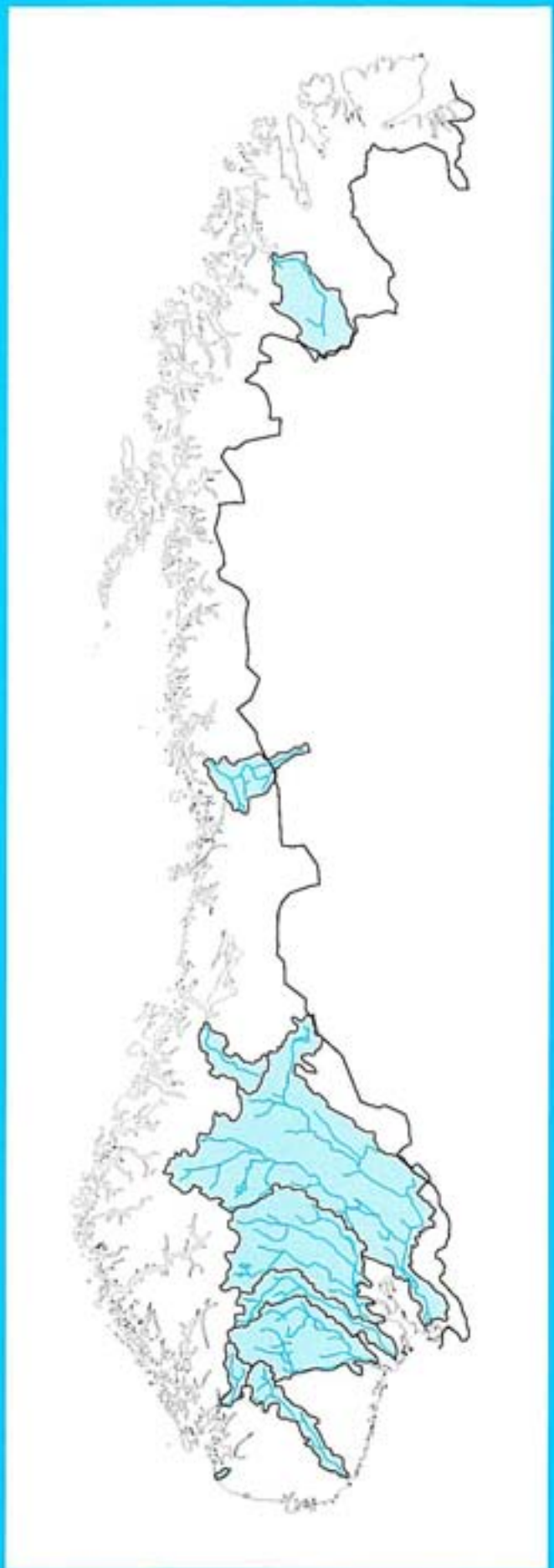


SFT Norwegian Pollution Control Authority

Contractor	SFT Norway
Performing institute	NIVA

Report 750/98

Oslo and Paris Commissions (OSPAR)

Annual report on direct and riverine inputs to Norwegian coastal waters during the year 1997

A Principles, results and discussions
B Data report

TA 1604/1998

NIVA Norwegian Institute for Water Research

Norwegian Institute for Water Research

REPORT

Main Office
P.O. Box 173, Kjelsås
N-0411 Oslo
Norway
Phone (47) 22 18 51 00
Telefax (47) 22 18 52 00
Internet: www.niva.no

Regional Office, Sørlandet
Televeien 1
N-4890 Grimstad
Norway
Phone (47) 37 29 50 55
Telefax (47) 37 04 45 13

Regional Office, Østlandet
Sandvikaveien 41
N-2312 Ottestad
Norway
Phone (47) 62 57 64 00
Telefax (47) 62 57 66 53

Regional Office, Vestlandet
Nordnesboder 5
N-5008 Bergen
Norway
Phone (47) 55 30 22 50
Telefax (47) 55 30 22 51

Akvaplan-NIVA A/S
N-9005 Tromsø
Norway
Phone (47) 77 68 52 80
Telefax (47) 77 68 05 09

Title	Serial No.	Date
Oslo and Paris Comissions (OSPAR) Annual report on direct and riverine inputs to Norwegian coastal waters during the year 1997. A. Principles, results and discussions. B. Data report.	3952-98	30.11.1998
	Report No. Sub-No. O-90001	Pages Price 139
Author(s) Gjertrud Holtan Dag Berge Hans Holtan Terje Hopen	Topic group	Distribution 130
	Geographical area Norway	Printed NIVA

Client(s)	Client ref.
Norwegian Pollution Control Authority (SFT)	Dag S. Rosland

Abstract:
Riverine inputs of nutrients, selected heavy metals and persistent organic pollutants to Norwegian coastal waters from 10 main and 145 tributary rivers have been monitored during 1997. In addition, the inputs from rivers not monitored as well as direct discharges to marine waters along the coast from Sweden to Russia have been estimated. According to the results, total annual nutrient load to coastal waters from landbased sources, is approximately 3600 tonnes of phosphorus and 101.600 tonnes of nitrogen. About 40 per cent of the phosphorus and 59 per cent of the nitrogen are inputs from the monitored rivers and tributaries. Most inputs of heavy metals are low, especially the riverine inputs of Cd, Pb and Hg. A few values of Cd and Pb are below the detection limits of the specific analysis, and about 45 % of the Hg-analyses except for the "Skagerrak-rivers", where about 70 % of the Hg-values are above the detection limit. Most values of the different congeners of PCB are below the detection limit. The pesticide lindane is detected in most analyses in small amounts. Total load of this compound is estimated to about 80 kg. The largest yields from heavy metals comprise copper and zinc, with input estimates of 326 and 902 tonnes, respectively.
Retention in the fjords is not included in the above mentioned values, which in several cases would reduce the actual load to open marine waters considerably.

4 keywords, Norwegian	4 keywords, English
1. Forurensningstilførsler	1. Pollution inputs
2. Norske kystområder	2. Norwegian coastal waters
3. Elvetilførsler	3. Riverine inputs
4. Direkte tilførsler	4. Direct discharges

Gjertrud Holtan
Gjertrud Holtan
Project manager

ISBN 82-577-3545-0

Dag Berge
Dag Berge
Head of research department

The National Environmental Monitoring Programme

Oslo and Paris Commissions (OSPAR)

Annual report on direct and riverine inputs to Norwegian coastal waters during the year 1997

A Principles, results and discussions
B Data report

Oslo, November 1998

Project manager: Gjertrud Holtan
Co-workers: Dag Berge
Eirik Fjeld
Hans Holtan
Terje Hopen

PREFACE

The report presents the data from the 1997 monitoring of waterborne pollutants, both riverine and direct discharges, to the Norwegian coastal waters. The study is part of a joint monitoring programme under the "Paris Convention for the prevention of Marine Pollution from Landbased Sources". The Norwegian contribution is administered by the Norwegian Pollution Control Authority (SFT) which has contracted the Norwegian Institute for Water Research (NIVA) to perform the actual investigations.

The 1997-investigation lasted from January throughout December. This report is the Norwegian part of the 1997 study, divided into two parts:

A: Principles - Results and Discussion
B: Data Report.

The Programme Committee has consisted of Dag S. Rosland (SFT), Dag Berge and Gjertrud Holtan (NIVA). Principal collaborators have been Dag Berge and Hans Holtan (NIVA). The calculations of all data has been performed by Terje Hopen (NIVA). The names of all participants are given in paragraph 5.

We would like to express our gratitude to all participants of the investigation, especially to the local fieldworkers for the collection and transport of the samples. The contact persons at the County Environmental Agencies and at the Municipalities of Oslo and Bærum are acknowledged for continous support and goodwill. The contact persons at the Norwegian Water Resources and Energy Administration (NVE) and The Norwegian Meteorological Institute (DNMI), Per Lofsberg and Stein Kristiansen, are acknowledged for their kind cooperation.

Report A:

TABLE OF CONTENTS

SUMMARY AND CONCLUSIONS

In 1988, the Paris Commission decided to launch a comprehensive annual monitoring programme covering inputs of selected pollutants to Convention Waters. The programme was to commense in 1990, and continue the following years (PARCOM, 10/3/2).

The purpose is to provide the Commission, in accordance with Article 17(B) of the Paris Convention, with an assessment of the waterborne inputs to Convention waters. Another objective of the programme is to control the fulfillment of The Ministerial Declaration of the North Sea.

In 1987 the ministers of the environment from 9 North Sea states agreed to "take effective national steps in order to reduce nutrient inputs into areas where these inputs are likely, directly or indirectly, to cause pollution, and to achieve a substantial reduction (of the order of 50%) in inputs of phosphorus and nitrogen to these areas between 1985 and 1995".

This Declaration applies for the coastal zone from the Norwegian-Swedish border to Lindesnes (the southern most point of Norway). Further discharges of selected persistent organic pollutants to the whole North Sea area are to be reduced by 50-70% depending on the micropollutant in question.

In this report the results (1997) are given for riverine inputs of 10 main rivers and 145 tributaries. Thus the active monitoring programme covers drainage from 75 per cent of the main land areas. For discharges entering directly into marine recipients, i.e. sewage and industrial effluents, estimates are based on numbers from effluent control programmes. Area runoff of total phosphorus, total nitrogen, phosphates, nitrates and ammonia from these coastal zones are estimated by use of area specific runoff coefficients.

Greatest emphasis with regard to accuracy has been given to the input estimate of the Skagerrak region, as this is considered the most susceptible part of the North Sea. The Skagerrak reception of Norways total loads are 24 per cent of the phosphorus and 35 per cent of the nitrogen yield. In this region where 90 per cent of the area is river- monitored, about 64 per cent of the P- and 73 per cent of the N- loads, are found in the riverine inputs.

According to the results of the 1997 investigation total annual nutrient loads to coastal waters from landbased sources in Norway are approximately 3600 tonnes of phosphorus and 101.600 tonnes of nitrogen. Respectively 40 and 59 per cent of the grand total inputs of phosphorus and nitrogen are monitored in the main and tributary rivers. Riverine inputs of metals and persistent organic pollutants are low. A few of the concentrations found for Cd and Pb are lower than the detection limit requested from PARCOM. Therefore, two quantities have been estimated: one assuming that the true concentration is zero and the other assuming that the true concentration is the limit of detection. This provides maximum and minimum concentrations between which lies the true estimate. When evaluating inputs these data provide a basis for upper and lower estimates.

Inputs of cadmium are thus measured/calculated to be between 4.8 and 5.7 tonnes, mercury between 389 and 489 kg. The "below detection limit problem" also applies for the inputs of PCBs which are measured to be between 0.04 and 45 kg. The pesticide lindane was found in all analyses, but in small amounts. Assumably, lindane contamination in Norwegian rivers is mostly due to long range air pollution. Total load is estimated to about 80 kg. The largest share of heavy metals comprise copper and zinc, with input estimates of 326 and 902 tonnes, of which 81 and 85 % respectively, is river-monitored.

Retention of nutrients and persistent organic pollutants in the many treshold fjords of Norway is not included in the above given input figures. Estimates of retention of these substances would presumedly reduce the actual input to open marine waters.

For most Norwegian rivers the input to the sea, show large annual variations due to differences in water discharge. In order to use the data as a control of the fulfillment of the Ministerial Declaration of the North Sea, the chemical data from 1997 are in addition "normalized", i.e. 1997 chemical concentrations in river water have been multiplied with normal annual runoff (LTA) in the period 1961-90 (main rivers) and 1931-60 (tributary rivers).

1. INTRODUCTION

At the eight meeting of the Paris Commission (Madrid, June 1986) it was decided to carry out a pilot project to test methods for estimating transport of pollutants from rivers to marine areas. The Norwegian part of the pilot study comprised the two rivers Glomma and Skienselva (Fig. 1). The project was carried out from August 1986 to August 1987, and reported in October 1987 (Lingsten, 1987).

At the Tenth Meeting of the Paris Commission (Lisbon, June 1988) the principles for the comprehensive study on riverine inputs were accepted. It was then decided to commence the study with measurements carried out in 1990, and continue the work in the following years (PARCOM, 10/3/2).

The purpose is to provide the Commission, in accordance with Article 17(B) of the Paris Convention, with an assessment of the waterborne inputs to Convention waters. Besides riverine inputs, the information sought also relates to direct discharges.

The objectives of this study are the following:

- To give a quantitative assessment, as accurately as possible, of all riverborne and direct inputs of selected pollutants to Convention waters on an annual basis;
- to report these data annually to the OSPAR and review them periodically with regard to determining trends;
- for each country, to aim at monitoring on a regular basis 90% of the inputs of each selected pollutant;
- to control the effectiveness of measures agreed upon at the second International Conference on the Protection of the North Sea in London 1987*, and later conferences.

The study is to be completed for each calender year and submitted to OSPAR.

*

In 1987 the ministers of the environment from 9 North Sea states agreed to "take effective national steps in order to reduce nutrient inputs into areas where these inputs are likely, directly or indirectly, to cause pollution, and to achieve a substantial reduction (of the order of 50%) in inputs of phosphorus and nitrogen to these areas between 1985 and 1995".

This Declaration applies for the coastal zone from the Norwegian-Swedish border to Lindesnes (the southern most point of Norway). Further discharges of selected persistent organic pollutants to the whole North Sea area are to be reduced by 50-70% depending on the micropollutant in question.

2. RIVERSYSTEMS INCLUDED IN THE STUDY

2.1 General aspects

The length of the Norwegian mainland coast line including fjords and bays is 21347 km, and the length of the islands' coast line is 35662 km. (Table 1). Because of the length of the coast line, the great numbers of rivers, and retention processes in the fjords, in- and out-washing areas, monitoring of riverborne pollutants in Norway faces quite a few problems with respect to assessing their impact on coastal waters. Further, to measure 90 % of the load from the Norwegian rivers, a great number of rivers would have to be included, which would be extremely expensive. It was therefore decided that 8 of the major load bearing rivers should be monitored in accordance with the objectives of the comprehensive study. Further it was decided that 2 "unpolluted" rivers should be monitored at a reduced, but appropriate frequency. In these 10 rivers a number of investigations have been carried out during many years, and they have all been included in the National Monitoring Programme of Watercourses (SFT, 1980 - 1997).

These investigations have mainly concentrated on nutrients. Hence data on the load of the nutrients are satisfactory, while the data on heavy metals and persistent organic pollutants are rather insufficient. In addition to the ten rivers it was decided to estimate the load of 145 other rivers (tributaries) based on other 1997-monitoring programmes, and existing knowledge of the river systems concerned, supplemented with random samples taken in 1997.

The total drainage area of these monitored rivers is 229152 km², while the total area of mainland Norway is 323878 km² (Table 1). Totally 306747 km² of the drainage area is included in the investigation, of which 75 per cent is river monitored (Tables 4 and 5). It was of special importance to estimate the major loads to Skagerrak. In this region the monitored rivers and tributaries cover 94 per cent of the total area, whereof the main rivers alone 80 per cent.

The coastline is divided into subareas/-regions, comprising the drainage basins of the ten main rivers with tributaries, as shown in Fig. 1. Each subarea relates to one of the four discharge-/sub-regions (Fig. 1 and I.I-I.IV (Appendix I, Report B)) which are divided as follows (see also Table 4):

Barents Sea : From the Russian border (about 70°30"N, 70°30"E), to about 70°30"N, 21°E

Norwegian Sea: Southwards of 70°30"N, to about 62° N

North Sea : Southwards of 62° N, to the Swedish border

- Skagerrak : From Lindesnes (the southernmost point of Norway), about 57°44"N to Sweden about 58°58"N, 11°E.

Some key information about Norway and the adjacent oceans is given in Table 1.

Table 1. Norway: Population, areas and length of coastline.

Population	4.4 million
Area:	
- Mainland Norway	323878 km²
- The whole country incl. Svalbard and Jan Mayen	386958 km²
Coastline:	
- Length of the continental coastline	21347 km
- Not including fjords and bays	2650 km
- Length of the islands' coastline	35662 km

2.2 Riversystems monitored

The rivers chosen for the comprehensive study are the same as in 1990-1996 and presented in Table 2 and Fig. 1. The rivers marked 1 to 5, represent the major load bearing rivers in Norway. As mentioned in chapter 2.1, it was of special importance to estimate the major loads to Skagerrak (Fig. I.I, Appendix I, Report B) which is an important part of the North Sea, and considered to be most susceptible to pollutions. The five rivers (No 1 to 5) drain into the Skagerrak area. River Suldalslågen (No 7) and river Alta (No 10) are "unpolluted" riversystems where actual measurements have been carried out at a reduced frequency.

Orreelva (No 6) is draining the most intensive agriculture area in Norway especially concerning domestic animals (milk and meat production). Discharges from manure stores and silos together with area runoff from heavily manured fields are causing great problems (eutrophication, including toxic algal blooms) both in Orreelva and in the other water bodies in this area.

Orkla (No 8) is also draining agriculture area, but farming in this part of the country is rather extensive compared to the Orre area. More important in this area is the abandoned mines even if situated in the upper part of the watercourse. Several other rivers in this area also receive waste -water from abandoned mines (heavy metals).

Vefsna (No 9) is a watercourse where the runoff in periods is carrying quite a lot of suspended solids and as such is comparable with other rivers in this part of the country.

Fig. 1.
Norway. Main rivers and tributaries with drainage basins, the whole country divided into four discharge regions.

Source: Norwegian water recources and energy administration.
Design: NIVA.

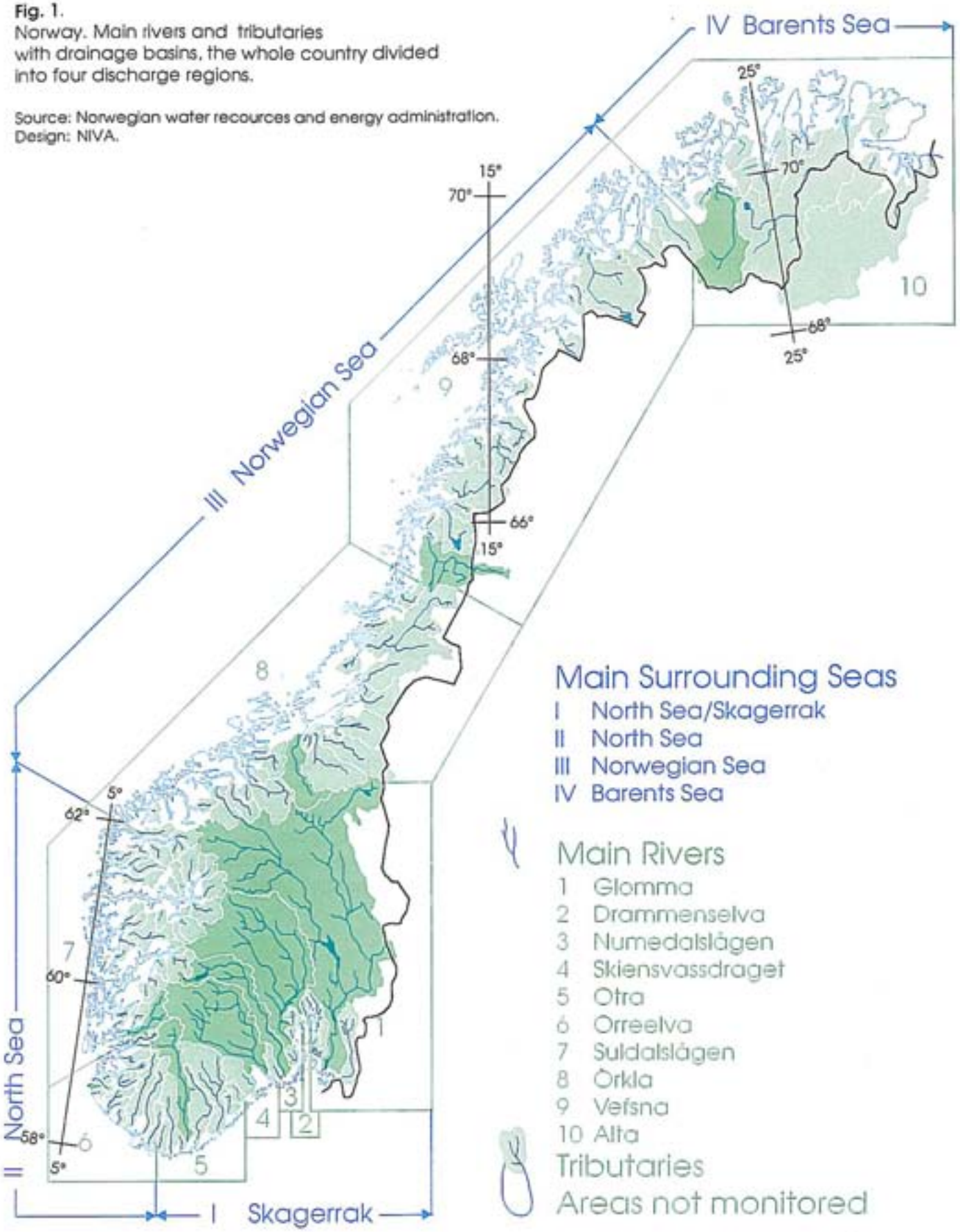


Table 2. The main rivers with catchment areas and long term average flow (LTA) 1961-90.

No	River	Catchment area, km² (at outlet)	LTA 1000 m³/day (at outlet)
1	Glomma	41.918	61350
2	Drammenselva	17.034	28850
3	Numedalslågen	5.577	10200
4	Skienselva	10.772	23535
5	Otra	3.738	12870
6	Orreelva	105	335
8	Orkla	3.053	5710
9	Vefsna	4.122	15655
7	Suldalslågen	1.457	7420
10	Alta	7.373	7495
Total		95.149	

The ten water courses are all representing typical river systems in different parts of the country. As such they are very useful when estimating loads of comparable rivers, i.e corrections and adjustments in the estimates of load of tributaries, which are based on fewer data than the main rivers.

All these watercourses except Orreelva are regulated for hydroelectric power production.

2.3 Other riversystems included (tributaries)

In additon to the ten main rivers, it was determined to assess inputs from the same 145 river systems as in 1990 - 1996 (Fig. 1) using "best estimates" of concentrations and flows. In total all Norwegian rivers with catchment areas larger than 500 km², and several of the minor rivers (streams) also are included in the 1997 study. Some information about these rivers are shown in Tables 8.1-8.2 (Appendix VIII, Report B).

3. METHODOLOGY

3.1 Methodology for assessment of riverine inputs

In carrying out the Survey, the methodology described in the Commissions Document "Principles of the Comprehensive Study on Riverine Inputs" (1988 and 1993) and in the 1990-Report from Norway (Holtan et al., 1991*), was followed. *In this document hereafter refered to as "The 1990-Report".

As for "Site selection" we refer to the abovementioned documents, but have chosen to repeat most of the text concerning "Sampling strategy and frequency", only with necessary adjustments.

Compared with the years 1990-1992 the programme was reduced in 1993-1996, and also in 1997.

In all main rivers, except Suldalslågen and Alta, 12 samples have been taken at regular monthly intervals during the sampling period from January to December 1997, as described in PARCOM 10/3/2.

For the "unpolluted" rivers Suldalslågen (No 7) and Alta (No 10), where, on the basis of existing knowledge, the concentration levels are very low, the requirement of 12 data sets per annum was found too stringent. These rivers were therefore sampled 4 times per annum. This sampling strategy should be sufficient enough to obtain a reliable estimate of the pollution load for these two rivers.

In all main rivers the parameters lindane and PCBs only have been monitored two times in 1997.

For the other rivers (tributaries), the concentrations are partly based on samples taken at the "standard" frequency (12, i.e. monthly, or more data sets per annum), which is the case for most rivers in the Skagerrak region. As for the rivers draining to the rest of the North Sea and the Norwegian Sea up to river Børselva in the county of Sør-Trøndelag, all rivers except two in the Suldalslågen area were sampled at least once in 1997. The concentrations are based on measurements of these samples and compared with samples from the last decade. With regard to the two rivers not sampled in 1997, most data are from samples gathered/analysed in 1996.

As for the rest of the rivers draining to the Norwegian Sea, only 4 in the Orkla area (Gaula, Nidelva, Figga/Leksdalselva, Årgårdselva) were sampled and analysed for nutrients, particular suspended matter and conductivity. Concerning rivers draining to the Barents Sea only samples from one river (Tana) Was gathered and analysed in 1997. These samples were analysed for all "OSPAR"parameters, except Hg, PCB and lindane. In addition to the mentioned rivers/parameters, some of the other rivers in the Orkla, Vefsna and Alta areas were sampled and analysed for nitrate, silicate and conductivity.
With regard to the rivers not sampled nd the parameters not analysed in 1997, most data are from samples gathered/analysed in 1996.

PCBs and lindane were only sampled/analysed in 2 of the Oslo rivers in 1997. As for Hg, this parameter was analysed once in all rivers mentioned above. For all rivers not sampled/analysed for lindane, PCBs and Hg, the concentrations of these parameters are estimated on the basis of knowledge about the activity in the different drainage areas, the findings from the main rivers and samples/analyses from these areas in 1990-1996 (paragraph 3.2.1).

The sample frequency for the main rivers is shown in Table 3.

Table 3. Sampling sites and frequency of the main rivers.

River/Location	J	F	M	A	M	J	J	A	S	O	N	D
Glomma at Sarpsfoss	x	x	x	x	x	x	x	x	x	x	x	x
Drammenselva upstream outlet	x	x	x	x	x	x	x	x	x	x	x	x
Numedalslågen at Bommestad	x	x	x	x	x	x	x	x	x	x	x	x
Skienselva at Klosterfoss	x	x	x	x	x	x	x	x	x	x	x	x
Otra upstream outlet	x	x	x	x	x	x	x	x	x	x	x	x
Orre upstream outlet	x	x	x	x	x	x	x	x	x	x	x	x
Orkla at Vormstad	x	x	x	x	x	x	x	x	x	x	x	x
Vefsna upstream Mosjøen	x	x	x	x	x	x	x	x	x	x	x	x
Suldalslågen upstream outlet		x				x		x		x		
Alta upstream Alta			x			x		x		x		

In 1997 the water samples were taken by local persons as in 1990 - 1996. The persons were carefully instructed in advance. The samples were sent to the laboratory at NIVA immediately after sampling, usually arriving a NIVA within 24 to 36 hours later.

3.2 Parameters monitored and analytical methods

3.2.1 Chemical parameters - detection limits and analytical methods

In 1997 the following parameters were monitored in accordance with the mandate: 5 nutrients (total phosphorus, orthophosphates, total nitrogen, ammonia and nitrates), 5 metals (copper, zinc, cadmium, lead and mercury), 1 pesticide (lindane) and a general parameter (suspended particulate matter, S.P.M.). PCBs were to be monitored on a voluntary basis for the 7 congeners (IUPAC numbers 28, 52, 101, 118, 138, 153 and 180).

As detailed information on methodology and obtainable limits of detection for all measured parameters were given in the 1990-Report, only new or improved methods will be described in this report.

As informed in the 1990-Report, the detection limits of the parameters Cd and Pb at the NIVA laboratory were above those requested from PARCOM. All Cd-, Pb- and also Cu- and Zn-samples from 1992 therefore have been analysed at the Norwegian Institute for Air Research (NILU) where metal determinations are performed on an ICP-MS-instrument (NILU, 1990). On this instrument the recommended detection limits from Parcom (Cd: 10 ng/l, Pb: 0.1 µg/l) are obtainable.

According to document PARCOM (10/3/2) it is necessary to choose an analytical method which gives at least 70 % of positive findings (i.e. above the detection limit).

In 1997, even when using ICP-MS, there were only two main rivers with more than 70 % positive Cd-findings in the samples (83 and 100%). For most of the other main rivers, the positive Cd- findings varied from 50 to 67 %, but were only 25 % in two rivers. Most Pb-findings were, however, positive in all main rivers (75 – 100 %). For the tributaries draining to the Skagerrak area, 96% of the Cd-samples were above the detection limit, and in the area draining to the rest of the North Sea, 68%. For the Pb-samples, all findings were above the detection limit. In the Norwegian Sea area, 31 % of the Cd-findings were positive, and in the Barents Sea area only 19 %. More than 70% of the Pb-findings, however, were above the detection limit in both areas.

From 1993, the limit of detection has been lowered from 2 to 1 ng/l (mercury) and from 0.05 to 0.03 ng/l (PCBs). This is a result of refinement and optimalisation of the methods. Even then, most Hg-findings in the 1997-samples from the main rivers were below the detection limit (0 to 67 % positive findings). Only in 2 rivers more than half of the values were above the limit (Glomma, 58 % and Numedalslågen, 67 %). In the findings from the "Skagerrak" rivers, 16 out of 24 river samples were higher than the detection limit (67 %). As for the other main and tributary rivers, there were problems to obtain representative values for mercury, as they were below the detection limit during most of the investigation period. This was also the case for PCBs. For these parameters, most of the measured concentrations were extremely low, and certainly below the "PARCOM-detection limits" (Appendix VII - VIII, Report B).

We have not been able to explain why many of the findings regarding the Hg-values measured in 1997 were lower than recent years findings/lower than the detection limit. This is either due to the use of a new instrument for analysing mercury ("FIMS-400") which is supposed to be more sensitive than the previously used instrument, or due to special weather conditions. The matter will be further studied.

However, we assume that these difficulties do not affect the main results and conclusions of the 1997-study. In those cases were the results recorded were lower than the limits of detection, two load quantities have been estimated, one assuming that the true concentration is zero and the other assuming that the true concentration is the limit of detection. This provides maximum and minimum concentrations within which the true estimate will fall. When used to evaluate inputs these data provide upper and lower boundaries for the estimate.

Occasionally on a voluntary basis, the metals arsenic, total chromium and nickel have been determined in some of the samples from the main and tributary rivers and are stipulated for others (Report B). These parameters also were determined on ICP-MS at NILU.

3.2.2 Method used to estimate flow rate

For the period 1931-60 the annual specific runoff from the total area of Norway is estimated at 42.9 l/s km². Expressed in volumetric units this amounts to 438 km³ water, which distributed over the whole country equals a mean runoff of 1350 mm. Mean annual runoff in Norway and from the sub-regions to the main surrounding seas for the period 1931-60 are shown in Table 4. For the main rivers mean annual runoff for the last LTA-period (1961-90) have been estimated. These values are preliminary and will be adjusted when edited and published by NVE, probably next year. For the main rivers mean annual runoff (1931-60 and 1961-90) together with annual runoff for the years 1985, 1990-1997 are shown in Fig. 2, mean annual and annual precipitation for the same stations and periods in Fig. 3. As for precipitation, normals for Norway based on the LTA-period 1961-90 were published in 1993 (DNMI, 1993).

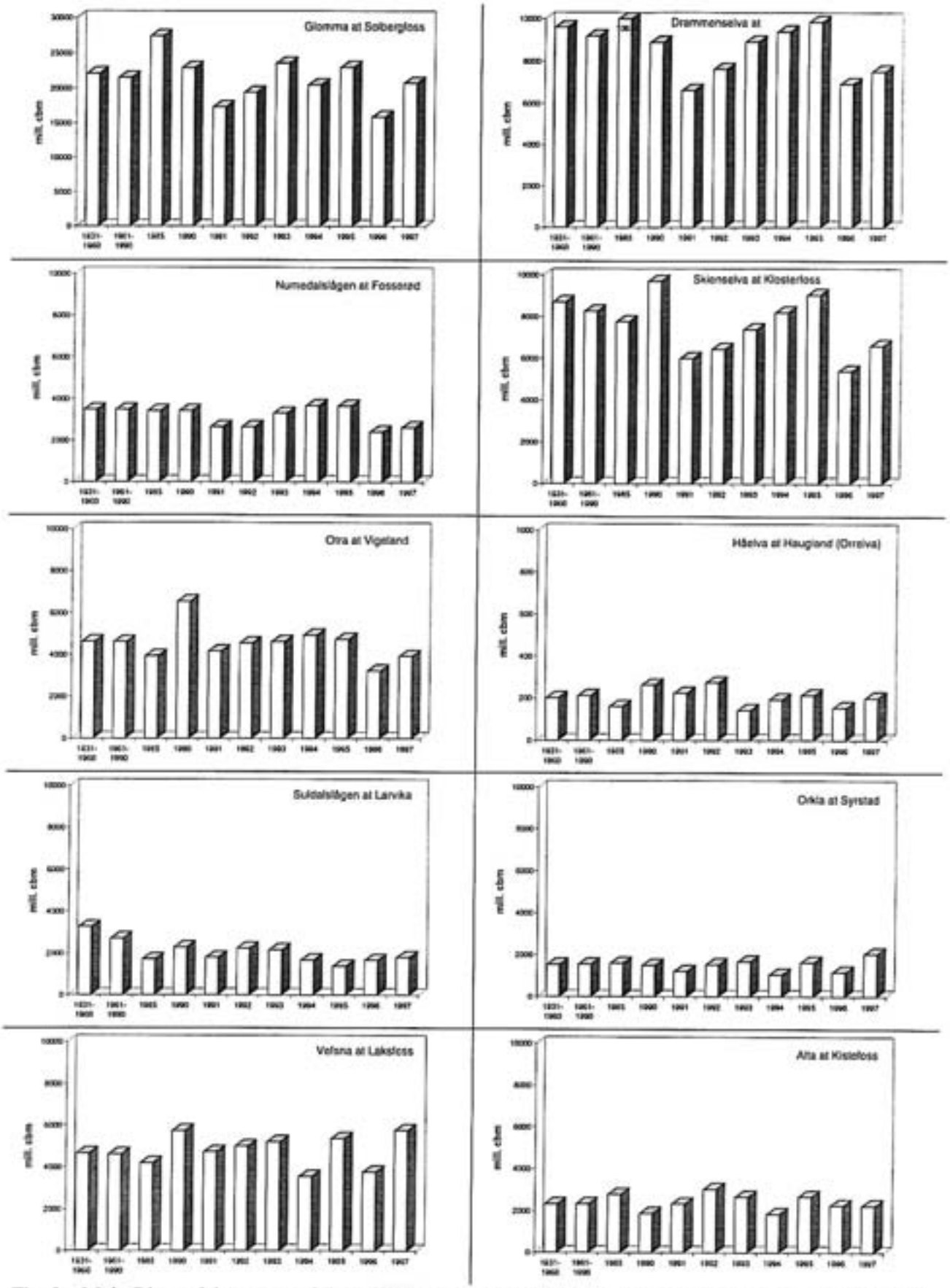
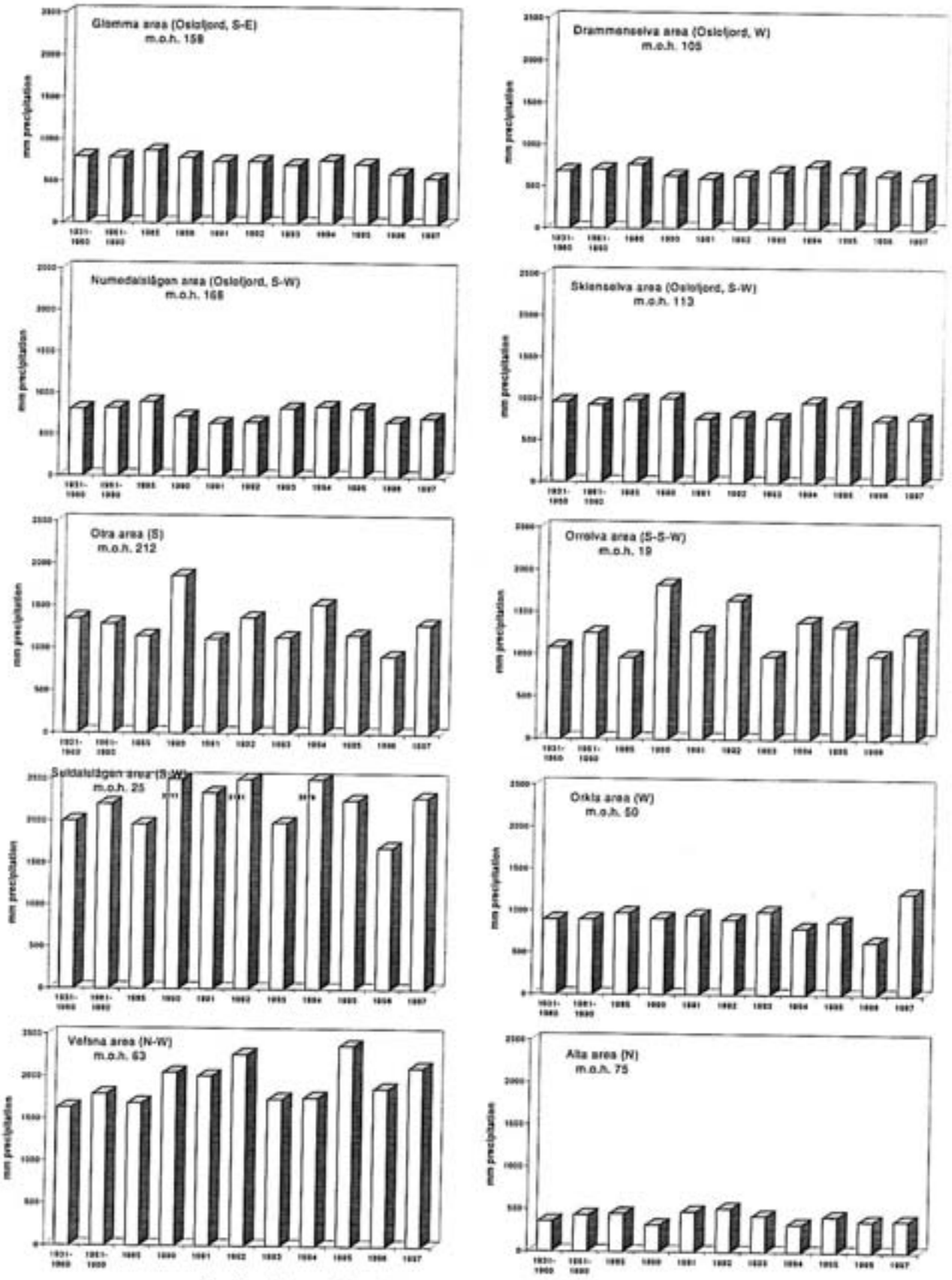


Fig. 2 Main Rivers. Mean Annual Runoff (1931-60 and 1961-90) and Annual Runoff for the Years 1985, 1990-1997 (mill. cbm.).
Source: Norwegian Water Resources and Energy Administration



S = South E = East W = West N = North

Fig. 3 Main Rivers. Mean Annual Precipitation (1931-60 and 1961-90) at Stations near Outlet and Annual Precipitation in the Years 1985, 1990 - 1997 (mm/year).
Suorce: The Norwegian Meteorological Institute

Table 4. Mean annual runoff (1931-60) from the subregions to the main surrounding seas. (Fig. 1 and Appendix I, Report B).

Subregions	Main Seas	Drainage area, km^2	Runoff, mill. M^3
The Swedish border - Lindesnes	Skagerrak	98699	57934.47
Lindesnes - Stad	North Sea	138902	164875.88
Stad - the border of Finnmark	Norwegian Sea	94704	231928.67
Finnmark - the border of Sovjet	Barents Sea	73141	41462.90
Total		306747*	438267.45

- The difference between the total area and the area given in Table 1 is due to rivers which drain into the neighbouring countries (Sweden).

At a given location the runoff will change from one year to another and throughout the year. In natural river basins the seasonal variations will depend mostly on the distance from the coast, the altitude and the latitude, and on variations in precipitation. The mean discharge is determined both by the precipitation and the catchment area. Along the coast of Southern and Western Norway the summer low flows are usually dominant together with high runoff in autumn and winter. Thus although Western Norway has much more precipitation than Eastern Norway, its smaller catchment areas lead to much less absolute discharge in western rivers. In the central part of Southern Norway and in the Northern part of the country low water flows are typical both in summer and winter, whereas periods of higher runoff will appear during the snow melting period (spring and early summer). In late summer and in autumn the flow depends on the precipitation and may therefore vary considerably.

In all main rivers continous observations of the rate of flow are collected. For most rivers these stations are located upstream the sampling stations (NVE, 1998). The additional water supplied is estimated using measured rainfall data from the local catchment areas (DNMI, 1998).

With regard to the river Orkla the runoff station was changed from Vormstad to Syrstad in 1993 as we were recommended by NVE to do so. According to NVE this station is more reliable than Vormstad.

For all main rivers, seasonal changes in runoff in the period 1961- 90, together with mean runoff in 1997, are shown in Fig. 4. In Fig. 5 monthly precipitation for the same period together with mean precipitation in 1997, are shown.

For the other rivers (tributaries) the runoff data partly are from continous observations as the case is for most rivers in the Skagerrak area, and also for many of the rivers draining to the remaining North Sea. For the rest of the rivers mean runoff data (1931-60) and measured rainfall data (1997) are used for flow estimates.

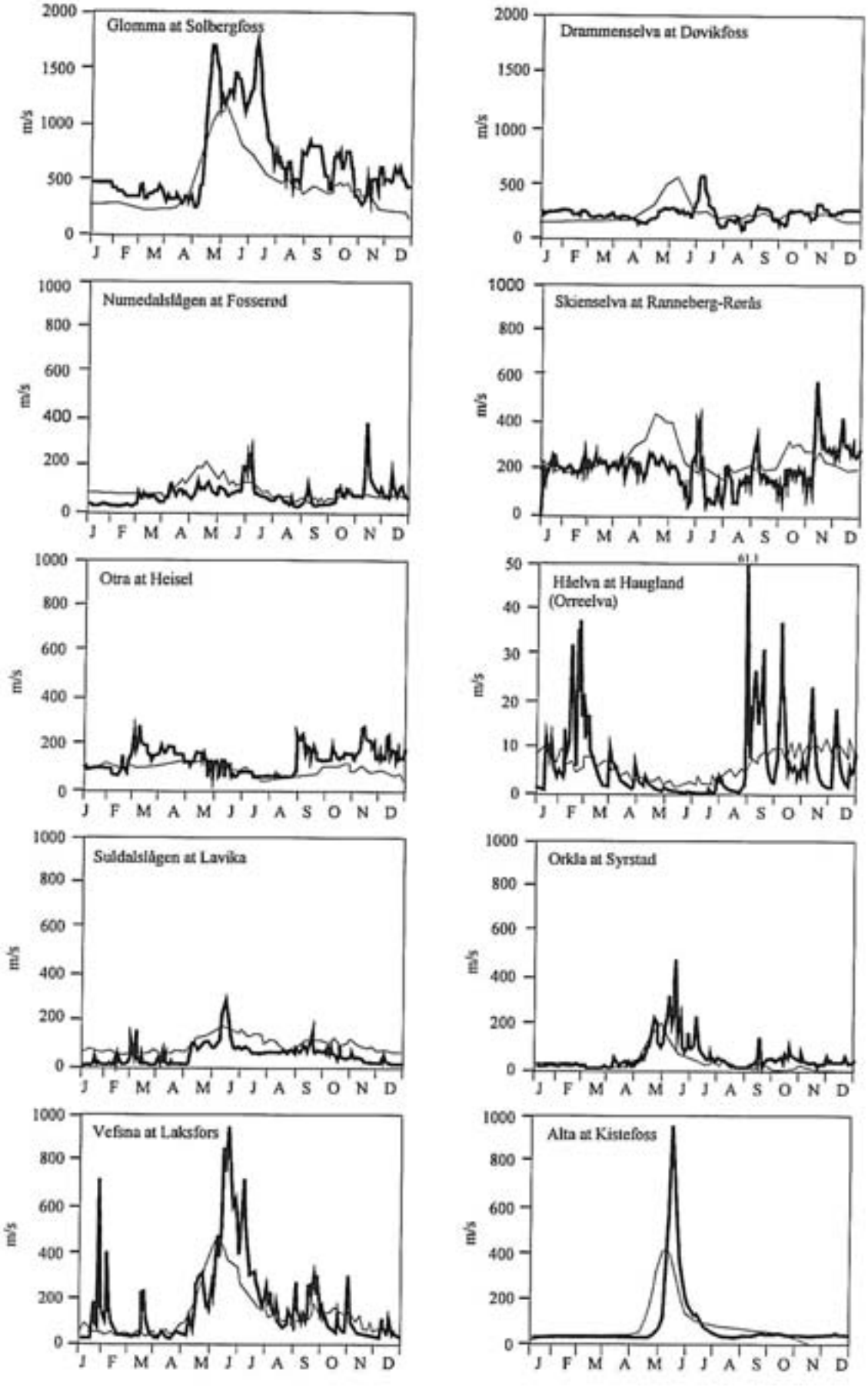


Fig. 4 Seasonal Changes in Daily Runoff (m^3/s)
Source: Norwegian Water Resources and Energy Administration

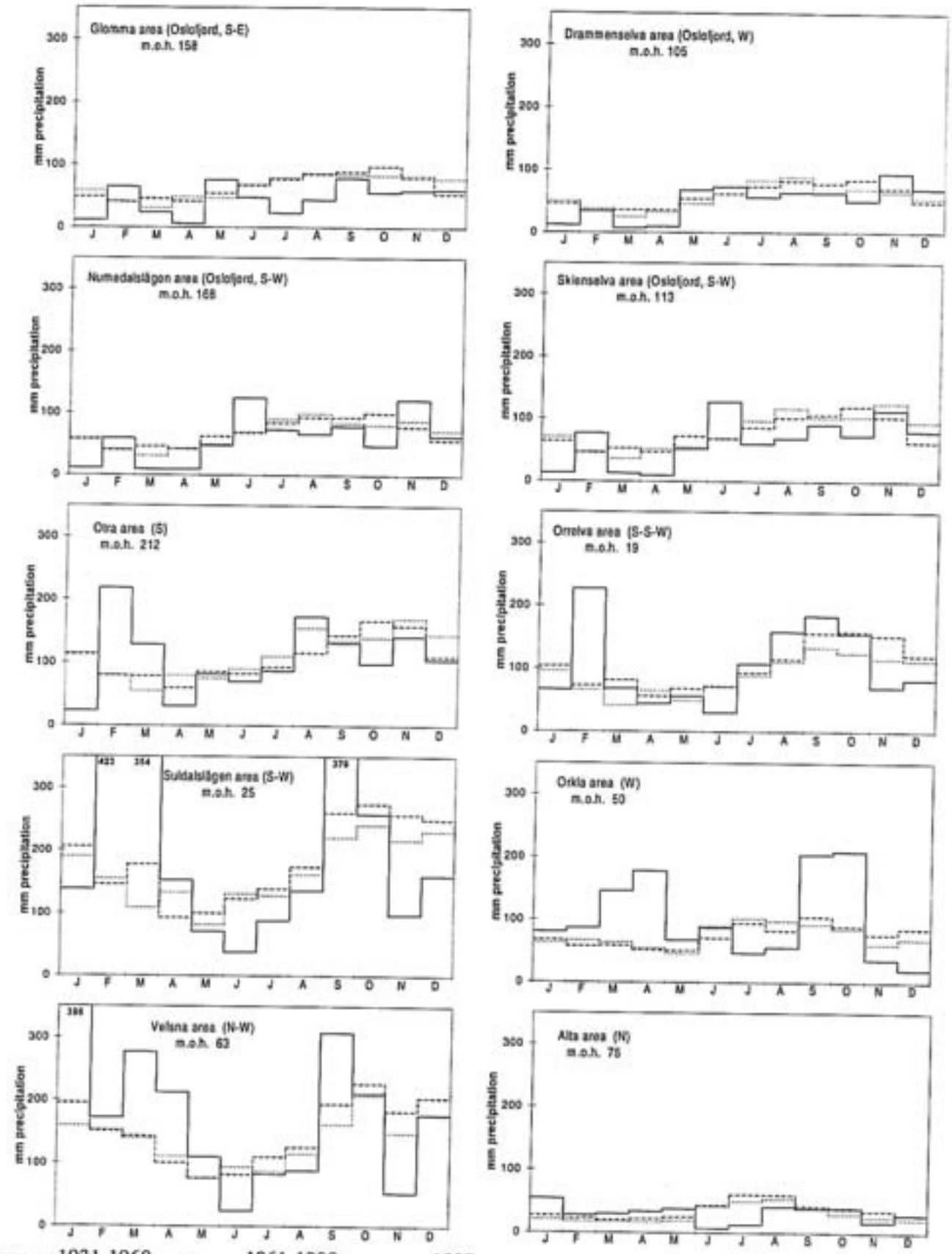


Fig. 5 Monthly Changes in Precipitation (mm/month).
(m.o.h. = meters above sea level)
Source: The Norwegian Meteorological Institute

3.2.3 Calculation of annual load

The first of the 2 formulas given in the Paris Commission document and the 1990-Report (Holtan et al., 1991) was used for calculating loads for all main rivers and most of the larger rivers.

This equation is a formula suited for estimating annual load when sampling dates are evenly spaced in time. Essentially it expresses the annual load (L) as the product of a flow weighted estimate of annual mean concentration and annual flow (Qa). Then the annual load estimate can be strongly biased if the sampling frequency increases during periods of high flow. Incidents with high flow will have a great influence on the estimate, and high concentrations during such periods will eventually lead to an overestimated annual load. A better method for estimating annual load when the sampling frequency increases with flow would be to use the above mentioned formula to make estimates of monthly loads and sum these to an estimate of annual load. 1995 and 1996-data from Glomma and Drammenselva areas were treated in this way.

The second formula was used where continous records were not available.

For the other rivers, which have been monitored only once, the best available estimates of flow (catchment area multiplied by specific runoff adjusted for deviations from normal precipitation) and flow- weighted concentrations have been used to estimate contaminant loads.

Drainage basins to the different areas and regions (km² and per cent) are shown in Table 5.

Table 5. **Drainage areas of monitored main and tributary rivers and down stream areas (km² and per cent monitored/estimated in each subarea and subregion).** (Fig. 1, Figs. I.I-I.V, Report B)

Sub-regions	Sub-areas	Drainage area of monitored rivers km²		Down Stream areas km²	Total km²	Monitored %
		Main	Tributary			
Skagerrak	No 1: Glomma	41218	2389	2416	46023	94.8
	" 1: Inner Oslofiord		959	342	1301	73.7
	No 2: Drammenselva	17028	226	320	17614	98.2
	No 3: Numedalslågen	5513	1043	631	7187	91.2
	No 4: Skienselva	10348	1200	1283	12831	90.0
	No 5: Otra	3730	9109	904	13743	93.4
Total		77837	14966	5896	98699	94.0
The remaining North Sea	No 6: Orre	105	7233	2513	9851	74.5
	No 7: Suldalslågen	1466	16205	12681	30352	58.2
Total		1571	23438	15194	40203	62.2
The Norwegian Sea	No 8: Orkla	2680	28118	17036	47834	64.4
	No 9: Vefsna	4113	23907	18850	46870	59.8
Total		6793	52025	35886	94704	62.1
The Barents Sea	No 10:Alta	7367	45155	20619	73141	71.8
Total		93568	135584	77595	306747	74.7

3.3 Methodology for assessment of direct discharges to marine waters

As the methodology for assessing direct discharges to marine waters is outlined in the 1990-Report (Holtan et al., 1991), and the same procedure is applied for 1997, we refer to the above mentioned document for further information on this matter.

3.3.1 Waste water treatment plants/sewage effluents

The Central Bureau of Statistics (SSB) and SFT have jointly initiated annual registration of data from all waste water treatment plants in the country with a capacity of more than 50 population units (PU*). The data are updated each year by the County Environmental Agencies. The data program SSB-AVLØP has been installed at all county governors' environmental agencies, which are responsible for collecting effluent data from the municipalities. The county environmental agencies then send the data to SSB on disc. Since 1994 onwards, the reporting system SSB-AVLØP has been extended also to include data on scattered settlements. Discharge figures from SSB-AVLØP are reported to NIVA. NIVA uses these figures in the model "TEOTIL" to calculate the total discharges of phosphorus and nitrogen to Norwegian coastal waters. The figures take into account retention in watercourses.

In Eastern and Southern Norway a large proportion of the municipal waste water is purified in "high grade" plants. Such plants account for 94 per cent of total treatment capacity in this area. These areas as well as Sør Trøndelag, are also the areas with the highest hydraulic capacity per inhabitant.For example, the plants serving Oslo/Akershus have a capacity of more than 1.5 PU per inhabitant. Along the coast from Rogaland county and northwards, most waste water is only mechanically treated, and highgrade treatment plants account for only 34 per cent of total treatment capacity. In 1996, 2.210 municipal waste water treatment plants with a treatment capacity of at least 50 PU were registered in Norway. Their total treatment capacity was 5.4 million PU. The 17 largest plants each had a capacity of 50.000 PU or more, and they treated almost half of all municipal waste water. Only 2 of these large plants are based on mechanical purification. Fjords are the recipients of the discharges from about 65 per cent of the total capacity of the plants (SSB, 1998).

Preferably, the annual loads from sewage effluents have been estimated as the product of annual flow and flow-weighted concentrations, which previously in particular has been the case for the sewage plants situated in the Skagerrak area (i.e. the area involved in the North Sea Agreement), but from 1994 has come into force for most plants.

For the rest of the municipal wastewater, the loads were estimated by multiplying the number of people with the coefficients listed.

For crude (untreated) sewage discharges, PARCOM (10/3/2, 1988), has recommended the following derived per capita loads to be used for nutrients:

	PARCOM:			NORWAY:		
BOD	0.063	kg	O/person/day	0.046	kg	O/person/day
COD				0.094	kg	O/person/day
TOC				0.023	kg	/person/day
SPM	0.063	kg	/person/day	0.042	kg	/person/day
Total N	0.009	kg	N/person/day	0.012	kg	N/person/day
Total P	0.0027	kg	P/person/day	0.0016	kg	P/person/day

* PU (population units) is the number of permanent residents plus the number of population equivalents (next page) in an area.

The Norwegian coefficients are based on recent studies of Norwegian sewerage districts. These data are also used to calculate pollutional loads from the different treatment plants, reduced by the removal efficiency of the treatment plants. Municipal sewage also includes a portion of industrial effluents. The fraction of the total person equivalents (p.e.) is proportioned between sewage and industrial wastewater according to the number of persons and the size of industrial effluents connected to each treatment plant.

For metals in sewage discharges the calculated loads are based on measured concentrations and flows in larger treatment plants in the Oslo part of the Glomma area. Metal inputs from the rest of the country are estimated from local knowledge (*) as follows:

Substance	Cu	Zn	Cd	Pb	Cr-T	Ni	Hg
mg/person-equivalent/day (p.e.)	30	35	0.2	1.0	2.9	5.0	0.10

The coefficients used in 1997 are the same as those used for calculations in 1992 - 1996. The coefficients are based on the results of an investigation on this topic launched by SFT (1993), i.e. monitoring at different types of treatment plants especially in the Oslo part of the Glomma area. Measured/estimated loads from sewage are shown in Appendix II, Report B.

* Sources: Knutzen and Øren (1983), Myhrstad (1985), OVA (1998), SFT (1993), VEAS (1998),

3.3.2 Industrial effluents

Sampling frequency for industrial wastewater varies from weekly mixed samples to samples taken at random, but at least twice a year. Measured and estimated loads from industrial activities in the different areas are shown in Appendix III, Report B. According to SFT about 90 per cent of the industrial discharges (i.e. of the substances in question) are included in the total, and probably more for Total-P and Total-N.

3.3.3 Other inputs

(nutrients in area runoff from "Down Stream areas" of main and tributary rivers and rivers not monitored)

The pollution load model calculates the load from each pollution source by using area and activity specific load coefficients multiplied by areas (in square kilometres) of different categories and activity numbers, eg. population (Holtan and Åstebøl, 1990). The coefficients used are prepared according to precipitation, climate, vegetation and soil in the different areas.

To estimate load from agricultural land area runoff, coefficients in the range of 50-200 kg Total-P and 2000-6500 kg Total-N km²/year are used depending on point sources, location of the agricultural land in relation to major tributaries, and agricultural production intensity. Load from upland (remote unpolluted) areas were estimated by using export coefficients in the range of 4-6 kg Total-P and 200-600 kg Total-N km²/year. The highest values were used in areas most affected by long range pollution (acid rain) along the Southern and Western coast. The coefficients are based on mean annual runoff for the period 1931-60.

Total direct nutrient discharges (Down stream areas) are shown in Table I (Appendix I, Report B), in the different subareas (1-10) in Appendix VI, Report B. Direct discharge areas (km²) are shown in Table 5.

4. RESULTS AND DISCUSSION

4.1 Pollutants

Norwegian watercourses, coastal fjords and sea areas are recipients for various substances discharged from many different sources. The discharges may have widely different impacts of varying severity.

In this investigation riverine and direct inputs of nutrients (P- and N-compounds), heavy metals, lindane and PCBs are measured or estimated. In addition to these contaminants the water is polluted by dissolved organic matter, especially from the pulp and paper industry and from municipal sewage, which also has been taken into account in this investigation.

The Norwegian Pollution Control Authority has given first priority to eliminate the effluents of 13 of the substances classified as micropollutants, which are in use in Norway, as quickly as possible. Most of the pollution is caused by industrial effluents, but other sources are municipal sewage, landfill leachate, and pesticide residues from agriculture.

Pollution by heavy metals is either due to discharges from industry, discharges from existing and abandoned mines, leaching from landfills or atmospheric fallout. The municipal sewage is the source of several heavy metals. Long range transboundary air pollution is another source of pollution both with respect to heavy metals and persistent organic pollutants.

Polychlorinated biphenyls (PCBs) are present in different industrial effluents and also released from discarded electrical equipment containing PCBs (e.g. transformer oil), when such equipment is unsatisfactorily stored or destroyed by incineration. No enterprises in Norway discharge PCBs regularly at present.

Municipal sewage and agriculture comprise the major sources of phosphorus and nitrogen pollution.

4.2 1997-results and discussion

The results given for riverine inputs (main rivers and tributaries) and discharges entering directly into marine recipients, are mainly based on direct measurements (paragraph 3.3).

Measured concentrations of the chemical parameters of the ten main rivers (1997), mean values, standard deviation and range are listed in Appendix VII, Report B. In the case of Cd, Pb, Hg and the different congeners of PCBs, where most of the rivers had concentrations below the respective detection limits, the concentrations are statistically treated as "limit-values". Total annual loads of the main rivers 1997 are shown in Appendix IV, Report B. Annual loads of nutrients and S.P.M. are also presented in Fig. 6. Total annual loads of the tributaries are shown in Appendix V, Report B. For the whole country, total annual loads (Direct discharges and Riverine inputs) are shown in Table I (Appendix I, Report B) and for the four subregions in Tables 1.1-1.4 (Appendix I, Report B), nutrients and S.P.M. also in Fig. 7.

As in 1990 -1996 the greatest emphasis with regard to accuracy has been given to the input estimate of the Skagerrak region, as this is considered the most susceptible part of the North Sea. The Skagerrak reception of total loads in 1997 were 24 per cent of the phosphorus and 35 per cent of the nitrogen yield.

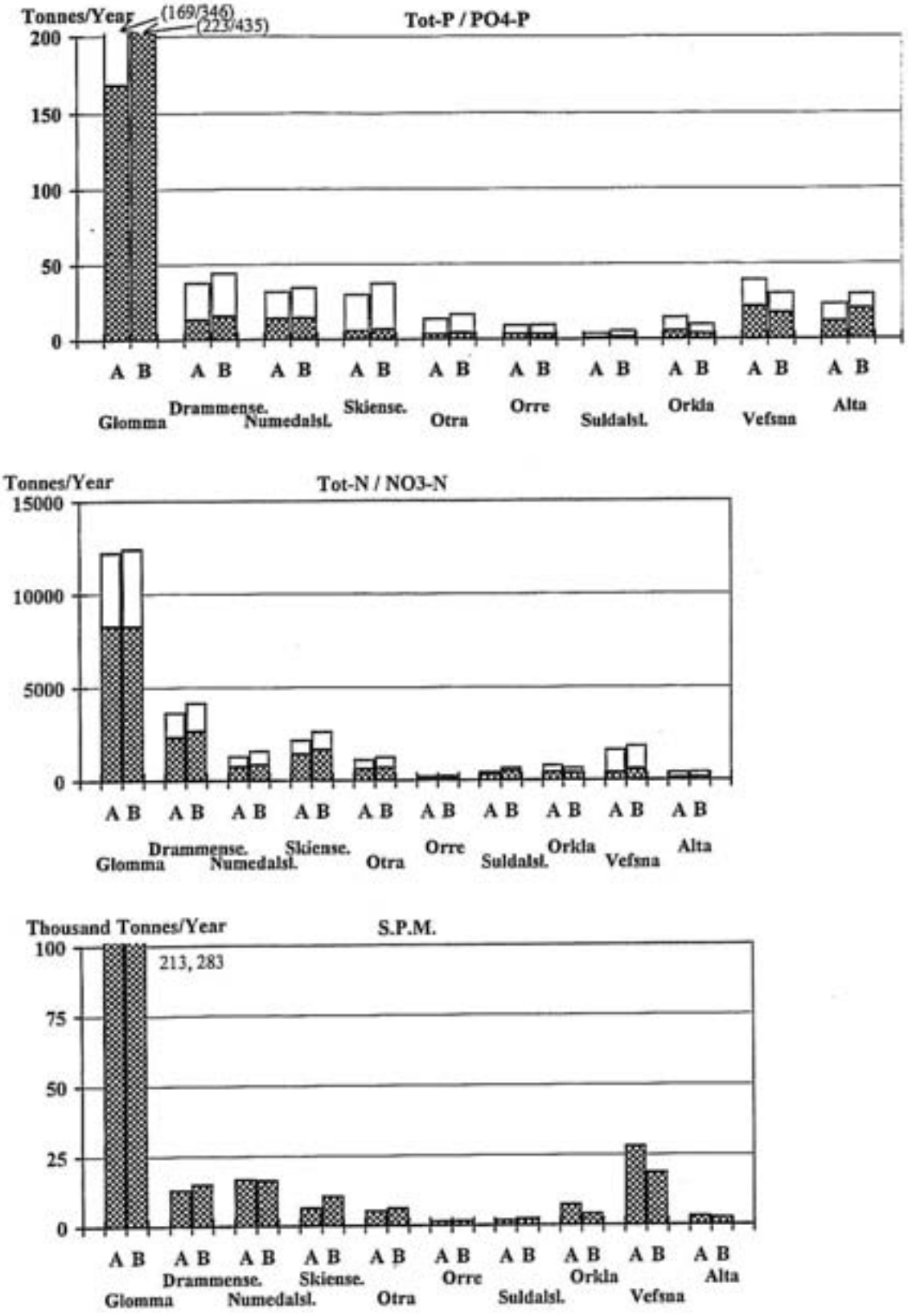


Fig. 6 Main rivers. Nutrients and S.P.M. Total loads 1997 (A) and Total normalized loads (B) in the different rivers.

Whole columns = Total P / N / S.P.M.
Dark hatching = Phosphates / Nitrates

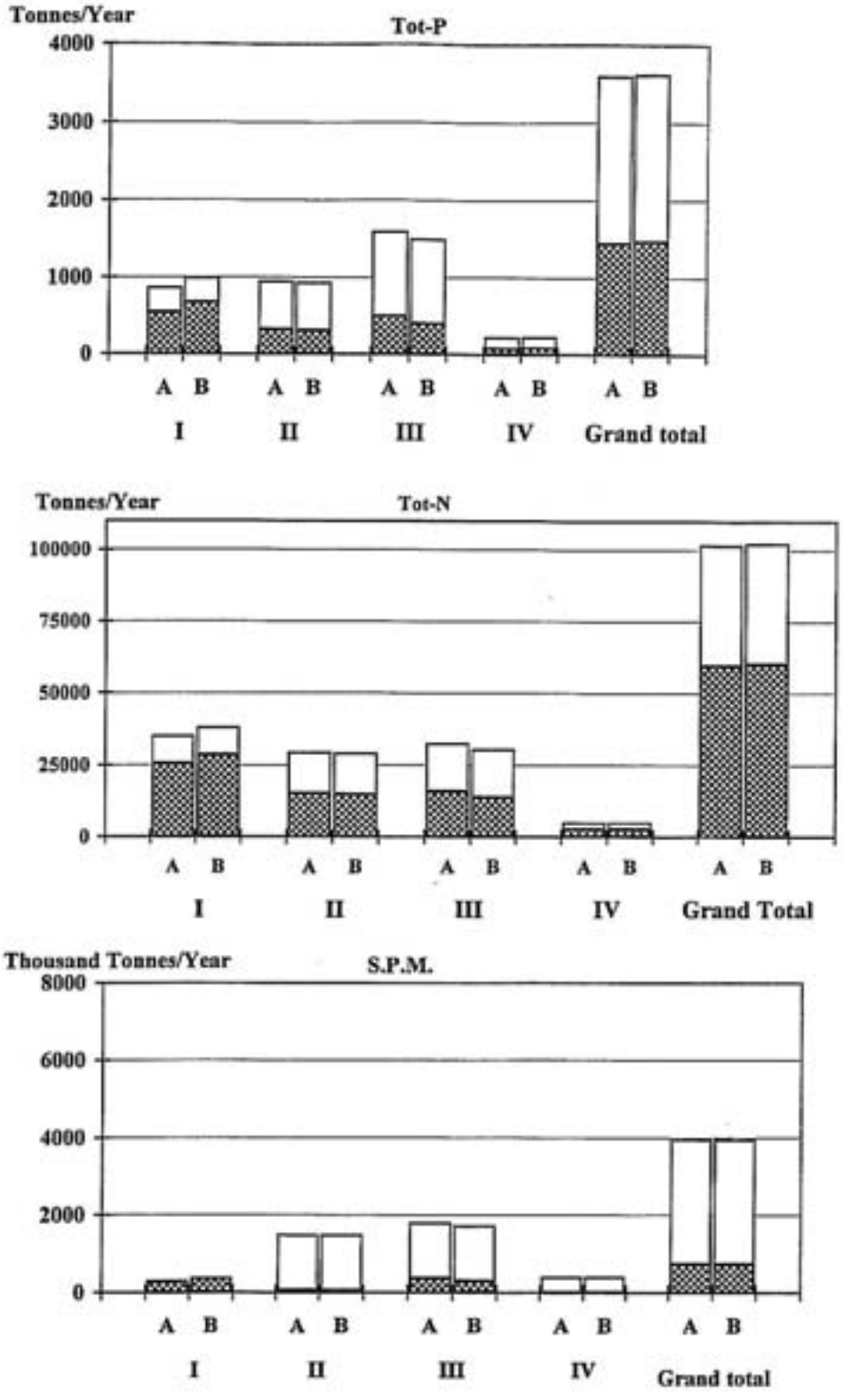


Fig. 7 Nutrients and S.P.M. Total and river discharges 1997 (A) and Total normalized loads (B) from mainland Norway to convention waters and the four subregions: I: Skagerrak, II: The remaining North Sea, III: The Norwegian Sea, IV: The Barents Sea.

Whole columns	= Grand total
Light hatching	= Direct discharges
Dark hatching	= Main and tributary rivers

In this region where 94 per cent of the area is river-monitored, about 64 per cent of the P-load and 73 per cent of the N-load were found in the riverine inputs.

According to the results from the 1997 investigation, total annual nutrient load to coastal waters from landbased Norwegian sources, is approximately 3600 tonnes of phosphorus and 101.600 tonnes of nitrogen (Fig. 7). About 40 per cent of the phosphorus and 59 per cent of the nitrogen yield were inputs from the monitored rivers and tributaries. Copper and zinc comprised the largest inputs of heavy metals, which in 1997 amounted to about 326 and 902 tonnes, of which 81 and 85 per cent respectively, were river monitored (Fig. 8).

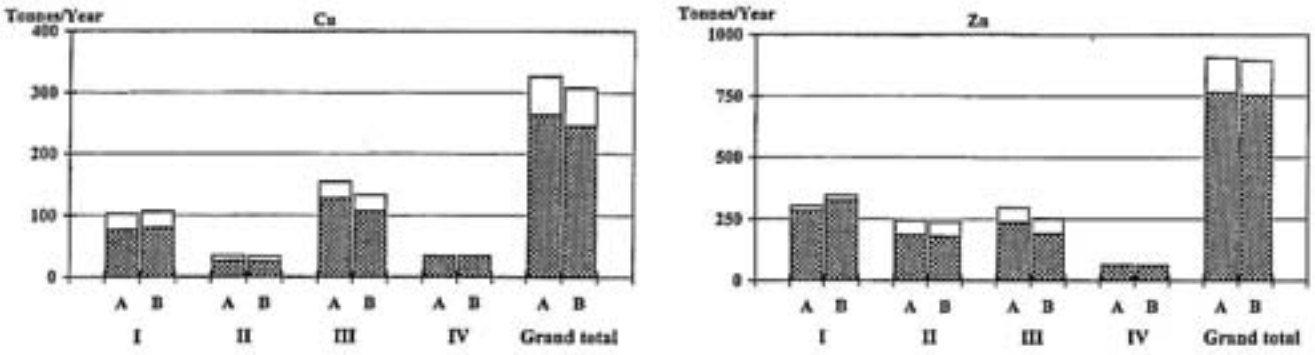


Fig. 8 Cu and Zn. Total- and river-discharges 1997 (A) and Total normalized loads (B) from mainland Norway to convention waters and the four subregions:
I: Skagerrak, II: The remaining, North Sea, III: The Norwegian Sea, IV: The Barents Sea

Whole columns	= Grand total
Light hatching	= Direct discharges
Dark hatching	= Main and tributary rivers

Inputs of other metals and persistent organic pollutants were low. As the detection limits of the parameters Cd and Pb at the NIVA laboratory were above those requested from PARCOM, all analyses from 1992 and onwards of these substances are analysed on an ICP-MS-instrument at NILU (paragraph 3.2). Still, quite a few of the concentrations found for these parameters in 1997 were below the detection limits. Therefore two quantities have been estimated, one assuming that the true concentration was zero and the other assuming that the true concentration was the limit of detection. This provides maximum and minimum concentrations within which the true estimate will fall. When evaluating inputs these data provide upper and lower boundaries of the estimate.

Inputs of cadmium were measured/calculated to be between 4.8 and 5.7 tonnes, lead between 63.8 and 63.9 tonnes and mercury between 389 and 489 kg. The same "below detection limit problem" applies for the inputs of mercury, and also for PCBs which were measured to be between 0.04 and 45 kg. In Fig. 9 the lower and upper loads of these substances in the ten main rivers are presented. The pesticide lindane was found in most analyses, but in small amounts. The findings of this substance in Norwegian rivers are likely due to long range air pollution, as we often find lindane in runoff from areas where the compound has never been used (Olav Lodhe, State Plant Protection Agency, pers. comm.). Total load is estimated to about 80 kg.

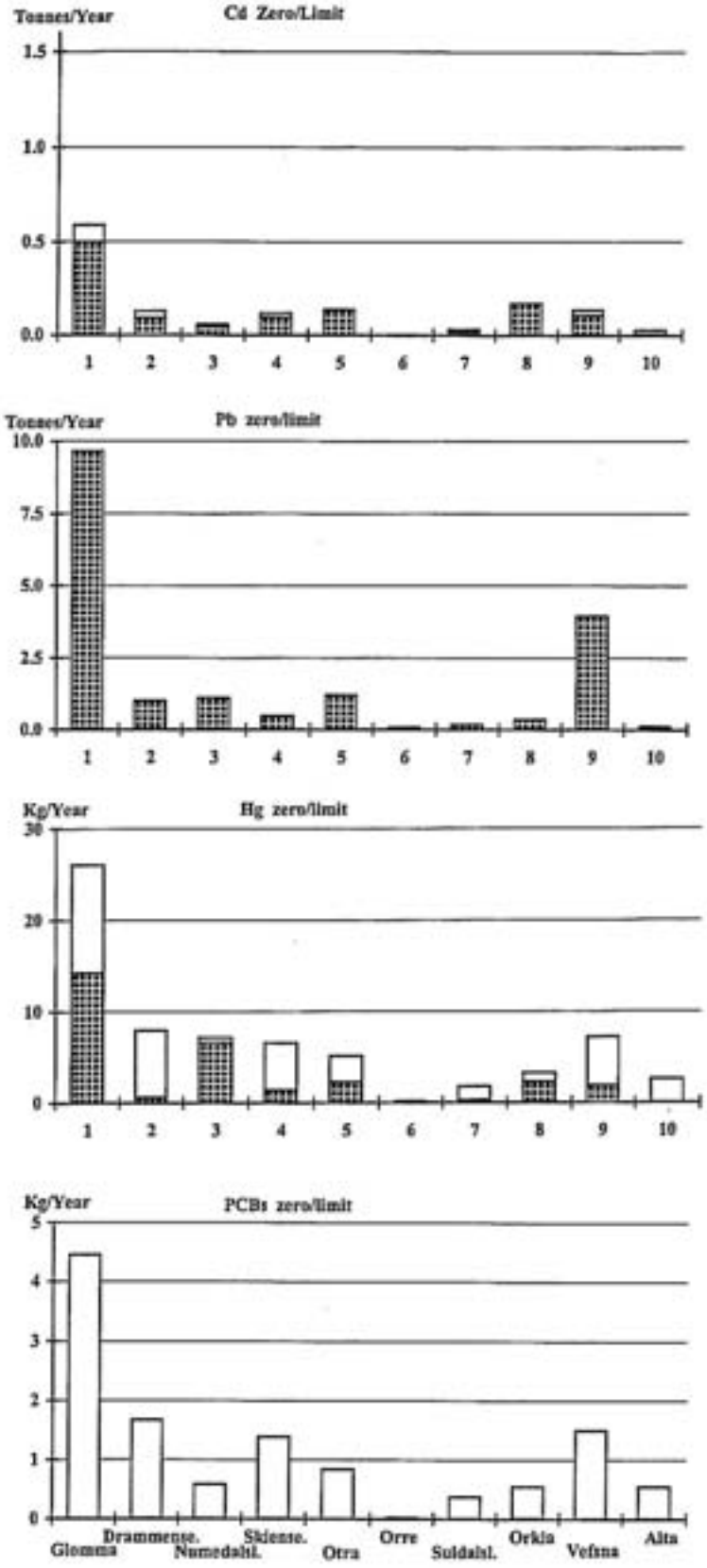


Fig. 9 Main rivers. Cd, Pb, Hg and PCBs. Total loads of the different rivers 1997 (lower and upper boundaries for the estimates).

Whole columns = upper boundary for the estimate
Dark hatching = lower boundary for the estimate

In most areas the riverine inputs of Total-P, Total-N and S.P.M were all a little higher in 1997 compared to 1996, mainly due to precipitation/runoff-conditions (paragraph 4.3). The conditions were particularly noticeable in the Skagerrak area with higher flood during spring and early summer, especially in Glomma. Up north in the Alta area, runoff/precipitation were lower and accordingly the P-, N- and S.P.M.-loads.

4.3 Trends in inputs and concentrations of substances

The input-values vary to a great extent with the volume of the discharges (Fig. 10). It is therefore difficult to say anything certain about altered conditions in the different rivers, even if there may be indications of an improved situation for most rivers/most parameters. However, the period from 1990 to 1997 might be to short to say if this is a real trend.

Statistical trend analyses (by the recommended tool "trend-y-tector") on annual basis in inputs of nutrients and heavy metals are presented in Fig. 11 for the following rivers with long time series: River Glomma (1978-1996), Total-P and Total-N, river Otra (1980-1996) also Total-P and Total-N and river Orkla (1974-1996), Cu and Zn. The analyses show significant reductions in the yearly inputs of nutrients (Otra, P: 63%, N: 36%) and heavy metals (Orkla, Cu: 84%, Zn: 74%). As for Glomma there also is detected a slight downward trend for Total-P (9 %), but for Total-N a significant upward trend of 12 %. Here the high floods especially in 1987 and 1995 were disturbing the trend analyses.

Concerning the concentrations of the different parameters, the mean values are at about the same level from year to year. As for the other parameters, the method and detection limits have been changed during the period, and it is therefore not possible to indicate a certain trend.

4.4 Mean annual runoff (1931-60, 1961-90) and "mean load"

Mean annual runoff for the last LTA-period (1961-90) has been estimated (Fig. 2). For most main rivers the mean runoff 1961-90 is lower or at the same level as the 1931-60-period. However, the 1961-90 values are preliminary and may be adjusted when edited and published by the Norwegian Water Resources and Energy Administration. As for precipitation, new normals were published in 1993.

Compared to Riverine Inputs to Marine Waters in 1990 - 1996, most calculated mean concentrations were in about the same level in 1997. Total flow for all "Skagerrak rivers, and accordingly the calculated loads for most of the substances were higher in 1997 than in 1996, especially the loads of Total-P and S.P.M. of Glomma, due to the spring and summer flood which was higher in 1997 than in 1996. As for the other main rivers (except Alta), total flow was also higher, with higher calculated loads for most substances as a result.

Annual variations in precipitation/runoff, erosion and human activities in the drainage basins, strongly influence the mass transport in the watercourses. The transport values may vary considerably from one year to another. These variations are complicating the estimation of "normal transport values" i.e. mass transport in a "normal" year. Fig. 10 illustrates variations in annual runoff for the ten main rivers in 1985, 1990-1997, along with annual variations in total discharges of nutrients.

In order to adjust the 1997 transport values to a "normal year", approximation have been made by multiplying weighted mean concentrations by mean runoff (LTA, 1961-90). "Mean-values" (normals) for the ten main rivers and tributaries are given in Appendix X, Report B, where also total discharges to the sub regions are shown. In Fig. 6 - 7 the "normalized" nutrient transport values are compared with 1997-values.

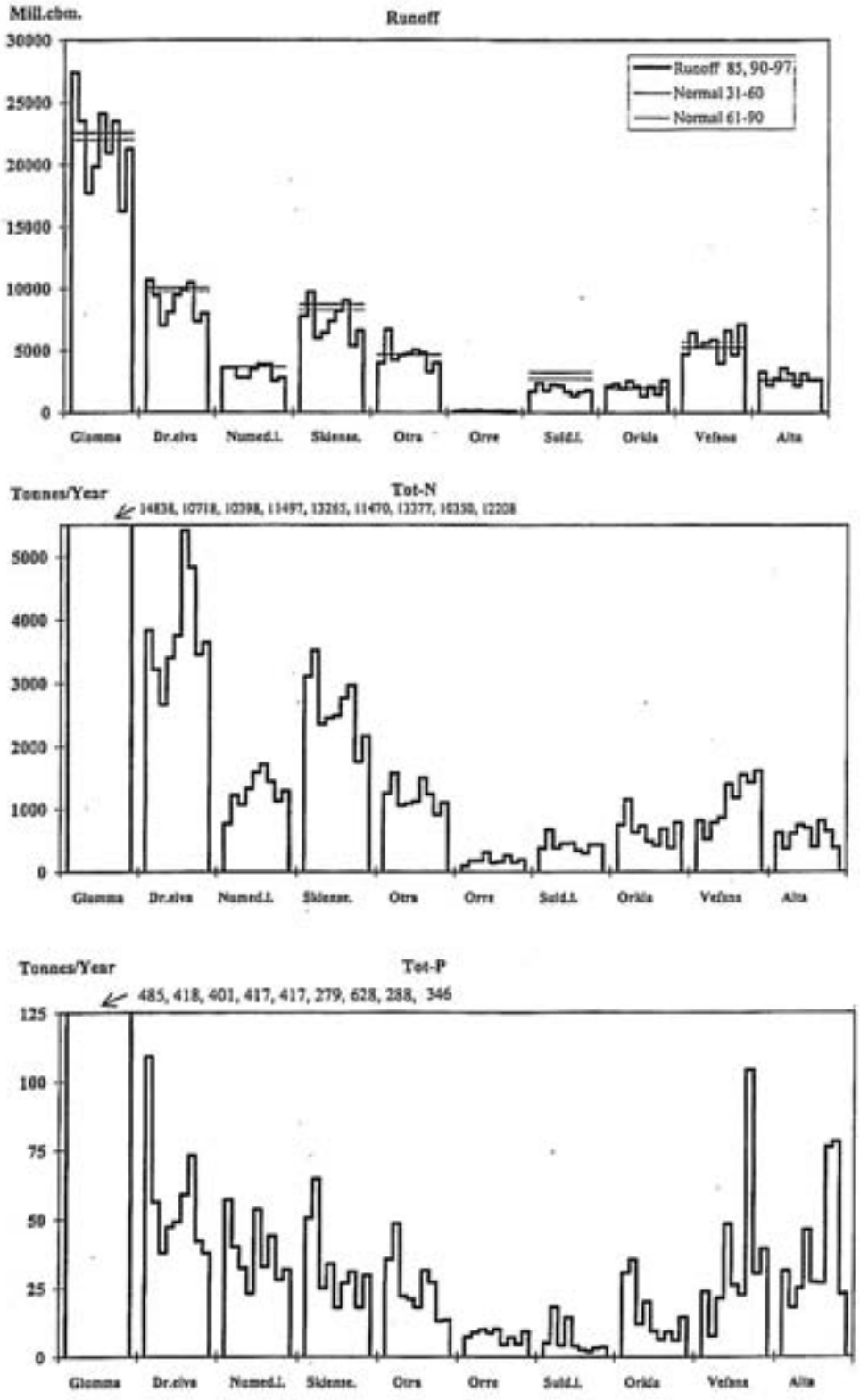
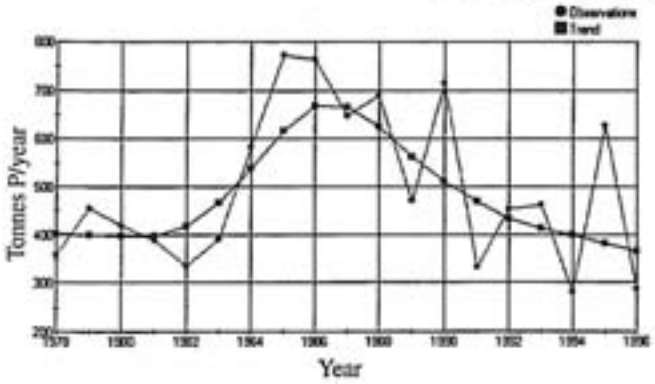
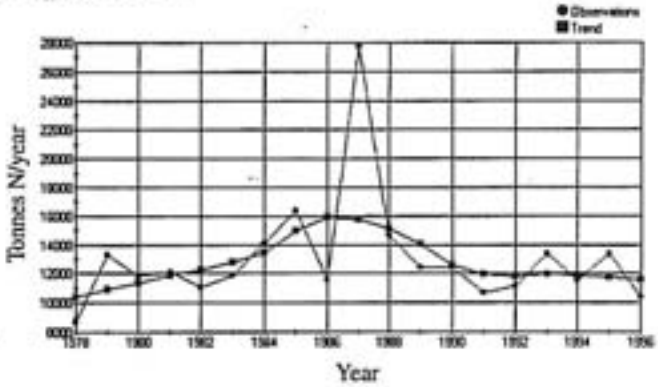


Fig. 10 Main rivers. Annual runoff and nutrient load in 1985, 1990-1997.

Glomma at Sarpsfossen

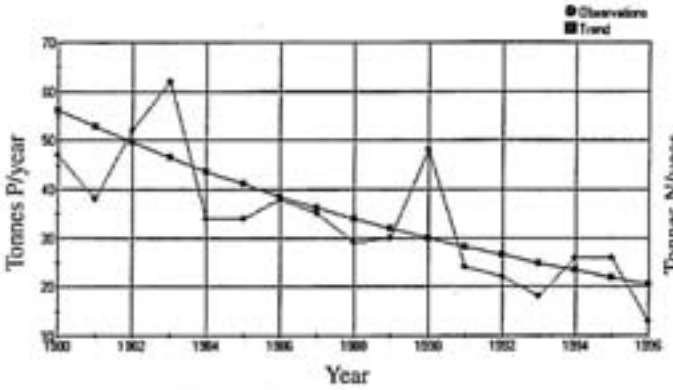


A downward trend of 9% is detected

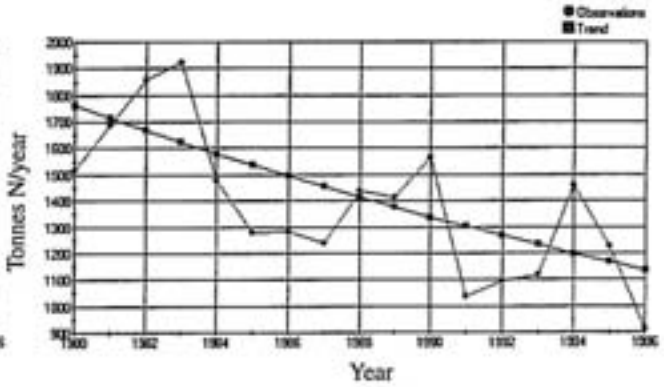


An upward trend of 12% is detected

Otra at Skråstad

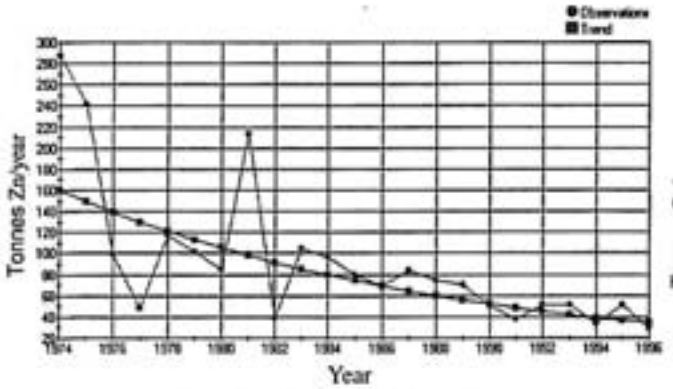


A downward trend of 63% is detected

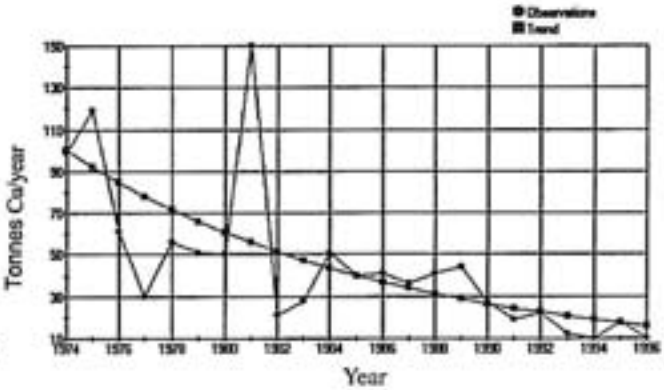


A downward trend of 36% is detected

Orkla at Vormstad



A downward trend of 74% is detected



A downward trend of 84% is detected

Fig. 11 Trends in inputs of Total P and Total N (Glomma, Otra), Cu and Zn (Orkla).

During a normal winter the upland area of Norway together with the eastern part of the country show very little runoff. The frozen soil and snowcover protect vegetation and surface soil from erosion. But with the mild winters (1990-1993 and also 1995), soil especially in plowed field is exposed to more frequent and larger flood erosion also during the winter (eg. Glomma). As 1997 was a relatively mild winter compared to 1996, we suppose this is the main reason for somewhat higher concentrations/loads especially in Glomma, but also in the other rivers.

From experience we have learned that the product of weighted concentrations and mean runoff gives a relatively good estimate of the mass-transport in rivers, especially for the large rivers, and those not considerably exposed to erosion-material. In 1997 annual precipitation were about normal in the Southern part of Norway, and normal or a little higher (110 – 120 per cent) in the rest of the country (Fig 3). On an annual basis runoff varied within a normal range in most of the Southern part of Norway, but was somewhat higher in the Northern part of the country. The river Suldalslågen is recently regulated and has now considerably less annual water discharge than in the normal period (1931-60).

4.5 Nutrient retention in fjords

Both phosphorus and nitrogen retention in watercourses is taken into account in the calculation of the Norwegian contribution to marine pollution, but in a conservative way. However, no corrections are so far made for retention in fjords and other marine areas.

Considering the nutrient input to the open marine waters, one should also take into account retention in fjords, at least in well defined threshold fjords. As a result of high salinity compared to freshwater, marine waters have better conditions for sedimentation than lakes. For example clay settles very poorly in lakes, but more efficient in fjords. The watermasses are usually stratified, with light brackish water on top of heavier, saline waters. Thus the over all stratification in fjords is in most cases stronger than in lakes. This implies that particulate pollutants lost to deep waters by sedimentation have less chance to be brought back to the euphotic zone than in lakes.

In addition, stronger stratification implies greater chance for oxygen depletion in deep waters, which in fact is seen in many sheltered Norwegian fjords. Theoretically this will improve the conditions for denitrification. However, this greater stability is often reduced by rougher physical conditions in fjords compared to lakes.

Retention in Norwegian fjords is very poorly studied by direct budget measurements. In the Drammensfjord, Magnusson and Næss (1986) found that about 60% of the incoming phosphorus was retained in the fjord, while for nitrogen the retention was only about 15%. In the silled Inner Oslofjord preliminary calculations indicate that nitrogen retention is in the order of 30-50% (Baalsrud, K., and B. Bjerkeng, 1991).

Thus, nutrient retention in treshold fjords seems to be of the similar magnitude as we find in lakes, and it is likely to believe that retention can be estimated from the same type of models that applies for lakes. The general lack of calibration data on retention models in fjords implies that we find it to early, at this stage of knowlege, to include this correction in the Norwegian discharge budget. It should be kept in mind, however, that a significant part of the particulate pollutants, and pollutants with particle affinity, end up in fjord sediments and thus are prevented from reaching the coastal waters.

5. REFERENCES

5.1 Project Personnel

Dag S. Rosland:	Member of the Programme Committee/Project Manager (SFT)
Dag Berge:	Member of the Programme Committee (NIVA)
Gjertrud Holtan:	Member of the Programme Committee/Project Manager (NIVA)

Contact with field workers/field work: G. Holtan, E. Bjerknes, B. Hals, H. Holtan, S. W. Johansen, E. Iversen.

Care of equipment, shipment of samples etc.: E. Bjerknes, I. Becsan.

Analysis of PCBs and Lindane: E. Brevik, G. Sigernes, T. Tellefsen.

Analysis of Hg and Heavy Metals: H. Hovind, B. Lauritzen, M. Villø.

Other chemical analyses: NIVAs Analytical Chemical Laboratory.

Data Collection/evaluation: G. Holtan, M. Grande, H. Holtan, E.R. Iversen.

EDP/calculations/registrations: T. Hopen, E. Fjeld, L. Henriksen, G. Holtan, T. Tjomsland.

Reporting work: G. Holtan, D. Berge, H. Holtan.

External analyses:
Heavy metals : O. Røyset, M. Vadset. NILU.

FIELD WORKERS:

(1) GLOMMA:	B. Moen. AS Østfoldlaboratoriet, Moss.
(2) DRAMMENSELVA:	E. Iversen. NIVA. Oslo.
(3) NUMEDALSLÅGEN:	E. Løve. Næringsmiddeltilsynet. Larvik kommune.
(4) SKIENSVASSDRAGET:	A. Andersen.Rødmyr Miljøsenter DA, Skien.
(5) OTRA:	M. Aadnevik. Ingeniørvesenet. Kr.-sand kommune.
(6) ORREELVA:	G. Undheim. Landbrukskontoret. Time kommune.
(7) SULDALSLÅGEN:	Ø. Vårvik. Suldal Elveeigarlag. Suldalsosen.
(8) ORKLA:	O. Lien. Rennebu.
(9) VEFSNA:	B. Hauan. Teknisk etat. Vefsn kommune. Mosjøen.
(10) ALTA:	P. Nilsen. Finnmarksforskning. Alta.

5.2 Literature

Alsaker-Nøstdal, B., 1995: Vassdragsovervåking av Årosvassdraget 1992-1994, Fylkesmannen i Buskerud. Miljøvernavdelingen. Rapport nr. 5-1995. 28 s. + vedlegg.

Andersen, D.O., 1993: Mandalselva 1993. Rapport fra Agder distriktshøgskole, vannlaboratoriet. 24 s. + vedlegg.

Baalsrud, K. og B. Bjerkeng, 1991: Tiltaksanalyse for Indre Oslofjord. Brukerkrav. Siktedyp og oksygen i dypvannet. En enkel lineær modell. NIVA-rapport O-90131 (l.nr. 2524). 79 s.

Bjerknes, V., 1996: Stofftilførsler fra Ranelva til Ranfjorden. Bedømmelse av vannkvalitet i Ranavassdraget. Overvåkingsrapport nr. 668/96. NIVA-rapport O-800310 (l.nr. 3518-96). 35 s.

Bjerknes, V. og G.G. Raddum, 1998: E16. Tunnel Aurland-Lærdal. Overvaking av vasskvalitet, botndyr og fisk i Lærdalselva og Kuvella i 1997. NIVA-rapport O-93248. (l.nr.3838-98). 36s.

Bjerknes, V., A. Hindar og Å. Åtland, 1998: Kalkingsplan for Daleelva i Vaksdal kommune i Hordaland. NIVA-rapport O-97237 (l.nr. 3898-98). 39 s.

Bjørklund, A. og G.H. Johnsen, 1997: Tiltaksorientert overvåking av Osvassdraget, Os kommune i Hordaland. Rådgivende Biologer AS. Rapport nr. 276/1997. 40 s.

Bloom, N.S. and E.A. Crecelius, 1983: Determination of Mercury in Sea- water at sub-nanogram per liter levels. Marine Chem. 14, pp. 49- 59.

Brettum, P., 1995: Vurdering av tilstandsklasser og egnethet for vann fra ulike deler av Surnavassdraget. NIVA-rapport O-95155 (l.nr. 3298). 29 s.

Brun, P.F. og T. Haugen, 1990: Overvaking av fjordar og vassdrag i Møre og Romsdal 1986-88. Fylkesmannen i Møre og Romsdal. Rapport nr. 2/90. 101 s.

Bærum kommune, 1998: Vassdragsrapport 1997. Fysisk-kjemisk analyseprogram (in prep.).

Direktoratet for naturforvaltning, 1998: Kalking i vann og vassdrag. Overvåking av større prosjekter 1997. DN-notat nr. 1998-3. 377 s.

DNMI, 1993: Nedbørnormaler 1961-90. DNMI. Oslo, 63 s.

DNMI, 1998: Nedbørdata fra 1997. DNMI. Oslo (unpublished).

Faafeng, B., 1994: Årungen og Årungelva. NIVA-rapport (in prep.).

Faafeng, B. og T.J. Oredalen, 1998: Gjersjøens utvikling 1992-97 og resultater fra sesongen 1997. NIVA-rapport O-97066 (l.nr. 3881-98). 65 s.

Haugen, T., 1994: Forurensningsundersøkelser i 12 vassdrag i Sør-Trøndelag - Mål for vannforekomstene og egnethet til bruk. Fylkesmannen i Sør-Trøndelag. Miljøvernavdelingen, rapport nr. 2-94. 44 s.

Hessen, D., E.-A. Lindstrøm og M. Mjelde, 1993: Storglomreguleringen. Undersøkelse av vannkjemi og vegetasjon. NIVA-rapport 0-901234. (l.nr. 2931). 77 s.

Hobæk, A., 1998: Analyseresultater 1997 fra Opo i Odda kommune (upubl.).

Holtan, G., D. Berge, H. Holtan and T. Hopen, 1991: Paris Convention. Annual report on direct and riverine inputs to Norwegian coastal waters during the year 1990:
A: Principles, results and discussions. SFT-report 452A/91. NIVA-report 0-90001/Serial No.: 2582. 43 pages.
B: Data report. SFT-report 452B/91. NIVA-report 0-90001/Serial No.: 2577. 103 pages.

Holtan, G., D. Berge, H. Holtan and T. Hopen, 1992: Paris Convention. Annual report on direct and riverine inputs to Norwegian coastal waters during the year 1991:
A: Principles, results and discussions. SFT-report 488A/92. NIVA-report 0-90001/Serial No.: 2809. 40 pages.
B: Data report. SFT-report 488B/92. NIVA-report 0-90001/Serial No.: 2777. 104 pages.

Holtan, G., D. Berge, H. Holtan and T. Hopen, 1993: Annual report on direct and riverine inputs to Norwegian coastal waters during the year 1992. A. Principles, results and discussion. B. Data report. SFT-report 542/93. NIVA-report O-90001/Serial No.: 2964. 137 pages.

Holtan, G., D. Berge, H. Holtan and T. Hopen, 1994: Annual report on direct and riverine inputs to Norwegian coastal waters during the year 1993. A. Principles, results and discussion. B. Data report. SFT-report 580/94. NIVA-report O-90001/Serial No.:3162. 138 pages.

Holtan, G., D. Berge, H. Holtan and T. Hopen, 1995. Paris Convention. Annual report on direct and riverine inputs to Norwegian coastal waters during the year 1994. A. Principles, results and discussion. B. Data report. SFT-report 623/95. NIVA-report O-90001/Serial no.: 3361. 136 pages.

Holtan, G., D. Berge, H. Holtan and T. Hopen, 1996. Paris Convention. Annual report on direct and riverine inputs to Norwegian coastal waters during the year 1995. A. Principles, results and discussion. B. Data report. SFT-report 674/96. NIVA-report O-90001/Serial no.: 3568-96. 137. pages.

Holtan, G., D. Berge, H. Holtan and T. Hopen, 1997. Paris Convention. Annual report on direct and riverine inputs to Norwegian coastal waters during the year 1996. A. Principles, results and discussion. B. Data report. SFT-report 715/97 NIVA-report O-90001/Serial no.: 3740-97. 138. pages.

Holtan, G., 1996: Overvåking av Hvaler-Singlefjorden og munningen av Iddefjorden 1989-1994. Forurensningstilførsler 1990-1993. SFT-rapport 654/96. NIVA-rapport O-94061 (l.nr. 3444-96). 81 s.

Holtan, H. (red.), 1986: Norsk Vassdragsleksikon (utkast). Rapport fra Norsk Hydrologisk Komité, Oslo, 32 s. + vedlegg.

Holtan, H. (red.), 1989: Vannkvalitetskriterier for ferskvann. Rapport TA-630 fra Statens forurensningstilsyn.

Holtan, H., D. Berge and J. Molvær, 1990: Retention of nutrients in lakes and rivers with comments on retention in fjords. Paper prepared for PARCOM. NIVA-document 0-90145. 14 s. (unpublished).

Holtan, H. og S.O. Åstebøl, 1990: Håndbok i innsamling av data om forurensningstilførsler til vassdrag og fjorder. Revidert utgave. NIVA-Jordforsk 0-89043/0-892301 (l.nr.2501). 53 s.

Holtan, H., 1992. Overvåking av Aulielva 1991/1992. NIVA-rapport O-92111. (l.nr. 2796). 41 s.

Holtan, H., 1994. Overvåking av Farris med tilløp 1993. NIVA-rapport O-91205. (l.nr. 3101). 20 s.

Holtan, H., 1994: Konsentrasjon og transport av fosfor og nitrogen i Glomma 1978-1993. NIVA-rapport O-94031. (l.nr. 3000). 11 s.

Holtan, H. og G. Holtan, 1996: Flommen på Østlandet mai/juni 1995. Effekter på vannkvaliteten i Glomma og Drammenselva. SFT-rapport 641/96. NIVA-rapport O-90001 (l.nr. 3437-96). 47 s.

Hovind, H. og G. Holtan, 1994: Determination of unspecific organic substances in surface water - a comparison of different analytilcal parameters (in prep.).

Ibrekk, H.O., H. Holtan, D. Berge, R. Gulbrandsen og K. Øren, 1991: Nordsjøplan. Vassdrag. NIVA-rapport 0-902302 (l.nr. 2628). 92 s.

Indre Sogn Interkommunale Servicekontor, 1998: Vassdragsovervåking i Sogn og Fjordane 1997. ISIS-rapport/prosjekt nr. 596. 36 s + vedlegg.

Iversen, E. R., 1993: Vannforurensninger fra nedlagte gruver. Del IV. NIVA-rapport 0-92152 (l.nr. 3045). 36 s.

Johannessen, M., 1996: Vannforurensning i Grenland. Endel resultater fra lokal miljøovervåking 1992 og 1995. Fylkesmannen i Telemark. Miljøvernavdelingen (in prep.).

Johnsen, G.H., 1995: Tilstanden i Bergsdalselva 1994-1995. Rådgivende Biologer A/S. Institutt for Miljøforskning. Rapport nr. 158/1995. 90 s.

Kaste, Ø., E.A. Lindstrøm og K.J. Aanes, 1998: Tiltaksorientert overvåking av Otra i 1997. NIVA-rapport O-97034 (l.nr. 3883-98). 47s.

Knutzen, J. og K. Øren, 1983: Miljøgifter i kommunalt avløpsvann - vurdering av effekter ved utslipp i sjøvann. Vann-3-83. pp. 292-305.

Lingsten, L., 1987: Pilot Study on Riverine Inputs to Marine Waters. NIVA- report 0-86201. 37 s. (unpublished).

Lykke, G., 1998: Vannovervåking i Trondheim 1997. Trondheim kommune, Miljøavdelingen (in prep.).

Løvstad, Ø., T. Hauger, P. Vallner og G. Larsen, 1990: Vassdrag og kystområder. Overvåking 1990. Rapport nr. 8/91. Fylkesmannen i Østfold. Miljøvernavdelingen. 96 s. + vedlegg.

Moiseenko, T., M.Mjelde, T.E. Brandrud, P. Brettum, V. Dauvalter, L. Kagan, N. Kashulin, L. Kudriavtseva, A.Lukin, S. Sandimirov, T.S. Traaen, O. Vandysh and V. Yakovlev, 1994: Pasvik River Watercourse, Barents Region: Pollution Impacts and Ecological Responses. Investigations in 1993. INEP-NIVA-report O-93144. (l.nr. 3118). 87 s.

Molversmyr, Å., S. Sanni og T. Tyvold, 1989: Basisundersøkelse av Figgjovassdraget 1984-1987. Rogalandsforskning. Rapport nr. RF-219/89. 79 s. + bilag.

Molversmyr, Å. og S. Sanni, 1990: Tiltaksrettede undersøkelser i Ims-Lutsi vassdraget. Rogalandsforskning. Rapport nr. RF-171/90. 54 s. + vedlegg.

Molversmyr, Å., 1995: Næringsstoffbelastning og tålegrenser for utvalgte Jærvassdrag. Rogalandsforskning. Rapport nr. RF-95/219. 55 s.

Molvær, J. og A. Stigebrandt, 1991: Undersøkelse av eutrofiering i Grenlandsfjordene 1988-89. Delrapport 3. Vannutskiftning i fjordene. Overvåkingsrapport nr. 450/91. NIVA-rapport 0-8000372, (l.nr. 2588). 45 s.

Montaser, A. and D.W. Golightly, 1987: Inductively Copled Plasmas in Analytical Chemistry. New York. VCH Publishers.

Muladal, H. og T. Skotvold, 1993: Undersøkelse av forurensningstilstanden i Kåfjordvassdraget, Kåfjord kommune. Sluttrapport. Akvaplan-NIVA. Rapport nr. 325/3/93. 28 s.

Myhrstad, A., 1985: Miljøgifter. Utslipp via kommunale anlegg. Rapport fra Elliot Strømme A.S. 13 s. + vedlegg.

NILU, 1990: U-110. Forskrift for bestemmelse av elementer i vann med ICP-MS. 2 s.

NVE, 1987: Avrenningskart over Norge. NVE. Oslo. 8 kartblad.

NVE, 1990: Vassdragsregisterets kartbok. V 24. NVE. Oslo.

NVE, 1998: Vannføringsdata fra 1997. NVE. Oslo (unpublished).

Næringsmiddeltilsynet i Sør-Innherred, 1998. Analyseresultater fra Leksdalsvatnet i 1997 (upubl.).

Næringsmiddeltilsynet i Larvik, 1998: Analyseresultater fra Farris i 1997 (upubl.).

Nøst, T., Daverdin, R.H. and A.K.L. Schartau, 1998: Kjemisk overvåking av norske vassdrag - Elveserien 1997. NINA. Oppdragsmelding. 34 s.

OSPAR, 1994. Oslo and Paris Conventions for the Prevention of Marine Pollution. Sixteenth Joint Meeting of the Oslo and Paris Commissions. Karlskrona 13-17 June 1994. OSPAR 16/4/8-E. 7 s.

OVA, 1998: Bekkelaget renseanlegg. Årsrapport 1997. OVA-publikasjon. 15 s + vedlegg.

Paris Commission, 1986: Eighth Meeting of the Paris Commission. Annex 4-6. Madrid 2-4 June 1986.

Paris Commission, 1988: Tenth Meeting of the Paris Commission. PARCOM 10/3/2-E. Lisbon 15-17 June 1988.

Paris Commission, 1993: Convention for the Prevention of Marine Pollution from Land-Based Sources. Fifth Meeting of the Ad hoc Working Group on Input Data. Parcom 5/6/1-E.

Paulsen, L.I., 1996. Overvåking av vannkvaliteten i Årgårdsvassdraget i perioden 1990-95. Fylkesmannen i Nord-Trøndelag, Miljøvernavdelingen. Rapport 2-1996. 38 s.

Rosland, D.S., 1998: Trender - transporter av nitrogen og fosfor i jord og vassdrag. Vann 3-98. pp. 334-344.

Semb, R. 1993: Flerbruksplan for Mandalsvassdraget. Et notat om forurensningstilførsler og vannkvalitet. Fylkesmannen i Vest-Agder. Miljøvernavdelingen. 24 s.

SFT, 1980-1997: The National Monitoring Programme of Water Courses. Monitoring Results.Annual Reports; TA-1980, 1981: TA-580, 1982: TA-588, 1983: TA-597, 1984: TA-607, 1985: TA-622, 1986: TA-628, 1987: TA-639, 1988: TA-629/1989, 1989: TA-711/1990.

SFT, 1991: Næringsmiddelindustri. Stedfesting. Forurensningsproduksjon. Utslipp. Grøner, Rådgivende Ingeniører. Rapport nr. 28506. 11s. + vedlegg.

SFT/NTNF, 1991: Karakterisering av nitrogenkomponenter i kommunalt avløpsvann. FAN - rapport R-4/91. 55 s. + vedlegg.

SFT, 1993: Miljøgifter i kommunalt avløpsvann. 93:10. 52 s.

SFT, 1995: Forurensning i Norge 1994. TA-1201/1995.

SFT, 1998: Overvåking av langtransportert forurenset luft og nedbør. Årsrapport - Effekter 1997. Rapport nr. 748/98. TA 1594/1998. 196 s.

Skudal, K., 1997: Overvåking av Aulivassdraget. Evaluering av undersøkelser 1991-1997. Rapport fra Næringsmiddeltilsynet i Tønsberg. 12 s. + vedlegg.

Solberg, K., 1998: Overvåking av Håelva. Analyseresultater 1994-1998. Fylkesmannen i Rogaland. Miljøvernavdelingen. (in prep.).

SSB, 1979, 1980, 1990-1997: Statistical Yearbooks. SSB. Oslo.

SSB, 1998: Natural Resources and the Environment 1997, SSB, Oslo. 224 s.

Stene-Johansen, S. og J.E. Samdal, 1994: Miljøundersøkelser i indre Oslofjord - Kartlegging av kilder. NIVA-rapport O-921312. (l.nr. 3291). 80 s.

Søgne kommune, 1998: Resipientundersøkelsen 1997. Rapport fra Søgne kommune. 28 s + Vedlegg.

The County Environmental Agencies: Østfold, Oslo and Akershus, Buskerud,Vestfold, Telemark, Aust-Agder,Vest-Agder, Rogaland, Hordaland, Sogn og Fjordane, Møre og Romsdal, Sør-Trøndelag, Nord- Trøndelag, Nordland, Troms, Finnmark: Chemical data from monitored rivers in 1997 and/or monitored the last decade (mostly unpublished) and also information about treatment plants in the different counties.

Tjomsland, T. og H.O.Ibrekk, 1992: TEOTIL. Modul for teoretisk beregning av fosfor- og nitrogentilførsler i Norge. NIVA-rapport 0-902301 (l.nr. 2786). 38 s.

Traaen, T.S., 1998: Overvåking av Gaula, Sør-Trøndelag. Vannkjemiske undersøkelser. Årsrapport for 1997. Overvåkingsrapport nr. 739/98. TA-1576/1998. NIVA-rapport O-90051 (l.nr. 3911-98). 21 s.

Traaen, T. og H. Huru, 1998: Vannkjemisk overvåking i Tanavassdraget 1988-1997. NIVA-rapport 0-88192 (in prep.).

Traaen, T. og S. Rognerud, 1996: Forsuring og tungmetallforurensning i grenseområdene Norge/Russland. Årsrapport 1995. NIVA-rapport O-89187 (l.nr. 3458-96). 21 s.

Vallner, P., 1998: Overvåking av vassdrag og kystområder - Østfold. Fylkesmannen i Østfold. Miljøvernavdelingen (in prep.).

VEAS, 1998: Årsmelding 1997. Rapport fra Vestfjordens Avløpsselskap, 23 s.

Welz, B., Melcher, M. Sinerius, H.W. og D. Maier, 1984: Picotrace Determination of Mercury using the Amalgamation Technique. At. Spectrosc. 1984, 5.

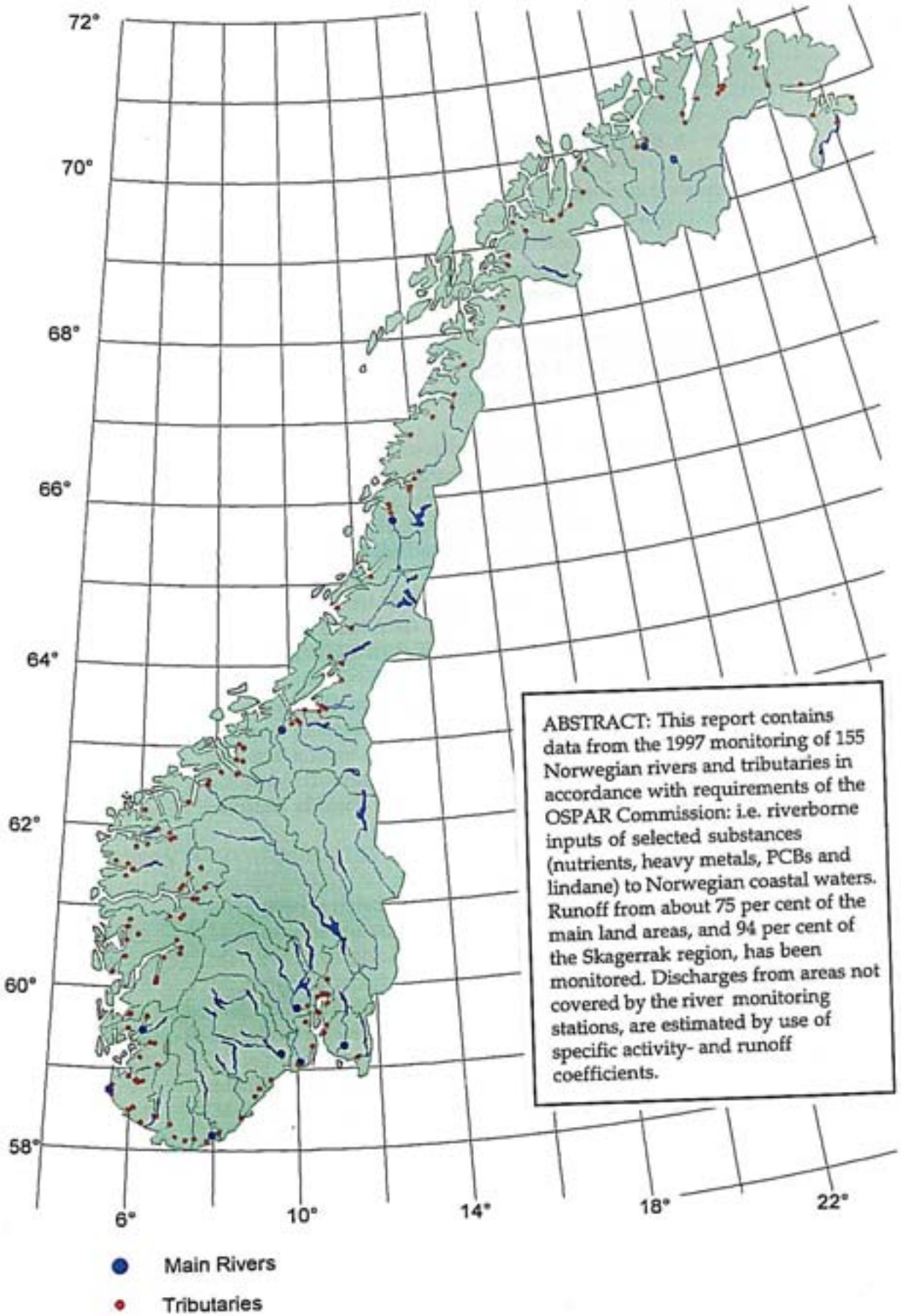
Wivestad, T.M., 1995: Vassdragsovervåking i Lierelva 1994. Rapport nr. 16. Fylkesmannen i Buskerud. Miljøvernavdelingen. 48 s. + vedlegg.

Wivestad, T.M., 1996: Vassdragsovervåking i Drammenselva 1994-1995. Fylkesmannen i Buskerud. Miljøvernavdelingen, Rapport nr. 4 - 1996. 56 s. + vedlegg.

Wold, T. and F. Paulsen, 1998: Vassdrag i Oslo. Datarapport 1997. Rapport 98-04 Miljøtilsyn, OVA.

Aanes, K.J. og R. Romstad, 1998: Tiltaksorientert overvåking i Orkla, 1996 og 1997. NIVA-rapport 0-800210. SFT-rapport 97. A-/96-97.(in press). 68 s.

B Data report



ABSTRACT: This report contains data from the 1997 monitoring of 155 Norwegian rivers and tributaries in accordance with requirements of the OSPAR Commission: i.e. riverborne inputs of selected substances (nutrients, heavy metals, PCBs and lindane) to Norwegian coastal waters. Runoff from about 75 per cent of the main land areas, and 94 per cent of the Skagerrak region, has been monitored. Discharges from areas not covered by the river monitoring stations, are estimated by use of specific activity- and runoff coefficients.

CONTENTS **Page:**

APPENDIX V : INPUTS FROM TRIBUTARY RIVERS 1997 (Paragraph 17 - 19) Page :

Paragraph 17: Tributary rivers ./.

Paragraph18: Measurements of calculation used - including information on the concentration upon which the measurement is based:

Appendix VIII and IX (1-10) and Paragraph 3.2 (Report A, 1991, 1992 - 1998)

Paragraph 19: Any other relevant information (e.g. proportion of substance discharged as insoluble material):

FIGURES:

CONVENTION FOR THE PREVENTION OF MARINE POLLUTION FROM LANDBASED SOURCES
QUESTIONARY ACCORDING TO THE TENTH MEETING OF THE PARIS COMMISSION LISBON 15 - 17 JUNE 1988.

The purpose of this form is to provide the Commission, in accordance with Article 17(B) of the Paris convention, with an assessment of the waterborne inputs to Convention waters.

The form should be completed for each calendar year in retrospect and submitted to the Secretary by June following the year to which the data relate.

The information sought relates to inputs through direct discharges (questions 7 - 13) and riverine inputs (questions 14 - 19).
Some information on discharges other than those mentioned below are also attached (question 20).

Separate forms for the four single areas are filled in.

(1) THE COUNTRY IS NORWAY

(2) LENGTH OF COASTLINE INCLUDING FJORDS AND BAYS IS 21347 KM

(3) NATURE OF THE RECEIVING WATER IS COASTAL

APPENDIX I : TOTAL DISCHARGES 1997 (Paragraph 4 - 6) **Page:**

Table I TOTAL DISCHARGES from MAINLAND NORWAY to convention waters 1997 (Fig. I).

Substance:	Area runoff	Direct Discharges	Tributary Inputs		Main Riverine Inputs		Grand Total	
Cadmium		1.2	2.4	*	1.2	*	4.8	tonnes
Cadmium			3.2	**	1.4	**	5.7	tonnes
Mercury		117.4	242	*	30	*	389	kg
Mercury			303	**	68	**	489	kg
Copper		62.3	151		113		326	tonnes
Zinc		141.2	443		322		906	tonnes
Lead		5.7	40.0	*	18.1	*	63.8	tonnes
Lead			40.1	**	18.1	**	63.9	tonnes
Arsenic		0.7	29.5	*	7.1		37.3	tonnes
Arsenic			35.8	**	9.7		46.2	tonnes
Cr-T		5.3	60.1	*	1.4	*	66.8	tonnes
Cr-T			113.8	**	28.7	**	147.8	tonnes
Ni		19.1	124.4	*	36.6	*	180.1	tonnes
Ni			133.0	**	36.9	**	189.0	tonnes
V					7.2	*	7.2	tonnes
V					14.8	**	14.8	tonnes
PCBs ***			0.04	*	0.00	*	0	kg
PCBs			32.8	**	11.9	**	45	kg
gamma-HCH			55		24		80	kg
NH4-N	1374	10387	1872	*	1103	*	14736	tonnes
NH4-N			1923	**	1116	**	14800	tonnes
NO3-N	15295	153	18275		14634		48356	tonnes
PO4-P	186	681	343		247	*	1457	tonnes
PO4-P					247	**	1457	tonnes
Total N	24065	17871	35841		23806		101583	tonnes
Total P	761	1392	897		548		3597	tonnes
SiO2			275584		131612		407196	tonnes
S.P.M.		3198644	450684		295340		3944668	tonnes
TOC		23140	221018		216365		460524	tonnes
COD		208982					208982	tonnes
BOD		44866					44866	tonnes

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

*** the following congeners: IUPAC Nos. 28,52,101,118,153,138,180

Table 1.1 TOTAL DISCHARGES to The Skagerrak Region 1997 (Fig. I.I).

The Skagerrak Region with main rivers (1) Glomma, (2) Drammenselva, (3) Numedalslåger (4) Skienselva, (5) Otra

Substance:	Area runoff	Direct Discharges	Tributary Inputs		Main Riverine Inputs		Grand Total	
Cadmium		0.10	0.5	*	0.9	*	1.5	tonnes
Cadmium			0.5	**	1.0	**	1.6	tonnes
Mercury		53.40	12	*	25	*	91	kg
Mercury			14	**	53	**	120	kg
Copper		26.53	8		68		102	tonnes
Zinc		21.20	74		207		302	tonnes
Lead		0.63	4.8	*	13.5	*	18.8	tonnes
Lead			4.8	**	13.5	**	18.9	tonnes
Arsenic		0.13	3.12	*	5.0		8.2	tonnes
Arsenic			3.12	**	6.9		10.1	tonnes
Cr-T		3.10	2.6	*	0.8	*	6.5	tonnes
Cr-T			7.1	**	21.5	**	31.8	tonnes
Ni		5.52	5.6	*	29.3	*	40.4	tonnes
Ni			5.6	**	29.3	**	40.5	tonnes
V					6.8	*	6.8	tonnes
V					12.1	**	12.1	tonnes
PCBs ***			0.04	*	0.00	*	0.04	kg
PCBs			2.3	**	8.9	**	11.2	kg
gamma-HCH			7.5		21		28	kg
NH4-N	164	3985	353	*	1000	*	5502	tonnes
NH4-N			353	**	1001	**	5503	tonnes
NO3-N	1793	110	3028		13323		18253	tonnes
PO4-P	14	103	31		205	*	352	tonnes
PO4-P					205	**	352	
Total N	2777	6619	5270		20392		35058	tonnes
Total P	56	256	88		458		859	tonnes
SiO2			26224		103067		129291	tonnes
S.P.M.		10348	25055		254243		289646	tonnes
TOC		8181	41275		170832		220288	tonnes
COD		114282					114282	tonnes
BOD		15440					15440	tonnes

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

*** the following congeners: IUPAC Nos. 28,52,101,118,153,138,180

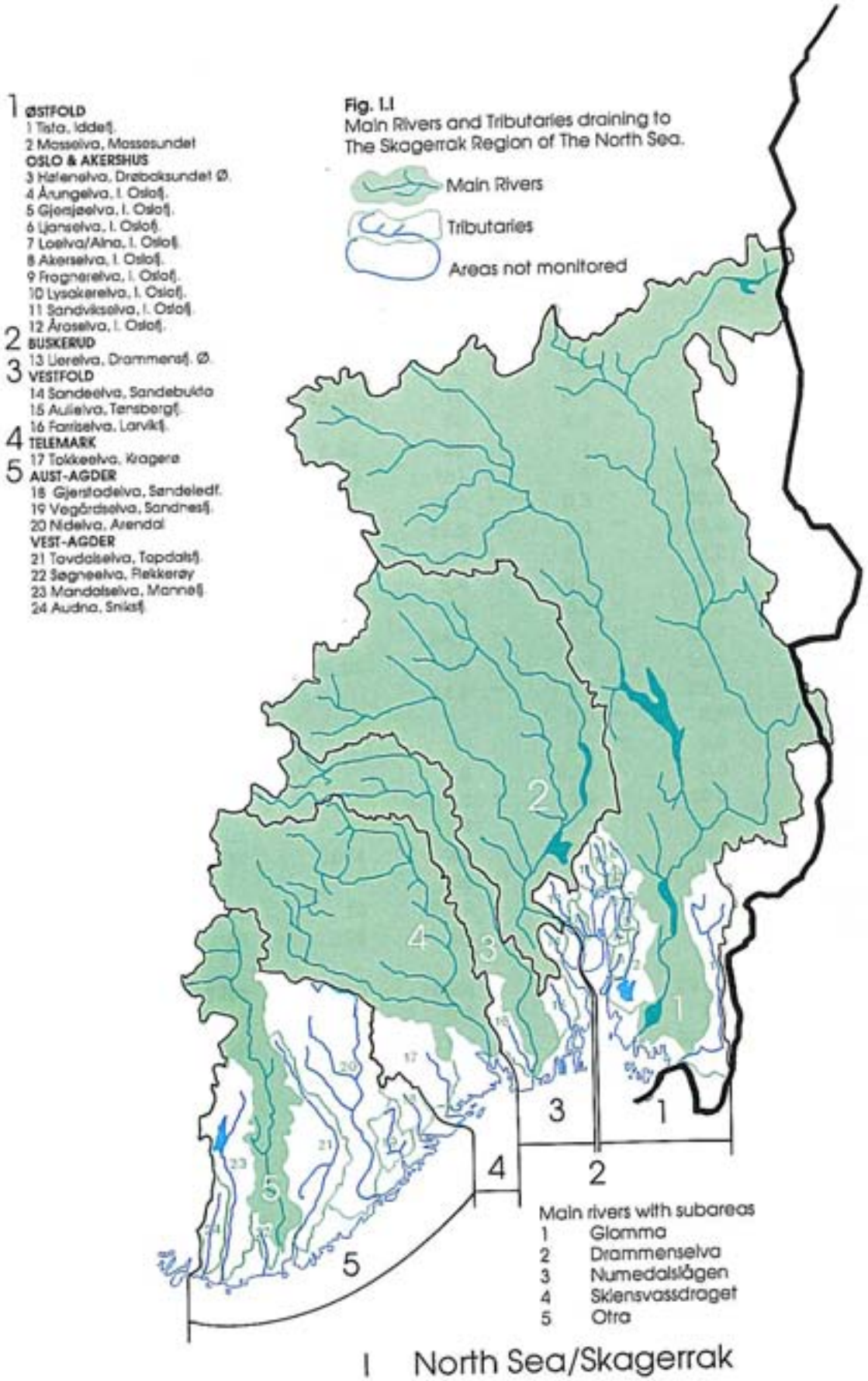

1 ØSTFOLD
1 Tista, Iddefj.
2 Masseelva, Masseosundet
OSLO & AKERSHUS
3 Hafenelva, Drøbaksundet Ø.
4 Årungelva, I. Oslofj.
5 Gjersjøelva, I. Oslofj.
6 Ljanselva, I. Oslofj.
7 Loelva/Alna, I. Oslofj.
8 Akerselva, I. Oslofj.
9 Frognerelva, I. Oslofj.
10 Lysakerelva, I. Oslofj.
11 Sandvikselva, I. Oslofj.
12 Åroselva, I. Oslofj.
2 BUSKERUD
13 Lierelva, Drammensfj. Ø.
3 VESTFOLD
14 Sandeelva, Sandebukta
15 Aulielva, Tønsbergfj.
16 Farriselva, Larvikfj.
4 TELEMARK
17 Tokkeelva, Kragerø
5 AUST-AGDER
18 Gjerstadelva, Sandeledf.
19 Vegårdselva, Sandnesfj.
20 Nidelva, Arendal
VEST-AGDER
21 Tovdalselva, Topdalsfj.
22 Søgneelva, Flekkerøy
23 Mandalselva, Mannefj.
24 Audna, Snikkfj.
Fig. I.I
Main Rivers and Tributaries draining to
The Skagerrak Region of The North Sea.
Main Rivers
Tributaries
Areas not monitored
Main rivers with subareas
1 Glomma
2 Drammenselva
3 Numedalslågen
4 Skiensvassdraget
5 Otra
I North Sea/Skagerrak

Table 1.2 TOTAL DISCHARGES to The Remaining North Sea 1997 (Fig. I.II).

The North Sea Region with main rivers : (6) Orreelva, (7) Suldalslågen

Substance:	Area runoff	Direct Discharges	Tributary Inputs		Main Riverine Inputs		Grand Total	
Cadmium		0.96	0.9	*	0.0	*	1.8	tonnes
Cadmium			1.0	**	0.0	**	2.0	tonnes
Mercury		42.61	17	*	0.4	*	60	kg
Mercury			50	**	2.0	**	95	kg
Copper		8.66	25		1		35	tonnes
Zinc		58.18	181		5		244	tonnes
Lead		4.16	16.0	*	0.3	*	20.4	tonnes
Lead			16.0	**	0.3	**	20.4	tonnes
Arsenic		0.00	4.1	*	0.1		4.2	tonnes
Arsenic			8.4	**	0.2		8.6	tonnes
Cr-T		1.08	0.4	*	0.0	*	1.5	tonnes
Cr-T			24.7	**	0.9	**	26.7	tonnes
Ni		10.54	9.0	*	0.6	*	20.1	tonnes
Ni			14.5	**	0.7	**	25.7	tonnes
V					0.0	*	0.0	tonnes
V					0.0	**	0.0	tonnes
PCBs ***			0.0	*	0.00	*	0.0	kg
PCBs			10.3	**	0.4	**	10.6	kg
gamma-HCH			17.4		1		18	kg
NH4-N	517	2674	486	*	22	*	3698	tonnes
NH4-N			520	**	23	**	3734	
NO3-N	5835	18	8619		421		14892	tonnes
PO4-P	51	206	96		5	*	357	tonnes
PO4-P					5	**	357	
Total N	9281	4750	14656		628		29316	tonnes
Total P	197	419	309		13		939	tonnes
SiO2			66786		1763		68550	tonnes
S.P.M.		1407597	69586		2981		1480164	tonnes
TOC		6945	74758		1418		83122	tonnes
COD		37835					37835	tonnes
BOD		13518					13518	tonnes

Measurements below detection limits are treated in two ways :
*) Detection limit = Zero
**) Detection limit = Limit

*** the following congeners: IUPAC Nos. 28,52,101,118,153,138,180

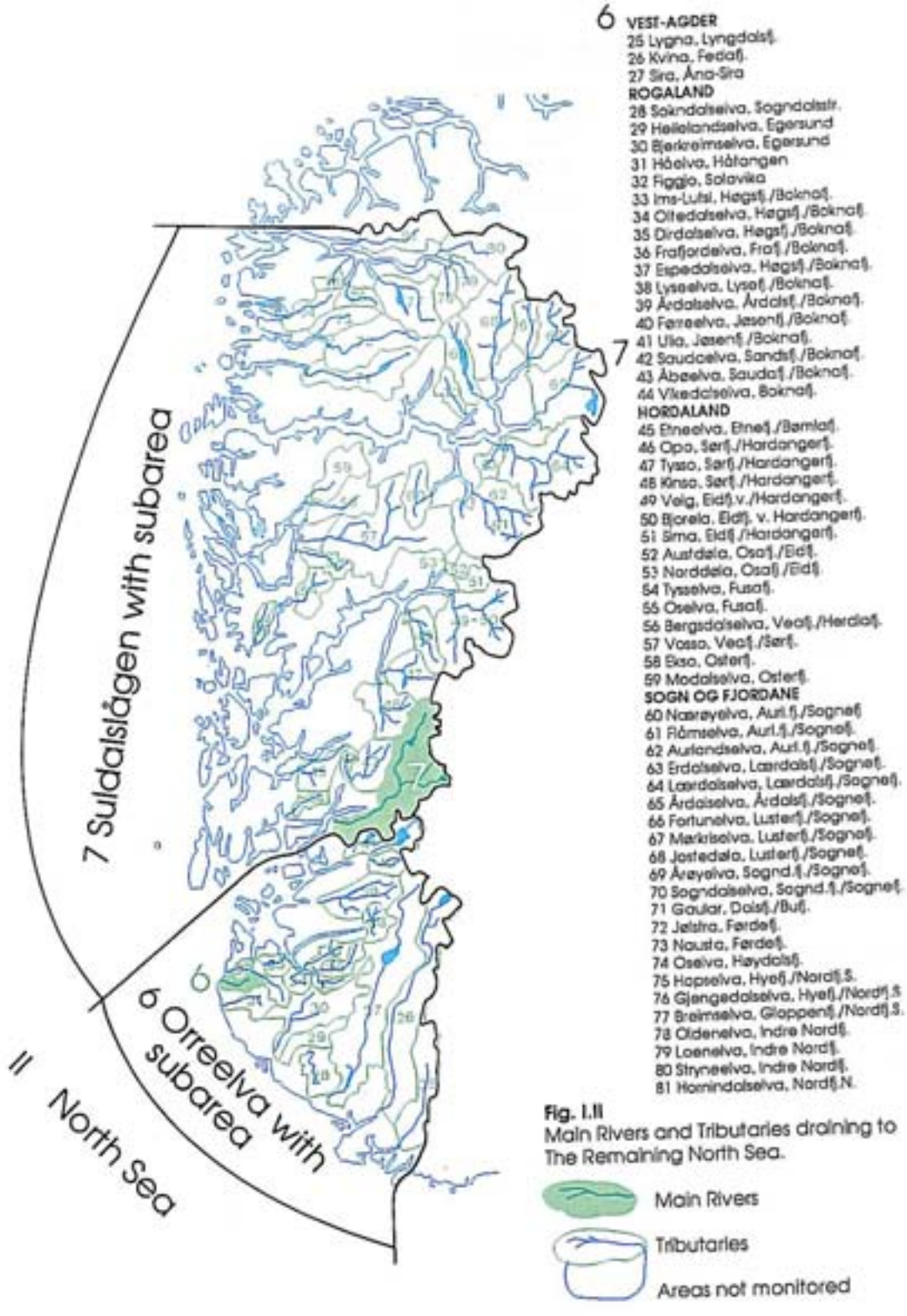


Fig. I.II
Main Rivers and Tributaries draining to The Remaining North Sea.

Main Rivers

Tributaries

Areas not monitored

Table 1.3 TOTAL DISCHARGES to The Norwegian Sea 1997 (Fig. I.III).

The Norwegian Sea Region with main rivers (8) Orkla, (9) Vefsna

Substance:	Area runoff	Direct Discharges	Tributary Inputs		Main Riverine Inputs		Grand Total	
Cadmium		0.10	0.5	*	0.3	*	0.9	tonnes
Cadmium			0.9	**	0.3	**	1.3	tonnes
Mercury		21.39	200	*	4	*	226	kg
Mercury			214	**	11	**	246	kg
Copper		26.73	87		41		155	tonnes
Zinc		61.35	127		108		296	tonnes
Lead		0.93	13.7	*	4.3	*	18.9	tonnes
Lead			13.7	**	4.3	**	19.0	tonnes
Arsenic		0.56	18.7	*	0.6		19.9	tonnes
Arsenic			20.5	**	1.2		22.2	tonnes
Cr-T		1.08	51.1	*	0.5		52.7	tonnes
Cr-T			70.0	**	5.0		76.0	tonnes
Ni		2.91	71.8	*	6.1	*	80.7	tonnes
Ni			74.1	**	6.1	**	83.2	tonnes
V					0.4	*	0.4	tonnes
V					2.1	**	2.1	tonnes
PCBs ***			0.0	*	0.0	*	0.0	kg
PCBs			16.5	**	2.0	**	18.6	kg
gamma-HCH			26.9		2		29	kg
NH4-N	607	3443	897	*	80	*	5027	tonnes
NH4-N			913	**	83	**	5047	
NO3-N	6652	23	6168		793		13636	tonnes
PO4-P	103	343	196		27	*	668	tonnes
PO4-P					27	**	668	
Total N	10327	6120	13562		2400		32409	tonnes
Total P	419	667	445		54		1584	tonnes
SiO2			101363		16028		117391	tonnes
S.P.M.		1403316	345871		35114		1784302	tonnes
TOC		7651	62700		34934		105286	tonnes
COD		55635					55635	tonnes
BOD		15181					15181	tonnes

Measurements below detection limits are treated in two ways :
*) Detection limit = Zero
**) Detection limit = Limit

*** the following congeners: IUPAC Nos. 28,52,101,118,153,138,180

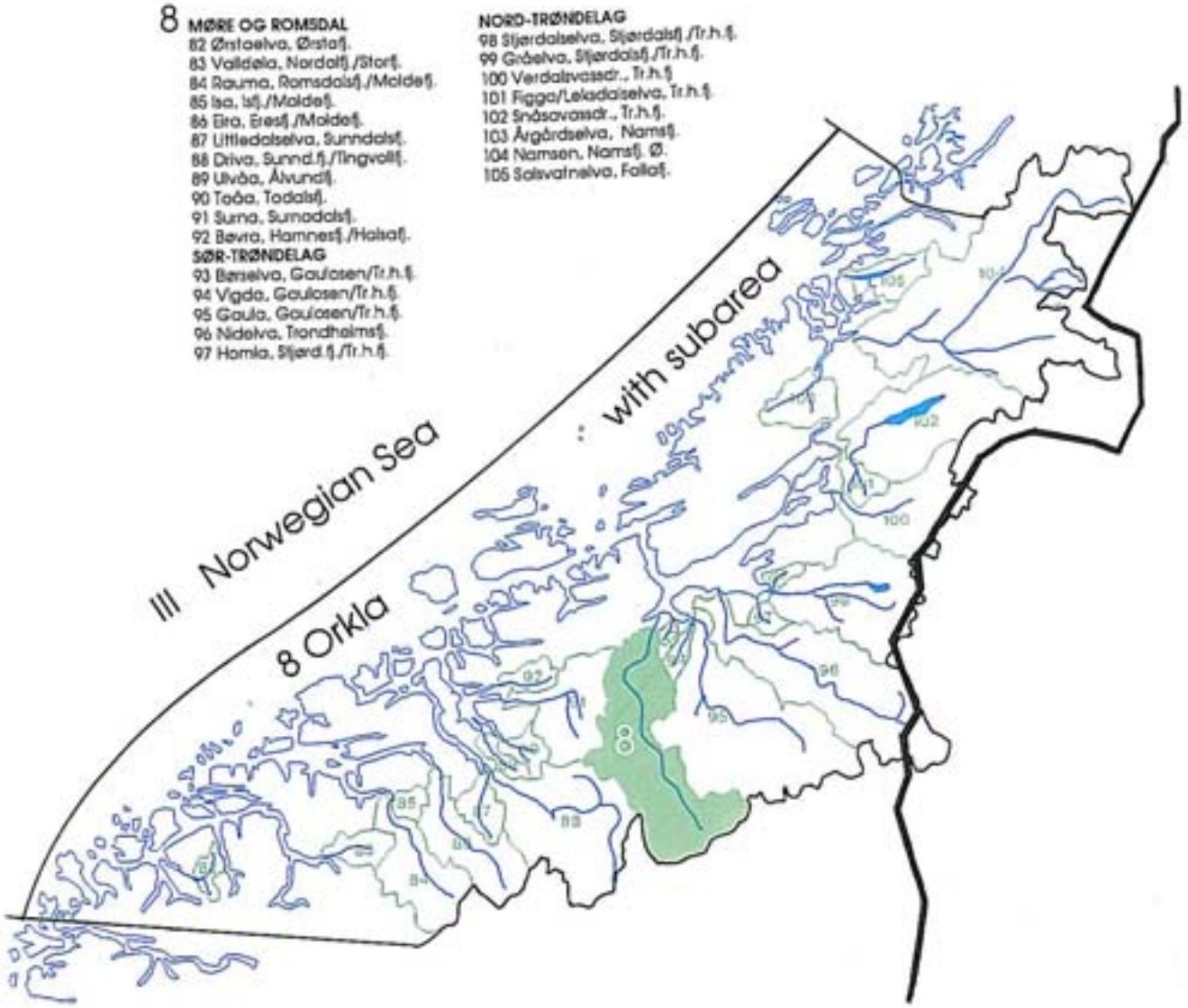


Fig. I.III A
Main Rivers and Tributaries draining to The Norwegian Sea (Southern Part).

Main Rivers

Tributaries

Areas not monitored

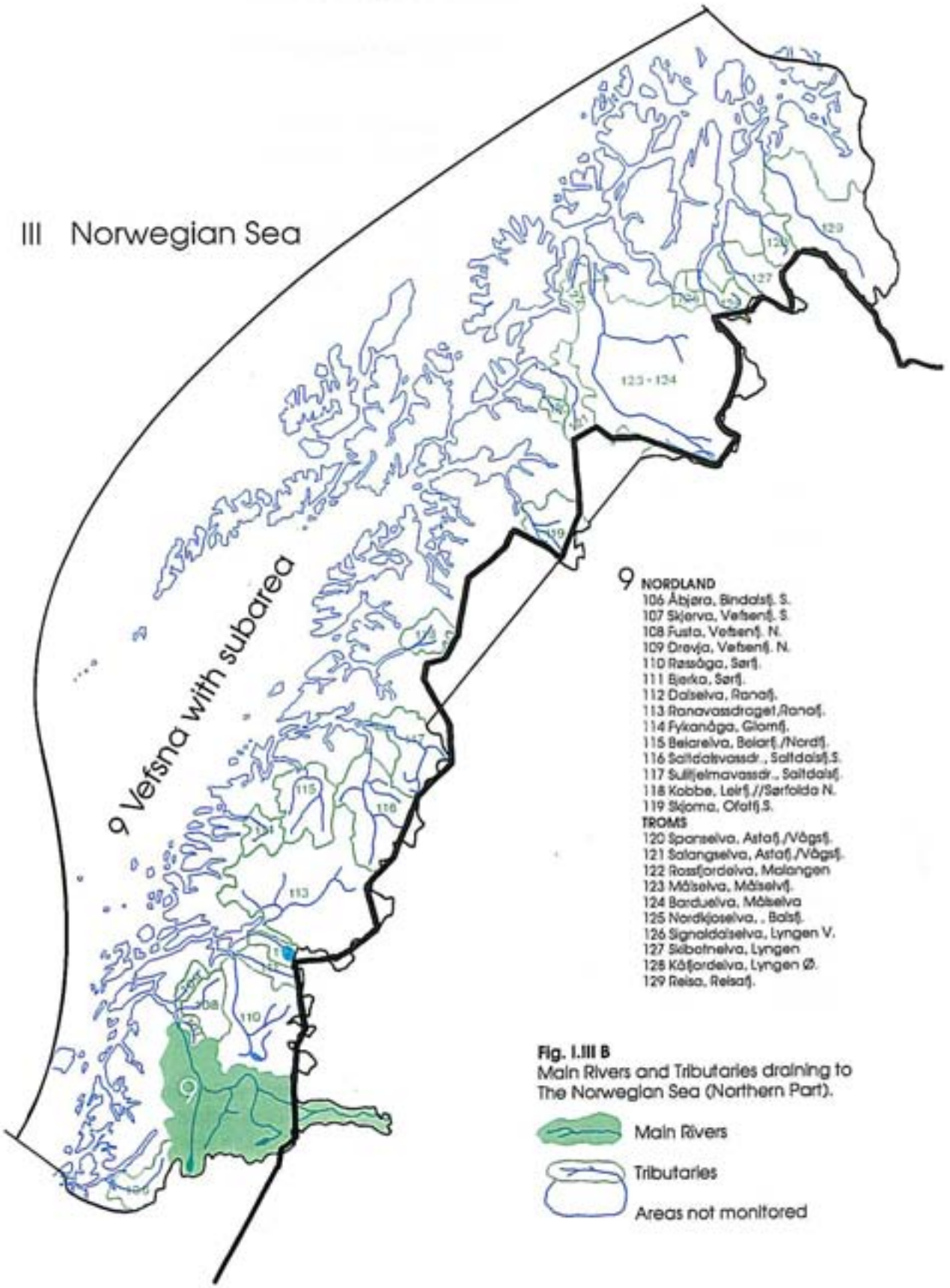


Fig. I.III B
Main Rivers and Tributaries draining to The Norwegian Sea (Northern Part).

Table 1.4 TOTAL DISCHARGES to The Barents Sea 1997 (Fig. I.IV).

The Barents Sea Region with main river (10) Alta

Substance:	Area runoff	Direct Discharges	Tributary Inputs		Main Riverine Inputs		Grand Total	
Cadmium		0.00	0.6	*	0.00	*	0.6	tonnes
Cadmium			0.7	**	0.03	**	0.7	tonnes
Mercury		0.00	12	*	0.00	*	12	kg
Mercury			25	**	2.62	**	28	kg
Copper		0.37	31		2.49		34	tonnes
Zinc		0.43	62		1.15		64	tonnes
Lead		0.01	5.5	*	0.10	*	5.6	tonnes
Lead			5.6	**	0.11	**	5.7	tonnes
Arsenic		0.00	3.5	*	1.47		5.0	tonnes
Arsenic			3.8	**	1.47		5.3	tonnes
Cr-T		0.04	6.0	*	0.00	*	6.1	tonnes
Cr-T			12.0	**	1.31	**	13.3	tonnes
Ni		0.12	38.1	*	0.70	*	38.9	tonnes
Ni			38.7	**	0.83	**	39.7	tonnes
V					0.00	*	0.0	tonnes
V					0.52	**	0.5	tonnes
PCBs ***			0.0	*	0.00	*	0.0	kg
PCBs			3.7	**	0.55	**	4.3	kg
gamma-HCH			3.5		0.18		4	kg
NH4-N	85	284.62	137	*	1.74	*	509	tonnes
NH4-N			137	**	8.74	**	516	
NO3-N	1015	1.90	460		97.48		1574	tonnes
PO4-P	18	29.63	21		11.62	*	80	tonnes
PO4-P					11.62	**	80	
Total N	1681	381	2353		385.99		4801	tonnes
Total P	88	49.90	54		22.81		215	tonnes
SiO2			81210		10754		91965	tonnes
S.P.M.		377382	10172		3002		390556	tonnes
TOC		363	42285		9181		51829	tonnes
COD		1230					1230	tonnes
BOD		726					726	tonnes

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

*** the following congeners: IUPAC Nos. 28,52,101,118,153,138,180

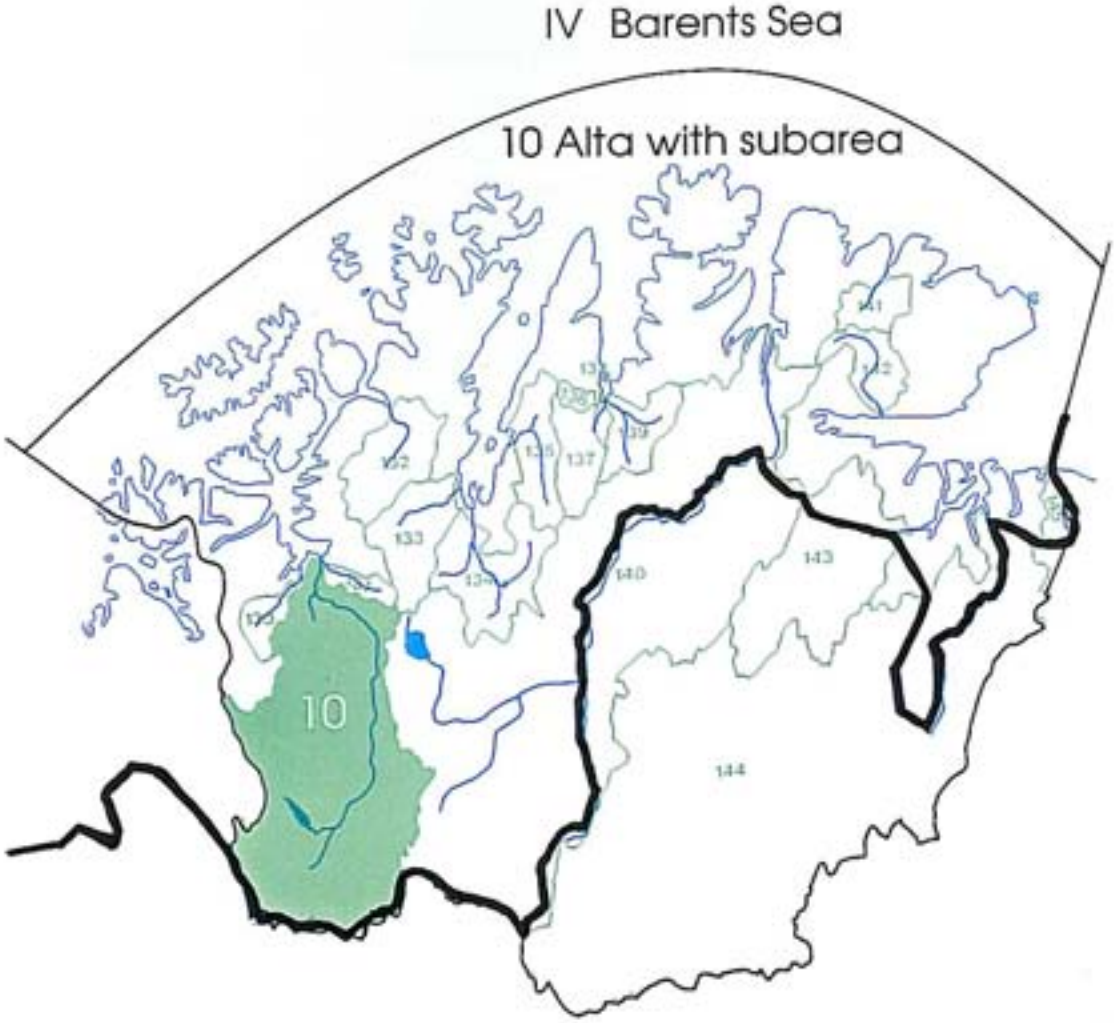


Fig. I.IV
Main Rivers and Tributaries draining to The Barents Sea.

Main Rivers

Tributaries

Areas not monitored

10 FINNMARK

130 Mattiselva, Kåf./Altaf.
131 Tverrelva, Altaf.
132 Repparfjordelva, Repparf.
133 Stabburselva, I. Porsangen V.
134 Lakselva, I. Porsangen S.
135 Børselva, I. Porsangen Ø.
136 Mattusjåkka, I. Lakself. V.
137 Storelva, I. Lakself. V.
138 Sousjåkka, I. Lakself. V.
139 Adamselva, I. Lakself. Ø.
140 Tanavassdr., Tanaf. S.
141 Vesterelva, Syltef.
142 V. Jakobselv, Y. Varangerf.
143 Neiden Munkf./Varangerf.
144 Passvikelva, Bakf./Varangerf.
145 Grense Jakobselv, Varangerf.

APPENDIX II : SEWAGE EFFLUENTS FROM DOWNSTREAM AREAS OF MAIN AND TRIBUTARY RIVERS AND RIVERS NOT MONITORED 1997 (Paragraph 7 - 8) **Page:**

Paragraph 7: Sewage effluents ./.

Paragraph 8: Measurements of calculation used - including information on the concentration upon which the measurement is based:

Paragraph 3.3 (Report A, 1991, 1992 - 1998)

Municipal sewage includes a portion of industrial effluents

Table II Sewage Effluents from down stream areas of mainland Norway to convention waters (1997).

Total quantity of substance discharged per year:

Regions:	I	II	III	IV		
	The Skagerrak	The North	The Norwegian	The Barents	Sum	
Substance:	Region	Sea	Sea	Sea		
Cd	94	52	48	1	195	kg
Hg	44	33	21	0	98	kg
Cu	18.4	7.8	9.2	0.4	35.8	tonnes
Zn	19.4	12.1	10.7	0.4	42.7	tonnes
Pb	551	278	283	12	1124	kg
Cr-T	2.2	0.8	0.9	0.0	3.9	tonnes
Ni	3.4	1.5	1.8	0.1	6.8	tonnes
PCBs						kg
gamma-HCH						kg
NH4-N	3985	2674	3443	285	10387	tonnes
NO3-N	110	18	23	2	153	tonnes
PO4-P	103	206	343	30	681	tonnes
Tot-N	5063	3565	4591	379	13598	tonnes
Tot-P	171	343	571	49	1135	tonnes
S.P.M.	7119	10818	12492	663	31092	tonnes
TOC	8162	6759	7590	363	22875	tonnes
COD	31009	24099	25117	1230	81455	tonnes
BOD	15440	13518	15181	726	44866	tonnes

Table 2.1 Sewage Effluents to The Skagerrak Region (1997).

The Skagerrak region with sub-areas: (1) Glomma, (2) Drammenselva, (3) Numedalslågen, (4) Skienselva, (5) Otra

	Total quantity of substance discharged per year:							Precision of the estimate of the load
Sub-areas :	1	2	3	4	5			
Substance:								
Cd	39	11	18	6	20	kg	_____	%
Hg	15	6	11	3	9	kg	_____	%
Cu	10.80	1.75	1.80	0.92	3.16	tonnes	_____	%
Zn	9.76	2.04	2.84	1.07	3.74	tonnes	_____	%
Pb	278	57	78	30	108	kg	_____	%
Cr-T	1.24	0.18	0.34	0.09	0.31	tonnes	_____	%
Ni	1.92	0.29	0.47	0.15	0.53	tonnes	_____	
PCBs						kg	_____	%
gamma-HCH						kg	_____	%
NH4-N	2231	285	604	250	615	tonnes	_____	
NO3-N	98	2	4	2	4	tonnes	_____	%
PO4-P	29	9	19	7	40	tonnes	_____	%
Tot-N	2724	380	805	334	820	tonnes	_____	%
Tot-P	48	14	32	11	66	tonnes	_____	%
S.P.M.	2681	396	1489	288	2265	tonnes	_____	%
TOC	4374	533	1290	320	1645	tonnes	_____	%
COD	16529	2131	4916	1175	6259	tonnes	_____	%
BOD	7865	1066	2581	639	3289	tonnes	_____	%

Table 2.2 Sewage Effluents to The Remaining North Sea Region (1997).

The remaining North Sea Region with sub-areas: (6) Orreelva, (7) Suldalslågen

	Total quantity of substance discharged per year:				Precision of the estimate of the load
Sub-areas :	**6**	**7**			
Substance:					
Cd	28	24	kg	_____	%
Hg	22	11	kg	_____	%
Cu	2.99	4.82	tonnes	_____	%
Zn	6.48	5.62	tonnes	_____	%
Pb	126	152	kg	_____	%
Cr-T	0.35	0.48	tonnes	_____	%
Ni	0.68	0.80	tonnes	_____	
PCBs			kg	_____	%
gamma-HCH			kg	_____	%
NH4-N	1148	1525	tonnes	_____	
NO3-N	8	10	tonnes	_____	%
PO4-P	63	143	tonnes	_____	%
Tot-N	1531	2034	tonnes	_____	%
Tot-P	105	238	tonnes	_____	%
S.P.M.	3598	7220	tonnes	_____	%
TOC	2573	4187	tonnes	_____	%
COD	9827	14272	tonnes	_____	%
BOD	5145	8373	tonnes	_____	%

Table 2.3 Sewage Effluents to The Norwegian Sea Region (1997).

The Norwegian Sea Region with sub-areas: (8) Orkla, (9) Vefsna

	Total quantity of substance discharged per year:				Precision of the estimate of the load
Sub-areas :	8	9			
Substance:					
Cd	38	10	kg	_____	%
Hg	14	7	kg	_____	%
Cu	6.65	2.52	tonnes	_____	%
Zn	7.76	2.94	tonnes	_____	%
Pb	212	71	kg	_____	%
Cr-T	0.66	0.25	tonnes	_____	%
Ni	1.10	0.74	tonnes	_____	
PCBs			kg	_____	%
gamma-HCH			kg	_____	%
NH4-N	1975	1468	tonnes	_____	
NO3-N	13	10	tonnes	_____	%
PO4-P	200	143	tonnes	_____	%
Tot-N	2633	1958	tonnes	_____	%
Tot-P	333	238	tonnes	_____	%
S.P.M.	7511	4982	tonnes	_____	%
TOC	4862	2728	tonnes	_____	%
COD	16516	8601	tonnes	_____	%
BOD	9724	5456	tonnes	_____	%

Table 2.4 Sewage Effluents to The Barents Sea Region (1997).

The Barents Sea Region with sub-area: (10) Alta

	Total quantity of substance discharged per year:			Precision of the estimate of the load
Sub-area :	10			
Substance:				
Cd	1	kg	_____	%
Hg	0	kg	_____	%
Cu	0.37	tonnes	_____	%
Zn	0.43	tonnes	_____	%
Pb	12	kg	_____	%
Cr-T	0.04	tonnes	_____	%
Ni	0.12	tonnes	_____	
PCBs		kg	_____	%
gamma-HCH		kg	_____	%
NH4-N	285	tonnes	_____	
NO3-N	2	tonnes	_____	%
PO4-P	30	tonnes	_____	%
Tot-N	379	tonnes	_____	%
Tot-P	49	tonnes	_____	%
S.P.M.	663	tonnes	_____	%
TOC	363	tonnes	_____	%
COD	1230	tonnes	_____	%
BOD	726	tonnes	_____	%

APPENDIX III : INDUSTRIAL EFFLUENTS FROM DOWN STREAM AREAS OF MAIN AND TRIBUTARY RIVERS AND RIVERS NOT MONITORED 1997 (Paragraph 11 - 13) **Page:**

Paragraph 11: Industrial effluents ./.

Paragraph 12: Measurements of calculation used - including information on the concentration upon which the measurement is based:

Paragraph 3.3 (Report A, 1991, 1992 - 1998)

Paragraph 13: Any other relevant information (e.g. proportion of substance discharged as insoluble material):

A portion of industrial effluents is included in municipal sewage

Table III Industrial Effluents from down stream areas of mainland Norway to convention waters (1997).

Total quantity of substance discharged per year:

Regions:	I	II	III	IV		
	The Skagerrak	The North Sea	The Norwegian Sea	The Barents Sea	Sum	
Substance:						
Cd	3	913	51		967	kg
Hg	10	9	0		19	kg
Cu	8.10	0.85	17.56		27	tonnes
Zn	1.77	46.08	50.65		98	tonnes
Pb	76	3887	645		4608	kg
Arsenic	130	0	559		690	kg
Cr-T	0.94	0.25	0.18	0	1.37	tonnes
Ni	2.17	9.05	1.07		12.29	tonnes
PCBs						kg
gamma-HCH						kg
NO3-N						tonnes
PO4-P						tonnes
Tot-N	1556	1185	1529	2	4273	tonnes
Tot-P	85	76	96	1	257	tonnes
S.P.M.	3229	1396779	1390824	376719	3167551	tonnes
TOC	19	186	61		265	tonnes
COD	83273	13736	30518		127527	tonnes

Table 3.1 Industrial Effluents to The Skagerrak Region (1997).

The Skagerrak Region with sub-areas: (1) Glomma, (2) Drammenselva, (3) Numedalslågen, (4) Skienselva, (5) Otra

	Total quantity of substance discharged per year:							Precision of the estimate of the load
Sub-areas : Substance:	1	2	3	4	5			
Cd	1.75		0.70	0.00	0.80	kg	_____	%
Hg	8.66		0.30	0.64		kg	_____	%
Cu	6602		7	78	1417	kg	_____	%
Zn	1315		14	6	431	kg	_____	%
Pb	19.0	0.0	4.4	0.2	52.3	kg	_____	%
Arsenic	0.9		0.2		129.0	kg	_____	%
Cr-T	933.8		7.4	0.0	0.0	kg	_____	%
Ni	429.0		123.8	173.0	1442	kg	_____	%
PCBs						kg	_____	%
gamma-HCH						kg	_____	%
NO3-N						tonnes	_____	%
PO4-P						tonnes	_____	%
Tot-N	186.4	21.7	223.8	1121.9	2.6	tonnes	_____	%
Tot-P	33.2	0.7	28.6	20.1	1.9	tonnes	_____	%
S.P.M.	1069	127	1402	461	170	tonnes	_____	%
TOC	0.0		8.9	9.6		tonnes	_____	%
COD	51915	476	22551	8330	0	tonnes	_____	%

Table 3.2 Industrial Effluents to The Remaining North Sea Region (1997).

The remaining North Sea Region with sub-areas: (6) Orreelva, (7) Suldalslågen

	Total quantity of substance discharged per year:				Precision of the estimate of the load
Sub-areas :	6	7			
Substance:					
Cd	0.01	913	kg	_____	%
Hg	0.00	9.41	kg	_____	%
Cu	0	850	kg	_____	%
Zn	23	46060	kg	_____	%
Pb	0.0	3887	kg	_____	%
Arsenic	0.2	0.0	kg	_____	%
Cr-T	34.7	216.0	kg	_____	%
Ni	5295.8	3757	kg	_____	%
PCBs			kg	_____	%
gamma-HCH			kg	_____	%
NO3-N			tonnes	_____	%
PO4-P			tonnes	_____	%
Tot-N	42.4	1143	tonnes	_____	%
Tot-P	4.2	72.1	tonnes	_____	%
S.P.M.	1332472	64307	tonnes	_____	%
TOC	34.7	151.1	tonnes	_____	%
COD	145	13591	tonnes	_____	%

Table 3.3 Industrial Effluents to The Norwegian Sea Region (1997).

The Norwegian Sea Region with sub-areas: (8) Orkla, (9) Vefsna

	Total quantity of substance discharged per year:				Precision of the estimate of the load
Sub-areas :	8	9			
Substance:					
Cd	47.61	3.05	kg	_____	%
Hg	0.33	0.06	kg	_____	%
Cu	1630	15926	kg	_____	%
Zn	8271	42381	kg	_____	%
Pb	215.8	429.0	kg	_____	%
Arsenic	0.9	558.5	kg	_____	%
Cr-T	152.2	25.2	kg	_____	%
Ni	61.2	1007.1	kg	_____	%
PCBs			kg	_____	%
gamma-HCH			kg	_____	%
NO3-N			tonnes	_____	%
PO4-P			tonnes	_____	%
Tot-N	844.9	684.1	tonnes	_____	%
Tot-P	39.6	56.3	tonnes	_____	%
S.P.M.	321608	1069216	tonnes	_____	%
TOC	45.0	16.0	tonnes	_____	%
COD	30517.7	0.0	tonnes	_____	%

Table 3.4 Industrial Effluents toThe Barents Sea Region (1997).

The Barents Sea Region with sub-area: (10) Alta

	Total quantity of substance discharged per year:			Precision of the estimate of the load
Sub-area :	10			
Substance:				
Cd		kg	_____	%
Hg		kg	_____	%
Cu		kg	_____	%
Zn		kg	_____	%
Pb		kg	_____	%
Arsenic		kg	_____	%
Cr-T	0.0	kg	_____	%
Ni		kg	_____	%
PCBs		kg	_____	%
gamma-HCH		kg	_____	%
NO3-N		tonnes	_____	%
PO4-P		tonnes	_____	%
Tot-N	2.0	tonnes	_____	%
Tot-P	0.5	tonnes	_____	%
S.P.M.	376719	tonnes	_____	%
TOC		tonnes	_____	%
COD		tonnes	_____	%

APPENDIX IV : MAIN RIVERINE INPUTS 1997 (Paragraph 14 - 16) **Page:**

Paragraph 14: Main Rivers ./.

Paragraph15: Measurements of calculation used - including information on the concentration upon which the measurement is based:

Appendix VII (1-10) and Paragraph 3.2 (Report A, 1991, 1992 - 1998)

Paragraph 16: Any other relevant information (e.g. proportion of substance discharged as insoluble material):

Table 4.1 MAIN RIVERINE INPUTS 1997 (1) Glomma

Total volume: 58134 1000 m3/day Long term average flow (LTA) 60324 1000 m3/day
Minimum flow: 22170 1000 m3/day LTA period : 1961 to 1990
Maximum flow: 151779 1000 m3/day

	Mean	Number of meas.	Minimum concentr. during the year	Maximum concentr. during the year		Total quantity of substance discharged each year		Were 70 % of measurements above limit of detection ?		Precision of the estimate of the load
Cadmium *	0.03	12	0.00	0.08	µg/l	0.50	tonnes	NO	____	%
Cadmium **	0.03	12	0.01	0.08	µg/l	0.59	tonnes		____	%
Mercury *	1.00	12	0.0	4.0	ng/l	14.2	kg	NO	____	%
Mercury **	1.42	12	1.0	4.0	ng/l	26.1	kg		____	%
Copper	2.14	12	1.2	3.0	µg/l	45.8	tonnes	YES	____	%
Zinc	6.8	12	2.9	13.6	µg/l	131	tonnes	YES	____	%
Lead *	0.55	12	0.12	1.69	µg/l	9.66	tonnes	YES	____	%
Lead **	0.55	12	0.12	1.69	µg/l	9.66	tonnes		____	%
Arsenic *	0.12	2	0.00	0.23	µg/l	2.12	tonnes	NO	____	%
Arsenic **	0.17	2	0.10	0.23	µg/l	3.32	tonnes		____	%
Total Cr-T *	0.00	3	0.0	0.0	µg/l	0.00	tonnes	NO	____	%
Total Cr-T **	0.50	3	0.5	0.5	µg/l	10.61	tonnes		____	%
Ni *	0.94	12	0.5	1.8	µg/l	18.1	tonnes	YES	____	%
Ni **	0.94	12	0.5	1.8	µg/l	18.1	tonnes		____	%
V *	0.20	2	0.0	0.4	µg/l	4.4	tonnes	NO	____	%
V **	0.30	2	0.2	0.4	µg/l	6.4	tonnes		____	%
PCBs *		2			ng/l	0.00	kg	NO	____	%
PCBs **		2			ng/l	4.46	kg		____	%
gamma-HCH (lindane	0.40	2	0.25	0.55	ng/l	9.06	kg	YES	____	%
Ammonia (NH4-N)	33.33	12	9	83	µg/l	624	tonnes	YES	____	%
Ammonia (NH4-N)	33.33	12	9	83	µg/l	624	tonnes		____	%
Nitrates (NO3-N)	385.0	12	195	800	µg/l	8270	tonnes	YES	____	%
Orthoph. (PO4-P)	10.42	12	2.0	57.0	µg/l	168.6	tonnes	YES	____	%
Orthoph. (PO4-P)	10.42	12	2.0	57.0	µg/l	168.6	tonnes		____	%
Total N	577.5	12	350	1010	µg/l	12208	tonnes	YES	____	%
Total P	20.33	12	5	99	µg/l	346	tonnes	YES	____	%
SiO2	2.78	12	1.9	3.5	mg/l	56607	tonnes	YES	____	%
Susp. Part. Matter	13.20	12	1.40	75.5	mg/l	213009	tonnes	YES	____	%
TOC	5.10	1	5.1	5.1	mg/l	108217	tonnes	YES	____	%

Measurements below detection limits are treated in two ways :
*) Detection limit = Zero
**) Detection limit = Limit

Table 4.2 MAIN RIVERINE INPUTS 1997 (2) Drammenselva

Total volume: 21877 1000 m3/day
Minimum flow 7344 1000 m3/day
Maximum flov 52808 1000 m3/day

Long term average flow (LTA) 26743 1000 m3/day
LTA period : 1961 to 1990

	Mean	Number of meas.	Minimum concentr. during the year	Maximum concentr. during the year		Total quantity of substance discharged each year		Were 70 % of measurements above limit of detection ?		Precision of the estimate of the load
Cadmium *	0.01	12	0.00	0.04	µg/l	0.09	tonnes	NO	____	%
Cadmium **	0.02	12	0.01	0.04	µg/l	0.13	tonnes		____	%
Mercury *	0.08	12	0.00	1.00	ng/l	0.56	kg	NO	____	%
Mercury **	1.00	12	1.00	1.00	ng/l	7.99	kg		____	%
Copper	0.97	12	0.70	1.60	µg/l	7.59	tonnes	YES	____	%
Zinc	2.99	12	2.00	4.50	µg/l	23.86	tonnes	YES	____	%
Lead *	0.12	12	0.07	0.33	µg/l	1.01	tonnes	YES	____	%
Lead **	0.12	12	0.07	0.33	µg/l	1.01	tonnes		____	%
Arsenic *	0.12	2	0.00	0.23	µg/l	1.00	tonnes	NO	____	%
Arsenic **	0.17	2	0.10	0.23	µg/l	1.36	tonnes		____	%
Total Cr-T *	0.00	3	0.00	0.00	µg/l	0.00	tonnes	NO	____	%
Total Cr-T **	0.50	3	0.50	0.50	µg/l	3.99	tonnes		____	%
Ni *	0.58	12	0.40	1.20	µg/l	4.53	tonnes	YES	____	%
Ni **	0.58	12	0.40	1.20	µg/l	4.53	tonnes		____	%
V *	0.00	2	0.00	0.00	µg/l	0.00	tonnes	NO	____	%
V **	0.20	2	0.20	0.20	µg/l	1.60	tonnes		____	%
PCBs *		2			ng/l	0.00	kg	NO	____	%
PCBs **		2			ng/l	1.68	kg		____	%
gamma-HCH (linda	0.46	2	0.27	0.64	ng/l	3.52	kg	YES	____	%
Ammonia (NH4-N)	16.50	12	10.00	24.00	µg/l	131.8	tonnes	YES	____	%
Ammonia (NH4-N)	16.50	12	10.00	24.00	µg/l	131.8	tonnes		____	%
Nitrates (NO3-N)	290.4	12	175	440	µg/l	2324	tonnes	YES	____	%
Orthoph. (PO4-P)	1.65	12	0.90	5.00	µg/l	13.15	tonnes	YES	____	%
Orthoph. (PO4-P)	1.65	12	0.90	5.00	µg/l	13.15	tonnes		____	%
Total N	454.2	12	355	600	µg/l	3639	tonnes	YES	____	%
Total P	4.75	12	3.00	6.00	µg/l	38	tonnes	YES	____	%
SiO2	2.40	12	2.00	3.00	mg/l	19268	tonnes	YES	____	%
Susp. Part. Matter	1.64	12	0.87	2.68	mg/l	12902	tonnes	YES	____	%
TOC	3.50	1	3.50	3.50	mg/l	27948	tonnes	YES	____	%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

Table 4.3 MAIN RIVERINE INPUTS 1997 (3) Numedalslågen

Total volume: 7608 1000 m3/day
Minimum flow: 2540 1000 m3/day
Maximum flow: 36089 1000 m3/day

Long term average flow (LTA) 10082 1000 m3/day
LTA period : 1961 to 1990

	Mean	Number of meas.	Minimum concentr. during the year	Maximum concentr. during the year		Total quantity of substance discharged each year		Were 70 % of measurements above limit of detection ?		Precision of the estimate of the load
Cadmium *	0.01	12	0.00	0.04	µg/l	0.04	tonnes	NO	____	%
Cadmium **	0.02	12	0.01	0.04	µg/l	0.06	tonnes		____	%
Mercury *	1.79	12	0.00	9.00	ng/l	6.59	kg	NO	____	%
Mercury **	2.13	12	1.00	9.00	ng/l	7.19	kg		____	%
Copper	1.63	12	0.70	4.00	µg/l	5.22	tonnes	YES	____	%
Zinc	4.99	12	2.10	9.00	µg/l	15.2	tonnes	YES	____	%
Lead *	0.32	12	0.09	0.75	µg/l	1.11	tonnes	YES	____	%
Lead **	0.32	12	0.09	0.75	µg/l	1.11	tonnes		____	%
Arsenic *	0.13	2	0.00	0.25	µg/l	0.47	tonnes	NO	____	%
Arsenic **	0.18	2	0.10	0.25	µg/l	0.56	tonnes		____	%
Total Cr-T *	0.23	3	0.00	0.70	µg/l	0.82	tonnes	NO	____	%
Total Cr-T **	0.57	3	0.50	0.70	µg/l	1.62	tonnes		____	%
Ni *	0.49	12	0.30	0.90	µg/l	1.51	tonnes	YES	____	%
Ni **	0.49	12	0.30	0.90	µg/l	1.51	tonnes		____	%
V *	0.70	2	0.40	1.00	µg/l	1.98	tonnes	YES	____	%
V **	0.70	2	0.40	1.00	µg/l	1.98	tonnes		____	%
PCBs *		2			ng/l	0.00	kg	NO	____	%
PCBs **		2			ng/l	0.58	kg		____	%
gamma-HCH (lindan	0.51	2	0.47	0.54	ng/l	1.37	kg	YES	____	%
Ammonia (NH4-N)	37.3	12	12.00	100.0	µg/l	83.9	tonnes	YES	____	%
Ammonia (NH4-N)	37.3	12	12.00	100.0	µg/l	83.9	tonnes		____	%
Nitrates (NO3-N)	229	12	47	560	µg/l	735	tonnes	YES	____	%
Orthoph. (PO4-P)	3.92	12	1.00	16.0	µg/l	14.05	tonnes	YES	____	%
Orthoph. (PO4-P)	3.92	12	1.00	16.0	µg/l	14.05	tonnes		____	%
Total N	427	12	215	800	µg/l	1284	tonnes	YES	____	%
Total P	9.25	12	5.00	29.0	µg/l	32	tonnes	YES	____	%
SiO2	2.84	12	1.30	4.3	mg/l	8297	tonnes	YES	____	%
Susp. Part. Matter	4.41	12	1.77	19.82	mg/l	16812	tonnes	YES	____	%
TOC	3.40	1	3.40	3.40	mg/l	9442	tonnes	YES	____	%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

Table 4.4 MAIN RIVERINE INPUTS 1997 (4) Skienselva

Total volume:	**18074**	**1000 m3/day**	**Long term average flow (LTA)**	**22611**	**1000 m3/day**
Minimum flow:	**4320**	**1000 m3/day**	**LTA period :**	**1961 to 1990**	
Maximum flow:	**50976**	**1000 m3/day**			

	Mean	Number of meas.	Minimum concentr. during the year	Maximum concentr. during the year		Total quantity of substance discharged each year		Were 70 % of measurements above limit of detection ?		Precision of the estimate of the load
Cadmium *	0.01	12	0.00	0.05	µg/l	0.10	tonnes	NO		%
Cadmium **	0.02	12	0.01	0.05	µg/l	0.12	tonnes			%
Mercury *	0.17	12	0.00	1.00	ng/l	1.38	kg	NO		%
Mercury **	1.00	12	1.00	1.00	ng/l	6.60	kg			%
Copper	0.93	12	0.40	3.20	µg/l	7.4	tonnes	YES		%
Zinc	2.51	12	1.60	3.40	µg/l	17.6	tonnes	YES		%
Lead *	0.07	12	0.00	0.23	µg/l	0.47	tonnes	YES		%
Lead **	0.07	12	0.02	0.23	µg/l	0.48	tonnes			%
Arsenic *	0.07	2	0.00	0.14	µg/l	0.60	tonnes	NO		%
Arsenic **	0.12	2	0.10	0.14	µg/l	0.83	tonnes			%
Total Cr-T *	0.00	3	0.00	0.00	µg/l	0.00	tonnes	NO		%
Total Cr-T **	0.50	3	0.50	0.50	µg/l	3.30	tonnes			%
Ni *	0.28	12	0.00	0.40	µg/l	1.96	tonnes	YES		%
Ni **	0.29	12	0.20	0.40	µg/l	2.00	tonnes			%
V *	0.00	2	0.00	0.00	µg/l	0.00	tonnes	NO		%
V **	0.20	2	0.20	0.20	µg/l	1.32	tonnes			%
PCBs *		2			ng/l	0.00	kg	NO		%
PCBs **		2			ng/l	1.39	kg			%
gamma-HCH (lindane	0.61	2	0.32	0.89	ng/l	3.10	kg	YES		%
Ammonia (NH4-N)	14.7	12	3.0	29.0	µg/l	97.0	tonnes	YES		%
Ammonia (NH4-N)	14.7	12	3.0	29.0	µg/l	97.0	tonnes			%
Nitrates (NO3-N)	199	12	126	235	µg/l	1402	tonnes	YES		%
Orthoph. (PO4-P)	0.80	12	0.50	2.00	µg/l	5.64	tonnes	YES		%
Orthoph. (PO4-P)	0.80	12	0.50	2.00	µg/l	5.64	tonnes			%
Total N	318	12	285	380	µg/l	2161	tonnes	YES		%
Total P	4.50	12	2	13	µg/l	30	tonnes	YES		%
SiO2	1.81	12	1.60	2.10	mg/l	12175	tonnes	YES		%
Susp. Part. Matter	1.29	12	0.50	7.15	mg/l	6269	tonnes	YES		%
TOC	2.20	1	2.20	2.20	mg/l	14513	tonnes	YES		%

Measurements below detection limits are treated in two ways :

***) Detection limit = Zero**

****) Detection limit = Limit**

Table 4.5 MAIN RIVERINE INPUTS 1997 (5) Otra

Total volume: 10921 1000 m3/day
Minimum flow: 4389 1000 m3/day
Maximum flow: 24434 1000 m3/day

Long term average flow (LTA) 12841 1000 m3/day
LTA period : 1961 to 1990

	Mean	Number of meas.	Minimum concentr. during the year	Maximum concentr. during the year		Total quantity of substance discharged each year		Were 70 % of measurements above limit of detection ?		Precision of the estimate of the load
Cadmium *	0.03	12	0.00	0.07	µg/l	0.13	tonnes	YES	____	%
Cadmium **	0.03	12	0.01	0.07	µg/l	0.14	tonnes		____	%
Mercury *	0.46	12	0.00	2.50	ng/l	2.26	kg	NO	____	%
Mercury **	1.21	12	1.00	2.50	ng/l	5.17	kg		____	%
Copper	0.49	12	0.40	0.60	µg/l	2.03	tonnes	YES	____	%
Zinc	4.61	12	3.20	7.30	µg/l	19.5	tonnes	YES	____	%
Lead *	0.27	12	0.12	0.50	µg/l	1.20	tonnes	YES	____	%
Lead **	0.27	12	0.12	0.50	µg/l	1.20	tonnes		____	%
Arsenic *	0.19	2	0.17	0.21	µg/l	0.79	tonnes	YES	____	%
Arsenic **	0.19	2	0.17	0.21	µg/l	0.79	tonnes		____	%
Total Cr-T *	0.00	3	0.00	0.00	µg/l	0.00	tonnes	NO	____	%
Total Cr-T **	0.50	3	0.50	0.50	µg/l	1.99	tonnes		____	%
Ni *	0.74	12	0.40	1.40	µg/l	3.15	tonnes	YES	____	%
Ni **	0.74	12	0.40	1.40	µg/l	3.15	tonnes		____	%
V *	0.10	2	0.00	0.20	µg/l	0.43	tonnes	NO	____	%
V **	0.20	2	0.20	0.20	µg/l	0.80	tonnes		____	%
PCBs *		2			ng/l	0.00	kg	NO	____	%
PCBs **		2			ng/l	0.84	kg		____	%
gamma-HCH (lindane)	0.88	2	0.84	0.91	ng/l	3.56	kg	YES	____	%
Ammonia (NH4-N)	14.4	12	0.0	40.0	µg/l	63.8	tonnes	YES	____	%
Ammonia (NH4-N)	14.9	12	3.0	40.0	µg/l	64.6	tonnes		____	%
Nitrates (NO3-N)	143	12	85	180	µg/l	591	tonnes	YES	____	%
Orthoph. (PO4-P)	0.85	12	0.5	2.0	µg/l	3.23	tonnes	YES	____	%
Orthoph. (PO4-P)	0.85	12	0.5	2.0	µg/l	3.23	tonnes		____	%
Total N	267	12	205	315	µg/l	1099	tonnes	YES	____	%
Total P	3.50	12	2.0	5.0	µg/l	13	tonnes	YES	____	%
SiO2	1.58	12	1.20	2.20	mg/l	6719	tonnes	YES	____	%
Susp. Part. Matter	1.32	12	0.52	3.35	mg/l	5251	tonnes	YES	____	%
TOC	2.51	12	1.90	3.80	mg/l	10713	tonnes	YES	____	%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

Table 4.6 MAIN RIVERINE INPUTS 1997 (6) Orreelva

Total volume:	260	1000 m3/day	Long term average flow (LTA)	333	1000 m3/day
Minimum flow:	14	1000 m3/day	LTA period : 1961 to 1990		
Maximum flow:	1016	1000 m3/day			

	Mean	Number of meas.	Minimum concentr. during the year	Maximum concentr. during the year		Total quantity of substance discharged each year		Were 70 % of measurements above limit of detection ?		Precision of the estimate of the load
Cadmium *	0.01	12	0.00	0.04	µg/l	0.00	tonnes	NO		%
Cadmium **	0.02	12	0.01	0.04	µg/l	0.00	tonnes			%
Mercury *	0.75	12	0.00	5.00	ng/l	0.12	kg	NO		%
Mercury **	1.42	12	1.00	5.00	ng/l	0.18	kg			%
Copper	1.74	12	1.10	2.90	µg/l	0.19	tonnes	YES		%
Zinc	3.14	12	0.90	9.90	µg/l	0.41	tonnes	YES		%
Lead *	0.61	12	0.08	2.31	µg/l	0.08	tonnes	YES		%
Lead **	0.61	12	0.08	2.31	µg/l	0.08	tonnes			%
Arsenic *	0.52	2	0.36	0.67	µg/l	0.05	tonnes	YES		%
Arsenic **	0.52	2	0.36	0.67	µg/l	0.05	tonnes			%
Total Cr-T *	0.00	3	0.00	0.00	µg/l	0.00	tonnes	NO		%
Total Cr-T **	0.50	3	0.50	0.50	µg/l	0.05	tonnes			%
Ni *	1.55	12	1.10	2.00	µg/l	0.16	tonnes	YES		%
Ni **	1.55	12	1.10	2.00	µg/l	0.16	tonnes			%
V *	0.40	2	0.40	0.40	µg/l	0.04	tonnes	YES		%
V **	0.40	2	0.40	0.40	µg/l	0.04	tonnes			%
PCBs *		2			ng/l	0.00	kg	NO		%
PCBs **		2			ng/l	0.02	kg			%
gamma-HCH (lindane	0.61	2	0.57	0.65	ng/l	0.06	kg	YES		%
Ammonia (NH4-N)	85.0	12	25	215	µg/l	8.52	tonnes	YES		%
Ammonia (NH4-N)	85.0	12	25	215	µg/l	8.52	tonnes			%
Nitrates (NO3-N)	977	12	4	1900	µg/l	110	tonnes	YES		%
Orthoph. (PO4-P)	26.92	12	1	81	µg/l	3.45	tonnes	YES		%
Orthoph. (PO4-P)	26.92	12	1	81	µg/l	3.45	tonnes			%
Total N	1811	12	860	2590	µg/l	195	tonnes	YES		%
Total P	77	12	37	190	µg/l	9	tonnes	YES		%
SiO2	3.10	1	3.10	3.10	mg/l	295	tonnes	YES		%
Susp. Part. Matter	11.51	12	2.81	36.10	mg/l	1454	tonnes	YES		%
TOC	5.50	1	5.50	5.50	mg/l	523	tonnes	YES		%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

Table 4.7 MAIN RIVERINE INPUTS 1997 (7) Suldalslågen

Total volume:	4907	1000 m3/day	Long term average flow (LTA)	7422 1000 m3/day
Minimum flow:	1097	1000 m3/day	LTA period : 1961 to 1990	
Maximum flow:	25246	1000 m3/day		

	Mean	Number of meas.	Minimum concentr. during the year	Maximum concentr. during the year		Total quantity of substance discharged each year		Were 70 % of measurements above limit of detection ?		Precision of the estimate of the load
Cadmium *	0.02	4	0.00	0.04	µg/l	0.02	tonnes	NO	____	%
Cadmium **	0.02	4	0.01	0.04	µg/l	0.03	tonnes		____	%
Mercury *	0.25	4	0.00	1.00	ng/l	0.24	kg	NO	____	%
Mercury **	1.00	4	1.00	1.00	ng/l	1.79	kg		____	%
Copper	0.63	4	0.50	0.70	µg/l	1.09	tonnes	YES	____	%
Zinc	2.68	4	1.50	4.90	µg/l	4.59	tonnes	YES	____	%
Lead *	0.09	4	0.05	0.14	µg/l	0.18	tonnes	YES	____	%
Lead **	0.09	4	0.05	0.14	µg/l	0.18	tonnes		____	%
Arsenic *	0.00	1	0.00	0.00	µg/l	0.00	tonnes	NO	____	%
Arsenic **	0.10	1	0.10	0.10	µg/l	0.18	tonnes		____	%
Total Cr-T *	0.00	1	0.00	0.00	µg/l	0.00	tonnes	NO	____	%
Total Cr-T **	0.50	1	0.50	0.50	µg/l	0.90	tonnes		____	%
Ni *	0.23	4	0.00	0.40	µg/l	0.42	tonnes	YES	____	%
Ni **	0.28	4	0.20	0.40	µg/l	0.50	tonnes		____	%
V *	0.00	0	0.00	0.00	µg/l	0.00	tonnes	0	____	%
V **	0.00	0	0.00	0.00	µg/l	0.00	tonnes		____	%
PCBs *		2			ng/l	0.00	kg	NO	____	%
PCBs **		2			ng/l	0.38	kg		____	%
gamma-HCH (lindane	0.47	2	0.14	0.79	ng/l	0.92	kg	YES	____	%
Ammonia (NH4-N)	6.50	4	0	11	µg/l	13.30	tonnes	YES	____	%
Ammonia (NH4-N)	7.25	4	3	11	µg/l	14.55	tonnes		____	%
Nitrates (NO3-N)	173	4	155	180	µg/l	311	tonnes	YES	____	%
Orthoph. (PO4-P)	0.63	4	0.5	1.0	µg/l	1.05	tonnes	YES	____	%
Orthoph. (PO4-P)	0.63	4	0.5	1.0	µg/l	1.05	tonnes		____	%
Total N	233	4	200	270	µg/l	433	tonnes	YES	____	%
Total P	2.00	4	1	3	µg/l	4	tonnes	YES	____	%
SiO2	0.82	1	0.82	0.82	mg/l	1469	tonnes	YES	____	%
Susp. Part. Matter	0.82	4	0.59	1.03	mg/l	1527	tonnes	YES	____	%
TOC	0.50	1	0.50	0.50	mg/l	896	tonnes	YES	____	%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

Table 4.8 MAIN RIVERINE INPUTS 1997 (8) Orkla

Total volume: 7132 1000 m3/day
Minimum flow: 1984 1000 m3/day
Maximum flow: 53715 1000 m3/day

Long term average flow (LTA) 5374 1000 m3/day
LTA period : 1961 to 1990

	Mean	Number of meas.	Minimum concentr. during the year	Maximum concentr. during the year		Total quantity of substance discharged each year		Were 70 % of measurements above limit of detection ?		Precision of the estimate of the load
Cadmium *	0.07	23	0.01	0.24	µg/l	0.17	tonnes	YES	____	%
Cadmium **	0.07	23	0.01	0.24	µg/l	0.17	tonnes		____	%
Mercury *	0.46	12	0.00	1.50	ng/l	2.27	kg	NO	____	%
Mercury **	1.13	12	1.00	1.50	ng/l	3.28	kg		____	%
Copper	10.19	23	1.50	28.60	µg/l	26.41	tonnes	YES	____	%
Zinc	27.8	23	4.90	87.90	µg/l	63.8	tonnes	YES	____	%
Lead *	0.10	23	0.02	0.78	µg/l	0.34	tonnes	YES	____	%
Lead **	0.10	23	0.02	0.78	µg/l	0.34	tonnes		____	%
Arsenic *	0.12	14	0.00	0.72	µg/l	0.21	tonnes	NO	____	%
Arsenic **	0.17	14	0.10	0.72	µg/l	0.35	tonnes		____	%
Total Cr-T *	0.16	15	0.00	0.70	µg/l	0.54	tonnes	NO	____	%
Total Cr-T **	0.53	15	0.50	0.70	µg/l	1.39	tonnes		____	%
Ni *	1.07	23	0.50	2.10	µg/l	2.83	tonnes	YES	____	%
Ni **	1.07	23	0.50	2.10	µg/l	2.83	tonnes		____	%
V *	0.05	14	0.00	0.40	µg/l	0.40	tonnes	NO	____	%
V **	0.22	14	0.20	0.40	µg/l	0.69	tonnes		____	%
PCBs *		2			ng/l	0.00	kg	NO	____	%
PCBs **		2			ng/l	0.55	kg		____	%
gamma-HCH (lindane)	0.31	2	0.26	0.36	ng/l	0.76	kg	YES	____	%
Ammonia (NH4-N)	7.75	12	0.0	18.0	µg/l	20.59	tonnes	YES	____	%
Ammonia (NH4-N)	8.00	12	3.0	18.0	µg/l	21.02	tonnes		____	%
Nitrates (NO3-N)	197	12	58	375	µg/l	405	tonnes	YES	____	%
Orthoph. (PO4-P)	1.75	16	0.5	5.0	µg/l	5.25	tonnes	YES	____	%
Orthoph. (PO4-P)	1.75	16	0.5	5.0	µg/l	5.25	tonnes		____	%
Total N	328	16	180	520	µg/l	792	tonnes	YES	____	%
Total P	4.94	16	2.0	8.4	µg/l	14	tonnes	YES	____	%
SiO2	2.60	1	2.60	2.60	mg/l	6768	tonnes	YES	____	%
Susp. Part. Matter	1.99	12	0.44	6.09	mg/l	7193	tonnes	YES	____	%
TOC	3.31	12	1.90	7.60	mg/l	10004	tonnes	YES	____	%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

Table 4.9 MAIN RIVERINE INPUTS 1997 (9) Vefsna

Total volume:	19515	1000 m3/day	Long term average flow (LTA)	15620	1000 m3/day
Minimum flow:	3499	1000 m3/day	LTA period :	1961 to 1990	
Maximum flow:	111802	1000 m3/day			

	Mean	Number of meas.	Minimum concentr. during the year	Maximum concentr. during the year		Total quantity of substance discharged each year		Were 70 % of measurements above limit of detection ?		Precision of the estimate of the load
Cadmium *	0.02	12	0.00	0.11	µg/l	0.11	tonnes	NO		%
Cadmium **	0.02	12	0.01	0.11	µg/l	0.13	tonnes			%
Mercury *	0.42	12	0.0	2.0	ng/l	1.85	kg	NO		%
Mercury **	1.08	12	1.0	2.0	ng/l	7.23	kg			%
Copper	2.55	12	0.2	5.9	µg/l	14.6	tonnes	YES		%
Zinc	5.33	12	1.1	14.5	µg/l	44.5	tonnes	YES		%
Lead *	0.40	12	0.03	1.2	µg/l	3.95	tonnes	YES		%
Lead **	0.40	12	0.03	1.2	µg/l	3.95	tonnes			%
Arsenic *	0.07	2	0.00	0.14	µg/l	0.40	tonnes	NO		%
Arsenic **	0.12	2	0.10	0.14	µg/l	0.83	tonnes			%
Total Cr-T *	0.00	3	0.00	0.00	µg/l	0.00	tonnes	NO		%
Total Cr-T **	0.50	3	0.50	0.50	µg/l	3.56	tonnes			%
Ni *	0.44	12	0.00	1.20	µg/l	3.23	tonnes	YES		%
Ni **	0.47	12	0.10	1.20	µg/l	3.32	tonnes			%
V *	0.00	2	0.00	0.00	µg/l	0.00	tonnes	NO		%
V **	0.20	2	0.20	0.20	µg/l	1.42	tonnes			%
PCBs *		2			ng/l	0.00	kg	NO		%
PCBs **		2			ng/l	1.50	kg			%
gamma-HCH (lindane	0.22	2	0.14	0.29	ng/l	1.72	kg	YES		%
Ammonia (NH4-N)	10.7	12	0.0	26.0	µg/l	59.0	tonnes	YES		%
Ammonia (NH4-N)	11.2	12	3.0	26.0	µg/l	62.3	tonnes			%
Nitrates (NO3-N)	102	12	16	380	µg/l	389	tonnes	YES		%
Orthoph. (PO4-P)	2.98	12	0.8	9.0	µg/l	21.4	tonnes	YES		%
Orthoph. (PO4-P)	2.98	12	0.8	9.0	µg/l	21.4	tonnes			%
Total N	320	12	68	595	µg/l	1608	tonnes	YES		%
Total P	5.25	12	2.00	13.00	µg/l	39	tonnes	YES		%
SiO2	1.30	1	1.30	1.30	mg/l	9260	tonnes	YES		%
Susp. Part. Matter	3.28	12	0.49	12.90	mg/l	27921	tonnes	YES		%
TOC	3.50	1	3.50	3.50	mg/l	24931	tonnes	YES		%

Measurements below detection limits are treated in two ways :

***) Detection limit = Zero**

****) Detection limit = Limit**

Table 4.10 MAIN RIVERINE INPUTS 1997 (10) Altaelva

Total volume:	7186	1000 m3/day	Long term average flow (LTA)	7487	1000 m3/day
Minimum flow:	2445	1000 m3/day	LTA period :	1961 to 1990	
Maximum flow:	96854	1000 m3/day			

	Mean	Number of meas.	Minimum concentr. during the year	Maximum concentr. during the year		Total quantity of substance discharged each year		Were 70 % of measurements above limit of detection ?		Precision of the estimate of the load
Cadmium *	0.00	4	0.00	0.01	µg/l	0.00	tonnes	NO		%
Cadmium **	0.01	4	0.01	0.01	µg/l	0.03	tonnes			%
Mercury *	0.00	4	0.00	0.00	ng/l	0.00	kg	NO		%
Mercury **	1.00	4	1.00	1.00	ng/l	2.62	kg			%
Copper	1.13	4	0.70	1.60	µg/l	2.49	tonnes	YES		%
Zinc	0.38	4	0.20	0.50	µg/l	1.15	tonnes	YES		%
Lead *	0.06	4	0.00	0.12	µg/l	0.10	tonnes	YES		%
Lead **	0.07	4	0.02	0.12	µg/l	0.11	tonnes			%
Arsenic *	0.56	1	0.56	0.56	µg/l	1.47	tonnes	YES		%
Arsenic **	0.56	1	0.56	0.56	µg/l	1.47	tonnes			%
Total Cr-T *	0.00	1	0.00	0.00	µg/l	0.00	tonnes	NO		%
Total Cr-T **	0.50	1	0.50	0.50	µg/l	1.31	tonnes			%
Ni *	0.23	4	0.00	0.60	µg/l	0.70	tonnes	NO		%
Ni **	0.33	4	0.20	0.60	µg/l	0.83	tonnes			%
V *	0.00	1	0.00	0.00	µg/l	0.00	tonnes	NO		%
V **	0.20	1	0.20	0.20	µg/l	0.52	tonnes			%
PCBs *		2			ng/l	0.00	kg	NO		%
PCBs **		2			ng/l	0.55	kg			%
gamma-HCH (lindane	0.07	2	0.06	0.08	ng/l	0.18	kg	YES		%
Ammonia (NH4-N)	1.50	4	0	6	µg/l	1.74	tonnes	NO		%
Ammonia (NH4-N)	3.75	4	3	6	µg/l	8.74	tonnes			%
Nitrates (NO3-N)	45.0	4	1	85	µg/l	97	tonnes	YES		%
Orthoph. (PO4-P)	7.25	4	1.00	17	µg/l	11.62	tonnes	YES		%
Orthoph. (PO4-P)	7.25	4	1.00	17	µg/l	11.62	tonnes			%
Total N	146	4	123	155	µg/l	386	tonnes	YES		%
Total P	10.75	4	5	20	µg/l	23	tonnes	YES		%
SiO2	4.10	1	4.10	4.10	mg/l	10754	tonnes	YES		%
Susp. Part. Matter	0.92	4	0.50	1.36	mg/l	3002	tonnes	YES		%
TOC	3.50	1	3.50	3.50	mg/l	9181	tonnes	YES		%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

APPENDIX V : INPUTS FROM TRIBUTARY RIVERS 1997 (Paragraph 17 - 19) Page :

Paragraph 17: Tributary rivers ./.

Paragraph18: Measurements of calculation used - including information on the concentration upon which the measurement is based:

Appendix VIII and IX (1-10) and Paragraph 3.2 (Report A, 1991, 1992 - 1998)

Paragraph 19: Any other relevant information (e.g. proportion of substance discharged as insoluble material):

Table 5.1 The Skagerrak Region. Inputs from tributary rivers 1997 in The Subareas (1-5).

The Skagerrak Region with sub-areas: (1A) Glomma, (1B) Inner Oslofj., (2) Drammenselva, (3) Numedalslågen, (4) Skienselva, (5) Otra

Total quantity of substance discharged per year:								Were 70 % of measurements above the detection limit ?		Precision of the estimate of the load
Sub-areas :	1A	1B	2	3	4	5				
Substance:										
Cd *	0.03	0.03	0.00	0.03	0.03	0.40	tonnes	YES	_____	%
Cd **	0.03	0.03	0.00	0.03	0.03	0.40	tonnes		_____	%
Hg *	0.05	1.23	0.29	0.30	0.77	9.69	kg	NO	_____	%
Hg **	0.70	1.36	0.29	0.54	0.77	10.21	kg		_____	%
Cu	0.8	1.6	0.3	0.6	0.3	4.3	tonnes	YES	_____	%
Zn	2.0	5.0	1.7	10.7	4.2	50.2	tonnes	YES	_____	%
Pb *	0.19	0.59	0.11	0.19	0.11	3.58	tonnes	YES	_____	%
Pb **	0.19	0.59	0.11	0.19	0.11	3.58	tonnes		_____	%
Arsenic *	0.28	0.19	0.08	0.20	0.25	2.12	tonnes	YES	_____	%
Arsenic **	0.28	0.19	0.08	0.20	0.25	2.12	tonnes		_____	%
Cr-T *	1.16	0.30	0.07	1.02	0.00	0.00	tonnes	NO	_____	%
Cr-T **	1.18	0.44	0.07	1.02	0.38	4.05	tonnes		_____	%
Ni *	1.27	0.69	0.21	0.77	0.31	2.33	tonnes	YES	_____	%
Ni **	1.27	0.72	0.21	0.79	0.31	2.33	tonnes		_____	%
PCBs *	0.00	0.04	0.00	0.00	0.00	0.00	kg	NO	_____	%
PCBs **	0.14	0.11	0.03	0.10	0.16	1.70	kg		_____	%
gamma-HCH	0.41	0.23	0.07	0.25	0.54	6.03	kg	YES	_____	%
NH4-N *	72	19	2	33	18	209	tonnes		_____	%
NH4-N **	72	19	2	33	18	209	tonnes	YES	_____	%
NO3-N	525	294	142	436	150	1482	tonnes	YES	_____	%
PO4-P	3	7	3	10	1	7	tonnes	YES	_____	%
Total N	722	498	160	680	292	2919	tonnes	YES	_____	%
Total P	12	16	6	21	3	31	tonnes	YES	_____	%
SiO2	1971	1939	910	3002	2074	16327	tonnes	YES	_____	%
S.P.M.	1967	7336	2951	1122	930	10750	tonnes	YES	_____	%
TOC	4690	2328	866	2070	4302	27019	tonnes	YES	_____	%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

Table 5.2 The remaining North Sea Region. Inputs from tributary rivers 1997 in The Subareas (6-7).

The remaining North Sea Region with sub-areas: (6) Orreelva, (7) Suldalslågen

Total quantity of substance discharged per year:				Were 70 % of measurements above the detection limit ?		Precision of the estimate of the load
Sub-areas :	6	7				
Substance:						
Cd *	0.45	0.40	tonnes	NO	_____	%
Cd **	0.47	0.54	tonnes		_____	%
Hg *	4.18	13.12	kg	NO	_____	%
Hg **	14.94	35.29	kg		_____	%
Cu	4.4	20.4	tonnes	YES	_____	%
Zn	52.4	128.1	tonnes	YES	_____	%
Pb *	4.73	11.29	tonnes	YES	_____	%
Pb **	4.73	11.29	tonnes		_____	%
Arsenic *	1.48	2.67	tonnes	NO	_____	%
Arsenic **	2.07	6.32	tonnes		_____	%
Cr-T *	0.40	0.00	tonnes	NO	_____	%
Cr-T **	7.25	17.45	tonnes		_____	%
Ni *	4.10	4.88	tonnes	NO	_____	%
Ni **	6.14	8.35	tonnes		_____	%
PCBs *	0.00	0.00	kg	NO	_____	%
PCBs **	2.93	7.33	kg		_____	%
gamma-HCH	8.17	9.26	kg	YES	_____	%
NH4-N *	257	229	tonnes		_____	%
NH4-N **	260	259	tonnes	YES	_____	%
NO3-N	3198	5421	tonnes	YES	_____	%
PO4-P	17	79	tonnes	YES	_____	%
Total N	5973	8684	tonnes	YES	_____	%
Total P	115	194	tonnes	YES	_____	%
SiO2	23562	43225	tonnes	YES	_____	%
S.P.M.	9040	60546	tonnes	YES	_____	%
TOC	40731	34028	tonnes	YES	_____	%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

Table 5.3 The Norwegian Sea Region. Inputs from tributary rivers 1997 in The Subareas (8-9).

The Norwegian Sea Region with sub-areas: (8) Orkla, (9) Vefsna

Total quantity of substance discharged per year:				Were 70 % of measurements above the detection limit ?		Precision of the estimate of the load
Sub-areas :	8	9				
Substance:						
Cd *	0.39	0.08	tonnes	NO	_____	%
Cd **	0.57	0.35	tonnes		_____	%
Hg *	91.6	108.7	kg	YES	_____	%
Hg **	103.9	109.9	kg		_____	%
Cu	55.7	31.2	tonnes	YES	_____	%
Zn	74.1	52.7	tonnes	YES	_____	%
Pb *	4.42	9.27	tonnes	YES	_____	%
Pb **	4.42	9.32	tonnes		_____	%
Arsenic *	8.06	10.67	tonnes	NO	_____	%
Arsenic **	9.15	11.32	tonnes		_____	%
Cr-T *	41.14	9.96	tonnes	NO	_____	%
Cr-T **	50.58	19.39	tonnes		_____	%
Ni *	46.40	25.37	tonnes	YES	_____	%
Ni **	48.11	26.03	tonnes		_____	%
PCBs *	0.00	0.00	kg	NO	_____	%
PCBs **	10.00	6.53	kg		_____	%
gamma-HCH	17.00	9.90	kg	YES	_____	%
NH4-N *	411	485	tonnes		_____	%
NH4-N **	428	485	tonnes	YES	_____	%
NO3-N	4454	1714	tonnes	YES	_____	%
PO4-P	86	110	tonnes	YES	_____	%
Total N	9130	4431	tonnes	YES	_____	%
Total P	248	197	tonnes	YES	_____	%
SiO2	59956	41407	tonnes	YES	_____	%
S.P.M.	67563	278308	tonnes	YES	_____	%
TOC	55939	6761	tonnes	YES	_____	%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

Table 5.4 The Barents Region. Inputs from tributary rivers 1997 in The Subarea (10).

The Barents Sea Region with sub-area: (10) Alta

Total quantity of substance discharged per year:			Were 70 % of measurements above the detection limit ?		Precision of the estimate of the load
Sub-area :	10				
Substance:					
Cd *	0.60	tonnes	NO	_____	%
Cd **	0.70	tonnes		_____	%
Hg *	11.95	kg	NO	_____	%
Hg **	25.18	kg		_____	%
Cu	31.5	tonnes	YES	_____	%
Zn	62.3	tonnes	YES	_____	%
Pb *	5.52	tonnes	YES	_____	%
Pb **	5.56	tonnes		_____	%
Arsenic *	3.52	tonnes	NO	_____	%
Arsenic **	3.79	tonnes		_____	%
Cr-T *	6.04	tonnes	NO	_____	%
Cr-T **	12.00	tonnes		_____	%
Ni *	38.09	tonnes	NO	_____	%
Ni **	38.70	tonnes		_____	%
PCBs *	0.00	kg	NO	_____	%
PCBs **	3.71	kg		_____	%
gamma-HCH	3.54	kg	YES	_____	%
NH4-N *	137	tonnes		_____	%
NH4-N **	137	tonnes	YES	_____	%
NO3-N	460	tonnes	YES	_____	%
PO4-P	21	tonnes	YES	_____	%
Total N	2353	tonnes	YES	_____	%
Total P	54	tonnes	YES	_____	%
SiO2	81210	tonnes	YES	_____	%
S.P.M.	10172	tonnes	YES	_____	%
TOC	42285	tonnes	YES	_____	%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

APPENDIX VI : OTHER INPUTS 1997 (Paragraph 20) **Page:**

Paragraph 20: Any available information on discharge through urban run-off - storm water overflow - polder effluents etc.:

"Background" is runoff from forested areas and highlands, including effect of acid precipitation

Agriculture runoff:
- "Area" is runoff from arable land
- "Point"-sources are drainage from silos, manures etc.

Paragraph 3.3 (Report A, 1991, 1992 - 1998)

Table 6.1 Nutrients from "Down Stream Areas" of main and tributary rivers and rivers not monitored 1997.

Direct runoff of P and N :

Sub-areas:		Back-ground tonnes	Agriculture Area tonnes	Sum tonnes
1 Glomma	P	7.1	4.7	11.9
	N	463.1	498.4	961.4
	PO4-P	1.4	1.4	2.8
	NO3-N	277.8	348.9	626.7
	NH4-N	23.2	34.9	58.0
1 Inner Oslofjord	P	3.4	2.2	5.6
	N	72.8	85.7	158.5
	PO4-P	0.7	0.6	1.3
	NO3-N	43.7	60.0	103.7
	NH4-N	3.6	6.0	9.6
2 Drammenselva	P	1.4	2.1	3.6
	N	64.0	68.3	132.3
	PO4-P	0.3	0.6	0.9
	NO3-N	38.4	47.8	86.2
	NH4-N	3.2	4.8	8.0
3 Numedalslågen	P	4.9	10.6	15.5
	N	184.7	427.6	612.3
	PO4-P	1.0	3.2	4.2
	NO3-N	110.8	299.3	410.2
	NH4-N	9.2	29.9	39.2
4 Skienselva	P	6.8	2.1	8.9
	N	331.3	89.5	420.7
	PO4-P	1.4	0.6	2.0
	NO3-N	198.8	62.6	261.4
	NH4-N	16.6	6.3	22.8
5 Otra	P	7.0	3.9	11.0
	N	391.8	99.5	491.3
	PO4-P	1.4	1.2	2.6
	NO3-N	235.1	69.7	304.7
	NH4-N	19.6	7.0	26.6
6 Orreelva	P	22.8	47.5	70.3
	N	1463.8	1307.0	2770.9
	PO4-P	4.6	14.3	18.8
	NO3-N	878.3	914.9	1793.2
	NH4-N	73.2	91.5	164.7
7 Suldalslågen	P	58.0	69.1	127.2
	N	5151.3	1359.0	6510.3
	PO4-P	11.6	20.7	32.3
	NO3-N	3090.8	951.3	4042.0
	NH4-N	257.6	95.1	352.7
8 Orkla	P	142.1	153.4	295.5
	N	3850.8	3626.9	7477.6
	PO4-P	28.4	46.0	74.4
	NO3-N	2310.5	2538.8	4849.3
	NH4-N	192.5	253.9	446.4
9 Vefsna	P	83.6	39.4	123.0
	N	1920.5	929.0	2849.5
	PO4-P	16.7	11.8	28.5
	NO3-N	1152.3	650.3	1802.6
	NH4-N	96.0	65.0	161.1
10 Altaelva	P	86.1	2.1	88.2
	N	1618.3	62.4	1680.7
	PO4-P	17.2	0.6	17.9
	NO3-N	971.0	43.7	1014.7
	NH4-N	80.9	4.4	85.3

SUM	P	761	tonnes
SUM	N	24065	tonnes
SUM	PO4-P	186	tonnes
SUM	NO3-N	15295	tonnes
SUM	NH4-N	1374	tonnes

APPENDIX VII : MAIN RIVERS 1 - 10. MEASURED CONCENTRATIONS 1997 **Page:**

Table 7.1 Measured concentrations - 1997

Watercourse : Glomma

Annual flow . . . . . : 21261 mill. cbm **Min : 256 cbm/s**

Drainage area . . . . . : 41218 sq.km **Max: 1793 cbm/s**

Date	Q	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd	Pb	S.P.M.	SiO2	TOC	Hg	Gamm	PCB (The folloving Congeners) IUPAC NOS							As	V	Cr-T	Ni
	m3/s	mS/m	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	mg/l	mg/l	ng/l	HCH ng/l	28 ng/l	52 ng/l	101 ng/l	118 ng/l	138 ng/l	153 ng/l	180 ng/l	µg/l	µg/l	µg/l	µg/l
970115	487	4.64	5	2	560	405	48	1.2	8.7	<0.01	0.12	1.4	2.8		<1.0												0.8
970212	359	4.87	99	57	780	490	83	3	13.6	0.03	1.69	75.5	3.4		4												1.8
970319	461	5.31	21	12	685	495	30	2.2	8.2	0.03	1.25	13.5	3.5		<1.0	0.25	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				1.4
970416	355	5.27	36	22	670	435	51	2.5	11.4	0.07	0.92	26.5	3.3		2												1.7
970514	1520	5.45	22	13	1010	800	52	2.2	5.3	0.06	0.37	14.5	3.42		<1.0												1.1
970619	1386	3.62	10	3	350	195	9	2.8	8	<0.01	0.42	5.26	2.1		<1.0												0.6
970716	1106	3.9	9	3	395	225	14	1.9	5.3	<0.01	0.32	4.84	2		<1.0												0.7
970811	664	4.03	7	2	365	205	14	1.5	4.1	0.01	0.5	3.16	1.9		1.5	0.55	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				0.6
970917	820	4	10	4	430	245	15	1.9	3	<0.01	0.21	4.78	2.2		1												0.6
971015	666	4.21	7	2	425	270	18	2	2.9	0.01	0.18	2.33	2.4	5.1	1									<0.1		<0.5	0.5
971119	512	4.37	8	3	580	390	23	2.1	4.4	0.02	0.25	2.41	3		1									0.23	<0.2	<0.5	0.7
971210	551	7.87	10	2	680	465	43	2.4	6.6	0.08	0.41	4.19	3.3		1.5										0.4	<0.5	0.8
Min.:	355	3.62	5.0	2.0	350	195	9	1.2	2.9	0.01	0.12	1.4	1.9	5.1	1	0.25	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.1	0.2	0.5	0.5
Max.:	1520	7.87	99.0	57.0	1010	800	83	3.0	13.6	0.08	1.69	75.50	3.50	5.10	4.00	0.55	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.23	0.4	0.5	1.8
Aver.:	741	4.80	20.3	10.4	578	385	33	2.1	6.8	0.03	0.55	13.20	2.78	5.10	1.42	0.40	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.17	0.3	0.5	0.9
St.dev.:	393	1.14	26.3	16.0	199	174	22	0.5	3.3	0.03	0.48	20.93	0.62		0.87	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.1	0.0	0.5
Numb.:	12	12	12	12	12	12	12	12	12	12	12	12	12	1	12	2	2	2	2	2	2	2	2	2	2	3	12

Table 7.2 Measured concentrations - 1997

Watercourse : Drammenselva

Annual flow . . . . . : 7985 mill. cbm **Min : 85.0 cbm/s**

Drainage area. . . . . : 17028 sq.km **Max: 611.2 cbm/s**

Date	Q	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd	Pb	S.P.M.	SiO2	TOC	Hg	Gamm	PCB (The folloving Congeners) IUPAC NOS							As	V	Cr-T	Ni
																HCH	28	52	101	118	138	153	180				
	m3/s	mS/m	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	mg/l	mg/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	µg/l	µg/l	µg/l	µg/l
970115	273.2	3.37	3	1	420	280	21	0.8	2.6	<0.01	0.07	0.87	2.1		<1.0												0.4
970213	253	3.98	4	1	470	335	24	0.7	3.0	0.03	0.08	0.95	2.5		<1.0	0.27	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				0.6
970314	212.6	4.42	6	2	570	425	18	1.6	4.2	0.02	0.14	2.3	2.6		<1.0												1.2
970415	207.3	3.66	5	2	435	290	14	1.2	3.1	0.04	0.09	1.87	2.2		<1.0												0.8
970513	223.2	3.72	6	2	475	300	18	1.1	3.4	0.01	0.12	2.68	2.6		1												0.6
970617	265.7	3.31	5	0.9	355	175	12	0.7	2.0	<0.01	0.1	1.76	2.1	3.5	<1.0												0.4
970714	326.3	3.5	6	2	415	220	14	1.0	2.5	<0.01	0.33	1.73	2.2		<1.0												0.5
970814	217.9	3.57	4	0.9	360	175	10	1.0	2.5	0.02	0.12	1.65	2		<1.0	0.64	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				0.5
970914	302.9	3.21	4	1	380	190	18	0.7	2.5	<0.01	0.08	1.22	2.4		<1.0												0.4
971014	287.0	3.45	4	1	420	250	20	0.8	2.1	<0.01	0.09	1.26	2.2		<1.0									<0.1		<0.5	0.4
971115	340.1	3.79	5	1	600	440	14	1.2	4.5	0.02	0.16	2.02	2.9		<1.0									0.23	<0.2	<0.5	0.7
971215	287.0	3.96	5	5	550	405	15	0.8	3.5	0.01	0.09	1.40	3.0		<1.0										<0.2	<0.5	0.5
Min.:	207	3.21	3.0	0.9	355	175	10	0.7	2.0	0.01	0.07	0.87	2.00	3.50	1.00	0.27	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.10	0.2	0.5	0.4
Max.:	340	4.42	6.0	5.0	600	440	24	1.6	4.5	0.04	0.33	2.68	3.00	3.50	1.00	0.64	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.23	0.2	0.5	1.2
Aver.:	266	3.66	4.8	1.7	454	290	17	1.0	3.0	0.02	0.12	1.64	2.40	3.50	1.00	0.46	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.17	0.2	0.5	0.6
St.dev.:	45	0.34	1.0	1.2	81	95	4	0.3	0.8	0.01	0.07	0.54	0.32		0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.0	0.0	0.2
Numb.:	12	12	12	12	12	12	12	12	12	12	12	12	12	1	12	2	2	2	2	2	2	2	2	2	2	3	12

Table 7.3 Measured concentrations - 1997

Watercourse : Numedalslågen

Annual flow . . . . . : 2777 mill. cbm **Min : 29.4 cbm/s**

Drainage area. . . . . : 5513 sq.km **Max: 417.7 cbm/s**

Date	Q	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd	Pb	S.P.M.	SiO2	TOC	Hg	Gamm	PCB (The folloving Congeners) IUPAC NOS							As	V	Cr-T	Ni
																HCH	28	52	101	118	138	153	180				
	m3/s	mS/m	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	mg/l	mg/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	µg/l	µg/l	µg/l	µg/l
970115	44.5	3.34	5	3	480	250	100	1.1	3.8	<0.01	0.09	1.78	3.4		<1.0												0.5
970217	32.4	3.82	10	6	550	325	92	1.5	5.3	0.02	0.23	5.1	3.6		<1.0	0.54	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				0.5
970317	70.9	3.7	9	4	470	295	39	1.0	5.4	0.03	0.26	4.03	3.4		<1.0												0.6
970418	96.5	2.84	6	2	325	155	27	0.8	4.3	0.01	0.2	2.37	2.6		1												0.5
970516	139.6	2.64	10	4	310	127	22	0.8	4.2	<0.01	0.35	5.16	2.5		9												0.5
970615	98.6	2.18	5	1	215	47	12	1.0	2.1	<0.01	0.46	2.12	1.5		<1.0												0.3
970716	81.6	2.47	7	2	255	84	14	0.8	2.8	<0.01	0.22	2.32	2		1.5												0.3
970818	72.2	2.64	5	1	230	89	19	0.7	2.5	<0.01	0.14	2.07	1.3		1	0.47	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				0.3
970917	42.7	3.48	7	2	425	180	40	2.3	7.8	0.02	0.39	1.77	2.6		2												0.5
971015	84.8	3.25	7	2	445	215	23	3.0	5.0	<0.01	0.18	1.92	3.1	3.4	2.5									<0.1		<0.5	0.3
971116	175.8	3.33	11	4	615	415	23	4.0	7.7	0.03	0.59	4.46	3.8		1.5									0.25	0.4	<0.5	0.7
971212	191.7	3.67	29	16	800	560	36	2.6	9.0	0.04	0.75	19.82	4.3		3.0										1	0.7	0.9
Min.:	32	2.18	5.0	1.0	215	47	12	0.7	2.1	0.01	0.09	1.77	1.30	3.40	1.00	0.47	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.10	0.4	0.5	0.3
Max.:	192	3.82	29.0	16.0	800	560	100	4.0	9.0	0.04	0.75	19.82	4.30	3.40	9.00	0.54	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.25	1.0	0.7	0.9
Aver.:	94	3.11	9.3	3.9	427	229	37	1.6	5.0	0.02	0.32	4.41	2.84	3.40	2.13	0.51	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.18	0.7	0.6	0.5
St.dev.:	51	0.54	6.6	4.1	174	151	29	1.1	2.2	0.01	0.20	5.03	0.93		2.27	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.4	0.1	0.2
Numb.:	12	12	12	12	12	12	12	12	12	12	12	12	12	1	12	2	2	2	2	2	2	2	2	2	2	3	12

Table 7.4 Measured concentrations - 1997

Watercourse : Skienselva

Annual flow . . . . . : 6597 mill. cbm **Min : 50 cbm/s**

Drainage area. . . . . : 10348 sq.km **Max: 590 cbm/s**

Date	Q	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd	Pb	S.P.M.	SiO2	TOC	Hg	Gamm	PCB (The folloving Congeners) IUPAC NOS							As	V	Cr-T	Ni
	m3/s	mS/m	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	mg/l	mg/l	ng/l	HCH ng/l	28 ng/l	52 ng/l	101 ng/l	118 ng/l	138 ng/l	153 ng/l	180 ng/l	µg/l	µg/l	µg/l	µg/l
970115	228	2.08	13	1	335	230	11	0.4	2.7	<0.01	<0.02	0.55	1.8		<1.0												0.4
970211	185	2.07	4	1	325	230	10	0.4	3.0	0.05	0.11	0.5	1.7		<1.0	0.32	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				0.2
970313	242	2.24	3	0.5	340	225	9	0.5	3.2	0.02	0.05	0.67	1.9		<1.0												0.4
970416	220	2.1	3	0.5	330	230	14	0.4	2.7	0.02	0.06	0.72	1.8		<1.0												0.3
970513	229	2.11	3	1	315	235	8	0.5	2.5	0.01	0.23	0.63	1.9		<1.0												0.3
970616	123	2.08	4	0.5	290	170	9	0.4	2.4	<0.01	0.07	1.04	1.9		<1.0												0.2
970721	73	2.07	3	0.5	285	146	3	0.5	1.8	0.01	0.05	7.15	1.6		<1.0												<0.2
970812	66	2.26	5	0.8	290	126	29	0.6	2.0	<0.01	0.06	0.89	1.7		<1.0	0.89	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				0.3
970923	159	1.87	6	0.7	295	155	20	1.5	1.9	<0.01	0.03	0.72	1.7		<1.0												0.3
971014	207	2.03	2	0.5	295	175	23	0.9	1.6	<0.01	0.02	0.82	1.7	2.2	1									<0.1		<0.5	0.3
971117	377	2.15	3	0.6	340	235	11	1.9	2.9	0.02	0.05	0.88	1.9		<1.0									0.14	<0.2	<0.5	0.3
971209	295	2.17	5	2	380	230	29	3.2	3.4	0.02	0.1	0.94	2.1		1.0										<0.2	<0.5	0.3
Min.:	66	1.87	2.0	0.5	285	126	3	0.4	1.6	0.01	0.02	0.50	1.60	2.20	1.00	0.32	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.10	0.2	0.5	0.2
Max.:	377	2.26	13.0	2.0	380	235	29	3.2	3.4	0.05	0.23	7.15	2.10	2.20	1.00	0.89	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.14	0.2	0.5	0.4
Aver.:	200	2.10	4.5	0.8	318	199	15	0.9	2.5	0.02	0.07	1.29	1.81	2.20	1.00	0.61	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.2	0.5	0.3
St.dev.:	88	0.10	2.9	0.4	29	41	9	0.9	0.6	0.01	0.06	1.85	0.14		0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.0	0.0	0.1
Numb.:	12	12	12	12	12	12	12	12	12	12	12	12	12	1	12	2	2	2	2	2	2	2	2	2	2	3	12

Table 7.5 Measured concentrations - 1997

Watercourse : Otra

Annual flow . . . . . : 3986 mill. cbm **Min : 50.8 cbm/s**

Drainage area. . . . . : 3730 sq.km **Max: 282.8 cbm/s**

Date	Q	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd	Pb	S.P.M.	SiO2	TOC	Hg	Gamm	PCB (The folloving Congeners) IUPAC NOS							As	V	Cr-T	Ni
																HCH	28	52	101	118	138	153	180				
	m3/s	mS/m	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	mg/l	mg/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	µg/l	µg/l	µg/l	µg/l
970115	103	1.93	3	1	295	170	28	0.4	3.4	<0.01	0.12	0.55	1.4	1.9	<1.0												0.6
970212	107.4	2.09	3	2	315	180	40	0.5	7.3	0.06	0.39	1.52	1.8	2.3	<1.0												0.7
970312	157.8	2.17	3	0.5	265	165	14	0.5	5.2	0.03	0.28	0.73	1.6	1.9	<1.0	0.91	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				1.4
970417	154.4	1.64	2	0.5	245	155	13	0.4	3.8	0.04	0.19	0.52	1.3	1.9	<1.0												0.7
970514	153.6	1.80	3	0.5	255	148	8	0.5	4.5	0.05	0.22	1.09	1.5	2.1	<1.0												0.7
970618	65.5	1.85	4	0.5	235	155	<3	0.5	3.2	<0.01	0.17	0.97	1.3	2.5	<1.0												0.4
970716	54.6	1.83	4	1	230	92	7	0.4	3.5	0.01	0.31	3.35	1.2	2.1	1.5												0.6
970813	51.9	1.83	5	1	205	85	<3	0.5	3.8	0.07	0.2	0.61	1.3	2.1	<1.0	0.84	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				0.6
970917	185.4	1.90	5	1	265	113	9	0.6	4.7	0.02	0.33	1.26	1.6	2.5	<1.0												1.0
971015	128.7	2.06	4	0.7	295	122	13	0.5	4.7	0.04	0.27	1.79	1.7	3.6	1.5									0.17		<0.5	0.7
971113	267.7	1.88	3	1	290	150	20	0.6	6.5	0.04	0.5	2.12	2	3.4	2.5									0.21	0.2	<0.5	0.8
971211	234.1	1.89	3	0.5	310	175	21	0.5	4.7	0.03	0.31	1.28	2.2	3.8	<1.0										<0.2	<0.5	0.7
Min.:	52	1.64	2.0	0.5	205	85	3	0.4	3.2	0.01	0.12	0.52	1.20	1.90	1.00	0.84	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.17	0.2	0.5	0.4
Max.:	268	2.17	5.0	2.0	315	180	40	0.6	7.3	0.07	0.50	3.35	2.20	3.80	2.50	0.91	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.21	0.2	0.5	1.4
Aver.:	139	1.91	3.5	0.9	267	143	15	0.5	4.6	0.03	0.27	1.32	1.58	2.51	1.21	0.88	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.19	0.2	0.5	0.7
St.dev.:	68	0.14	0.9	0.4	35	32	11	0.1	1.3	0.02	0.10	0.81	0.31	0.69	0.45	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.0	0.0	0.3
Numb.:	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	2	2	2	2	2	2	2	2	2	2	3	12

Table 7.6 Measured concentrations - 1997

Watercourse : Orreelva

Annual flow . . . . . : 95.07 mill. cbm **Min : 0.158 cbm/s**

Drainage area. . . . . : 105 sq.km **Max: 11.76 cbm/s**

Date	Q	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd	Pb	S.P.M.	SiO2	TOC	Hg	Gamm	PCB (The folloving Congeners) IUPAC NOS							As	V	Cr-T	Ni
																HCH	28	52	101	118	138	153	180				
	m3/s	mS/m	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	mg/l	mg/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	µg/l	µg/l	µg/l	µg/l
970113	2.5	18.7	78	49	2255	1585	215	1.6	2.8	<0.01	0.13	2.81			<1.0												2.0
970210	5.7	18.2	75	23	2170	1355	169	1.5	1.9	<0.01	0.44	8.56			<1.0												1.6
970310	5.2	17.2	61	17	2590	1900	25	1.6	2.7	0.01	0.36	8.81			<1.0	0.65	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				1.9
970414	2.1	19	140	30	2440	1360	48	2.0	6.4	0.04	1.76	29			2												2.0
970514	1.5	18.7	50	1.0	1600	940	43	1.9	1.7	<0.01	0.24	6.44			<1.0												1.6
970616	0.5	20.7	37	4	870	160	28	1.5	1.2	<0.01	0.3	6.29			<1.0												1.2
970714	0.3	23.1	40	3	860	8	82	1.1	1.0	<0.01	0.08	6.86			1												1.1
970811	0.6	21.3	69	39	975	4	56	1.3	0.9	<0.01	0.4	8.8			<1.0	0.57	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				1.1
970915	6.3	19.7	98	29	1600	530	72	1.9	3.0	<0.01	0.79	16.8			1												1.3
971013	8.6	20.1	190	81	1940	720	63	2.9	9.9	0.04	2.31	36.1			5									0.67		<0.5	1.9
971112	4.7	17.6	46	22	2160	1405	88	1.8	2.7	<0.01	0.26	3.63			<1.0									0.36	0.4	<0.5	1.5
971208	3.1	17.9	44	25	2270	1760	131	1.8	3.5	<0.01	0.3	4.01	3.1	5.5	<1.0										0.4	<0.5	1.4
Min.:	0.30	17.20	37.0	1.0	860	4	25	1.1	0.9	0.01	0.08	2.81	3.10	5.50	1.00	0.57	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.36	0.4	0.5	1.1
Max.:	8.60	23.06	190.0	81.0	2590	1900	215	2.9	9.9	0.04	2.31	36.10	3.10	5.50	5.00	0.65	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.67	0.4	0.5	2.0
Aver.:	3.43	19.35	77.3	26.9	1811	977	85	1.7	3.1	0.02	0.61	11.51	3.10	5.50	1.42	0.61	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.52	0.4	0.5	1.6
St.dev.:	2.66	1.71	46.0	22.3	622	683	58	0.5	2.6	0.01	0.70	10.58			1.16	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.0	0.0	0.3
Numb.:	12	12	12	12	12	12	12	12	12	12	12	12	1	1	12	2	2	2	2	2	2	2	2	2	2	3	12

Table 7.7 Measured concentrations - 1997

Watercourse : Suldalslågen

Annual flow . . . . . : 1791 mill. cbm **Min : 12.7 cbm/s**

Drainage area. . . . . : 1457 sq.km **Max: 292.2 cbm/s**

Date	Q	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd	Pb	S.P.M.	SiO2	TOC	Hg	Gamm HCH	PCB (The folloving Congeners) IUPAC NOS 28	52	101	118	138	153	180	As	V	Cr-T	Ni
	m3/s	mS/m	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	mg/l	mg/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	µg/l	µg/l	µg/l	µg/l
970210	48.1	2.97	3	1	235	180	9	0.7	4.9	0.04	0.1	1.03			<1.0	0.14	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				0.4
970616	131.2	1.58	2	0.5	270	180	11	0.6	2.3	<0.01	0.14	0.92			<1.0												0.3
970812	66.2	1.44	2	0.5	200	155	<3	0.5	2.0	<0.01	0.05	0.74	0.82	0.5	<1.0	0.79	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				<0.2
971013	37.7	1.55	1	0.5	225	175	6	0.7	1.5	0.03	0.06	0.59			1.0									<0.1		<0.5	0.2
Min.:	38	1.44	1.0	0.5	200	155	3	0.5	1.5	0.01	0.05	0.59	0.82	0.50	1.00	0.14	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.10		0.5	0.2
Max.:	131	2.97	3.0	1.0	270	180	11	0.7	4.9	0.04	0.14	1.03	0.82	0.50	1.00	0.79	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.10		0.5	0.4
Aver.:	71	1.89	2.0	0.6	233	173	7	0.6	2.7	0.02	0.09	0.82	0.82	0.50	1.00	0.47	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.10		0.5	0.3
St.dev.:	42	0.73	0.8	0.3	29	12	4	0.1	1.5	0.02	0.04	0.19			0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.1
Numb.:	4	4	4	4	4	4	4	4	4	4	4	4	1	1	4	2	2	2	2	2	2	2	2	1	0	1	4

Table 7.8 Measured concentrations - 1997

Watercourse : Orkla

Annual flow . . . . . : 2603 mill. cbm Min : 22.96 cbm/s

Drainage area. . . . . : 2872 sq.km Max: 621.7 cbm/s

Date	Q	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd	Pb	S.P.M.	SiO2	TOC	Hg	HCH	PCB (The folloving Congeners) IUPAC NOS							As	V	Cr-T	Ni
																	28	52	101	118	138	153	180				
	m3/s	mS/m	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	mg/l	mg/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	µg/l	µg/l	µg/l	µg/l
970115	40.8	5.05	8	3	290	165	18	7.5	18.5	0.08	0.06	2.3		2.6	<1.0									0.1	<0.2	<0.5	1.1
970204	41	6.06	3	1	340	235	11	11.6	40.8	0.09	0.03	0.77			<1.0												1.3
970217	44.9	7.6						8.6	31.5	0.06	0.04			2.6										<0.1	<0.2	<0.5	1
970305	25.9	7.59	3	0.5	390	285	6	10.2	35.3	0.12	0.05	0.68			<1.0	0.36	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				2.1
970317	25.6	9.6	3.7	1.5	490			16.8	63.5	0.13	0.02			2.3										0.2	<0.2	0.5	1.8
970403	57.7	7.83	6	2	510	345	6	28.6	87.9	0.24	0.11	6.09			<1.0												1.6
970415	56.4	14.7						12.5	27.3	0.06	0.03			3.1										0.2	<0.2	0.6	1.7
970505	84.1	7.46	6	5	520	375	7	26.8	62.5	0.16	0.78	2.31	2.6		1												1.5
970514	249.9	5.13						19.6	33.1	0.16	0.12			4.3										0.1	0.4	0.6	1.6
970606	296.6	3.16	7	2	280	58	9	7.6	15.9	0.02	0.27	4.66			1.5												1.3
970616	210.1	3	8.4	4.2	180			4.9	10.4	0.02	0.1			2.9										<0.1	0.3	<0.5	0.8
970706	146.4	3.79	4	1	215	84	7	5.4	11.2	0.04	0.02	2.49			1.5												0.7
970715	71.3	4						1.5	32.9	0.01	0.24			2.4										<0.1	<0.2	<0.5	0.5
970807	53.7	4.5	3	0.5	225	111	<3	7.1	13.5	0.04	0.03	0.76			<1.0	0.26	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				0.5
970818	28.4	5.4						2.8	4.9	0.03	0.04			1.9										<0.1	<0.2	<0.5	0.5
970908	43.1	4.98	2	0.6	250	127	3	7.2	9.4	0.02	0.04	0.44			<1.0												0.6
970915	122.1	4	7.3	2.1	290			6.2	18.6	0.02	0.06			7.6										<0.1	<0.2	<0.5	0.9
971006	69	4.96	6	0.8	275	150	10	9	25	0.05	0.03	0.79			1.5									<0.1		<0.5	0.8
971014	97.8	5.1						7.8	20.2	0.06	0.05			5.2										0.2	<0.2	<0.5	1
971106	61.2	5.53	3	0.7	345	230	3	12.1	30.1	0.08	0.14	1.08			<1.0									0.7	<0.2	0.7	1.1
971117	53.9	6.4						8.6	19.7	0.04	0.04			2.8										0.2	<0.2	<0.5	0.7
971209	59.2	5.15	4	1	355	195	13	5.6	12.9	0.04	0.04	1.5			<1.0										<0.2	<0.5	0.8
971215	57.1	5.6	4.6	2.1	290			6.4	14.9	0.05	0.04			2										<0.1	<0.2	<0.5	0.6
Min.:	25.6	3.00	2.0	0.5	180	58	3	1.50	4.90	0.01	0.02	0.44	2.60	1.90	1.00	0.26	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.10	0.2	0.5	0.5
Max.:	296.6	14.70	8.4	5.0	520	375	18	28.60	87.90	0.24	0.78	6.09	2.60	7.60	1.50	0.36	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.72	0.4	0.7	2.1
Aver.:	86.8	5.94	4.9	1.8	328	197	8	10.19	27.83	0.07	0.10	1.99	2.60	3.31	1.13	0.31	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.17	0.2	0.5	1.1
St.dev.:	72.7	2.50	2.0	1.3	104	101	5	6.86	20.08	0.06	0.16	1.76		1.65	0.23	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.1	0.1	0.5
Numb.:	23	23	16	16	16	12	12	23	23	23	23	12	1	12	12	2	2	2	2	2	2	2	2	14	14	15	23

Table 7.9 Measured concentrations - 1997

Watercourse : Vefsna

Annual flow . . . . . : 7123 mill. cbm Min : 40.5 cbm/s

Drainage area. . . . . : 4113 sq.km Max: 1294 cbm/s

Date	Q	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd	Pb	S.P.M.	SiO2	TOC	Hg	Gamm	PCB (The folloving Congeners) IUPAC NOS							As	V	Cr-T	Ni
																HCH	28	52	101	118	138	153	180				
	m3/s	mS/m	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	mg/l	mg/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	µg/l	µg/l	µg/l	µg/l
970113	49.5	6.41	5	4	595	165	26	4.6	14.5	<0.01	0.39	1.21			2												0.8
970210	72	7.28	7	2	390	139	14	3.2	4.1	0.01	0.1	0.49			<1.0												0.4
970310	317.5	17.4	13	9	265	60	14	2.7	10.8	0.01	1.22	12.9	1.3	3.5	1	0.29	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				1.2
970414	58.5	8.14	2	1	225	121	9	1.4	1.2	0.02	0.03	1.06			<1.0												0.5
970514	411.6	6.82	6	2	330	64	18	3.3	6.6	<0.01	0.64	3.85			<1.0												0.6
970616	1294	3.75	4	1	150	43	6	1.2	7.8	0.02	0.64	2.71			<1.0												0.4
970714	423.6	2.74	5	4	245	26	7	1.6	3.8	<0.01	0.42	2.33			<1.0												0.2
970812	155.0	2.73	2	0.8	68	22	<3	0.2	1.1	0.11	0.09	1.64			<1.0	0.14	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				<0.2
970915	364.7	2.93	7	7	165	16	<3	3.3	2.8	<0.01	0.24	5.67			1												0.4
971013	91.1	6.47	4	2	420	64	12	2.6	5.5	0.02	0.48	1.56			1									<0.1		<0.5	<0.1
971118	60.4	8.14	3	1	580	380	14	0.6	1.1	<0.01	0.34	0.89			<1.0									0.14	<0.2	<0.5	0.2
971215	67.4	6.52	5	2	405	123	8	5.9	4.7	<0.01	0.2	5.07			<1.0										<0.2	<0.5	0.6
Min.:	50	2.73	2.0	0.8	68	16	3	0.2	1.1	0.01	0.03	0.49	1.30	3.50	1.00	0.14	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.10	0.2	0.5	0.1
Max.:	1294	17.40	13.0	9.0	595	380	26	5.9	14.5	0.11	1.22	12.90	1.30	3.50	2.00	0.29	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.14	0.2	0.5	1.2
Aver.:	280	6.61	5.3	3.0	320	102	11	2.6	5.3	0.02	0.40	3.28	1.30	3.50	1.08	0.22	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.2	0.5	0.5
St.dev.:	352	3.97	3.0	2.6	165	101	7	1.7	4.1	0.03	0.33	3.46			0.29	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.0	0.0	0.3
Numb.:	12	12	12	12	12	12	12	12	12	12	12	12	1	1	12	2	2	2	2	2	2	2	2	2	2	3	12

Table 7.10 Measured concentrations - 1997

Watercourse : Alta

Annual flow . . . . . : 2623 mill. cbm **Min : 28.3 cbm/s**

Drainage area. . . . . : 7367 sq.km **Max: 1121 cbm/s**

Date	Q	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd	Pb	S.P.M.	SiO2	TOC	Hg	Gamm	PCB (The folloving Congeners) IUPAC NOS							As	V	Cr-T	Ni
																HCH	28	52	101	118	138	153	180				
	m3/s	mS/m	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	mg/l	mg/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	µg/l	µg/l	µg/l	µg/l
970311	36.7	7.62	11	9	155	85	<3	0.7	0.4	<0.01	<0.02	0.5			<1.0	0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				0.6
970702	181.3	6.2	7	2	149	30	<3	0.8	0.5	<0.01	0.02	1.36			<1.0												0.3
970808	36.0	10.3	5	1	123	1	<3	1.4	0.2	0.01	0.12	1.07	4.1	3.5	<1.0	0.08	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				<0.2
971028	31.5	16.3	20	17	155	64	6	1.6	0.4	<0.01	0.1	0.74			<1.0									0.56	<0.2	<0.5	<0.2
Min.:	32	6.20	5.0	1.0	123	1	3	0.7	0.2	0.01	0.02	0.50	4.10	3.50	1.00	0.06	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.56	0.2	0.5	0.2
Max.:	181	16.30	20.0	17.0	155	85	6	1.6	0.5	0.01	0.12	1.36	4.10	3.50	1.00	0.08	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.56	0.2	0.5	0.6
Aver.:	71	10.11	10.8	7.3	146	45	4	1.1	0.4	0.01	0.07	0.92	4.10	3.50	1.00	0.07	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.56	0.2	0.5	0.3
St.dev.:	73	4.47	6.7	7.4	15	37	2	0.4	0.1	0.00	0.05	0.38			0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.2
Numb.:	4	4	4	4	4	4	4	4	4	4	4	4	1	1	4	2	2	2	2	2	2	2	2	1	1	1	4

APPENDIX VIII : TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997 **Page:**

(1)	Glomma	"tributaries"	: Tista	- Hølenelva
(1)	Inner Oslo-fjord		: Årungelva	- Åroselva
(2)	Drammenselva	"tributary"	: Lierelva	
(3)	Numedalslågen	"tributaries"	: Sandeelva	- Farriselva
(4)	Skienselva	"tributary"	: Tokkeelva	
(5)	Otra	"tributaries"	: Gjerstade.	- Audna
(6)	Orreelva	"tributaries"	: Lygna	- Ulla
(7)	Suldalslågen	"tributaries"	: Saudaelva	- Hornindalselva
(8)	Orkla	"tributaries"	: Ørstaelva	- Salsvatnelva
(9)	Vefsna	"tributaries"	: Åbjøra	- Reisa
(10)	Alta	"tributaries	: Mattiselva	- Grense Jacobse.

Table 8.1 TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997.

County	Watercourse	Runoff data							Parameters (mean values)											
		ge area			Discharge															
		Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station													
					Normal	1997	Normal	1997												
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		Cond mS/m	Tot-P µg/l	PO4-P µg/l	Tot-N µg/l	NO3-N µg/l	NH4-N µg/l	Cu µg/l	Zn µg/l	Cd µg/l	Pb µg/l	S.P.M. mg/l	Hg ng/l
Østfold	Tista, Iddefj.	1588	1582	1582	14.4	9.1	14.4	9.1	5.92	9.6	2.0	899	635	15	1.1	3.0	0.05	0.17	1.85	<1.0
(1.)	Mosselva, Mossesundet	690	689	689	14.5	9.0	14.5	9.0	10.40	26.2	4.0	1027	725	307	1.4	2.7	0.02	0.49	4.81	<1.0
Oslo og	Hølenelva, Drøbaksundet Ø	137	121		14.0	8.6			28.80	71.0	50.0	3440	2890	165	2.3	3.4	0.03	0.46	5.68	1.5
Akershus	Arungelva, l. Oslofj.	52	50		13.0	8.0			24.40	70.0	4.0	2290	575	22	1.7	0.2	0.01	0.17	17.80	<1.0
(1.)	Gjersjøelva, l. Oslofj.	86	85	85	14.0	4.0		4.0	19.50	11.0	1.5	1492	1212	14	2.4	3.3	0.04	0.36	1.07	<1.0
	Ljanselva, l. Oslofj.	42	41	41	13.0	10.1		10.1	30.90	76.0	39.0	1540	1315	43	9.4	39.0	0.47	3.44	33.20	5.5
	Loelva/Alna, l. Oslofj.	75	69	69	13.0	14.3		14.3	30.20	168.0	54.0	2230	1405	155	4.0	9.0	0.05	0.71	3.38	2.0
	Akerselva, l. Oslofj.	227	225	225	17.5	7.7		7.7	7.90	40.0	28.0	640	255	32	1.5	8.3	0.02	0.53	1.95	2.5
	Frognerelva, l. Oslofj.	23	20	20	15.0	15.7		15.7	19.90	62.0	36.0	1700	1610	67	6.5	9.4	0.03	0.75	6.12	1.5
	Lysakerelva, l. Oslofj.	178	173	173	16.8	25.8	16.8	25.8	6.40	16.0	4.0	510	355	17	5.9	21.5	0.10	2.85	38.80	5.5
	Sandvikselva, l. Oslofj.	223	187	187	18.4	18.0	18.4		15.00	21.0	8.0	1070	705	38	1.8	2.2	<0.01	0.26	1.06	<1.0
	Aroselva, l. Oslofj.	113	109	109	17.0	16.8	17.0		16.70	26.0	18.0	2185	1008	75	2.8	6.6	0.04	0.86	14.20	3.0
Buskerud	Lierelva, Drammensfj. Ø	309	266	222	18.6	17.5	18.6		11.80	42.0	22.0	1090	965	12	2.0	11.7	0.03	0.78	20.10	2.0
(2.)																				
Vestfold	Sandeelva, Sandebukta	193	190		17.0	16.0	17.0		92.40	15.0	8.0	1270	990	95	1.6	80.2	0.21	1.18	2.26	1.5
(3.)	Aulielva, Tønsbergfj.	363	362	362	14.9	13.7	14.9	13.7	19.20	115.0	55.0	2775	1698	125	1.5	6.2	0.02	0.36	4.90	1.0
	Farriselva, Larvikfj.	491	491	491	21.6	15.7	21.6	15.7	3.87	4.5	1.8	510	310	19	0.7	8.4	0.03	0.07	0.57	<1.0
Telemark	Tokkeelva, Kragerø	1238	1200	1200	26.7	20.3	26.7	20.3	2.61	4.0	0.7	380	195	23	0.4	5.5	0.04	0.14	1.21	1.0
(4.)																				
Aust-	Gjerstadelva, Søndeledfj.	419	414	291	27.0	21.6	27.0	21.6	3.05	5.0	1.0	435	221	37	0.6	7.1	0.06	0.41	1.16	1.5
Agder	Vegårdselva, Sandnesfj.	457	429	291	29.3	22.0	29.3		4.50	5.0	3.0	385	169	39	0.6	11.1	0.06	0.33	1.09	1.0
(5.)	Nidelva, Arendal	4025	4020	3956	29.8	22.5	29.8	22.5	1.84	2.0	0.6	297	166	17	0.7	6.2	0.05	0.31	0.96	1.0

Table 8.1 TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997.

County	Watercourse	Runoff data							Parameters (mean values)											
		ge area			Discharge															
		Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station		Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd	Pb	S.P.M.	Hg
					Normal	1997	Normal	1997												
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		mS/m	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	ng/l
Vest-	Tovdalselva, Topdalsfj.	1856	1854	1794	33.9	27.5	33.9	27.5	2.43	4.0	0.9	397	132	31	0.4	6.0	0.05	0.47	1.38	1.5
Agder	Søgneelva, Flekkerøy	204	192	192	38.0	33.2	38.0		11.00	9.2	1.0	628	815	29	0.6	10.7	0.08	0.32	1.19	1.0
(5.)	Mandalselva, Mannefj.	1809	1800	1740	46.0	41.1	47.6	42.5	2.10	5.0	0.9	330	137	29	0.4	4.8	0.04	0.61	1.86	1.5
	Audna, Sniksfj.	450	400	59	45.0	41.7	51.8	48.0	4.89	4.0	0.9	570	380	29	0.4	8.0	0.07	0.45	1.07	<1.0
(6.)	Lygna, Lyngdalsfj.	664	660	266	48.0	46.7	57.9	56.3	3.21	4.0	0.8	401	224	16	0.4	6.5	0.05	0.49	0.99	<1.0
	Kvina, Fedafj.	1445	1140	1140	57.6	56.0	57.6		3.20	5.0	1.0	333	159	20	0.4	5.4	0.06	0.63	1.12	1.5
	Sira, Ana-Sira	1916	1872	1872	59.4	57.5	59.4		2.39	6.0	0.5	453	19	30	0.2	3.6	0.04	0.42	0.54	<1.0
Rogaland	Sokndalselva, Sogndalsstr.	294	293	107	51.1	48.7	51.1	48.7	4.75	7.0	2.0	425	285	33	0.5	5.7	0.06	0.22	0.83	<1.0
(6.)	Hellelandselva, Egersund	241	240	194	57.5	58.9	71.1	72.6	3.66	7.0	2.0	415	300	9	0.4	5.1	0.05	0.43	0.93	1.0
	Bjerkreimselva, Egersund	705	704	639	77.7	62.5	86.4	69.5	3.53	3.0	0.6	495	403	14	0.2	3.5	0.03	0.21	0.39	<1.0
	Håelva, Håtangen	165	160	135	46.9	46.6	46.9	46.6	12.30	42.0	16.0	2124	1370	50	1.0	6.1	0.03	0.29	2.51	1.0
	Figgjo, Solavika	229	218	135	50.0	49.7	50.0		10.30	152.0	10.0	1487	1260	64	0.9	5.1	<0.01	0.48	2.09	<1.0
	Ims-Lutsi. Høgsfj.Boknafj.	127	127	127	34.9	38.1	34.9	38.1	7.07	7.0	0.9	895	643	11	0.5	2.6	0.01	0.16	0.74	<1.0
	Oltedalse.,Høgsfj.Boknafj.	102	101	129	70.0	76.3	70.0		3.86	4.0	0.9	405	300	23	0.4	3.7	0.03	0.15	0.99	<1.0
	Dirdalse., Høgsfj.Boknafj.	158	158	95	83.0	90.4	83.0		2.43	2.0	0.5	290	233	6	0.2	2.9	0.03	0.24	0.24	<1.0
	Frafjorde.,Frafj. Boknafj.	178	178	124	94.4	102.9	94.4		1.96	1.0	0.5	240	180	13	0.2	3.8	0.01	0.21	0.28	<1.0
	Espedalse.,Høgsfj.Boknafj.	138	138	124	90.0	98.1	90.0		2.59	2.0	0.8	335	280	4	0.3	3.0	0.01	0.23	0.05	<1.0
	Lysee., Lysefj.Boknafj.	182	182	46	74.0	125.9	74.0		2.04	1.0	0.5	155	100	<3	0.3	1.2	0.02	0.14	0.18	<1.0
	Ardalse., Ardalsfj.Boknafj.	519	516	501	81.4	31.5	81.4	31.5	2.57	1.0	0.5	222	172	<3	0.2	1.9	<0.01	0.12	0.46	<1.0
	Førree., Jøsenfj.Boknafj.	163	163	163	85.8	93.5	85.8		2.30	3.0	0.5	252	249	7	0.3	0.9	0.01	0.20	0.18	1.0
	Ulla, Jøsenfj.Boknafj.	393	393	385	83.4	90.9	83.4		2.49	1.0	0.5	275	215	4	0.3	1.6	<0.01	0.09	0.23	<1.0
(7.)	Saudøe., Saudafj.Boknafj.	353	353		85.0	92.6	85.0		3.90	1.0	0.5	1370	1340	4	0.8	18.2	0.04	0.07	0.13	<1.0
	Abøelva, Saudafj.Boknafj.	82	82		85.0	92.6	85.0		1.86	1.0	0.6	335	280	6	0.3	2.9	0.02	0.14	0.43	<1.0
	Vikedalse., Boknafj.	118	117		80.0	95.0	80.0	95.0	2.24	4.0	0.9	220	155	26	0.5	3.3	0.03	0.20	0.85	<1.0

Table 8.1 TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997.

County	Watercourse	Runoff data			Discharge				Parameters (mean values)											
		ge area			Sampling station		gauging station													
		Outlet	Sampl. station	Disch. gaug. station	Normal	1997	Normal	1997	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd	Pb	S.P.M.	Hg
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		mS/m	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	ng/l
Hordaland (7.)	Etneelva, Etnefj. Bømlafj.	252	250	127	48.8	52.7	96.0	103.8	2.43	3.0	0.6	325	270	6	0.4	2.1	0.01	0.12	0.71	<1.0
	Opo, Sørfj. Hardangerfj.	482	480	464	79.3	88.2	79.3	88.2	1.81	3.2	1.5	512	101	12	0.5	5.6	0.03	0.52	1.89	1.0
	Tysso, Sørfj. Hardangerfj.	388	385	407	79.3	88.2	79.3		3.40	1.0	0.5	300	215	<3	1.3	3.4	0.04	0.20	0.24	1.0
	Kinso, Sørfj. Hardangerfj.	281	281	232	46.0	60.8	46.0	60.8	1.78	2.0	1.0	108	47	<3	0.5	6.0	0.02	0.38	1.25	<1.0
	Veig, Eidfjv. Hardangerfj.	496	496	386	41.8	42.0	41.8	42.0	2.06	4.0	0.5	128	59	7	0.4	1.6	0.01	0.08	0.45	<1.0
	Bjoreia, " , Hardangerfj.	592	592	592	26.0	9.8	26.0	9.8	2.06	4.0	0.5	128	59	7	0.4	1.6	0.01	0.08	0.45	<1.0
	Sima, Eidfj. Hardangerfj.	145	145	128	69.2	81.7	69.2		2.02	3.0	0.7	150	113	<3	0.4	2.7	0.01	0.23	0.78	1.0
	Austdøla, Osafj. Eidfj.	131	130	89	74.6	88.0	74.6		5.02	1.0	0.5	190	170	<3	0.3	0.8	0.01	0.05	0.64	<1.0
	Norddøla, Osafj. Eidfj.	40	39	89	74.6	88.0	74.6		5.02	1.0	0.5	190	170	<3	0.3	0.8	0.01	0.05	0.64	<1.0
	Tysseelva, Fusafj.	240	240		85.0	90.1	85.0		1.63	3.0	0.5	144	104	<3	0.4	2.5	0.03	0.30	0.61	1.0
	Oselva, Fusafj.	109	108	50	91.7	97.1	91.7	97.1	3.04	15.0	7.0	447	178	5	0.9	4.2	0.02	0.35	1.01	<1.0
	Bergsdalse, Veafj.Herdlafj.	196	198		80.0	84.8	80.0		1.54	3.0	0.9	132	64	4	0.5	2.5	0.05	0.18	0.91	<1.0
	Vosso, Veafj. Sørfj.	1492	1465	1102	58.2	64.9	58.2	64.9	41.40	4.0	1.0	190	82	15	0.7	9.1	0.01	1.79	1.04	1.0
	Ekso, Osterfj.	414	400	342	86.2	95.6	86.2		1.90	5.0	0.6	166	106	4	0.3	1.7	0.03	0.17	0.62	<1.0
	Modalselva, Osterfj.	385	384	248	95.5	106.0	95.5		1.51	4.0	0.5	194	144	4	0.2	2.6	0.01	0.19	0.59	<1.0

Table 8.1 TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997.

County	Watercourse	Runoff data							Parameters (mean values)											
		ige area			Discharge															
		Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station													
					Normal	1997	Normal	1997												
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		Cond mS/m	Tot-P µg/l	PO4-P µg/l	Tot-N µg/l	NO3-N µg/l	NH4-N µg/l	Cu µg/l	Zn µg/l	Cd µg/l	Pb µg/l	S.P.M. mg/l	Hg ng/l
Sogn og Fjordane (7.)	Nærøye., Aurl.fj. Sognefj.	290	290	267	59.5	64.8	59.5		1.25	3.0	1.0	190	122	4	0.4	3.0	0.02	0.22	1.13	<1.0
	Flåmse., Aurl.fj. Sognefj.	280	275	275	52.4	57.1	52.4		1.15	2.0	0.9	120	82	<3	0.3	0.7	0.01	0.07	1.10	<1.0
	Aurlandv. Aurl.fj. Sognefj.	800	799	762	48.6	53.0	48.6		2.97	7.0	5.0	410	345	<3	0.7	1.1	<0.01	0.07	0.38	<1.0
	Erdalse., Lærd.fj. Sognefj.	138	138		30.0	32.7	30.0		1.07	2.0	0.5	122	64	<3	0.3	0.9	0.02	0.09	0.76	<1.0
	Lærdalsv. Lærd.fj. Sognefj.	1184	1172	1172	30.0	32.7	30.0		1.80	4.5	1.0	204	158	<3	0.7	1.0	<0.01	0.09	1.11	<1.0
	Ardalsv., Ardalsfj.Sognefj.	989	989	989	44.9	48.9	44.9		0.96	4.0	2.0	200	77	7	1.3	1.0	0.01	0.02	1.16	<1.0
	Fortunv., Lusterfj.Sognefj.	508	508	367	51.0	55.6	51.0		1.03	4.0	2.0	149	95	<3	0.9	2.2	<0.01	0.15	1.87	<1.0
	Mørkrisv., Lusterfj.Sognefj.	282	282	203	54.7	59.6	54.7	59.6	1.04	5.0	3.0	149	95	4	0.6	2.6	<0.01	0.22	2.91	<1.0
	Jostedøla, " Sognefj.	865	864	573	68.0	74.1	68.0		1.22	12.0	9.0	240	96	<3	0.8	2.8	0.02	0.23	1.77	1.0
	Arøye., Sognd.fj. Sognefj.	449	446	384	77.2	84.1	77.2		1.29	4.0	1.0	143	77	6	0.4	1.2	<0.01	0.10	4.86	<1.0
	Sogndalse, " Sognefj.	175	172	111	66.1	75.9	66.1	75.9	1.35	13.0	7.0	270	133	16	0.5	1.5	<0.01	0.15	5.78	1.0
	Gaular, Dalsfj. Bufj.	627	625	505	79.3	91.0	79.3		1.39	10.0	3.0	146	81	4	0.4	3.0	<0.01	0.18	7.62	1.0
	Jølstra, Førdefj.	714	709	384	74.3	85.3	74.3		1.60	4.5	2.0	183	119	13	0.4	2.1	<0.01	0.19	3.08	<1.0
	Nausta, Førdefj.	277	273	232	81.7	93.8	81.7		1.67	25.0	15.0	120	50	12	0.4	2.6	<0.01	0.22	2.70	1.5
	Oselva, Høydalsfj.	287	285	225	78.7	90.3	78.7		2.16	5.0	1.0	185	48	15	0.4	3.3	<0.01	0.23	0.76	1.0
	Hopse., Hyefj. Nordfj.S	73	73	161	75.0	77.4	75.0	77.4	1.38	2.0	0.5	150	97	7	0.2	1.6	<0.01	0.15	0.47	<1.0
	Gjengedalse.," Nordfj.S	170	168	161	75.0	77.4	75.0	77.4	1.25	5.0	1.0	150	66	6	0.3	9.2	0.01	0.45	1.16	1.0
	Breimse., Gloppenfj. "	636	634	585	68.0	78.1	68.8		1.60	8.8	1.0	268	145	12	0.5	7.0	0.01	0.36	1.05	<1.0
	Oldene., Indre Nordfj.	226	225	204	70.1	102.9	70.1	102.9	1.40	5.5	2.0	265	170	7	0.4	1.2	<0.01	0.11	2.21	<1.0
	Loenelva, Indre Nordfj.	261	260	234	65.0	74.8	65.0		1.40	5.3	2.0	175	99	4	0.5	1.3	<0.01	0.15	2.13	<1.0
	Strynee., Indre Nordfj.	532	530	493	60.2	69.2	60.2		2.60	4.5	1.0	193	127	16	0.9	2.7	<0.01	0.16	1.20	<1.0
	Hornindalse., Nordfj. N	428	424	378	58.1	66.8	58.1		2.10	4.0	0.6	196	114	<3	0.4	1.1	<0.01	0.06	0.83	<1.0

Table 8.1 TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997.

County	Watercourse	Runoff data			Discharge				Parameters (mean values)											
		ge area			Sampling station		gauging station													
		Outlet	Sampl. station	Disch. gaug. station	Normal	1997	Normal	1997	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd	Pb	S.P.M.	Hg
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		mS/m	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	ng/l
Møre og Romsdal (8.)	Ørstae., Ørstafj.	160	155		70.0	80.5	70.0		3.59	17.0	6.0	565	280	37	1.1	5.8	0.01	0.20	2.95	1.0
	Vallldøla, Nordalfj.Storfj.	359	357		60.0	69.0	60.0		1.21	3.0	0.6	107	57	<3	0.4	1.0	<0.01	0.06	1.03	<1.0
	Rauma, Romsdalsfj.Moldefj.	1202	1190	1142	32.8	37.7	32.8		1.97	2.0	0.7	118	68	<3	0.4	1.1	<0.01	0.04	1.40	<1.0
	Isa, Isfj. Moldefj.	175	175	89	57.0	65.6	57.0		1.49	2.0	0.6	115	73	<3	0.3	1.6	0.01	0.07	0.64	<1.0
	Eira, Eresfj. Moldefj.	1119	1119	1085	34.8	40.0	34.8		1.93	2.0	0.5	150	109	4	0.5	0.8	<0.01	0.08	0.56	<1.0
	Littledalse., Sunndalsfj.	359	330	330	41.0	47.2	41.0		0.99	1.0	0.5	68	21	4	0.3	0.4	<0.01	0.02	0.49	<1.0
	Driva, Sunnd.fj.Tingvollfj.	2487	2435	2435	27.9	32.1	27.9		2.94	2.0	0.5	225	135	<3	0.8	0.9	<0.01	0.08	0.62	<1.0
	Ulvåa, Alvundfj.	199	199	207	57.0	65.6	60.7		3.46	7.0	2.0	690	510	6	1.3	1.7	<0.01	0.12	1.26	1.5
	Toåa, Todalsfj.	251	251	207	58.5	67.3	58.5		1.27	2.0	0.4	107	47	<3	0.3	0.4	0.02	0.04	0.58	<1.0
	Surna, Surnadalsfj.	1200	1200	1125	48.0	55.2	49.3		2.57	5.0	0.7	158	142	6	0.9	2.2	0.01	0.24	1.60	<1.0
	Bøvra, Hamnesfj. Halsafj.	243	243	196	55.0	63.3	55.0		2.30	3.0	0.7	185	51	6	0.6	1.0	0.01	0.23	1.10	1.0
Sør-Trøndelag (8.)	Børse.,Gaulosen Tr.h.fj.	110	100		30.0	39.0	30.0		9.03	20.0	1.0	565	290	5	1.0	0.3	<0.01	0.10	1.38	3.5
	Vigda, Gaulosen Tr.h.fj.	150	150		30.0	39.0	30.0		11.10	16.0	3.0	400	117	5	0.8	0.5	<0.01	0.11	3.51	3.0
	Gaula, Gaulosen Tr.h.fj.	3659	3650	3062	26.4	33.2	26.4	33.2	6.75	16.4	4.0	330	246	16	1.1	1.5	0.02	0.19	6.10	1.0
	Nidelva, Trondheimsfj.	3110	3100	3049	35.5	44.8	35.5	44.8	5.20	14.6	0.8	283	62	6	0.8	0.7	<0.01	0.05	0.68	4.0
	Homla, Stjørd.fj.Tr.h.fj.	157	157		30.0	39.0	30.0		6.45	5.0	1.0	240	26	5	1.2	0.7	<0.01	0.08	0.51	4.0
Nord-Trøndelag (8.)	Stjørdalsv, " Tr.h.fj.	2117	2117	1863	38.5	48.7	38.5	48.7	3.64	4.0	3.0	227	94	11	1.6	3.4	<0.01	0.23	3.60	4.0
	Gråe., " Tr.h.fj.	93	93		25.0	29.8	25.0		18.50	11.0	6.0	1170	960	6	1.2	0.5	<0.01	0.09	1.24	3.5
	Verdalsvassdr., Tr.h.fj.	1472	1472	898	40.0	44.7	44.5	49.7	12.50	2.0	1.0	335	185	19	0.9	0.5	<0.01	0.09	0.96	2.5
	Figga/Leksdalse.,Tr.h.fj.	282	282	178	30.0	39.9	33.6	44.7	5.03	16.0	11.0	465	325	27	1.3	2.1	0.01	0.24	6.27	<1.0
	Snåsavassdr., Trondh.fj.	2153	2125	2125	35.1	35.0	35.1	35.0	4.93	3.5	1.0	265	137	13	1.1	1.2	0.01	0.17	1.05	<1.0
	Argårdselva, Namsfj.	543	510	238	43.0	52.5	50.9	62.1	3.95	14.1	19.0	126	12	17	1.2	1.2	<0.01	0.18	1.71	5.0
	Namsen, Namsfj. Ø	6277	6276	5718	43.4	56.2	43.4	56.2	11.30	3.0	2.0	160	51	13	2.6	2.9	0.02	0.05	0.77	3.5
	Salsvatnelva, Follafj.	432	432	422	59.7	79.1	59.7	79.1	4.53	0.9	0.5	146	58	6	0.2	1.2	0.02	0.06	0.39	5.0

Table 8.1 TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997.

County	Watercourse	Runoff data							Parameters (mean values)											
		ge area			Discharge															
		Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station													
					Normal	1997	Normal	1997												
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		Cond mS/m	Tot-P µg/l	PO4-P µg/l	Tot-N µg/l	NO3-N µg/l	NH4-N µg/l	Cu µg/l	Zn µg/l	Cd µg/l	Pb µg/l	S.P.M. mg/l	Hg ng/l
Nordland (9.)	Abjøra, Bindalsfj. S	526	520	384	80.2	91.1	80.2	91.1	8.01	3.0	2.0	114	26	3	0.4	0.5	<0.01	0.18	2.27	4.5
	Skjerva, Vefsenfj. S	104	104	98	41.3	47.2	41.3		5.29	15.0	5.0	490	235	8	1.0	1.0	0.01	0.30	11.90	5.5
	Fusta, Vefsenfj. N	544	543	520	63.4	75.1	63.4	75.1	2.53	5.0	4.0	160	43	19	0.7	1.0	<0.01	0.17	4.50	4.5
	Drevja, Vefsenfj. N	177	176	98	65.0	74.4	65.0		3.85	4.0	2.0	190	81	3	0.6	0.9	<0.01	0.22	4.42	4.5
	Røssåga, Sørfj.	2092	2087	1880	45.4	64.1	45.4	64.1	4.73	15.0	8.0	230	82	28	1.6	3.7	<0.01	0.74	13.90	5.5
	Bjerka, Sørfj.	385	385	273	55.4	63.4	55.4		2.66	2.0	0.6	155	42	6	0.7	0.8	<0.01	0.14	1.05	4.0
	Dalselva, Ranafj. N	211	211	129	39.5	39.6	39.5		2.06	5.0	1.0	195	34	25	0.6	1.1	0.01	0.19	2.43	4.5
	Ranavassdraget, Ranafj. N	3847	3846	1892	44.9	45.0	44.9	45.0	2.97	4.0	2.0	220	110	30	0.8	2.1	<0.01	0.35	7.07	3.5
	Fykanåga, Glomfjord	297	297	243	103.7	103.7	103.7		2.91	3.0	2.0	85	40	7	0.5	1.0	0.01	0.30	2.01	<1.0
	Beiare., Beiarfj. Nordfj.	1064	875	797	45.1	57.0	45.1	57.0	6.65	39.0	25.0	160	31	28	1.7	3.3	0.02	0.87	85.90	4.5
	Saltdalsvassdr., Saltd.fj.S	1544	1543	1168	32.1	36.9	32.1		2.26	4.0	2.0	98	38	17	0.6	2.0	<0.01	0.30	9.53	3.5
	Sulitjelmavassdr., Saltd.fj	1028	800	791	44.0	50.6	44.0		21.40	0.8	0.7	74	23	8	6.5	5.7	0.03	0.23	0.53	3.5
	Kobbe., Leirfj. Sørfolda N	405	405	386	66.9	70.2	66.9		0.85	3.0	2.0	107	43	6	0.3	1.0	<0.01	0.30	3.17	4.0
	Skjoma, Ofotfj. S	845	840	797	36.3	38.1	36.3		1.57	1.0	0.5	65	7	16	0.3	1.6	<0.01	0.29	0.41	2.5

Table 8.1 TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997.

County	Watercourse	Runoff data			Discharge				Parameters (mean values)											
		ge area																		
		Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station		Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd	Pb	S.P.M.	Hg
					Normal	1997	Normal	1997												
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		mS/m	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	ng/l
Troms	Spanselva, Astafj. Vägsfj.	142	142	533	50.0	51.5	50.0		6.01	0.7	0.6	35	11	6	0.3	0.2	<0.01	0.02	0.28	2.5
(9.)	Salangse., Astafj. Vägsfj.	539	539	533	40.9	42.1	40.9		6.92	1.0	0.5	59	12	8	0.3	0.2	<0.01	0.03	0.29	2.5
	Rossfjorde., Malangen	196	190		39.5	40.7	39.5		7.46	2.0	0.5	108	4	11	0.4	0.3	<0.01	0.09	0.25	3.5
	Målse., Målselvfj. "	3239	3200	3118	28.7	29.5	28.7	29.5	6.30	2.0	0.8	78	29	5	0.4	0.3	<0.01	0.06	1.25	2.0
	Bardue., Målselva	2906	2906	2049	28.3	29.1	28.3		6.30	2.0	0.8	78	29	5	0.4	0.3	<0.01	0.06	1.25	2.0
	Nordkjoselva, Balsfj.	191	191	415	27.7	28.5	27.7		3.99	2.0	1.0	54	12	5	0.3	0.2	<0.01	<0.02	0.44	3.0
	Signaldalselva, Lyngen V	473	467	415	27.7	28.5	27.7		3.31	1.0	0.5	66	8	3	0.5	0.2	<0.01	<0.02	0.79	3.5
	Skibotnelva, Lyngen	770	770	724	18.0	18.5	18.0		2.99	1.0	0.5	90	28	6	0.7	0.5	<0.01	0.04	0.36	3.5
	Kåfjordelva, Lyngen Ø	358	358	348	20.0	20.6	20.0		3.14	1.0	0.5	93	48	3	1.2	0.3	<0.01	<0.02	0.33	<1.0
	Reisa, Reisafj.	2702	2702		16.0	16.5	16.0		5.84	3.0	0.6	126	90	3	0.6	0.2	<0.01	<0.02	0.46	3.5
Finnmark	Mattiselva, Kåfj. Altafj.	325	325	319	26.5	26.3	26.5		3.18	2.0	0.5	78	8	11	0.4	0.2	<0.01	<0.02	0.50	3.0
(10.)	Tverrelva, Altafj.	234	233	233	15.1	14.8	15.1		5.29	3.0	0.9	205	101	3	0.5	0.2	<0.01	0.03	0.40	<1.0
	Repparfjordv., Repparfj.	1090	1089		25.0	24.7	25.0		4.66	1.0	0.5	114	51	3	0.4	0.2	<0.01	<0.02	0.32	2.5
	Stabburse., I. Porsangen V	1108	1102	870	18.3	18.3	18.3		4.33	1.0	0.5	78	62	5	0.3	0.5	<0.01	0.02	0.41	<1.0
	Lakse., Indre Porsangen S	1533	1532	941	15.9	15.9	15.9	15.9	5.35	3.0	0.9	90	3	6	0.5	0.2	<0.01	0.03	1.16	3.0
	Børselva.Indre Porsangen Ø	883	883	863	29.8	29.8	29.8		5.02	1.0	0.5	59	3	6	0.2	0.5	0.50	<0.02	0.29	3.0
	Mattusjåkka, I. Laksefj. V	101	101	101	22.8	23.0	22.8		7.32	1.0	0.5	59	2	3	0.2	0.2	<0.01	<0.02	0.31	4.0
	Storelva.Indre Laksefj. V	690	690	760	21.9	22.1	19.9		2.05	1.0	0.5	78	50	6	0.1	1.4	<0.01	0.04	0.21	2.5
	Soussjåkka, I. Laksefj. V	92	92	102	25.3	25.6	22.8		6.72	1.0	0.5	54	12	3	0.2	0.5	<0.01	<0.02	0.21	3.0
	Adamselva, I. Laksefj. Ø	705	705	760	19.9	20.1	19.9		7.19	1.0	0.5	78	6	11	0.4	1.4	0.02	1.12	0.39	3.0
	Tanavassdraget, Tanafj. S	16389	15713	14169	11.5	11.6	11.5		6.41	4.6	2.4	173	50	8	4.0	9.6	0.03	0.81	0.46	<1.0
	Vesterelva, Syltefj.	469	469	79	34.6	34.9	34.6		4.13	2.0	0.5	48	45	3	0.2	0.4	<0.01	0.08	0.33	2.0
	V. Jakobse., Y.Varangerfj.	627	627	239	18.1	18.2	18.1		2.89	2.0	0.5	53	3	3	0.2	0.2	<0.01	0.03	0.54	<1.0
	Passvike., Bokfj.Varang.fj.	18404	18400	18175	9.3	9.4	9.3		3.36	3.0	0.6	140	3	8	1.1	0.7	<0.01	0.04	0.71	<1.0
	Neiden, Munkfj. Varang.fj.	2960	2960	2911	9.8	9.9	9.8		7.02	3.0	0.7	160	3	17	0.7	0.5	<0.01	0.03	0.95	<1.0
	Grense Jakobse.,Varang.fj.	234	234		18.0	18.1	18.0		4.70	2.0	1.0	108	6	16	2.0	0.8	<0.01	0.06	1.92	1.0

Table 8.2 TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997.

County	Watercourse	Runoff data			Discharge				Parameters (mean values)												
		ge area			Sampling station		gauging station														
		Outlet	Sampl. station	Disch. gaug. station	Normal	1997	Normal	1997	Gamma	PCB (The folloving Congeners) IUPAC NOS								TOC	SiO2	Cr-T	Ni	As
									HCH	28	52	101	118	138	153	180					
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	mg/l	mg/l	ug/l	ug/l	ug/l
Østfold	Tista, Iddefj.	1588	1582	1582	14.4	9.1	14.4	9.1	0.6	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	6.60	2.70	1.70	1.9	0.38
(1.)	Mosselva, Mossesundet	690	689	689	14.5	9.0	14.5	9.0	0.6	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	7.00	2.30	2.00	1.8	0.44
Oslo og	Hølenelva, Drøbaksundet Ø	137	121		14.0	8.6			0.6	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	9.90	9.00	<0.5	1.7	0.52
Akershus	Arungelva, l. Oslofj.	52	50		13.0	8.0			0.6	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	2.80	2.80	<0.5	0.8	0.69
(1.)	Gjersjøelva, l. Oslofj.	86	85	85	14.0	4.0		4.0	0.6	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	6.10	1.50	<0.5	3.0	0.21
	Ljanselva, l. Oslofj.	42	41	41	13.0	10.1		10.1	0.6	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	5.50	4.20	1.50	13.6	0.61
	Loelva/Alna, l. Oslofj.	75	69	69	13.0	14.3		14.3	0.6	0.03	0.08	0.08	0.09	0.12	0.13	0.09	5.40	6.40	<0.5	<0.2	0.46
	Akerselva, l. Oslofj.	227	225	225	17.5	7.7		7.7	0.54	0.03	0.04	0.04	0.05	0.06	0.06	0.04	4.50	3.00	<0.5	0.4	0.26
	Frognerelva, l. Oslofj.	23	20	20	15.0	15.7		15.7	0.5	<0.03	<0.03	0.11	0.07	0.10	0.11	0.05	3.60	6.60	<0.5	1.1	0.46
	Lysakerelva, l. Oslofj.	178	173	173	16.8	25.8	16.8	25.8	0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	5.00	4.00	2.00	2.6	0.57
	Sandvikselva, l. Oslofj.	223	187	187	18.4	18.0	18.4		0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	5.90	4.50	<0.5	<0.2	0.21
	Aroselva, l. Oslofj.	113	109	109	17.0	16.8	17.0		0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	6.50	6.30	<0.5	1.2	0.54
Buskerud	Lierelva, Drammensfj. Ø	309	266	222	18.6	17.5	18.6		0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	5.90	6.20	0.50	1.4	0.57
(2.)																					
Vestfold	Sandeelva, Sandebukta	193	190		17.0	16.0	17.0		0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	3.60	6.60	0.60	<0.2	1.01
(3.)	Aulielva, Tønsbergfj.	363	362	362	14.9	13.7	14.9	13.7	0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	5.12	9.40	0.70	2.3	0.42
	Farriselva, Larvikfj.	491	491	491	21.6	15.7	21.6	15.7	0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	3.80	3.70	3.50	1.7	0.17
Telemark	Tokkeelva, Kragerø	1238	1200	1200	26.7	20.3	26.7	20.3	0.7	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	5.60	2.70	<0.5	0.4	0.32
(4.)																					
Aust-	Gjerstadelva, Søndeledfj.	419	414	291	27.0	21.6	27.0	21.6	0.7	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	4.70	2.70	<0.5	0.7	0.32
Agder	Vegårdselva, Sandnesfj.	457	429	291	29.3	22.0	29.3		0.7	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	4.50	2.70	<0.5	0.7	0.31
(5.)	Nidelva, Arendal	4025	4020	3956	29.8	22.5	29.8	22.5	0.8	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	2.70	2.10	<0.5	0.2	0.25

Table 8.2 TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997.

County	Watercourse	Runoff data			Discharge				Parameters (mean values)												
		ge area			Sampling station		gauging station														
		Outlet	Sampl. station	Disch. gaug. station	Normal	1997	Normal	1997	Gamma	PCB (The following Congeners) IUPAC NOS							TOC	SiO2	Cr-T	Ni	As
									HCH	28	52	101	118	138	153	180					
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	mg/l	mg/l	ug/l	ug/l	ug/l
Vest-	Tovdalselva, Topdalsfj.	1856	1854	1794	33.9	27.5	33.9	27.5	0.8	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	4.00	2.00	<0.5	0.4	0.23
Agder	Søgneelva, Flekkerøy	204	192	192	38.0	33.2	38.0		0.8	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	3.80	3.90	<0.5	0.7	0.23
(5.)	Mandalselva, Mannefj.	1809	1800	1740	46.0	41.1	47.6	42.5	0.7	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	3.40	1.50	<0.5	0.2	0.28
	Audna, Sniksfj.	450	400	59	45.0	41.7	51.8	48.0	0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	2.90	2.42	<0.5	0.2	0.3
(6.)	Lygna, Lyngdalsfj.	664	660	266	48.0	46.7	57.9	56.3	0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	3.40	2.10	<0.5	<0.2	0.34
	Kvina, Fedafj.	1445	1140	1140	57.6	56.0	57.6		0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	3.90	2.20	<0.5	0.2	0.18
	Sira, Ana-Sira	1916	1872	1872	59.4	57.5	59.4		0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	4.50	1.09	<0.5	<0.2	<0.10
Rogaland	Sokndalselva, Sogndalsstr.	294	293	107	51.1	48.7	51.1	48.7	0.9	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.60	1.60	<0.5	6.5	0.21
(6.)	Hellelandselva, Egersund	241	240	194	57.5	58.9	71.1	72.6	0.9	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.70	1.50	<0.5	0.4	0.19
	Bjerkreimselva, Egersund	705	704	639	77.7	62.5	86.4	69.5	0.9	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.20	1.50	<0.5	<0.2	0.11
	Håelva, Håtangen	165	160	135	46.9	46.6	46.9	46.6	0.8	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	3.91	4.60	1.70	1.5	0.38
	Figgjo, Solavika	229	218	135	50.0	49.7	50.0		0.8	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	4.20	3.20	<0.5	0.4	0.18
	Ims-Lutsi. Høgsfj.Boknafj.	127	127	127	34.9	38.1	34.9	38.1	0.8	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	3.40	1.11	<0.5	0.4	0.26
	Oltedalse.,Høgsfj.Boknafj.	102	101	129	70.0	76.3	70.0		0.8	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.40	1.90	<0.5	<0.2	<0.1
	Dirdalse., Høgsfj.Boknafj.	158	158	95	83.0	90.4	83.0		0.8	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.20	1.90	<0.5	<0.2	0.16
	Frafjorde.,Frafj. Boknafj.	178	178	124	94.4	102.9	94.4		0.6	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.97	1.20	<0.5	<0.2	0.12
	Espedalse.,Høgsfj.Boknafj.	138	138	124	90.0	98.1	90.0		0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.00	2.01	<0.5	<0.2	<0.1
	Lysee., Lysefj.Boknafj.	182	182	46	74.0	125.9	74.0		0.4	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.54	1.70	<0.5	<0.2	<0.1
	Ardalse., Ardalsfj.Boknafj.	519	516	501	81.4	31.5	81.4	31.5	0.36	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.40	1.30	<0.5	<0.2	0.13
	Førree., Jøsenfj.Boknafj.	163	163	163	85.8	93.5	85.8		0.4	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.90	1.40	<0.5	0.1	0.11
	Ulla, Jøsenfj.Boknafj.	393	393	385	83.4	90.9	83.4		0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	3.90	1.90	<0.5	<0.2	<0.1
(7.)	Saudae., Saudafj.Boknafj.	353	353		85.0	92.6	85.0		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	2.40	2.40	<0.5	0.2	<0.1
	Abøelva, Saudafj.Boknafj.	82	82		85.0	92.6	85.0		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.90	1.30	<0.5	0.3	<0.1
	Vikedalse., Boknafj.	118	117		80.0	95.0	80.0	95.0	0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.20	1.10	<0.5	0.5	0.35

Table 8.2 TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997.

County	Watercourse	Runoff data							Parameters (mean values)												
		ge area			Discharge																
		Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station		Gamma	PCB (The folloving Congeners) IUPAC NOS								TOC	SiO2	Cr-T	Ni	As
					Normal	1997	Normal	1997	HCH	28	52	101	118	138	153	180					
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	mg/l	mg/l	ug/l	ug/l	ug/l
Hordaland (7.)	Etneelva, Etnefj. Bømlafj.	252	250	127	48.8	52.7	96.0	103.6	0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.90	0.84	<0.5	0.4	0.25
	Opo, Sørfj. Hardangerfj.	482	480	464	79.3	88.2	79.3	88.2	0.4	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.88	0.65	<0.5	<0.2	<0.1
	Tysso, Sørfj. Hardangerfj.	388	385	407	79.3	88.2	79.3		0.4	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.20	2.20	<0.5	<0.2	<0.1
	Kinso, Sørfj. Hardangerfj.	281	281	232	46.0	60.8	46.0	60.8	0.33	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.50	0.50	<0.5	<0.2	<0.1
	Velg, Eidfjv. Hardangerfj.	496	496	386	41.8	42.0	41.8	42.0	0.23	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.10	1.20	<0.5	0.4	<0.1
	Bjoreia, " , Hardangerfj.	592	592	592	26.0	9.8	26.0	9.8	0.23	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.10	1.20	<0.5	0.4	<0.1
	Sima, Eidfj. Hardangerfj.	145	145	126	69.2	81.7	69.2		0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.30	1.90	<0.5	<0.2	<0.1
	Austdøla, Osafj. Eidfj.	131	130	89	74.6	88.0	74.6		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.20	1.60	<0.5	<0.2	<0.1
	Norddøla, Osafj. Eidfj.	40	39	89	74.6	88.0	74.6		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.20	1.60	<0.5	<0.2	<0.1
	Tysseelva, Fusafj.	240	240		85.0	90.1	85.0		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.80	0.69	<0.5	0.2	<0.1
	Oselva, Fusafj.	109	108	50	91.7	97.1	91.7	97.1	0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	2.40	1.10	<0.5	0.2	0.1
	Bergsdalse, Veafj.Herdlafj.	198	198		80.0	84.8	80.0		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.90	0.72	<0.5	0.4	<0.1
	Vosso, Veafj. Sørfj.	1492	1465	1102	58.2	64.9	58.2	64.9	0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.91	1.03	<0.5	0.2	0.54
	Ekso, Osterfj.	414	400	342	86.2	95.6	86.2		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.50	0.97	<0.5	<0.2	<1.0
	Modalselva, Osterfj.	385	384	248	95.5	106.0	95.5		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.80	0.85	<0.5	<0.2	<0.1

Table 8.2 TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997.

County	Watercourse	Runoff data			Discharge				Parameters (mean values)												
		ge area			Sampling station		gauging station														
		Outlet	Sampl. station	Disch. gaug. station	Normal	1997	Normal	1997	Gamma HCH	PCB (The folloving Congeners) IUPAC NOS 28	52	101	118	138	153	180	TOC	SiO2	Cr-T	Ni	As
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	mg/l	mg/l	ug/l	ug/l	ug/l
Sogn og Fjordane (7.)	Nærøye., Aurl.fj. Sognefj.	290	290	267	59.5	64.8	59.5		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.40	2.30	<0.5	<0.2	<0.1
	Flåmse., Aurl.fj. Sognefj.	280	275	275	52.4	57.1	52.4		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.30	0.79	<0.5	0.3	<0.1
	Aurlandv. Aurl.fj. Sognefj.	800	799	762	48.6	53.0	48.6		0.12	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.40	2.00	<0.5	0.2	<0.1
	Erdalse., Lærd.fj. Sognefj.	138	138		30.0	32.7	30.0		0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.90	2.10	<0.5	<0.2	<0.1
	Lærdalsv. Lærd.fj. Sognefj.	1184	1172	1172	30.0	32.7	30.0		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.85	2.20	<0.5	0.3	<0.1
	Ardalsv., Ardalsfj.Sognefj.	989	989	989	44.9	48.9	44.9		0.25	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.76	1.40	<0.5	0.2	<0.1
	Fortunv., Lusterfj.Sognefj.	508	508	367	51.0	55.6	51.0		0.28	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.30	1.10	<0.5	0.2	<0.1
	Mørkrisv., Lusterfj.Sognefj.	282	282	203	54.7	59.6	54.7	59.6	0.28	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.40	0.97	<0.5	0.4	<0.1
	Jostedøla, " Sognefj.	865	864	573	68.0	74.1	68.0		0.28	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.40	1.80	<0.5	0.5	<0.1
	Arøye., Sognd.fj. Sognefj.	449	446	384	77.2	84.1	77.2		0.26	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.60	1.10	<0.5	<0.2	<0.1
	Sogndalse, " Sognefj.	175	172	111	66.1	75.9	66.1	75.9	0.28	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	2.90	1.30	<0.5	0.2	<0.1
	Gaular, Dalsfj. Bufj.	627	625	505	79.3	91.0	79.3		0.36	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.28	0.97	<0.5	<0.2	0.15
	Jølstra, Førdefj.	714	709	384	74.3	85.3	74.3		0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.10	0.87	<0.5	<0.2	<0.1
	Nausta, Førdefj.	277	273	232	81.7	93.8	81.7		0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.74	1.20	<0.5	<0.2	<0.1
	Oselva, Høydalsfj.	287	285	225	78.7	90.3	78.7		0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	2.50	0.45	<0.5	0.2	0.14
	Hopse., Hyefj. Nordfj.S	73	73	161	75.0	77.4	75.0	77.4	0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.70	0.52	<0.5	<0.2	<0.1
	Gjengedalse.," Nordfj.S	170	168	161	75.0	77.4	75.0	77.4	0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.49	0.83	<0.5	<0.2	0.14
	Breimse., Gloppenfj. "	636	634	585	68.0	78.1	68.8		0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.70	0.94	<0.5	<0.2	0.17
	Oldene., Indre Nordfj.	226	225	204	70.1	102.9	70.1	102.9	0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.80	1.10	<0.5	<0.2	<0.1
	Loenelva, Indre Nordfj.	261	260	234	65.0	74.6	65.0		0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.50	1.20	<0.5	<0.2	0.14
	Strynee., Indre Nordfj.	532	530	493	60.2	69.2	60.2		0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.50	1.10	<0.5	<0.2	<0.1
	Hornindalse., Nordfj. N	428	424	378	58.1	66.8	58.1		0.4	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.20	1.40	<0.5	0.2	<0.1

Table 8.2 TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997.

County	Watercourse	Runoff data			Discharge				Parameters (mean values)												
		ge area			Sampling station		gauging station														
		Outlet	Sampl. station	Disch. gaug. station	Normal	1997	Normal	1997	Gamma HCH	PCB (The folloving Congeners) IUPAC NOS 28	52	101	118	138	153	180	TOC	SiO2	Cr-T	Ni	As
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	mg/l	mg/l	ug/l	ug/l	ug/l
Møre og Romsdal (8.)	Ørstae., Ørstafj.	160	155		70.0	80.5	70.0		0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.33	2.60	<0.5	0.7	<0.1
	Valldøla, Nordalfj.Storfj.	359	357		60.0	69.0	60.0		0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.44	1.50	<0.5	<0.2	<0.1
	Rauma, Romsdalsfj.Moldefj.	1202	1190	1142	32.8	37.7	32.8		0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.51	2.50	<0.5	<0.2	<0.1
	Isa, Isfj. Moldefj.	175	175	89	57.0	65.6	57.0		0.4	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.65	1.80	<0.5	<0.2	<0.1
	Eira, Eresfj. Moldefj.	1119	1119	1085	34.8	40.0	34.8		0.31	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.50	1.50	<0.5	<0.2	<0.1
	Littledalse., Sunndalsfj.	359	330	330	41.0	47.2	41.0		0.4	<0.03	<0.03	<003	<0.03	<0.03	<0.03	<0.03	0.60	0.96	<0.5	<0.2	<0.1
	Driva, Sunnd.fj.Tingvollfj.	2487	2435	2435	27.9	32.1	27.9		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.26	2.60	<0.5	<0.2	<0.1
	Ulvåa, Alvundfj.	199	199	207	57.0	65.6	60.7		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.40	4.00	<0.5	0.3	<0.1
	Toåa, Todalsfj.	251	251	207	58.5	67.3	58.5		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.91	1.60	<0.5	<0.2	<0.1
	Surna, Surnadalsfj.	1200	1200	1125	48.0	55.2	49.3		0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.70	1.50	<0.5	0.4	<0.1
	Bøvra, Hamnesfj. Halsafj.	243	243	196	55.0	63.3	55.0		0.7	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.75	1.10	<0.5	0.2	<0.1
Sør-Trøndelag (8.)	Børso.,Gaulosen Tr.h.fj.	110	100		30.0	39.0	30.0		0.9	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.90	<0.5	1.6	0.4
	Vigda, Gaulosen Tr.h.fj.	150	150		30.0	39.0	30.0		0.8	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	3.80	0.80	<0.5	1.1	0.24
	Gaula, Gaulosen Tr.h.fj.	3659	3650	3062	26.4	33.2	26.4	33.2	0.7	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	3.44	3.04	0.80	2.0	0.24
	Nidelva, Trondheimsfj.	3110	3100	3049	35.5	44.8	35.5	44.8	0.57	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	2.60	1.60	<0.5	1.1	0.22
	Homla, Stjørd.fj.Tr.h.fj.	157	157		30.0	39.0	30.0		0.55	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.40	<0.5	0.7	0.56
Nord-Trøndelag (8.)	Stjørdalsv, " Tr.h.fj.	2117	2117	1863	38.5	48.7	38.5	48.7	0.55	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	2.95	0.80	0.50	0.6	0.46
	Gråe., " Tr.h.fj.	93	93		25.0	29.8	25.0		0.55	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		5.60	0.50	1.9	0.76
	Verdalsvassdr., Tr.h.fj.	1472	1472	898	40.0	44.7	44.5	49.7	0.55	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.80	<0.5	0.9	0.72
	Figga/Leksdalse.,Tr.h.fj.	282	282	178	30.0	39.9	33.6	44.7	0.54	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	4.60	1.50	0.40	0.3	0.2
	Snåsavassdr., Trondh.fj.	2153	2125	2125	35.1	35.0	35.1	35.0	0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	3.45	0.90	0.26	0.7	0.13
	Argårdselva, Namsfj.	543	510	238	43.0	52.5	50.9	62.1	0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.10	1.40	0.9	1.24
	Namsen, Namsfj. Ø	6277	6276	5718	43.4	56.2	43.4	56.2	0.24	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.70	3.10	2.3	0.11
	Salsvatnelva, Follafj.	432	432	422	59.7	79.1	59.7	79.1	0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.00	<0.5	<0.2	0.26

Table 8.2 TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997.

County	Watercourse	Runoff data							Parameters (mean values)												
		ge area			Discharge																
		Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station		Gamma	PCB (The following Congeners) IUPAC NOS							TOC	SiO2	Cr-T	Ni	As
					Normal	1997	Normal	1997	HCH	28	52	101	118	138	153	180					
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	mg/l	mg/l	ug/l	ug/l	ug/l
Nordland	Abjora, Bindalsfj. S	526	520	384	80.2	91.1	80.2	91.1	0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.70	<0.5	0.3	0.38
(9.)	Skjerva, Vefsenfj. S	104	104	98	41.3	47.2	41.3		0.4	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.80	<0.5	1.0	0.65
	Fusta, Vefsenfj. N	544	543	520	63.4	75.1	63.4	75.1	0.4	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.70	<0.5	0.5	0.5
	Drevja, Vefsenfj. N	177	176	98	65.0	74.4	65.0		0.4	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.80	<0.5	0.6	0.38
	Røssåga, Sørfj.	2092	2087	1880	45.4	64.1	45.4	64.1	0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.00	1.30	2.2	0.49
	Bjerka, Sørfj.	385	385	273	55.4	63.4	55.4		0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.00	<0.5	0.7	0.22
	Dalselva, Ranafj. N	211	211	129	39.5	39.6	39.5		0.25	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.10	<0.5	0.9	0.23
	Ranavassdraget, Ranafj. N	3847	3846	1892	44.9	45.0	44.9	45.0	0.25	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.90	0.50	0.9	0.37
	Fykanåga, Glomfjord	297	297	243	103.7	103.7	103.7		0.25	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.90	0.50	0.9	0.37
	Beiare., Beiarfj. Nordfj.	1064	875	797	45.1	57.0	45.1	57.0	0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	2.60	3.72	0.80	1.2	0.64
	Saltdalsvassdr., Saltd.fj.S	1544	1543	1168	32.1	36.9	32.1		0.7	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.30	<0.5	0.7	0.53
	Sulitjelmavassdr., Saltd.fj	1028	800	791	44.0	50.6	44.0		0.74	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.80	<0.5	0.6	0.63
	Kobbe., Leirfj. Sørfolda N	405	405	386	66.9	70.2	66.9		0.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.50	<0.5	<0.2	0.45
	Skjoma, Ofotfj. S	845	840	797	36.3	38.1	36.3		0.4	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.50	<0.5	<0.2	0.46

Table 8.2 TRIBUTARY RIVERS. MEAN CONCENTRATIONS 1997.

County	Watercourse	Runoff data							Parameters (mean values)												
		ge area			Discharge																
		Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station		Gamma	PCB (The following Congeners) IUPAC NOS								TOC	SiO2	Cr-T	Ni	As
					Normal	1997	Normal	1997	HCH	28	52	101	118	138	153	180					
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	mg/l	mg/l	ug/l	ug/l	ug/l
Troms	Spanselva, Astafj. Vågsfj.	142	142	533	50.0	51.5	50.0		0.35	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.80	<0.5	0.5	0.4
(9.)	Salangse., Astafj. Vågsfj.	539	539	533	40.9	42.1	40.9		0.35	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.60	<0.5	0.5	0.32
	Rossfjorde., Malangen	196	190		39.5	40.7	39.5		0.33	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.50	<0.5	0.6	<0.1
	Målse., Målselvfj. "	3239	3200	3116	28.7	29.5	28.7	29.5	0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.40	<0.5	0.5	<0.1
	Bardue., Målselva	2906	2906	2049	28.3	29.1	28.3		0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.40	<0.5	0.5	<0.1
	Nordkjoselva, Balsfj.	191	191	415	27.7	28.5	27.7		0.1	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.80	<0.5	0.3	<0.1
	Signaldalselva, Lyngen V	473	467	415	27.7	28.5	27.7		0.1	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.40	<0.5	0.3	<0.1
	Skibotnelva, Lyngen	770	770	724	18.0	18.5	18.0		0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.60	<0.5	0.8	0.21
	Kåfjordelva, Lyngen Ø	358	358	348	20.0	20.6	20.0		0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.50	<0.5	0.6	0.38
	Reisa, Reisafj.	2702	2702		16.0	16.5	16.0		0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.90	4.28	<0.5	<0.2	0.28
Finnmark	Mattiselva, Käfj. Altafj.	325	325	319	26.5	26.3	26.5		0.1	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.90	<0.5	<0.2	0.36
(10.)	Tverrelva, Altafj.	234	233	233	15.1	14.8	15.1		0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		2.60	<0.5	0.3	0.17
	Repparfjordv., Repparfj.	1090	1089		25.0	24.7	25.0		0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.30	<0.5	0.2	<0.1
	Stabburse., I. Porsangen V	1108	1102	870	18.3	18.3	18.3		0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	2.40	3.08	<0.5	<0.2	0.15
	Lakse., Indre Porsangen S	1533	1532	941	15.9	15.9	15.9	15.9	0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		2.20	<0.5	0.4	<0.1
	Børselva.Indre Porsangen Ø	883	883	863	29.8	29.8	29.8		0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		3.90	<0.5	<0.2	0.16
	Mattusjåkka, I. Laksefj. V	101	101	101	22.8	23.0	22.8		0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		1.40	<0.5	<0.2	<0.1
	Storelva.Indre Laksefj. V	690	690	760	21.9	22.1	19.9		0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		3.50	<0.5	0.2	<0.1
	Soussjåkka, I. Laksefj. V	92	92	102	25.3	25.6	22.8		0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		4.00	<0.5	0.3	<0.1
	Adamselva, I. Laksefj. Ø	705	705	760	19.9	20.1	19.9		0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		3.40	<0.5	0.3	<0.1
	Tanavassdraget, Tanafj. S	16389	15713	14169	11.5	11.6	11.5		0.11	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	3.39	7.45	1.05	0.8	0.11
	Vesterelva, Syltefj.	469	469	79	34.6	34.9	34.6		0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		3.60	<0.5	0.3	0.41
	V. Jakobse., Y.Varangerfj.	627	627	239	18.1	18.2	18.1		0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		4.70	<0.5	<0.2	0.13
	Passvike., Bøkfj.Varang.fj.	18404	18400	18175	9.3	9.4	9.3		0.32	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	3.90	3.70	<0.5	5.8	0.39
	Neiden, Munkfj. Varang.fj.	2960	2960	2911	9.8	9.9	9.8		0.35	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		2.20	<0.5	<0.2	0.13
	Grense Jakobse.,Varang.fj.	234	234		18.0	18.1	18.0		0.35	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		3.80	<0.5	7.0	0.27

APPENDIX IX : TRIBUTARY RIVERS. ANNUAL LOAD 1997 **Page:**

(1)	Glomma	"tributaries"	: Tista	- Hølenelva
(1)	Inner Oslo-fjord		: Årungelva	- Åroselva
(2)	Drammenselva	"tributary"	: Lierelva	
(3)	Numedalslågen	"tributaries"	: Sandeelva	- Farriselva
(4)	Skienselva	"tributary"	: Tokkeelva	
(5)	Otra	"tributaries"	: Gjerstade.	- Audna
(6)	Orreelva	"tributaries"	: Lygna	- Ulla
(7)	Suldalslågen	"tributaries"	: Saudaelva	- Hornindalselva
(8)	Orkla	"tributaries"	: Ørstaelva	- Salsvatnelva
(9)	Vefsna	"tributaries"	: Åbjøra	- Reisa
(10)	Alta	"tributaries	: Mattiselva	- Grense Jacobse.

* Measurements below detection limits are treated in two ways:
"Detection limit = Zero", and "Detection limit = limit". This concerns the substances Cd, Pb, Hg and PCBs. In Tables 9.1-9.2 as well as in Tables 5.1-5.4 both "zero- and limit-values" are shown.

Table 9.1 TRIBUTARY RIVERS. ANNUAL LOAD 1997.

County	Watercourse	Runoff data								Parameters (mean values)														
		Drainage area			Discharge																			
		Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station																	
					Normal	1997	Normal	1997	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N		Cu	Zn	C d		P b		S.P.M.	H g	
														zero	limit			zero	limit	zero	limit		zero	limit
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		mS/m	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	kg	kg
Østfold	Tista, Iddefj.	1588	1582	1582	14.4	9.1	14.4	9.1	5.92	4.36	0.91	408.1	288.3	6.8	6.81	0.50	1.36	0.02	0.02	0.08	0.08	0.84	0.00	0.45
(1.)	Mosselva, Mossesundet	690	689	689	14.5	9.0	14.5	9.0	10.40	5.12	0.78	200.8	141.8	60.0	60.04	0.27	0.53	0.00	0.00	0.10	0.10	0.94	0.00	0.20
Oslo &	Hølenelva, Drøbaksundet Ø	137	121		14.0	8.6			28.80	2.33	1.64	112.9	94.8	5.4	5.41	0.08	0.11	0.00	0.00	0.02	0.02	0.19	0.05	0.05
Akershus	Årungelva, I. Oslofj.	52	50		13.0	8.0			24.40	0.88	0.05	28.9	7.3	0.3	0.28	0.02	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.01
(1.)	Gjersjøelva, I. Oslofj.	86	85	85	14.0	4.0		4.0	19.50	0.12	0.02	16.0	13.0	0.2	0.15	0.03	0.04	0.00	0.00	0.00	0.00	0.01	0.00	0.01
	Ljanselva, I. Oslofj.	42	41	41	13.0	10.1		10.1	30.90	0.99	0.51	20.1	17.2	0.6	0.56	0.12	0.51	0.01	0.01	0.04	0.04	0.43	0.07	0.07
	Loelva/Alna, I. Oslofj.	75	69	69	13.0	14.3		14.3	30.20	5.23	1.68	69.4	43.7	4.8	4.82	0.12	0.28	0.00	0.00	0.02	0.02	0.11	0.06	0.06
	Akerselva, I. Oslofj.	227	225	225	17.5	7.7		7.7	7.90	2.19	1.53	35.0	13.9	1.7	1.75	0.08	0.45	0.00	0.00	0.03	0.03	0.11	0.14	0.14
	Frognerelva, I. Oslofj.	23	20	20	15.0	15.7		15.7	19.90	0.61	0.36	16.8	15.9	0.7	0.66	0.06	0.09	0.00	0.00	0.01	0.01	0.06	0.01	0.01
	Lysakerelva, I. Oslofj.	178	173	173	16.8	25.8	16.8	25.8	6.40	2.25	0.56	71.8	50.0	2.4	2.39	0.83	3.03	0.01	0.01	0.40	0.40	5.46	0.77	0.77
	Sandvikselva, I. Oslofj.	223	187	187	18.4	18.0	18.4		15.00	2.23	0.85	113.6	74.8	4.0	4.03	0.19	0.23	0.00	0.00	0.03	0.03	0.11	0.00	0.11
	Aroselva, I. Oslofj.	113	109	109	17.0	16.8	17.0		16.70	1.50	1.04	126.2	58.2	4.3	4.33	0.16	0.38	0.00	0.00	0.05	0.05	0.82	0.17	0.17
Buskerud	Lierelva, Drammensfj. Ø	309	266	222	18.6	17.5	18.6		11.80	6.17	3.23	160.0	141.7	1.8	1.76	0.29	1.72	0.00	0.00	0.11	0.11	2.95	0.29	0.29
(2.)																								
Vestfold	Sandeelva, Sandebukta	193	190		17.0	16.0	17.0		92.40	1.44	0.77	121.8	94.9	9.1	9.11	0.15	7.69	0.02	0.02	0.11	0.11	0.22	0.14	0.14
(3.)	Aulielva, Tønsbergfj.	363	362	362	14.9	13.7	14.9	13.7	19.20	17.99	8.60	434.0	265.6	19.5	19.55	0.23	0.97	0.00	0.00	0.06	0.06	0.77	0.16	0.16
	Farriselva, Larvikfj.	491	491	491	21.6	15.7	21.6	15.7	3.87	1.09	0.44	124.0	75.4	4.6	4.62	0.17	2.04	0.01	0.01	0.02	0.02	0.14	0.00	0.24
Telemark	Tokkeelva, Kragerø	1238	1200	1200	26.7	20.3	26.7	20.3	2.61	3.07	0.54	291.9	149.8	17.7	17.67	0.31	4.23	0.03	0.03	0.11	0.11	0.93	0.77	0.77
(4.)																								
Aust-Agder	Gjerstadelva, Søndeledfj.	419	414	291	27.0	21.6	27.0	21.6	3.05	1.41	0.28	122.7	62.3	10.4	10.43	0.17	2.00	0.02	0.02	0.12	0.12	0.33	0.42	0.42
(5.)	Vegårdselva, Sandnesfj.	457	429	291	29.3	22.0	29.3		4.50	1.49	0.89	114.6	50.3	11.6	11.61	0.18	3.30	0.02	0.02	0.10	0.10	0.32	0.30	0.30
	Nidelva, Arendal	4025	4020	3956	29.8	22.5	29.8	22.5	1.84	5.70	1.71	847.2	473.5	48.5	48.49	2.00	17.69	0.14	0.14	0.88	0.88	2.74	2.85	2.85

Table 9.1 TRIBUTARY RIVERS. ANNUAL LOAD 1997.

County	Watercourse	Runoff data: Drainage area: Outlet sq.km	Drainage area: Sampl. station sq.km	Drainage area: Disch. gaug. station sq.km	Discharge: Sampling station: Normal l/s sq.km	Discharge: Sampling station: 1997 l/s sq.km	Discharge: gauging station: Normal l/s sq.km	Discharge: gauging station: 1997 l/s sq.km	Cond mS/m	Parameters (mean values): Tot-P tonnes	PO4-P tonnes	Tot-N tonnes	NO3-N tonnes	NH4-N: zero tonnes	NH4-N: limit tonnes	Cu tonnes	Zn tonnes	C d: zero tonnes	C d: limit tonnes	P b: zero tonnes	P b: limit tonnes	S.P.M. tonnes	H g: zero kg	H g: limit kg
Vest-Agder	Tovdalselva, Topdalsfj.	1856	1854	1794	33.9	27.5	33.9	27.5	2.43	6.43	1.45	638.3	212.2	49.8	49.84	0.64	9.65	0.08	0.08	0.76	0.76	2.22	2.41	2.41
(5.)	Søgneelva, Flekkerøy	204	192	192	38.0	33.2	38.0		11.00	1.85	0.20	126.2	163.8	5.8	5.83	0.12	2.15	0.02	0.02	0.06	0.06	0.24	0.20	0.20
	Mandalselva, Mannefj.	1809	1800	1740	46.0	41.1	47.6	42.5	2.10	11.67	2.10	769.9	319.6	67.7	67.66	0.93	11.20	0.09	0.09	1.42	1.42	4.34	3.50	3.50
	Audna, Sniksfj.	450	400	59	45.0	41.7	51.8	48.0	4.89	2.10	0.47	299.8	199.9	15.3	15.25	0.21	4.21	0.04	0.04	0.24	0.24	0.56	0.00	0.53
(6.)	Lygna, Lyngdalsfj.	664	660	266	48.0	46.7	57.9	56.3	3.21	3.89	0.78	389.8	217.7	15.6	15.55	0.39	6.32	0.05	0.05	0.48	0.48	0.96	0.00	0.97
	Kvina, Fedafj.	1445	1140	1140	57.6	56.0	57.6		3.20	10.07	2.01	670.4	320.1	40.3	40.27	0.81	10.87	0.12	0.12	1.27	1.27	2.25	3.02	3.02
	Sira, Åna-Sira	1916	1872	1872	59.4	57.5	59.4		2.39	20.37	1.70	1537.7	64.5	101.8	101.84	0.68	12.22	0.14	0.14	1.43	1.43	1.83	0.00	3.39
Rogaland	Sokndalselva, Sogndalsstr.	294	293	107	51.1	48.7	51.1	48.7	4.75	3.15	0.90	191.2	128.2	14.8	14.85	0.22	2.56	0.03	0.03	0.10	0.10	0.37	0.00	0.45
(6.)	Hellelandselva, Egersund	241	240	194	57.5	58.9	71.1	72.6	3.66	3.12	0.69	185.0	133.7	4.0	4.01	0.18	2.27	0.02	0.02	0.19	0.19	0.41	0.45	0.45
	Bjerkreimselva, Egersund	705	704	633	77.7	62.5	86.4	69.5	3.53	4.16	0.83	686.9	559.2	19.4	19.43	0.28	4.86	0.04	0.04	0.29	0.29	0.54	0.00	1.39
	Håelva, Håtangen	165	160	135	46.9	46.6	46.9	46.6	12.30	9.88	3.76	499.4	322.1	11.8	11.76	0.24	1.43	0.01	0.01	0.07	0.07	0.59	0.24	0.24
	Figgjo, Solavika	229	218	135	50.0	49.7	50.0		10.30	51.94	3.42	508.1	430.5	21.9	21.87	0.31	1.74	0.00	0.00	0.16	0.16	0.71	0.00	0.34
	Ims-Lutsi. Høgsfj.Boknafj.	127	127	127	34.9	38.1	34.9	38.1	7.07	1.07	0.14	136.6	98.1	1.7	1.68	0.08	0.40	0.00	0.00	0.02	0.02	0.11	0.00	0.15
	Oltedalse.,Høgsfj.Boknafj.	102	101	129	70.0	76.3	70.0		3.86	0.97	0.22	98.4	72.9	5.6	5.59	0.10	0.90	0.01	0.01	0.04	0.04	0.24	0.00	0.24
	Dirdalse., Høgsfj.Boknafj.	158	158	95	83.0	90.4	83.0		2.43	0.90	0.23	130.6	105.0	2.7	2.70	0.09	1.31	0.01	0.01	0.11	0.11	0.11	0.00	0.45
	Frafjorde.,Frafj. Boknafj.	178	178	124	94.4	102.9	94.4		1.96	0.58	0.29	138.6	104.0	7.5	7.51	0.12	2.19	0.01	0.01	0.12	0.12	0.16	0.00	0.58
	Espedalse.,Høgsfj.Boknafj.	138	138	124	90.0	98.1	90.0		2.59	0.85	0.34	143.0	119.5	1.7	1.71	0.13	1.28	0.00	0.00	0.10	0.10	0.02	0.00	0.43
	Lysee., Lysefj.Boknafj.	182	182	46	74.0	125.9	74.0		2.04	0.72	0.36	112.0	72.3	0.0	2.17	0.22	0.87	0.01	0.01	0.10	0.10	0.13	0.00	0.72
	Årdalse., Årdalsfj.Boknafj.	519	516	501	81.4	31.5	81.4	31.5	2.57	0.51	0.26	113.8	88.2	0.0	1.54	0.10	0.97	0.00	0.01	0.06	0.06	0.24	0.00	0.51
	Førree., Jøsenfj.Boknafj.	163	163	163	85.8	93.5	85.8		2.30	1.44	0.24	121.1	119.7	3.4	3.36	0.14	0.43	0.00	0.00	0.10	0.10	0.09	0.48	0.48
	Ulla, Jøsenfj.Boknafj.	393	393	385	83.4	90.9	83.4		2.49	1.13	0.56	309.8	242.2	4.5	4.51	0.34	1.80	0.00	0.01	0.10	0.10	0.26	0.00	1.13
(7.)	Saudae., Saudafj.Boknafj.	353	353		85.0	92.6	85.0		3.90	1.03	0.52	1412.3	1381.3	4.1	4.12	0.82	18.76	0.04	0.04	0.07	0.07	0.13	0.00	1.03
	Åbøelva, Saudafj.Boknafj.	82	82		85.0	92.6	85.0		1.86	0.24	0.14	80.2	67.0	1.4	1.44	0.07	0.69	0.00	0.00	0.03	0.03	0.10	0.00	0.24
	Vikedalse., Boknafj.	118	117		80.0	95.0	80.0	95.0	2.24	1.40	0.32	77.1	54.3	9.1	9.11	0.18	1.16	0.01	0.01	0.07	0.07	0.30	0.00	0.35

Table 9.1 TRIBUTARY RIVERS. ANNUAL LOAD 1997.

County	Watercourse	Runoff data								Parameters (mean values)															
		Drainage area			Discharge																				
		Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station																		
					Normal	1997	Normal	1997	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N		Cu	Zn	C d		P b		S.P.M.	H g	
														zero	limit			zero	limit	zero	limit		zero	limit
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		mS/m	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	t.tonnes	kg	kg
Hordaland (7.)	Etneelva, Etnefj. Bømlafj.	252	250	127	48.8	52.7	96.0	103.8	2.43	1.25	0.25	135.0	112.2	2.5	2.49	0.17	0.87	0.00	0.00	0.05	0.05	0.29	0.00	0.42
	Opo, Sørfj. Hardangerfj.	482	480	464	79.3	88.2	79.3	88.2	1.81	4.27	2.00	683.6	134.8	16.0	16.02	0.67	7.48	0.04	0.04	0.69	0.69	2.52	1.34	1.34
	Tysso, Sørfj. Hardangerfj.	388	385	407	79.3	88.2	79.3		3.40	1.07	0.54	321.3	230.2	0.0	3.21	1.39	3.64	0.04	0.04	0.21	0.21	0.26	1.07	1.07
	Kinso, Sørfj. Hardangerfj.	281	281	232	46.0	60.8	46.0	60.8	1.78	1.08	0.54	58.2	25.3	0.0	1.62	0.27	3.23	0.01	0.01	0.20	0.20	0.67	0.00	0.54
	Veig, Eidfjv. Hardangerfj.	496	496	386	41.8	42.0	41.8	42.0	2.06	2.63	0.33	84.1	38.8	4.6	4.60	0.26	1.05	0.01	0.01	0.05	0.05	0.30	0.00	0.66
	Bjoreia, " , Hardangerfj.	592	592	592	26.0	9.8	26.0	9.8	2.06	0.73	0.09	23.4	10.8	1.3	1.28	0.07	0.29	0.00	0.00	0.01	0.01	0.08	0.00	0.18
	Sima, Eidfj. Hardangerfj.	145	145	128	69.2	81.7	69.2		2.02	1.12	0.26	56.0	42.2	0.0	1.12	0.15	1.01	0.00	0.00	0.09	0.09	0.29	0.37	0.37
	Austdøla, Osafj. Eidfj.	131	130	89	74.6	88.0	74.6		5.02	0.36	0.18	68.5	61.3	0.0	1.08	0.11	0.29	0.00	0.00	0.02	0.02	0.23	0.00	0.36
	Norddøla, Osafj. Eidfj.	40	39	89	74.6	88.0	74.6		5.02	0.11	0.05	20.6	18.4	0.0	0.32	0.03	0.09	0.00	0.00	0.01	0.01	0.07	0.00	0.11
	Tysseelva, Fusafj.	240	240		85.0	90.1	85.0		1.63	2.05	0.34	98.2	70.9	0.0	2.05	0.27	1.70	0.02	0.02	0.20	0.20	0.42	0.68	0.68
	Oselva, Fusafj.	109	108	50	91.7	97.1	91.7	97.1	3.04	4.96	2.31	147.8	58.9	1.7	1.65	0.30	1.39	0.01	0.01	0.12	0.12	0.33	0.00	0.33
	Bergsdalse, Veafj.Herdlafj.	198	198		80.0	84.8	80.0		1.54	1.59	0.48	69.9	33.9	2.1	2.12	0.26	1.32	0.03	0.03	0.10	0.10	0.48	0.00	0.53
	Vosso, Veafj. Sørfj.	1492	1465	1102	58.2	64.9	58.2	64.9	41.40	11.99	3.00	569.7	245.9	45.0	44.98	2.10	27.29	0.03	0.03	5.37	5.37	3.12	3.00	3.00
	Ekso, Osterfj.	414	400	342	86.2	95.6	86.2		1.90	6.03	0.72	200.2	127.8	4.8	4.82	0.36	2.05	0.04	0.04	0.21	0.21	0.75	0.00	1.21
	Modalselva, Osterfj.	385	384	248	95.5	106.0	95.5		1.51	5.13	0.64	249.0	184.8	5.1	5.13	0.26	3.34	0.01	0.01	0.24	0.24	0.76	0.00	1.28

Table 9.1 TRIBUTARY RIVERS. ANNUAL LOAD 1997.

County	Watercourse	Runoff data							Parameters (mean values)															
		Drainage area			Discharge																			
		Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station			Tot-P	PO4-P	Tot-N	NO3-N	NH4-N		Cu	Zn	C d		P b		S.P.M.	H g	
					Normal	1997	Normal	1997	Cond					zero	limit			zero	limit	zero	limit		zero	limit
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		mS/m	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	t.tonnes	kg	kg
Sogn og Fjordane (7.)	Nærøye., Aurl.fj. Sognefj.	290	290	267	59.5	64.8	59.5		1.25	1.78	0.59	112.6	72.3	2.4	2.37	0.24	1.78	0.01	0.01	0.13	0.13	0.67	0.00	0.59
	Flåmse., Aurl.fj. Sognefj.	280	275	275	52.4	57.1	52.4		1.15	0.99	0.45	59.4	40.6	0.0	1.49	0.15	0.35	0.00	0.00	0.03	0.03	0.54	0.00	0.50
	Aurlandv. Aurl.fj. Sognefj.	800	799	762	48.6	53.0	48.6		2.97	9.35	6.68	547.5	460.7	0.0	4.01	0.93	1.47	0.00	0.01	0.09	0.09	0.51	0.00	1.34
	Erdalse., Lærd.fj. Sognefj.	138	138		30.0	32.7	30.0		1.07	0.28	0.07	17.4	9.1	0.0	0.43	0.04	0.13	0.00	0.00	0.01	0.01	0.11	0.00	0.14
	Lærdalsv. Lærd.fj. Sognefj.	1184	1172	1172	30.0	32.7	30.0		1.80	5.44	1.21	246.6	191.0	0.0	3.63	0.85	1.21	0.00	0.01	0.11	0.11	1.34	0.00	1.21
	Årdalsv., Årdalsfj.Sognefj.	989	989	989	44.9	48.9	44.9		0.96	6.10	3.05	305.0	117.4	10.7	10.68	1.98	1.53	0.02	0.02	0.03	0.03	1.77	0.00	1.53
	Fortunv., Lusterfj.Sognefj.	508	508	367	51.0	55.6	51.0		1.03	3.56	1.78	132.7	84.6	0.0	2.67	0.80	1.96	0.00	0.01	0.13	0.13	1.67	0.00	0.89
	Mørkrisv., Lusterfj.Sognefj.	282	282	203	54.7	59.6	54.7	59.6	1.04	2.65	1.59	79.0	50.4	2.1	2.12	0.32	1.38	0.00	0.01	0.12	0.12	1.54	0.00	0.53
	Jostedøla, " Sognefj.	865	864	573	68.0	74.1	68.0		1.22	24.23	18.17	484.6	193.8	0.0	6.06	1.62	5.65	0.04	0.04	0.46	0.46	3.57	2.02	2.02
	Årøye., Sognd.fj. Sognefj.	449	446	384	77.2	84.1	77.2		1.29	4.73	1.18	169.2	91.1	7.1	7.10	0.47	1.42	0.00	0.01	0.12	0.12	5.75	0.00	1.18
	Sogndalse, " Sognefj.	175	172	111	66.1	75.9	66.1	75.9	1.35	5.35	2.88	111.2	54.8	6.6	6.59	0.21	0.62	0.00	0.00	0.06	0.06	2.38	0.41	0.41
	Gaular, Dalsfj. Bufj.	627	625	505	79.3	91.0	79.3		1.39	17.94	5.38	261.9	145.3	7.2	7.17	0.72	5.38	0.00	0.02	0.32	0.32	13.67	1.79	1.79
	Jølstra, Førdefj.	714	709	384	74.3	85.3	74.3		1.60	8.58	3.81	349.0	227.0	24.8	24.79	0.76	4.01	0.00	0.02	0.36	0.36	5.87	0.00	1.91
	Nausta, Førdefj.	277	273	232	81.7	93.8	81.7		1.67	20.19	12.11	96.9	40.4	9.7	9.69	0.32	2.10	0.00	0.01	0.18	0.18	2.18	1.21	1.21
	Oselva, Høydalsfj.	287	285	225	78.7	90.3	78.7		2.16	4.06	0.81	150.1	39.0	12.2	12.17	0.32	2.68	0.00	0.01	0.19	0.19	0.62	0.81	0.81
	Hopse., Hyefj. Nordfj.S	73	73	161	75.0	77.4	75.0	77.4	1.38	0.36	0.09	26.7	17.3	1.2	1.25	0.04	0.29	0.00	0.00	0.03	0.03	0.08	0.00	0.18
	Gjengedalse.," Nordfj.S	170	168	161	75.0	77.4	75.0	77.4	1.25	2.05	0.41	61.5	27.1	2.5	2.46	0.12	3.77	0.00	0.00	0.18	0.18	0.48	0.41	0.41
	Breimse., Gloppenfj. "	636	634	585	68.0	78.1	68.8		1.60	13.74	1.56	418.5	226.4	18.7	18.74	0.78	10.93	0.02	0.02	0.56	0.56	1.64	0.00	1.56
	Oldene., Indre Nordfj.	226	225	214	70.1	102.9	70.1	102.9	1.40	4.02	1.46	193.5	124.1	5.1	5.11	0.29	0.88	0.00	0.01	0.08	0.08	1.61	0.00	0.73
	Loenelva, Indre Nordfj.	261	260	234	65.0	74.8	65.0		1.40	3.25	1.23	107.3	60.7	2.5	2.45	0.31	0.80	0.00	0.01	0.09	0.09	1.31	0.00	0.61
	Strynee., Indre Nordfj.	532	530	493	60.2	69.2	60.2		2.60	5.20	1.16	223.2	146.9	18.5	18.51	1.04	3.12	0.00	0.01	0.19	0.19	1.39	0.00	1.16
	Hornindalse., Nordfj. N	428	424	378	58.1	66.8	58.1		2.10	3.57	0.54	175.1	101.8	0.0	2.68	0.36	0.98	0.00	0.01	0.05	0.05	0.74	0.00	0.89

Table 9.1 TRIBUTARY RIVERS. ANNUAL LOAD 1997.

County	Watercourse	Runoff data								Parameters (mean values)														
		Drainage area			Discharge																			
		Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station																	
					Normal	1997	Normal	1997	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N		Cu	Zn	C d		P b		S.P.M.	H g	
														zero	limit			zero	limit	zero	limit		zero	limit
		sq.km	sq.km	sq.km	l/s	sq.km	l/s	sq.km	mS/m	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	t.tonnes	kg	kg
Møre og Romsdal (8.)	Ørstae., Ørstafj.	160	155		70.0	80.5	70.0		3.59	6.69	2.36	222.3	110.2	14.6	14.56	0.43	2.28	0.00	0.00	0.08	0.08	1.16	0.39	0.39
	Valldøla, Nordalfj.Storfj.	359	357		60.0	69.0	60.0		1.21	2.33	0.47	83.1	44.3	0.0	2.33	0.31	0.78	0.00	0.01	0.05	0.05	0.80	0.00	0.78
	Rauma, Romsdalsfj.Moldefj.	1202	1190	1142	32.8	37.7	32.8		1.97	2.83	0.99	166.9	96.2	0.0	4.24	0.57	1.56	0.00	0.01	0.06	0.06	1.98	0.00	1.41
	Isa, Isfj. Moldefj.	175	175	89	57.0	65.6	57.0		1.49	0.72	0.22	41.6	26.4	0.0	1.09	0.11	0.58	0.00	0.00	0.03	0.03	0.23	0.00	0.36
	Eira, Eresfj. Moldefj.	1119	1119	1085	34.8	40.0	34.8		1.93	2.82	0.71	211.7	153.9	5.6	5.65	0.71	1.13	0.00	0.01	0.11	0.11	0.79	0.00	1.41
	Littledalse., Sunndalsfj.	359	330	330	41.0	47.2	41.0		0.99	0.49	0.25	33.4	10.3	2.0	1.95	0.15	0.20	0.00	0.00	0.01	0.01	0.24	0.00	0.49
	Driva, Sunnd.fj.Tingvollfj.	2487	2435	2435	27.9	32.1	27.9		2.94	4.93	1.23	554.6	332.8	0.0	7.39	1.97	2.22	0.00	0.02	0.20	0.20	1.53	0.00	2.46
	Ulvåa, Ålvundfj.	199	199	207	57.0	65.6	60.7		3.46	2.88	0.82	284.1	210.0	2.5	2.47	0.54	0.70	0.00	0.00	0.05	0.05	0.52	0.62	0.62
	Toåa, Todalsfj.	251	251	207	58.5	67.3	58.5		1.27	1.07	0.21	57.0	25.0	0.0	1.60	0.16	0.21	0.01	0.01	0.02	0.02	0.31	0.00	0.53
	Surna, Surnadalsfj.	1200	1200	1125	48.0	55.2	49.3		2.57	10.44	1.46	330.1	296.6	12.5	12.53	1.88	4.60	0.02	0.02	0.50	0.50	3.34	0.00	2.09
	Bøvra, Hamnesfj. Halsafj.	243	243	196	55.0	63.3	55.0		2.30	1.46	0.34	89.7	24.7	2.9	2.91	0.29	0.49	0.00	0.00	0.11	0.11	0.53	0.49	0.49
Sør-Trøndelag (8.)	Børse.,Gaulosen Tr.h.fj.	110	100		30.0	39.0	30.0		9.03	2.46	0.12	69.5	35.7	0.6	0.61	0.12	0.04	0.00	0.00	0.01	0.01	0.17	0.43	0.43
	Vigda, Gaulosen Tr.h.fj.	150	150		30.0	39.0	30.0		11.10	2.95	0.55	73.8	21.6	0.9	0.92	0.15	0.09	0.00	0.00	0.02	0.02	0.65	0.55	0.55
	Gaula, Gaulosen Tr.h.fj.	3659	3650	3062	26.4	33.2	26.4	33.2	6.75	62.67	15.29	1261.1	940.1	61.1	61.14	4.20	5.73	0.08	0.08	0.73	0.73	23.31	3.82	3.82
	Nidelva, Trondheimsfj.	3110	3100	3049	35.5	44.8	35.5	44.8	5.20	63.94	3.50	1239.5	271.5	26.3	26.28	3.50	3.07	0.00	0.04	0.22	0.22	2.98	17.52	17.52
	Homla, Stjørd.fj.Tr.h.fj.	157	157		30.0	39.0	30.0		6.45	0.97	0.19	46.3	5.0	1.0	0.97	0.23	0.14	0.00	0.00	0.02	0.02	0.10	0.77	0.77
Nord-Trøndelag (8.)	Stjørdalsv, " Tr.h.fj.	2117	2117	1863	38.5	48.7	38.5	48.7	3.64	13.01	9.75	738.0	305.6	35.8	35.76	5.20	11.05	0.00	0.03	0.75	0.75	11.70	13.01	13.01
	Gråe., " Tr.h.fj.	93	93		25.0	29.8	25.0		18.50	0.96	0.52	102.3	83.9	0.5	0.52	0.10	0.04	0.00	0.00	0.01	0.01	0.11	0.31	0.31
	Verdalsvassdr., Tr.h.fj.	1472	1472	898	40.0	44.7	44.5	49.7	12.50	4.15	2.08	695.1	383.9	39.4	39.43	1.87	1.04	0.00	0.02	0.19	0.19	1.99	5.19	5.19
	Figga/Leksdalse.,Tr.h.fj.	282	282	178	30.0	39.9	33.6	44.7	5.03	5.68	3.90	165.0	115.3	9.6	9.58	0.46	0.75	0.00	0.00	0.09	0.09	2.22	0.00	0.35
	Snåsavassdr., Trondh.fj.	2153	2125	2125	35.1	35.0	35.1	35.0	4.93	8.21	2.35	621.6	321.3	30.5	30.49	2.58	2.81	0.02	0.02	0.40	0.40	2.46	0.00	2.35
	Årgårdselva, Namsfj.	543	510	238	43.0	52.5	50.9	62.1	3.95	11.91	16.04	106.4	10.1	14.4	14.35	1.01	1.01	0.00	0.01	0.15	0.15	1.44	4.22	4.22
	Namsen, Namsfj. Ø	6277	6276	5718	43.4	56.2	43.4	56.2	11.30	33.37	22.25	1779.7	567.3	144.6	144.60	28.92	32.26	0.22	0.22	0.56	0.56	8.56	38.93	38.93
	Salsvatnelva, Follafj.	432	432	422	59.7	79.1	59.7	79.1	4.53	0.97	0.54	157.3	62.5	6.5	6.47	0.22	1.29	0.02	0.02	0.09	0.09	0.42	5.39	5.39

Table 9.1 TRIBUTARY RIVERS. ANNUAL LOAD 1997.

County	Watercourse	Runoff data								Parameters (mean values)															
		Drainage area			Discharge																				
		Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station																		
					Normal	1997	Normal	1997	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N		Cu	Zn	C d		P b		S.P.M.	H g	
														zero	limit			zero	limit	zero	limit		zero	limit
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		mS/m	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	t.tonnes	kg	kg
Nordland (9.)	Åbjøra, Bindalsfj. S	526	520	384	80.2	91.1	80.2	91.1	8.01	4.48	2.99	170.3	38.8	4.5	4.48	0.60	0.75	0.00	0.01	0.27	0.27	3.39	6.72	6.72
	Skjerva, Vefsenfj. S	104	104	98	41.3	47.2	41.3		5.29	2.32	0.77	75.9	36.4	1.2	1.24	0.15	0.15	0.00	0.00	0.05	0.05	1.84	0.85	0.85
	Fusta, Vefsenfj. N	544	543	520	63.4	75.1	63.4	75.1	2.53	6.43	5.14	205.8	55.3	24.4	24.43	0.90	1.29	0.00	0.01	0.22	0.22	5.79	5.79	5.79
	Drevja, Vefsenfj. N	177	176	98	65.0	74.4	65.0		3.85	1.65	0.83	78.5	33.4	1.2	1.24	0.25	0.37	0.00	0.00	0.09	0.09	1.83	1.86	1.86
	Rossåga, Sørfj.	2092	2087	1880	45.4	64.1	45.4	64.1	4.73	63.28	33.75	970.3	345.9	118.1	118.13	6.75	15.61	0.00	0.04	3.12	3.12	58.64	23.20	23.20
	Bjerka, Sørfj.	385	385	273	55.4	63.4	55.4		2.66	1.54	0.46	119.3	32.3	4.6	4.62	0.54	0.62	0.00	0.01	0.11	0.11	0.81	3.08	3.08
	Dalselva, Ranafj. N	211	211	129	39.5	39.6	39.5		2.06	1.32	0.26	51.4	9.0	6.6	6.59	0.16	0.29	0.00	0.00	0.05	0.05	0.64	1.19	1.19
	Ranavassdraget, Ranafj. N	3847	3846	1892	44.9	45.0	44.9	45.0	2.97	21.83	10.92	1200.7	600.4	163.7	163.74	4.37	11.46	0.00	0.05	1.91	1.91	38.59	19.10	19.10
	Fykanåga, Glomfjord	297	297	243	103.7	103.7	103.7		2.91	2.91	1.94	82.6	38.9	6.8	6.80	0.49	0.97	0.01	0.01	0.29	0.29	1.95	0.00	0.97
	Belare., Beiarfj. Nordfj.	1064	875	797	45.1	57.0	45.1	57.0	6.65	61.34	39.32	251.7	48.8	44.0	44.04	2.67	5.19	0.03	0.03	1.37	1.37	135.11	7.08	7.08
	Saltdalsvassdr., Saltd.fj.S	1544	1543	1168	32.1	36.9	32.1		2.26	7.18	3.59	176.0	68.2	30.5	30.52	1.08	3.59	0.00	0.02	0.54	0.54	17.11	6.28	6.28
	Sulitjelmavassdr., Saltd.fj	1028	800	791	44.0	50.6	44.0		21.40	1.02	0.89	94.5	29.4	10.2	10.21	8.30	7.28	0.04	0.04	0.29	0.29	0.68	4.47	4.47
	Kobbe., Leirfj. Sørfolda N	405	405	386	66.9	70.2	66.9		0.85	2.69	1.79	95.9	38.6	5.4	5.38	0.27	0.90	0.00	0.01	0.27	0.27	2.84	3.59	3.59
	Skjoma, Ofotfj. S	845	840	797	36.3	38.1	36.3		1.57	1.01	0.50	65.6	7.1	16.1	16.15	0.30	1.61	0.00	0.01	0.29	0.29	0.41	2.52	2.52

Table 9.1 TRIBUTARY RIVERS. ANNUAL LOAD 1997.

County	Watercourse	Runoff data								Parameters (mean values)														
		Drainage area			Discharge																			
		Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station																	
					Normal	1997	Normal	1997	Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N		Cu	Zn	C d		P b		S.P.M.	H g	
														zero	limit			zero	limit	zero	limit		zero	limit
		sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		mS/m	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	t.tonnes	kg	kg
Troms	Spanselva, Astafj. Vågsfj.	142	142	533	50.0	51.5	50.0		6.01	0.16	0.14	8.1	2.5	1.4	1.38	0.07	0.05	0.00	0.00	0.00	0.00	0.06	0.58	0.58
(9.)	Salangse., Astafj. Vågsfj.	539	539	533	40.9	42.1	40.9		6.92	0.72	0.36	42.2	8.6	5.7	5.72	0.21	0.14	0.00	0.01	0.02	0.02	0.21	1.79	1.79
	Rossfjorde., Malangen	196	190		39.5	40.7	39.5		7.46	0.49	0.12	26.3	1.0	2.7	2.68	0.10	0.07	0.00	0.00	0.02	0.02	0.06	0.85	0.85
	Målse., Målselvfj. "	3239	3200	3118	28.7	29.5	28.7	29.5	6.30	5.95	2.38	232.2	86.3	14.9	14.88	1.19	0.89	0.00	0.03	0.18	0.18	3.72	5.95	5.95
	Bardue., Målselva	2906	2906	2049	28.3	29.1	28.3		6.30	5.33	2.13	208.0	77.3	13.3	13.33	1.07	0.80	0.00	0.03	0.16	0.16	3.33	5.33	5.33
	Nordkjoselva, Balsfj.	191	191	415	27.7	28.5	27.7		3.99	0.34	0.17	9.3	2.1	0.9	0.86	0.05	0.03	0.00	0.00	0.00	0.00	0.08	0.51	0.51
	Signaldalselva, Lyngen V	473	467	415	27.7	28.5	27.7		3.31	0.42	0.21	27.7	3.4	1.3	1.26	0.21	0.08	0.00	0.00	0.00	0.01	0.33	1.47	1.47
	Skibotnelva, Lyngen	770	770	724	18.0	18.5	18.0		2.99	0.45	0.22	40.4	12.6	2.7	2.70	0.31	0.22	0.00	0.00	0.02	0.02	0.16	1.57	1.57
	Käfjordelva, Lyngen Ø	358	358	348	20.0	20.6	20.0		3.14	0.23	0.12	21.6	11.2	0.7	0.70	0.28	0.07	0.00	0.00	0.00	0.00	0.08	0.00	0.23
	Reisa, Reisafj.	2702	2702		16.0	16.5	16.0		5.84	4.22	0.84	177.2	126.5	4.2	4.22	0.84	0.28	0.00	0.01	0.00	0.03	0.65	4.92	4.92
Finnmark	Mattiselva, Käfj. Altafj.	325	325	319	26.5	26.3	26.5		3.18	0.54	0.13	21.0	2.2	3.0	2.97	0.11	0.05	0.00	0.00	0.00	0.01	0.13	0.81	0.81
(10.)	Tverrelva, Altafj.	234	233	233	15.1	14.8	15.1		5.29	0.33	0.10	22.3	11.0	0.3	0.33	0.05	0.02	0.00	0.00	0.00	0.00	0.04	0.00	0.11
	Repparfjordv., Repparfj.	1090	1089		25.0	24.7	25.0		4.66	0.85	0.42	96.7	43.3	2.5	2.54	0.34	0.17	0.00	0.01	0.00	0.02	0.27	2.12	2.12
	Stabburse., I. Porsangen V	1108	1102	870	18.3	18.3	18.3		4.33	0.64	0.32	49.6	39.4	3.2	3.18	0.19	0.32	0.00	0.01	0.01	0.01	0.26	0.00	0.64
	Lakse., Indre Porsangen S	1533	1532	941	15.9	15.9	15.9	15.9	5.35	2.30	0.69	69.1	2.3	4.6	4.61	0.38	0.15	0.00	0.01	0.02	0.02	0.89	2.30	2.30
	Børselva.Indre Porsangen Ø	883	883	863	29.8	29.8	29.8		5.02	0.83	0.41	49.0	2.5	5.0	4.98	0.17	0.41	0.41	0.41	0.00	0.02	0.24	2.49	2.49
	Mattusjåkka, I. Laksefj. V	101	101	101	22.8	23.0	22.8		7.32	0.07	0.04	4.3	0.1	0.2	0.22	0.01	0.01	0.00	0.00	0.00	0.00	0.02	0.29	0.29
	Storelva.Indre Laksefj. V	690	690	760	21.9	22.1	19.9		2.05	0.48	0.24	37.5	24.0	2.9	2.89	0.05	0.67	0.00	0.00	0.02	0.02	0.10	1.20	1.20
	Soussjåkka, I. Laksefj. V	92	92	102	25.3	25.6	22.8		6.72	0.07	0.04	4.0	0.9	0.2	0.22	0.01	0.04	0.00	0.00	0.00	0.00	0.02	0.22	0.22
	Adamselva, I. Laksefj. Ø	705	705	760	19.9	20.1	19.9		7.19	0.45	0.22	34.9	2.7	4.9	4.92	0.18	0.63	0.01	0.01	0.50	0.50	0.17	1.34	1.34
	Tanavassdraget, Tanafj. S	16389	15713	14169	11.5	11.6	11.5		6.41	26.44	13.80	994	287.4	46.0	45.98	22.88	55.18	0.17	0.17	4.66	4.66	2.64	0.00	5.75
	Vesterelva, Syltefj.	469	469	79	34.6	34.9	34.6		4.13	1.03	0.26	24.8	23.2	1.5	1.55	0.10	0.21	0.00	0.01	0.04	0.04	0.17	1.03	1.03
	V. Jakobse., Y.Varangerfj.	627	627	239	18.1	18.2	18.1		2.89	0.72	0.18	19.1	1.1	1.1	1.08	0.07	0.07	0.00	0.00	0.01	0.01	0.19	0.00	0.36
	Passvike., Bøkfj.Varang.fj.	18404	18400	18175	9.3	9.4	9.3		3.36	16.36	3.27	763.6	16.4	43.6	43.64	6.00	3.82	0.00	0.05	0.22	0.22	3.87	0.00	5.45
	Neiden, Munkfj. Varang.fj.	2960	2960	2911	9.8	9.9	9.8		7.02	2.77	0.65	147.9	2.8	15.7	15.71	0.65	0.46	0.00	0.01	0.03	0.03	0.88	0.00	0.92
	Grense Jakobse.,Varang.fj.	234	234		18.0	18.1	18.0		4.70	0.27	0.13	14.4	0.8	2.1	2.14	0.27	0.11	0.00	0.00	0.01	0.01	0.26	0.13	0.13

Table 9.2 TRIBUTARY RIVERS. ANNUAL LOAD 1997.

County	Watercourse	Parameters (mean values)																							
			PCB (The folloving Congeners) IUPAC NOS																						
		Gamma HCH kg	28		52		101		118		138		153		180		Sum : PCB		TOC	SiO2	Cr- T		Ni		As	
			zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	t.tonne	t.tonne	zero tonnes	limit tonnes	zero tonnes	limit tonnes	zero tonnes	limit tons
Østfold (1.)	Tista, Iddefj.	0.272	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.095	3.00	1.23	0.77	0.77	0.86	0.86	0.17	0.17
	Mosselva, Mossesundet	0.117	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.041	1.37	0.45	0.39	0.39	0.35	0.35	0.09	0.09
Oslo & Akershus (1.)	Holenelva, Drøbaksundet Ø	0.020	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.007	0.32	0.30	0.00	0.02	0.06	0.06	0.02	0.02
	Årungelva, I. Oslofj.	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.04	0.04	0.00	0.01	0.01	0.01	0.01	0.01
	Gjersjoelva, I. Oslofj.	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.07	0.02	0.00	0.01	0.03	0.03	0.00	0.00
	Ljanselva, I. Oslofj.	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.07	0.05	0.02	0.02	0.18	0.18	0.01	0.01
	Loelva/Alna, I. Oslofj.	0.019	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004	0.004	0.004	0.004	0.003	0.003	0.019	0.019	0.17	0.20	0.00	0.02	0.00	0.01	0.01	0.01
	Akerselva, I. Oslofj.	0.030	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.017	0.017	0.25	0.16	0.00	0.03	0.02	0.02	0.01	0.01
	Frognerelva, I. Oslofj.	0.005	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.004	0.005	0.04	0.07	0.00	0.00	0.01	0.01	0.00	0.00
	Lysakerelva, I. Oslofj.	0.070	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.030	0.70	0.56	0.28	0.28	0.37	0.37	0.08	0.08
	Sandvikselva, I. Oslofj.	0.053	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.022	0.63	0.48	0.00	0.05	0.00	0.02	0.02	0.02
	Aroselva, I. Oslofj.	0.029	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.012	0.38	0.36	0.00	0.03	0.07	0.07	0.03	0.03
Buskerud (2.)	Lierelva, Drammensfj. Ø	0.073	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.031	0.87	0.91	0.07	0.07	0.21	0.21	0.08	0.08
Vestfold (3.)	Sandeelva, Sandebukta	0.048	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.020	0.35	0.63	0.06	0.06	0.00	0.02	0.10	0.10
	Aulielva, Tønsbergfj.	0.078	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.033	0.80	1.47	0.11	0.11	0.36	0.36	0.07	0.07
	Farriselva, Larvikfj.	0.122	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.051	0.92	0.90	0.85	0.85	0.41	0.41	0.04	0.04
Telemark (4.)	Tokkeelva, Kragerø	0.538	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.161	4.30	2.07	0.00	0.38	0.31	0.31	0.25	0.25
Aust-Agder (5.)	Gjerstadelva, Søndeledfj.	0.197	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.059	1.33	0.76	0.00	0.14	0.20	0.20	0.09	0.09
	Vegårdselva, Sandnesfj.	0.208	0.000	0.009	0.000	0.009	0.000	0.009	0.000	0.009	0.000	0.009	0.000	0.009	0.000	0.009	0.000	0.063	1.34	0.80	0.00	0.15	0.21	0.21	0.09	0.09
	Nidelva, Arendal	2.282	0.000	0.086	0.000	0.086	0.000	0.086	0.000	0.086	0.000	0.086	0.000	0.086	0.000	0.086	0.000	0.599	7.7	5.99	0.00	1.43	0.57	0.57	0.71	0.71

Table 9.2 TRIBUTARY RIVERS. ANNUAL LOAD 1997.

County	Watercourse	Parameters (mean values)																							
			PCB (The folloving Congeners) IUPAC NOS																						
		Gamma HCH kg	28		52		101		118		138		153		180		Sum : PCB		TOC	SiO2	Cr- T		Ni		As	
			zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	t.tonne	t.tonne	zero tonnes	limit tonnes	zero tonnes	limit tonnes	zero tonnes	limit tons
Vest-Agder	Tovdalselva, Topdalsfj.	1.286	0.000	0.048	0.000	0.048	0.000	0.048	0.000	0.048	0.000	0.048	0.000	0.048	0.000	0.048	0.000	0.338	6.43	3.22	0.00	0.80	0.64	0.64	0.37	0.37
(5.)	Søgneelva, Flekkerøy	0.161	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.042	0.76	0.78	0.00	0.10	0.14	0.14	0.05	0.05
	Mandalselva, Mannefj.	1.633	0.000	0.070	0.000	0.070	0.000	0.070	0.000	0.070	0.000	0.070	0.000	0.070	0.000	0.070	0.000	0.490	7.93	3.50	0.00	1.17	0.47	0.47	0.65	0.65
	Audna, Sniksfj.	0.263	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.110	1.53	1.27	0.00	0.26	0.11	0.11	0.16	0.16
(6.)	Lygna, Lyngdalsfj.	0.486	0.000	0.029	0.000	0.029	0.000	0.029	0.000	0.029	0.000	0.029	0.000	0.029	0.000	0.029	0.000	0.204	3.30	2.04	0.00	0.49	0.00	0.19	0.33	0.33
	Kvina, Fedafj.	1.007	0.000	0.060	0.000	0.060	0.000	0.060	0.000	0.060	0.000	0.060	0.000	0.060	0.000	0.060	0.000	0.423	7.85	4.43	0.00	1.01	0.40	0.40	0.36	0.36
	Sira, Åna-Sira	1.697	0.000	0.102	0.000	0.102	0.000	0.102	0.000	0.102	0.000	0.102	0.000	0.102	0.000	0.102	0.000	0.713	15.28	3.70	0.00	1.70	0.00	0.68	0.00	0.34
Rogaland	Sokndalselva, Sogndalsstr.	0.405	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.094	0.72	0.72	0.00	0.22	2.92	2.92	0.09	0.09
(6.)	Hellelandselva, Egersund	0.401	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.094	0.76	0.67	0.00	0.22	0.18	0.18	0.08	0.08
	Bjerkreimselva, Egersund	1.249	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.291	1.67	2.08	0.00	0.69	0.00	0.28	0.15	0.15
	Håelva, Håtangen	0.188	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.049	0.92	1.08	0.40	0.40	0.35	0.35	0.09	0.09
	Figgjo, Solavika	0.273	0.000	0.010	0.000	0.010	0.000	0.010	0.000	0.010	0.000	0.010	0.000	0.010	0.000	0.010	0.000	0.072	1.44	1.09	0.00	0.17	0.14	0.14	0.06	0.06
	Ims-Lutsi. Høgsfj.Boknafj.	0.122	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.032	0.52	0.17	0.00	0.08	0.06	0.06	0.04	0.04
	Oltedalse.,Høgsfj.Boknafj.	0.194	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.051	0.34	0.46	0.00	0.12	0.00	0.05	0.00	0.02
	Dirdalse., Høgsfj.Boknafj.	0.360	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.095	0.54	0.86	0.00	0.23	0.00	0.09	0.07	0.07
	Frafjorde.,Frafj. Boknafj.	0.347	0.000	0.017	0.000	0.017	0.000	0.017	0.000	0.017	0.000	0.017	0.000	0.017	0.000	0.017	0.000	0.121	0.56	0.69	0.00	0.29	0.00	0.12	0.07	0.07
	Espedalse.,Høgsfj.Boknafj.	0.213	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.090	0.43	0.86	0.00	0.21	0.00	0.09	0.00	0.04
	Lysee., Lysefj.Boknafj.	0.289	0.000	0.022	0.000	0.022	0.000	0.022	0.000	0.022	0.000	0.022	0.000	0.022	0.000	0.022	0.000	0.152	0.39	1.23	0.00	0.36	0.00	0.14	0.00	0.07
	Årdalse., Årdalsfj.Boknafj.	0.185	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.108	0.72	0.67	0.00	0.26	0.00	0.10	0.07	0.07
	Førree., Jøsenfj.Boknafj.	0.192	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.101	0.91	0.67	0.00	0.24	0.05	0.05	0.05	0.05
	Ulla, Jøsenfj.Boknafj.	0.563	0.000	0.034	0.000	0.034	0.000	0.034	0.000	0.034	0.000	0.034	0.000	0.034	0.000	0.034	0.000	0.237	4.39	2.14	0.00	0.56	0.00	0.23	0.00	0.11
(7.)	Saudae., Saudafj.Boknafj.	0.206	0.000	0.031	0.000	0.031	0.000	0.031	0.000	0.031	0.000	0.031	0.000	0.031	0.000	0.031	0.000	0.216	2.47	2.47	0.00	0.52	0.21	0.21	0.00	0.10
	Åbøelva, Saudafj.Boknafj.	0.048	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.050	0.22	0.31	0.00	0.12	0.07	0.07	0.00	0.02
	Vikedalse., Boknafj.	0.070	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.074	0.42	0.39	0.00	0.18	0.18	0.18	0.12	0.12

Table 9.2 TRIBUTARY RIVERS. ANNUAL LOAD 1997.

County	Watercourse	Parameters (mean values)																							
			PCB (The folloving Congeners) IUPAC NOS																						
		Gamma HCH kg	28		52		101		118		138		153		180		Sum : PCB		TOC	SiO2	Cr- T		Ni		As	
			zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	t.tonne	t.tonne	zero tonnes	limit tonnes	zero tonnes	limit tonnes	zero tonnes	limit tons
Hordaland (7.)	Etneelva, Etnefj. Bømlafj.	0.208	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.087	0.37	0.35	0.00	0.21	0.17	0.17	0.10	0.10
	Opo, Sørfj. Hardangerfj.	0.534	0.000	0.040	0.000	0.040	0.000	0.040	0.000	0.040	0.000	0.040	0.000	0.040	0.000	0.040	0.000	0.280	1.17	0.87	0.00	0.67	0.00	0.27	0.00	0.13
	Tysso, Sørfj. Hardangerfj.	0.426	0.000	0.032	0.000	0.032	0.000	0.032	0.000	0.032	0.000	0.032	0.000	0.032	0.000	0.032	0.000	0.225	1.29	2.36	0.00	0.54	0.00	0.21	0.00	0.11
	Kinso, Sørfj. Hardangerfj.	0.178	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.113	0.27	0.27	0.00	0.27	0.00	0.11	0.00	0.05
	Veig, Eidfjv. Hardangerfj.	0.151	0.000	0.020	0.000	0.020	0.000	0.020	0.000	0.020	0.000	0.020	0.000	0.020	0.000	0.020	0.000	0.138	0.72	0.79	0.00	0.33	0.26	0.26	0.00	0.07
	Bjoreia, " , Hardangerfj.	0.042	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.038	0.20	0.22	0.00	0.09	0.07	0.07	0.00	0.02
	Sima, Eidfj. Hardangerfj.	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.078	0.11	0.71	0.00	0.19	0.00	0.07	0.00	0.04
	Austdøla, Osafj. Eidfj.	0.072	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.076	0.07	0.58	0.00	0.18	0.00	0.07	0.00	0.04
	Norddøla, Osafj. Eidfj.	0.022	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.023	0.02	0.17	0.00	0.05	0.00	0.02	0.00	0.01
	Tysseelva, Fusafj.	0.136	0.000	0.020	0.000	0.020	0.000	0.020	0.000	0.020	0.000	0.020	0.000	0.020	0.000	0.020	0.000	0.143	1.23	0.47	0.00	0.34	0.14	0.14	0.00	0.07
	Oselva, Fusafj.	0.066	0.000	0.010	0.000	0.010	0.000	0.010	0.000	0.010	0.000	0.010	0.000	0.010	0.000	0.010	0.000	0.069	0.79	0.36	0.00	0.17	0.07	0.07	0.03	0.03
	Bergsdalse, Veafj.Herdlafj.	0.106	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.111	0.48	0.38	0.00	0.26	0.21	0.21	0.00	0.05
	Vosso, Veafj. Sørfj.	0.600	0.000	0.090	0.000	0.090	0.000	0.090	0.000	0.090	0.000	0.090	0.000	0.090	0.000	0.090	0.000	0.630	2.73	3.09	0.00	1.50	0.60	0.60	1.62	1.62
	Ekso, Osterfj.	0.241	0.000	0.036	0.000	0.036	0.000	0.036	0.000	0.036	0.000	0.036	0.000	0.036	0.000	0.036	0.000	0.253	1.81	1.17	0.00	0.60	0.00	0.24	0.00	1.21
	Modalselva, Osterfj.	0.257	0.000	0.039	0.000	0.039	0.000	0.039	0.000	0.039	0.000	0.039	0.000	0.039	0.000	0.039	0.000	0.270	1.03	1.09	0.00	0.64	0.00	0.26	0.00	0.13

Table 9.2 TRIBUTARY RIVERS. ANNUAL LOAD 1997.

County	Watercourse	Parameters (mean values)																							
			PCB (The folloving Congeners) IUPAC NOS																						
			28		52		101		118		138		153		180		Sum : PCB		TOC	SiO2	Cr- T		Ni		As	
		Gamma HCH kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	t.tonne	t.tonne	zero tonnes	limit tonnes	zero tonnes	limit tonnes	zero tonnes	limit tons
Sogn og Fjordane (7.)	Nærøye., Aurl.fj. Sognefj.	0.119	0.000	0.018	0.000	0.018	0.000	0.018	0.000	0.018	0.000	0.018	0.000	0.018	0.000	0.018	0.000	0.124	0.24	1.36	0.00	0.30	0.00	0.12	0.00	0.06
	Flåmse., Aurl.fj. Sognefj.	0.099	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.104	0.15	0.39	0.00	0.25	0.15	0.15	0.00	0.05
	Aurlandv. Aurl.fj. Sognefj.	0.160	0.000	0.040	0.000	0.040	0.000	0.040	0.000	0.040	0.000	0.040	0.000	0.040	0.000	0.040	0.000	0.280	0.53	2.67	0.00	0.67	0.27	0.27	0.00	0.13
	Erdalse., Lærd.fj. Sognefj.	0.021	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.030	0.13	0.30	0.00	0.07	0.00	0.03	0.00	0.01
	Lærdalsv. Lærd.fj. Sognefj.	0.242	0.000	0.036	0.000	0.036	0.000	0.036	0.000	0.036	0.000	0.036	0.000	0.036	0.000	0.036	0.000	0.254	1.03	2.66	0.00	0.60	0.36	0.36	0.00	0.12
	Årdalsv., Årdalsfj.Sognefj.	0.381	0.000	0.046	0.000	0.046	0.000	0.046	0.000	0.046	0.000	0.046	0.000	0.046	0.000	0.046	0.000	0.320	1.16	2.14	0.00	0.76	0.31	0.31	0.00	0.15
	Fortunv., Lusterfj.Sognefj.	0.249	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.187	0.27	0.98	0.00	0.45	0.18	0.18	0.00	0.09
	Mørkrisv., Lusterfj.Sognefj.	0.148	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.111	0.21	0.51	0.00	0.27	0.21	0.21	0.00	0.05
	Jostedøla, " Sognefj.	0.565	0.000	0.061	0.000	0.061	0.000	0.061	0.000	0.061	0.000	0.061	0.000	0.061	0.000	0.061	0.000	0.424	0.81	3.63	0.00	1.01	1.01	1.01	0.00	0.20
	Årøye., Sogn.d.fj. Sognefj.	0.331	0.000	0.035	0.000	0.035	0.000	0.035	0.000	0.035	0.000	0.035	0.000	0.035	0.000	0.035	0.000	0.248	0.71	1.30	0.00	0.59	0.00	0.24	0.00	0.12
	Sogndalse, " Sognefj.	0.115	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.086	1.19	0.54	0.00	0.21	0.08	0.08	0.00	0.04
	Gaular, Dalsfj. Bufj.	0.646	0.000	0.054	0.000	0.054	0.000	0.054	0.000	0.054	0.000	0.054	0.000	0.054	0.000	0.054	0.000	0.377	2.30	1.74	0.00	0.90	0.00	0.36	0.27	0.27
	Jølstra, Førdefj.	0.572	0.000	0.057	0.000	0.057	0.000	0.057	0.000	0.057	0.000	0.057	0.000	0.057	0.000	0.057	0.000	0.401	2.10	1.66	0.00	0.95	0.00	0.38	0.00	0.19
	Nausta, Førdefj.	0.242	0.000	0.024	0.000	0.024	0.000	0.024	0.000	0.024	0.000	0.024	0.000	0.024	0.000	0.024	0.000	0.170	1.41	0.97	0.00	0.40	0.00	0.16	0.00	0.08
	Oselva, Høydalsfj.	0.243	0.000	0.024	0.000	0.024	0.000	0.024	0.000	0.024	0.000	0.024	0.000	0.024	0.000	0.024	0.000	0.170	2.03	0.37	0.00	0.41	0.16	0.16	0.11	0.11
	Hopse., Hyefj. Nordfj.S	0.053	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.037	0.12	0.09	0.00	0.09	0.00	0.04	0.00	0.02
	Gjengedalse.," Nordfj.S	0.123	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.086	0.61	0.34	0.00	0.21	0.00	0.08	0.06	0.06
	Breimse., Gloppenfj. "	0.468	0.000	0.047	0.000	0.047	0.000	0.047	0.000	0.047	0.000	0.047	0.000	0.047	0.000	0.047	0.000	0.328	1.09	1.47	0.00	0.78	0.00	0.31	0.27	0.27
	Oldene., Indre Nordfj.	0.219	0.000	0.022	0.000	0.022	0.000	0.022	0.000	0.022	0.000	0.022	0.000	0.022	0.000	0.022	0.000	0.153	0.58	0.80	0.00	0.37	0.00	0.15	0.00	0.07
	Loenelva, Indre Nordfj.	0.184	0.000	0.018	0.000	0.018	0.000	0.018	0.000	0.018	0.000	0.018	0.000	0.018	0.000	0.018	0.000	0.129	0.31	0.74	0.00	0.31	0.00	0.12	0.09	0.09
	Strynee., Indre Nordfj.	0.347	0.000	0.035	0.000	0.035	0.000	0.035	0.000	0.035	0.000	0.035	0.000	0.035	0.000	0.035	0.000	0.243	0.58	1.27	0.00	0.58	0.00	0.23	0.00	0.12
	Hornindalse., Nordfj. N	0.357	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.188	1.07	1.25	0.00	0.45	0.18	0.18	0.00	0.09

Table 9.2 TRIBUTARY RIVERS. ANNUAL LOAD 1997.

County	Watercourse	Parameters (mean values)																							
			PCB (The folloving Congeners) IUPAC NOS																						
			28		52		101		118		138		153		180		Sum : PCB		TOC	SiO2	Cr- T		Ni		As	
		Gamma HCH kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	t.tonne	t.tonne	zero tonnes	limit tonnes	zero tonnes	limit tonnes	zero tonnes	limit tons
Møre og Romsdal (8.)	Ørstae., Ørstafj.	0.020	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.083	0.52	1.02	0.00	0.20	0.28	0.28	0.00	0.04
	Valldola, Nordalfj.Storfj.	0.388	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.163	0.34	1.17	0.00	0.39	0.00	0.16	0.00	0.08
	Rauma, Romsdalsfj.Moldefj.	0.707	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.297	0.72	3.54	0.00	0.71	0.00	0.28	0.00	0.14
	Isa, Isfj. Moldefj.	0.145	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.076	0.24	0.65	0.00	0.18	0.00	0.07	0.00	0.04
	Eira, Eresfj. Moldefj.	0.438	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.296	0.71	2.12	0.00	0.71	0.00	0.28	0.00	0.14
	Littledalse., Sunndalsfj.	0.196	0.000	0.015	0.000	0.015	0.000	1.474	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	1.562	0.29	0.47	0.00	0.25	0.00	0.10	0.00	0.05
	Driva, Sunnd.fj.Tingvollfj.	0.493	0.000	0.074	0.000	0.074	0.000	0.074	0.000	0.074	0.000	0.074	0.000	0.074	0.000	0.074	0.000	0.518	3.11	6.41	0.0	1.2	0.0	0.5	0.00	0.25
	Ulvåa, Alvundfj.	0.062	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.086	0.58	1.65	0.00	0.21	0.12	0.12	0.00	0.04
	Toåa, Todalsfj.	0.107	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.016	0.000	0.112	0.48	0.85	0.00	0.27	0.00	0.11	0.00	0.05
	Surna, Surnadalsfj.	1.044	0.000	0.063	0.000	0.063	0.000	0.063	0.000	0.063	0.000	0.063	0.000	0.063	0.000	0.063	0.000	0.439	3.55	3.13	0.00	1.04	0.84	0.84	0.00	0.21
	Bøvra, Hamnesfj. Halsafj.	0.340	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.102	0.85	0.53	0.00	0.24	0.10	0.10	0.00	0.05
Sør-Trøndelag (8.)	Børse.,Gaulosen Tr.h.fj.	0.111	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.026		0.11	0.00	0.06	0.20	0.20	0.05	0.05
	Vigda, Gaulosen Tr.h.fj.	0.148	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.039	0.70	0.15	0.00	0.09	0.20	0.20	0.04	0.04
	Gaula, Gaulosen Tr.h.fj.	2.675	0.000	0.115	0.000	0.115	0.000	0.115	0.000	0.115	0.000	0.115	0.000	0.115	0.000	0.115	0.000	0.803	13.1	11.62	3.06	3.06	7.64	7.64	0.92	0.92
	Nidelva, Trondheimsfj.	2.496	0.000	0.131	0.000	0.131	0.000	0.131	0.000	0.131	0.000	0.131	0.000	0.131	0.000	0.131	0.000	0.920	11.39	7.01	0.00	2.19	4.82	4.82	0.96	0.96
	Homla, Stjørd.fj.Tr.h.fj.	0.106	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.006	0.000	0.041		0.27	0.00	0.10	0.14	0.14	0.11	0.11
Nord-Trøndelag (8.)	Stjørdalsv, " Tr.h.fj.	1.788	0.000	0.098	0.000	0.098	0.000	0.098	0.000	0.098	0.000	0.098	0.000	0.098	0.000	0.098	0.000	0.683	9.6	2.60	1.63	1.63	1.95	1.95	1.50	1.50
	Gråe., " Tr.h.fj.	0.048	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.018		0.49	0.04	0.04	0.17	0.17	0.07	0.07
	Verdalsvassdr., Tr.h.fj.	1.141	0.000	0.062	0.000	0.062	0.000	0.062	0.000	0.062	0.000	0.062	0.000	0.062	0.000	0.062	0.000	0.436		3.74	0.00	1.04	1.87	1.87	1.49	1.49
	Figga/Leksdalse.,Tr.h.fj.	0.192	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.075	1.63	0.53	0.14	0.14	0.11	0.11	0.07	0.07
	Snåsavassdr., Trondh.fj.	1.173	0.000	0.070	0.000	0.070	0.000	0.070	0.000	0.070	0.000	0.070	0.000	0.070	0.000	0.070	0.000	0.493	8.09	2.11	0.61	0.61	1.64	1.64	0.30	0.30
	Årgårdselva, Namsfj.	0.169	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.177		0.93	1.18	1.18	0.76	0.76	1.05	1.05
	Namsen, Namsfj. Ø	2.670	0.000	0.334	0.000	0.334	0.000	0.334	0.000	0.334	0.000	0.334	0.000	0.334	0.000	0.334	0.000	2.336		7.79	34.5	34.5	25.6	25.6	1.22	1.22
	Salsvatnelva, Follafj.	0.323	0.000	0.032	0.000	0.032	0.000	0.032	0.000	0.032	0.000	0.032	0.000	0.032	0.000	0.032	0.000	0.226		1.08	0.00	0.54	0.00	0.22	0.28	0.28

Table 9.2 TRIBUTARY RIVERS. ANNUAL LOAD 1997.

County	Watercourse	Parameters (mean values)																							
			PCB (The folloving Congeners) IUPAC NOS																						
		Gamma HCH kg	28		52		101		118		138		153		180		Sum : PCB		TOC	SiO2	Cr- T		Ni		As	
			zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	t.tonne	t.tonne	zero tonnes	limit tonnes	zero tonnes	limit tonnes	zero tonnes	limit tons
Nordland (9.)	Abjora, Bindalsfj. S	0.448	0.000	0.045	0.000	0.045	0.000	0.045	0.000	0.045	0.000	0.045	0.000	0.045	0.000	0.045	0.000	0.314		1.05	0.00	0.75	0.45	0.45	0.57	0.57
	Skjerva, Vefsenfj. S	0.062	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.033		0.28	0.00	0.08	0.15	0.15	0.10	0.10
	Fusta, Vefsenfj. N	0.514	0.000	0.039	0.000	0.039	0.000	0.039	0.000	0.039	0.000	0.039	0.000	0.039	0.000	0.039	0.000	0.270		0.90	0.00	0.64	0.64	0.64	0.64	0.64
	Drevja, Vefsenfj. N	0.165	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.012	0.000	0.087		0.33	0.00	0.21	0.25	0.25	0.16	0.16
	Rossåga, Sørfj.	1.266	0.000	0.127	0.000	0.127	0.000	0.127	0.000	0.127	0.000	0.127	0.000	0.127	0.000	0.127	0.000	0.886		4.22	5.48	5.48	9.28	9.28	2.07	2.07
	Bjerka, Sørfj.	0.231	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.162		0.77	0.00	0.38	0.54	0.54	0.17	0.17
	Dalselva, Ranafj. N	0.066	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.055		0.29	0.00	0.13	0.24	0.24	0.06	0.06
	Ranavassdraget, Ranafj. N	1.364	0.000	0.164	0.000	0.164	0.000	0.164	0.000	0.164	0.000	0.164	0.000	0.164	0.000	0.164	0.000	1.146		4.91	2.73	2.73	4.91	4.91	2.02	2.02
	Fykanåga, Glomfjord	0.243	0.000	0.029	0.000	0.029	0.000	0.029	0.000	0.029	0.000	0.029	0.000	0.029	0.000	0.029	0.000	0.204		0.87	0.49	0.49	0.87	0.87	0.36	0.36
	Beiare., Beiarfj. Nordfj.	0.786	0.000	0.047	0.000	0.047	0.000	0.047	0.000	0.047	0.000	0.047	0.000	0.047	0.000	0.047	0.000	0.330	4.09	5.85	1.26	1.26	1.89	1.89	1.01	1.01
	Saltdalsvassdr., Saltd.fj.S	1.257	0.000	0.054	0.000	0.054	0.000	0.054	0.000	0.054	0.000	0.054	0.000	0.054	0.000	0.054	0.000	0.377		2.33	0.00	0.90	1.26	1.26	0.95	0.95
	Sulitjelmavassdr., Saltd.fj	0.945	0.000	0.038	0.000	0.038	0.000	0.038	0.000	0.038	0.000	0.038	0.000	0.038	0.000	0.038	0.000	0.268		1.02	0.00	0.64	0.77	0.77	0.80	0.80
	Kobbe., Leirfj. Sørfolda N	0.448	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.027	0.000	0.188		0.45	0.00	0.45	0.00	0.18	0.40	0.40
	Skjoma, Ofotfj. S	0.404	0.000	0.030	0.000	0.030	0.000	0.030	0.000	0.030	0.000	0.030	0.000	0.030	0.000	0.030	0.000	0.212		1.51	0.00	0.50	0.00	0.20	0.46	0.46

Table 9.2 TRIBUTARY RIVERS. ANNUAL LOAD 1997.

County	Watercourse	Parameters (mean values)																							
			PCB (The folloving Congeners) IUPAC NOS																						
			28		52		101		118		138		153		180		Sum : PCB		TOC	SiO2	Cr- T		Ni		As	
		Gamma HCH kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	zero kg	limit kg	t.tonne	t.tonne	zero tonnes	limit tonnes	zero tonnes	limit tonnes	zero tonnes	limit tons
Troms (9.)	Spanselva, Astafj. Vågsfj.	0.081	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.048		0.18	0.00	0.12	0.12	0.12	0.09	0.09
	Salangse., Astafj. Vågsfj.	0.250	0.000	0.021	0.000	0.021	0.000	0.021	0.000	0.021	0.000	0.021	0.000	0.021	0.000	0.021	0.000	0.150		0.43	0.00	0.36	0.36	0.36	0.23	0.23
	Rossfjorde., Malangen	0.080	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.051		0.12	0.00	0.12	0.15	0.15	0.00	0.02
	Målse., Målselvfj. "	0.595	0.000	0.089	0.000	0.089	0.000	0.089	0.000	0.089	0.000	0.089	0.000	0.089	0.000	0.089	0.000	0.625		4.17	0.00	1.49	1.49	1.49	0.00	0.30
	Bardue., Målselva	0.533	0.000	0.080	0.000	0.080	0.000	0.080	0.000	0.080	0.000	0.080	0.000	0.080	0.000	0.080	0.000	0.560		3.73	0.00	1.33	1.33	1.33	0.00	0.27
	Nordkjoselva, Balsfj.	0.017	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.036		0.31	0.00	0.09	0.05	0.05	0.00	0.02
	Signaldalselva, Lyngen V	0.042	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.088		0.59	0.00	0.21	0.13	0.13	0.00	0.04
	Skibotnelva, Lyngen	0.022	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.094		0.72	0.00	0.22	0.36	0.36	0.09	0.09
	Kåfjordelva, Lyngen Ø	0.012	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.007	0.000	0.049		0.35	0.00	0.12	0.14	0.14	0.09	0.09
	Reisa, Reisafj.	0.070	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.042	0.000	0.295	2.67	6.02	0.00	0.70	0.00	0.28	0.39	0.39
Finnmark (10.)	Mattiselva, Kåfj. Altafj.	0.027	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.008	0.000	0.057		0.24	0.00	0.13	0.00	0.05	0.10	0.10
	Tverrelva, Altafj.	0.016	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.003	0.000	0.023		0.28	0.00	0.05	0.03	0.03	0.02	0.02
	Repparfjordv., Repparfj.	0.127	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.178		1.10	0.00	0.42	0.17	0.17	0.00	0.08
	Stabburse., I. Porsangen V	0.095	0.000	0.019	0.000	0.019	0.000	0.019	0.000	0.019	0.000	0.019	0.000	0.019	0.000	0.019	0.000	0.134	1.53	1.96	0.00	0.32	0.00	0.13	0.10	0.10
	Lakse., Indre Porsangen S	0.115	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.023	0.000	0.161		1.69	0.00	0.38	0.31	0.31	0.00	0.08
	Børselva.Indre Porsangen Ø	0.124	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.025	0.000	0.174		3.24	0.00	0.41	0.00	0.17	0.13	0.13
	Mattusjákka, I. Laksefj. V	0.011	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.015		0.10	0.00	0.04	0.00	0.01	0.00	0.01
	Storelva.Indre Laksefj. V	0.072	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.014	0.000	0.101		1.68	0.00	0.24	0.10	0.10	0.00	0.05
	Soussjákka, I. Laksefj. V	0.011	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.016		0.30	0.00	0.04	0.02	0.02	0.00	0.01
	Adamselva, I. Laksefj. Ø	0.067	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.094		1.52	0.00	0.22	0.13	0.13	0.00	0.04
	Tanavassdraget, Tanafj. S	0.632	0.000	0.172	0.000	0.172	0.000	0.172	0.000	0.172	0.000	0.172	0.000	0.172	0.000	0.172	0.000	1.207	19.5	42.8	6.04	6.04	4.60	4.60	0.63	0.63
	Vesterelva, Syltefj.	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.108		1.86	0.00	0.26	0.15	0.15	0.21	0.21
	V. Jakobse., Y.Varangerfj.	0.108	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.011	0.000	0.076		1.69	0.00	0.18	0.00	0.07	0.05	0.05
	Passvike., Bøkfj.Varang.fj.	1.745	0.000	0.164	0.000	0.164	0.000	0.164	0.000	0.164	0.000	0.164	0.000	0.164	0.000	0.164	0.000	1.145	21.3	20.2	0.00	2.73	31.6	31.6	2.13	2.13
	Neiden, Munkfj. Varang.fj.	0.323	0.000	0.028	0.000	0.028	0.000	0.028	0.000	0.028	0.000	0.028	0.000	0.028	0.000	0.028	0.000	0.194		2.03	0.00	0.46	0.00	0.18	0.12	0.12
	Grense Jakobse.,Varang.fj.	0.047	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000	0.028		0.51	0.00	0.07	0.93	0.93	0.04	0.04

APPENDIX X : "MEAN" TOTAL DISCHARGES (Mean concentrations of main and tributary rivers multiplied with mean runoff 1961-90 (main rivers), 1931-60 (tributary rivers). **Page:**

* Measurements below detection limits are treated in two ways:
"Detection limit = Zero", and "Detection limit = limit". This concerns the substances Cd, Pb, Hg and PCBs. In Table 10.5A the "limit-values" are shown, in Table 10.5B the "zero-values" are presented.

Table X "MEAN" TOTAL DISCHARGES from MAINLAND NORWAY to convention waters (Mean runoff 1961 - 90, main rivers, 1931 - 60, tributary rivers (Fig. I)).

Substance:	Area runoff	Direct Discharges	Tributary Inputs		Main Riverine Inputs		Grand Total	
Cadmium		1.2	2.5	*	1.4	*	5.0	tonnes
Cadmium			3.1	**	1.5	**	5.7	tonnes
Mercury		117	211	*	38	*	366	kg
Mercury			270	**	64	**	451	kg
Copper		62	135		110		307	tonnes
Zinc		141	426		328		895	tonnes
Lead		5.7	37.6	*	18.9	*	62.2	tonnes
Lead			37.7	**	18.9	**	62.3	tonnes
Arsenic		0.7	27.3		9.0	*	37.0	tonnes
Arsenic			33.0		9.3	**	43.0	tonnes
Cr-T		5.3	50.0	*	0.0	*	55.3	tonnes
Cr-T			101.4	**	30.2	**	136.9	tonnes
Ni		19.1	112.3	*	39.2	*	170.6	tonnes
Ni			120.2	**	39.2	**	178.6	tonnes
PCBs ***			0.1	*	0.0	*	0.1	kg
PCBs			30.4	**	12.7	**	43.1	kg
gamma-HCH			53		27		80	kg
NH4-N	857	7713	1823	*	1313	*	11706	tonnes
NH4-N			1870	**	1313	**	11753	tonnes
NO3-N	15295	153	17832		15756		49035	tonnes
PO4-P	186	681	305		309		1481	tonnes
Total N	24065	17871	34540		25734		102210	tonnes
Total P	761	1392	816		651		3620	tonnes
SiO2			264026		141378		405405	tonnes
S.P.M.		3198644	384201		359982		3942827	tonnes
TOC		23140	219820		222022		464982	tonnes
COD		208982					208982	tonnes
BOD		44866					44866	tonnes

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

*** the following congeners: IUPAC Nos. 28,52,101,118,153,138,180

Table 10.1 "MEAN" TOTAL DISCHARGES to The Skagerrak Region (Mean runoff 1961 - 90, main rivers, 1931 - 60, tributary rivers (Fig. I.I)).

The Skagerrak Region with main rivers (1) Glomma, (2) Drammenselva, (3) Numedalslågen (4) Skienselva, (5) Otra

Substance:	Area runoff	Direct Discharges	Tributary Inputs		Main Riverine Inputs		Grand Total	
Cadmium		0.10	0.6	*	1.1	*	1.9	tonnes
Cadmium			0.6	**	1.1	**	1.9	tonnes
Mercury		53.40	15	*	38	*	106	kg
Mercury			17	**	51	**	121	kg
Copper		26.53	10		70		106	tonnes
Zinc		21.20	89		234		344	tonnes
Lead		0.63	5.6	*	15.9	*	22.1	tonnes
Lead			5.6	**	15.9	**	22.1	tonnes
Arsenic		0.13	3.9	*	6.6	*	10.5	tonnes
Arsenic			3.9	**	6.6	**	10.5	tonnes
Cr-T		3.10	3.5	*	0.0	*	6.6	tonnes
Cr-T			9.2	**	23.6	**	35.9	tonnes
Ni		5.52	7.2	*	32.4	*	45.1	tonnes
Ni			7.2	**	32.4	**	45.2	tonnes
PCBs ***			0.1	*	0.0	*	0.1	kg
PCBs			2.8	**	9.9	**	12.7	kg
gamma-HCH			9		24		33	kg
NH4-N	164	3985	453		1194		5796	tonnes
NH4-N	164	3985	453		1194		5796	tonnes
NO3-N	1793	110	3809		14077		19788	tonnes
PO4-P	14	103	37		264		418	tonnes
Total N	2777	6619	6602		22015		38012	tonnes
Total P	56	256	108		567		987	tonnes
SiO2			32480		114471		146951	tonnes
S.P.M.		10348	27562		331252		369162	tonnes
TOC		8181	52134		183968		244282	tonnes
COD		114282					114282	tonnes
BOD		15440					15440	tonnes

Measurements below detection limits are treated in two ways :
*) Detection limit = Zero
**) Detection limit = Limit

*** the following congeners: IUPAC Nos. 28,52,101,118,153,138,180

Table 10.2 "MEAN" TOTAL DISCHARGES to The Remaining North Sea (Mean runoff 1961 - 90, main rivers, 1931 - 60, tributary rivers (Fig. I.II)).

The North Sea Region with main rivers : (6) Orreelva, (7) Suldalslågen

Substance:	Area runoff	Direct Discharges	Tributary Inputs		Main Riverine Inputs		Grand Total	
Cadmium		0.96	0.8	*	0.1	*	1.9	tonnes
Cadmium			1.0	**	0.1	**	2.0	tonnes
Mercury		42.61	16	*	0	*	59	kg
Mercury			48	**	3	**	93	kg
Copper		8.7	23		2		33	tonnes
Zinc		58.2	170		8		236	tonnes
Lead		4.2	15.0	*	0.3	*	19.5	tonnes
Lead			15.0	**	0.3	**	19.5	tonnes
Arsenic		0.0	4.0	*	0.1	*	4.1	tonnes
Arsenic			7.9	**	0.3	**	8.2	tonnes
Cr-T		1.08	0.4	*	0.0	*	1.5	tonnes
Cr-T			23.4	**	1.4	**	25.9	tonnes
Ni		10.5	8.8	*	1.0	*	20.4	tonnes
Ni			14.1	**	1.0	**	25.6	tonnes
PCBs ***			0.0	*	0.0	*	0.0	kg
PCBs			9.7	**	0.6	**	10.3	kg
gamma-HCH			17		1		18	kg
NH4-N	517	2674	470		29		3690	tonnes
NH4-N			502		29		3723	tonnes
NO3-N	5835	18	8289		588		14730	tonnes
PO4-P	51	206	88		5		350	tonnes
Total N	9281	4750	14109		852		28992	tonnes
Total P	197	419	292		15		923	tonnes
SiO2			63642		2600			tonnes
S.P.M.		1407597	63285		3620		1473482	tonnes
TOC		6945	73127		2024		82096	tonnes
COD		37835					37835	tonnes
BOD		13518					13518	tonnes

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

*** the following congeners: IUPAC Nos. 28,52,101,118,153,138,180

Table 10.3 "MEAN" TOTAL DISCHARGES to The Norwegian Sea (Mean runoff 1961 - 90, main rivers, 1931 - 60, tributary rivers (Fig. I.III)).

The Norwegian Sea Region with main rivers (8) Orkla, (9) Vefsna

Substance:	Area runoff	Direct Discharges	Tributary Inputs		Main Riverine Inputs		Grand Total	
Cadmium		0.10	0.4	*	0.3	*	0.7	tonnes
Cadmium			0.8	**	0.3	**	1.1	tonnes
Mercury		21.39	168	*	0	*	189	kg
Mercury			180	**	8	**	209	kg
Copper		26.73	72		35		133	tonnes
Zinc		61.35	105		85		251	tonnes
Lead		0.93	11.5	*	2.5	*	14.9	tonnes
Lead			11.6	**	2.5	**	15.0	tonnes
Arsenic		0.56	15.9	*	0.9	*	17.4	tonnes
Arsenic			17.5	**	0.9	**	18.9	tonnes
Cr-T		1.08	40.2	*	0.0	*	41.2	tonnes
Cr-T			56.9	**	3.8	**	61.8	tonnes
Ni		2.91	58.5	*	5.0	*	66.4	tonnes
Ni			60.6	**	5.0	**	68.5	tonnes
PCBs ***			0.0	*	0.0	*	0.0	kg
PCBs			14.2	**	1.6	**	15.8	kg
gamma-HCH			23		2		25	kg
NH4-N	607	3443	765		78		4894	tonnes
NH4-N			779		78		4908	tonnes
NO3-N	6652	23	5276		968		12919	tonnes
PO4-P	103	343	159		21		625	tonnes
Total N	10327	6120	11494		2467		30408	tonnes
Total P	419	667	363		40		1488	tonnes
SiO2			87340		13041		100381	tonnes
S.P.M.		1403316	283258		22588		1709162	tonnes
TOC		7651	52669		26435		86755	tonnes
COD		55635					55635	tonnes
BOD		15181					15181	tonnes

Measurements below detection limits are treated in two ways :
*) Detection limit = Zero
**) Detection limit = Limit

*** the following congeners: IUPAC Nos. 28,52,101,118,153,138,180

Table 10.4 "MEAN" TOTAL DISCHARGES to The Barents Sea (Mean runoff 1961 - 90, main rivers, 1931 - 60, tributary rivers (Fig. I.IV)).

The Barents Sea Region with main river (10) Alta

Substance:	Area runoff	Direct Discharges	Tributary Inputs		Main Riverine Inputs		Grand Total	
Cadmium		0.00	0.6	*	0.00	*	0.6	tonnes
Cadmium			0.7	**	0.03	**	0.7	tonnes
Mercury		0.00	12	*	0.00	*	12	kg
Mercury			25	**	2.74	**	28	kg
Copper		0.37	31		3.02		35	tonnes
Zinc		0.43	62		1.10		63	tonnes
Lead		0.01	5.5	*	0.16	*	5.6	tonnes
Lead			5.5	**	0.16	**	5.7	tonnes
Arsenic		0.00	3.5	*	1.54	*	5.0	tonnes
Arsenic			3.8	**	1.54	**	5.3	tonnes
Cr-T		0.04	6.0	*	0.00	*	6.0	tonnes
Cr-T			11.9	**	1.37	**	13.3	tonnes
Ni		0.12	37.7	*	0.82	*	38.6	tonnes
Ni			38.3	**	0.82	**	39.3	tonnes
PCBs ***			0.0	*	0.00	*	0.0	kg
PCBs			3.7	**	0.58	**	4.3	kg
gamma-HCH			4		0.19		4	kg
NH4-N	85	285	136		11		517	tonnes
NH4-N			136		11		517	tonnes
NO3-N	1015	1.9	458		123		1598	tonnes
PO4-P	18	30	21		20		88	tonnes
Total N	1681	381	2335		400		4797	tonnes
Total P	88	50	54		30		221	tonnes
SiO2			80564		11267		91832	tonnes
S.P.M.		377382	10097		2522		390001	tonnes
TOC		363	41891		9595		51849	tonnes
COD		1230					1230	tonnes
BOD		726					726	tonnes

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

*** the following congeners: IUPAC Nos. 28,52,101,118,153,138,180

Table 10.5 A Main rivers. "Mean" load (Mean concentrations multiplied with mean runoff 1961-90) (Limit-values=limits).

Watercourse	Runoff data							Parameters (mean values)										
	Drainage area			Discharge														
	Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station		Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd limit	Pb limit	S.P.M.
				Normal	1997	Normal	1997											
	sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		mS/m	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	t.tonnes
Glomma, Hvaler-Singlefj.	41918	41218	40221	16.5	16.0	16.9	16.4	4.80	435.39	223.05	12397	8257	707.77	45.04	145.84	0.64	11.80	283.11
Drammensvassdr, Dr.fj. V	17034	17028	16020	17.1	14.0	18.2	14.9	3.70	44.08	15.61	4169	2663	156.10	9.18	27.55	0.09	1.10	15.06
Numedalslågen, Larvikfj.	5577	5513	5197	21.2	16.0	21.2	16.0	3.11	34.28	14.37	1574	844	136.37	5.90	18.43	0.07	1.18	16.25
Skiensvassdr, Grenlandsfj.	10772	10348	10348	25.3	20.2	25.3	20.2	2.10	37.15	6.61	2625	1643	123.84	7.43	20.64	0.17	0.58	10.65
Otra, Kr.Sandsfj.	3738	3730	3668	39.8	33.9	39.8	33.9	1.91	16.39	4.21	1250	669	70.22	2.34	21.54	0.14	1.26	6.18
Orreelva, Orresanden	105	105	54	36.7	19.5	40.7	21.6	19.40	9.36	3.28	220	119	10.33	0.21	0.38	0.00	0.07	1.40
Suldalsl.,Sandsfj.Boknafj.	1457	1457	1457	59.0	38.7	59.0	38.7	1.89	5.42	1.63	632	469	18.98	1.63	7.32	0.05	0.24	2.22
Orkla, Orkdalsfj.Tr.h.fj.	3053	2872	2247	21.7	29.1	21.7	29.1	5.94	9.63	3.54	645	387	15.72	20.05	54.64	0.14	0.20	3.91
Vefsna, Vefsenfj. S	4122	4113	3323	43.9	50.2	43.9	50.2	6.61	30.18	17.08	1822	581	62.64	14.80	30.18	0.11	2.28	18.68
Altaelva, Altafj.	7373	7367	6257	11.8	11.3	11.8	11.3	10.10	29.61	20.01	400	123	10.97	3.02	1.10	0.03	0.16	2.52

Watercourse	Parameters (mean values)													
			PCB (The folloving Congeners) IUPAC NOS								TOC	Cr-T	Ni	As
	Hg limit	Gamma HCH	28 limit	52 limit	101 limit	118 limit	138 limit	153 limit	180 limit	SUM : limit		limit	limit	limit
	kg	kg	kg	kg	kg	kg	kg	kg	kg	kg	t.tonnes	tonnes	tonnes	tonnes
Glomma, Hvaler-Singlefj.	25.74	8.58	0.64	0.64	0.64	0.64	0.64	0.64	0.64	4.504	109.38	10.72	19.30	3.00
Drammensvassdr, Dr.fj. V	4.59	4.22	0.28	0.28	0.28	0.28	0.28	0.28	0.28	1.928	32.14	4.59	5.51	1.29
Numedalslågen, Larvikfj.	7.37	1.88	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.774	12.53	1.84	1.84	0.55
Skiensvassdr, Grenlandsfj.	8.26	5.04	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1.734	18.16	4.13	2.48	0.83
Otra, Kr.Sandsfj.	4.68	4.12	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.983	11.75	2.34	3.28	0.89
Orreelva, Orresanden	0.13	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.026	0.67	0.06	0.19	0.06
Suldalsl.,Sandsfj.Boknafj.	2.71	1.27	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.569	1.36	1.36	0.81	0.27
Orkla, Orkdalsfj.Tr.h.fj.	1.97	0.61	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.413	6.51	0.98	2.16	0.29
Vefsna, Vefsenfj. S	5.69	1.25	0.17	0.17	0.17	0.17	0.17	0.17	0.17	1.196	19.93	2.85	2.85	0.57
Altaelva, Altafj.	2.74	0.19	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.576	9.60	1.37	0.82	1.54

Table 10.5B Main rivers. "Mean" load (Mean concentrations multiplied with mean runoff 1961-90) (Limit-values=Zero).

Watercourse	Runoff data							Parameters (mean values)									
	Drainage area			Discharge													
	Outlet	Sampl. station	Disch. gaug. station	Sampling station		gauging station		Cond	Tot-P	PO4-P	Tot-N	NO3-N	NH4-N	Cu	Zn	Cd zero	Pb zero	S.P.M.
				Normal	1997	Normal	1997											
	sq.km	sq.km	sq.km	l/s sq.km		l/s sq.km		mS/m	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	t.tonnes
Glomma, Hvaler-Singlefj.	41918	41218	40221	16.5	16.0	16.9	16.4	4.80	435.39	223.05	12397	8257	707.77	45.04	145.84	0.64	11.80	283.11
Drammensvassdr, Dr.fj. V	17034	17028	16020	17.1	14.0	18.2	14.9	3.70	44.08	15.61	4169	2663	156.10	9.18	27.55	0.09	1.10	15.06
Numedalslågen, Larvikfj.	5577	5513	5197	21.2	16.0	21.2	16.0	3.11	34.28	14.37	1574	844	136.37	5.90	18.43	0.07	1.18	16.25
Skiensvassdr, Grenlandsfj.	10772	10348	10348	25.3	20.2	25.3	20.2	2.10	37.15	6.61	2625	1643	123.84	7.43	20.64	0.17	0.58	10.65
Otra, Kr.Sandsfj.	3738	3730	3668	39.8	33.9	39.8	33.9	1.91	16.39	4.21	1250	669	70.22	2.34	21.54	0.14	1.26	6.18
Orreelva, Orresanden	105	105	54	36.7	19.5	40.7	21.6	19.40	9.36	3.28	220	119	10.33	0.21	0.38	0.00	0.07	1.40
Suldalsl.,Sandsfj.Boknafj.	1457	1457	1457	59.0	38.7	59.0	38.7	1.89	5.42	1.63	632	469	18.98	1.63	7.32	0.05	0.24	2.22
Orkla, Orkdalsfj.Tr.h.fj.	3053	2872	2247	21.7	29.1	21.7	29.1	5.94	9.63	3.54	645	387	15.72	20.05	54.64	0.14	0.20	3.91
Vefsna, Vefsenfj. S	4122	4113	3323	43.9	50.2	43.9	50.2	6.61	30.18	17.08	1822	581	62.64	14.80	30.18	0.11	2.28	18.68
Altaelva, Altafj.	7373	7367	6257	11.8	11.3	11.8	11.3	10.10	29.61	20.01	400	123	10.97	3.02	1.10	0.00	0.16	2.52

Watercourse	Parameters (mean values)													
			PCB (The folloving Congeners) IUPAC NOS											
	Hg zero	Gamma HCH	28 zero	52 zero	101 zero	118 zero	138 zero	153 zero	180 zero	SUM : zero	TOC	Cr-T zero	Ni zero	As zero
	kg	kg	kg	kg	kg	kg	kg	kg	kg	kg	t.tonnes	tonnes	tonnes	tonnes
Glomma, Hvaler-Singlefj.	25.74	8.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	109.38	0.00	19.30	3.00
Drammensvassdr, Dr.fj. V	4.59	4.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	32.14	0.00	5.51	1.29
Numedalslågen, Larvikfj.	7.37	1.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	12.53	0.00	1.84	0.55
Skiensvassdr, Grenlandsfj.	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	18.16	0.00	2.48	0.83
Otra, Kr.Sandsfj.	0.00	4.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	11.75	0.00	3.28	0.89
Orreelva, Orresanden	0.13	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.67	0.00	0.19	0.06
Suldalsl.,Sandsfj.Boknafj.	0.00	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	1.36	0.00	0.81	0.00
Orkla, Orkdalsfj.Tr.h.fj.	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	6.51	0.00	2.16	0.29
Vefsna, Vefsenfj. S	0.00	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	19.93	0.00	2.85	0.57
Altaelva, Altafj.	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	9.60	0.00	0.82	1.54

Table 10.6 The Skagerrak Region. "Mean" inputs from tributary rivers in The Sub-areas (1 - 5)
(Mean concentrations 1997 multiplied with mean runoff, 1931-60)

The Skagerrak Region with sub-areas: (1A) Glomma, (1B) Inner Oslofj., (2) Drammenselva, (3) Numedalslågen, (4) Skienselva, (5) Otra

Total quantity of substance discharged per year:								Were 70 % of measurements above the detection limit ?		Precision of the estimate of the load
Sub-areas :	1A	1B	2	3	4	5				
Substance:										
Cd *	0.04	0.03	0.00	0.03	0.04	0.50	tonnes	YES	_____	%
Cd **	0.04	0.03	0.00	0.03	0.04	0.50	tonnes		_____	%
Hg *	0.08	1.15	0.31	0.32	1.01	11.82	kg	NO	_____	%
Hg **	1.11	1.32	0.31	0.66	1.01	12.39	kg		_____	%
Cu	1.4	1.5	0.3	0.7	0.4	5.3	tonnes	YES	_____	%
Zn	3.2	4.8	1.8	12.0	5.6	61.8	tonnes	YES	_____	%
Pb *	0.30	0.51	0.12	0.20	0.14	4.30	tonnes	YES	_____	%
Pb **	0.30	0.51	0.12	0.20	0.14	4.30	tonnes		_____	%
Arsenic *	0.44	0.19	0.09	0.23	0.32	2.59	tonnes	YES	_____	%
Arsenic **	0.44	0.19	0.09	0.23	0.32	2.59	tonnes		_____	%
Cr-T *	1.85	0.21	0.08	1.35	0.00	0.00	tonnes	NO	_____	%
Cr-T **	1.88	0.40	0.08	1.35	0.51	4.96	tonnes		_____	%
Ni *	2.02	0.73	0.22	0.96	0.40	2.87	tonnes	YES	_____	%
Ni **	2.02	0.75	0.22	0.98	0.40	2.87	tonnes		_____	%
PCBs *	0.00	0.06	0.00	0.00	0.00	0.00	kg	NO	_____	%
PCBs **	0.23	0.13	0.03	0.13	0.21	2.08	kg		_____	%
gamma-HCH	0.65	0.26	0.08	0.30	0.71	7.43	kg	YES	_____	%
NH4-N *	116.3	20.8	1.9	37.3	23.2	253.0	tonnes		_____	%
NH4-N **	116.3	20.8	1.9	37.3	23.2	253.0	tonnes	YES	_____	%
NO3-N	839	334	151	493	197	1795	tonnes	YES	_____	%
PO4-P	5.4	8.4	3.4	10.8	0.7	8.7	tonnes	YES	_____	%
Total N	1153	578	170	772	384	3545	tonnes	YES	_____	%
Total P	19	19	7	23	4	37	tonnes	YES	_____	%
SiO2	3145	2023	967	3509	2728	20108	tonnes	YES	_____	%
S.P.M.	3148	5860	3136	1254	1223	12941	tonnes	YES	_____	%
TOC	7476	2603	921	2509	5658	32968	tonnes	YES	_____	%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

Table 10.7 The remaining North Sea. "Mean" inputs from tributary rivers in The Subareas (6-7). (Mean concentrations 1997 multiplied with mean runoff, 1931-60)

The remaining North Sea Region with sub-areas: (6) Orreelva, (7) Suldalslågen

Total quantity of substance discharged per year:				Were 70 % of measurements above the detection limit ?		Precision of the estimate of the load
Sub-areas :	6	7				
Substance:						
Cd *	0.47	0.36	tonnes	NO	_____	%
Cd **	0.49	0.49	tonnes		_____	%
Hg *	4.22	11.75	kg	NO	_____	%
Hg **	15.75	31.85	kg		_____	%
Cu	4.5	18.4	tonnes	YES	_____	%
Zn	55.1	115.2	tonnes	YES	_____	%
Pb *	4.91	10.11	tonnes	YES	_____	%
Pb **	4.91	10.11	tonnes		_____	%
Arsenic *	1.62	2.38	tonnes	NO	_____	%
Arsenic **	2.18	5.68	tonnes		_____	%
Cr-T *	0.40	0.00	tonnes	NO	_____	%
Cr-T **	7.64	15.75	tonnes		_____	%
Ni *	4.25	4.59	tonnes	NO	_____	%
Ni **	6.43	7.62	tonnes		_____	%
PCBs *	0.00	0.00	kg	NO	_____	%
PCBs **	3.09	6.61	kg		_____	%
gamma-HCH	8.60	8.32	kg	YES	_____	%
NH4-N	264.91	205.03	tonnes		_____	%
NH4-N	270.15	232.31	tonnes	YES	_____	%
NO3-N	3398	4892	tonnes	YES	_____	%
PO4-P	17.4	70.7	tonnes	YES	_____	%
Total N	6277	7832	tonnes	YES	_____	%
Total P	117	175	tonnes	YES	_____	%
SiO2	24473	39168	tonnes	YES	_____	%
S.P.M.	9578	53707	tonnes	YES	_____	%
TOC	42330	30797	tonnes	YES	_____	%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

Table 10.8 The Norwegian Sea. "Mean" inputs from tributary rivers in The Subareas (8-9). (Mean concentrations 1997 multiplied with mean runoff, 1931-60)

The Norwegian Sea Region with sub-areas: (8) Orkla, (9) Vefsna

Total quantity of substance discharged per year:				Were 70 % of measurements above the detection limit ?		Precision of the estimate of the load
Sub-areas :	8	9				
Substance:						
Cd *	0.31	0.07	tonnes	NO	_____	%
Cd **	0.46	0.32	tonnes		_____	%
Hg *	72.34	95.65	kg	YES	_____	%
Hg **	83.26	96.85	kg		_____	%
Cu	44.8	26.9	tonnes	YES	_____	%
Zn	59.8	45.0	tonnes	YES	_____	%
Pb *	3.69	7.83	tonnes	YES	_____	%
Pb **	3.69	7.87	tonnes		_____	%
Arsenic *	6.60	9.34	tonnes	NO	_____	%
Arsenic **	7.54	9.97	tonnes		_____	%
Cr-T *	32.07	8.09	tonnes	NO	_____	%
Cr-T **	40.04	16.87	tonnes		_____	%
Ni *	36.92	21.60	tonnes	YES	_____	%
Ni **	38.38	22.24	tonnes		_____	%
PCBs *	0.00	0.00	kg	NO	_____	%
PCBs **	8.31	5.93	kg		_____	%
gamma-HCH	14.07	8.80	kg	YES	_____	%
NH4-N	336.30	428.38			_____	
NH4-N	350.78	428.38	tonnes	YES	_____	%
NO3-N	3725	1551	tonnes	YES	_____	%
PO4-P	69.5	89.5	tonnes	YES	_____	%
Total N	7553	3941	tonnes	YES	_____	%
Total P	201	162	tonnes	YES	_____	%
SiO2	49839	37501	tonnes	YES	_____	%
S.P.M.	54928	228329	tonnes	YES	_____	%
TOC	46843	5826	tonnes	YES	_____	%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit

Table 10.9 The Barents Sea. "Mean" inputs from tributary rivers in The Sub-area (10). (Mean concentrations 1997 multiplied with mean runoff, 1931-60)

The Barents Sea Region with sub-area: (10) Alta

Total quantity of substance discharged per year:			Were 70 % of measurements above the detection limit ?		Precision of the estimate of the load
Sub-area :	10				
Substance:					
Cd *	0.59	tonnes	NO	_____	%
Cd **	0.70	tonnes		_____	%
Hg *	11.94	kg	NO	_____	%
Hg **	25.06	kg		_____	%
Cu	31.2	tonnes	YES	_____	%
Zn	61.8	tonnes	YES	_____	%
Pb *	5.47	tonnes	YES	_____	%
Pb **	5.51	tonnes		_____	%
Arsenic *	3.49	tonnes	NO	_____	%
Arsenic **	3.76	tonnes		_____	%
Cr-T *	5.98	tonnes	NO	_____	%
Cr-T **	11.91	tonnes		_____	%
Ni *	37.70	tonnes	NO	_____	%
Ni **	38.32	tonnes		_____	%
PCBs *	0.00	kg	NO	_____	%
PCBs **	3.69	kg		_____	%
gamma-HCH	3.51	kg	YES	_____	%
NH4-N	135.9	tonnes		_____	%
NH4-N	135.9	tonnes		_____	%
NO3-N	458	tonnes	YES	_____	%
PO4-P	20.7	tonnes	YES	_____	%
Total N	2335	tonnes	YES	_____	%
Total P	54	tonnes	YES	_____	%
SiO2	80564	tonnes	YES	_____	%
S.P.M.	10097	tonnes	YES	_____	%
TOC	41891	tonnes	YES	_____	%

Measurements below detection limits are treated in two ways :

*) Detection limit = Zero

**) Detection limit = Limit