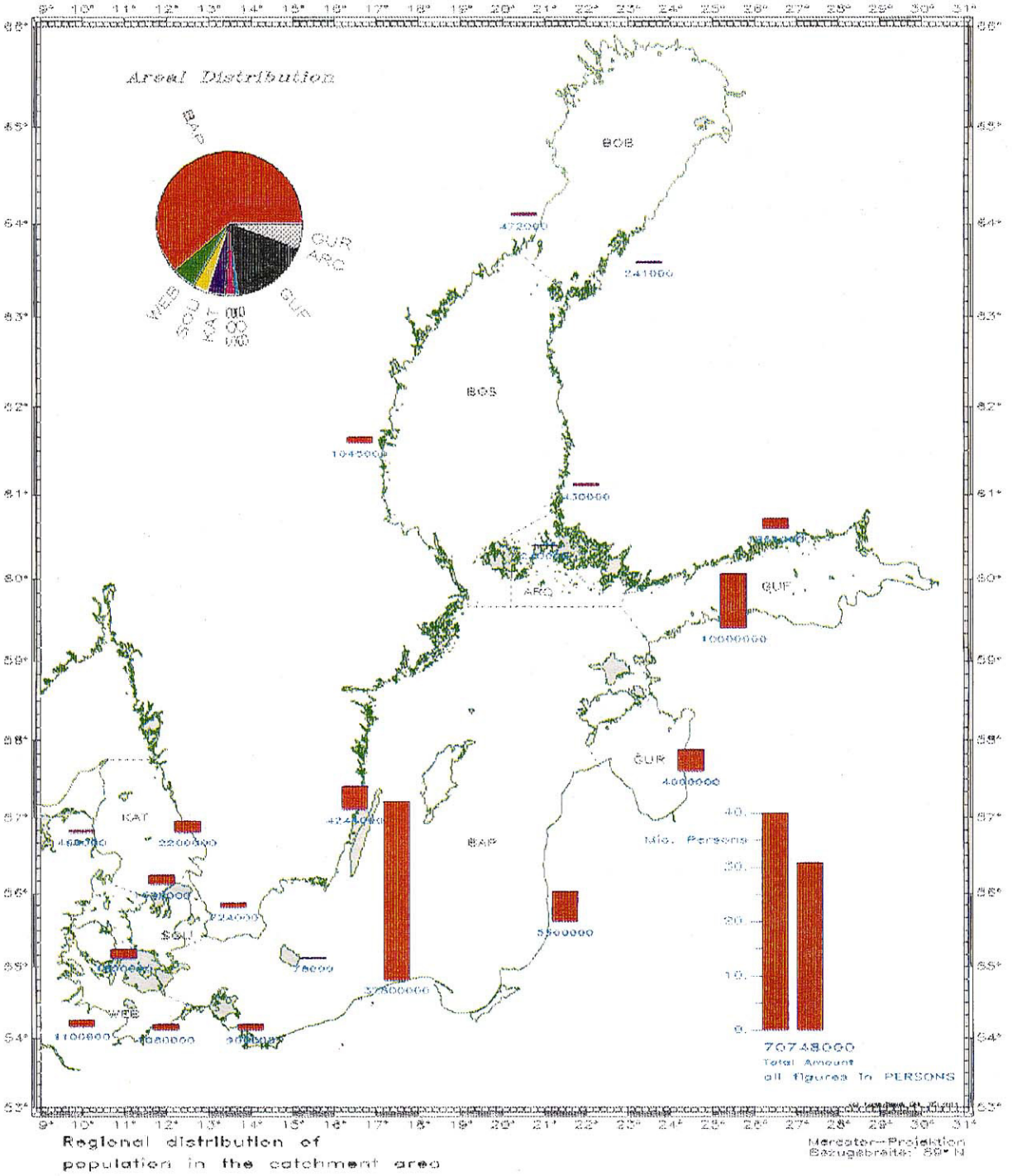



## COPPER

8 values of industrial load missing (&).
4 values of river load missing (#).
4 values of municipal load missing (*).

Compilation 30 October 1986

# BALTIC SEA




Regional distribution of population in the catchment area

## POPULATION

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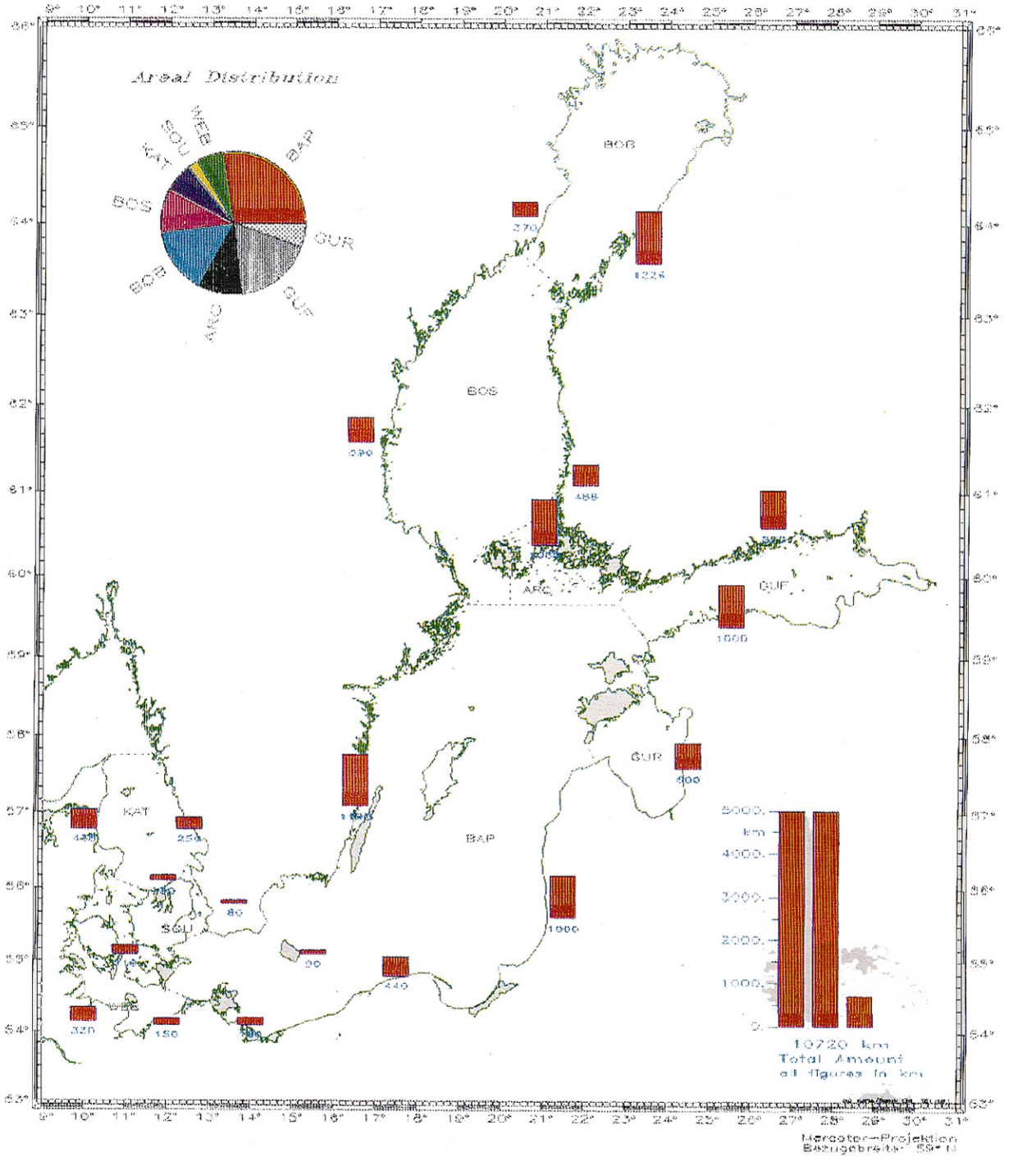
# BALTIC SEA




# LENGTH OF COASTLINE

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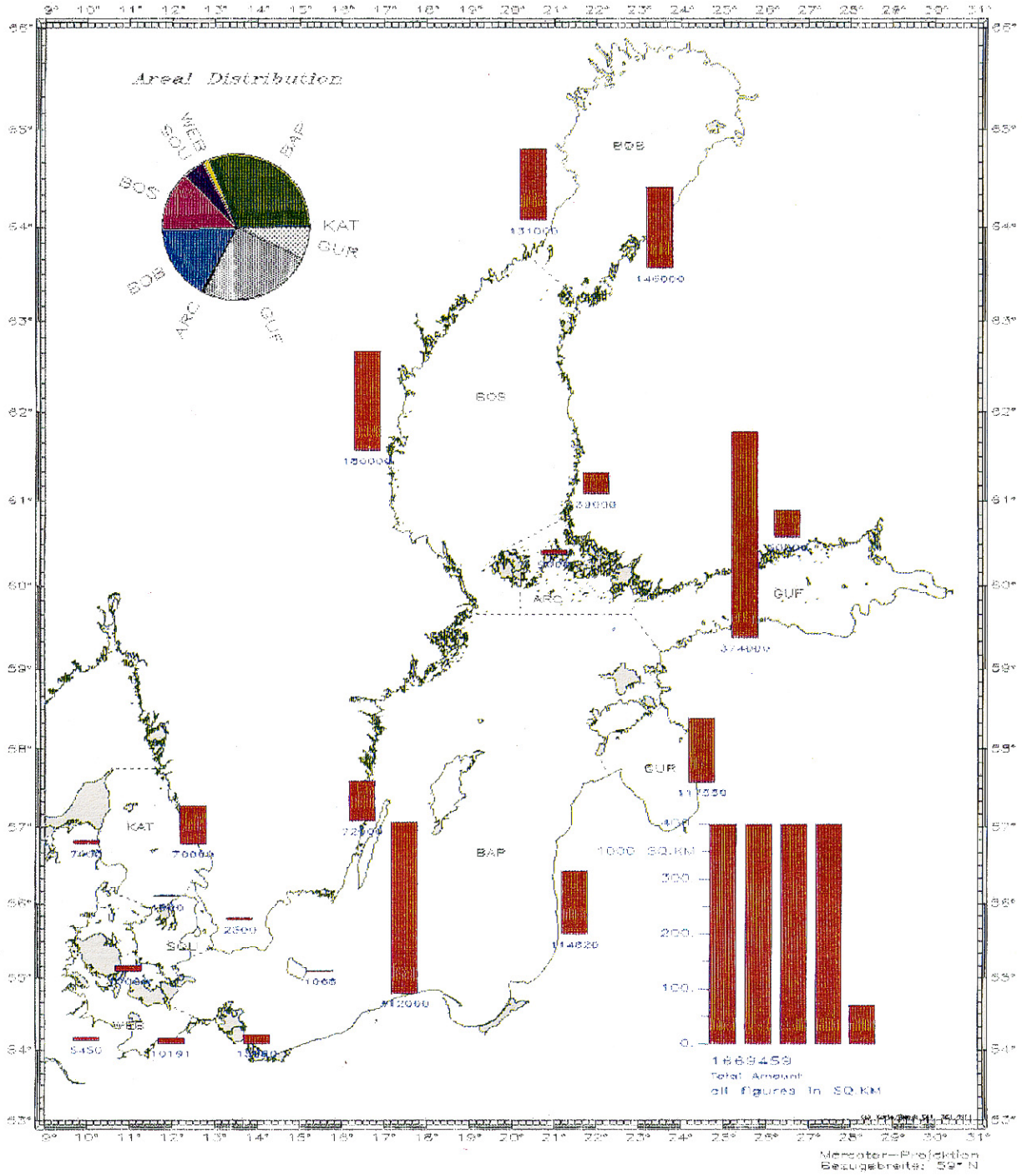
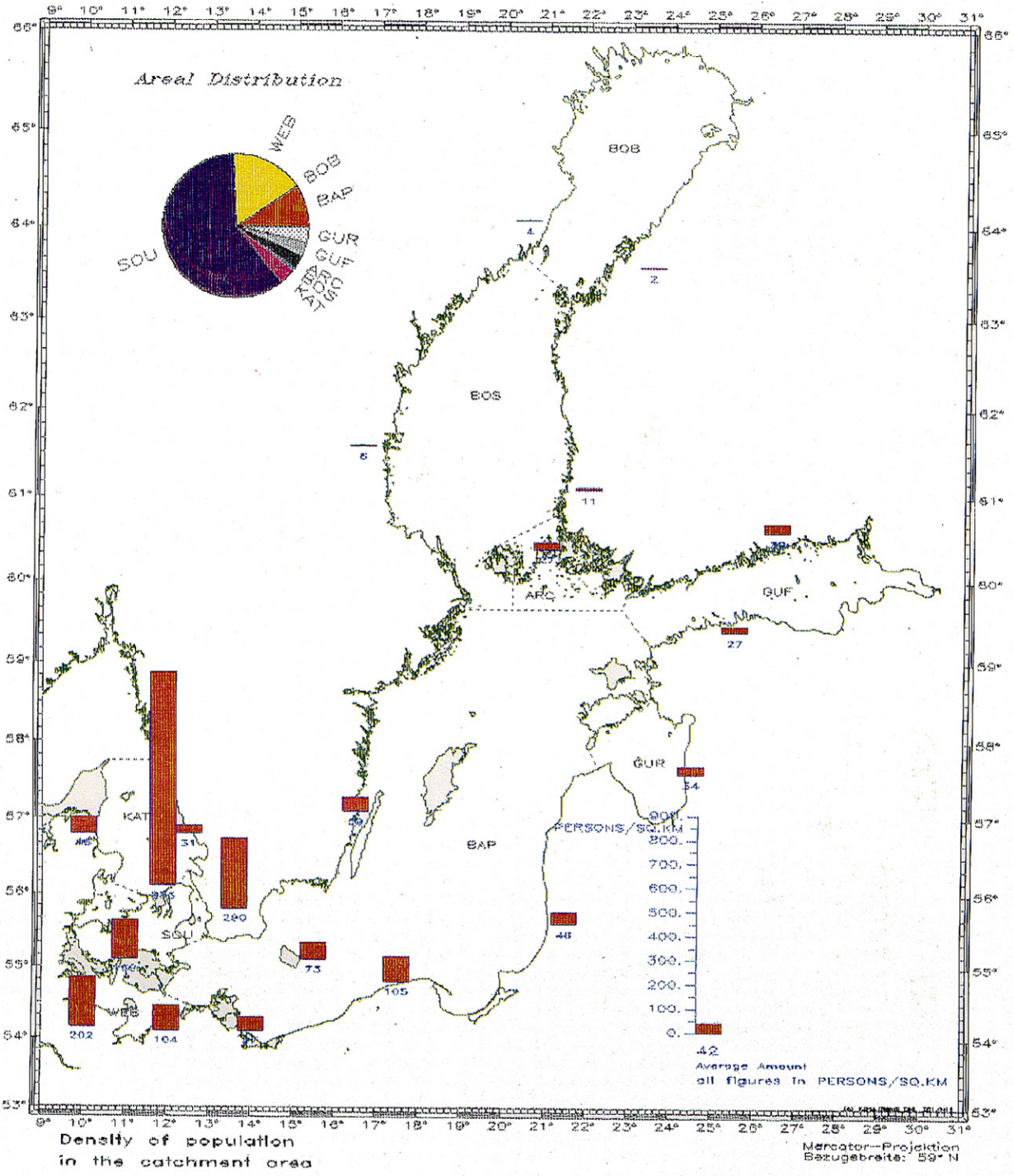
# BALTIC SEA




# CATCHMENT AREA

Compilation 30 October 1986

# BALTIC SEA

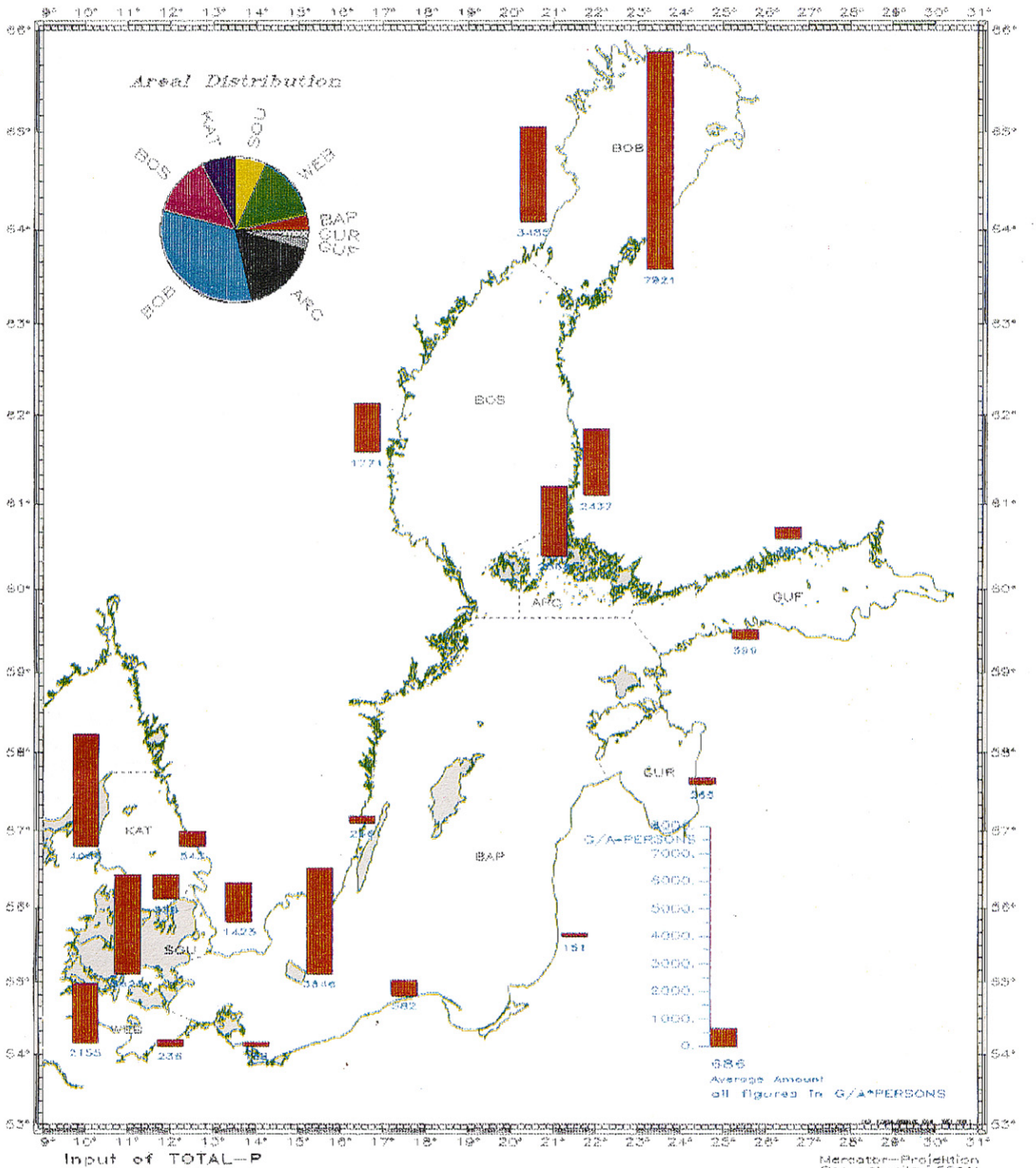



# POPULATION DENSITY

Compilation 30 October 1986

# BALTIC SEA

HELCOM Data




Input of TOTAL—P
vs number of inhabitants

Mercator—Projektion
Bezugsbreite: 59° N

# POPULATION DENSITY OF TOT—P

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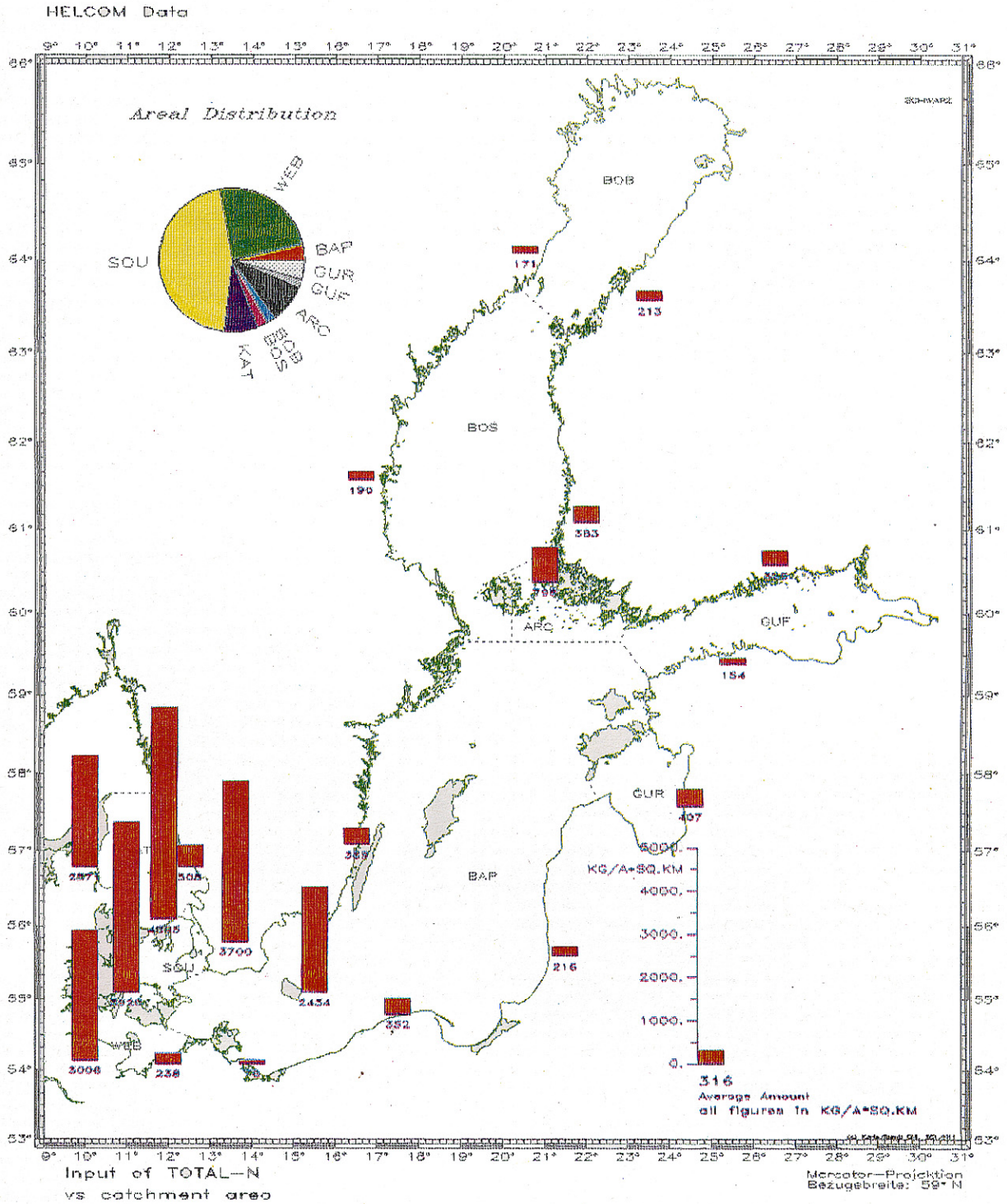
# BALTIC SEA




# AREAL DENSITY OF TOT-N

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# Baltic Sea Environment Proceedings

No. 1 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
(1979)*

No. 2 REPORT OF THE INTERIM COMMISSION (IC) TO THE BALTIC MARINE ENVIRONMENT PROTECTION COMMISSION
(1981)

No. 3 ACTIVITIES OF THE COMMISSION 1980
- Report on the activities of the Baltic Marine Environment Protection Commission during 1980
- HELCOM Recommendations passed during 1980
(1981)

No. 4 BALTIC MARINE ENVIRONMENT BIBLIOGRAPHY 1970-1979
(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 ASSESSMENT OF THE EFFECTS OF POLLUTION ON THE NATURAL RESOURCES OF THE BALTIC SEA, 1980
PART A-1: OVERALL CONCLUSIONS
PART A-2: SUMMARY OF RESULTS
PART B: SCIENTIFIC MATERIAL
(1981)

No. 6 WORKSHOP ON THE ANALYSIS OF HYDROCARBONS IN SEAWATER
Institut für Meereskunde an der Universität Kiel, Department of Marine Chemistry, March 23 - April 3, 1981
(1982)

No. 7 ACTIVITIES OF THE COMMISSION 1981
- Report of the activities of the Baltic Marine Environment Protection Commission during 1981 including the Third Meeting of the Commission held in Helsinki 16-19 February 1982
- HELCOM Recommendations passed during 1981 and 1982
(1982)

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* out of print

No. 8 ACTIVITIES OF THE COMMISSION 1982
- Report of the activities of the Baltic Marine Environment Protection Commission during 1982 including the Fourth Meeting of the Commission held in Helsinki 1-3 February 1983
- HELCOM Recommendations passed during 1982 and 1983
(1983)

No. 9 SECOND BIOLOGICAL INTERCALIBRATION WORKSHOP
Marine Pollution Laboratory and Marine Divison of the National Agency of Environmental Protection, Denmark, August 17-20, 1982, Rønne, Denmark
(1983)

No. 10 TEN YEARS AFTER THE SIGNING OF THE HELSINKI CONVENTION
National Statements by the Contracting Parties on the Achievements in Implementing the Goals of the Convention on the Protection of the Marine Environment of the Baltic Sea Area
(1984)

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Helsinki University of Technology, Ship Hydrodynamics Laboratory, Otaniemi, Finland
P. Tuovinen, V. Kostilainen and A. Hämäläinen
(1984)

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(1984)

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- 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)

No. 14 SEMINAR ON REVIEW OF PROGRESS MADE IN WATER PROTECTION MEASURES
17-21 October 1983, Espoo, Finland
(1985)

No. 15 ACTIVITIES OF THE COMMISSION 1984
- Report on the activities of the Baltic Marine Environment Protection Commission during 1984 including the Sixth Meeting of the Commission held in Helsinki 12-15 March 1985
- HELCOM Recommendations passed during 1984 and 1985
(1985)

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A Regional Cooperation Project of the Baltic Sea States; International Summary Report
(1986)

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(1986)

No. 18 ACTIVITIES OF THE COMMISSION 1985
- Report on the activities of the Baltic Marine Environment Protection Commission during 1985 including the Seventh Meeting of the Commission held in Helsinki 11-14 February 1986
- HELCOM Recommendations passed during 1986
(1986)

No. 19 BALTIC SEA MONITORING SYMPOSIUM
Tallinn, USSR, 10-15 March 1986
(1986)