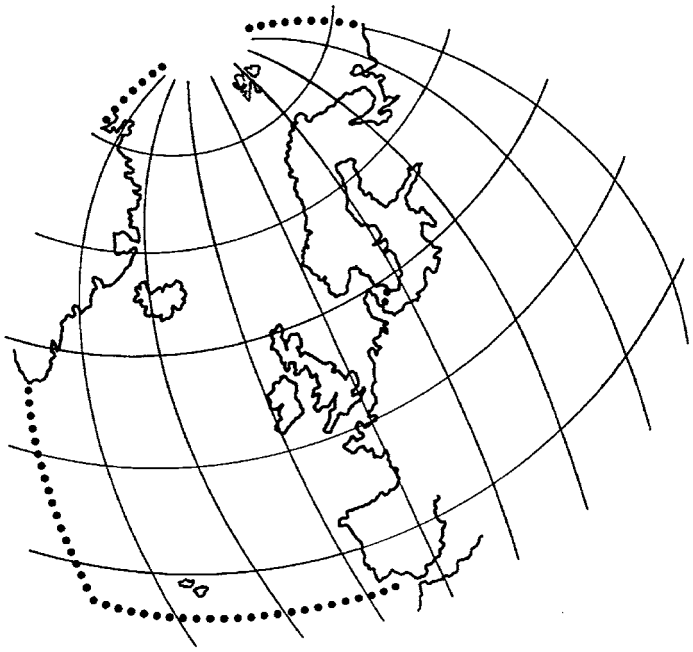
Data Report on the Comprehensive Study of Riverine Inputs and Direct Discharges (RID) in 2000



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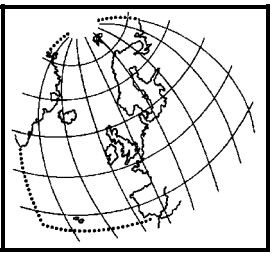

Data Report on the Comprehensive Study of Riverine Inputs and Direct Discharges (RID) in 2000

This data report complements the report containing the overview of the results of the Comprehensive Study on Riverine Inputs and Direct Discharges (RID) in 2000.

Previous data reports include the results of the Comprehensive Study in 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998 and 1999. A RID Summary Report 1990 – 1995 was published at the end of 1998, and a set of summary tables updated until 1998 is also available.

Introduction

Background

At its Tenth Meeting (Lisbon, 1988) the Paris Commission[1] (PARCOM) adopted the Principles of the Comprehensive Study on Riverine Inputs (PARCOM 10/10/1, § 4.25 (e)). Such a comprehensive study was conducted for the first time in 1990 with the objective of assessing, as accurately as possible, all river borne and direct inputs of selected pollutants to the maritime area of the Paris Convention. Contracting Parties to the Paris Convention should aim to monitor, on a regular basis, 90 % of the inputs of each selected pollutant and are requested to report the relevant data annually (by 30 September) and provide, for a selection of their main rivers, information on the annual mean/median concentration of selected pollutant. The results of such input studies are to be reviewed periodically with the objective of determining temporal and long-term trends of contaminant concentrations and inputs as a basis for trend assessment.

Due to the considerable information which would be available within a relatively short time (*inter alia*, the revised JAMP and the EC Water Framework Directive) requirements, arrangements for the review of the RID Principles are that an intersessional working group will elaborate in 2002/2003 proposals for how to handle RID data in the future that should optimise the reporting requirements of Contracting Parties in a European context and work related to the handling and use of the data.

Substances

Contracting Parties agreed to monitor the following parameters on a mandatory basis:

- mercury (Hg)
- cadmium (Cd)
- copper (Cu)
- zinc (Zn)
- lead (Pb)
- γ-HCH (lindane)
- ammonia expressed as N
- nitrates expressed as N
- orthophosphates expressed as P
- total N
- total P
- suspended particulate matter (SPM)
- salinity (in saline waters)

1 The Convention for the Protection of the Marine Environment of the North East Atlantic, 1992 (OSPAR Convention) entered into force on 25 March 1998. This Convention replaces the Oslo and Paris Conventions as between the Contracting Parties. Agreements continue to be applicable to the extent that they are compatible with, or not explicitly terminated by, the Convention or by the OSPAR Commission.

The following parameters were recommended to be monitored on a voluntary basis:

- PCBs (the following congeners: IUPAC Nos 28, 52, 101, 118, 153, 138, 180)
- hydrocarbons (strongly recommended)
- other stable organohalogen compounds (in order to find out which organohalogen compounds should be included in future input studies).

In March 1996, the Environmental Assessment and Monitoring Committee (ASMO 1996) revised the RID Principles, including the list of determinands, as follows:

"The following determinands are to be monitored on a mandatory basis:

- Total Mercury (Hg)
- Total Cadmium (Cd)
- Total Copper (Cu)
- Total Zinc (Zn)
- Total Lead (Pb)
- Gamma-HCH (lindane)
- Ammonia expressed as N
- Nitrates expressed as N
- Orthophosphates expressed as P
- Total N
- Total P
- Suspended particulate matter (SPM)
- Salinity (in saline waters)

The following determinands are recommended for monitoring on a voluntary basis:

a. Hydrocarbons, in particular PAHs[2] and mineral oil[3] (strongly recommended);

b. PCBs (the following congeners: IUPAC Nos 28, 52, 101, 118, 153, 138, 180);

c. Other hazardous substances (particularly organohalogen compounds - in order to determine which organohalogen compounds should be included in future input studies)[4]."

Reports on the substances that are explicitly mentioned in the revised RID Principles will be incorporated into future data reports as and when they become available.

2000 Report on input data

For the 2000 study, data sets on riverine inputs and direct discharges were provided by Denmark, Germany, Ireland, the Netherlands, Norway, Portugal, Sweden, Spain and the United Kingdom of Great Britain and Northern Ireland (UK). Only riverine inputs were reported by Belgium[5] and France (nutrients and suspended matter only). Iceland[6] did not provide input data for 2000.

The geographical coverage for 2000 has improved compared to the coverage in previous years. Spain had increased the number of RID catchments for which data is reported. The additional input information produces an apparent increase in total inputs. This is, of course, not a "real" increase and should be discounted in assessing the data. Significant gaps still, however, occur in the data from several Contracting Parties. The part of the maritime area best covered remains the OSPAR Region II, the Greater North Sea, and especially the main body of the North Sea, although even here gaps still exist

The reporting of mandatory and voluntary determinands (cf. Table 1b) in 2000 was improved in comparison with 1999. However, several Contracting Parties did not report data for all mandatory parameters. All reporting Contracting Parties provided data on inputs of heavy metals with the exception of Denmark and France. There are a number of gaps as regards the reporting of data for inputs of γ-HCH and/or PCBs (Denmark, France, Ireland, Norway, Portugal and Sweden for all inputs, and the Netherlands for direct

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2 These are as follows: phenanthrene, anthracene, fluoranthene, pyrene, benzo[*a*]anthracene, chrysene, benzo[*a*]pyrene, benzo[*ghi*]perylene, indeno[*1,2,3-cd*]pyrene.

3 Provided that a suitable method is available.

4 INPUT November 1995 agreed not to advocate routine monitoring of riverine inputs of pesticides Convention wide but to address specific requests from SIME or DIFF on a case by case basis.

5 Previously existing direct discharges no longer exist.

6 Iceland stated in 1988 that it had no plans to monitor riverine inputs; however, Iceland announced in 1996 that it was setting up a monitoring plan which would also result in calculation of riverine inputs.

inputs) and suspended particulate matter (Denmark, Sweden for rivers). A number of additional parameters, not obligatory under the RID programme, and consequently not summarised in the overview Tables 3 and 4, were reported by Norway (cf. Table 1b). Norway had reported on inputs from fish-farming because in Norway this activity contributed a significant part of the inputs of nitrogen and phosphorus.

Information on characteristics of the catchment areas of the rivers is included in Appendix 1.

Presentation of the 2000 data

Table 1a gives an overview of the information provided by Contracting Parties for 2000 and shows how the information was categorised:

- Direct inputs:
  - Sewage effluents
  - Industrial effluents
- Coastal areas: Data reported under "coastal areas" include discharges and run-off from coastal areas between rivers and also polder effluents. Depending on their nature, discharges from "coastal areas" are either counted under direct discharges or under riverine inputs.
- Riverine inputs:
  - Main rivers
  - Tributary rivers

Table 1b gives an overview of the determinands reported by Contracting Parties and shows where there are gaps in the reporting of mandatory determinands. Table 1b also indicates the precision of the estimate where the relevant information was provided by Contracting Parties. The last column of Table 1b informs on any additional determinands reported.

The data from Contracting Parties have in many cases[7] been rounded to one significant number for data reported less than the unit in which they appear and to two significant numbers for data reported greater than one unit; the following examples illustrate this rounding convention:

Amount reported by Contracting Party	Figure reported in the tables
0,0011	0,001
0,011	0,01
0,11	0,1
1,11	1,1
11,1	11
111 and above	not rounded

Due to this procedure, there are sometimes slight differences between the calculated totals given in this report and those calculated by Contracting Parties.

Overviews of the input information by country and sea area are given in **Tables 2 to 4 a and b**. Table 2 gives an overview of direct inputs to OSPAR Convention Waters in 1998 and summarises the information which is set out in detail in Tables 5 on a country by country basis. Table 3 gives an overview of riverine inputs to OSPAR Convention waters in 1999 and summarises the information which is set out in detail in Tables 6 on a country by country basis. Table 4a summarises the information contained in Tables 2 and 3 and gives overall figures on inputs from land-based sources. Table 4b contains the same information as Table 4a but lists inputs by sea area. Please note that, due to major gaps in the reporting, no totals for the Convention area are given in Tables 2 to 4 a and b.

7 Secretariat note: Not all Contracting Parties wished to have their data rounded in accordance with this procedure.

Annexes (country by country)

Where submitted by the Contracting Party concerned, additional relevant information, *inter alia*, on the data originators, the methods and calculation procedures used, and on discharge areas or catchment areas is given in a separate report at the beginning of the annex.

Tables 5 give the detailed data for direct inputs (direct discharges) country by country, broken down, where applicable, in sewage effluents (Table 5a) and industrial effluents (Table 5b). A summary table for the total direct discharges is given as Table 5c.

Tables 6 give the detailed data for riverine inputs country by country, broken down, where applicable, in main rivers (Table 6a) and tributary rivers (Table 6b). A summary Table 6c is given for the total riverine inputs.

Tables 7 give statistical data of the measured concentrations in rivers, as reported by Contracting Parties.

Tables 8 give information concerning the analytical detection limits of determinands.

Tables 9 give, for those Contracting Parties reporting data in the format compatible with the new RID database at the OSPAR Secretariat (RIDAB), catchment-dependent information which, for the other Contracting Parties, is included in tables (5 and) 6.

"Extra" data on other voluntary determinands, usually added at the end of the relevant annex in the data report, have not been submitted for 2000.

List of the overview tables

List of the Annexes by Contracting Party

Appendix 1

Statistical information on river catchment areas

Statistical Information on River Catchment Areas

River	Catchment area [km2]	Countries	Share in catchment area [km2]	[%]	Population (1990) [10E6]	[%]	LTA* [1000 m3/d]	LTA-period [a]
Statistical Information provided by Belgium								
Coastal Area	**2675**				**~0.497**		**2385**	NI
Western	1689	*Belgium*	>1082	NI	>305	NI	708	
		France	NI	NI	NI	NI		
Middle	499	*Belgium*			0.014		501	
Eastern	487	*Belgium*			0.177		1175	
Scheldt basin								
Scheldt	**22004**				**~10**		**9245**	1949-'97
		Belgium (1)	13324	*61*	6.9			
		France	6680	*30*	~2,7			
		Netherlands (1)	2000	*9*	0.4			
		(1) Ghent-Terneuzen canal comprised						
Ghent-Terneuzen canal	**NI**						NI	
		Belgium	NI		NI			
		Netherlands	NI		NI			
Statistical Information provided by Denmark								
Vid å	248.3	*DK*	*248*	*81*			304	78-99
Brøns å	94.1	*DK*	*94*	*100*		*100*	106.6	74-99
Ribe å	675	*DK*	*675*	*100*		*100*	743.1	33-99
Kongeaen	426.6	*DK*	*427*	*100*		*100*	612.3	90-99
Sneum å	223	*DK*	*223*	*100*		*100*	280.8	66-99
Varde å	815	*DK*	*815*	*100*		*100*	1042.7	69-99
Skjern å	1558.4	*DK*	*1558*	*100*		*100*	2079.7	74-99
Stor å	1096.7	*DK*	*1097*	*100*		*100*	1399.4	71-99
Brede å	290	*DK*	*290*	*100*		*100*	327.5	94-99
Omme å	612	*DK*	*612*	*100*		*100*	728.9	83-99
Grøn å	563	*DK*	*563*	*100*		*100*	605.3	59-99
Total	**6602.1**	**=Total of Danish rivers discharging to the North Sea**					**8230**	**71-90**
Liver å	249.8	*DK*	*250*	*100*		*100*	223.3	95-99
Uggerby å	347.5	*DK*	*348*	*100*		*100*	316.6	89-99
	597.3	**=Total of Danish rivers discharging to the Skagerrak**					**863**	**71-90**
Karup å	626.8	*DK*	*527*	*100*		*100*	621.4	86-99
Jordbro å	110.9	*DK*	*111*	*100*		*100*	111.8	80-99
Skals å	556.4	*DK*	*556*	*100*		*100*	380.2	73-99
Simmersted å	214.9	*DK*	*215*	*100*		*100*	199	92-99
Elling å	132.2	*DK*	*132*	*100*		*100*	110.9	89-99
Voer å	238.7	*DK*	*239*	*100*		*100*	224.3	89-99
Ger å	153.8	*DK*	*154*	*100*		*100*	143.1	85-99
Lindeborg å	317.8	*DK*	*318*	*100*		*100*	297.4	83-99
Haslevgard å	75	*DK*	*75*	*100*		*100*	57.5	89-99
Kastbjerg å	96.3	*DK*	*96*	*100*		*100*	67.8	76-99
Guden å	2602.9	*DK*	*2,603*	*100*		*100*	2820.1	78-99
Ry å	285	*DK*	*285*	*100*		*100*	250.5	72-99
	5125.7	**=Total of Danish rivers discharging to the Kattegat**					**5284**	**71-90**
Statistical Information provided by France								
Somme	6105	France	6105	100			3111	
Seine	73793	France	73793	100	14.9	100	41707	NI
Other rivers	36435	France	36435	100	4.1	100	17266	NI
Total Region II	116333		116333		20.0		62084	
Vilaine	10482	France	10482	100	0.8	100	6446	NI
Loire (entire bassin)	116490	France	116490	100	8.0	100	80216	NI
Charente	9491	France	11819	100	0.6	100	9283	NI
Gironde	80160	France	80160	100	0.9	100	78869	NI
Adour	15895	France	16966	100	0.9	100	15285	NI
Other rivers	25909	France	25208	# 100	1.9	#100	15128	NI

Statistical Information on River Catchment Areas

River	Catchment area [km2]	Countries	Share in catchment area [km2]	[%]	Population (1990) [10E6]	[%]	LTA* [1000 m3/d]	LTA-period [a]
Total Region IV	258427		249384		16.67		205227	

Other rivers region II - Catchment areas : Côtiers picards (without the Somme), Côtiers haut-normands, Basse - Normandie, Cotentin, Bretagne Nord.
Other rivers région IV - Catchments areas : Bretagne sud, Côtiers vendéens, Charente - Seurdre - île d'Oléron (without Charente), Côtiers aquitains, Adour-Nivelle-Bidassoa (without Adour)
Population : from INSEE for each catchment area (RNDE)

Statistical Information provided by Germany								
Ems	15552						7540	1941-1997
		Germany	13152	85.00	3.75	85		
		Netherlands	2400	15.00	0.6	15		
Weser	46306	*Germany*	-	-	9.0	-	30900	1901-1994
Elbe	148268		148268	100	25.11	-	74700	1926-1991
		Germany	*96932*	*65.38*	*19.09*	*76.03*		
		Czech Republic	*50176*	*33.84*	*5.97*	*23.78*		
		Austria	*920*	*0.62*	*0.05*	*0.20*		
		Poland	*240*	*0.16*	*NI*	*NI*		
Eider	2065	*Germany*	-	-	0.159	-	2352	1974-2000
Statistical Information provided by Ireland								
Boyne	2695	Ireland	-	-	NI	-	3356	1975-1999
Liffey	1256	Ireland	-	-	NI	-	1557	1950-1999
Avoca	652	Ireland	-	0	NI	-	1749	1967-1999
Slaney	1762	Ireland	-	-	NI	-	3231	1980-1999
	6365	**=Total of main Irish rivers discharging to the Irish Sea**						
Barrow*	3067	Ireland	-	-	NI	-	3235	1946-1969
*New gauge recently installed. LTA still based on the period of reliable record for the old gauge.								
Nore	2530	Ireland	-	-	NI	-	3706	1972-1999
Suir	3610	Ireland	-	-	NI	-	6648	1954-1999
Blackwater	3324	Ireland	-	-	NI	-	7694	1956-1999
Lee	1253	Ireland	-	-	NI	-	3492	1957-1999
Bandon	608	Ireland	-	-	NI	-	1818	1975-1999
Deel	486	Ireland	-	-	NI	-	645	1983-1999
Maigue	1052	Ireland	-	-	NI	-	1423	1977-1999
Shannon Old Chan.	11700	Ireland	-	-	NI	-	4655	1932-1997
Shannon Tailrace		Ireland					13176	1932-1997
Fergus	1042	Ireland	-	-	NI	-	1618	1973-1999
	28672	**=Total of main Irish rivers discharging to the Celtic Sea**						
Corrib	3138	Ireland	-	-	NI	-	9055	1973-1999 (Excl. 86-90, 92-93)
Moy	2086	Ireland	-	-	NI	-	5312	1970-1999
Erne	4372	Ireland/UK	2572/1800	60/40	NI	-	8786	1951-1997
	9596	**=Total of main Irish rivers dischrging to the Atlantic**						
Statistical Information provided by The Netherlands (with assistance from Germany and Belgium								
Rhine	156500						166700	1911-1995
		Switzerland	9500	6	3.0	6		
		France	22000	14	3.7	7		
		Luxembourg	2500	2	0.3	1		
		Germany	100000	64	32.5	65		
		Netherlands	22500	14	10.9	21		
Meuse	34900						67800	1911-1995
		France	10000	29				
		Luxembourg	100	1				
		Belgium	13000	37				
		Germany	4000	11				
		Netherlands	7800	22	3.6			
Scheldt	22004				~10		9331	1949-1995
		France	6680	30.00	~2.7	~27		
		Belgium	13324	61.00	6.9	69		
		Netherlands	2000	9.00	0.4	4		
Ems	15552						7630	1941-1995
		Germany	13152	85.00	3.75	85		
		Netherlands	2400	15.00	0.6	15		

Statistical Information on River Catchment Areas

River	Catchment area [km2]	Countries	Share in catchment area [km2]	[%]	Population (1990) [10E6]	[%]	LTA* [1000 m3/d]	LTA-period [a]
Statistical Information provided by Norway								
Glomma (1)	41918	Norway		100.00	0.62	100	61350	1961-1990
Drammenselva (2)	17034	Norway		100.00	0.2	100	28850	1961-1990
Numedalslågen (3)	5577	Norway		100.00	0.04	100	10200	1961-1990
Skienselva (4)	10772	Norway		100.00	0.11	100	23535	1961-1990
Otra (5)	3738	Norway		100.00	0.03	100	12870	1961-1990
	79039	**=Total of Norwegian rivers discharging to the Skagerrak**						
Orreelva (6)	105	Norway		100.00	0.01	100	335	1961-1990
Suldalslågen (7)	1457	Norway		100.00	0.003	100	7420	1961-1990
	1562	**=Total of Norwegian rivers discharging to the North Sea**						
Orkla (8)	3053	Norway		100.00	0.02	100	5710	1961-1990
Vefsna (9)	4122	Norway		100.00	0.01	100	15655	1961-1990
	7175	**=Total of Norwegian rivers discharging to the Norwegian Sea**						
Altaelva (10)	7373	Norway		100.00	0.005	100	7495	1961-1990
	7373	**=Total of Norwegian rivers discharging to the Barents Sea**						
Statistical Information provided by Portugal								
Tejo	80149	Portugal	24380	30.8	2.89	32.0	15900	50
		Spain	55769	69.2	6.14	68.0	34800	50
Douro	97600	Portugal	18600	19.1	1.76	43.5	22500	50
		Spain	79000	80.9	2.28	56.5	40900	50
Miño/Minho	17000	Portugal	900	5.3	0.07	7.9	6000	15
		Spain	16100	94.7	0.86	92.1	29000	15
Statistical Information provided by Spain								
Oyarzun	74	Spain	74	100	0.055	100	166	
Urumea	266	Spain	266	100	0.176	100	633	
Oria	860	Spain	860	100	0.020	100	740	
Urola	342	Spain	342	100	0.082	100	447	
Deva	531	Spain	531	100	0.146	100	694	
Nervión	1764	Spain	1764	100	0.997	100	1,105	
Saja	955	Spain	955	100	0.104	100	1,166	
Nalón	4866	Spain	4866	100	0.539	100	6,977	
Mero	345	Spain	345	100	0.046	100	572	1970-82
Tambre	1530	Spain	1530	100	0.060	100	3309	1943-82
Ulla	2803	Spain	2803	100	0.292	100	5573	
Umia	440	Spain	440	100	0.035	100	774	1970-82
Miño	17247	Spain	16347	94.8	0.881		25716	1975-95
		Portugal	900	5.2				
Duero	97670	Spain	78960	80.8	3.093			
		Portugal	18710	19.2				
Tajo	80190	Spain	55810	69.6	6.459			
		Portugal	24380	30.4				
Guadiana	67122	Spain	55597	82.8	1.640		1798	1975-94
		Portugal	11525	17.2				
Piedras	550	Spain	550	100	0.046	100	61	
Odiel	2417	Spain	2417	100	0.233	100	1,194	
Tinto	1727	Spain	1727	100	0.100	100	177	
Guadalquivir	63241	Spain	63241	100	4.966	100	3423	1942-88
Guadalete	3360	Spain	3360	100	0.555	100	413	
Statistical Information provided by Sweden					1995			
Vege å (95)	498	-	-	-	0.04300	100	440	1961-1990
Rönne å (96)	1890	-	-	-	0.08810	100	2030	1961-1990
Stensån (97)	284	-	-	-	0.00710	100	350	1961-1990
Lagan (98)	6444	-	-	-	0.11890	100	7410	1961-1990
Genevadsån (99)	225	-	-	-	0.00470	100	350	1961-1990
Fylleån (100)	359	-	-	-	0.00900	100	650	1961-1990
Nissan (101)	2682	-	-	-	0.08280	100	3690	1961-1990
Suseån (102)	441	-	-	-	0.00760	100	640	1961-1990
Ätrån (103)	3343	-	-	-	0.06560	100	5070	1961-1990
Himleån (104)	214	-	-	-	0.00820	100	330	1961-1990
Viskan (105)	2201	-	-	-	0.12120	100	2760	1961-1990
Rolfsån (106)	723	-	-	-	0.02710	100	1030	1961-1990

Statistical Information on River Catchment Areas

River	Catchment area [km2]	Countries	Share in catchment area [km2]	[%]	Population (1990) [10E6]	[%]	LTA* [1000 m3/d]	LTA-period [a]
Kungsbackaån (107)	310	-	-	-	0.03740	100	410	1961-1990
Göta älv (108)	50230	Norway	7450.00	14.80	0.82190	ni	50530	1961-1990
	69844	**=Total of Swedish rivers discharging to the Kattegat**						
Bäveån (109)	302	-	-	-	0.02130	100	350	1961-1990
Örekilsälven (110)	1327	-	-	-	0.01450	100	2050	1961-1990
Strömsån (111)	253	-	-	-	0.00490	100	390	1961-1990
Enningsdalsälven (112)	704	-	-	-	0.00319	100	1360	1961-1990
	2586	**=Total of Swedish rivers discharging to the Skagerrak**						
Statistical Information provided by the United Kingdom								
Dionard (SC2b)	NI	-	-	-	NI	-	NI	NI
Hope (SC2b)	NI	-	-	-	NI	-	NI	NI
Borgie (SC2b)	NI	-	-	-	NI	-	NI	NI
Naver (SC2b)	NI	-	-	-	NI	-	NI	NI
Strathy (SC2b)	NI	-	-	-	NI	-	NI	NI
Halladale (SC2b)	NI	-	-	-	NI	-	NI	NI
Thurso (SC2b)	NI	-	-	-	NI	-	NI	NI
Wick (SC2b)	NI	-	-	-	NI	-	NI	NI
Dunbeath (SC2b)	NI	-	-	-	NI	-	NI	NI
Berriedale (SC2b)	NI	-	-	-	NI	-	NI	NI
Langwell (SC2b)	NI	-	-	-	NI	-	NI	NI
Helmsdale (SC2b)	NI	-	-	-	NI	-	NI	NI
Brora (SC2b)	NI	-	-	-	NI	-	NI	NI
Oykle (K.S.; SC2b)	NI	-	-	-	NI	-	NI	NI
Cassley (K.S.; SC2b)	NI	-	-	-	NI	-	NI	NI
Shin (K.S.; SC2a)	NI	-	-	-	NI	-	NI	NI
Carron (K.S.; SC2a)	NI	-	-	-	NI	-	NI	NI
Alness (SC2b)	NI	-	-	-	NI	-	NI	NI
Cannon (SC2b)	NI	-	-	-	NI	-	NI	NI
Beauly (SC2b)	NI	-	-	-	NI	-	NI	NI
Ness (SC2b)	NI	-	-	-	NI	-	7600	NI
Nairn (SC2b)	NI	-	-	-	NI	-	NI	NI
Findhorn (SC2b)	NI	-	-	-	NI	-	NI	NI
Spey (SC3)	NI	-	-	-	NI	-	5600	NI
Deveron (SC3)	NI	-	-	-	NI	-	NI	NI
Ugie (SC3)	NI	-	-	-	NI	-	NI	NI
Ythan (SC3)	NI	-	-	-	NI	-	NI	NI
Lossie (SC3)	NI	-	-	-	NI	-	NI	NI
Don (SC3)	NI	-	-	-	NI	-	NI	NI
Dee (SC3)	NI	-	-	-	NI	-	NI	NI
Bervie (SC3)	NI	-	-	-	NI	-	NI	NI
Dighty (SC4)	NI	-	-	-	NI	-	NI	NI
Earn (SC4)	NI	-	-	-	NI	-	NI	NI
Eden (SC4)	NI	-	-	-	NI	-	NI	NI
North Esk (SC4)	NI	-	-	-	NI	-	NI	NI
South Esk (SC4)	NI	-	-	-	NI	-	NI	NI
Lunan (SC4)	NI	-	-	-	NI	-	NI	NI
Tay (SC4)	NI	-	-	-	NI	-	14000	NI
Leven (SC5)	NI	-	-	-	NI	-	NI	NI
Black Devon (SC5)	NI	-	-	-	NI	-	NI	NI
Devon (SC5)	NI	-	-	-	NI	-	NI	NI
Allan (SC5)	NI	-	-	-	NI	-	NI	NI
Teith (SC5)	NI	-	-	-	NI	-	NI	NI
Forth (SC5)	NI	-	-	-	NI	-	4300	NI
Avon (SC5)	NI	-	-	-	NI	-	NI	NI
Carron (SC5)	NI	-	-	-	NI	-	NI	NI
Almond (SC5)	NI	-	-	-	NI	-	NI	NI
Leith (SC5)	NI	-	-	-	NI	-	NI	NI
Esk (SC5)	NI	-	-	-	NI	-	NI	NI
Tyne (SC5)	NI	-	-	-	NI	-	3900	NI
Whiteadder (SC5)	NI	-	-	-	NI	-	NI	NI
Eye (SC5)	NI	-	-	-	NI	-	NI	NI
Tweed (E1)	NI	-	-	-	NI	-	NI	NI
Coquet (E1)	NI	-	-	-	NI	-	NI	NI
Wansbeck (E1)	NI	-	-	-	NI	-	NI	NI
Blyth (E1)	NI	-	-	-	NI	-	NI	NI
Tyne (E2)	NI	-	-	-	NI	-	NI	NI

Statistical Information on River Catchment Areas

River	Catchment area [km2]	Countries	Share in catchment area [km2]	[%]	Population (1990) [10E6]	[%]	LTA* [1000 m3/d]	LTA-period [a]
Derwent (E2)	NI	-	-	-	NI	-	NI	NI
Team (E2)	NI	-	-	-	NI	-	NI	NI
Wear (E3)	NI	-	-	-	NI	-	NI	NI
Skerne (E5)	NI	-	-	-	NI	-	NI	NI
Tees (E5)	NI	-	-	-	NI	-	NI	NI
Aire (E7A)	NI	-	-	-	NI	-	NI	NI
Derwent (E7A)	NI	-	-	-	NI	-	NI	NI
Don (E7A)	NI	-	-	-	NI	-	NI	NI
Ouse (E7A)	NI	-	-	-	NI	-	NI	NI
Wharfe (E7A)	NI	-	-	-	NI	-	NI	NI
Ancholme (E7A)	NI	-	-	-	NI	-	NI	NI
Trent (E7A)	NI	-	-	-	NI	-	7800	NI
Idle (E7A)	NI	-	-	-	NI	-	NI	NI
Welland (E9)	NI	-	-	-	NI	-	NI	NI
Nene (E9)	NI	-	-	-	NI	-	NI	NI
Ouse (E9)	NI	-	-	-	NI	-	NI	NI
Witham (E9)	NI	-	-	-	NI	-	NI	NI
Glan (E9)	NI	-	-	-	NI	-	NI	NI
Hundred Foot River (E9)	NI	-	-	-	NI	-	NI	NI
Ten Mile River (E9)	NI	-	-	-	NI	-	NI	NI
Bure (E10)	NI	-	-	-	NI	-	NI	NI
Wensum (E10)	NI	-	-	-	NI	-	NI	NI
Stour (E10)	NI	-	-	-	NI	-	NI	NI
Gipping (E10)	NI	-	-	-	NI	-	NI	NI
Waveney (E10)	NI	-	-	-	NI	-	NI	NI
Yare (E10)	NI	-	-	-	NI	-	NI	NI
Colne (E11)	NI	-	-	-	NI	-	NI	NI
Chalmer (E11)	NI	-	-	-	NI	-	NI	NI
Blackwater (E11)	NI	-	-	-	NI	-	NI	NI
Thames (E12)	NI	-	-	-	NI	-	6700	NI
Beam (E12)	NI	-	-	-	NI	-	NI	NI
Beverley Brook (E12)	NI	-	-	-	NI	-	NI	NI
Brent (E12)	NI	-	-	-	NI	-	NI	NI
Crane (E12)	NI	-	-	-	NI	-	NI	NI
Ingrebourne (E12)	NI	-	-	-	NI	-	NI	NI
Lee (E12)	NI	-	-	-	NI	-	NI	NI
Ravensbourne (E12)	NI	-	-	-	NI	-	NI	NI
Roding (E12)	NI	-	-	-	NI	-	NI	NI
Wandle (E12)	NI	-	-	-	NI	-	NI	NI
Tot.N.Sea catchm.	112000				121300			
Medway (E13)	NI	-	-	-	NI	-	NI	NI
Stour (E13)	NI	-	-	-	NI	-	1130	NI
Rother (E13)	NI	-	-	-	NI	-	NI	NI
Adur (E14)	NI	-	-	-	NI	-	NI	NI
Ouse (E14)	NI	-	-	-	NI	-	NI	NI
Cuckmere (E14)	NI	-	-	-	NI	-	NI	NI
Arun (E14)	NI	-	-	-	NI	-	NI	NI
Itchen (E15)	NI	-	-	-	NI	-	NI	NI
Test (E15)	NI	-	-	-	NI	-	NI	NI
Blackwater (E15)	NI	-	-	-	NI	-	NI	NI
Frome (E16)	NI	-	-	-	NI	-	NI	NI
Stour (E16)	NI	-	-	-	NI	-	NI	NI
Avon (E16)	NI	-	-	-	NI	-	1330	NI
Axe (E17)	NI	-	-	-	NI	-	NI	NI
Dart (E17)	NI	-	-	-	NI	-	NI	NI
Exe (E17)	NI	-	-	-	NI	-	1360	NI
Gara (E17)	NI	-	-	-	NI	-	NI	NI
Otter (E17)	NI	-	-	-	NI	-	NI	NI
Teign (E17)	NI	-	-	-	NI	-	NI	NI
Cober (E18)	NI	-	-	-	NI	-	NI	NI
Erme (E18)	NI	-	-	-	NI	-	NI	NI
Fal (E18)	NI	-	-	-	NI	-	NI	NI
Fowey (E18)	NI	-	-	-	NI	-	NI	NI
Gara (E18)	NI	-	-	-	NI	-	NI	NI
Lynher (E18)	NI	-	-	-	NI	-	NI	NI
Par (E18)	NI	-	-	-	NI	-	NI	NI

Statistical Information on River Catchment Areas

River	Catchment area [km2]	Countries	Share in catchment area [km2]	[%]	Population (1990) [10E6]	[%]	LTA* [1000 m3/d]	LTA-period [a]
Plym (E18)	NI	-	-	-	NI	-	NI	NI
Porthleven (E18)	NI	-	-	-	NI	-	NI	NI
St Austel (E18)	NI	-	-	-	NI	-	NI	NI
Tavy (E18)	NI	-	-	-	NI	-	NI	NI
Tamar (E18)	NI	-	-	-	NI	-	1940	NI
Tot.Channel catch.	22000						16500	
Camel (E19)	NI	-	-	-	NI	-	NI	NI
Hayle (E19)	NI	-	-	-	NI	-	NI	NI
Menalhyl (E19)	NI	-	-	-	NI	-	NI	NI
Red River (E19)	NI	-	-	-	NI	-	NI	NI
Taw (Yeo) (E19)	NI	-	-	-	NI	-	NI	NI
Taw (2) (E20)	NI	-	-	-	NI	-	NI	NI
Torridge (E20)	NI	-	-	-	NI	-	NI	NI
Parrett (E21)	NI	-	-	-	NI	-	NI	NI
Tone (E21)	NI	-	-	-	NI	-	NI	NI
Bristol Avon (E22)	NI	-	-	-	NI	-	NI	NI
Severn (2) (E22)	NI	-	-	-	NI	-	9100	NI
Wye (E23)	NI	-	-	-	NI	-	6200	NI
Usk (E23)	NI	-	-	-	NI	-	NI	NI
Rhymney (E23)	NI	-	-	-	NI	-	NI	NI
Ely (E23)	NI	-	-	-	NI	-	NI	NI
Afon Lwyd (E23)	NI	-	-	-	NI	-	NI	NI
Ebbw Fawr (E23)	NI	-	-	-	NI	-	NI	NI
Taff (E23)	NI	-	-	-	NI	-	NI	NI
Cadoxton (E24)	NI	-	-	-	NI	-	NI	NI
Neath (E24)	NI	-	-	-	NI	-	NI	NI
Ogmore (E24)	NI	-	-	-	NI	-	NI	NI
Thaw (E24)	NI	-	-	-	NI	-	NI	NI
Tawe (E24)	NI	-	-	-	NI	-	NI	NI
Ewenny (E24)	NI	-	-	-	NI	-	NI	NI
Nant Y Fendrod (E24)	NI	-	-	-	NI	-	NI	NI
Thaw Kenson (E24)	NI	-	-	-	NI	-	NI	NI
Dafen (E25)	NI	-	-	-	NI	-	NI	NI
W Cleddau (E25)	NI	-	-	-	NI	-	NI	NI
Tywi (E25)	NI	-	-	-	NI	-	3700	NI
Taf (E25)	NI	-	-	-	NI	-	NI	NI
Loughor (E25)	NI	-	-	-	NI	-	NI	NI
Tot.Celtic S. catch.	32000						36400	
Teifi (E26)	NI	-	-	-	NI	-	NI	NI
Ystwyth (E26)	NI	-	-	-	NI	-	NI	NI
Rheidol (E26)	NI	-	-	-	NI	-	NI	NI
Mawddach (E26)	NI	-	-	-	NI	-	NI	NI
Dyfi (E26)	NI	-	-	-	NI	-	NI	NI
Glaslyn (E26)	NI	-	-	-	NI	-	NI	NI
Afon Goch (2) (E27)	NI	-	-	-	NI	-	NI	NI
Clwyd (E27)	NI	-	-	-	NI	-	NI	NI
Cefni (E27)	NI	-	-	-	NI	-	NI	NI
Conwy (E27)	NI	-	-	-	NI	-	NI	NI
Dee (E27)	NI	-	-	-	NI	-	3020	NI
Nant Glywdyr (E27)	NI	-	-	-	NI	-	NI	NI
Alt (E28)	NI	-	-	-	NI	-	NI	NI
Mersey (E28)	NI	-	-	-	NI	-	3540	NI
Weaver (E28)	NI	-	-	-	NI	-	NI	NI
Darwen (E29)	NI	-	-	-	NI	-	NI	NI
Douglas (E29)	NI	-	-	-	NI	-	NI	NI
Ribble (E29)	NI	-	-	-	NI	-	NI	NI
Kent (E29)	NI	-	-	-	NI	-	NI	NI
Lune (E29)	NI	-	-	-	NI	-	3020	NI
Wyre (E29)	NI	-	-	-	NI	-	NI	NI
Leven (E29)	NI	-	-	-	NI	-	NI	NI
Derwent (E30)	NI	-	-	-	NI	-	NI	NI
Eden (E30)	NI	-	-	-	NI	-	4320	NI
Liddel (SC1)	NI	-	-	-	NI	-	NI	NI
Esk (SC1)	NI	-	-	-	NI	-	NI	NI
Kirtle (SC1)	NI	-	-	-	NI	-	NI	NI
Annan (SC1)	NI	-	-	-	NI	-	NI	NI
Nith (SC1)	NI	-	-	-	NI	-	NI	NI

Statistical Information on River Catchment Areas

River	Catchment area [km2]	Countries	Share in catchment area [km2]	[%]	Population (1990) [10E6]	[%]	LTA* [1000 m3/d]	LTA-period [a]
Urr (SC1)	NI	-	-	-	NI	-	NI	NI
Dee (SC1)	NI	-	-	-	NI	-	NI	NI
Cree (SC1)	NI	-	-	-	NI	-	NI	NI
Bladnoch (SC1)	NI	-	-	-	NI	-	NI	NI
Luce (SC1)	NI	-	-	-	NI	-	NI	NI
Piltanton (SC1)	NI	-	-	-	NI	-	NI	NI
Newry (NI2)	NI				NI	-	NI	NI
Quoile (NI2)	NI				NI	-	NI	NI
Lagan (NI2)	NI				NI	-	NI	NI
Tot.Irish Sea catch.	35000						48400	
Clyde (SC2)	NI	-	-	-	NI	-	4000	NI
Kelvin (SC2)	NI	-	-	-	NI	-	NI	NI
White Cart (SC2)	NI	-	-	-	NI	-	NI	NI
Black Cart (SC2)	NI	-	-	-	NI	-	NI	NI
Leven (SC2)	NI	-	-	-	NI	-	NI	NI
Garnock (SC2)	NI	-	-	-	NI	-	NI	NI
Lugton (SC2)	NI	-	-	-	NI	-	NI	NI
Annick (SC2)	NI	-	-	-	NI	-	NI	NI
Irvine (SC2)	NI	-	-	-	NI	-	NI	NI
Ayr (SC2)	NI	-	-	-	NI	-	NI	NI
Doon (SC2)	NI	-	-	-	NI	-	NI	NI
Girvan (SC2)	NI	-	-	-	NI	-	NI	NI
Stinchar (SC2)	NI	-	-	-	NI	-	NI	NI
Leven (SC2a)	NI	-	-	-	NI	-	NI	NI
Nevis (SC2a)	NI	-	-	-	NI	-	NI	NI
Lochy (SC2a)	NI	-	-	-	NI	-	5400	NI
Shiel (Sunart; SC2a)	NI	-	-	-	NI	-	NI	NI
Ailort (SC2a)	NI	-	-	-	NI	-	NI	NI
Morar (SC2a)	NI	-	-	-	NI	-	NI	NI
Shiel (G.S.; SC2a)	NI	-	-	-	NI	-	NI	NI
Elchaig (SC2a)	NI	-	-	-	NI	-	NI	NI
Ling (SC2a)	NI	-	-	-	NI	-	NI	NI
Carron (N.K.; SC2a)	NI	-	-	-	NI	-	NI	NI
Ewe (SC2a)	NI	-	-	-	NI	-	NI	NI
Little Gruinad (SC2a)	NI	-	-	-	NI	-	NI	NI
Gruinard (SC2a)	NI	-	-	-	NI	-	NI	NI
Broom (SC2a)	NI	-	-	-	NI	-	NI	NI
Ullapool (SC2a)	NI	-	-	-	NI	-	NI	NI
Inver (SC2a)	NI	-	-	-	NI	-	NI	NI
Laxford (SC2b)	NI	-	-	-	NI	-	NI	NI
Bush (NI1)	NI				NI		NI	NI
Bann (NI1)	NI				NI		7900	NI
Roe (NI1)	NI				NI		NI	NI
Faughan (NI1)	NI				NI		NI	NI
Burn Dennet NI1	NI				NI		NI	NI
Mourne (NI1)	NI				NI		NI	NI
Finn (NI1)	NI				NI		NI	NI
Tot.Atlantic catchm.	42000						49700	

***) LTA = Long-term average**

Annex 1

BELGIUM

Annual report on riverine inputs and direct discharges to Convention waters during the year 2000 by Belgium

Annual report on riverine inputs and direct discharges by Belgium to convention waters during the year 2000

Name, address and contact numbers of reporting authority to which any further enquiry should be addressed:

Federal Office for Scientific, Technical and Cultural Affairs
MUMM
Gulledelle 100
B-1200 BRUSSELS
Tel: +32 2 773 21 21
Fax: +32 2 770 69 72
Email: M.Moens@mumm.ac.be

A. General information

Table 1: General overview of river systems (for riverine inputs) and direct discharge areas (for direct discharges) included in the data report

Country: **BELGIUM**

Name of river, subarea and discharge area[1]	Nature of the receiving water[2]	Optional: national reference number	Optional: map reference number
Belgian Coastal zone			
Western area (23 km)	Coastal water		
Middle area (20 km)	Coastal water		
Eastern area (22 km)	Coastal water		
Scheldt estuary			
Scheldt river	Estuary tidal range ~4m		
Ghent-Terneuzen canal	Estuary tidal range ~4m		

[1] i.e. name of estuary or length of coastline
[2] i.e. estuary or coastal water; if an estuary, state the tidal range and the daily flushing volume

B. Total riverine inputs and direct discharges for the year 2000

B.1 Comments on the Total Riverine Inputs and Direct Discharges:

Source of data: ***Vlaamse Milieumaatschappij (VMM)***
A. Van De Maelestraat 96
B-9320 Erembodegem

C. Direct discharges for the year 2000

Sewage Effluents

C.1 Describe the methods of measurement and calculation used, including information on the number of samples and the concentration upon which the measurement is based (ref.: Section 6 of the Principles), including for those under voluntary reporting:

No sewage effluents are discharged directly in Belgium.

C.2 Describe the determinands, other than those specified in paragraph 2.1 of the Principles, that are included in the current monitoring programme and which may be relevant for the Comprehensive Study on Riverine Inputs and Direct Discharges (voluntary reporting):

[none]

Industrial Effluents

C.3 Describe the methods of measurement and calculation used, including information on the number of samples and the concentration upon which the measurement is based (ref.: Section 6 of the Principles), including for those under voluntary reporting:

No industrial effluents are discharged directly in Belgium.

C.4 Give any other relevant information (e.g. proportion of substance discharged as insoluble material):

[none]

C.5 Give any available information on other discharges directly to Convention Waters - through e.g. urban run-off and stormwater overflows - that are not covered by the data in tables 5a. and 5b.

No urban run-off or stormwater overflows discharge to Convention Waters under Belgian jurisdiction.

C.6 Describe the determinands, other than those specified in paragraph 2.1 of the Principles, that are included in the current monitoring programme and which may be relevant for the Comprehensive Study on Riverine Inputs and Direct Discharges (voluntary reporting):

[none]

D. Riverine inputs for the year 2000

Main Rivers (Tables 6a and 7)

D.1 Describe the methods of measurement and calculation used, including information on the number of samples and the concentration (Table 7) upon which the measurement is based (ref.: Section 5 of the Principles), including for those under voluntary reporting:

No information on the methods of measurement is available at this moment. The number of samples is reported in Table 7 for every determinand.

For the calculation of the standard deviation of the sets of determinand concentrations, all concentrations lower than the detection limit were taken as half the value of the detection limit. When all measurements were beneath the detection limit no calculation for this parameter was made and the value reported was "NI" (No Information).

Coastal Area

Due to the lack of flow rate data, the discharges of the IJzer were calculated using the formula proposed under point 5.12 of the "Principles of the Comprehensive Study on Riverine Inputs and Direct Discharges (RID)":

$$\frac{Qr\sum_{i=1}^{n} Ci}{n}$$

Where: Qr is an estimated LTA flow rate

Ci is the concentration measured in sample i

Ref. (1) table 7: the detection limit was reached, a nominal minimum concentration could not be detected. Consequently, the fields in the rows labelled "minimum" were given the value "ND" (Not Detected). See also section E.1.

Ref. (2) table 7: all measurements were beneath the detection limit, a nominal maximum concentration could not be detected. Consequently, the fields in the rows labelled "maximum" were given the value "ND" (Not Detected). See also section E.1.

Ref. (3) table 7: due to lack of valuable data, the standard deviation could not be calculated. Hence the value "NI" (No Information) was given.

Scheldt estuary

The fresh water flow rates for the Scheldt, determined at station 'Schelle', were multiplied by an empirically determined correction factor of 1.15 to include fresh water inputs between 'Schelle' and 'Doel'. ***Source of data: Flemish Region, Department of Environment & Infrastructure, Waterways and Maritime Affairs Administration, Maritime Section Scheldt****.*

The loads of the Scheldt were calculated using the formula proposed under point 5.11 of the "Principles of the Comprehensive Study on Riverine Inputs and Direct Discharges (RID)":

$$\frac{Qr\sum_{i=1}^{n}(CiQi)}{\sum_{i=1}^{n}(Qi)}$$

Where: Qr is the mean flow rate for 2000

Qi is the mean flow rate of the ten-day period during which sample I was taken

Ci is the concentration measured in sample i

Ref. (1) table 7: the detection limit was reached, a nominal minimum concentration could not be detected. Consequently, the fields in the rows labelled "minimum" were given the value "ND" (Not Detected). See also section E.1

Ref. (2) table 7: all measurements were beneath the detection limit, a nominal maximum concentration could not be detected. Consequently, the fields in the rows labelled "maximum" were given the value "ND" (Not Detected). See also section E.1

Ref. (3) table 7: due to lack of valuable data, the standard deviation could not be calculated. Hence the value "NI" (No Information) was given.

Loads are calculated twice: once with and once without salinity correction on the concentration data (for explanation see the Belgian report on 1990 inputs). In addition, where detection limits were reached, loads were calculated twice more: once with a concentration "zero" and once with a concentration set equal to the nominal value of the detection limit. The highest and the lowest results of these calculations were then reported for every substance as upper and lower limits. The 'real' pollutant load is currently estimated between these two figures. No information on the precision of the measurement is available.

The formula for the salinity correction of a concentration figure is:

$$C_{corrected} = \frac{(18000 \times C_{measured})}{(18000 - [chloride])}$$

This formula assumes that the chloride content of fresh water is close to zero.

D.2 Give any other relevant information (e.g. proportion of substance transported by the river in particulate form):

[none]

D.3 Describe the determinands, other than those specified in paragraph 2.1 of the Principles, that are included in the current monitoring programme and which may be relevant for the Comprehensive Study on Riverine Inputs and Direct Discharges (voluntary reporting):

*Other determinands available for the **IJzer river** are:*

EC 20, O2 , SPM, tHpCEpx, dHCH, MxyC, Dmetoat,Cumafos, Sebutylaz, cCdane, bHCH, 24DDE, 44DDD, Atraz, Linuron , mBthiaz, pH, COD, HpC, HCBz, PCNiBz , 44DDT , Telodrin, Terbutryn, AzinfosEy, Ethopfos, Malathion , Fenthion, tCdane, Methidat, Metaza, Aldrin , cHpCEpx, 44DDE, Deyatraz, Mevinfos, Triazofos , Tfluralin , PCB 101, PathionMy, 2356CniBz, BrfosMy, CpfosEy, Diuron, HCBdn, eHCH, 24DDT, TrByaz, PirfosMy, BrfosEy, TclofosMy, T, bEndo, Dcvos, Endrin, Endr.al, Isodrin, DiPyatraz, Dsulfoton, Sulfotep, Ethion, EndoS, aEndo, Propaz, Simaz, Fenithion, Desmetryn, Diazinon, Secchi , aHCH, 24DDD, Cyanaz, Iproturon, CpfosMy.

*For the **Scheldt river** other available determinands are:*

EC 20, O2 , SPM, tHpCEpx, dHCH, MxyC, Dmetoat,Cumafos, Sebutylaz, cCdane, As t, Cr t, Dieldrin , bHCH, 24DDE, 44DDD, Atraz, Linuron , AzinfosMy, Prometryn, mBthiaz, Fstrep, pH, COD, HpC, HCBz, PCNiBz , 44DDT , Telodrin, Terbutryn, AzinfosEy, Ethopfos, Malathion , Fenthion, tCdane, Methidat, Metaza, Ctoluron , Aldrin , cHpCEpx, 44DDE, Deyatraz, Metoxur , Mevinfos, Triazofos , Tfluralin , PCB 101, PathionMy, Cfvinfos, Salm, 2345CniBz, PCB 31, PathionEy, 2356CniBz, BrfosMy, CpfosEy, Diuron, HCBdn, eHCH, 24DDT, TrByaz, PirfosMy, BrfosEy, TclofosMy, T, bEndo, Heptfos, Ffamidon, Dcvos, Fcoli, Ni t, BOD5, Endrin, Endr.al, Isodrin, DiPyatraz, Dsulfoton, Sulfotep, Ethion, EndoS, aEndo, Propaz, Simaz, Fenithion, Desmetryn, Diazinon, Secchi , SO4=, aHCH, 24DDD, Cyanaz, Iproturon, CpfosMy, Demeton-S, Tcoli.

Tributary Rivers (Tables 6b and 7)

D.4 Describe the methods of measurement and calculation used, including information on the number of samples and the concentration (Table 7b) upon which the measurement is based (ref.: Section 5 of the Principles):

No information on the methods of measurement is available at this moment. The number of samples is reported in Table 7 for every determinand.

For the calculation of the standard deviation of the sets of determinand concentrations, all concentrations lower than the detection limit were taken as half the value of the detection limit. When all measurements were beneath the detection limit no calculation for this parameter was made and the value reported was "NI" (No Information).

Coastal Area

No information on the methods of measurement is available at this moment. The number of samples is reported in Table 7 for every determinand.

Due to the lack of flow rate data, the discharges of the different canals and polders of the coastal zone were calculated using the formula proposed under point 5.12 of the "Principles of the Comprehensive Study on Riverine Inputs and Direct Discharges (RID)":

$$\frac{Qr\sum_{i=1}^{n} Ci}{n}$$

Where: Qr is an estimated LTA flow rate for the watercourse under consideration

Ci is the concentration measured in sample I

Ref. (1) table 7: the detection limit was reached, a nominal minimum concentration could not be detected. Consequently, the fields in the rows labelled "minimum" were given the value "ND" (Not Detected). See also section E.1

Ref. (2) table 7: all measurements were beneath the detection limit, a nominal maximum concentration could not be detected. Consequently, the fields in the rows labelled "maximum" were given the value "ND" (Not Detected). See also section E.1

Ref. (3) table 7: due to lack of valuable data, the standard deviation could not be calculated. Hence the value "NI" (No Information) was given.

Ref. (4) tables 6b and 7: emissions only; no regular monitoring point available.

Ref. (5) tables 6b and 7: inputs calculated on the basis of total emission flow rate.

All concentrations were measured in fresh water reaches. Therefore salinity was nowhere monitored nor was a correction for salinity necessary.

Scheldt estuary

The fresh water flow rates for the Ghent-Terneuzen canal were obtained from ***the Ministry of the Flemish Community, Department of Environment and Infrastructure, Waterways and Maritime Affairs Administration, Upper Scheldt Section****.*

The loads of the Gent-Terneuzen canal were calculated using the formula proposed under point 5.11 of the "Principles of the Comprehensive Study on Riverine Inputs and Direct Discharges (RID)":

$$\frac{Qr\sum_{i=1}^{n}(CiQi)}{\sum_{i=1}^{n}(Qi)}$$

Where: Qr is the mean flow rate for 2000, evaluated on a daily basis

Qi is the flow rate on the sampling day i

Ci is the concentration measured in the sample taken at day i

Ref. (1) table 7: the detection limit was reached, a nominal minimum concentration could not be detected. Consequently, the fields in the rows labelled "minimum" were given the value "ND" (Not Detected). See also section E.1

Ref. (2) table 7: all measurements were beneath the detection limit, a nominal maximum concentration could not be detected. Consequently, the fields in the rows labelled "maximum" were given the value "ND" (Not Detected). See also section E.1

Ref. (3) table 7: due to lack of valuable data, the standard deviation could not be calculated. Hence the value "NI" (No Information) was given.

Ref. (4) tables 6b and 7: emissions only; no regular monitoring point available.

Ref. (5) tables 6b and 7: inputs calculated on the basis of total emission flow rate.

The same corrections with respect to the detection limits and salinity were applied as explained under D1.

D.5 Give any other relevant information (e.g. proportion of substance transported by the river in particulate form):

[none]

D.6 Describe the determinands, other than those specified in paragraph 2.1 of the Principles, that are included in the current monitoring programme and which may be relevant for the Comprehensive Study on Riverine Inputs and Direct Discharges (voluntary reporting):

*Determinands available for the **Gent-Terneuzen canal,** the **Beverdijkvaart,** the **Gent-Oostende canal,** the **Leopold canal** and the same as for the **Yzer.***

*For the **Vladslo vaart** and the Langeleed, the following determinands are available:*

EC 20, O2, Cr t, pH, COD, NO2-, T, Ni t, Cl-, KjN

*For the **Schipdonk** canal the same determinands are available, expept COD.*

For the Noordede, only O2, EC 20, pH and T are supplementally available.

D.7 Give any available information on other inputs - through e.g. polder effluents or from coastal areas - that are not covered by data in tables 6a. and 6b.:

[none]

E. Limits of detection

E.1 Information concerning limits of detection should be presented in Table 8 that includes different columns for rivers/tributaries, sewage effluents and industrial effluents. Any important comments may be presented here.

Information about the limits of detection given by the monitoring authority is partly inconclusive. In some cases the limits reported in table 8 follow from the measurements themselves, and not from the nominal information given by the measuring authority. For Hg, γ-HCH, total N and SPM, no nominal detection limits were given by the monitoring organism. When for these determinands no one measurement was beneath the detection limit, consequently this limit could not be deduced. Values for these determinands are then reported "NI" (No Information).

As samples from the same locality sometimes have more than one detection limit throughout the year for the same determinand, it was necessary to mention 2 figures, the minimum and the maximum detection limits, in one field in text format.

Another fact to be stated is that some of those limits are rather high (e.g. Cd, Hg, Zn, Cu, Pb, γ-HCH, PCB). Consequently, very often more than 30% of the measurements are under those limits. When all measurements for a given determinand are beneath the limit of detection, there is no information about the lowest value measured, and the minimum values in table 7 are then reported as "ND" (not detected). The same reasoning was applied to the highest values when all measurements are under the limit of detection. In that case there is no information about a maximum concentration and this value is reported as "ND" (not detected). See also the references in sections D.1 and D.4.

Further, as a consequence of the higher limits of detection, there is sometimes a huge spread between the calculated upper and lower limits of the loads.

F. National comments

F.1 Give a general summary of the main results as presented in the tables 5, 6 and 7 and comment, as appropriate, on these results.

[none]

F.2 Indicate any significant change in inputs and concentrations in comparison to previous years. Comment on these changes as appropriate.

No data were available for PCB28 in 2000.

Due to an increased detection limit for Cd, lower and upper input levels for this determinand are again very broad.

On the other hand, for Hg better estimates are available for some monitoring points due to decreased detection limits.

Occasionally, rather high concentrations for γ-HCH and some PCB-congeners have been observed in the coastal region.

Table 6a. Main Riverine Inputs
Reported Maritime Area of the OSPAR Convention in 2000 by Belgium

			1 Cd [t]	5 Hg [t]	6 Cu [t]	2 Pb [t]	7 Zn [t]	8 g-HCH [kg]	9 PCB [kg]	10 NH4-N [kt]	11 NO3-N [kt]	12 PO4-P [kt]	13 Total N [kt]	14 Total P [kt]	3 SPM [kt]
243	Ijzer	lower	0.000	0.009	1.421	0.366	2.972	19.511	0.000	0.366	2.147	0.111	2.875	0.166	7.038
		upper	0.169	0.011	1.421	0.444	3.143	19.529	2.255	0.366	2.147	0.111	2.875	0.166	7.038
		comment													
238	Coastal Area	lower	0.000	0.009	1.421	0.366	2.972	19.511	0.000	0.366	2.147	0.111	2.875	0.166	7.038
		upper	0.169	0.011	1.421	0.444	3.143	19.529	2.255	0.366	2.147	0.111	2.875	0.166	7.038
		comment													
102	Schelde	lower	0.749	0.469	48.373	72.354	228.786	43.450	0.000	3.160	25.656	0.934	34.285	2.403	231.249
		upper	7.336	0.553	55.406	100.366	265.568	51.633	73.603	3.453	31.104	1.196	39.816	3.720	267.587
		comment													
245	Schelde Basin	lower	0.749	0.469	48.373	72.354	228.786	43.450	0.000	3.160	25.656	0.934	34.285	2.403	231.249
		upper	7.336	0.553	55.406	100.366	265.568	51.633	73.603	3.453	31.104	1.196	39.816	3.720	267.587
		comment													
79	North Sea (BE)	lower	0.749	0.479	49.794	72.719	231.758	62.961	0.000	3.526	27.803	1.045	37.161	2.569	238.287
		upper	7.505	0.565	56.827	100.811	268.711	71.162	75.858	3.819	33.251	1.308	42.691	3.886	274.625
		comment													

Table 6b. Tributary Riverine Inputs
Reported Maritime Area of the OSPAR Convention in 2000 by Belgium

			1 Cd [t]	5 Hg [t]	6 Cu [t]	2 Pb [t]	7 Zn [t]	8 g-HCH [kg]	9 PCB [kg]	10 NH4-N [kt]	11 NO3-N [kt]	12 PO4-P [kt]	13 Total N [kt]	14 Total P [kt]	3 SPM [kt]
247	Beverdijk	lower	0.000		0.121	0.029	0.182	2.842	0.000	0.014	0.103	0.019	0.182	0.032	0.854
		upper	0.019		0.124	0.042	0.214	2.842	0.278	0.015	0.103	0.019	0.182	0.032	0.854
		comment													
243	Ijzer	lower													
		upper													
		comment													
246	Langeleed	lower	0.000		0.020	0.012	0.045			0.048	0.015	0.012	0.078	0.018	0.311
		upper	0.009		0.028	0.019	0.071			0.048	0.015	0.012	0.079	0.018	0.311
		comment													
248	Vladslovaart	lower	0.000		0.214	0.077	0.417			0.027	0.221	0.022	0.306	0.034	1.375
		upper	0.019		0.214	0.080	0.427			0.027	0.221	0.022	0.306	0.034	1.375
		comment													
239	Western Coastal Area	lower	**0.000**		**0.355**	**0.118**	**0.644**	**2.842**	**0.000**	**0.089**	**0.339**	**0.053**	**0.566**	**0.083**	**2.540**
		upper	**0.047**		**0.366**	**0.141**	**0.711**	**2.842**	**0.278**	**0.089**	**0.339**	**0.053**	**0.568**	**0.083**	**2.540**
		comment													

Table 6b. Tributary Riverine Inputs
Reported Maritime Area of the OSPAR Convention in 2000 by Belgium

			1 Cd [t]	5 Hg [t]	6 Cu [t]	2 Pb [t]	7 Zn [t]	8 g-HCH [kg]	9 PCB [kg]	10 NH4-N [kt]	11 NO3-N [kt]	12 PO4-P [kt]	13 Total N [kt]	14 Total P [kt]	3 SPM [kt]
255	Blankenbergse vaart	lower	0.000		0.149	0.019	0.170	1.811	0.000	0.005	0.024	0.010	0.055	0.016	14.294
		upper	0.011		0.149	0.023	0.170	1.913	2.255	0.006	0.024	0.010	0.055	0.016	14.294
		comment													
251	Boudewijn canal	lower	0.000	0.000	0.109	0.000	0.527				0.000		0.000	0.000	0.000
		upper	0.000	0.113	0.198	0.113	0.962				0.000		0.001	0.000	0.000
		comment	(4) (5)	(4) (5)	(4) (5)	(4) (5)	(4) (5)				(4) (5)		(4) (5)	(4) (5)	(4) (5)
252	Leopold canal	lower	0.000	0.008	0.843	0.147	1.712	1.554	0.000	0.141	0.460	0.082	0.811	0.133	2.410
		upper	0.096	0.008	0.873	0.201	1.758	1.600	1.214	0.141	0.460	0.082	0.811	0.133	2.410
		comment													
256	Lissewege vaart	lower	0.000	0.001	0.002	0.001	0.007			0.007	0.011	0.005	0.028	0.006	0.000
		upper	0.000	0.001	0.002	0.001	0.007			0.007	0.011	0.005	0.028	0.006	0.000
		comment	(4) (5)	(4) (5)	(4) (5)	(4) (5)	(4) (5)								
254	Schipdonk canal	lower	0.012	0.015	2.294	1.836	9.908	2.443	0.188	0.714	1.109	0.144	2.151	0.247	9.569
		upper	0.169	0.016	2.355	1.881	9.908	2.460	2.391	0.714	1.109	0.144	2.151	0.247	9.797
		comment													
242	Eastern Coastal Area	lower	**0.012**	**0.024**	**3.396**	**2.003**	**12.324**	**5.808**	**0.188**	**0.867**	**1.604**	**0.241**	**3.046**	**0.402**	**26.274**
		upper	**0.275**	**0.138**	**3.577**	**2.219**	**12.805**	**5.973**	**5.860**	**0.867**	**1.604**	**0.241**	**3.047**	**0.402**	**26.501**
		comment													

Table 6b. Tributary Riverine Inputs
Reported Maritime Area of the OSPAR Convention in 2000 by Belgium

			1 Cd [t]	5 Hg [t]	6 Cu [t]	2 Pb [t]	7 Zn [t]	8 g-HCH [kg]	9 PCB [kg]	10 NH4-N [kt]	11 NO3-N [kt]	12 PO4-P [kt]	13 Total N [kt]	14 Total P [kt]	3 SPM [kt]
249	Gent-Oostende cana	lower	0.000	0.008	0.928	0.263	2.932	1.597	0.000	0.140	0.979	0.080	1.385	0.124	2.208
		upper	0.124	0.010	0.967	0.357	2.932	1.715	1.734	0.141	0.979	0.080	1.385	0.124	2.243
		comment													
250	Noordede	lower	0.003		0.441	0.032	0.451	0.315	0.589	0.056	0.075	0.028	0.229	0.103	4.206
		upper	0.023		0.441	0.045	0.451	0.341	0.875	0.056	0.075	0.028	0.229	0.103	4.206
		comment													
241	Middle Coastal Area	lower	**0.003**	**0.008**	**1.369**	**0.295**	**3.383**	**1.912**	**0.589**	**0.196**	**1.054**	**0.108**	**1.614**	**0.227**	**6.414**
		upper	**0.147**	**0.010**	**1.408**	**0.402**	**3.383**	**2.055**	**2.609**	**0.197**	**1.054**	**0.108**	**1.614**	**0.227**	**6.449**
		comment													
238	Coastal Area	lower	**0.015**	**0.033**	**5.120**	**2.416**	**16.351**	**10.562**	**0.777**	**1.152**	**2.997**	**0.402**	**5.226**	**0.712**	**35.227**
		upper	**0.469**	**0.148**	**5.351**	**2.762**	**16.899**	**10.871**	**8.747**	**1.154**	**2.997**	**0.402**	**5.229**	**0.712**	**35.490**
		comment													
244	Gent-Terneuzen Canal	lower	0.016	0.007	3.265	8.743	29.094	22.732	0.000	1.465	5.874	0.542	8.997	0.716	12.651
		upper	0.343	0.034	5.239	9.027	29.967	24.519	22.947	1.805	6.054	0.564	9.267	0.744	13.594
		comment													
102	Schelde	lower													
		upper													
		comment													
245	Schelde Basin	lower	**0.016**	**0.007**	**3.265**	**8.743**	**29.094**	**22.732**	**0.000**	**1.465**	**5.874**	**0.542**	**8.997**	**0.716**	**12.651**
		upper	**0.343**	**0.034**	**5.239**	**9.027**	**29.967**	**24.519**	**22.947**	**1.805**	**6.054**	**0.564**	**9.267**	**0.744**	**13.594**
		comment													
79	North Sea (BE)	lower	**0.031**	**0.039**	**8.385**	**11.159**	**45.445**	**33.294**	**0.777**	**2.617**	**8.871**	**0.944**	**14.224**	**1.428**	**47.878**
		upper	**0.812**	**0.182**	**10.590**	**11.789**	**46.866**	**35.390**	**31.694**	**2.959**	**9.051**	**0.966**	**14.496**	**1.457**	**49.084**
		comment													

Table 7. Contaminant Concentration
Reported Maritime Area of the OSPAR Convention in 2000 by Belgium:

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
247	Beverdijk	lower													
		upper													
		minimum	ND		ND	ND	ND	12	ND	ND	ND	0.3	2.9	1	21
		maximum	ND		11.0	2.8	14	293	ND	2.00	9.60	1.7	12.61	2	52
		more than 70% > D.L.	no		yes	no	yes	yes	no	no	yes	yes	yes	yes	yes
		n	12		12	12	12	6	6	12	12	12	12	12	12
		info	(1) (2) (3)												
		st.Dev.	NI		3.04	0.98	3.91	133.19	NI	0.62	3.92	0.39	3.65	0.50	8.91
243	Ijzer	lower													
		upper													
		minimum	ND	ND	2.8	ND	ND	ND	ND	0.34	1.90	0.3	8.79	0.48	11
		maximum	ND	0.12	11.0	4.0	33	530	ND	5.10	16.00	1.6	18.8	2.30	74
		more than 70% > D.L.	no	no	yes	no	yes	yes	no	yes	yes	yes	yes	yes	yes
		n	12		12	12	12	11	11	12	12	11	12	11	12
		info													
		st.Dev.	NI	0.04	2.18	1.26	7.90	160.63	NI	1.23	4.44	0.38	3.29	0.52	17.46
246	Langeleed	lower													
		upper													
		minimum	ND		ND	ND	ND			ND	ND	0.3	ND	0	7
		maximum	ND		7.9	4.6	22			29.00	4.20	2.9	32	5	71
		more than 70% > D.L.	no		no	no	no			yes	no	yes	yes	yes	yes
		n	12		11	12	12			11	12	12	12	12	12
		info													
		st.Dev.	NI		2.72	1.43	6.58			9.94	1.72	0.85	9.47	1.37	22.02
248	Vladslovaart	lower													
		upper													
		minimum	ND		4.0	ND	ND			ND	0.46	0.3	2.86	0.4	27
		maximum	ND		16.0	8.6	45			1.90	15.00	2.0	19.76	2.9	150
		more than 70% > D.L.	no		yes	yes	yes			yes	yes	yes	yes	yes	yes
		n	12		12	12	12			12	11	12	12	12	12
		info													
		st.Dev.	NI		3.83	1.99	11.86			0.64	5.12	0.44	5.25	0.63	34.85
239	Western Coastal Area	lower													
		upper													
		minimum	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.3**	**ND**	**0.4**	**7**
		maximum	**ND**	**0.12**	**16.0**	**8.6**	**45**	**530**	**ND**	**29.00**	**16.00**	**2.9**	**32**	**4.9**	**150**
		more than 70% > D.L.	**no**	**no**	**yes**	**no**	**yes**	**yes**	**no**	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
		n	**48**	**10**	**47**	**48**	**48**	**17.00**	**17**	**47**	**47**	**47**	**48**	**47**	**48**
		info													
		st.Dev.	**NI**	**0.04**	**3.68**	**1.56**	**9.06**	**147.44**	**NI**	**4.86**	**5.28**	**0.59**	**6.39**	**0.90**	**23.89**

Table 7. Contaminant Concentration
Reported Maritime Area of the OSPAR Convention in 2000 by Belgium:

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
255	Blankenbergse vaart	lower													
		upper													
		minimum	ND		2.6	ND	6	ND	ND	ND	ND	0.3	1.4	0.6	23
		maximum	ND		39.0	2.6	26	21	ND	1.20	6.80	1.6	9.06	1.8	71
		more than 70% > D.L.	no		yes	no	yes	yes	no	no	no	yes	yes	yes	yes
		n	11		11	11	11	6	6	11	12	12	12	12	12
		info													
		st.Dev.	NI		11.03	0.76	5.94	8.58	NI	0.44	2.40	0.40	2.57	0.39	15.74
251	Boudewijn canal	lower													
		upper													
		minimum	NI	NI	NI	NI	NI			NI	NI	NI	NI	NI	NI
		maximum	NI	NI	NI	NI	NI			NI	NI	NI	NI	NI	NI
		more than 70% > D.L.	NI	NI	NI	NI	NI			NI	NI	NI	NI	NI	NI
		n	NI	NI	NI	NI	NI			NI	NI	NI	NI	NI	NI
		info													
		st.Dev.	NI	NI	NI	NI	NI			NI	NI	NI	NI	NI	NI
252	Leopold canal	lower													
		upper													
		minimum	ND	ND	ND	ND	ND	ND	ND	ND	0.66	0.2	1.71	0.6	8
		maximum	ND	0.17	0.17	3.1	34	60	ND	2.40	8.30	2.0	11.25	2.3	41
		more than 70% > D.L.	no	yes	yes	no	yes	yes	no	yes	yes	yes	yes	yes	yes
		n	12	11	11	12	12	12	12	12	12	11	12	11	12
		info													
		st.Dev.	NI	0.04	4.63	0.97	9.85	19.25	NI	0.59	2.82	0.57	2.89	0.54	10.47
256	Lissewege vaart	lower													
		upper													
		minimum	NI	NI	NI	NI	NI			ND	0.14	0.2	1.79	0.5	
		maximum	NI	NI	NI	NI	NI			3.23	4.80	1.4	7.97	1.5	
		more than 70% > D.L.	NI	NI	NI	NI	NI			yes	yes	yes	yes	yes	
		n	NI	NI	NI	NI	NI			10	11	11	11	11	
		info													
		st.Dev.	NI	NI	NI	NI	NI			1.17	1.26	0.45	1.70	0.38	
254	Schipdonk canal	lower													
		upper													
		minimum	ND	ND	ND	ND	23	ND	ND	1.50	1.30	0.3	7.72	0.6	ND
		maximum	0.7	0.13	43.0	62.0	230	41	11	6.20	9.80	1.4	13.96	1.7	320
		more than 70% > D.L.	no	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes
		n	12	10	10	12	12	12	12	12	12	11	12	11	12
		info													
		st.Dev.	NI	0.04	12.00	16.83	57.70	11.79	NI	1.57	2.90	0.35	2.28	0.36	89.73

Table 7. Contaminant Concentration
Reported Maritime Area of the OSPAR Convention in 2000 by Belgium:

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
242	Eastern Coastal Area	lower													
		upper													
		minimum	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.2**	**1.4**	**0.5**	**ND**
		maximum	**0.7**	**0.17**	**43.0**	**62.0**	**230**	**60**	**11**	**6.20**	**9.80**	**2**	**13.96**	**2.3**	**320**
		more than 70% > D.L.	**no**	**yes**	**yes**	**no**	**yes**	**yes**	**no**	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
		n	**35**	**21**	**32**	**35**	**35**	**30**	**30**	**45**	**47**	**45**	**47**	**45**	**36**
		info													
		st.Dev.	**NI**	**0.04**	**9.56**	**10.25**	**37.19**	**14.49**	**NI**	**1.56**	**2.84**	**0.44**	**3.46**	**0.42**	**52.65**
249	Gent-Oostende canal	lower													
		upper													
		minimum	ND	ND	ND	ND	5	ND	ND	ND	2.60	0.3	4.44	0.4	ND
		maximum	ND	0.12	12.0	4.7	31	24	ND	2.40	11.00	1.2	14.44	1.8	35
		more than 70% > D.L.	no	no	yes	no	yes	yes	no	yes	yes	yes	yes	yes	yes
		n	12	9	12	12	12	8	8	12	12	12	12	12	12
		info													
		st.Dev.	NI	0.04	3.21	1.74	9.08	7.98	NI	0.75	2.78	0.26	3.28	0.36	8.84
250	Noordende	lower													
		upper													
		minimum	ND		3.7	ND	6.7	ND	ND	ND	ND	0.2	5.3	1.0	13
		maximum	1.3		64.0	3.5	44.0	41	140	7.40	8.40	1.7	12.93	2.5	110
		more than 70% > D.L.	no		yes	no	yes	no	no	yes	no	yes	yes	yes	yes
		n	12		12	12	12	6	6	12	12	11	12	11	11
		info													
		st.Dev.	NI		18.54	1.19	9.81	15.55	NI	2.05	3.18	0.43	2.48	0.57	28.32
241	Middle Coastal Area	lower													
		upper													
		minimum	**ND**	**ND**	**ND**	**ND**	**5.0**	**ND**	**ND**	**ND**	**ND**	**0.2**	**4.44**	**0.4**	**ND**
		maximum	**1.3**	**0.12**	**64.0**	**4.7**	**44.0**	**41**	**140**	**7.40**	**11.00**	**1.7**	**14.44**	**2.5**	**110**
		more than 70% > D.L.	**no**	**no**	**yes**	**no**	**yes**	**yes**	**no**	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
		n	**24**	**9**	**24**	**24**	**24**	**14**	**14**	**24**	**24**	**23**	**24**	**23**	**23**
		info													
		st.Dev.	**NI**	**0.04**	**14.2733**	**1.48**	**9.25**	**11.356**	**NI**	**1.66**	**3.36**	**0.46**	**2.85**	**0.70**	**26.40**
238	Coastal Area	lower													
		upper													
		minimum	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.2**	**ND**	**0.4**	**ND**
		maximum	**1.3**	**0.17**	**64.0**	**62.0**	**230**	**530**	**140**	**29.00**	**16.00**	**2.9**	**32.00**	**4.9**	**320**
		more than 70% > D.L.	**no**	**yes**	**yes**	**no**	**yes**	**yes**	**no**	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
		n	**107**	**40**	**103**	**107**	**107**	**61**	**61**	**116**	**118**	**115**	**117**	**115**	**107**
		info													
		st.Dev.	**NI**	**0.04**	**9.31**	**6.03**	**23.33**	**86.93**	**NI**	**3.31**	**4.24**	**0.46**	**2.85**	**0.70**	**36.40**

Table 7. Contaminant Concentration
Reported Maritime Area of the OSPAR Convention in 2000 by Belgium:

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
244	Gent-Terneuzen Canal	lower													
		upper													
		minimum	ND	ND	ND	ND	10.0	5	ND	ND	4.90	0.5	7.59	0.5	ND
		maximum	1.2	0.10	10.0	50.0	53.0	35	ND	2.90	9.57	1.1	14.15	1.4	50
		more than 70% > D.L.	no	no	no	no	yes	yes	no	yes	yes	yes	yes	yes	yes
		n	17	11	17	17	17	12	12	18	18	18	18	17	18
		info													
		st.Dev.	0.15	0.03	2.60	16.57	8.25	9.98	NI	0.72	1.53	0.20	1.90	0.25	11.63
102	Schelde	lower													
		upper													
		minimum	ND	ND	3.2	ND	9.2	3	ND	ND	0.80	ND	2.5	ND	22
		maximum	1.3	0.19	28.0	99.0	96.0	21	ND	1.86	6.20	0.2	7.89	1.1	76
		more than 70% > D.L.	no	yes	yes	no	yes	yes	no	yes	yes	yes	yes	no	yes
		n	18	18	18	18	18	6	6	18	18	18	18	18	17
		info													
		st.Dev.	0.25	0.05	6.46	24.20	21.07	6.77	NI	0.52	1.19	0.05	1.45	0.26	13.53
245	Schelde Basin	lower													
		upper													
		minimum	**ND**	**ND**	**ND**	**ND**	**9.2**	**3**	**ND**	**ND**	**0.80**	**ND**	**2.5**	**ND**	**ND**
		maximum	**1.3**	**0.19**	**28.0**	**99.0**	**96.0**	**35**	**ND**	**2.90**	**9.57**	**1.1**	**14.15**	**1.4**	**76**
		more than 70% > D.L.	**no**	**no**	**yes**	**no**	**yes**	**yes**	**no**	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
		n	**18**	**29**	**35**	**35**	**35**	**18**	**18**	**36**	**36**	**36**	**36**	**35**	**35**
		info													
		st.Dev.	**0.29**	**0.05**	**5.22**	**20.28**	**16.64**	**9.32**	**NI**	**1.02**	**1.76**	**0.30**	**2.85**	**0.36**	**18.97**
79	North Sea (BE)	lower													
		upper													
		minimum	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
		maximum	**1.3**	**0.19**	**64.0**	**99.0**	**230**	**530**	**140**	**29.00**	**16.00**	**2.9**	**32.00**	**4.9**	**320**
		more than 70% > D.L.	**no**	**yes**	**yes**	**no**	**yes**	**yes**	**no**	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
		n	**125**	**NI**	**138**	**142**	**142**	**79**	**79**	**152**	**154**	**151**	**153**	**150**	**142**
		info													
		st.Dev.	**NI**	**0.04**	**8.50**	**12.08**	**23.55**	**77.09**	**NI**	**2.93**	**3.82**	**0.49**	**4.61**	**0.68**	**33.08**

Table 8. Detection Limits
Reported Maritime Area of the OSPAR Convention in 2000 by Belgium

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
247	Beverdijk	Sewage													
		Industrial													
		Riverine	0,7 - 1,2		1.5	0,7 - 1,3	5	NI	1 - 11	0.03	0.02	0.1	NI	1	NI
243	Ijzer	Sewage													
		Industrial													
		Riverine	0,7 - 1,2	0,01 - 0,03	0.6	0,7 - 1,3	5	1	1 - 11	0.5	0.1	0.1	NI	1	NI
246	Langeleed	Sewage													
		Industrial													
		Riverine	0,7 - 1,2		0,8 - 1,5	1.3	2,5 - 5			0.03	0.02	0.1	NI	1	NI
248	Vladslovaart	Sewage													
		Industrial													
		Riverine	0,7 - 1,2		0.6	1.3	5			0.03	0.1	0.1	NI	1	NI
239	Western Coastal Area	Sewage													
		Industrial													
		Riverine	**0,7 - 1,2**	**0,01 - 0,03**	**0,6 - 1,5**	**0,7 - 1,3**	**2,5 - 5**	**NI**	**1 - 11**	**0.03**	**0,02 - 0,1**	**0.1**	**NI**	**1**	**NI**

Table 8. Detection Limits
Reported Maritime Area of the OSPAR Convention in 2000 by Belgium

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
255	Blankenbergse vaart	Sewage													
		Industrial													
		Riverine	0,7 - 1,2		0.6	0,7 - 1,3	5	3	1 - 11	0.03	0.02	0.1	NI	1	NI
251	Boudewijn canal	Sewage													
		Industrial													
		Riverine													
252	Leopold canal	Sewage													
		Industrial													
		Riverine	0,7 - 1,2	0.03	1.5	0,7 - 1,3	5	1	1 - 11	0,03	0.1	0.1	NI	1	NI
256	Lissewege vaart	Sewage													
		Industrial													
		Riverine								0.03	0.1	0.1	NI	1	
254	Schipdonk canal	Sewage													
		Industrial													
		Riverine	0,7 - 1,2	0.03	1.5	1.3	5	1	1 - 11	0.5	0.1	0.1	NI	1	2,7 - 5,3
242	Eastern Coastal Area	Sewage													
		Industrial													
		Riverine	**0,7 - 1,2**	**0.03**	**0,6 - 1,5**	**0,7 - 1,3**	**5**	**NI**	**1 - 11**	**0,03 - 0,5**	**0,02 - 0,1**	**0.1**	**NI**	**1**	**NI**

Table 8. Detection Limits
Reported Maritime Area of the OSPAR Convention in 2000 by Belgium

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
249	Gent-Oostende canal	Sewage													
		Industrial													
		Riverine	0,7 - 1,2	0,01 - 0,03	1.5	0,7 - 1,3	5	3	1 - 11	0.03	0.1	0.1	NI	1	2.7
250	Noordende	Sewage													
		Industrial													
		Riverine	0,7 - 1,2		0.6	0,7 - 1,30	5	3	1 - 11	0.03	0.02	0.1	NI	1	NI
241	Middle Coastal Area	Sewage													
		Industrial													
		Riverine	**0,7 - 1,2**	**0,01 - 0,03**	**0,6 - 1,5**	**0,7 - 1,3**	**5**	**3**	**1 - 11**	**0.03**	**0,02 - 0,1**	**0.1**	**NI**	**1**	**NI**
238	Coastal Area	Sewage													
		Industrial													
		Riverine	**0,7 - 1,2**	**0,01 - 0,03**	**0,6 - 1,5**	**0,7 - 1,3**	**2,5 - 5**	**NI**	**1 - 11**	**0,03 - 0,5**	**0,02 - 0,1**	**0.1**	**NI**	**1**	**NI**
244	Gent-Terneuzen Canal	Sewage													
		Industrial													
		Riverine	0,2 - 1,2	0,01 - 0,1	5	5	5	NI	1 - 11	0.4	0.1	0.1	NI	1	2,7 - 5,3
102	Schelde	Sewage													
		Industrial													
		Riverine	0,7 - 1,2	0,01 - 0,03	0.6	6	5	NI	1 - 11	0,03 - 0,04	0.1	0.15	NI	0,3 - 0,5	NI
245	Schelde Basin	Sewage													
		Industrial													
		Riverine	**0,2 - 1,2**	**0,01 - 0,1**	**0,6 - 5**	**5 - 6**	**5**	**NI**	**1 - 11**	**0,03 - 0,4**	**0.1**	**0,1 - 0,15**	**NI**	**0,3 - 1**	**NI**
79	North Sea (BE)	Sewage													
		Industrial													
		Riverine	**0,2 - 1,2**	**0,01 - 0,1**	**0,6 - 5**	**0,7 - 6**	**2,5 - 5**	**NI**	**1 - 11**	**0,03 - 0,5**	**0,02 - 0,1**	**0,1 - 0,15**	**NI**	**0,3 - 1**	**NI**

Table 9. Catchment-dependent information
Reported Maritime Area of the OSPAR Convention in 2000 by Belgium

		Flow Rate [1000m³/d]	LTA [1000m³/d]	Minimum FR [1000m³/d]	Maximum FR [1000m³/d]	LTA info (years)	Number of sites	Mean or Median
247	Beverdijk	NI	69.1	NI	NI	NI	1	Mean
243	Ijzer	NI	561.6	NI	NI	1987-1992	1	Mean
246	Langeleed	NI	25.9	NI	NI	NI	1	Mean
248	Vladslovaart	NI	51.8	NI	NI	NI	1	Mean
239	Western Coastal Area	NI	708.4	NI	NI	NI	4	Mean
255	Blankenbergse vaart	NI	34.6	NI	NI	NI	1	Mean
251	Boudewijn canal	NI	NI	NI	NI	NI	1	Mean
252	Leopold canal	NI	302.4	NI	NI	NI	1	Mean
256	Lissewege vaart	NI	17.3	NI	NI	NI	2	Mean
254	Schipdonk canal	NI	820.8	NI	NI	1987-1992	1	Mean
242	Eastern Coastal Area	NI	1175.1	NI	NI	NI	6	Mean
249	Gent-Oostende canal	NI	432	NI	NI	NI	1	Mean
250	Noordende	NI	69.1	NI	NI	NI	1	Mean
241	Middle Coastal Area	NI	501.1	NI	NI	NI	2	Mean
238	Coastal Area	NI	2384.6	NI	NI	NI	12	Mean
244	Gent-Terneuzen Canal	2370	NI	346	8381	NI	1	Mean
102	Schelde	13651	9245	5270	24710	1949-1997	1	Mean
245	Schelde Basin	16022	NI	5616	33091	NI	2	Mean
79	North Sea (BE)	NI	NI	NI	NI	NI	14	Mean

Annex 2

DENMARK

Annual report on riverine inputs and direct discharges to Convention waters during the year 2000 by Denmark	
Table 5a	Sewage effluents. Reported Maritime Area of the OSPAR Convention in 2000 by Denmark.
Table 5b	Industrial effluents. Maritime Area of the OSPAR Convention in 2000 by Denmark.
Table 6a	Main riverine inputs. Reported Maritime Area of the OSPAR Convention in 2000 by Denmark.
Table 7	Contaminant Concentration. Reported Maritime Area of the OSPAR Convention in 2000 by Denmark.
Table 8	Detection limits. Reported Maritime Area of the OSPAR Convention in 2000 by Denmark.
Table 9	Catchment-dependent information. Reported Maritime Area of the OSPAR Convention in 2000 by Denmark.

Annual report on riverine inputs and direct discharges from Denmark to Convention waters during the year 2000

Comments for table 5, 6, 7, 8 and 9

The reported figures are based on the Aquatic Environment Nationwide Monitoring Programme for streams and point sources. This programme was revised as from 1 January 1998, and since then, some riverine monitoring stations in the following RID rivers were not available (catchment area at the monitoring site given in parenthesis):

- Sneum Å (513 km^2)
- Hover Å (92 km^2)
- Flynder Å (not been monitored for several years)
- Ribe Å (962 km^2)
- Varde Å (1033 km^2)
- Hvidbjerg Å (238 km^2)

Therefore, no figures are given for the above mentioned six river monitoring stations in 1998 and 1999. They have been replaced with the following riverine monitoring stations to provide the same degree of coverage of the Danish part of the convention area:

Denmark will therefore in future report on the following list of riverine monitoring stations:

- Brede Å (290 km^2) – new river included
- Omme Å (612 km^2) – new river included
- Ribe Å (675 km^2) – monitoring station moved upstream in the river
- Sneum Å (223 km^2) – monitoring station moved upstream in the river
- Varde Å (815 km^2) – monitoring station moved upstream in the river
- Grøn Å (563 km^2) – new river included
- Ry Å (285 km^2)) – new river included

We have asked for new RID-numbers for the aboved mentioned seven moved or new Danish RID-monitoring stations in rivers, but have not yet received any response from OSPAR.

As Denmark have been monitoring on the seven moved or new Danish RID-monitoring stations in rivers since 1989, Denmark in 2002 will forward spreadsheets with RID-data from the years 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997 and 1998.

It should be stressed that the total load figures from Denmark to the North Sea, the Kattegat and the Skagerrak remain unchanged during 1989 to 1998. The compilation of the total loads is based on many more riverine stations than the Danish RID stations and the new RID stations have been a part of the Danish Aquatic Environment Monitoring Program since 1989.

In future the following stations will be assigned as Danish RID stations:

<u>North Sea</u>

110. Brøns Å

xxx Brede Å

xxx Omme Å

112 Kongeåen

xxx Ribe Å

104 Skjern Å

xxx Sneum Å

115 Stor Å

xxx Varde Å

109 Vid Å

xxx Grøn Å

Kattegat:

125 Elling Å

127 Ger Å

103 Gudenå

129 Haslevgårds Å

xxx Ry Å

120 Jordbro Å

118 Karup å

130 Kastbjerg Å

128 Lindenborg Å

122 Simested Å

121 Skals Å

126 Voer Å

Skagerrak

123 Liver Å

124 Uggerby Å

In table 5a and b the total figures cover the respective point source load in major and small rivers and in coastal areas, but not the direct point source load to the sea.

The figures given in tables 6a, 7 and 9 are measured figures in the streams at the monitoring stations with the catchment size mentioned in table 9. They are listed under "lower", as it is unclear where else to list measured values in the spreadsheet. The figures are the best available estimate of concentration/transport based on the above-mentioned monitoring programme.

In tables 6 and 9 the rows "North Sea", "Kattegat" and "Skagerrak" give the figures for the total load from the catchment including coastal areas and the direct load from point sources (otherwise there is not any possibility to give the total load (riverine + direct loads). In table 7 the rows "North Sea", "Kattegat" and "Skagerrak" give the corresponding flow weighted concentrations by dividing the figures in table 5 with the figures in table 9.

All monitored RID rivers are reported as main rivers (table 6a), therefore we do not use table 6b. The sampling frequency at each monitoring site is given in table 7 as “n”. The highest and the lowest measured concentrations for each substance are given in table 7 under maximum and minimum, respectively. Samples are collected as discrete samples. Stage is recorded continuously at all RID monitoring stations. Discharge is measured at least 12 times per year, and the discharge (every 10 minutes) is calculated from a well-established stage-discharge relationship. Transport at each RID monitoring station is calculated by

multiplying daily discharge with daily concentration, the latter estimated by linear interpolation of measured values.

All measured substances are given in the tables, but from 1999/2000 an onwards suspended matter and some heavy metals and hazardous substances will be measured at some selected monitoring stations including few of the RID stations.

The total load via streams and rivers, including load from coastal areas and direct loads, is calculated as:
Total load to the sea = monitored riverine load + calculated load from unmonitored areas and coastal zones + direct point source load.

The diffuse riverine load from unmonitored areas is calculated by multiplying flow-weighted concentrations with a specific discharge and the size of the unmonitored catchment. Flow-weighted concentrations and specific discharge are selected from catchments with similar soil types, land-use, geology and climate, and with small inputs from point sources. Further, load from point sources is added to the calculated diffuse riverine load, yielding the total load from unmonitored areas. The load from point sources in unmonitored areas is in fact based on measured values of load from point sources, as these areas are only unmonitored with respect to the riverine load.

The total load of diffuse nitrogen and phosphorus was higher than the average in 2000, as the recorded precipitation was 8% higher than normal (1961-1990) in Denmark. Further 2000 followed 1999 with record high precipitation. The discharge was 16% higher than normal (1971-2000).

The overall reduction in phosphorus load since 1989 can only be assigned to a large reduction in the load from point sources (more than 80 % from the mid-1980s). A reduction in the nitrogen load can be identified if the load is adjusted for discharge variation, and it is possible for the first time ever to detect a significant reduction in the diffuse nitrogen load (approx. 20%). The reduction in nitrogen load can also be assigned to a reduction in the load from point sources (nearly 70 % since the mid-1980s)

Natural background concentrations:

The natural background losses was a little higher than normal in 2000.

Nitrogen: 1.4 mg N/l (flow-weighted) or 2.4 kg/ha

Phosphorus: 0.04 mg P/l (flow-weighted) or 0.08 kg P/ha.

Table 5b. Industrial Effluents
Reported Maritime Area of the OSPAR Convention in 2000 by Denmark

Figures are given in tonnes as a yearly load

			1 Cd [t]	5 Hg [t]	6 Cu [t]	2 Pb [t]	7 Zn [t]	8 g-HCH [kg]	9 PCB [kg]	10 NH4-N [kt]	11 NO3-N [kt]	12 PO4-P [kt]	13 Total N [tonnes]	14 Total P [tonnes]	3 SPM [kt]
110	Brøns å	lower													
		upper											0	0	
		comment													
	Brede å	lower													
		upper											0.903	0.325	
		comment													
	Omme å	lower													
		upper											0	0	
		comment													
112	Kongeåen	lower													
		upper											0	0	
		comment													
	Ribe å	lower													
		upper											0	0	
		comment													
104	Skjern å	lower													
		upper											6.399	1.472	
		comment													
	Sneum å	lower													
		upper											0	0	
		comment													
115	Stor å	lower													
		upper											0	0	
		comment													
	Varde å	lower													
		upper											7.473	0.797	
		comment													
109	Vid å	lower													
		upper											0	0	
		comment													

			1 Cd [t]	5 Hg [t]	6 Cu [t]	2 Pb [t]	7 Zn [t]	8 g-HCH [kg]	9 PCB [kg]	10 NH4-N [kt]	11 NO3-N [kt]	12 PO4-P [kt]	13 Total N [tonnes]	14 Total P [tonnes]	3 SPM [kt]
	Grøn å	lower													
		upper											0	0	
		comment													
80	North Sea (DK)	lower													
		upper											17.832	2.82	
		comment													
125	Elling å	lower													
		upper											0	0	
		comment													
127	Ger å	lower													
		upper											0	0	
		comment													
103	Gudenå	lower													
		upper											0	0	
		comment													
129	Haslevgårds å	lower													
		upper											0	0	
		comment													
	Ry å	lower													
		upper											0	0	
		comment													
120	Jordbro å	lower													
		upper											0	0	
		comment													
118	Karup å	lower													
		upper											0	0	
		comment													
130	Kastbjerg å	lower													
		upper											0	0	
		comment													

			1 Cd [t]	5 Hg [t]	6 Cu [t]	2 Pb [t]	7 Zn [t]	8 g-HCH [kg]	9 PCB [kg]	10 NH4-N [kt]	11 NO3-N [kt]	12 PO4-P [kt]	13 Total N [tonnes]	14 Total P [tonnes]	3 SPM [kt]
128	Lindenborg å	lower													
		upper											0	0	
		comment													
122	Simested å	lower													
		upper											0	0	
		comment													
121	Skals å	lower													
		upper											0	0	
		comment													
126	Voer å	lower													
		upper											0	0	
		comment													
77	Kattegat (DK)	lower													
		upper											4.433	0.231	
		comment													
123	Liver å	lower													
		upper											0	0	
		comment													
124	Uggerby å	lower													
		upper											0.125	0	
		comment													
74	Skagerrak (DK)	lower													
		upper											0.125	0	
		comment													

Table 6a. Main Riverine Inputs
Reported Maritime Area of the OSPAR Convention in 2000 by Denmark

			1 Cd [t]	5 Hg [t]	6 Cu [t]	2 Pb [t]	7 Zn [t]	8 g-HCH [kg]	9 PCB [kg]	10 NH4-N [kt]	11 NO3-N [kt]	12 PO4-P [kt]	13 Total N [kt]	14 Total P [kt]	3 SPM [kt]
110	Brøns å	lower								0.006	0.148	0.0005	0.187	0.003	
		upper													
		comment													
	Brede å	lower								0.02	0.354	0.0026	0.472	0.012	
		upper													
		comment													
	Omme å	lower								0.037	1.008	0.009	1.234	0.026	1.384
		upper													
		comment													
112	Kongeåen	lower								0.024	1.106	0.014	1.326	0.035	1.942
		upper													
		comment													
	Ribe å	lower								0.034	1.346	0.012	1.585	0.034	1.823
		upper													
		comment													
104	Skjern å	lower	0.713	0.0001	1.38	0.202	13.33	0	0	0.144	2.395	0.017	2.935	0.067	6.144
		upper	0.744	0.0171	1.488	0.35	13.33	9.03	72.2						
		comment													
	Sneum å	lower										0.0051	0.543	0.016	0.93
		upper													
		comment													
115	Stor å	lower								0.076	2.062	0.025	2.383	0.07	5.582
		upper													
		comment													
	Varde å	lower								0.067	1.339	0.013	1.644	0.043	3.135
		upper													
		comment													
109	Vid å	lower								0.012	0.245	0.0014	0.316	0.011	
		upper													
		comment													

			1 Cd [t]	5 Hg [t]	6 Cu [t]	2 Pb [t]	7 Zn [t]	8 g-HCH [kg]	9 PCB [kg]	10 NH4-N [kt]	11 NO3-N [kt]	12 PO4-P [kt]	13 Total N [kt]	14 Total P [kt]	3 SPM [kt]
	Grøn å	lower								0.024	0.411	0.005	0.59	0.027	
		upper													
		comment													
80	North Sea (DK)	lower									15.8	0.198	21.5	0.569	
		upper													
		comment													
125	Elling å	lower								0.013	0.182	0.0043	0.234	0.011	1.134
		upper													
		comment													
127	Ger å	lower								0.013	0.215	0.0028	0.281	0.0093	1.331
		upper													
		comment													
103	Gudenå	lower	0.024	0.0044	6.768	0.781	7.809	0	0.114	0.085	2.599	0.052	3.387	0.123	9.322
		upper	0.0242	0.0044	6.768	0.781	7.809	11.12	101.6						
		comment													
129	Haslevgårds å	lower								0.0078	0.147	0.0048	0.188	0.084	0.518
		upper													
		comment													
	Ry å	lower								0.024	0.485	0.0097	0.615	0.027	
		upper													
		comment													
120	Jordbr å	lower									0.096	0.0027	0.129	0.006	
		upper													
		comment													
118	Karup å	lower									0.692	0.0096	0.837	0.026	
		upper													
		comment													
130	Kastbjerg å	lower								0.0024	0.211	0.0022	0.248	0.0038	0.334
		upper													
		comment													

			1 Cd [t]	5 Hg [t]	6 Cu [t]	2 Pb [t]	7 Zn [t]	8 g-HCH [kg]	9 PCB [kg]	10 NH4-N [kt]	11 NO3-N [kt]	12 PO4-P [kt]	13 Total N [kt]	14 Total P [kt]	3 SPM [kt]
128	Lindenborg å	lower								0.012	0.698	0.017	0.8	0.026	
		upper													
		comment													
122	Simested å	lower									0.849	0.012	0.897	0.017	
		upper													
		comment													
121	Skals å	lower									0.66	0.011	0.836	0.023	
		upper													
		comment													
126	Voer å	lower								0.018	0.477	0.0071	0.57	0.024	4.553
		upper													
		comment													
77	Kattegat (DK)	lower									27.8	0.48	33.7	0.965	
		upper													
		comment													
123	Liver å	lower								0.037	0.567	0.0069	0.676	0.026	2.882
		upper													
		comment													
124	Uggerby å	lower								0.033	0.633	0.011	0.794	0.037	5.681
		upper													
		comment													
74	Skagerrak (DK)	lower									2.34	0.043	2.9	0.125	
		upper													
		comment													

Table 6b. Tributary Riverine Inputs
Reported Maritime Area of the OSPAR Convention in 2000 by Denmark

			1 Cd [t]	5 Hg [t]	6 Cu [t]	2 Pb [t]	7 Zn [t]	8 g-HCH [kg]	9 PCB [kg]	10 NH4-N [kt]	11 NO3-N [kt]	12 PO4-P [kt]	13 Total N [kt]	14 Total P [kt]	3 SPM [kt]
110	Brøns å	lower													
		upper													
		comment													
	Brede å	lower													
		upper													
		comment													
	Omme å	lower													
		upper													
		comment													
112	Kongeåen	lower													
		upper													
		comment													
	Ribe å	lower													
		upper													
		comment													
104	Skjern å	lower													
		upper													
		comment													
	Sneum å	lower													
		upper													
		comment													
115	Stor å	lower													
		upper													
		comment													
	Varde å	lower													
		upper													
		comment													
109	Vid å	lower													
		upper													
		comment													

			1 Cd [t]	5 Hg [t]	6 Cu [t]	2 Pb [t]	7 Zn [t]	8 g-HCH [kg]	9 PCB [kg]	10 NH4-N [kt]	11 NO3-N [kt]	12 PO4-P [kt]	13 Total N [kt]	14 Total P [kt]	3 SPM [kt]
	Grøn å	lower													
		upper													
		comment													
80	North Sea (DK)	lower													
		upper													
		comment													
125	Elling å	lower													
		upper													
		comment													
127	Ger å	lower													
		upper													
		comment													
103	Gudenå	lower													
		upper													
		comment													
129	Haslevgårds å	lower													
		upper													
		comment													
	Ry å	lower													
		upper													
		comment													
120	Jordbr å	lower													
		upper													
		comment													
118	Karup å	lower													
		upper													
		comment													
130	Kastbjerg å	lower													
		upper													
		comment													

			1 Cd [t]	5 Hg [t]	6 Cu [t]	2 Pb [t]	7 Zn [t]	8 g-HCH [kg]	9 PCB [kg]	10 NH4-N [kt]	11 NO3-N [kt]	12 PO4-P [kt]	13 Total N [kt]	14 Total P [kt]	3 SPM [kt]
128	Lindenborg å	lower													
		upper													
		comment													
122	Simested å	lower													
		upper													
		comment													
121	Skals å	lower													
		upper													
		comment													
126	Voer å	lower													
		upper													
		comment													
77	Kattegat (DK)	lower													
		upper													
		comment													
123	Liver å	lower													
		upper													
		comment													
124	Uggerby å	lower													
		upper													
		comment													
74	Skagerrak (DK)	lower													
		upper													
		comment													

Table 7. Contaminant Concentration
Reported Maritime Area of the OSPAR Convention in 2000 by Denmark

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
110	Brøns å	lower								0.116	3.429	0.012	4.343	0.077	10.33
		upper													
		minimum								0.04	2.2	0.003	2.8	0.03	9
		maximum								0.19	5	0.035	6.1	0.26	12
		more than 70% > D.L.													
		n								21	21	21	21	21	3
		info													
		st.Dev.								0.048	0.849	0.009	0.994	0.05	1.528
	Brede å	lower								0.127	2.41	0.016	3.248	0.085	
		upper													
		minimum								0.02	1.5	0.003	2	0.04	
		maximum								0.26	4.4	0.03	5.5	0.17	
		more than 70% > D.L.													
		n								21	21	21	21	21	
		info													
		st.Dev.								0.072	0.81	0.007	0.994	0.033	
	Omme å	lower								0.108	2.87	0.023	3.48	0.074	3.74
		upper													
		minimum								0.049	2.2	0.014	2.76	0.054	0.2
		maximum								0.15	3.4	0.044	4.04	0.11	8.2
		more than 70% > D.L.													
		n								17	17	17	17	17	16
		info													
		st.Dev.								0.032	0.39	0.009	0.456	0.018	2.43

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
112	Kongeåen	lower								0.097	4.32	0.054	5.06	0.138	7.59
		upper													
		minimum								0.007	3.1	0.018	3.6	0.056	0.9
		maximum								0.26	5.5	0.19	6.6	0.29	27
		more than 70% > D.L.													
		n								19	19	19	20	20	19
		info													
		st.Dev.								0.06	0.805	0.039	1.077	0.062	6.04
	Ribe å	lower								0.102	3.7	0.033	4.33	0.093	4.71
		upper													
		minimum								0.047	2.6	0.012	2.8	0.052	0.25
		maximum								0.22	6.3	0.12	7.8	0.21	14
		more than 70% > D.L.													
		n								20	20	20	20	20	20
		info													
		st.Dev.								0.041	0.925	0.024	1.21	0.035	3.65
104	Skjern å	lower	0.0166	0.0035	3.642	0.913	7.909	0	0	0.141	2.618	0.017	3.19	0.073	6.55
		upper	0.0622	0.0003	1.43	0.156	11.53	10	80						
		minimum	0	0	0	0	8.72		0	0.058	2	0.009	2.38	0.039	1.8
		maximum	0.101	0.0026	3.31	0.842	18.9		80	0.35	3.1	0.041	3.7	0.11	12
		more than 70% > D.L.													
		n	9	9	9	9	10	12	12	17	17	17	17	17	27
		info													
		st.Dev.	0.0288	0.0009	1.149	0.29	3.267			0.067	0.373	0.009	0.47	0.017	2.38
	Sneum å	lower										0.038	4.337	0.128	7.16
		upper													
		minimum										0.019	3.4	0.066	0.25
		maximum										0.15	5.4	0.2	13
		more than 70% > D.L.													
		n										20	19	20	20
		info													
		st.Dev.										0.028	0.63	0.038	3.7

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
115	Stor å	lower								0.11	2.69	0.027	3.22	0.097	8.18
		upper													
		minimum								0.032	2	0.013	2.36	0.05	2.7
		maximum								0.025	4.7	0.1	4.76	0.29	56
		more than 70% > D.L.													
		n								17	17	17	17	17	17
		info													
		st.Dev.								0.06	0.739	0.02	0.689	0.057	12.76
	Varde å	lower								0.142	2.905	0.026	3.53	0.092	6.94
		upper													
		minimum								0.013	2.5	0.01	2.8	0.057	3.6
		maximum								0.24	3.3	0.086	4.3	0.18	32
		more than 70% > D.L.													
		n								20	20	20	20	20	20
		info													
		st.Dev.								0.056	0.275	0.019	0.435	0.023	6.11
109	Vid å	lower								0.095	2.16	0.013	2.8	0.097	
		upper													
		minimum								0.02	1.6	0.008	2.1	0.04	
		maximum								0.18	3.2	0.026	4.4	0.16	
		more than 70% > D.L.													
		n								21	21	21	21	21	
		info													
		st.Dev.								0.047	0.409	0.005	0.569	0.034	
	Grøn å	lower								0.098	1.757	0.025	2.55	0.118	
		upper													
		minimum								0.03	1.2	0.015	1.7	0.05	
		maximum								0.16	2.5	0.035	3.6	0.2	
		more than 70% > D.L.													
		n								21	21	21	21	21	
		info													
		st.Dev.								0.043	0.448	0.006	0.578	0.039	

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
80	North Sea (DK)	lower									2.77	0.035	3.69	0.100	
		upper													
		minimum													
		maximum													
		more than 70% > D.L.													
		n													
		info													
		st.Dev.													
125	Elling å	lower								0.203	2.965	0.075	3.76	0.179	16.9
		upper													
		minimum								0.07	2.49	0.05	3.12	0.133	2.6
		maximum								0.323	3.49	0.098	4.55	0.333	70
		more than 70% > D.L.													
		n								18	18	18	18	18	18
		info													
		st.Dev.								0.073	0.292	0.013	0.486	0.05	19.03
127	Ger å	lower								0.174	2.87	0.041	3.79	0.135	16.48
		upper													
		minimum								0.018	1.686	0.028	2.17	0.063	1.3
		maximum								0.338	4.86	0.057	6.08	0.188	40
		more than 70% > D.L.													
		n								18	18	18	18	18	18
		info													
		st.Dev.								0.092	1.088	0.008	1.32	0.039	12.14
103	Gudenå	lower	0.0166	0.0035	3.642	0.913	7.909	0	1.91	0.07	2.084	0.048	2.66	0.104	6.3
		upper	0.0171	0.0035	3.642	0.913	7.909	10	91						
		minimum	0	0.0013	0.78	0.32	0.079		0	0.042	0.74	0.016	1.1	0.068	0.5
		maximum	0.042	0.008	21	1.5	37		100	0.14	6.7	0.16	7.6	0.19	18
		more than 70% > D.L.													
		n	11	11	9	3	10	11	11	23	23	23	23	23	34
		info													
		st.Dev.	0.0121	0.0025	6.521	0.59	10.54			0.027	1.34	0.027	1.49	0.029	5.05

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
129	Haslevgårds å	lower								0.232	4.52	0.162	5.75	0.268	12.68
		upper													
		minimum								0.09	2.93	0.103	4.16	0.199	1.2
		maximum								0.535	6.37	0.21	8.39	0.36	31
		more than 70% > D.L.													
		n								18	18	18	18	18	18
		info													
		st.Dev.								0.125	1.04	0.029	1.32	0.047	9.33
	Ry å	lower								0.162	3.7	0.073	4.61	0.199	18.43
		upper													
		minimum								0.023	2.92	0.048	3.32	0.129	3.4
		maximum								0.311	4.73	0.123	6.02	0.373	39
		more than 70% > D.L.													
		n								18	18	18	18	18	7
		info													
		st.Dev.								0.101	0.633	0.02	0.952	0.071	14.15
120	Jordbro å	lower									2.17	0.058	2.88	0.13	
		upper													
		minimum									1.1	0.004	2.08	0.074	
		maximum									2.7	0.12	3.3	0.3	
		more than 70% > D.L.													
		n									18	18	18	18	
		info													
		st.Dev.									0.422	0.03	0.396	0.048	
118	Karup å	lower									2.570	0.036	3.11	0.096	
		upper													
		minimum									2	0.025	12.34	0.067	
		maximum									3.1	0.08	3.7	0.12	
		more than 70% > D.L.													
		n									18	18	18	18	
		info													
		st.Dev.									0.323	0.016	0.423	0.016	

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
130	Kastbjerg å	lower								0.085	6.58	0.078	7.8	0.134	11.77
		upper													
		minimum								0.023	2.8	0.034	4.3	0.056	1.2
		maximum								0.21	8	0.17	8.9	0.32	20
		more than 70% > D.L.													
		n								18	18	18	18	18	16
		info													
		st.Dev.								0.042	1.44	0.031	1.076	0.058	5.68
128	Lindenborg å	lower								0.086	5.28	0.125	6.02	0.189	7.6
		upper													
		minimum								0.024	3.35	0.047	4.3	0.087	1.7
		maximum								0.14	6.11	0.265	6.86	0.371	14
		more than 70% > D.L.													
		n								12	12	12	12	12	4
		info													
		st.Dev.								0.04	0.718	0.058	0.756	0.079	6.3
122	Simested å	lower									9.74	0.136	10.33	0.202	
		upper													
		minimum									6.8	0.1	8.28	0.13	
		maximum									11	0.27	12	0.34	
		more than 70% > D.L.													
		n									17	18	17	18	
		info													
		st.Dev.									1.08	0.039	0.828	0.052	
121	Skals å	lower									3.12	0.065	4.85	0.133	
		upper													
		minimum									2.9	0.028	3.99	0.087	
		maximum									4.5	0.27	5.5	0.29	
		more than 70% > D.L.													
		n									17	18	17	18	
		info													
		st.Dev.									0.481	0.058	0.47	0.051	

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
126	Voer å	lower								0.144	4.16	0.065	4.94	0.201	37.8
		upper													
		minimum								0.048	3.38	0.047	3.91	0.147	8.9
		maximum								0.319	5.06	0.088	6.07	0.301	100
		more than 70% > D.L.													
		n								18	18	18	18	18	18
		info													
		st.Dev.								0.083	0.548	0.013	0.792	0.045	27.9
77	Kattegat (DK)	lower									4.40	0.076	5.34	0.153	
		upper													
		minimum													
		maximum													
		more than 70% > D.L.													
		n													
		info													
		st.Dev.													
123	Liver å	lower								0.234	4.2	0.057	4.99	0.188	16.2
		upper													
		minimum								0.036	2.88	0.036	3.73	0.123	1.9
		maximum								1.11	4.05	0.127	7	0.379	43
		more than 70% > D.L.													
		n								18	18	18	18	18	18
		info													
		st.Dev.								0.251	0.91	0.025	1.07	0.061	12.2
124	Uggerby å	lower								0.175	3.58	0.068	4.45	0.202	27.3
		upper													
		minimum								0.0025	2.76	0.052	3.25	0.136	4.2
		maximum								0.375	4.83	0.107	6	0.35	90
		more than 70% > D.L.													
		n								18	18	18	18	18	18
		info													
		st.Dev.								0.087	0.65	0.017	0.83	0.067	22.2

		1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
74 Skagerrak (DK)	lower									4.34	0.080	5.38	0.232	
	upper													
	minimum													
	maximum													
	more than 70% > D.L.													
	n													
	info								flow weighted	flow weighted	flow weighted	flow weighted	flow weighted	flow weighted
	st.Dev.													

Table 8. Detection Limits
Reported Maritime Area of the OSPAR Convention in 2000 by Denmark

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
110	Brøns å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
	Brede å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
	Omme å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
112	Kongeåen	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
	Ribe å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
104	Skjern å	Sewage													
		Industrial													
		Riverine	>0,005	>0,005	>0,04	>0,02	>0,05	>10	>10	>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
	Sneum å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
115	Stor å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
	Varde å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
109	Vid å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
	Grøn å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
80	North Sea (DK)	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
125	Elling å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
127	Ger å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
103	Gudenå	Sewage						>10	>10						
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
129	Haslevgårds å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
	Ry å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
120	Jordbro å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
118	Karup å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
130	Kastbjerg å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
128	Linden borg å	Sewage													
		Industrial													
		Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0

			1 Cd [µg/l]	5 Hg [µg/l]	6 Cu [µg/l]	2 Pb [µg/l]	7 Zn [µg/l]	8 g-HCH [ng/l]	9 PCB [ng/l]	10 NH4-N [mg/l]	11 NO3-N [mg/l]	12 PO4-P [mg/l]	13 Total N [mg/l]	14 Total P [mg/l]	3 SPM [mg/l]
122	Simested å	Sewage Industrial Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
121	Skals å	Sewage Industrial Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
126	Voer å	Sewage Industrial Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
77	Kattegat (DK)	Sewage Industrial Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
123	Liver å	Sewage Industrial Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
124	Uggerby å	Sewage Industrial Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0
74	Skagerrak (DK)	Sewage Industrial Riverine								>0,01	>0,02	>0,005	>0,06	>0,01	> 2,0

Table 9. Catchment-dependent information
Reported Maritime Area of the OSPAR Convention in 2000 by Denmark

		Flow Rate [1000m³/d]	LTA 1000m³/d	inimum F 1000m³/d	aximum F 1000m³/d	LTA info (years)	Number of sites	Mean or Median	Catchment area km2
110	Brøns å	109.5	106.6	52.4	163.1	74-99	1	Mean	94.1
	Brede å	362.2	327.5	172.3	461.5	94-99	1	Mean	290
	Omme å	958.4	728.9	408.1	968.9	83-99	1	Mean	612
112	Kongeåen	673	612.3	364.9	861.8	90-99	1	Mean	426.6
	Ribe å	940.7	743.1	295.7	1363.6	33-99	1	Mean	675
	Skjern å	2505.1	2079.7	1345.6	2717.5	74-99	1	Mean	1550
	Sneum å	328	280.8	160.2	404.8	66-99	1	Mean	223
115	Stor å	1810	1399.4	856.4	1884.4	71-99	1	Mean	1096.7
	Varde å	1261.5	1042.7	686	1558.1	69-99	1	Mean	815
109	Vid å	297.5	304	144.8	444	78-99	1	Mean	248.3
	Grøn å	586.1	605.3	197.8	904.1	59-99	1	Mean	563
80	North Sea (DK)	**15540**	**13452**			**1971-2000**		**Mean**	**10809**
125	Elling å	165	110.9	87.7	173.4	89-99	1	Mean	132.2
127	Ger å	173.2	143.1	79.9	211.6	85-99	1	Mean	153.8
103	Gudenå	3212.4	2820.1	1997.7	3665.3	78-99	1	Mean	2602.9
129	Haslevgårds å	79.5	57.5	37.9	97.5	89-99	1	Mean	75
	Ry å	347.5	250.5	154.5	385.8	72-99	1	Mean	285
120	Jordbro å	123.7	111.8	80.8	141.3	80-99	1	Mean	110.9
118	Karup å	745.2	621.4	472.1	749.3	86-99	1	Mean	626.8
130	Kastbjerg å	84.6	67.8	48.1	90.1	76-99	1	Mean	96.3
128	Lindenborg å	354.1	297.4	227.4	392.2	83-99	1	Mean	317.8
122	Simested å	239.1	199	168.2	246.8	92-99	1	Mean	214.9
121	Skals å	466.9	380.2	234.2	539.6	73-99	1	Mean	556.4
126	Voer å	305.5	224.3	163.6	333.6	89-99	1	Mean	238.7
77	Kattegat (DK)	**17251**	**13668**			**1971-20**		**Mean**	**15828**
123	Liver å	340.5	223.3	129	344.9	95-99	1	Mean	249.8
124	Uggerby å	458.1	316.6	232.6	497.5	89-99	1	Mean	347.5
74	Skagerrak (DK)	**1473**	**934**			**1971-20**		**Mean**	**1098**

Annex 3

FRANCE

Annual report on riverine inputs and direct discharges to Convention waters during the year 2000 by France
Table 6a Main riverine inputs to the maritime area of the OSPAR Convention in 2000 by France.

Annual report on riverine inputs and direct discharges by France to Convention waters during the year 2000

Name, address and contact number of reporting authority to which any further enquiry should be addresed:

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A. General information

Table 1: General overview of river systems (for riverine inputs) and direct discharge areas (for direct discharges) included in the data report

Country: FRANCE (**See list of river catchments at annex 1**)

Name of subarea	Nature of the receiving water[1]	optional: national reference number	optional: map reference number
Bay of Biscay and Iberian coast (FR)	Coastal water		
Channel and North Sea (FR)	Coastal water		

[1] i.e. estuary or coastal water; if an estuary, state the tidal range and the daily flushing volume

B. Total riverine inputs and direct discharges for the year 2000

B.1 Comments on the Total Riverine Inputs and Direct Discharges as presented in Table 4a:

See comments on riverine inputs (no reporting on direct discharges)

C. Direct discharges for the year 2000

Sewage Effluents (Table 5a)

C.1 Describe the methods of measurement and calculation used, including information on the number of samples and the concentration upon which the measurement is based (ref.: Section 6 of the Principles), including for those under voluntary reporting:

Reporting on direct discharges not yet available. Planned for 2004.

C.2 Describe the determinands, other than those specified in paragraph 2.1 of the Principles, that are included in the current monitoring programme and which may be relevant for the Comprehensive Study on Riverine Inputs and Direct Discharges (voluntary reporting):

[none]

Industrial Effluents (Table 5b)

C.3 Describe the methods of measurement and calculation used, including information on the number of samples and the concentration upon which the measurement is based (ref.: Section 6 of the Principles), including for those under voluntary reporting:

Reporting on Industrial effluents not yet available. Planned for 2004.

C.4 Give any other relevant information (e.g. proportion of substance discharged as insoluble material):

[none]

C.5 Give any available information on other discharges directly to Convention Waters - through e.g. urban run-off and stormwater overflows - that are not covered by the data in tables 5a. and 5b.:

[none]

C.6 Describe the determinands, other than those specified in paragraph 2.1 of the Principles, that are included in the current monitoring programme and which may be relevant for the Comprehensive Study on Riverine Inputs and Direct Discharges (voluntary reporting):

[none]

D. Riverine inputs for the year 2000

Main Rivers (Tables 6a and 7a)

D.1 Describe the methods of measurement and calculation used, including information on the number of samples and the concentration (Table 7a) upon which the measurement is based (ref.: Section 5 of the Principles), including for those under voluntary reporting:

The data on riverine inputs reported by France are issued from a specific calculation tool (NOPOLU System2) that takes into account all available data on French rivers, including flows and quality data. RID type data from 1989 up to 2000 are now available for N, P and SPM and have been transmitted to the OSPAR secretariat, but in a non-official format. The report for the year 2000 is the first delivery issued from this data set, using the normal OSPAR format. It is expected that the previous years will be reported under this format on the short term, before the INPUT 2003 meeting.

The algorithm on the raw data used by NOPOLU is rather complex, involving correlation between stations, modelisation with the water flow or interpolation in order to compensate for lacking data. Then measured concentrations seasonality is tested in order to get daily flow-concentration couples. The results are then aggregated monthly or annually. In certain cases, only averages can be calculated over periods where flux/flow correlation are available. Finally, data are inter-annually normalised along the OSPAR guidelines recommendations.

Contaminants other than N and P are not included, neither direct discharges, but it is expected to develop the tool in order to do so, probably within two years time.

D.2 Give any other relevant information (e.g. proportion of substance transported by the river in particulate form):

[none]

D.3 Describe the determinands, other than those specified in paragraph 2.1 of the Principles, that are included in the current monitoring programme and which may be relevant for the Comprehensive Study on Riverine Inputs and Direct Discharges (voluntary reporting):

[none]

Tributary Rivers (Tables 6b and 7b)

D.4 Describe the methods of measurement and calculation used, including information on the number of samples and the concentration (Table 7b.) upon which the measurement is based (ref.: Section 5 of the Principles):

[none]

D.5 Give any other relevant information (e.g. proportion of substance transported by the river in particulate form):

[none]

D.6 Describe the determinands, other than those specified in paragraph 2.1 of the Principles, that are included in the current monitoring programme and which may be relevant for the Comprehensive Study on Riverine Inputs and Direct Discharges (voluntary reporting):

[none]

D.7 Give any available information on other inputs - through e.g. polder effluents or from coastal areas - that are not covered by data in tables 6a. and 6b.:

[none]

E. Limits of detection

E.1 Information concerning limits of detection should be presented in Table 8 which includes different columns for rivers/tributaries, sewage effluents and industrial effluents. Any important comments may be presented here.

[none]

F. National Comments

F.1 Give a general summary of the main results as presented in the tables 5, 6 and 7 and comment, as appropriate, on these results.

[none]

F.2 Indicate any significant change in inputs and concentrations in comparison to previous years. Comment on these changes as appropriate.

[none]

F.3 Indicate and explain, if appropriate:

- where and why the applied procedures do not comply with agreed procedures
- significant changes in monitoring sites, important for comparison of the data before and after the date of the change
- incomplete or distorted data

It is important to note that for the year 2000 some data on river flow were missing, and in particular those from the Seine river and of the Gironde (Garonne and Dordogne estuary). It was then decided not to provide separate results for the three main French riverine inputs (Seine, Loire, Gironde), and to use average data for the calculation of riverine inputs into the two reported OSPAR regions.

In addition to that, as results are not upper and lower estimations but averages, data have been repeated on both rows in table 6a.

ANNEX 1 : List of River catchments by OSPAR Region

OSPAR Region	Catchment Grouping	River catchment
Manche et Mer du Nord	Côtiers picards et boulonnais	SLACK
Manche et Mer du Nord	Côtiers picards et boulonnais	WIMEREUX
Manche et Mer du Nord	Côtiers picards et boulonnais	LIANE
Manche et Mer du Nord	Côtiers picards et boulonnais	CANCHE
Manche et Mer du Nord	Côtiers picards et boulonnais	AUTHIE
Manche et Mer du Nord	Côtiers picards et boulonnais	SOMME
Manche et Mer du Nord	Côtiers haut-normands	YERES
Manche et Mer du Nord	Côtiers haut-normands	ARQUES
Manche et Mer du Nord	Côtiers haut-normands	SAANE
Manche et Mer du Nord	Côtiers haut-normands	DURDENT
Manche et Mer du Nord	Côtiers haut-normands	VALMONT
Manche et Mer du Nord	Seine à l'aval de Paris et Risle	Seine Amont Pose
Manche et Mer du Nord	Seine à l'aval de Paris et Risle	ANDELLE
Manche et Mer du Nord	Seine à l'aval de Paris et Risle	Eure
Manche et Mer du Nord	Basse-Normandie	TOUQUES
Manche et Mer du Nord	Basse-Normandie	DIVES
Manche et Mer du Nord	Basse-Normandie	ORNE
Manche et Mer du Nord	Basse-Normandie	SEULLES amont confluence Mue
Manche et Mer du Nord	Cotentin	VIRE amont confluence Aure
Manche et Mer du Nord	Cotentin	AURE
Manche et Mer du Nord	Cotentin	SAIRE
Manche et Mer du Nord	Cotentin	DIVETTE
Manche et Mer du Nord	Cotentin	AY
Manche et Mer du Nord	Cotentin	SIENNE
Manche et Mer du Nord	Cotentin	THAR
Manche et Mer du Nord	Cotentin	SEE
Manche et Mer du Nord	Cotentin	SELUNE
Manche et Mer du Nord	Bretagne Nord	Couesnon
Manche et Mer du Nord	Bretagne Nord	Rance
Manche et Mer du Nord	Bretagne Nord	Frémur
Manche et Mer du Nord	Bretagne Nord	Arguenon
Manche et Mer du Nord	Bretagne Nord	Gouessant
Manche et Mer du Nord	Bretagne Nord	Urme
Manche et Mer du Nord	Bretagne Nord	Gouet

Manche et Mer du Nord	Bretagne Nord	Trieux
Manche et Mer du Nord	Bretagne Nord	GUINDY
Manche et Mer du Nord	Bretagne Nord	Jaudy
Manche et Mer du Nord	Bretagne Nord	Leguer
Manche et Mer du Nord	Bretagne Nord	Le Roscoat & le Yar de leur source à la mer
Manche et Mer du Nord	Bretagne Nord	Dossen
Manche et Mer du Nord	Bretagne Nord	Le Horn de sa source a la mer
Manche et Mer du Nord	Bretagne Nord	Aber Vra'ch
Manche et Mer du Nord	Versants mer du Nord et transfrontaliers	Mons
Manche et Mer du Nord	Versants mer du Nord et transfrontaliers	LYS
Manche et Mer du Nord	Versants mer du Nord et transfrontaliers	AA
Manche et Mer du Nord	Versants mer du Nord et transfrontaliers	YSER
Golfe de Gascogne	Bretagne Nord	Elorn
Golfe de Gascogne	Bretagne Nord	Aulne
Golfe de Gascogne	Bretagne Sud	Odet
Golfe de Gascogne	Bretagne Sud	Aven
Golfe de Gascogne	Bretagne Sud	Laïta
Golfe de Gascogne	Bretagne Sud	Scorff
Golfe de Gascogne	Bretagne Sud	Blavet
Golfe de Gascogne	Bretagne Sud	Loch (rivière Auray)
Golfe de Gascogne	Vilaine	Vilaine
Golfe de Gascogne	Loire aval	Loire
Golfe de Gascogne	Loire aval	Falleron
Golfe de Gascogne	Côtiers vendéens	Vie
Golfe de Gascogne	Côtiers vendéens	Le Jaunay de sa source au Guy Gorand (exclue)
Golfe de Gascogne	Côtiers vendéens	Auzance
Golfe de Gascogne	Côtiers vendéens	Lay
Golfe de Gascogne	Côtiers vendéens	Sèvre Niortaise
Golfe de Gascogne	Garonne aquitaine à l'aval du Lot	Garonne
Golfe de Gascogne	Dordogne (sauf Isle)	Dordogne Amont confluence Isle
Golfe de Gascogne	Isle et Dronne	Isle
Golfe de Gascogne	Adour et Nivelle	Adour
Golfe de Gascogne	Charente, Seudre et île dOléron	Charente
Golfe de Gascogne	Charente, Seudre et île dOléron	Seudre
Golfe de Gascogne	Côtiers aquitains	Leyre

Annex 4

GERMANY

Annual report on riverine inputs and direct discharges to Convention waters during the year 2000 by Germany

Annual report on riverine inputs and direct discharges to Convention waters during the year 2000

Name, address and contact numbers of reporting authority to which any further enquiry should be addressed:

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A. General information

Table 1: General overview of river systems (for riverine inputs) and direct discharge areas (for direct discharges) included in the data report

Country: Federal Republic of Germany

Name of river, subarea and discharge area[1]	Nature of the receiving water[2]	optional: national reference number	optional: map reference number
Elbe St. Pauli (estuary)	tidal range 3.25 m		
Weser Farge (estuary)	tidal range 3.7 m		
Ems Herbrum (at tidal weir)	no tidal influence		
Eider estuary (at tidal weir)	no tidal influence		

[1] i.e. name of estuary or length of coastline
[2] i.e. estuary or coastal water; if an estuary, state the tidal range and the daily flushing volume

B. Total riverine inputs and direct discharges for the year 2000

B.1 Comments on the Total Riverine Inputs and Direct Discharges as presented in Table 4a:

[none]

C. Direct discharges for the year 2000

Sewage Effluents (Table 5a)

C.1 Describe the methods of measurement and calculation used, including information on the number of samples and the concentration upon which the measurement is based (ref.: Section 6 of the Principles), including for those under voluntary reporting:

*For the **Elbe,** all discharges of sewage effluents were determined downstream of the "Seemannshöft" measurement site. Dischargers have to carry out a mandatory monitoring of their discharges. The results of such monitoring were used to determine the inputs of the major dischargers. Measurements are based on 4 to 8 2-hour-mixed-samples. All other data are estimates.*

*The loads of **Weser** and **Ems** downstream of the measurement sites for riverine inputs and those of the **Jade** are estimates based on population equivalents.*

*Estimates for the **Eider** are included in the riverine inputs.*

C.2 Describe the determinands, other than those specified in paragraph 2.1 of the Principles, that are included in the current monitoring programme and which may be relevant for the Comprehensive Study on Riverine Inputs and Direct Discharges (voluntary reporting):

[none]

Industrial Effluents (Table 5b)

C.3 Describe the methods of measurement and calculation used, including information on the number of samples and the concentration upon which the measurement is based (ref.: Section 6 of the Principles), including for those under voluntary reporting:

*For the **Elbe,** all discharges of industrial effluents were determined downstream from the "Seemannshöft" measurement site. Dischargers have to carry out a mandatory monitoring of their discharges. The results of such monitoring were used to determine the inputs of the major dischargers. Measurements are based on 2-hour-mixed-samples. All other data are estimates.*

*The loads of **Weser** and **Ems** downstream of the measurement sites for riverine inputs and those of the **Jade** are estimates.*

*Estimates for the **Eider** are included in the riverine inputs.*

C.4 Give any other relevant information (e.g. proportion of substance discharged as insoluble material):

[none]

C.5 Give any available information on other discharges directly to Convention Waters - through e.g. urban run-off and stormwater overflows - that are not covered by the data in tables 5a. and 5b.:

[none]

C.6 Describe the determinands, other than those specified in paragraph 2.1 of the Principles, that are included in the current monitoring programme and which may be relevant for the Comprehensive Study on Riverine Inputs and Direct Discharges (voluntary reporting):

[none]

D. Riverine inputs for the year 2000

Main Rivers (Tables 6a and 7a)

D.1 Describe the methods of measurement and calculation used, including information on the number of samples and the concentration (Table 7a.) upon which the measurement is based (ref.: Section 5 of the Principles), including for those under voluntary reporting:

*The load data for the **Elbe** at the Seemannshöft measurement site comprise approx. 95% of the total input. The loads of the major tributaries (left side: Este, Lühe, Schwinge, Oste; right side: Pinnau, Krückau, Stör) have to be added.*

*The Farge measurement site covers 90% of the **Weser** catchment area, the Herbrum measurements site covers 70% of the **Ems** catchment area. The remainder is covered by the estimates of direct inputs given in table 5a-c.*

*The measurement sites "Eider" and "Treene" cover approx. 82% of the total catchment area of the **Eider**, with the loads measured being extrapolated to cover 100% of the catchment area.*

***Sampling frequencies** are as follows for the respective rivers:*

Elbe: *For the main river (cross-section measurements taken fortnightly): 26 measurements per year for all parameters to be monitored except SPM (25 measurements per year).*

Weser: *12 measurements per year (cross-section measurements taken once a month) for all parameters to be monitored.*

Ems: *12 measurements per year (cross-section measurements taken once a month) for all parameters to be monitored.*

Eider: *Measurements include samples in the main river on the basis of representative random samples: 13 measurements per year.*

Sampling site

*In the **Elbe**, sampling to obtain riverine input data is carried out upstream of the freshwater limit (Seemannshöft measurement site) in the tidal river. In 1994 the monitoring station was shifted upstream from Grauerort (km 660,5) to Seemannshöft (km 628,8) to get out of the high turbidity zone. In the **Weser** sampling is carried out upstream of the freshwater limit in the tidal river (Farge measurement site) and in the **Ems** it is carried out at the tidal limit (Herbrum measurement site). Sampling in the **Eider** is carried out at the tidal limit in the main river (measurement sites: Eider, Nordfeld, size of catchment area: 905 km^2) as well as in the tributary Treene (measurement sites: Treene, Friedrichstadt, size of catchment area: 797 km^2).*

Estimation of annual load

Annual loads L are calculated as follows for the various river systems:

Elbe:

$$L = \frac{Q_r \cdot \sum_{i=1}^{n} (c_i \cdot Q_i)}{\sum_{i=1}^{n} (Q_i)}$$

Where:

ci is the concentration measured in sample i;

Qi is the corresponding mean daily flow for sample i;

Qr is the mean daily flow rate for each sampling period (year); and

n is the number of samples taken in the sampling period (year).

Weser, Ems, Eider:

$$L = \frac{\sum_{i=1}^{n} (c_i \cdot Q_i)}{n}$$

Measurements in tidal areas

For the Elbe, flow is determined for a cross-section at the freshwater limit, which lies within the tide-influenced zone, using a one-dimensional mathematical flow model. In keeping with the "Principles of the Comprehensive Study on Riverine Inputs" a mass balance was drawn up in 1986/1987 (cf. INPUT 3/INFO 3: Drawing up a Balance for Inputs of Substances to the Elbe Estuary). Originally, the sampling site was directly located at the freshwater limit. Based on the balance, however, the sampling site was moved 15 km upstream to Grauerort in 1988 in order to get out of the turbidity zone. In 1991, 1992 and 1993 the influence of the turbidity zone made itself strongly felt also at this measurement site, resulting in part in an overestimation of loads. As a consequence, the measurement site was again moved further upstream to Seemannshöft in 1994.

Flow in the Weser was determined at the PARCOM measurement site Farge. When the tide is outgoing (ebb stream) the RID measurement site Farge must be regarded as being located distinctly upstream from the freshwater limit. There is virtually no influence of North Sea water at the Farge

measurement site during the ebb tide, the tidal phase during which the RID measurements are carried out.

The loads of Ems and Eider were measured at the tidal weir.

D.2 Give any other relevant information (e.g. proportion of substance transported by the river in particulate form):

[none]

D.3 Describe the determinands, other than those specified in paragraph 2.1 of the Principles, that are included in the current monitoring programme and which may be relevant for the Comprehensive Study on Riverine Inputs and Direct Discharges (voluntary reporting):

[none]

Tributary Rivers (Tables 6b and 7b)

D.4 Describe the methods of measurement and calculation used, including information on the number of samples and the concentration (Table 7b.) upon which the measurement is based (ref.: Section 5 of the Principles):

Elbe: *For the tributaries 13 measurements per year were carried out on the basis of representative random samples.*

Weser: *No measurements were carried out for the tributaries.*

Ems: *No measurements were carried out for the tributaries.*

Eider: *For the tributary Treene at Friedrichstadt 13 measurements per year were carried out for all parameters, on the basis of representative random samples.*

D.5 Give any other relevant information (e.g. proportion of substance transported by the river in particulate form):

[none]

D.6 Describe the determinands, other than those specified in paragraph 2.1 of the Principles, that are included in the current monitoring programme and which may be relevant for the Comprehensive Study on Riverine Inputs and Direct Discharges (voluntary reporting):

[none]

D.7 Give any available information on other inputs - through e.g. polder effluents or from coastal areas - that are not covered by data in tables 6a. and 6b.:

[none]

E. Limits of detection

E.1 Information concerning limits of detection should be presented in Table 8 which includes different columns for rivers/tributaries, sewage effluents and industrial effluents. Any important comments may be presented here.

See table 8 in the reporting formats.

F. National Comments

F.1 Give a general summary of the main results as presented in tables 5,6 and 7 and comment, as appropriate, of these results.

In 2000 the flows of all of the German rivers discharging to the North Sea on the whole were close to the long-term average flows. Only in the river Weser the flow exceeded the long-term average flow. In all other German rivers the annual flow was less than the long-term average flow.

Although in the Weser the river flow in 2000 is only slightly higher than in 1999, the load of suspended matter in 2000 is double as high as in 1999 and the load figures for Copper, Lead, Zinc and γ-HCH in 2000 are also higher than in 1999.

F.2 Indicate any significant change in inputs and concentrations in comparison to previous years. Comment on these changes as appropriate.

Compared to previous years there are no significant changes in the inputs during the year 2000.

In the River Eider there is a significant reduction of the concentrations and loads for lindane which is caused by the ban of this substance in November 1997.

F.3 Indicate and explain, if appropriate:

- where and why the applied procedures do not comply with agreed procedures
- significant changes in monitoring sites, important for comparison of the data before and after the date of the change
- incomplete or distorted data

In the river Elbe and its tributaries as well as in the river Eider no measurements for PCBs (in water) were carried out, because the concentrations are mostly below the detection limit. This is also the case for γ-HCH measurements in water in the Elbe tributaries.