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Long-term monitoring of environmental quality in Norwegian coastal waters.

Joint Assessment and Monitoring Programme (JAMP).

OVERVIEW OF NORWEGIAN ANALYTICAL METHODS 1981-2007

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JOINT ASSESSMENT AND MONITORING PROGRAMME (JAMP)

Overview of Norwegian analytical methods 1981-2007

Foreword

This report presents the method overview and brief descriptions of chemical analyses used for 1981-2006 Norwegian investigations (analysed during the period 1981-2007) for the Joint Monitoring and Assessment Programme (JAMP). JAMP is administered by the Oslo and Paris Commissions (OSPAR) and their Environmental Assessment and Monitoring Committee (ASMO). JAMP receives guidance from the International Council for the Exploration of the Sea (ICES). ASMO has delegated implementation of part of the programme to the Working Group on Concentrations, Trends and Effects of Substances in the Marine Environment (SIME). The Norwegian 2006 investigations are directed to particular JAMP issues relating to contaminants and implemented by SIME. JAMP replaced Joint Monitoring Programme (JMP) in 1995 and has been an integral part of OSPAR's Coordinated Environmental Monitoring Programme (CEMP) since 1998.

The Norwegian JAMP was carried out by the Norwegian Institute for Water Research (NIVA) by contract from the Norwegian Pollution Control Authority (SFT), (NIVA contracts O-80106, O-25106, O-26106, O-27106).

Information for this report was compiled by the Norwegian Institute for Water Research (NIVA) by contract from the Norwegian State Pollution Control Authority (SFT). The report is an updated version of information reported earlier that concerned 1981-2000 (Green et al. *2001).*

The different methods have been reviewed by representatives of the respective analytical laboratories for the period 1981-2007:

Institute for Marine Research: Jarle Klungsøyr
Institute for Nutrition, Fisheries Directorate: Kåre Julshamn
Nordic Analytical Center (NAC): Paul D. Edminson and Beate Enger
*Norwegian Institute for Air Research: Martin Schlabach**
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** indicate those contacted since last version (cf.Green* et al. *2001).*

Oslo, 22 May 2008.

Norman W. Green
Project manager

Contents

1. Introduction

Oslo-Paris convention (OSPAR) was established in 1992 and represents a union between the Oslo commission, established in 1972 and the Paris commission initiated in 1974. The aim of OSPAR is to protect the marine environment against anthropogenic contamination in the North east Atlantic. Administered by OSPAR and advised by the International Council for the Exploration of the Sea (ICES), OSPAR carries out the *Joint Assessment and Monitoring Programme* (JAMP, earlier the *Joint Monitoring Programme* JMP). JAMP was started in 1996. It is based largely on the Joint Monitoring Programme (JMP) initiated in November 1980. Since 1998, JAMP been an integral part of OSPAR's Coordinated Environmental Monitoring Programme (CEMP). JAMP is implemented by contract from the Norwegian Pollution Control Authority (SFT).

Data collected for JAMP is submitted to ICES with corresponding codes for the analytical methods used. This report defines these codes and gives an outline of the analytical methods employed by JAMP in Norway 1981-2007 for the analyses of contaminants in sea water, sediment and marine biota samples collected 1981-2006.

This report is largely based on information filed at the International Council for the Exploration of the Sea (ICES) (OSPAR 1984; Green 1988, Green 1993, Green *et al.* 2001). It includes updated and extended information but retains, for the most part, the same codes and abbreviations. Chapter 2 summarises the analytical methods employed sorted in various ways for convenient reference. Chapter 3 gives a brief description of each method.

2. Method overview

2.1 Medium and method code

An overview of analytical methods for trace metals, chlorinated hydrocarbons and other substances in the marine environment is shown in **Table 1** (water), **Table 2** (sediment) and **Table 3** (biota).

Table 1. An overview of analytical methods for trace metals, chlorinated hydrocarbons and other substances for sea water and sediment as employed by JAMP. (Parameter codes are defined in Appendix A).

Medium	method code	institute code	contaminant(s) etc.	sampling year(s)
Sea water				
	320	SIIF	Hg	84
	322	SERI	Hg	84-86
	330	SIIF	Cd	83
	331	NIVA	Cu,Zn	85-90
	331	NIVA	Cd,Pb	84-90
	331	NIVA	Fe,Ni,Co	86
	332	NIVA	Hg	86-90

Table 2. An overview of analytical methods for trace metals, chlorinated hydrocarbons and other substances for marine sediment as employed by JAMP. (Method and parameter group codes (PRGRP) codes are defined in Appendix A).

Count of PRGRP			YEAR									
METHOD CODE	Parameter code?	RLAB	1986	1987	1990	1992	1994	1996	1997	2004	2006	Grand Total
350	I-MET	NIVA	1	1	1	1	1	1	1			7
	OC-HC	NIVA								1	1	2
351	I-MET	NIVA	2	2	2	2	2	2	2			14
352	I-MET	NIVA	2	3	1							6
353	I-MET	NIVA			5	3	5	3	3			19
	OC-DN	NIVA								1	1	2
354	I-MET	NIVA					1					1
355	BE	NIVA								1	1	2
	I-MET	NIVA								3	3	6
	O-MAJ	NIVA								2	2	4
	PAH	NIVA								3	3	6
360	OC-CB	NIVA				10	10	10	10	10	9	59
	OC-CL	NIVA				3	3	3	3	2	2	16
	OC-DD	NIVA				2	2	3	3	2	3	15
	OC-DN	NIVA								1	1	2
	OC-HC	NIVA				2	2	2	2	2	1	11
369	BE	NIVA								1	1	2
	I-MET	NIVA				1	1	1	1	3	3	10
	OC-BB	NIVA									1	1
	OC-DN	NIVA								1	1	2
	OC-DX	NIVA									2	2
	PAH	NIVA				25	23	31	31	21	20	151
370	O-MET	NIVA								6	6	12
390	I-MET	NIVA								1	1	2
	I-NUT	NIVA					1	1	1			3
	O-MAJ	NIVA	1	1	1	1	2	2	2			10
	PAH	NIVA								1	1	2
392	P-PHY	NIVA	1	1	2	2	2	2	1	2	2	15
650	I-RNC	VKID			1	1	1	1	1			5
652	P-PHY	VKID						1	1			2
654	P-PHY	VKID						1	1			2
760	OC-CB	IMRN			13							13
	OC-CL	IMRN			1							1
	OC-DD	IMRN			6							6
	OC-DN	IMRN			1							1
	OC-HC	IMRN			3							3
769	I-MET	IMRN			1							1
	PAH	IMRN			24							24
Grand Total			7	8	62	53	56	64	63	64	65	442

Table 3. An overview of analytical methods for trace metals, chlorinated hydrocarbons and other substances for marine organisms as employed by JAMP. (Parameter codes and group codes are defined in Appendix A).

Count of PRGRP METHOD	PRGRP	RLAB	YEAR 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Tot.
110	OC-CB	SIIF	2																										2
111	OC-CB	SIIF		1	1	1	1	1	4	14	8	8	8																47
	OC-CL	SIIF			1	1	1	1	1	2	1	1	1																10
	OC-DD	SIIF			1	1	1	1	1	2	1	1	1																10
	OC-HC	SIIF						1	1		1	1	1																5
120	I-MET	SIIF	2	1	1	1	1																						6
130	I-MET	SIIF	3	1	4	3	2																						13
131	I-MET	SIIF			1																								1
132	I-MET	SIIF				2	2																						4
210	OC-CB	VETN		1	1	1	1																						4
	OC-CL	VETN			1	1	1																						3
	OC-DD	VETN		1	1	1	1																						4
211	OC-CB	VETN		1	1	1	1																						4
	OC-CL	VETN			1																								1
	OC-DD	VETN			1																								1
220	I-MET	VETN		2	1	1	1																						5
230	I-MET	VETN		1	1	1	1																						4
240	I-MET	VETN		2																									2
309	PAH	NIVA							1					50			33	27	31	31	31	31	31	31	31	28	27	27	410
310	I-MET	NIVA	1	1				1	1	1	2	2	2	2	2	2	2	2	2	2	3	2	2	2	1	1	1	1	38
311	I-MET	NIVA	2	2				4	4	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6					94
312	I-MET	NIVA	2	2				4	4	4	6	6	6	8	6	6	6	16	6	6	6	6	6						106
315	I-MET	NIVA																1						12	8	14	12	12	59
320	O-MET	NIVA																	6	6	12	6	6	6	6	6	6	6	66
340	OC-CB	NIVA							1			8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	169
	OC-CL	NIVA										3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	51
	OC-DD	NIVA										1	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	3	59
	OC-HC	NIVA										2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	34
341	OC-CB	NIVA										8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	168
	OC-CL	NIVA										3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	51
	OC-DD	NIVA										1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	34
	OC-HC	NIVA										2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	34

Count of PRGRP METHOD	PRGRP	RLAB	YEAR 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Tot.
401	I-MET	FIER				1			1																				2
402	I-MET	FIER				1			1																				2
403	I-MET	FIER							1																				1
404	I-MET	FIER							1																				1
405	I-MET	FIER							1																				1
510	OC-CB	NACE							1	1	8																		10
	OC-CL	NACE						1	1	1	1																		4
	OC-DD	NACE						2	2	2	2																		8
	OC-HC	NACE						1	1	1	1																		4
511	OC-CB	NACE						2	1	1	1																		5
605	OC-CL	SIIF						1	1	1	2	1	1																7
607	OC-CL	IFEN																	1	1						1			3
609	OC-CL	SIIF																				1	1						2
610	OC-CL	NACE						1	1	1	1																		4
615	OC-CL	NIVA										1	1																2
730	OC-BB	NIVA																								6	15	15	36
740	PFOS	NIVA																								6	15	15	36
775	O-MET	GALG																					4						4
777	O-MET	EFDH																						4					4
830	OC-BB	NILU																2					14	3					19
840	OC-DD	NILU																1						1					2
841	OC-CB	NILU															4	8						4	4	4	4	4	32
	OC-DX	NILU															27	54						27	17	17	17	17	176
842	OC-CL	NILU																4											4
843	OC-BB	NILU																3					20	9					32
850	OC-BB	NILU																					2						2
Grand Total			12	16	17	17	14	21	31	35	41	55	62	103	49	49	114	162	89	89	95	89	129	137	104	114	119	119	1882

Overview of chemical analyses for sea water 1981-1990 is shown in **Table 4**. A more detailed overview of chemical analyses for sediment and biota 1981-2007 is given in Appendix C and Appendix D. Intercalibration codes (and in some cases laboratory codes) are given to distinguish different ICES exercises.

Table 4. An overview of detection limits relating to analyses of contaminants in sea water for the years 1981-1990 (Parameter codes are defined in Appendix A).

medium	parameter	detection limit (ppb[1])	institute	sample year	method code	Intercal-ibration
Sea water						
	Cr	200	NIVA	87	331	-
	Mn	500	NIVA	87	331	-
	Fe	50	NIVA	87	331	-
	Co	5	NIVA	87	331	-
	Ni	10	NIVA	87	331	-
	Cu	10	NIVA	86-90	331	4I
		50	NIVA	85	331	4Z
	Zn	70	NIVA	85	331	4Z
		10	NIVA	86-90	331	4I
	Cd	1	NIVA	85	331	4Z
		0.5	NIVA	86-90	331	4I
		5	NIVA	84	331	4Z
		100	SIIF	83	330	4F
	Hg	0.02	SERI	84-85	322	4H
		0.02	SERI	86-90	322	4I
		2	NIVA	86	332	4I
		10	SIIF	84	320	4F
	Pb	6	NIVA	86-90	331	4Z

1) note definition in Appendix A

A detailed overview of chemical analyses employed by JAMP 1981-2007 in Norway for trace metals, chlorinated hydrocarbons and other substances in sediment biota can be found in Appendix C and Appendix D, respectively.

2.2 Comment on detection limit

The detection limits given here are approximations based on 3 times the standard deviation of the 'blank' or near zero concentration of a solution. However, day-to-day variations in the analytical instrument may lead to minor variation in detection limits.

3. Method descriptions

The following descriptions focus on the principles involved and hence are not intended as detailed specifications. The descriptions vary in detail and may apply to specific time periods (cf., **Table 4**, Appendix C and Appendix D). Hence, they may not necessarily reflect methods currently practised by the contributing institutes.

3.1 Sea water

3.1.1 Sample collection

code	*description*
	Samplers for sea water
1	Hydrobios hydrographical water sampler
2	Ruttner industrial water sampler
3	Ultracleaned polyethylene flask
4	Ultracleaned glass Erlenmeyer flask
	Sampler deployment for sea water
1	2 nylon lines
2	Nylon line, brass messenger
3	By plastic-gloved hands
	Methods of pretreatment of sea water samples
0	None
1	Membrane filter
	Methods of preservation of sea water samples
0	None
1	Nitric acid addition
2	Freezing
3	Nitric acid addition and freezing

3.1.2 Metal analyses

code ***description***

320 **Mercury in sea water (SIIF)**

Reference: Omang 1971.

322 **Mercury in sea water (SERI)**

Reference: Iverfeldt 1984.

Abstract (cf. Iverfeldt 1984)

The 0.5-litre glass Erlenmeyer sampling bottles are specially cleaned: first filled with 6M HCl for 7 days, then 7M HNO_3 for 7 days and finally with deionized water with 1 mL conc. HNO_3/litre sample for 7 days. The bottles are rinsed extensively between each stage. After sampling, 1 mL conc. HNO_3/litre sample is added to achieve a pH of 1-2.

Mercury is preconcentrated on a gold trap after being reduced and volatilised by $NaBH_4$ from an all quartz glass reduction vessel. Mercury free nitrogen gas is used for purging.

The gold trap is constructed as gold grains in layers separated by SiO_2 glass pieces. All gold traps used are individually calibrated and give the same response.

The gold traps are analysed by a double amalgamation step; i.e. the mercury is transferred by heating, to about 800°C, to a second gold trap. This gold trap is analysed using a helium direct current-plasma emission spectrometer (DCPAES). A Keithley 427 Current Amplifier and a Shimadzu Chromatopac C-R2AX Integrator are used. The system isoptimized for the mercury line at 253.65 nm using a Hg(0) diffusion tube.

The stable sensitivity of the DCPAES instrument is ensured by a check before and after every sample determination.

Standard solutions are prepared from commercial stock solutions of CH_3HgCl (1000 ppm, Alfa Products) and mercuric nitrate (1 mL = 1 mg Hg, BDH Spectrosol).

This combination resulted in the extremely low detection limit of 0.02 ng/litre with 5% reproducibility (Cossa & Courau 1984).

330 **Cadmium in sea water (SIIF)**

Reference: Paus 1973.

331 **Cadmium, copper, zinc, lead, iron, nickel, cobalt in sea water (NIVA)**

The 1-litre polyethylene sampling bottles are specially cleaned: first filled with 6M HCl for 7 days, then 7M HNO_3 for 7 days and finally with deionized water with 1 mL conc. HNO_3/litre sample for 7 days. The bottles are rinsed extensively between each stage. After sampling, 1 mL conc. HNO_3/liter sample is added to achieve a pH of 1-2.

The analysis uses chelation with APDC (ammonium-pyrrolidine dithio-carbamate) and DDTC (diethylammonium-N,N-diethyl- dithio-carbamate) extraction with freon, reversed extraction back into water acidified with HNO_3 and reading using a graphite furnace atomic absorption electrothermal spectrometry or GFAAS.

50-250 mL of the acidified sample is transferred to a separator funnel, buffer is added to pH=4.75 and 20 mL of freon. The mixture is vigorously shaken for 120 seconds. After separation of the phases, the organic one is transferred to a 50 mL plastic bottle. The extraction is repeated with further 10 mL of freon, and the organic phase added to the first 20 mL after separation. 0.1 mL concentrated nitric acid is added to the organic phase. The bottle is vigorously shaken and let to stand at least 5 minutes. 4.9 mL deionized water is added and the solution is shaken; this process is repeated after 30 minutes. More acid and water are used for back-extraction if a greater volume of the solution is necessary for the determination.

Apparatus: Perkin Elmer 2380 AAS, HGA 500 (Perkin Elmer graphite furnace), AS 40 (Perkin Elmer autosampler), HCL (hollow cathode lamp).

Since 1999: Perkin Elmer Analyst 700.

332 Mercury in sea water (NIVA)

Sample-bottle preparation and sampling is the same procedure as 331.

$SnCl_2$ is added to 250 mL of acidified sample. The liberated mercury is driven off with air as carrier gas through a gold trap onto which the mercury is amalgamated. CVAAS (cold-vapour atomic absorption spectrometry) is used to quantify the sample. When all the mercury is trapped, the gold is heated to at least 500^{o}C, and the mercury is driven off by the carrier gas into a quartz cell where the atomic absorption signal is measured at 253.7 nm. Apparatus: Perkin Elmer 300SG AAS converted with gold trap.

Since 1988: a maximum of 100 mL sample used, diluted if Hg >50 ng/l; Perkin Elmer 1100 B with gold trap used, helium replaced air as carrier gas and lowest signal was 2.5 ng/l.

Since 1994: Perkin Elmer FIMS 400 with gold trap, lowest signal 1.0 ng/L. Argon was used as carrier gas.

3.2 Sediments

3.2.1 Sample collection, storage and pretreatment

code	*description*
	Sampling of sediment
GC	Gravity corer (can include Niemistö corer)
GN	Reference: Niemistö 1974. Gravity corer with inner diameter of 50 mm.
GS	Grab sampler
GE	Gemini twin sampler. Gravity corer with inner diameter of 80 mm for each core.
	Methods of storage/preservation of sediment samples
01	Frozen (prior to inorganic analyses) and freeze dried (prior to organic analyses)
	Methods of grain size analysis of sediment
01	Dry sieving
	Methods of structural analysis of sediment
01	Visual observation through clear plastic cores
	Methods of sediment extraction
HFO	'Total' digestion with mineral acids including hydrofluoric acid (HF), in open vessels, evaporation of excess HF before analysis.
HNO	(outdated code = HNO1 3) Extraction with 1:1 HNO_3 (suprapur) for inorganic analyses on "fresh" (i.e., frozen) material.
EXN	(outdated code = EXN1 2) Extraction of (organic) contaminants by shaking with non-polar solvents cyclohexane/isopropanol (1:1 v/v) on freeze dried material.

3.2.2 Metal analyses

code ***description***

350 Mercury in sediment (NIVA)

Sample preparation

Samples are freeze dried, homogenated and digested in autoclave. (Freezing-drying of sediment has been practised since 1983).

Extraction (oxidation)

Approximately 1g of the sample is accurately weighed in Pyrex flasks, 20 mL 7N (concentrated) nitric acid (suprapur) is added and the solution heated 120°C for 30 min in an autoclave. The solution is transferred to a 100 mL volumetric flask and diluted to the mark with deionized water.

Determination

Prior to 1988: Mercury is determined by CVAAS (cold-vapour atomic absorption spectrometry), using the instrument Coleman Model MAS-50. 50 mL of the sample solution is transferred to the aeration flask. The lowest signal detectable corresponds to 0.03 µg mercury.

Since 1988: a maximum of 30 mL sample used, Perkin Elmer 1100 B with gold trap used, and helium replaced air as carrier gas and lowest signal was 0.010 µg/g (1g/100 mL)

Since 1994: FIMS 400 (Perkin Elmer) without gold trap, lowest signal 0.005 µg/g (1g/100 mL) Argon has been used as carrier gas.

351 Aluminium, cadmium, cobalt, lead, lithium, chromium, copper, iron, manganese, nickel and zinc in sediment (NIVA)

Same procedure as 350: #1-2, Drying and nitric acid Extraction.

Prior to 1992 (1990-91 JMP samples) 'total' extraction (HFO): Approximately 0.1g of the sample is accurately weighed in, 2 mL of hydrofluoric acid and 6 mL of concentrated nitric acid ('aqua regia') is added and the solution heated in a microwave oven. The solution is transferred to a 100 mL volumetric flask and diluted to the marked with deionized water.

Since 1992 'total' extraction (HFO): 0.2g of freeze dried homogenated sample is digested in Teflon vessels with 1 mL 'aqua regia' plus 6 mL hydrofluoric acid neutralised with boric acid and diluted to 100 mL. (cf., Loring D.H., Rantala, R.T.T., 1992. ICES manual for the geochemical analyses of marine sediment and suspended particulate matter).

Determinations by flame atomic absorption spectrometry using acetylene/air flame. Instrument: *Prior to 1986* a Perkin Elmer model 2380 was used. *During 1986-1989* a Perkin Elmer 560 has been used. *Since 1999* a Perkin Elmer Analyst 700 hac been used. For determinations of low concentrations (below detection limits) the flameless method (352) is used. The following table shows detection limits in extract solution (µg/l) and for the sediment sample (µg/g) using 0.2 g :

Element		extract µg/l	sample µg/g (0.2g sample)
Al	**aluminium**	1000	500
Cr	**chromium**	50	25
Cu	**copper**	100	50
Fe	**iron**	200	100
Li	**lithium**	10	5
Mn	**manganese**	50	25
Ni	**nickel**	100	50
Pb	**lead**	10	5

352 Aluminium, cadmium, chromium, cobalt, copper, iron, lead, lithium, manganese and nickel in marine sediment (NIVA)

Graphite furnace absorption is used for low concentrations.

Same procedure as 350: #1-2, Drying and Extraction, otherwise same as procedure 351.

Concentrations are determined by graphite furnace atomic absorption, electrothermal spectrometry or GFAAS, using a hollow cathode lamp (HCL) or an electrodeless discharge lamp (EDL) as a light source. *Prior to 1986* a Perkin Elmer model 560 with HGA-500 graphite furnace was used. During *1986-1999* a Perkin Elmer 2380 has been used. *Since 1999* Perkin Elmer Analyst 700 and P.E. Zeeman 4100 has been used.

A 20 µl portion of extract, treated with HNO_3, is injected into graphite tube. The sample is then heated electrothermally in a stepwise manner through drying, ashing and atomisation by a programme designed for each element. The programme which controls the ramp time, holding time and temperature for each phase is often adjusted to achieve optimal results.

The elements analysed and approximated limits of detection in extract solution (µg/l) and for the sediment sample (µg/g) using 0.2 g are shown in the table below:

Element		extract µg/l	sample µg/g (0.2g sample)
Al	**aluminium**	5	2.5
Cd	**cadmium**	0.1	0.05
Co	**cobalt**	5	2.5
Cr	**chromium**	0.5	0.25
Cu	**copper**	0.5	0.25
Fe	**iron**	5	2.5
Li	**lithium**	10	5
Mn	**manganese**	0.5	0.25
Ni	**nickel**	5	5
Pb	**lead**	0.5	0.25

353 Cadmium, chromium, nickel and lead in marine sediment (NIVA)

As 352 but *since 1992* the L'vov platform technique is used for these metals.

354 Arsenic (NIVA)

Graphite furnace absorption is used for low concentrations.

355 Aluminium, arsenic, cadmium, chromium, copper, lead, lithium, manganese, nickel and zinc in sediment (NIVA) *Since 2003*

Extraction: same procedure as 351 (since 1992)

Determination

Determination by Inductively Coupled Atomic Emission Spectroscopy (ICP-AES). An aerosol of sample is passed into a plasma of very high temperature. The resulting atoms and ions are emitting radiation which are separated into their different wavelengths in a spectrometer. The light is detected using a Charged-Coupled Device(CCD) and converted into concentration. The determinations is done by using internal standards and a Perkin Elmer 4300DV.

Approximated limit of detection in the samples are in some cases higher than for GFAAS (method 352) and are:

Element		sample µg/g (0.2 g sample)	GFAAS (352) sample µg/g (0.2g sample)
Al	**Aluminum**	10	2.5
As	**arsenic**	15	
Cd	**cadmium**	1.5	0.05
Co	**cobolt**		2.5
Cr	**chromium**	1.5	0.25
Cu	**copper**	1	0.25
Fe	**iron**		2.5
Li	**lithium**	1	5
Mn	**manganese**	0.25	0.25
Ni	**nickel**	2	5
Pb	**lead**	10	0.25
Zn	**zinc**	5	

650 Pb-210 dating (FORC)

Reference: Pheiffer-Madsen & Sørensen 1979.

Excerpt (Larsen & Jensen 1989): "The determination of time- dependent sediment parameters is based on the vertical distribution of the natural radioactive isotope lead-210 [= ^{210} Pb]. The content of unsupported lead-210, that lead-210 not produced in the sediment) decreases regularly downwards in undisturbed and steadily deposited sediment owing to radioactive decay. Departures from this predictable lead-210 profile in the topmost sediment column permit an assessment of mixing and/or intermittent erosion."

Dried slices of sediment are analysed.

3.2.3 Organic analyses

code ***description***

360 **PCB, QCB, OCS, HCB, DDTEP (p,p'DDE + p,p'DDT), HCHA, (a HCH), HCHG (g HCH = g BHC) in sediment (NIVA)**

Prior to 1990: the method is similar to SIIF method JAMP code 110.

Cleaning of chemicals and equipment

The equipment is washed with soap and water, rinsed first in water, then in distilled water and then with acetone. Finally, the glass equipment is heated to 550°C.

The equipment is washed with soap and water, then rinsed in 1:5 mixture of HNO_3 and H_2SO_4, respectively. Finally, the equipment is rinsed with acetone and cyclohexane.

All solvents are distilled in a special room for this purpose. Distilled water is shaken twice with distilled cyclohexane before use. Sodium sulphate is washed twice with distilled cyclohexane and heated to 550°C.

Extraction

10 g freeze dried, homogenised material is extracted twice with a mixture of the non-polar solvents cyclohexane/isopropanol (1:1 v/v). The two hour extraction is performed in a continuously shaken Erlenmeyer flask with 200 mL solvent mixture. The extraction is repeated with half solvent volume. The two extracts are combined and the cyclohexane phase separated by addition of 150+ mL distilled water (excess water relative to isopropanol). The isopropanol/water phase is decanted and the cyclohexane phase washed once with distilled water (several times if also determination of total persistent organic chlorine). The extract is dried over sodium sulphate and then weighed.

Clean-up of extract

2 mL cyclohexane extract is shaken vigorously with 2 mL concentrated sulphuric acid and then centrifuged. This process is repeated.

Gas chromatographic condition

Carlo Erba 2350 with Electron-Capture Detector (ECD). Splitless injection at 70°C and then programmed temperature raise with 7°/min to 230°C. Column: 30mx0.259 mm (inner diameter), 0.25 µ DB-5 fused silica capillary column. Carrier gas: H_2, 0.8 bar.

Identification and quantification

The sample is quantified using 4-5 dominant peaks in the Clophen A60 standard.

Since 1990 the principle is the same but details have been altered as followed.

Since 1992: Samples are processed by NIVA method H3-1 and analysis follow NIVA method H3-3.

Cleaning of chemicals and equipment

The equipment is washed in soap and water, then rinsed in water and finally with acetone. The air-dried glass equipment is heated to 550°C.

All solvents are either distilled in a special room for this purpose or if the quality is satisfactory commercial solutions are used. Distilled water is shaken with distilled cyclohexane before use. Sodium sulphate is washed with distilled cyclohexane and heated to 550°C.

Since 1995 all solvents and chemicals are commercial and used as delivered.

Extraction

Since 1991/1992, *0.5–5* g freeze dried, homogenised material, with internal standards added, is disintegrated/extracted twice with an ultrasonic disintegrator, and with acetone and cyclohexane (15:20) as the solvent. The two extracts are combined and the acetone/cyclohexane-extraction is washed twice with ion exchanged water.

Since 2001, 0.5-5g freeze dried or 5-12g wet, homogenised material is mixed with hydromatrix, added internal standards and extracted with dicloromethane and cyclohexane (1:1) using accelerated solvent extraction technique (ASE). Extraction conditions are: 2000psi, 100°C, and 3 static extractions.

Clean-up of extract

2 mL cyclohexane extract is shaken by whirl mixer with 6 mL concentrated sulphuric acid and then centrifuged. This process is repeated.

Since 1992

After extraction the samples are evaporated and filtrated using dichloromethane before clean-up using gel permeation chromatography (GPC). After the clean-up the sample solvent is changed back to cyclohexane again and the volume adjusted to 2 mL. The extract is then shaken twice with concentrated sulphuric acid and the organic phase isolated by centrifuging. Before analysis the sample volume is adjusted by evaporation with N_2.

Gas chromatographic condition

Analysis is performed using a HP 5890 Series II gas chromatograph with Electron-Capture Detector (ECD). Samples are injected in a splitless mode at 90°C and then the oven temperature is raised by 3°/min to 280°C. The column used is a 60m x 0.25 mm ID fused silica column with 0.25 µm phase thickness, the phase is 5% phenyl 95% dimethyl siloxane. H_2 at a flow of 1-2 mL/min is used as carrier.

Identification and quantification

The individual PCB-congeners are identified by their retention times and chromatographic pattern and quantified using internal standards and an eight-level calibration curve in the concentration range of the CBs in the solution to be analysed.

369 PAH in sediment (NIVA)

Extraction

Deuterated internal standards are added to about 0.5-5g of freeze dried sediment and the sample is extracted in Soxhlet with dichloromethane. The extract is then cleaned with DMF:water, or by silica gel, or both, if the extraction requires it. All the filtrated extractions are rinsed with GPC, and the eluent is now dichloromethane. Afterwards the solvent is changed back to cyclohexane. Finally, the sample is evaporated to a small volume before GC analysis.

Determination by GC

PAHs are determined on GC coupled to mass-selective detector. The compounds are detected by their respective molecular ions and retention time and quantified by using National Institute for Standards and Technology (NIST) Certified Reference Material (CRM) numbers 1491 and 1941a. Coronene and Dibenzopyrene are quantified with the help of in house standards.

Since 2001

Extraction: 0.5-5g freeze dried or 5-12g wet, homogenised material is mixed with hydromatrix, added internal standards and extracted with diclorometh ane and cyclohexane (1:1) using accelerated solvent extraction technique (ASE). Extraction conditions are: 2000psi, 100°C, 3 static extractions.

Determination by GC: as before however, Coronene is not determined.

370 TBT in sediment (NIVA)

Reference: Følsvik *et al.* 1999.

Pretreatment: An internal standard is added to the samples. The samples are extracted under acidic conditions. The samples' pH are then adjusted before derivatization with $NaBEt_4$. n-hexane is added simultaneously to extract the derivatized organotin compounds. The derivatization/extraction procedure is repeated once and followed by clean-up of the combined organic phase with AL-B SPE-column.

Chemical analysis: Analysis of organotin compounds is carried out by means of a HP 5890A gas chromatograph equipped with a HP 5921A atomic emission detector. The samples are routinely analysed on a 30 m x 0.32 mm x 0.25 µm crosslinked 5 % phenyl methyl siloxane capillary column. The column is maintained at 50 °C for 5 min and the temperature is then increased by 15 °C/min to 230 °C. Emission intensities for tin (271 nm) and carbon (248 nm) are measured by the photodiode array detector and chromatograms recorded by a HP 35920A GC-AED ChemStation.

Since 2004

Chemical analysis: The extracts are analysed by GC/MS. The MS detector was operated in selected ion monitoring mode (SIM), and the analyte concentrations in the standard solutions are in the range 1-3000 ng/ml. The GC was equipped with a 30 m column with a stationary phase of 5% phenyl polysiloxane (0.25 mm i.d. and 0.25 µm film thickness), and an inlet operated in the splitless mode. The initial column temperature was 50°C, which after two minutes was raised to 230°C at a rate of 10°C/min and

thereafter raised to 310°C at a rate of 50°C/min. The injector temperature was 280°C, the transfer line temperature was 280°C, the MS source temperature was 230°C and the column flow rate was 1.0 ml/min. Quantification of individual components was performed by using the internal standard method.

Limit of analytical detection is 1 µg/kg dry weight.

760 PCB in sediment (IMRN)

PCBs in total sediment (50 g) are extracted 3 times by acetone and hexane: Acetone (3:1) using repeated ultrasonication and agitation (Jensen *et al.* 1977).

Sulphur is removed with metallic mercury.

A florisil column (100-230 mesh, 30 cm x 6 mm ID) is used for the separation of the extract into 3 fractions. The first fraction eluted with 2 mL pentane is discarded; the second fraction eluted with 6.5 mL pentane contained PCB, HCB, aldrin, o,p-DDE, p,p-DDE and o,p-DDT; and the third fraction eluted with 10mL pentane:acetone (9:1) contained, alpha-HCH, beta-HCH, gamma-HCH (Lindane), o,p-DDD, p,p-DDD, o,p-DDT (20%) and p,p-DDT.

The third fraction needed further clean up on a neutral alumina column (30 cm x 6 mm ID; deactivated with 6% water). The chlorinated pesticides are eluted with 18 mL pentane. Beta-HCH iss not eluted using this method.

A few samples (1990 sediment stations 15S-67S) are cleaned up before separation on the florisil column. A short silica column (10 cm x 6 mm ID) is used, followed by a alumina column (10 cm x 6 mm ID, acidic Al_2O_3). Pentane:dichloromethane (4:1) is used for elution of the compounds.

The chlorinated compounds are quantified on a GC with ECD using two different columns: SE-54 CB, fused silica, 50 m x 0.20 mm, 0.11 µm; SP-2330, fused silica, 60 m x 0.25 mm, 0.20 µm.

769 PAH in sediment (IMRN)

Ca.50 g of total sediment (< 2 mm) are extracted three times with acetone and hexane:acetone (3:1) using ultrasonication and agitation.

The clean-up of the extract is carried out on a short silica column (10 cm x 6 mm ID) using pentane:dichloromethane (9:1) as eluent. GC/MS equipped with a SE-54 fused silica capillary column (50 m x 0.20 mm ID, 0.11 μm film thickness) is used for the analysis of 2-6 ring aromatic hydrocarbons.

3.2.4 Organic carbon

code ***description***

390 Total organic nitrogen and organic carbon (CORG) in sediment (NIVA)

5-8 mg of freeze dried sample is weighed in a tin-foiled capsule and heated to over 1800 °C in an oven. The carbon in the gas is analysed in a C-N 11O6 Carlo-Erba element analyser. Detection limit for C is 1 μg/mg and N is 1 μg/mg.

3.3 Marine biota

3.3.1 Metal analyses

code ***description***

120 Mercury in biota (SIIF)

Representative samples are homogenised in a whirlmixer. 1.0g sample is weighed into a special digestion apparatus with reflux (Bethge apparatus). 10 mL conc. HNO_3 and 1 mL 47% HBr is added and the solution boiled for approximately 30 min. under reflux.The solution is cooled down to room temperature and diluted to volume into a 50 mL volumetric flask with distilled water.

Mercury is determined with CVAAS (cold-vapour atomic absorption spectrometry). Mercury is reduced with $SnCl_2$.

Mercury in shellfish

A special procedure is used for shellfish. This is the same procedure as above, but bomb digestion (pressurised decomposition) with HNO_3 at 160°C is used instead of pretreatment with HNO_3 and HBr.

130 Cadmium, lead, copper and nickel in biota (SIIF)

Representative samples are homogenised in a whirlmixer. 1g freeze dried sample is weighed into a vitrosil vessel and dried at 110°C to constant weight to determine the total water content.The vessel is then placed in a cold muffle furnace and the temperature increased slowly to 450°C. The vessel is removed from the furnace and cooled down to room temperature. After wetting the ash with 1 mL conc. HNO_3 and approximately 2 mL H_2O, gentle heating is performed on a hot plate.The final solution is diluted to volume into a 50 mL volumetric flask with distilled water.

The metals are determined with flame atomic absorption spectrometry after extraction with APDC and MIBK (ammonium-pyrrolidine-dithio-carbamate and methylisobutylketon).

131 Zinc in biota (SIIF)

Same procedure as 130 but without extraction with APDC/MIBK.

132 Zinc and manganese in biota (SIIF)

Same procedure as 131 but quantified by ICP.

220 Mercury and selenium in fish (VETN)

Samples are digested in a mixture of nitric and perchloric acid and the mercury content is determined by CVAAS (cold- vapour atomic absorption spectrometry).

Reference: Haugen *et al.* 1985.

Abstract (Haugen *et al.* 1985)

Tissue samples are digested in a mixture of nitric and perchloric acid in a temperature controlled aluminium block. Maximum temperatures for the mercury and selenium determinations are 180 and 225°C, respectively. After reduction of hexavalent selenium with hydrochloric acid and dilution, the samples are transferred to a programmable sample changer. Both elements are determined with hydride generator producing a continuous, integratable signal. The precision at an absorbance reading of 0.4 is better than 1% and the quantification limit is better than 0.02 µg/g, when using a 1.0 g sample. Good agreement has been obtained when compared with other methods. Seven determinations of selenium in NBS bovine liver (1577a) gave an average of 0.71 µg Se/g, which is equivalent to the certified value.

230 Cadmium in fish (VETN)

Samples are digested by boiling with concentrated nitric acid (Suprapur) during several hours. The metal content is recorded by graphite furnace atomic absorption spectrometry. Quantification is based on standard addition to the digested samples.

240 Selenium in biota (VETN)

Reference: Norheim & Nymoen 1981.

Abstract (Norheim & Nymoen 1981)

The fluorimetric method is used, employing 2,3- diaminonaphtalene (DAN) as a complexing agent. The method uses 5 g of material in an automatic wet digestion procedure with 17 mL of 3+7 mixture of perchloric and nitric acid. The solution is heated slowly (225°C) in a thermostatically controlled aluminium block to distil off the nitric acid without charring. After digestion the hexavalent selenium is reduced with hydrochloric acid. EDTA (ethylenediaminetetraacetic acid) is added and aminoacetic acid is used as buffer. The pH is adjusted to 2.4 using a 35cm long electrode. DAN is added and the solution is heated at 60°C for 1hr. Finally, the solution is extracted with cyclohexane and the selenium content is measured fluorometrically on a Perkin Elmer Model 1000 filter instrument. The detection limit is 10 ppb wet weight.

310 Mercury in biota (NIVA)

Large samples (e.g., fish fillet) are homogenised by Tedal Quick Foodmaster Holberth silent cutter with stainless steel blades. For smaller samples (e.g., liver) a Silverson 4R Homogeniser is used.

Drying procedure

*Prior to 1991:*An accurately weighed sample of approximately 1g is freeze dried until constant weight. If the sample has excessive fat content (e.g., fish liver) and therefore, can not be freeze-dried the sample is dried at 105°C for one hour. The samples are cooled in a desiccator for one hour before weighing. Normally, mercury is determined on wet samples and the water content is determined in a subsample.

Since 1991 (1990 JMP samples: extracts have been made from wet (fresh) samples.

Extraction (oxidation)

Prior to 1991: 50-200 mg freeze-dried sample is weighed in Teflon vessels, 2 mL concentrated nitric acid (suprapur) is added and capped loosely. The solution is heated for about 2 hrs. at 50°C in a thermostatically controlled aluminium block until foaming ceases. The temperature is raised to 110°C and kept there for 6-8 hrs. The solution is then cooled. For samples with high fat content (e.g., liver) 2 mL of 30% H_2O_2 is added and the solution is heated again to 110°C for 3-4hrs. After cooling the solution is diluted to 25 mL. For mercury, samples of approximately 200 mg material is used and the solution is diluted to 100 mL.

Since 1991: extracts are made from 0.2-0.5g dried or 1-2.5g wet sample. For wet samples, two alternative methods are used:

1) if mercury concentrations are to be determined along with other metals (e.g. blue mussel samples): 2-2.5g wet sample + 20 mL 1:1 HNO_3 to 100 mL in Pyrex vessels, or

2) else, 1-2g wet sample + 10 mL 1:1 HNO_3 to 50 mL, digested for 30 min in autoclave and then diluted to 50 mL in Teflon vessels.

If there is excessive fat in the sample 2 mL 30% hydrogen Pyroxide (H_2O_2) is added.

Since 1994: microwave digestion if mercury is determined together with other elements. *0.*5-1.5g wet sample and 5 mL concentrated HNO_3 - dilute to 50 mL.

Determination

Prior to 1988: Mercury is determined by CVAAS (cold-vapour atomic absorption spectrometry), using the instrument Coleman Model MAS-50. 50 mL of the sample solution is transferred to the aeration flask. Tin chloride is added as a reducing agent.

Since 1988: a maximum of 30 mL sample is used, up to concentrations 1.5 µg/l, and diluted if Hg in the solution is more than 1.5 µg/l. A PERKIN ELMER 1100 B with gold trap is used with helium as carrier gas.

Since 1994: FIMS 400 (Perkin Elmer) without gold trap. Lowest signal 0.005 µg/g. Argon is used as carrier gas.

311 Copper, iron and zinc in biota (NIVA)

(Same homogenising, drying and extraction procedure as 310.)

Determinations by flame atomic absorption spectrometry using acetylene/air flame. Instrument: *Prior to 1986* a Perkin Elmer model 2380 was used and *since 1986* the Perkin Elmer 560 has been used. For determinations of low concentrations (below detection limits) the flameless method (352) is used. The following are elements often analysed by flame and their respective detection limits in extract solution and sample:

	Element	extract µg/l	sample µg/g (0.5-1.5g sample)
Cu	**copper**	50	1.7 - 5
Fe	**iron**	200	6.7 - 20
Zn	**zinc**	10	0.3 - 1

312 Cadmium, chromium, lead and nickel in biota (NIVA)

Homogenising, drying and extraction procedures as in 310.

Determination

Concentrations are determined by graphite furnace atomic absorption electrothermal spectrometry or GFAAS using a hollow cathode lamp (HCL) or an electrodeless discharge lamp (EDL) as a light source. *Prior to 1986* a Perkin Elmer model 560 with HGA-500 graphite furnace was used. S*ince 1986* a Perkin Elmer 2380 has been used with the HGA-500 graphite furnace. *Since 1992* the GFAAS with Zeeman correction (Perkin Elmer Zeeman 4100) has been used for determination of cadmium and lead.

A 20 µl portion of extract, treated with HNO_3, is injected into graphite tube. The sample is then heated electrothermally in a stepwise manner through drying, ashing and atomisation by a programme designed for each element. The programme which controls the ramp time, holding time and temperature for each phase is adjusted to achieve optimal results.

The limits of detection for the extract and sediment sample are:

	Element	extract µg/l	sample µg/g (0.5-1.5g sample)
Cd	**cadmium**	0.1	0.003 – 0.01
Cr	**chromium**	0.5	0.017 – 0.05
Ni	**nickel**	5	0.167 – 0.5
Pb	**lead**	0.5	0.017 – 0.05

315 Arsen, cadmium, chromium, cobolt, copper, lead, manganese, nickel, silver and zinc in biota (NIVA) Since october 2002

Same homogenising, drying and extraction procedure as 310.

Determination

Since October 2002, Cd, Cu, Pb and Zn are determined in biota by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). An aerosol of sample is passed into a plasma of very high temperature. The resulting ions are extracted into a vacuum system via a pair of "cones". Electrostatic lenses focuse the stream of ions into a chamber where the mass spectrometer and detector are housed. The masses are separated by a quadropole mass analyzer and detected by an electron multiplier detector. The determinations are done by using internal standards. Instrument: Perkin Elmer Elan 6000. The detection limit is largely determined by the purity of the blanksamples, and to a lesser degree by the amount of material weighed in. The approximated limit of detection in the samples are:

Element		µg/g
As	**arsenic**	0.05
Ag	**silver**	0.005
Cd	**cadmium**	0.001
Co	**cobolt**	0.0005
Cr	**chromium**	0.1
Cu	**copper**	0.03
Mn	**manganese**	0.02
Ni	**nickel**	0.02
Pb	**lead**	0.02
Zn	**zinc**	0.1

401 Mercury in biota (FIER)

References: Eliann & Julshamn 1978; Julshamn *et al.* 1982.

Abstract (Eliann & Julshamn 1978; Julshamn *et al.* 1982)

Representative samples are homogenised in a whirlmixer. About 1g of sample tissue is dried at 95°C for 24 hrs. 0.5 g sample is weighed into a special digestion apparatus with reflux (Bethge apparatus).10 mL conc. HNO_3/H_2SO_4 (1+1) + V_2O_5 (0.1% w/v) are added. The solution is boiled for approximately 30 min under reflux.The solution is cooled down to room temperature and diluted to volume into a 50 mL volumetric flask with distilled water and MnO_4.

Mercury is determined by CVAAS (cold-vapour atomic absorption spectrometry), EDL (electrodeless discharge lamp), wavelength = 253.6 nm, Perkin Elmer 370 AAS, Perkin Elmer mercury analysis system (303-0830 and 303-0832). Mercury is reduced with $SnCl_2$ to avoid interference with iodine.

Quantification is based on standard curves. Detection limit: dry weight sample. 5 ng/g.

402 Cadmium in biota (FIER)

References: Julshamn & Brækkan 1975; Julshamn 1977; Julshamn & Andersen 1983.

Abstract (Julshamn & Brækkan 1975; Julshamn 1977; Julshamn & Andersen 1983)

Representative samples are homogenised in a whirlmixer. 1 g of sample tissue is dried at 95°C for 24 hr. O.1 g sample is weighed into a Sovirel test-tube (20 mL). 2 mL conc. $HNO_3/HClO_4$ (9:1) is added and is boiled under pressure.The solution is cooled down to room temperature and diluted to volume into a 10 mL volumetric flask with distilled water.

Concentrations are determined by graphite furnace atomic absorption electrothermal spectrometry or GFAAS, hollow cathode lamp (HCL), Perkin Elmer 5000 AAS, HGA 500 (Perkin Elmer graphite furnace), AS 50 (Perkin Elmer autosampler) and wavelength = 228.8 nm. Matrix modification reagent is $(NH_4)_2HPO_4$.

Quantification is based on standard addition to the digested samples: Amount added in the analyses: 1 ng Cd /mL. Detection limit for dry tissue sample: 0.5 ng/g.

403 Lead in biota (FIER)

(Same procedure as 402: par.#1 and #3-5).

Concentrations are determined by graphite furnace atomic absorption electrothermal spectrometry or GFAAS, EDL (electrodeless discharge lamp) Perkin Elmer 5000 AAS, HGA 500 (Perkin Elmer graphite furnace), AS 50 (Perkin Elmer autosampler) and wavelength = 283.3 nm. Matrix modification reagent is $(NH_4)_2HPO_4$.

Quantification is based on standard addition to the digested samples: amount added in the analysis Pb 10 ng/mL. Detection limit for wet tissue sample: 10 ng/g.

404 Copper in biota (FIER)

With high Cu content (> 1.5 ppm d.w.):

Same procedure as 402: par.#1-5. Concentrations are determined by flame AAS (atomic absorption spectrometry), HCL (hollow-cathode lamp, Perkin Elmer 370 AAS and wavelength = 324.7 nm without background correction.

With low Cu content (< 1.5 ppm d.w.):

Same procedure as 402: par.#1-5. Concentrations are determined by graphite furnace atomic absorption electrothermal spectrometry or GFAAS, HCL (hollow cathode lamp, Perkin Elmer 5000 AAS, HGA 500 (PERKIN ELMER graphite furnace), AS 50 (Perkin Elmer autosampler) and wavelength = 324.7 nm. No matrix modification reagent is used.

Quantification is based on standard addition to the digested samples: 10 ng/mL.

405 Zinc in biota (FIER)

Same procedure as 402: par.#1-5. Concentrations are determined by flame AAS (atomic absorption spectrometry), HCL (hollow-cathode lamp, Perkin Elmer 370 AAS and wavelength = 213.9 nm without background correction.

Quantification is based on standard curves.

406 Arsenic in biota (FIER)

Same procedure as 402: par.#4-5.Concentrations are determined by graphite furnace atomic absorption electrothermal spectrometry or GFAAS, HCL (hollow- cathode lamp) Perkin Elmer 5000 AAS, HGA 500 (Perkin Elmer graphite furnace) with a conventional tube without platform, AS 50 (Perkin Elmer autosampler) and wavelength = 193.7 nm. Matrix modification reagent is a Ni-solution.

3.3.2 Organic analyses

code ***description***

110 PCB, HCB, DDTEP (p,p'DDE + p,p'DDT), HCHG (gHCH = gBHC) in fish and shellfish (SIIF)

Cleaning of chemicals and equipment

All solvents are distilled in a special room for this purpose. Distilled water is shaken twice with distilled cyclohexane before use. Sodium sulphate is washed twice with distilled cyclohexane and heated in the same way as the glass equipment.

Extraction

10 g wet, homogenised material is extracted twice with a mixture of cyclohexane/isopropanol (1:1 v/v). The two hour extraction is performed in a continuously shaken Erlenmeyer flask with 200 mL solvent mixture. The extraction is repeated with half solvent volume. The two extracts are combined and the cyclohexane phase separated by addition of 150+ mL distilled water (excess water relative to isopropanol). The isopropanol/water phase is decanted and the cyclohexane phase washed once with distilled water (several times if also determination of total persistent organic chlorine). The extract is dried over sodium sulphate and then weighed.

Determination of fat

A part of the cleaned and dried cyclohexane extract is evaporated in an oven to constant weight at 100°C.

Alternatively, the extract is evaporated to constant weight in a flask with Vigreux column in oil bath at 1 atm., 110°C and reflux or in vacuum, 50°C, reflux and weak N_2-stream.

The results are corrected for loss of cyclohexane. Cyclohexane output is calculated as sum cyclohexane extracts from first and second extraction (grams) minus fat in the same extract.

The precision of the fat determinations is roughly ±10%. Determinations are given to 0.1% fat. The two methods give comparable results.

Clean-up of extract

0.2 g fat is dissolved in 2 mL cyclohexane, shaken vigorously with 2 mL concentrated sulphuric acid and then centrifuged. For further clean-up about 1 mL of the sulphuric acid treated extract is treated with a solution of KOH.

Gas chromatographic condition

Hewlett-Packard 5730A with ECD. Splitless injection at 60°C and then programmed temperature raise with 8°/min to 230°C. Column: 50mx0.3 mm (inner diameter), 0.15 µ SE-54 glass capillary column. Carrier gas: He, 20 psi.

Identification and quantification

By comparing the whole pattern with various commercial standard mixtures, it has been found that Clophen A60 is in best accordance with the sample types. Some of the isomers in the PCB pattern are selected by comparison with standards of specific isomers and these are used for quantification:

SIIF code	CB code	Structure (-bifenyl)	name
3	**95**	2,3,6,2',5'	Pentachlorine
4	**101**	2,4,5,2',5'	Pentachlorine
9/	**149/**	2,4,5,2',3',6'/	Hexachlorine
10	**118**	2,4,5,3',4,	Pentachlorine
14	**138**	2,3,4,2',4',5'	Hexachlorine
15	**128**	2,3,4,2',3',4'	Hexachlorine
16	**180**	2,3,4,5,2',4',5'	Heptachlorine

By the GC conditions used it has not been possible to separate isomers 9 and 10.

HCB, HCHG (gHCH=gBHC) and DDTEP (p,p'DDE + p,p'DDT) is determined by multi-level calibration curve. HCHG is identified and quantified by the breakdown product of HCHG (three trichlorobenzene peaks) after treatment with sodium hydroxide (NaOH)

111 PCB, HCB, DDTEP (p,p'DDE + p,p'DDT), HCHG (gHCH = gBHC) in fish and shellfish (SIIF)

Same procedure as 110, except that the organochlorine standard is Arochlor 1254 instead of Clophen A60 which is used earlier. The detection limit given for 1982 JMP data for this method is erroneously low. Corrected limits are given in the 1983 JMP data submitted.

The detection limit is dependant on sample quantity. For example the detection limit for HCHG is approximately: 0.1 ppb with 10 g dry weight material, 0.03 ppb with 25 g and 0.01 ppb with 80 g.

Since 1991 CB204 has been used as an internal standard.

210 PCB, HCB, DDEPP in fish liver samples (VETN)

References: Bjerk & Sundby 1970; Norheim 1978.

Abstract (Norheim, 1978)

> Extraction: 0.5 g of sample is homogenised n a mortar with 2.5 g of anhydrous sodium sulphate and 2.5 g purified sand and allowed to stand overnight in the dark. After being mixed with 2 g magnesium sulphate, the dry powder is transferred to a short chromatographic column (20 mm x 10 cm) equipped with ground glass stoppers and elutriated with 2 x 10 mL diethyl ether. The column is carefully rotated to release air bubbles and the ether is allowed to stand for 2 hrs in the column before elutriation. The ether is evaporated in centrifuge tubes and the residue dissolved in 1.0 mL n-heptane. The extract is finally treated with 2.0 mL concentrated sulphuric acid for about 1 hour. 5 µl n-heptane is injected into the gas chromatograph.
>
> Quantification: Phenoclor DP6 is used as standard. The peak height of 2,4,5-2',4',5' hexachlorobiphenyl is used to quantify PCB.

211 PCB in fish filet samples (VETN)

Reference: Norheim & Økland 1980.

Abstract (Norheim & Økland, 1980)

Apparatus: A Carlo Erba 2100 gas chromatograph equipped with a nickel-63 electron-capture detector and a 2 m x 3 mm (inner diameter) glass column is used. The column material is 1.5% SP-2250 - 15.9% SP-2401 on 100-120-mesh Supelcon AW DMCS. The column, injector and detector temperatures are 200, 250 and 275^{O}C, respectively. Argon-methane (95+5) is used as the carrier gas, the flow-rate being 55/mL/min. The electrometer attenuation is x128.

Reagents: Sulphuric acid, 95-97%, is pro analysi grade (Merck). Heptane, is pro analysi grade (Merck). Hexachlorobenzene, is pract. grade (Fluka). Octachlorostyrene, is supplied from Norsk Hydro.

Standard solutions: Amounts of 100 mg each of hexachlorobenzene and octachlorostyrene are dissolved in 100 mL of heptane and the mixture is diluted 1 + 50 000 with heptane.

Procedure: A 0.5 g amount of sample is accurately weighed into a 10 mL Soveril glass tube fitted with a screw-cap, and 6 mL of concentrated sulphuric acid are measured into the tube. The tube is placed in a thermostatically controlled oven at 60°C for 4 hr, during which time it is shaken lightly a few times to ensure complete solubilisation of the sample. After cooling, 1.0 mL of heptane is pipetted into the tube, the screw-cap put on and the tube shaken for about 3 min. Finally, the tube is centrifuged with the screw-cap on, after which the sample is ready for gas chromatography. An injection volume of 5 µl is used.

Quantification: The same standard and isomer as in 210 are used to quantify the sample.

309 PAH in biota (NIVA)

Extraction

Deuterated internal standards are added to about 10-20g (dependent on available material) of homogenised wet sample, and the sample is then saponified with KOH/methanol. After filtrating through a glass filter, the solution is extracted with n-pentane. The extract is sometimes then cleaned with partition with DMF:water, or by silica gel, or both, if the extraction requires it. All the filtrated extractions are rinsed with GPC, and the eluent is now dichloromethane. Afterwards the solvent is changed back to cyclohexane, and finally, the sample is evaporated to a small volume before GC analysis. GPC was first introduced in 1992.

An aliquot if the homogenised sample is used for dry weight determination.

Determination by GC

PAHs are determined on GC coupled to mass-selective detector. The compounds are detected by their respective molecular ions and retention time and quantified by using National Institute for Standards and Technology (NIST) Certified Reference Material (CRM) number 1491 and number SRM 2974 for blue mussel samples. Coronene and Dibenzopyrenes are quantified with the help of in house standards.

Since 2001

Determination by GC, however, Coronene is not determined.

Since 2003

SRM 2974 is replaced by SRM2977.

320 TBT in biota (NIVA)

Reference: Følsvik *et al.* 1999.

Pretreatment: An internal standard is added to the samples. The samples are extracted under basic conditions. The samples' pH are then adjusted before derivatization with $NaBEt_4$, n-hexane is added simultaneously to extract the derivatized organotin compounds. The derivatization/extraction procedure is repeated once and followed by clean-up of the combined organic phase with AL-B SPE-column.

Chemical analysis: Analysis of organotin compounds is carried out by means of a HP 5890A gas chromatograph equipped with a HP 5921A atomic emission detector. The samples are routinely analysed on a 30 m x 0.32 mm x 0.25 µm crosslinked 5 % phenyl methyl siloxane capillary column. The column is maintained at 50 °C for 5 min and the temperature is then increased by 15 °C/min to 230 °C. Emission intensities for tin (271 nm) and carbon (248 nm) are measured by the photodiode array detector and chromatograms recorded by a HP 35920A GC-AED ChemStation.

Since 2004

Chemical analysis: The extracts are analysed by gas chromatograph with mass spectrometry (GC-MS). The MS detector is operated in selected ion monitoring mode (SIM), and the analyte concentrations in the standard solutions are in the range 1-3000 ng/ml. The GC is equipped with a 30 m column with a stationary phase of 5% phenyl polysiloxane (0.25 mm i.d. and 0.25 µm film thickness), and an inlet operated in the splitless mode. The initial column temperature is 50°C, which after two minutes is raised to 230°C at a rate of 10°C/min and thereafter raised to 310°C at a rate of 50°C/min. The injector temperature is 280°C, the transfer line temperature is 280°C, the MS source temperature is 230°C and the column flow rate is 1.0 ml/min. Quantification of individual components is performed by using the internal standard method.

Limit of analytical detection is 1 µg/kg wet weight.

340 PCB, QCB, OCS, HCB, DDTEP (p,p'DDE + p,p'DDT), HCHB, (b HCH), HCHG (g HCH = g BHC) in fish liver (NIVA)

Prior to 1991 (1987 JMP NIVA samples): Equivalent to method 111 (SIIF) with the following exception:

Determination of fat

The extract is evaporated to constant weight in a flask with Vigreux column in oil bath at 1 atm., 110°C and reflux or in vacuum, 50°C, reflux and weak N_2-stream.

The results are corrected for loss of cyclohexane. Cyclohexane output is calculated as sum cyclohexane extracts from first and second extraction (grams) minus fat in the same extract.

Since 1991 (1990 JAMP samples):

Cleaning of chemicals and equipment

The equipment is washed in soap and water, then rinsed in water and finally with acetone. The air-dried glass equipment is heated to 550°C.

All solvents are distilled in a special room for this purpose or if the quality is satisfactory commercial solutions are used. Sodium sulphate is washed twice with distilled cyclohexane and heated to 550°C.

Since 1995 all solvents and chemicals are commercial and used as delivered. Ion exchanged water is shaken with cyclohexane before use, if it is supposed to blend with the extraction solvent.

Extraction

About 2 g (depending on species/tissue) of wet, homogenised material is extracted twice by ultrasonic disintegration with a mixture of cyclohexane:acetone (20:15).

Determination of dry weight

The percent dry weight in sediments and biological material is determined by drying an accurately weighed sample (2-5 g) at 105 °C over night (until dryness). The sampled is cooled in a desiccator and weighed again.

Determination of fat

The cyclohexane extract is evaporated in an oven to constant weight at 105°C.

The precision of the fat determinations is roughly ±10%. Determinations are reported in % wet weight. (?) with two significant figures.

Since 2005

The cyclohexane extract is evaporated in an oven to constant weight at 60°C.

Clean-up of extract

About 0.1g fat is dissolved in 2 mL cyclohexane, shaken with 6 mL concentrated sulphuric acid and then centrifuged. For further clean-up about 1 mL of the sulphuric acid treated extract may be treated with a solution of KOH.

Since 1994
Internal standards is added to an exact amount of fat, then dissolved in dichloromethane, and the filtrated extract is rinsed with GPC. Afterwards the solvent is changed back to cyclohexane and the volume adjusted to 2 mL. The extract is then shaken twice by whirlmixer with concentrated sulphuric acid and centrifuged. Finally, the sample is evaporated to a small volume before GC analysis.

Gas chromatographic condition

Since 1992
Analysis is performed using a HP 5890 Series II gas chromatograph with Electron-Capture Detector (ECD). Samples are injected in a splitless mode at 90°C and then the oven temperature is raised by 3°/min to 280°C. The column used is a 60 m x 0.25 mm ID fused silica column with 0.25 µm phase thickness, the phase is 5% phenyl 95% dimethyl siloxane. H_2 at a flow of 1-2 mL/min is used as carrier.

Identification and quantification

The individual PCB-congeners are identified by their retention times and chromatographic pattern, and quantified using internal standards and a eight-level calibration curve in the concentration range of the CBs in the solution to be analysed.

Detection limits: 1-5 µg/kg, 0.05 µg/kg for fillet and 0.1 µg/kg for blue mussels (cf. no. 341)

341 PCB, QCB, OCS, HCB, DDTEP (p,p'DDE + p,p'DDT), HCHA, (a HCH), HCHG (g HCH = g BHC) in shellfish and fish fillet (NIVA)

Same procedure as 340: except that the internal standards are added before the extraction procedure, and the detection limits are different from fish liver samples.

Detection limits: 0.05 µg/kg for fillet, 0.1 µg/kg for blue mussels and 1-5 µg/kg for liver samples (cf. no. 340)

510 PCB, HCB, DDEPP (p,p'DDE), DDTPP (p,p'DDT), HCHG (g HCH = g BHC) in fish liver (NACE)

Pretreatment and fat determinations: Samples are homogenised in a Waring blender. Homogenised liver samples are ground in a mortar with sea sand and anhydrous sodium sulphate and allowed to stand overnight. The samples are mixed with magnesium-sulphate, transferred to a glass column with sintered glass fritt and extracted with diethyl ether. The ether is collected in pre-weighed tubes, evaporated and the amount of fat determined by weighing.

The fat extract is dissolved in hexane for pesticide analyses and treated with concentrated sulphuric acid with gentle agitation. After centrifugation the hexane phase is used for gas chromatography (GC) analysis for pesticides and PCBs. An aliquot of the hexane phase is also treated with sodium alcoholate to convert p,p'DDT to p,p'DDE for the determination of DDT by the increase in DDE.

Moisture content: samples are dried in an oven overnight (16hr) at 105°C, equilibrated in a desiccator for 1hr and re-weighed. Filet samples are also dried for 72hr at 45°C for later determination of mercury.

GC analyses: a Perkin Elmer 8500 GC equipped with an auto-sampler and an Electron-Capture Detector (ECD) (Ni-63) and connected to a 7500 computer with Chrom 3 software is used. The column is a glass 2 m x 1/4", 2 mm (inner diameter) packed with 1.5% SP-2250/1.95% SP-2400 on Suplecoport 100/120. The carrier gas is argon with 5% methane at a flow rate of 40 mL/min. The oven temperature is 210°C, with the injector at 250°C and the detector at 300°C. The amount of sample injected is 2 µl and the flow-through (?) time is 40 min.

Reference standards: commercially available Aroclor 1242, Aroclor 1254, Aroclor 1260 and Supelco's CP pesticide mix are used in addition to a special mixture containing Phenoclor DPG (60% chlorination), hexachlorobenzene (HCB), octachlorostyrene (OCS), p,p'-DDE and decachlorobiphenyl (DCB).

Quantification: response factors are calculated from the integrated areas for each component and the amount injected. The corresponding peaks for the samples are integrated and the concentrations calculated from the area and the response factor. A simplified method for the calculation of the concentrations of PCBs is used. This is based on using the area for the peak in the Phenoclor standard corresponding to 2,4,5,2',4',5'-hexachlorobiphenyl and the total amount of PCB components injected. The concentrations for samples are calculated from the area of the peak corresponding to that used in the standard. This requires that the pattern of PCB components in the sample corresponds to that of the Phenoclor standard.

Detection limits: the minimum detectable amount corresponds to 0.01 µg/g wet weight for liver samples. This gives minimum quantification limits of 0.04 µg/g for PCB.

511 PCB in fish filet (NACE)

Same procedure as 510: par.#3-6.

Pretreatment: Homogenised filet samples are treated with concentrated sulphuric acid for 4hr at 60°C and PCBs extracted with hexane. After centrifugation the hexane phase is used for gas chromatography (GC) analysis.

Detection limits: the minimum detectable amount corresponds to 0.005 µg/g wet weight for liver samples. This gives minimum quantification limits of 0.02 µg/g.

605 EPOCl in shellfish (SIIF)

The cyclohexane extract from chlorinated hydrocarbon analysis is reduced in volume (by evaporation) and treated with concentrated H_2SO_4 until the extract is clear. An aliquot exposed to neutron bombardment in a JEEP II atomic reactor at the Institute for Energy Technology (Kjeller, Norway). The radioactivity of the persistent chlorine isotope is measured and quantified against a complete procedural blank.

The detection limit is 5 ppb wet weight.

610 EPOCl in fish liver (NACE)

Same procedure as 605.

The detection limit is 800 ppb wet weight.

615 EPOCl in fish liver (NIVA)

Same procedure as 605.

The detection limit is 40 ppb wet weight.

730 PBDE in fish liver (NIVA)

Extraction and clean-up.
0.1-0.2g fat (produced in the PCB extraction) is mixed with hydromatrix, added internal standard and extracted with isohexane using accelerated solvent extraction technique (ASE). The extraction cell is packed with 20g aluminium oxide deactivated with 5% water. Extraction conditions: Pressure=1500psi, temperature=60°C, number of static cycles=2. For further clean-up the extract is shaken with concentrated sulphuric acid.

Gas chromatographic conditions
The analysis is performed using a HP 6980 Plus gas chromatograph with 5973 mass selective detector operated in negative chemical ionization mode (selected ion monitoring at molecular mass / ion charge (m/z) 79 and 81), chemical ionisation gas is methane. The samples are injected in pulsed splitless mode at 120°C (2 min) and the temperature is raised by 15°C/min to 200°C and then raised by 6°C/min to 330°C (3min). The column type used is a DB-5, 30m x 0.25mm i.d. and 0.25µm film thickness.

Identification and quantification
The compounds are identified by retention time and fragment ions and quantified using internal standard and calibration curve.

Detection limits
The detection limits (on wet weight bases) are dependent on the fat content of the sample, sample amount, individual responses and blanks and can vary from 0.04 µg/kg to 3 µg/kg among the different compounds.

740 PFAS in fish liver (NIVA)

Extraction and clean-up
Wet material (1g) is added internal standard and extracted with a mixture of 2ml water, 2 ml 0.25M Na_2CO_3 and 1ml 0.5M TBA using ultrasonic bath (30min). The pH is adjusted to 3 with sulphuric acid and the sample extracted twice with diethyl ether. The ether

extract is evaporated and the sample is dissolved in 1ml MeOH (methanol) before the liquid-chromatography / mass spectrometry (LC/MS)-analysis.

LC/MS/MS Analysis

Analysis of perfluorinated compounds is performed by LC/MS coupled to mass spectrometry (LC/MS/MS). Separation used an Aquity UPLC BEH C18 column (1.7 µm, 2.1 mm id, 50 mm) with a C18 security column (4 x 2.0 mm) with a flow rate of 0.2 ml min^{-1} and a column temperature of 60°C. The gradient elution program is presented in Table 1, with 4 mM ammonium acetate in water (mobile phase A) and 4 mM ammonium acetate in methanol (mobile phase B).

Table 1. Mobile phase elution program

Time	Mobile phase A %	Mobile phase B %
0	90	10
2	90	10
4	65	35
11	5	95
12	0	100
17	0	100
18	90	10
20	90	10

The mass spectrometer is operated in electro-spray-injector (ESI) negative mode using multiple reaction monitoring. The cone gas used is nitrogen at a flow rate of 47 l hr^{-1} and the collision gas is argon at a flow rate of 600 L hr^{-1} operating at a pressure of 4.9 x 10^{-3} mbar with a source temperature of 120°C, a desolvation gas temperature of 350°C and a capillary voltage of 2 kv.

Identification and quantification

The compounds are identified by retention time and daughter ions and quantified using internal standard and calibration curve.

Detection limits

The detection limits (wet weight bases) are dependent on the fat content of the sample, sample amount, individual responses and blanks and can vary from 1-10 µg/kg among the different compounds.

Quality control

A liver sample spiked with the PFOS compounds is analysed together with the samples as a part of the quality assurance.

775 TBT in biota (GALG)

Pretreatment: An internal standard is added to the samples. Sample is extracted with methanolic hydrochloric acid. The sample's pH is then adjusted before derivatization with $NaBEt_4$ followed by extratction of the tetraalcyltin-compounds with hexane. The extract is concentrated by rotation-evaporation.

Chemical analysis: Analysis of organotin compounds is carried out by means of a gas chromatograph equipped with a atomic emission detector (GC-AED).

Identification and quantification
The compounds are identified by retention time and atomic emission at specific wavelengths using internal standard and calibration curve.

777 TBT in biota (EFDH)

Same procedure as 775 but the analysis is done on a gas chromatograph with a mass spectrometry (GC-MS).

830 PBDE in fish liver and shellfish (NILU)

Cleaning of chemicals and equipment
The equipment is washed in soap and water, then rinsed in water and finally with acetone. The air-dried glass equipment is heated to 550°C.

Sodium sulphate is heated to 550°C.

All solvents and chemicals are commercial and used as delivered.

Extraction
Samples are weighed, homogenized, and spiked with ^{13}C-labelled analogs of the analytes. Biological samples are further homogenized with sodium sulphate. Sediments are extracted with acetone and cyclohexane on a soxhlet. Biological samples are filled into a glass column of suitable size and eluted with cyclohexane/ethylacetate.

Determination of dry weight
The percent dry weight in sediments is determined by drying an accurately weighed sample (2-5 g) at 105 °C over night (until dryness). The sampled is cooled in a desiccator and weighed again.

Determination of fat
The cyclohexane extract is evaporated in an oven to constant weight at 105°C.

The precision of the fat determinations is roughly ±10%. Determinations are reported with two significant figures.

Clean up of extract
For most of the samples, most of the sample matrix is removed with size exclusion chromatography (GPC) followed by cleanup on silica and alox columns. Just before quantification, the samples are spiked with a recovery control standard.

Gas chromatographic condition
The cleaned samples are analysed by gas chromatography/mass spectrometry (GC/MS) where the capillary column is a HP Ultra-2, 25 m x 0.20 mm x 0.11 μm; the carrier gas is He, 110 kPa (1.1 bar, 15 psi); the GC-temperature program involves a 1 μl injected

splitless (autoinjector or "hot needle" injection) at 60°C, 2 min. at 60°C, 60–150°C with 20 °/min., 150–230°C with 4 °/min. and 230–280 with 25 C/min and 275°C for 5 min. isothermally.

Identification and quantification
GC/MS analyses are carried out on high resolution GC/MS instrument equipped with a high resolution gas chromatograph, an autosampler and a data system for instrument control, data acquisition and processing.

Ionisation of the sample is performed under electron impact (EI) conditions using 31 eV electrons with a filament emission current of 0.5 mA. The source temperature is set to 270 °C. The components are detected by monitoring the two most abundant ions of the molecular ion chlorine isotope cluster of both native and 13C12-labelled surrogates and the recovery standards. The dwell time and inter-channel time are 50 ms and 10 ms, respectively, for each channel. The ions to be analysed are divided into several groups of 6 to 10 ions each (depending on the column type, excluding the lock mass ion). These groups are consecutively activated by the data system during time intervals that parallel the elution regions of the compounds of interest.

The quantification of the components is made by using internal standard. A calibration is performed with a standard mixture containing known concentrations of the components to be measured and one or more components not contained in the sample (internal standards). The calibration is followed by injection of the sample containing known amounts of internal standards. Quantification is relative to the internal standard. In this way, the sample extract volume will not be included in the calculations, and it is not necessary to accurately determine the final sample volume after evaporation or the injection volume.

Detection limits
Detection limits are very variable and depending mainly on sample amount. Other factors with influence on detection limits are the volume of the final extract, purity of the final extract, recovery, and instrument sensitivity.

840 DDTPP (NILU)

Same procedure as 830.

841 Dioxins, and non-ortho and co-planer PCB compounds (NILU)

Cleaning of chemicals and equipment
Same procedure as 830.

Extraction
Same procedure as 830.

Determination of dry weight
Same procedure as 830.

Determination of fat
Same procedure as 830.

Clean up of extract
Most of the sample matrix is removed with multicolumn chromatography using different types of silica gel and activated charcoal. A final treatment is done using sulphuric acid, coated silica and aluminium oxide. Prior to analysis, the samples are spiked with a recovery control standard.

Gas chromatographic condition
Isomer specific PCDD/PCDF analysis: 30 m x 0,25 mm Rtx 2330 2), fused silica capillary column, film thickness 0.1 µm. Samples are injected in the splitless mode (2 µl) at an injector port temperature of 270 °C. The injector liner contains a deactivated glass wool plug of 1 cm length placed just above the inlet end of the column. Columns are directly inserted into the source of the mass spectrometer. The GC/MS interface temperature is 250 °C. Helium is used as the carrier gas with a mean linear velocity through the column of 33 cm/s at a column temperature of 200 °C. Separations are performed with the following temperature programming: 70 °C (1') – 25 °C/min – 200 °C (0') – 3 °C/min – 275 °C (4')

Identification and quantification
Same procedure as 830.

Detection limits
See procedure 830.

842 Toxaphene and chlordane (NILU)

Same procedure as 830.

843 Polybrominated biphenyls [PPB], Bromodiphenyl ethers, triboromanisol (NILU)

Same procedure as 830.

850 Short Chained Chlorinated Paraffins [SCCP]

Same procedure as 830.

3.3.3 Fat

code	*description*
A	Weight of extracted solids during chlorinated hydrocarbon determinations: procedure 110 (SIIF).
B	Weight of extracted solids during chlorinated hydrocarbon determinations: procedure 510 (NACE and VETN).
C	Weight of extracted solids from freeze dried material using ethyl acetate (FIER).
D	Weight of extracted solids during chlorinated hydrocarbon determinations: procedure 340 (NIVA).

4. References

Ahlborg, U.G., 1989. Nordic risk assessment of PCDDs and PCDFs. **Chemosphere** 19:603-608.

Ahlborg, U.G., Becking G.B., Birnbaum, L.S., Brouwer, A, Derks, H.J.G.M., Feely, M., Golor, G., Hanberg, A., Larsen, J.C., J.C., Liem, A.K.G., Safe, S.H., Schlatter, C., Wärn, F., Younes, M., Yrjänheikki, E., 1994. Toxic equivalency factors for dioxin-like PCBs. Report on a WHO-ECEH and IPSC consultation , December 1993. **Chemosphere** 28:1049-1067.

Bjerk, J.E., & Sundby, R., 1970. Residues of organochlorine insecticides and polychlorinated biphenyls in terrestrial and aquatic test-organisms. Norwegian Part of OECD program 1967-68. **Norwegian Veterinary Periodical** 82: 241-246.

Cossa, D, Courau, P., 1984. ICES Fifth round intercalibration for trace metals in seawater (Intercalibrations 5/TM/SW). Report of Section 4 - Round Robbin Intercalibration for total Mercury in seawater. International Council for the Exploration of the Seas, May 1984.

Eliann E. & Julshamn, K., 1978. A method for the determination of selenium and mercury in fish products using the same digestion procedure. **Atomic Absorption Newsletter**, 17(6):135-138 (November - December 1978).

Følsvik, N., Berge, J.A., Brevik, E.M., Walday, M., 1999. Quantification of organotin compounds and determination of imposex in populations of dogwhelks (Nucella lapillus) from Norway. **Chemosphere**, Vol 38 (3), 681-91.

Green, N.W., 1988. Felles europeisk overvåkingsprogram (JMP) i Norge. Overvåking av miljøgifter i sjøvannsmiljø. Oslofjord- området, Sørfjorden, Hardangerfjorden og Orkdalsfjord- området 1984-1985. NIVA project 80106, report number 2139. 76 pp..

Green, N.W., 1993. Joint Monitoring Programme - JMP. Overview of analytical methods employed by JMP in Norway 1981-1992. Norwegian Institute for Water Research. Project O-80106 report number 2971, 41 pp.. ISBN number 82-577-2390-8. (Also as document JMG 19/7 info.3-E.).

Green, N.W., Følsvik, N., Øredalen, T.J., Prestbakmo, G., 2001. Joint Assessment and Monitoring Programme (JAMP). Overview of analytical methods 1981-2000. Norwegian Pollution Control Authority, Monitoring report no.822/01 TA no. 1800/2001. Norwegian Institute for Water Research project 80106, report number 4353-2001, 68 pp.. ISBN number 82-577-3989-8.

Haugen, A., Høle, R., and Norheim, G., 1985. Automated hydride generator determination of selenium and mercury in biochemical material. Proc. from 10th. Nordic Atomic Spectroscopy and Trace Element Conference, August 6-9. 1985, Turku, Finland.

IARC, 1987. IARC [International Agency for Research on Cancer] monographs on the evaluation of the carcinogenic risk of chemicals to humans. Overall evaluations of carcinogenicity: an updating of IARC monographs. Vol., 1-42. Suppl. 7. Lyon.

Iverfeldt, Å, 1984. Structural, thermodynamic and kinetic studies of mercury compounds; applications within the environmental mercury cycle. PhD thesis. Department of Inorganic Chemistry, Chalmers University of Technology and University of Göteborg. 48pp. + 7 appendices.

Jensen, S., Renberg, L., Reutergårdh, L., 1977. Residue analysis of sediment and sewage sludge for organochlorines in the presence of elemental sulfur. **Anal. Chem.** 49:316-318.

Julshamn, K., 1977. Inhibition of response by perchloric acid in flameless atomic absorption. **Atomic Absorption Newsletter**, 16(6):149-150 (November - December 1977). (Concerns: Mg, Al, Cr, Mn, Fe, Co, Ni, Cu, Zn, Cd and Pb).

Julshamn, K. & Andersen, K.-J., 1983. Subcellular distribution of major and minor elements in unexposed molluscs in Western Norway - II. The distribution and binding of cadmium, zinc, copper, magnesium, manganese and iron in the kidney and the digestive system of the common mussel Mytilus edulis. **Comp. Biochem. Physiol.** 75A(1):13-16 (1983). Pergamon Press.

Julshamn, K. & Brækkan, O.R., 1975. Determination of trace elements in fish tissues by the standard addition method. **Atomic Absorption Newsletter**, 11(3):49-52. (May-June 1975). (Concerns: Mn, Fe, Cu, Zn, Cd and Pb).

Julshamn, K., Ringdal, O., & Braekkan, O.R., 1982. Mercury concentration in liver and muscle of cod (Gadus morhua) as an evidence of migration between waters with different levels of mercury. Bull. **Environm. Contam. Toxicol.** 29:544-549 (1982).

Larsen, B., Jensen, A., 1989. Evaluation of the Sensitivity of Sediment Stations in Pollution Monitoring. **Marine Pollution Bulletin** 20(11):556-560.)

Niemistö, H., 1974. A gravity corer for studies of soft sediment. Havforskningsinst. Skr. Helsinki, 238:33-38.

Norheim, G., 1978. The composition and distribution of PCB in arctic fox (*Alopex lagopus*) caught near Longyearbyen on Svalbard. **Arta pharmacol. et toxicol.** 42:7-13.

Norheim, G. & Nymoen, U.K., 1981. Fluorimetric determination of selenium in biological material using automatic digestion. Lecture presented at 8th. Nordic trace element and microchemistry conference, Sandefjord, Norway, 10-13, June 1981.

Norheim, G., Økland, E.M., 1980. Rapid extraction of some persistent chlorinated hydrocarbons from biological material with low fat content. **Analyst** (Okt.1980)105:990-992.

Omang, S:H., 1971. Determination of mercury in natural waters and effluents by flameless atomic absorption spectrophotometry. **Anal. Chem. Acta** (1971) 53: 415-420.

OSPAR, 1984. "Automatic data processing codes and descriptions of the sampling procedures and methods of analysis used in the Joint Monitoring Programme". Section 8 (Norway), 58/A/1-5/84 and 58/B/1/84. Oslo and Paris Commissions, October, 1984.

Paus, P.E., 1973. Determination of Heavy Metals in Seawater by AAS. **J. Anal. Chem.** 118-122 (1973).

Pheiffer Madsen, P., Sørensen, J., 1979. Validation of the Lead-210 dating method. **Journal of Radioanalysis and Chemistry** 54:39-48

Van den Berg, Birnbaum, L, Bosveld, A. T. C. and co-workers, 1998. Toxic equivalency factors (TEFs) for PCBs, PCDDs, PCDFs for humans and wildlife. **Environ Hlth. Perspect**. 106:775-792.

Appendix A
Abbreviations

Abbreviation[1]	English	*Norwegian*	Param. group
ELEMENTS			
Al	aluminium	*aluminium*	I-MET
As	arsenic	*arsen*	I-MET
Cd	cadmium	*kadmium*	I-MET
Co	cobalt	*kobolt*	I-MET
Cr	chromium	*krom*	I-MET
Cu	copper	*kobber*	I-MET
Fe	iron	*jern*	I-MET
Hg	mercury	*kvikksølv*	I-MET
Li	lithium	*litium*	I-MET
Mn	manganese	*mangan*	I-MET
Ni	nickel	*nikkel*	I-MET
Pb	lead	*bly*	I-MET
Pb210	lead-210	*bly-210*	I-RNC
Se	selenium	*selen*	I-MET
Ti	titanium	*titan*	I-MET
Zn	zinc	*sink*	I-MET
METAL COMPOUNDS			
TBT	tributyltin	*tributyltinn*	O-MET
MBTIN	monobutyltin	*monobutyltinn*	O-MET
DBTIN	dibutyltin	*dibutyltinn*	O-MET
TBTIN	tributyltin	*tributyltinn*	O-MET
MPTIN	monophenyltin	*monofenyltinn*	O-MET
DPTIN	diphenyltin	*difenyltinn*	O-MET
TPTIN	triphenyltin	*trifenyltinn*	O-MET
PAHs			
PAH	polycyclic aromatic hydrocarbons	*polysykliske aromatiske hydrokarboner*	
ACNE [3]	acenaphthene	*acenaften*	PAH
ACNLE [3]	acenaphthylene	*acenaftylen*	PAH
ANT [3]	anthracene	*antracen*	PAH
BAA [3, 4]	benzo[*a*]anthracene	*benzo[a]antracen*	PAH
BAP [3, 4]	benzo[*a*]pyrene	*benzo[a]pyren*	PAH
BBF [3, 4]	benzo[*b*]fluoranthene	*benzo[b]fluoranten*	PAH
BBJKF [3, 4]	benzo[*b,j,k*]fluoranthene	*benzo[b,j,k]fluoranten*	PAH
BBJKF [3, 4]	benzo[b+j,k]fluoranthene	*benzo[b+j,k]fluoranten*	PAH
BBKF [3, 4]	benzo[*b+k*]fluoranthene	*benzo[b+k]fluoranten*	PAH
BEP	benzo[*e*]pyrene	*benzo[e]pyren*	PAH
BGHIP [3]	benzo[*ghi*]perylene	*benzo[ghi]perylen*	PAH
BIPN [2]	biphenyl	*bifenyl*	PAH
BJKF [3, 4]	benzo[*j,k*]fluoranthene	*benzo[j,k]fluorantren*	PAH
BKF [3, 4]	benzo[*k*]fluoranthene	*benzo[k]fluorantren*	PAH
CHR [3, 4]	chrysene	*chrysen*	PAH
CHRTR [3, 4]	chrysene+triphenylene	*chrysen+trifenylen*	PAH
COR	coronene	*coronen*	PAH
DBAHA [3, 4]	dibenz[*a,h*]anthracene	*dibenz[a,h]anthracen*	PAH
DBA3A [3, 4]	dibenz[*a,c/a,h*]anthracene	*dibenz[a,c/a,h]antracen*	PAH
DBP [4]	dibenzopyrenes	*dibenzopyren*	PAH
DBT	dibenzothiophene	*dibenzothiofen*	PAH
DBTC1	C_1-dibenzothiophenes	*C_1-dibenzotiofen*	PAH
DBTC2	C_2-dibenzothiophenes	*C_2-dibenzotiofen*	PAH
DBTC3	C_3-dibenzothiophenes	*C_3-dibenzotiofen*	PAH
FLE [3]	fluorene	*fluoren*	PAH
FLU [3]	fluoranthene	*fluoranten*	PAH
ICDP [3, 4]	indeno[*1,2,3-cd*]pyrene	*indeno[1,2,3-cd]pyren*	PAH
NAP [2]	naphthalene	*naftalen*	PAH
NAPC1 [2]	C_1-naphthalenes	*C_1-naftalen*	PAH
NAPC2 [2]	C_2-naphthalenes	*C_2-naftalen*	PAH
NAPC3 [2]	C_3-naphthalenes	*C_3-naftalen*	PAH
NAP1M [2]	1-methylnaphthalene	*1-metylnaftalen*	PAH
NAP2M [2]	2-methylnaphthalene	*2-metylnaftalen*	PAH

Abbreviation[1]	English	*Norwegian*	Param. group
NAPD2 [2]	1,6-dimethylnaphthalene	*1,6-dimetylnaftalen*	PAH
NAPD3 [2]	1,5-dimethylnaphthalene	*1,5-dimetylnaftalen*	PAH
NAPDI [2]	2,6-dimethylnaphthalene	*2,6-dimetylnaftalen*	PAH
NAPT2 [2]	2,3,6-trimethylnaphthalene	*2,3,6-trimetylnaftalen*	PAH
NAPT3 [2]	1,2,4-trimethylnaphthalene	*1,2,4-trimetylnaftalen*	PAH
NAPT4 [2]	1,2,3-trimethylnaphthalene	*1,2,3-trimetylnaftalen*	PAH
NAPTM [2]	2,3,5-trimethylnaphthalene	*2,3,5-trimetylnaftalen*	PAH
NPD	Collective term for naphthalenes, phenanthrenes and dibenzothiophenes	*Sammebetegnelse for naftalen, fenantren og dibenzotiofens*	PAH
PA [3]	phenanthrene	*fenantren*	PAH
PAC1	C_1-phenanthrenes	*C_1-fenantren*	PAH
PAC2	C_2-phenanthrenes	*C_2-fenantren*	PAH
PAC3	C_3-phenanthrenes	*C_3-fenantren*	PAH
PAM1	1-methylphenanthrene	*1-metylfenantren*	PAH
PAM2	2-methylphenanthrene	*2-metylfenantren*	PAH
PADM1	3,6-dimethylphenanthrene	*3,6-dimetylfenantren*	PAH
PADM2	9,10-dimethylphenanthrene	*9,10-dimetylfenantren*	PAH
PER	perylene	*perylen*	PAH
PYR [3]	pyrene	*pyren*	PAH
DI-Σn	sum of "n" dicyclic "PAH"s (footnote 2)	*sum "n" disykliske "PAH" (fotnote 2)*	
P-Σn / P_S	sum "n" PAH (DI-Σn not included, footnote 3)	*sum "n" PAH (DI-Σn ikke inkludert, fotnot 3)*	
PK-Σn / PK_S	sum carcinogen PAHs (footnote 4)	*sum kreftfremkallende PAH (fotnote 4)*	
PAHΣΣ	DI-Σn + P-Σn etc.	*DI-Σn + P-Σn mm..*	
SPAH	"total" PAH, specific compounds not quantified (outdated analytical method)	*"total" PAH, spesifikk forbindelser ikke kvantifisert (foreldret metode)*	
BAP_P	% BAP of PAHΣΣ	*% BAP av PAHΣΣ*	
BAPPP	% BAP of P-Σn	*% BAP av P-Σn*	
BPK_P	% BAP of PK-Σn	*% BAP av PK-Σn*	
PKn_P	% PK-Σn of PAHΣΣ	*% PK-Σn av PAHΣΣ*	
PKnPP	% PK-Σn of P-Σn	*% PK-Σn av P-Σn*	
PCBs			
PCB	polychlorinated biphenyls	*polyklorerte bifenyler*	
CB	individual chlorobiphenyls (CB)	*enkelte klorobifenyl*	
CB28	CB28 (IUPAC)	*CB28 (IUPAC)*	OC-CB
CB31	CB31 (IUPAC)	*CB31 (IUPAC)*	OC-CB
CB44	CB44 (IUPAC)	*CB44 (IUPAC)*	OC-CB
CB52	CB52 (IUPAC)	*CB52 (IUPAC)*	OC-CB
CB77 [5]	CB77 (IUPAC)	*CB77 (IUPAC)*	OC-CB
CB81 [5]	CB81 (IUPAC)	*CB81 (IUPAC)*	OC-CB
CB95	CB95 (IUPAC)	*CB95 (IUPAC)*	OC-CB
CB101	CB101 (IUPAC)	*CB101 (IUPAC)*	OC-CB
CB105	CB105 (IUPAC)	*CB105 (IUPAC)*	OC-CB
CB110	CB110 (IUPAC)	*CB110 (IUPAC)*	OC-CB
CB118	CB118 (IUPAC)	*CB118 (IUPAC)*	OC-CB
CB126 [5]	CB126 (IUPAC)	*CB126 (IUPAC)*	OC-CB
CB128	CB128 (IUPAC)	*CB128 (IUPAC)*	OC-CB
CB138	CB138 (IUPAC)	*CB138 (IUPAC)*	OC-CB
CB149	CB149 (IUPAC)	*CB149 (IUPAC)*	OC-CB
CB153	CB153 (IUPAC)	*CB153 (IUPAC)*	OC-CB
CB156	CB156 (IUPAC)	*CB156 (IUPAC)*	OC-CB
CB169 [5]	CB169 (IUPAC)	*CB169 (IUPAC)*	OC-CB
CB170	CB170 (IUPAC)	*CB170 (IUPAC)*	OC-CB
CB180	CB180 (IUPAC)	*CB180 (IUPAC)*	OC-CB
CB194	CB194 (IUPAC)	*CB194 (IUPAC)*	OC-CB
CB209	CB209 (IUPAC)	*CB209 (IUPAC)*	OC-CB
CB-Σ7	CB: 28+52+101+118+138+153+180	*CB: 28+52+101+118+138+153+180*	
CB-ΣΣ	sum of CBs, includes CB-Σ7	*sum CBer, inkluderer CB-Σ7*	

Abbreviation[1]	English	*Norwegian*	Param. group
TECBW	Sum of CB-toxicity equivalents after WHO model, see **TEQ**	*Sum CB- toksitets ekvivalenter etter WHO modell, se **TEQ***	
TECBS	Sum of CB-toxicity equivalents after SAFE model, see **TEQ**	*Sum CB-toksitets ekvivalenter etter SAFE modell, se **TEQ***	
DIOXINs			
TCDD	2, 3, 7, 8-tetrachloro-dibenzo dioxin	*2, 3, 7, 8-tetrakloro-dibenzo dioksin*	OC-DX
CDDST	Sum of tetrachloro-dibenzo dioxins	*Sum tetrakloro-dibenzo dioksiner*	
CDD1N	1, 2, 3, 7, 8-pentachloro-dibenzo dioxin	*1, 2, 3, 7, 8-pentakloro-dibenzo dioksin*	OC-DX
CDDSN	Sum of pentachloro-dibenzo dioxins	*Sum pentakloro-dibenzo dioksiner*	
CDD4X	1, 2, 3, 4, 7, 8-hexachloro-dibenzo dioxin	*1, 2, 3, 4, 7, 8-heksakloro-dibenzo dioksin*	OC-DX
CDD6X	1, 2, 3, 6, 7, 8-hexachloro-dibenzo dioxin	*1, 2, 3, 6, 7, 8-heksakloro-dibenzo dioksin*	OC-DX
CDD9X	1, 2, 3, 7, 8, 9-hexachloro-dibenzo dioxin	*1, 2, 3, 7, 8, 9-heksakloro-dibenzo dioksin*	OC-DX
CDDSX	Sum of hexachloro-dibenzo dioxins	*Sum heksakloro-dibenzo dioksiner*	
CDD6P	1, 2, 3, 4, 6, 7, 8-heptachloro-dibenzo dioxin	*1, 2, 3, 4, 6, 7, 8-heptakloro-dibenzo dioksin*	OC-DX
CDDSP	Sum of heptachloro-dibenzo dioxins	*Sum heptakloro-dibenzo dioksiner*	
CDDO	Octachloro-dibenzo dioxin	*Oktakloro-dibenzo dioksin*	OC-DX
PCDD	Sum of polychlorinated dibenzo-p-dioxins	*Sum polyklorinaterte-dibenzo-p-dioksiner*	
CDF2T	2, 3, 7, 8-tetrachloro-dibenzofuran	*2, 3, 7, 8-tetrakloro-dibenzofuran*	OC-DX
CDFST	Sum of tetrachloro-dibenzofurans	*Sum tetrakloro-dibenzofuraner*	
CDFDN	1, 2, 3, 7, 8/1, 2, 3, 4, 8-pentachloro-dibenzofuran	*1, 2, 3, 7, 8/1, 2, 3, 4, 8-pentakloro-dibenzofuran*	OC-DX
CDF2N	2, 3, 4, 7, 8-pentachloro-dibenzofuran	*2, 3, 4, 7, 8-pentakloro-dibenzofuran*	OC-DX
CDFSN	Sum of pentachloro-dibenzofurans	*Sum pentakloro-dibenzofuraner*	
CDFDX	1, 2, 3, 4, 7, 8/1, 2, 3, 4, 7, 9-hexachloro-dibenzofuran	*1, 2, 3, 4, 7, 8/1, 2, 3, 4, 7, 9-heksakloro-dibenzofuran*	OC-DX
CDF6X	1, 2, 3, 6, 7, 8-hexachloro-dibenzofuran	*1, 2, 3, 6, 7, 8-heksakloro-dibenzofuran*	OC-DX
CDF9X	1, 2, 3, 7, 8, 9-hexachloro-dibenzofuran	*1, 2, 3, 7, 8, 9-heksakloro-dibenzofuran*	OC-DX
CDF4X	2, 3, 4, 6, 7, 8-hexachloro-dibenzofuran	*2, 3, 4, 6, 7, 8-heksakloro-dibenzofuran*	OC-DX
CDFSX	Sum of hexachloro-dibenzofurans	*Sum heksakloro-dibenzofuraner*	
CDF6P	1, 2, 3, 4, 6, 7, 8-heptachloro-dibenzofuran	*1, 2, 3, 4, 6, 7, 8-heptakloro-dibenzofuran*	OC-DX
CDF9P	1, 2, 3, 4, 7, 8, 9-heptachloro-dibenzofuran	*1, 2, 3, 4, 7, 8, 9-heptakloro-dibenzofuran*	OC-DX
CDFSP	Sum of heptachloro-dibenzofurans	*Sum heptakloro-dibenzofuraner*	OC-DX
CDFO	Octachloro-dibenzofurans	*Octakloro-dibenzofuran*	OC-DX
PCDF	Sum of polychlorinated dibenzo-furans	*Sum polyklorinated dibenzo-furaner*	
CDDFS	Sum of PCDD and PCDF	*Sum PCDD og PCDF*	
TCDNN	Sum of TCDD-toxicity equivalents after Nordic model, see **TEQ**	*Sum TCDD- toksitets ekvivalenter etter Nordisk modell, se **TEQ***	
TCDDI	Sum of TCDD-toxicity equivalents after international model, see **TEQ**	*Sum TCDD-toksitets ekvivalenter etter internasjonale modell, se **TEQ***	
PESTICIDES			
ALD	aldrin	*aldrin*	OC-DN
DIELD	dieldrin	*dieldrin*	OC-DN
ENDA	endrin	*endrin*	OC-DN
CCDAN	cis-chlordane (=α-chlordane)	*cis-klordan (=α-klordan)*	OC-DN
TCDAN	trans-chlordane (=γ-chlordane)	*trans-klordan (=γ-klordan)*	OC-DN
OCDAN	oxy-chlordane	*oksy-klordan*	OC-DN
TNONC	trans-nonachlor	*trans-nonaklor*	OC-DN

Abbreviation[1]	English	*Norwegian*	Param. group
TCDAN	trans-chlordane	*trans-klordan*	OC-DN
OCS	octachlorostyrene	*oktaklorstyren*	OC-CL
QCB	pentachlorobenzene	*pentaklorbenzen*	OC-CL
DDD	dichlorodiphenyldichloroethane 1,1-dichloro-2,2-bis-(4-chlorophenyl)ethane	*diklordifenyldikloretan* *1,1-dikloro-2,2-bis-(4-klorofenyl)etan*	OC-DD
DDE	dichlorodiphenyldichloroethylene (principle metabolite of DDT) 1,1-dichloro-2,2-bis-(4-chlorophenyl)ethylene*	*diklordifenyldikloretylen (hovedmetabolitt av DDT)* *1,1-dikloro-2,2-bis-(4-klorofenyl)etylen*	OC-DD
DDT	dichlorodiphenyltrichloroethane 1,1,1-trichloro-2,2-bis-(4-chlorophenyl)ethane	*diklordifenyltrikloretan* *1,1,1-trikloro-2,2-bis-(4-klorofenyl)etan*	OC-DD
DDEOP	o,p'-DDE	*o,p'-DDE*	OC-DD
DDEPP	p,p'-DDE	*p,p'-DDE*	OC-DD
DDTOP	o,p'-DDT	*o,p'-DDT*	OC-DD
DDTPP	p,p'-DDT	*p,p'-DDT*	OC-DD
TDEPP	p,p'-DDD	*p,p'-DDD*	OC-DD
DDTEP	p,p'-DDE + p,p'-DDT	*p,p'-DDE + p,p'-DDT*	OC-DD
DD-nΣ	sum of DDT and metabolites, n = number of compounds	*sum DDT og metabolitter, n = antall forbindelser*	OC-DD
HCB	hexachlorobenzene	*heksaklorbenzen*	OC-CL
HCHG	Lindane γ HCH = gamma hexachlorocyclohexane (γ BHC = gamma benzenehexachloride, outdated synonym)	*Lindan* *γ HCH = gamma heksaklorsykloheksan* *(γ BHC = gamma benzenheksaklorid, foreldret betegnelse)*	OC-HC
HCHA	α HCH = alpha HCH	*α HCH = alpha HCH*	OC-HC
HCHB	β HCH = beta HCH	*β HCH = beta HCH*	OC-HC
HC-nΣ	sum of HCHs, n = count	*sum av HCHs, n = antall*	
EOCl	extractable organically bound chlorine	*ekstraherbart organisk bundet klor*	OC-CL
EPOCl	extractable persistent organically bound chlorine	*ekstraherbart persistent organisk bundet klor*	OC-CL
PBDEs			
PBDE	polybrominated diphenyl ethers	*polybromerte difenyletere*	OC-BB
BDE	brominated diphenyl ethers		OC-BB
BDE-28	2,4,4'-tribromodiphenyl ether	*2,4,4'-tribromdifenyleter*	OC-BB
BDE-47	2,2',4,4'-tetrabromodiphenyl ether	*2,2',4,4'-tetrabromdifenyleter*	OC-BB
BDE-49*	2,2',4,5'- tetrabromodiphenyl ether	*2,2',4,5'- tetrabromdifenyleter*	OC-BB
BDE-66*	2,3',4',6- tetrabromodiphenyl ether	*2,3',4',6- tetrabromdifenyleter*	OC-BB
BDE-71*	2,3',4',6- tetrabromodiphenyl ether	*2,3',4',6- tetrabromdifenyleter*	OC-BB
BDE-77	3,3',4,4'-tetrabromodiphenyl ether	*3,3',4,4'-tetrabromdifenyleter*	OC-BB
BDE-85	2,2',3,4,4'-pentabromodiphenyl ether	2,2',3,4,4'-pentabromdifenyleter	OC-BB
BDE-99	2,2',4,4',5-pentabromodiphenyl ether	*2,2',4,4',5-pentabromdifenyleter*	OC-BB
BDE-100	2,2',4,4',6-pentabromodiphenyl ether	*2,2',4,4',6-pentabromdifenyleter*	OC-BB
BDE-119	2,3',4,4',6-pentabromodiphenyl ether	*2,3',4,4',6-pentabromdifenyleter*	OC-BB
BDE-138	2,2',3,4,4',5'-hexabromodiphenyl ether	*2,2',3,4,4',5'-heksabromdifenyleter*	OC-BB
BDE-153	2,2',4,4',5,5'-hexabromodiphenyl ether	*2,2',4,4',5,5'-heksabromdifenyleter*	OC-BB
BDE-154	2,2',4,4',5,6'-hexabromodiphenyl ether	*2,2',4,4',5,6'-heksabromdifenyleter*	OC-BB
BDE-183	2,2',3,4,4',5',6-heptabromodiphenyl ether	*2,2',3,4,4',5',6-heptabromdifenyleter*	OC-BB
BDE-205	2,2',3,3',4,4',5,5',6'-nonabromodiphenyl ether	*2,2',3,3',4,4',5,5',6'-nonabromdifenyleter*	OC-BB
BDE-209	Decabromodiphenyl ether	*Dekabromdifenyleter*	OC-BB

Abbreviation[1]	English	*Norwegian*	Param. group
PFAS	perfluorinated alkylated aubstances	perfluoralkylertestoffer	
PFBS	perfluorobutane sulfonate	perfluorbutan sulfonat	PFAS
PFHxA	perfluorohexanoic acid	perfluorhexansyre	PFAS
PFHpA	perfluoroheptanoic acid	perfluorheptansyre	PFAS
PFOA	perfluorooctanoic acid	perfluoroktansyre	PFAS
PFNA	perfluorononanoic acid	perfluornonansyre	PFAS
PFOS	perfluoroctanoic sulfonate	perfluoroktansulfonat	PFAS
NTOT	total organic nitrogen	*total organisk nitrogen*	I-NUT
CTOT	total organic carbon	*total organisk karbon*	O-MAJ
CORG	organic carbon	*organisk karbon*	O-MAJ
GSAMT	grain size	*kornfordeling*	P-PHY
MOCON	moisture content	*vanninnhold*	P-PHY
INSTITUTES			
EFDH	Eurofins [DK]	*Eurofins [DK]*	
FIER	Institute for Nutrition, Fisheries Directorate	*Fiskeridirektoratets Ernæringsinstitutt*	
FORC	FORCE Institutes, Div. for Isotope Technique and Analysis [DK]	*FORCE Institutterne, Div. for Isotopteknik og Analyse [DK]*	
GALG	GALAB Laboratories Gmbh [D]	*GALAB Laboratories Gmbh [D]*	
IFEN	Institute for Energy Technology	*Institutt for energiteknikk*	
IMRN	Institute of Marine Research (IMR)	*Havforskningsinstituttet*	
NACE	Nordic Analytical Center	*Nordisk Analyse Center*	
NILU	Norwegian Institute for Air Research	*Norsk institutt forluftforskning*	
NIVA	Norwegian Institute for Water Research	*Norsk institutt for vannforskning*	
SERI	Swedish Environmental Research Institute	*Institutionen för vatten- och luftvårdsforskning*	
SIIF	Fondation for Scientific and Industrial Research at the Norwegian Institute of Technology - SINTEF (a division, previously: Center for Industrial Research SI)	*Stiftelsen for industriell og teknisk forskning ved Norges tekniske høgskole- SINTEF (en avdeling, tidligere: Senter for industriforskning SI)*	
VETN	Norwegian Veterinary Institute	*Veterinærinstituttet*	
VKID	Water Quality Institute [DK]	*Vannkvalitetsintitutt [DK]*	

1) After: ICES Environmental Data Reporting Formats. International Council for the Exploration of the Sea. July 1996 and supplementary codes related to non-ortho and mono-ortho PCBs and “dioxins” (ICES pers. comm.)

2) Indicates "PAH" compounds that are dicyclic and not truly PAHs typically identified during the analyses of PAH, include naphthalenes and "biphenyls".

3) Indicates the sum of tri- to hexacyclic PAH compounds named in EPA protocol 8310 minus naphthalene (dicyclic), so that the SFT classification system can be applied

4) Indicates PAH compounds potentially cancerogenic for humans according to IARC (1987, updated 14.August 2007 at http://monographs.iarc.fr/ENG/Classification/crthgr01.php), i.e., categories 1, 2A, and 2B (are, possibly and probably carcinogenic). NB.: the update inlcludes Chrysene as cancerogenic and hence, KPAH with Chrysene should not be used in SFT’s classification system for this sum-variable (Molvær *et al.* 1997).

5) Indicates non ortho- co-planer PCB compounds i.e., those that lack Cl in positions 1, 1', 5, and 5'

*) The Pesticide Index, second edition. The Royal Society of Chemistry, 1991.

Other abbreviations *andre forkortelser*

	English	*Norwegian*
TEQ	"Toxicity equivalency factors" for the most toxic compounds within the following groups:	*"Toxisitetsekvivalentfaktorer" for de giftigste forbindelsene innen følgende grupper.*
	• polychlorinated dibenzo-p-dioxins and dibenzofurans (**PCDD/PCDFs**). Equivalents calculated after Nordic model (Ahlborg 1989) [1] or international model (Int./EPA, cf. Van den Berg *et al.*, 1998) [2]	• *polyklorerte dibenzo-p-dioksiner og dibenzofuraner (**PCDD/PCDF**). Ekvivalentberegning etter nordisk modell (Ahlborg 1989) [1] eller etter internasjonal modell (Int./EPA, cf. Van den Berg et al. 1998) [2]*
	• non-ortho and mono-ortho substituted chlorobiphenyls after WHO model (Ahlborg *et al.*, 1994) [3] or Safe (1994, cf. NILU pers. comm.)	• *non-orto og mono-orto substituerte klorobifenyler etter WHO modell (Ahlborg et al., 1994) [3] eller Safe (1994, cf. NILU pers. medd.)*
ppm	parts per million, mg/kg	*deler pr. milliondeler, mg/kg*
ppb	parts per billion, μg/kg	*deler pr. milliarddeler, μg/kg*
ppp	parts per trillion, ng/kg	*deler pr. tusen-milliarddeler, ng/kg*
d.w.	dry weight basis	*tørrvekt basis*
w.w.	wet weight or fresh weight basis	*våtvekt eller friskvekt basis*

[1]) Ahlborg, U.G., 1989. Nordic risk assessment of PCDDs and PCDFs. Chemosphere 19:603-608.

[2]) Van den Berg, Birnbaum, L, Bosveld, A. T. C. and co-workers, 1998. Toxic equivalency factors (TEFs) for PCBs, PCDDs, PCDFs for humans and wildlife. Environ Hlth. Perspect. 106:775-792.

[3]) Ahlborg, U.G., Becking G.B., Birnbaum, L.S., Brouwer, A, Derks, H.J.G.M., Feely, M., Golor, G., Hanberg, A., Larsen, J.C., J.C., Liem, A.K.G., Safe, S.H., Schlatter, C., Wärn, F., Younes, M., Yrjänheikki, E., 1994. Toxic equivalency factors for dioxin-like PCBs. Report on a WHO-ECEH and IPSC consultation , December 1993. Chemosphere 28:1049-1067.

Appendix B
Participation in intercalibration exercises

Participation in intercalibration exercises

General: NIVA which has participated in all QUASIMEME exercises relevant to the parameter and tissues monitored. The laboratories at NIVA, both the chemical, microbiological and the ecotoxicological laboratories, are accredited in 1993 for quality assurance system by the National Measurement Service - Norwegian Accreditation and based on European Standard EN45000. NIVA has reference number P009.

Sea water:

4H ICES/JMG Fifth Round Intercalibration on Trace Metals in Sea Water - Section 4, analysis for Hg - 1983 - (5/TM/SW:4).

4I JMG Sixth Intercalibration on Trace Metals in Estuarine Waters - 1986 - (6/TM/SW).

4Z Intercalibration exercise for SIIF/SERI (Cd) and NIVA/IAMK (IAMK=Chalmers Inst., Göteborg) - 1985.

Seabed sediment:

7E ICES, First Intercalibration Exercise on Trace metals in Marine Sediments - 1984 - (1/TM/MS).

8B ICES/OSPAR, First Intercomparison Exercise on Organochlorines (individual chlorobiphenyl congeners) in Marine Sediments - Phase 1, analysis of standard solutions - 1989 - (1/OC/MS:1).

8C ICES/OSPAR, First Intercomparison Exercise on Organochlorines (individual chlorobiphenyl congeners) in Marine Sediments - Phase 2, analysis of standard solutions - 1991 - (1/OC/MS:2).

8B ICES/IOC/OSPAR Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media - Step 1 - (analysis of standard solutions) - 1989 - (1/OC/MS-1).

8C ICES/IOC/OSPAR Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media - Step 2 - 1990 - (1/OC/MS-2).

8D ICES/IOC/OSPAR Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media - Step 3a (1/OC/MS-3a) 1991.

8E ICES/IOC/OSPAR Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media - Step 3b - (1/OC/MS-3b) 1992.

8F ICES/IOC/OSPAR Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media - Step 4 - (1/OC/MS-4) 1993.

Marine biota:

1E ICES, Fifth Intercalibration Exercise on Trace Metals in Biological Tissues - 1978 - (5/TM/BT).

1F ICES, Sixth Intercalibration Exercise on Trace Metals (Cadmium and Lead only) in Biological Tissues - 1979 - (6/TM/BT).

1G ICES, Seventh Intercalibration Exercise on Trace Metals in Biological Tissues - Part A - 1983 - (7/TM/BT).

1H	ICES, Seventh Intercalibration Exercise on Trace Metals in Biological Tissues - Part B - 1985 - (7/TM/BT) (preliminary report 1987).
1Z VETN	Interlabcalibration exercise with VETN and SIIF 1983, mercury and cadmium in cod filet and liver.
1Z NIVA	Interlabcalibration exercise with VETN, NACE and NIVA 1986 (Hg, Cd, Cu, Pb and Zn in 6 samples).
2D	ICES Fourth Intercalibration Exercise on Organochlorines (mainly PCBs) in Biological Tissues (Sample No.5) - 1979 - (4/OC/BT).
2E	ICES Fifth Intercalibration Exercise on Organochlorines (PCBs only) in Biological Tissues - 1982 - (5/OC/BT).
2G	ICES/IOC/OSPAR Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media - Step 1 - (analysis of standard solutions) - 1989 - (7/OC/BT-1).
2H	ICES/IOC/OSPAR Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media - Step 2 - 1990 - (7/OC/BT-2).
2I	ICES/IOC/OSPAR Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media - Step 3a - (7/OC/BT-3a) 1991.
2J	ICES/IOC/OSPAR Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media - Step 3b - (7/OC/BT-3b) 1992.
2K	ICES/IOC/OSPAR Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media - Step 4 - (7/OC/BT-4) 1993.
2Z VETN	Interlabcalibration exercise with VETN among others, 1983, PCB and HCB in cod liver.
2Z NACE	Interlabcalibration exercise with NACE, VETNand SIIF 1986 (PCB (all labs), DDE, OCS, HCB and DCB (NACE and VETN).

Appendix C
Analytical overview - sediment

Sorted by:

- Contaminant, year, laboratory, intercalibration x

Contamin.	**Contaminant. Abbreviations are defined in Appendix A**
Mon. Year	**Monitoring year**
Lab.	**Analytical lab (cf.Appendix A)**
Intercalibr. +basis	**Intercalibration excercise (see Appendix B) and analytical basis where D = dry weight basis.**
Detect. limit	**"Normal" analytical detection limit.**
Total value count	**Total number of analyses**
Count below d.lim	**Number of analyses below detection limit**
N (<) above d.lim	**Number of analyses with higher detection limit than "normal"**

Analytical overview – sediment

Contamin.	Mon. Year	Lab.	Inter-calibr. +basis	wet/dry	Analys method code	Detect. limit (ppb)	Total value count	Count below d.lim	N (<) above d.lim	N (<) below d.lim
ACNE	1992-NIVA			D	369	1	23			
	1994-NIVA			D	369	1	24	23		21
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
ACNE	2004-NIVA		QW	D	369	1	156	1	44	
	2006-NIVA		R44_Ex701_MS-3	D	369	1	20		19	
ACNLE	1992-NIVA			D	369	1	23			
	1994-NIVA			D	369	1	24	23		20
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
	2004-NIVA		QW	D	369	1	156	1	56	1
	2006-NIVA		R44_Ex701_MS-3	D	369	1	20		20	
AL	1987-NIVA			D	352	2500	28			
	1990-NIVA			D	352	2500	128			
AL	2004-NIVA		QT	D	355	10000	173			
	2006-NIVA		R44_Ex699_MS-1	D	355	10000	30			
ALD	1990-IMRN			D	760	0.05	14	5		
ANT	1990-IMRN			D	769	1	14			
	1992-NIVA			D	369	1	24			
	1994-NIVA			D	369	1	24	22		19
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
ANT	2004-NIVA			D	369	1	156		27	
	2006-NIVA		R44_Ex701_MS-3	D	369	1	20		15	
AS	1994-NIVA			D	354	500	12			
AS	2004-NIVA		QT	D	355	15000	172	21		4
	2006-NIVA			D	355	15000	30	29		25
BAP	1990-IMRN			D	769	1	14			
	1992-NIVA			D	369	1	23			
	1994-NIVA			D	369	1	24	12		12
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
BAP	2004-NIVA		QW	D	369	1	156		2	
	2006-NIVA		R44_Ex701_MS-3	D	369	1	20		3	
BBF	1992-NIVA			D	369	1	23			
	1994-NIVA			D	369	1	24	9		8
BBF	2004-NIVA		QW	D	369	0.5	156			
BBJF	2006-NIVA			D	369	miss	20			
BBJKF	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
BBKF	1990-IMRN			D	769	1	14			
BEP	1990-IMRN			D	769	1	14			
	1992-NIVA			D	369	1	23			
	1994-NIVA			D	369	1	24	8		8
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
BEP	2006-NIVA		R44_Ex701_MS-3	D	369	miss	20			
BGHIP	1990-IMRN			D	769	1	14			
	1992-NIVA			D	369	1	24			
	1994-NIVA			D	369	1	24	9		6
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
	2004-NIVA		QW	D	369	1	156			
	2006-NIVA		R44_Ex701_MS-3	D	369	1	20			
BIPN	1992-NIVA			D	369	1	23			
	1994-NIVA			D	369	1	24	21		19
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
BJKF	1992-NIVA			D	369	1	14			
	1994-NIVA			D	369	1	24	11		11
BJKF	2004-NIVA			D	369	0.5	92		1	
BKF	2006-NIVA		R44_Ex701_MS-3	D	369	miss	20			
BAA	1990-IMRN			D	769	1	14			
	1992-NIVA			D	369	1	24			
	1994-NIVA			D	369	1	24	11		11
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
BAA	2004-NIVA		QW	D	369	1	156		3	
	2006-NIVA		R44_Ex701_MS-3	D	369	1	20		3	
CB101	1990-IMRN		8B	D	760	0.05	14			
	1992-NIVA		8C	D	360	0.05	24		24	
	1994-NIVA		8Z	D	360	0.05	24		12	
	1996-NIVA			D	360	0.2	10			
	1997-NIVA			D	360	0.2	18			
	2004-NIVA		QV	D	360	0.2	152		1	
	2006-NIVA		R44_Ex700_MS-2	D	360	0.2	20		20	
CB105	1990-IMRN			D	760	0.05	14			
	1992-NIVA		8C	D	360	0.05	24		24	

Contamin.	Mon. Year	Lab.	Inter-calibr. +basis	wet/dry	Analys method code	Detect. limit (ppb)	Total value count	Count below d.lim	N (<) above d.lim	N (<) below d.lim
	1994-NIVA		8Z	D	360	0.05	24		24	
	1996-NIVA			D	360	0.2	10			
	1997-NIVA			D	360	0.2	18			
	2004-NIVA		QV	D	360	0.2	146		1	
	2006-NIVA		R44_Ex700_MS-2	D	360	0.2	20		20	
CB118	1990-IMRN		8B	D	760	0.05	14			
	1992-NIVA		8C	D	360	0.05	24		24	
	1994-NIVA		8Z	D	360	0.05	24		13	
	1996-NIVA			D	360	0.2	10			
	1997-NIVA			D	360	0.2	17			
	2004-NIVA		QV	D	360	0.2	155		1	
	2006-NIVA		R44_Ex700_MS-2	D	360	0.2	20		20	
CB128	1990-IMRN			D	760	0.05	14	1		
CB138	1990-IMRN		8B	D	760	0.05	14			
	1992-NIVA		8C	D	360	0.05	24		21	
	1994-NIVA		8Z	D	360	0.05	24		12	
	1996-NIVA			D	360	0.2	10			
	1997-NIVA			D	360	0.2	18			
	2004-NIVA		QV	D	360	0.2	153		1	
	2006-NIVA		R44_Ex700_MS-2	D	360	0.2	20		20	
CB149	1990-IMRN			D	760	0.05	14			
CB153	1990-IMRN		8B	D	760	0.05	14			
	1992-NIVA		8C	D	360	0.05	24		21	
	1994-NIVA		8Z	D	360	0.05	24		12	
	1996-NIVA			D	360	0.05	10			
	1997-NIVA			D	360	0.05	18			
	2004-NIVA		QV	D	360	0.05	82		19	
CB156	1990-IMRN			D	760	0.05	14	4		
	1992-NIVA			D	360	0.05	24		24	
	1994-NIVA		8Z	D	360	0.05	24		22	
	1996-NIVA			D	360	0.2	10	1		
	1997-NIVA			D	360	0.2	18	2		1
	2004-NIVA			D	360	0.2	154		1	
	2006-NIVA		R44_Ex700_MS-2	D	360	0.2	20		20	
CB170	1990-IMRN			D	760	0.05	14			
CB180	1990-IMRN		8B	D	760	0.05	14			
	1992-NIVA		8C	D	360	0.05	24		23	
	1994-NIVA		8Z	D	360	0.05	24		13	
	1996-NIVA			D	360	0.2	10			
	1997-NIVA			D	360	0.2	18			
	2004-NIVA		QV	D	360	0.2	156		1	
	2006-NIVA		R44_Ex700_MS-2	D	360	0.2	20		20	
CB209	1992-NIVA		8C	D	360	0.05	24		24	
	1994-NIVA		8C	D	360	0.05	24		12	
	1996-NIVA			D	360	0.2	10	1		1
	1997-NIVA			D	360	0.2	18	1		1
	2004-NIVA			D	360	0.2	152		5	
	2006-NIVA			D	360	0.2	20		20	
CB28	1990-IMRN		8B	D	760	0.05	14	5		
	1992-NIVA		8C	D	360	0.05	23		23	
	1994-NIVA		8Z	D	360	0.05	24		2	
	1996-NIVA			D	360	0.2	10			
	1997-NIVA			D	360	0.2	18			
CB28	2004-NIVA		QV	D	360	0.2	152		1	
	2006-NIVA		R44_Ex700_MS-2	D	360	0.2	20		20	
CB31	1990-IMRN		8B	D	760	0.05	14	6		
CB52	1990-IMRN		8B	D	760	0.05	14			
	1992-NIVA		8C	D	360	0.05	24		24	
	1994-NIVA		8Z	D	360	0.05	24		2	
	1996-NIVA			D	360	0.2	10			
	1997-NIVA			D	360	0.2	18			
CB52	2004-NIVA		QV	D	360	0.2	133			
	2006-NIVA		R44_Ex700_MS-2	D	360	0.2	20		20	
CD	1986-NIVA		7C	D	352	50	24			
	1987-NIVA		7C	D	352	50	25		2	
	1990-NIVA			D	353	50	14	1		
	1990-NIVA		7E	D	353	50	114	12		1
	1992-NIVA		7E	D	353	50	107			
	1994-NIVA		7Z	D	353	50	114			
	1996-NIVA			D	353	50	23			
	1997-NIVA			D	353	50	27			
CD	2004-NIVA			D	353	50	173	3		
	2006-NIVA		R44_Ex699_MS-1	D	353	0.05	30			
CHR	1990-IMRN			D	769	1	14			
	1992-NIVA			D	369	1	24			
CHR	2006-NIVA			D	369	miss	20			
CHRTR	1994-NIVA			D	369	0.5	24			
	1996-NIVA			D	369	0.5	10			
	1997-NIVA			D	369	0.5	18			
	2004-NIVA		QW	D	369	0.5	156		2	
COR	1992-NIVA			D	369	1	24			
CORG	1986-NIVA			D	390	1000000	18			

Contamin.	Mon. Year	Lab.	Inter-calibr. +basis	wet/dry	Analys method code	Detect. limit (ppb)	Total value count	Count below d.lim	N (<) above d.lim	N (<) below d.lim
	1987-NIVA			D	390	1000000	28			
	1990-NIVA			D	390	200000	128			
	1992-NIVA			D	390	200000	107			
	1994-NIVA			D	390	200000	114			
	1996-NIVA			D	390	200000	23			
	1997-NIVA			D	390	200000	27			
CORG	2004-NIVA			D	390	200000	173			
	2006-NIVA		R44_Ex699_MS-1	D	390	200000	30			
CR	1994-NIVA		7Z	D	353	250	12			
CR	2004-NIVA		QT	D	355	1500	173			
	2006-NIVA		R44_Ex699_MS-1	D	355	1500	30			
CTOT	1994-NIVA			D	390	1000000	12			
	1996-NIVA			D	390	1000000	23			
	1997-NIVA			D	390	1000000	27			
CU	1986-NIVA		7C	D	351	10	24			
	1987-NIVA		7C	D	351	10	28			
	1990-NIVA		7E	D	351	10	128			
	1992-NIVA		7E	D	351	10	107			
	1994-NIVA		7Z	D	351	10	114			
	1996-NIVA			D	351	10	23			
	1997-NIVA			D	351	10	27			
CU	2004-NIVA		QT	D	355	1000	173			
	2006-NIVA		R44_Ex699_MS-1	D	355	1000	30			
DBA3A	1992-NIVA			D	369	1	24			
	1994-NIVA			D	369	1	23	11		11
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
	2004-NIVA		QW	D	369	1	156		20	
	2006-NIVA		R44_Ex700_MS-2	D	369	1	20		20	
DBAHA	1990-IMRN			D	769	1	14			
DBP	1992-NIVA			D	369	1	24			
DBT	1990-IMRN			D	769	1	14			
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
DBT	2004-NIVA		QW	D	369	1	156		40	
	2006-NIVA			D	369	1	20		17	
DBTC1	1990-IMRN			D	769	1	14			
	2004-NIVA			D	369	0.5	156		50	
	2006-NIVA			D	369	0.5	20		19	
DBTC2	1990-IMRN			D	769	1	14			
	2004-NIVA			D	369	0.5	156		57	
	2006-NIVA			D	369	0.5	20		18	
DBTC3	1990-IMRN			D	769	1	14			
	2004-NIVA			D	369	0.5	156		63	
	2006-NIVA			D	369	0.5	20		18	
DBTIN	2004-NIVA			D	370	0.26	141		23	
	2006-NIVA			D	370	0.26	30		26	
DDEOP	1990-IMRN			D	760	0.05	14			
DDEPP	1990-IMRN			D	760	0.05	14			
	1992-NIVA			D	360	0.05	24		22	
	1994-NIVA		8Z	D	360	0.05	24		12	
	1996-NIVA			D	360	0.05	10			
	1997-NIVA			D	360	0.05	18			
	2004-NIVA		QV	D	360	0.05	151		99	
	2006-NIVA		R44_Ex700_MS-2	D	360	0.05	20		20	
DDTOP	1990-IMRN			D	760	0.05	14	2		
DDTPP	1990-IMRN			D	760	0.05	14			
	1996-NIVA			D	360	0.7	10		5	
	1997-NIVA			D	360	0.7	18		3	
	2006-NIVA			D	360	miss	20		20	
DPTIN	2004-NIVA			D	370	0.22	128		64	
	2006-NIVA			D	370	0.22	30		30	
FLE	1990-IMRN			D	769	1	14			
	1992-NIVA			D	369	1	24			
	1994-NIVA			D	369	1	24	23		18
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
FLE	2004-NIVA		QW	D	369	1	156		32	
	2006-NIVA		R44_Ex701_MS-3	D	369	1	20		17	
FLU	1990-IMRN			D	769	1	14			
	1992-NIVA			D	369	1	24			
	1994-NIVA			D	369	1	24	10		10
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
FLU	2004-NIVA		QW	D	369	1	156		1	
	2006-NIVA		R44_Ex701_MS-3	D	369	1	20			
GSAMT	1986-NIVA			D	392	miss	24			
	1987-NIVA			D	392	miss	28			
	1990-NIVA			D	392	miss	197			
	1992-NIVA			D	392	miss	187			
	1994-NIVA			D	392	miss	204			
	1996-NIVA			D	392	miss	31			

Contamin.	Mon. Year	Lab.	Inter-calibr. +basis	wet/dry	Analys method code	Detect. limit (ppb)	Total value count	Count below d.lim	N (<) above d.lim	N (<) below d.lim
	1996-VKID			D	652	miss	35			
	1997-NIVA			D	392	miss	45			
	1997-VKID			D	652	miss	47			
	2004-NIVA			D	392	miss	344			
	2006-NIVA			D	392	miss	60			
HCB	1990-IMRN			D	760	0.05	14			
	1992-NIVA			D	360	0.05	24		18	
	1994-NIVA		8Z	D	360	0.05	24		10	
	1996-NIVA			D	360	0.1	10			
	1997-NIVA			D	360	0.1	18			
HCB	2004-NIVA			D	360	0.1	141		116	
	2006-NIVA		R44_Ex700_MS-2	D	360	0.1	20		20	
HCHA	1990-IMRN			D	760	0.05	14	4		
	1992-NIVA			D	360	0.05	24		24	
	1994-NIVA		8Z	D	360	0.05	24		23	
	1996-NIVA			D	360	0.2	10	2		1
	1997-NIVA			D	360	0.2	18	1		1
HCHA	2004-NIVA			D	360	0.2	148		4	
	2006-NIVA		R44_Ex700_MS-2	D	360	0.2	20		20	
HCHB	1990-IMRN			D	760	0.05	14	3		
HCHG	1990-IMRN			D	760	0.05	14	4		
	1992-NIVA			D	360	0.05	24		24	
	1994-NIVA		8Z	D	360	0.05	24		15	
	1996-NIVA			D	360	0.2	10	1		1
	1997-NIVA			D	360	0.2	18	1		1
HCHG	2004-NIVA		QV	D	360	0.2	149		7	
HG	1986-NIVA		7C	D	350	10	24			
	1987-NIVA		7C	D	350	10	28			
	1990-NIVA		7E	D	350	10	128			
	1992-NIVA		7E	D	350	10	107			
	1994-NIVA		7Z	D	350	10	114	2		
	1996-NIVA			D	350	10	23			
	1997-NIVA			D	350	10	27			
HG	2004-NIVA			D	350	10	173	7		
	2006-NIVA		R44_Ex699_MS-1	D	350	10	30	2		
ICDP	1990-IMRN			D	769	1	14			
	1992-NIVA			D	369	1	24			
	1994-NIVA			D	369	1	24	12		9
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
ICDP	2004-NIVA		QW	D	369	1	156			
	2006-NIVA		R44_Ex701_MS-3	D	369	1	20			
LI	1990-NIVA		7E	D	353	5000	14			
	1992-NIVA		7E	D	353	5000	107			
	1994-NIVA		7E	D	353	5000	114			
	1996-NIVA			D	353	5000	23			
	1997-NIVA			D	353	5000	27			
LI	2004-NIVA		QT	D	355	1000	173			
	2006-NIVA		R44_Ex699_MS-1	D	355	1000	30			
MBTIN	2004-NIVA			D	370	0.34	142		32	
	2006-NIVA			D	370	0.34	30		23	
MN	2004-NIVA		QT	D	355	300	172			
	2006-NIVA		R44_Ex699_MS-1	D	355	300	30			
MOCON	1990-NIVA			D	392	1000000000	117			
	1992-NIVA			D	392	1000000000	56			
	1994-NIVA			D	392	1000000000	62			
	1996-NIVA			D	392	1000000000	31			
	1996-VKID			D	654	1000000000	35			
	1997-VKID			D	654	1000000000	47			
	2004-NIVA			D	392	1000000000	173			
	2006-NIVA			D	392	1000000000	20			
MPTIN	2004-NIVA			D	370	0.3	118		65	
	2006-NIVA			D	370	0.3	30		30	
NAP	1990-IMRN			D	769	1	14			
	1992-NIVA			D	369	1	23			
	1994-NIVA			D	369	1	24	18		18
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
NAP	2004-NIVA		QW	D	369	1	154		27	
	2006-NIVA		R44_Ex701_MS-3	D	369	1	20		1	
NAP1M	1992-NIVA			D	369	1	23			
	1994-NIVA			D	369	1	24	19		16
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
NAP2M	1992-NIVA			D	369	1	23			
	1994-NIVA			D	369	1	24	17		16
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
NAPC1	1990-IMRN			D	769	1	14			
	2004-NIVA			D	369	2	156		15	
	2006-NIVA			D	369	2	20		20	
NAPC2	1990-IMRN			D	769	1	14			

Contamin.	Mon. Year	Lab.	Inter-calibr. +basis	wet/dry	Analys method code	Detect. limit (ppb)	Total value count	Count below d.lim	N (<) above d.lim	N (<) below d.lim
	2004-NIVA			D	369	2	156		40	
	2006-NIVA			D	369	2	20		10	
NAPC3	1990-IMRN			D	769	1	14			
	2004-NIVA			D	369	2	156		28	
	2006-NIVA			D	369	2	20		9	
NAPD2	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
NAPD3	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
NAPDI	1992-NIVA			D	369	1	23			
	1994-NIVA			D	369	1	24	18		15
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
NAPT2	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
NAPT3	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
NAPT4	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
NAPTM	1992-NIVA			D	369	1	23			
	1994-NIVA			D	369	1	24	24		24
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
NI	1994-NIVA		7Z	D	353	5000	12			
NI	2004-NIVA		QT	D	355	2000	173			
	2006-NIVA		R44_Ex699_MS-1	D	355	2000	30			
NTOT	1994-NIVA			D	390	1000000	114			
	1996-NIVA			D	390	1000000	23			
	1997-NIVA			D	390	1000000	27			
NTOT	2004-NIVA			D	390	1000000	173			
	2006-NIVA			D	390	1000000	30			
OCS	1992-NIVA			D	360	0.05	24		24	
	1994-NIVA			D	360	0.05	24		24	
	1996-NIVA			D	360	0.1	10			
	1997-NIVA			D	360	0.1	18	1	1	1
OCS	2004-NIVA			D	360	0.1	152		142	
	2006-NIVA			D	360	0.1	17		16	
PA	1990-IMRN			D	769	1	14			
	1992-NIVA			D	369	1	24			
	1994-NIVA			D	369	1	24	11		8
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
PA	2004-NIVA		QW	D	369	1	156		2	
	2006-NIVA		R44_Ex701_MS-3	D	369	1	20			
PAC1	1990-IMRN			D	769	1	14			
PAC1	2004-NIVA			D	369	2	156		14	
	2006-NIVA			D	369	2	20		5	
PAC2	1990-IMRN			D	769	1	14			
PAC2	2004-NIVA			D	369	2	156		28	
	2006-NIVA			D	369	2	20		18	
PAC3	2004-NIVA			D	369	2	156		55	
	2006-NIVA			D	369	2	20		16	
PADM1	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
PADM2	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
PAM1	1992-NIVA			D	369	1	24			
	1994-NIVA			D	369	1	24	17		9
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
PAM2	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
PB	1986-NIVA		7C	D	352	250	24			
	1987-NIVA		7C	D	352	250	28			
	1990-NIVA			D	353	250	14			
	1990-NIVA		7E	D	353	250	114			
	1992-NIVA		7E	D	353	250	107			
	1994-NIVA		7Z	D	353	250	114			
	1996-NIVA			D	353	250	23			
	1997-NIVA			D	353	250	27			
PB	2004-NIVA		QT	D	355	10000	173			
	2006-NIVA		R44_Ex699_MS-1	D	355	10000	30	2		1
PB210	1990-VKID			D	650	~1	70	26		
	1992-VKID			D	650	~1	56	15		
	1994-VKID			D	650	~1	62	25		
	1996-VKID			D	650	~1	11			
	1997-VKID			D	650	~1	21	3		
PER	1990-IMRN			D	769	1	14			
	1992-NIVA			D	369	1	23			
	1994-NIVA			D	369	1	24	3		2
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			

Contamin.	Mon. Year	Lab.	Inter-calibr. +basis	wet/dry	Analys method code	Detect. limit (ppb)	Total value count	Count below d.lim	N (<) above d.lim	N (<) below d.lim
PER	2006-NIVA		R44_Ex701_MS-3	D	369	miss	20		3	
PYR	1990-IMRN			D	769	1	14			
	1992-NIVA			D	369	1	24			
	1994-NIVA			D	369	1	24	12		10
	1996-NIVA			D	369	1	10			
	1997-NIVA			D	369	1	18			
PYR	2004-NIVA		QW	D	369	1	156		1	
	2006-NIVA		R44_Ex701_MS-3	D	369	1	20		5	
QCB	1992-NIVA			D	360	0.05	24		22	
	1994-NIVA			D	360	0.05	24		22	
	1996-NIVA			D	360	0.05	10			
	1997-NIVA			D	360	0.05	18			
QCB	2004-NIVA			D	360	0.05	142		100	
	2006-NIVA			D	360	0.05	20		20	
SPAH	1990-IMRN			D	769	1	14			
TBTIN	2004-NIVA			D	370	0.2	142		28	
	2006-NIVA			D	370	0.2	30		30	
TDEOP	1990-IMRN			D	760	0.05	14			
TDEPP	1990-IMRN			D	760	0.05	14			
	1992-NIVA			D	360	0.05	24		22	
	1994-NIVA		8Z	D	360	0.05	24		21	
	1996-NIVA			D	360	0.2	10			
	1997-NIVA			D	360	0.2	18			
	2004-NIVA			D	360	0.2	155		38	
	2006-NIVA		R44_Ex700_MS-2	D	360	0.2	20		20	
TPTIN	2004-NIVA			D	370	0.17	141		69	
	2006-NIVA			D	370	0.17	30		29	
ZN	1986-NIVA		7C	D	351	100	24			
	1987-NIVA		7C	D	351	100	28			
	1990-NIVA		7E	D	351	10000	128			
	1992-NIVA		7E	D	351	100	107			
	1994-NIVA		7Z	D	351	100	114			
	1996-NIVA			D	351	100	23			
	1997-NIVA			D	351	100	27			
ZN	2004-NIVA		QT	D	355	5000	173			
	2006-NIVA		R44_Ex699_MS-1	D	355	5000	30			
Sum of counts							20409	539	2816	341

~ > converting to ppb ignored, due to missing unit

Appendix D
Analytical overview - biota

Sorted by:
- Contaminant, year, laboratory, intercalibration

Contamin.	**Contaminant. Abbreviations are defined in Appendix A**
Mon. Year	**Monitoring year**
Lab.	**Analytical lab (cf.Appendix A)**
Intercalibr. +basis	**Intercalibration excercise (cf. Appendix B) and analytical basis where D = dry weight basis and W = wet weight basis.**
Detect limit	**"Normal" analytical detection limit.**
Total value count	**Total number of analyses**
Count below d.lim	**Number of analyses below detection limit**
N (<) above d.lim	**Number of analyses with higher detection limit than "normal"**

Analytical overview - biota

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
ACNE	1992-NIVA		W	**309**	0.2	8				**309**	0.2	46			
	1995-NIVA		W							**309**	0.2	72			20
	1996-NIVA		W							**309**	0.2	65			19
	1997-NIVA		W							**309**	0.5	34			
	1998-NIVA	CI	W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	38			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA	MQ	W							**309**	0.5	46			
	2004-NIVA	R5	W							**309**	0.5	58	32	22	1
	2005-NIVA	E!	W							**309**	0.5	51			
	2006-NIVA	R44_EX705_BT-4	W							**309**	0.5	48			
ACNLE	1992-NIVA		W	**309**	0.2	8				**309**	0.2	46			
	1995-NIVA		W							**309**	0.2	72			49
	1996-NIVA		W							**309**	0.2	65			42
	1997-NIVA		W							**309**	0.5	34			
	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	41			
	2002-NIVA		W							**309**	0.5	42			
	2003-NIVA	MQ	W							**309**	0.5	55			
	2004-NIVA	R5	W							**309**	0.5	58	29	7	
	2005-NIVA	R5	W							**309**	0.5	51			
	2006-NIVA	R44_EX705_BT-4	W							**309**	0.5	48			7
AG	1996-NIVA		W							**315**	0.5	3			
	2004-NIVA		W							**315**	0.5	7			5
ANT	1992-NIVA		W	**309**	0.2	8				**309**	0.2	45			
	1995-NIVA		W							**309**	0.2	72			28
	1996-NIVA		W							**309**	0.2	65			30
	1997-NIVA		W							**309**	0.5	35			
	1998-NIVA	CI	W							**309**	0.5	39			
	1999-NIVA	EK	W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA	MQ	W							**309**	0.5	56			
	2004-NIVA	R5	W							**309**	0.5	58	22	6	
	2005-NIVA	F!	W							**309**	0.5	51			
	2006-NIVA	R44_EX705_BT-4	W							**309**	0.5	48			
AS	1996-NIVA		D							**312**	150	18			
	1996-NIVA		W							**312**	150	3			
	2004-NIVA		W							**315**	50	28			
	2005-NIVA	A!	W							**315**	50	30			
	2006-NIVA	R44_EX705_BT-4	W							**315**	50	29			
BAP	1992-NIVA		W	**309**	0.2	8				**309**	0.2	45			
	1995-NIVA		W							**309**	0.2	72			21
	1996-NIVA		W							**309**	0.2	65			26
	1997-NIVA	AL	W							**309**	0.5	36			
	1998-NIVA	CI	W							**309**	0.5	39			
	1999-NIVA	EK	W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	2003-NIVA	MQ	W							**309**	0.5	56			
	2004-NIVA	R5	W							**309**	0.5	58	11	6	
	2005-NIVA	E!	W							**309**	0.5	51			
	2006-NIVA	R44_EX705_BT-4	W							**309**	0.5	48			
BBF	1992-NIVA		W	**309**	0.2	8				**309**	0.2	45			
	1995-NIVA		W							**309**	0.2	59			9
	1996-NIVA		W							**309**	0.2	57			6
	2004-NIVA		W							**309**	0.2	58			
BBJF	2005-NIVA		W							**309**	0.5	51			
	2006-NIVA		W							**309**	0.5	48			
BBJKF	1995-NIVA		W							**309**	0.2	12			
	1996-NIVA		W							**309**	0.2	8			
	1997-NIVA		W							**309**	0.2	36			1
	1998-NIVA		W							**309**	0.2	39			
	1999-NIVA		W							**309**	0.2	34			
	2000-NIVA		W							**309**	0.2	39			10
	2001-NIVA		W							**309**	0.2	42			
	2002-NIVA		W							**309**	0.2	43			9
	2003-NIVA		W							**309**	0.2	50			9
	2004-NIVA		W							**309**	0.2	21			
BD100	2001-NILU		W	**843**	0.02	6				**843**	0.02	6			
	2002-NILU		W							**843**	0.02	2			
	2004-NIVA		W							**730**	miss	2			2
BD138	2001-NILU		W	**843**	miss	6			6	**843**	miss	6			6
	2004-NIVA		W							**730**	miss	2			2
BD153	1996-NILU		W	**843**	0.01	4			4						
	2001-NILU		W	**843**	0.01	6			4	**843**	0.01	6			
	2002-NILU		W							**843**	0.01	2			
	2004-NIVA		W							**730**	miss	2			2
BD154	2001-NILU		W	**843**	0.01	6				**843**	0.01	6			
	2002-NILU		W							**843**	0.01	2			
	2004-NIVA		W							**730**	miss	2			2
BD183	2001-NILU		W	**843**	0.01	6			3	**843**	0.01	6			
	2002-NILU		W							**843**	0.01	2			
BD209	2001-NILU		W	**843**	0.03	6			5	**843**	0.03	6			1
	2002-NILU		W							**843**	0.03	2			
BDE100	2005-NIVA		W	**730**	miss	58									
	2006-NIVA		W	**730**	miss	58									
BDE119	2005-NIVA		W	**730**	miss	58			13						
	2006-NIVA		W	**730**	miss	57			11						
BDE138	2005-NIVA		W	**730**	miss	58			58						
	2006-NIVA		W	**730**	miss	58			58						
BDE153	2005-NIVA		W	**730**	miss	58			27						
	2006-NIVA		W	**730**	miss	58			27						
BDE154	2005-NIVA		W	**730**	miss	58									
	2006-NIVA		W	**730**	miss	58									
BDE183	2005-NIVA		W	**730**	miss	58			58						
	2006-NIVA		W	**730**	miss	58			58						
BDE205	2005-NIVA		W	**730**	miss	58			57						
	2006-NIVA		W	**730**	miss	58			53						
BDE28	2001-NILU		W	**830**	0.01	6				**830**	0.01	6			
	2002-NILU		W							**830**	0.01	2			
	2005-NIVA		W	**730**	miss	58									
	2006-NIVA		W	**730**	miss	58									
BDE47	1996-NILU		W	**830**	0.11	4									
	2001-NILU		W	**830**	0.11	6				**830**	0.11	6			

Tissue				**Fish liver**						**Fish fillet, Shrimp tail, Mussel, Other**					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	2002-NILU		W							**830**	0.11	2			
	2004-NIVA		W							**730**	miss	2			
	2005-NIVA		W	**730**	miss	58									
	2006-NIVA		W	**730**	miss	58									
BDE49	2005-NIVA		W	**730**	miss	58									
	2006-NIVA		W	**730**	miss	58									
BDE66	2005-NIVA		W	**730**	miss	58			7						
	2006-NIVA		W	**730**	miss	58			1						
BDE71	2005-NIVA		W	**730**	miss	58			58						
	2006-NIVA		W	**730**	miss	58			57						
BDE77	2005-NIVA		W	**730**	miss	58			38						
	2006-NIVA		W	**730**	miss	58			46						
BDE85	2005-NIVA		W	**730**	miss	58			54						
	2006-NIVA		W	**730**	miss	58			54						
BDE99	1996-NILU		W	**830**	0.06	4									
	2001-NILU		W	**830**	0.06	6				**830**	0.06	6	3	1	
	2002-NILU		W							**830**	0.06	2			
	2004-NIVA		W							**730**	miss	2			2
	2005-NIVA		W	**730**	miss	58			1						
	2006-NIVA		W	**730**	miss	58			7						
BEP	1992-NIVA		W	**309**	0.2	8				**309**	0.2	45			
	1995-NIVA		W							**309**	0.2	72			5
	1996-NIVA		W							**309**	0.2	65			6
	1997-NIVA		W							**309**	0.2	36			
	1998-NIVA	CI	W							**309**	0.2	38			
	1999-NIVA	EK	W							**309**	0.2	34			
	2000-NIVA		W							**309**	0.2	39			10
	2001-NIVA		W							**309**	0.2	42			
	2002-NIVA		W							**309**	0.2	43			9
	2003-NIVA	MQ	W							**309**	0.2	56			10
	2004-NIVA	R5	W							**309**	0.2	55			
	2005-NIVA	E!	W							**309**	0.2	51			15
	2006-NIVA	R44_EX705_BT-4	W							**309**	0.5	48			
BGHIP	1992-NIVA		W	**309**	0.2	8				**309**	0.2	46			
	1995-NIVA		W							**309**	0.2	72			20
	1996-NIVA		W							**309**	0.2	65			10
	1997-NIVA		W							**309**	0.5	36			
	1998-NIVA	CI	W							**309**	0.5	35			
	1999-NIVA	EK	W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA	MQ	W							**309**	0.5	56			
	2004-NIVA	R5	W							**309**	0.5	58	6		
	2005-NIVA	F!	W							**309**	0.5	51			
	2006-NIVA	R44_EX705_BT-4	W							**309**	0.5	48			
BIPN	1992-NIVA		W	**309**	0.2	8				**309**	0.2	46			
	1995-NIVA		W							**309**	0.2	72			52
	1996-NIVA		W							**309**	0.2	62			39
	1997-NIVA		W							**309**	0.5	34			
	1998-NIVA		W							**309**	0.5	39	1		
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	38			1
	2001-NIVA		W							**309**	0.5	41			
	2002-NIVA		W							**309**	0.5	42			
	2003-NIVA		W							**309**	0.5	55			1

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
BJKF	1992-NIVA		W	309	0.2	8				309	0.2	45			
	1995-NIVA		W							309	0.2	24			21
	1996-NIVA		W							309	0.2	57			16
	2004-NIVA		W							309	0.5	37	5		
BKF	2005-NIVA	E!	W							309	0.5	51			
	2006-NIVA	R44_EX705_BT-4	W							309	0.5	48			
BAA	1992-NIVA		W	309	0.2	8				309	0.2	44			
	1995-NIVA		W							309	0.2	72			9
	1996-NIVA		W							309	0.2	65			8
	1997-NIVA		W							309	0.5	36			
	1998-NIVA	CI	W							309	0.5	39			
	1999-NIVA	EK	W							309	0.5	34			
	2000-NIVA		W							309	0.5	39			
	2001-NIVA		W							309	0.5	42			
	2002-NIVA		W							309	0.5	43			
	2003-NIVA	MQ	W							309	0.5	56			
	2004-NIVA	R5	W							309	0.5	58	3	2	
	2005-NIVA	F!	W							309	0.5	51			
	2006-NIVA	R44_EX705_BT-4	W							309	0.5	48			
CB101	1987-SIIF		W							111	0.2	21	1		
	1988-SIIF		D							111	0.1	6			
	1988-SIIF		W							111	0.1	22			
	1989-NACE		W	510	20	93									
	1989-SIIF		W							111	0.1	36			
	1990-NIVA	2G	W	340	1	169	1			341	0.05	58			
	1990-SIIF	2G	W							111	0.4	41	6		
	1991-NIVA	2H	W	340	1	179			8	341	0.05	68			
	1991-SIIF	2H	W							111	0.2	35			1
	1992-NIVA	2J	W	340	5	192	3			341	0.1	146			
	1993-NIVA	2K	W	340	4	212	12	1		341	0.1	138			
	1994-NIVA	2Z	W	340	3	300	3			341	0.05	170	39	14	
	1995-NIVA		W	340	3	318	10	1		341	0.05	231	10	2	
	1996-NIVA		W	340	3	332	14	1		341	0.05	243	9	2	
	1997-NIVA		W	340	3	260	24								
	1997-NIVA	AJ	W							341	0.05	221	4	1	
	1998-NIVA		W	340	3	284	19	4	1						
	1998-NIVA	CH	W							341	0.05	203	1	1	3
	1999-NIVA		W	340	3	249	6								
	1999-NIVA	EG	W							341	0.05	232			13
	2000-NIVA		W	340	3	230	24	3							
	2000-NIVA	GU	W							341	0.05	186	11	4	7
	2001-NIVA		W	340	3	250	19	1	4						
	2001-NIVA	IO	W							341	0.05	211			16
	2002-NIVA		W	340	3	241	13								
	2002-NIVA	LJ	W							341	0.05	212			17
	2003-NIVA		W	340	3	239	18	2							
	2003-NIVA	MO	W							341	0.05	175			6
	2004-NIVA		W	340	3	272	19	1							
	2004-NIVA	R1	W							341	0.05	170			
	2005-NIVA		W	340	3	282	28								
	2005-NIVA	D!	W							341	0.05	252			5
	2006-NIVA	R44_EX704_BT-3	W	340	3	186	23			341	0.05	162			40
CB105	1991-NIVA	2H	W	340	1	87			1	341	0.05	47			
	1992-NIVA		W	340	5	192	3	3		341	0.1	146			
	1993-NIVA	QM	W	340	4	212	21	7		341	0.1	138			
	1994-NIVA	2Z	W	340	3	300	8			341	0.05	170	53	38	
	1995-NIVA		W	340	3	318	13	1		341	0.05	230	34	14	

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	1996-NIVA		W	**340**	3	332	22	1		**341**	0.05	237	23	6	
	1997-NIVA		W	**340**	3	260	24			**341**	0.05	221	3		1
	1998-NIVA		W	**340**	3	284	31	7	19						
	1998-NIVA	CH	W							**341**	0.05	207	11	8	16
	1999-NIVA		W	**340**	3	249	17	7							
	1999-NIVA	EG	W							**341**	0.05	232	4	3	62
	2000-NIVA		W	**340**	3	230	32	5							
	2000-NIVA	GU	W							**341**	0.05	186	21	10	40
	2001-NIVA		W	**340**	3	250	29		2						
	2001-NIVA	IO	W							**341**	0.05	211			76
	2002-NIVA		W	**340**	3	249	30	1		**341**	0.05	210			59
	2003-NIVA		W	**340**	3	239	23	4							
	2003-NIVA	MO	W							**341**	0.05	183			45
	2004-NIVA		W	**340**	3	272	44	13							
	2004-NIVA	R1	W							**341**	0.05	241			6
	2005-NIVA		W	**340**	3	282	66	5							
	2005-NIVA	D!	W							**341**	0.05	252			
	2006-NIVA	R44_EX704_BT-3	W	**340**	3	280	70	19		**341**	0.05	216			2
CB118	1989-NACE		W	**510**	20	93									
	1989-SIIF		W							**111**	0.1	36			
	1990-NIVA	2G	W	**340**	1	169				**341**	0.05	58			
	1990-SIIF	2G	W							**111**	0.2	41	1		
	1991-NIVA	2H	W	**340**	1	179				**341**	0.05	68			
	1991-SIIF	2H	W							**111**	0.2	35			1
	1992-NIVA	2J	W	**340**	5	192	2			**341**	0.1	146			
	1993-NIVA	2K	W	**340**	4	212	10	1		**341**	0.1	138			
	1994-NIVA	2Z	W	**340**	3	300	2			**341**	0.05	170	25	8	
	1995-NIVA		W	**340**	3	318	2			**341**	0.05	231	2		
	1996-NIVA		W	**340**	3	332	6			**341**	0.05	243	4	1	
	1997-NIVA		W	**340**	3	260	5								
	1997-NIVA	AJ	W							**341**	0.05	221			
	1998-NIVA		W	**340**	3	284	6		1						
	1998-NIVA	CH	W							**341**	0.05	209	3	1	1
	1999-NIVA		W	**340**	3	249	2								
	1999-NIVA	EG	W							**341**	0.05	232			7
	2000-NIVA		W	**340**	3	230	5	1							
	2000-NIVA	GU	W							**341**	0.05	186	6	4	7
	2001-NIVA		W	**340**	3	250	1		1						
	2001-NIVA	IO	W							**341**	0.05	211			21
	2002-NIVA		W	**340**	3	249	7								
	2002-NIVA	LJ	W							**341**	0.05	212			22
	2003-NIVA		W	**340**	3	239	6								
	2003-NIVA	MO	W							**341**	0.05	183			18
	2004-NIVA		W	**340**	3	272	7								
	2004-NIVA	R1	W							**341**	0.05	241			1
	2005-NIVA		W	**340**	3	282	11								
	2005-NIVA	C!	W							**341**	0.05	252			
	2006-NIVA	R44_EX704_BT-3	W	**340**	3	280	15	1		**341**	0.05	219			
CB126	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	1E-04	18			
	2002-NILU		W							**841**	1E-04	12			
	2003-NILU		W							**841**	1E-04	12			
	2004-NILU		W							**841**	1E-04	1			
	2005-NILU		W							**841**	1E-04	11			
	2006-NILU		W							**841**	1E-04	12			
CB138	1988-SIIF		D							**111**	0.1	6			
	1988-SIIF		W							**111**	0.1	21			

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	1989-NACE		W	510	20	93									
	1989-SIIF		W							111	0.1	36			
	1990-NIVA	2G	W	340	1	169				341	0.05	58			
	1990-SIIF	2G	W							111	0.3	41			
	1991-NIVA	2H	W	340	1	179				341	0.05	68			
	1991-SIIF	2H	W							111	0.3	35			1
	1992-NIVA	2J	W	340	5	192				341	0.1	143			
	1993-NIVA	QM	W	340	4	212	3			341	0.1	138			
	1994-NIVA	2Z	W	340	3	300				341	0.05	170	12	3	
	1995-NIVA		W	340	3	318	2			341	0.05	230			
	1996-NIVA		W	340	3	331	1			341	0.05	241			
	1997-NIVA		W	340	3	260	1								
	1997-NIVA	AJ	W							341	0.05	221			1
	1998-NIVA		W	340	3	284	3								
	1998-NIVA	CH	W							341	0.05	209			
	1999-NIVA		W	340	3	249									
	1999-NIVA	EG	W							341	0.05	232			1
	2000-NIVA		W	340	3	230	3								
	2000-NIVA	GU	W							341	0.05	186	3	1	
	2001-NIVA		W	340	3	250	1		1						
	2001-NIVA	IO	W							341	0.05	211			7
	2002-NIVA		W	340	3	249	3			341	0.05	212			6
	2003-NIVA		W	340	3	239	4								
	2003-NIVA	MO	W							341	0.05	183			4
	2004-NIVA		W	340	3	272	6								
	2004-NIVA	R1	W							341	0.05	241			
	2005-NIVA		W	340	3	282	4								
	2005-NIVA	D!	W							341	0.05	252			
	2006-NIVA	R44_EX704_BT-3	W	340	3	280	4			341	0.05	221			
CB153	1988-SIIF		D							111	0.1	6			
	1988-SIIF		W							111	0.1	22			
	1989-NACE		W	510	20	93									
	1989-SIIF		W							111	0.1	36			
	1990-NIVA	2G	W	340	1	169				341	0.05	58			
	1990-SIIF	2G	W							111	0.3	41			
	1991-NIVA	2H	W	340	1	179				341	0.05	68			
	1991-SIIF	2H	W							111	0.5	35			1
	1992-NIVA	2J	W	340	5	192				341	0.1	146			
	1993-NIVA	2K	W	340	4	212	3			341	0.1	138			
	1994-NIVA	2Z	W	340	3	300				341	0.05	170	9	1	
	1995-NIVA		W	340	3	318	1			341	0.05	231			
	1996-NIVA		W	340	3	332	1			341	0.05	243			
	1997-NIVA		W	340	3	260									
	1997-NIVA	AJ	W							341	0.05	221			
	1998-NIVA		W	340	3	284	1								
	1998-NIVA	CH	W							341	0.05	209	1		1
	1999-NIVA		W	340	3	249									
	1999-NIVA	EG	W							341	0.05	232			1
	2000-NIVA		W	340	3	230	3								
	2000-NIVA	GU	W							341	0.05	186	1	1	
	2001-NIVA		W	340	3	250			1						
	2001-NIVA	IO	W							341	0.05	211			5
	2002-NIVA		W	340	3	249	1								
	2002-NIVA	LJ	W							341	0.05	212			4
	2003-NIVA		W	340	3	239	1								
	2003-NIVA	MO	W							341	0.05	183			1
	2004-NIVA		W	340	3	269	4								

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	2004-NIVA	R1	W							**341**	0.05	241			
	2005-NIVA		W	**340**	3	282	2								
	2005-NIVA	D!	W							**341**	0.05	252			
	2006-NIVA	R44_EX704_BT-3	W	**340**	3	280	1			**341**	0.05	221			
CB156	1991-NIVA	2H	W	**340**	1	87			15	**341**	0.05	47			5
	1992-NIVA		W	**340**	5	192	3	3		**341**	0.1	146			
	1993-NIVA	QM	W	**340**	4	212	31	14		**341**	0.1	138			
	1994-NIVA	2Z	W	**340**	3	300	24	2	1	**341**	0.05	167	73	60	
	1995-NIVA		W	**340**	3	317	27	3		**341**	0.05	231	68	39	
	1996-NIVA		W	**340**	3	332	48	6		**341**	0.05	243	62	37	
	1997-NIVA		W	**340**	3	260	46	4							
	1997-NIVA	AJ	W							**341**	0.05	221	9	4	10
	1998-NIVA		W	**340**	3	284	52	21	70						
	1998-NIVA	CH	W							**341**	0.05	209	37	26	47
	1999-NIVA		W	**340**	3	249	39	15	2						
	1999-NIVA	EG	W							**341**	0.05	231	12	9	139
	2000-NIVA		W	**340**	3	230	71	29	5						
	2000-NIVA	GU	W							**341**	0.05	186	28	24	95
	2001-NIVA		W	**340**	3	250	82	17	3						
	2001-NIVA	IO	W							**341**	0.05	211	9	8	134
	2002-NIVA		W	**340**	3	249	99	39		**341**	0.05	210			102
	2003-NIVA		W	**340**	3	236	60	21							
	2003-NIVA	MO	W							**341**	0.05	183			83
	2004-NIVA		W	**340**	3	272	127	42							
	2004-NIVA	R1	W							**341**	0.05	241			7
	2005-NIVA		W	**340**	3	282	140	39							
	2005-NIVA	C!	W							**341**	0.05	241			
	2006-NIVA	R44_EX704_BT-3	W	**340**	3	279	176	131		**341**	0.05	221			
CB169	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	1E-04	18	2	1	
	2002-NILU		W							**841**	1E-04	12			
	2003-NILU		W							**841**	1E-04	12	1	1	1
	2004-NILU		W							**841**	1E-04	1			
	2005-NILU		W							**841**	1E-04	11			
	2006-NILU		W							**841**	1E-04	12	1		
CB180	1987-SIIF		W							**111**	0.2	21	6		
	1988-SIIF		D							**111**	0.1	6			
	1988-SIIF		W							**111**	0.1	22			
	1989-NACE		W	**510**	20	93	1	1							
	1989-SIIF		W							**111**	0.1	36			
	1990-NIVA	2G	W	**340**	1	169				**341**	0.05	58			
	1990-SIIF	2G	W							**111**	0.2	41	8		
	1991-NIVA	2H	W	**340**	1	179				**341**	0.05	68			
	1991-SIIF	2H	W							**111**	0.2	35			
	1992-NIVA	2J	W	**340**	5	192	3	1		**341**	0.1	146			
	1993-NIVA	2K	W	**340**	4	212	15			**341**	0.1	138			
	1994-NIVA	2Z	W	**340**	3	300	3			**341**	0.05	167	49	28	
	1995-NIVA		W	**340**	3	318	5	1		**341**	0.05	231	22	7	
	1996-NIVA		W	**340**	3	332	14			**341**	0.05	243	25	9	
	1997-NIVA		W	**340**	3	260	18								
	1997-NIVA	AJ	W							**341**	0.05	221	1	1	1
	1998-NIVA		W	**340**	3	284	20	3	14						
	1998-NIVA	CH	W							**341**	0.05	209	19	9	44
	1999-NIVA		W	**340**	3	249	7		1						
	1999-NIVA	EG	W							**341**	0.05	232	2	1	78
	2000-NIVA		W	**340**	3	230	15	1							
	2000-NIVA	GU	W							**341**	0.05	186	15	7	83

Tissue				**Fish liver**						**Fish fillet, Shrimp tail, Mussel, Other**					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	2001-NIVA		W	**340**	3	250	17		1						
	2001-NIVA	IO	W							**341**	0.05	211			99
	2002-NIVA		W	**340**	3	249	24								
	2002-NIVA	LJ	W							**341**	0.05	212			104
	2003-NIVA		W	**340**	3	238	13								
	2003-NIVA	MO	W							**341**	0.05	183			71
	2004-NIVA		W	**340**	3	272	14	4							
	2004-NIVA	R1	W							**341**	0.05	241			6
	2005-NIVA		W	**340**	3	282	32								
	2005-NIVA	D!	W							**341**	0.05	252			
	2006-NIVA	R44_EX704_BT-3	W	**340**	3	280	40	6		**341**	0.05	221			
CB209	1990-NIVA		W	**340**	2	169	24	15	11	**341**	0.05	58			
	1991-NIVA		W	**340**	2	179	11	10	88	**341**	0.05	68	5	5	13
	1992-NIVA		W	**340**	5	192	3	3		**341**	0.1	146			1
	1993-NIVA		W	**340**	4	212	46	38	14	**341**	0.1	138			
	1994-NIVA		W	**340**	3	300	29	17	24	**341**	0.05	170	96	94	
	1995-NIVA		W	**340**	3	318	36	19		**341**	0.05	231	95	87	5
	1996-NIVA		W	**340**	3	332	255	212		**341**	0.05	243	107	100	9
	1997-NIVA		W	**340**	3	260	196	164		**341**	0.05	221	30	29	14
	1998-NIVA		W	**340**	3	283	120	113	121	**341**	0.05	209	54	54	69
	1999-NIVA		W	**340**	3	243	163	119	17	**341**	0.05	230	19	17	178
	2000-NIVA		W	**340**	3	228	151	115	18	**341**	0.05	178	33	33	111
	2001-NIVA		W	**340**	3	250	184	130	10	**341**	0.05	211	21	21	185
	2002-NIVA		W	**340**	3	248	207	186	1	**341**	0.05	209			114
	2003-NIVA		W	**340**	3	236	126	107		**341**	0.05	177			99
	2004-NIVA		W	**340**	3	272	228	191		**341**	0.05	241			8
	2005-NIVA		W	**340**	3	281	250	171		**341**	0.05	250			
	2006-NIVA		W	**340**	3	280	254	219		**341**	0.05	220			
CB28	1988-SIIF		D							**111**	0.1	6			
	1988-SIIF		W							**111**	0.1	22			
	1989-NACE		W	**510**	20	93									
	1989-SIIF		W							**111**	0.1	36			1
	1990-NIVA	2G	W	**340**	1	169	2		2	**341**	0.05	58			
	1990-SIIF	2G	W							**111**	0.2	41	7		
	1991-NIVA	2H	W	**340**	1	179	2	1	52	**341**	0.05	68	5	3	4
	1991-SIIF	2H	W							**111**	0.3	35			
	1992-NIVA	2J	W	**340**	5	192	3	3		**341**	0.1	143			
	1993-NIVA	2K	W	**340**	4	212	44	29	5	**341**	0.1	138			
	1994-NIVA	2Z	W	**340**	3	282	18	7	4	**341**	0.05	168	76	67	
	1995-NIVA		W	**340**	3	313	27	15		**341**	0.05	231	80	64	
	1996-NIVA		W	**340**	3	332	107	27		**341**	0.05	242	70	55	
	1997-NIVA		W	**340**	3	260	81	24							
	1997-NIVA	AJ	W							**341**	0.05	221	22	14	14
	1998-NIVA		W	**340**	3	284	96	54	99						
	1998-NIVA	CH	W							**341**	0.05	207	36	26	46
	1999-NIVA		W	**340**	3	249	96	45	18						
	1999-NIVA	EG	W							**341**	0.05	232	14	13	145
	2000-NIVA		W	**340**	3	230	110	55	7						
	2000-NIVA	GU	W							**341**	0.05	186	26	24	66
	2001-NIVA		W	**340**	3	250	146	37	10						
	2001-NIVA	IO	W							**341**	0.05	211	17	16	150
	2002-NIVA		W	**340**	3	249	144	60	1						
	2002-NIVA	LJ	W							**341**	0.05	207			101
	2003-NIVA		W	**340**	3	238	97	31							
	2003-NIVA	MO	W							**341**	0.05	173			75
	2004-NIVA		W	**340**	3	270	160	79							
	2004-NIVA	R1	W							**341**	0.05	240			9

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	2005-NIVA		W	**340**	3	282	191	42							
	2005-NIVA	C!	W							**341**	0.05	247			
	2006-NIVA	R44_EX704_BT-3	W	**340**	3	279	183	115	13	**341**	0.05	221			14
CB52	1987-SIIF		W							**111**	0.2	20	1		
	1988-SIIF		D							**111**	0.1	6			
	1988-SIIF		W							**111**	0.1	22			
	1989-NACE		W	**510**	20	93									
	1989-SIIF		W							**111**	0.1	36			
	1990-NIVA	2G	W	**340**	1	169	2	1	6	**341**	0.05	58			
	1990-SIIF	2G	W							**111**	0.4	41	7		
	1991-NIVA	2H	W	**340**	1	179	1		37	**341**	0.05	68	5	3	1
	1991-SIIF	2H	W							**111**	0.3	35			
	1992-NIVA	2J	W	**340**	5	192	3	3		**341**	0.1	143			
	1993-NIVA	2K	W	**340**	4	212	40	16		**341**	0.1	138			
	1994-NIVA	2Z	W	**340**	3	300	9	1		**341**	0.05	170	64	44	
	1995-NIVA		W	**340**	3	312	19	1		**341**	0.05	220	28	5	
	1996-NIVA		W	**340**	3	332	49	10		**341**	0.05	241	31	12	
	1997-NIVA		W	**340**	3	260	116	77							
	1997-NIVA	AJ	W							**341**	0.05	221	25	21	10
	1998-NIVA		W	**340**	3	281	47	26	44	**341**	0.05	169	12	9	17
	1999-NIVA		W	**340**	3	249	52	19	11						
	1999-NIVA	EG	W							**341**	0.05	222	7	6	73
	2000-NIVA		W	**340**	3	230	65	19	4						
	2000-NIVA	GU	W							**341**	0.05	183	22	20	23
	2001-NIVA		W	**340**	3	250	66	5	4						
	2001-NIVA	IO	W							**341**	0.05	186	7	7	58
	2002-NIVA		W	**340**	3	193	29	1							
	2002-NIVA	LJ	W							**341**	0.05	162			55
	2003-NIVA		W	**340**	3	239	54	18							
	2003-NIVA	MO	W							**341**	0.05	147			41
	2004-NIVA		W	**340**	3	267	75	31							
	2004-NIVA	R1	W							**341**	0.05	215			5
	2005-NIVA		W	**340**	3	281	112	15							
	2005-NIVA	C!	W							**341**	0.05	246			
	2006-NIVA	R44_EX704_BT-3	W	**340**	3	274	125	61	13	**341**	0.05	204			96
CB77	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	1E-04	18			
	2002-NILU		W							**841**	1E-04	12			
	2003-NILU		W							**841**	1E-04	12			
	2004-NILU		W							**841**	1E-04	1			
	2005-NILU		W							**841**	1E-04	11			
	2006-NILU		W							**841**	1E-04	12			
CB81	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	1E-04	18			
	2002-NILU		W							**841**	1E-04	12			
	2003-NILU		W							**841**	1E-04	12			
	2004-NILU		W							**841**	1E-04	1			
	2005-NILU		W							**841**	1E-04	11			
	2006-NILU		W							**841**	1E-04	12			
CD	1981-NIVA		D							**312**	30	3			
	1981-SIIF	1E	W	**130**	10	28				**130**	5	27			
	1981-SIIF	1F	W							**130**	10	7			
	1982-NIVA		D							**312**	30	3			
	1982-SIIF	1F	W							**130**	10	18			
	1982-VETN		W	**230**	10	54									
	1983-SIIF	1F	W							**130**	10	17			
	1983-VETN	1Z	W	**230**	10	46									

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	1984-FIER	1H	W	**402**	1	23									
	1984-SIIF	1G	W							**130**	10	27			
	1984-VETN	1Z	W	**230**	10	66									
	1985-SIIF	1G	D							**130**	10	35			
	1985-VETN	1Z	W	**230**	10	45			3						
	1986-NIVA	1H	D	**312**	30	56	1			**312**	30	20			
	1987-FIER	1G	W	**402**	1	37									
	1987-NIVA	1H	D	**312**	30	57			4	**312**	30	42			
	1988-NIVA	1H	D	**312**	30	61	11	4	1	**312**	30	55			
	1989-NIVA	1H	D	**312**	30	135	11	6	8	**312**	30	3			
	1989-NIVA	1H	W							**312**	30	36			
	1990-NIVA	1H	D							**312**	10	6			
	1990-NIVA	1H	W	**312**	10	189	9		2	**312**	30	77	5	1	
	1991-NIVA	1H	D							**312**	10	6			
	1991-NIVA	1H	W	**312**	10	190	29	21	2	**312**	10	67			
	1992-NIVA	1H	D							**312**	10	6			
	1992-NIVA	1H	W	**312**	10	191	4	1		**312**	10	111			
	1993-NIVA	1H	D							**312**	50	5			
	1993-NIVA	1H	W	**312**	50	221	98	3		**312**	50	79			
	1994-NIVA	1Z	D							**312**	50	5			
	1994-NIVA	1Z	W	**312**	50	302	134	1		**312**	50	81			
	1995-NIVA		D							**312**	50	6			
	1995-NIVA		W	**312**	50	318	129			**312**	50	139	2		
	1996-NIVA	V1	D							**312**	50	24			
	1996-NIVA	V1	W							**312**	50	125			
	1996-NIVA	V2	W	**312**	50	368	128								
	1997-NIVA		W	**312**	50	287	90								
	1997-NIVA	AH	D							**312**	50	6			
	1997-NIVA	AH	W							**312**	50	128			
	1998-NIVA		D							**312**	50	6			
	1998-NIVA		W	**312**	50	285	101	1		**312**	50	114			
	1999-NIVA		W	**312**	50	235	79								
	1999-NIVA	EF	D							**312**	50	6			
	1999-NIVA	EF	W							**312**	50	153	15	4	
	2000-NIVA		W	**312**	50	227	82								
	2000-NIVA	GS	D							**312**	50	7			
	2000-NIVA	GS	W							**312**	50	109			
	2001-NIVA		W	**312**	50	261	103								
	2001-NIVA	IM	D							**312**	50	6			
	2001-NIVA	IM	W							**312**	50	114			
	2002-NIVA		W	**315**	1	230									
	2002-NIVA	LH	D							**315**	1	6			
	2002-NIVA	LH	W							**315**	1	131			
	2003-NIVA		W	**315**	1	233									
	2003-NIVA	MM	W							**315**	1	120			
	2004-NIVA		W	**315**	1	249				**315**	1	163			
	2005-NIVA	A!	W	**315**	1	272				**315**	1	165			
	2006-NIVA	R44_EX702_BT-1	W	**315**	1	278				**315**	1	142			
CDD1N	1995-NILU		W							**841**	2E-05	6	1	1	1
	1996-NILU		W	**841**	0	4				**841**	1E-05	18			2
	2002-NILU		W							**841**	1E-05	12			2
	2003-NILU		W							**841**	1E-05	12			6
	2004-NILU		W							**841**	1E-05	13			7
	2005-NILU		W							**841**	1E-05	11			
	2006-NILU		W							**841**	1E-05	12			1
CDD4X	1995-NILU		W							**841**	2E-05	6	3	1	1
	1996-NILU		W	**841**	0	4				**841**	2E-05	18			1

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	2002-NILU		W							**841**	2E-05	12			2
	2003-NILU		W							**841**	2E-05	12			6
	2004-NILU		W							**841**	2E-05	13			5
	2005-NILU		W							**841**	2E-05	11			1
	2006-NILU		W							**841**	2E-05	12			2
CDD6P	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	4E-05	18			
	2002-NILU		W							**841**	4E-05	12	1		
	2003-NILU		W							**841**	4E-05	12			2
	2004-NILU		W							**841**	4E-05	13			
	2005-NILU		W							**841**	4E-05	11			
	2006-NILU		W							**841**	4E-05	12			
CDD6X	1995-NILU		W							**841**	2E-05	6			1
	1996-NILU		W	**841**	0	4				**841**	2E-05	18			1
	2002-NILU		W							**841**	2E-05	12	2		1
	2003-NILU		W							**841**	2E-05	12			6
	2004-NILU		W							**841**	2E-05	13			5
	2005-NILU		W							**841**	2E-05	11	1	1	
	2006-NILU		W							**841**	2E-05	12			2
CDD9X	1995-NILU		W							**841**	2E-05	6	2		1
	1996-NILU		W	**841**	0	3			1	**841**	2E-05	18			1
	2002-NILU		W							**841**	2E-05	12	2		2
	2003-NILU		W							**841**	2E-05	12			8
	2004-NILU		W							**841**	2E-05	13			7
	2005-NILU		W							**841**	2E-05	11			
	2006-NILU		W							**841**	2E-05	12			1
CDDFS	1996-NILU		W	**844**	miss	4									
CDDO	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	1E-04	18			
	2002-NILU		W							**841**	1E-04	12			
	2003-NILU		W							**841**	1E-04	12			
	2004-NILU		W							**841**	1E-04	13			
	2005-NILU		W							**841**	1E-04	11			
	2006-NILU		W							**841**	1E-04	12			
CDDSN	1995-NILU		W							**841**	2E-05	5			
	1996-NILU		W	**841**	0	3				**841**	1E-05	18			3
	2002-NILU		W							**841**	1E-05	10			
CDDSP	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	4E-05	18			
	2002-NILU		W							**841**	4E-05	11	1		
CDDST	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	1E-05	18			
	2002-NILU		W							**841**	1E-05	12			
CDDSX	1995-NILU		W							**841**	2E-05	5			
	1996-NILU		W	**841**	0	3				**841**	2E-05	18			2
	2002-NILU		W							**841**	2E-05	11			
CDF2N	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	1E-05	18			1
	2002-NILU		W							**841**	1E-05	12			
	2003-NILU		W							**841**	1E-05	12			3
	2004-NILU		W							**841**	1E-05	12			
	2005-NILU		W							**841**	1E-05	11			
	2006-NILU		W							**841**	1E-05	12			
CDF2T	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	1E-05	18			
	2002-NILU		W							**841**	1E-05	12			

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	2003-NILU		W							**841**	1E-05	12			
	2004-NILU		W							**841**	1E-05	13			
	2005-NILU		W							**841**	1E-05	11			
	2006-NILU		W							**841**	1E-05	12			
CDF4X	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	2E-05	18			1
	2002-NILU		W							**841**	2E-05	12	4		
	2003-NILU		W							**841**	2E-05	12	1	1	3
	2004-NILU		W							**841**	2E-05	13	1	1	
	2005-NILU		W							**841**	2E-05	11			
	2006-NILU		W							**841**	2E-05	12			
CDF6P	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	4E-05	18	2		1
	2002-NILU		W							**841**	4E-05	12	3		
	2003-NILU		W							**841**	4E-05	12	1	1	2
	2004-NILU		W							**841**	4E-05	13			
	2005-NILU		W							**841**	4E-05	11			
	2006-NILU		W							**841**	4E-05	12			
CDF6X	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	2E-05	18			1
	2002-NILU		W							**841**	2E-05	12			1
	2003-NILU		W							**841**	2E-05	12	1		2
	2004-NILU		W							**841**	2E-05	13	1	1	1
	2005-NILU		W							**841**	2E-05	11	1	1	
	2006-NILU		W							**841**	2E-05	12			
CDF9P	1995-NILU		W							**841**	2E-05	6	2	2	1
	1996-NILU		W	**841**	0	4				**841**	8E-05	17	3	2	1
	2002-NILU		W							**841**	8E-05	12	2		2
	2003-NILU		W							**841**	8E-05	12	3	3	4
	2004-NILU		W							**841**	8E-05	13	8	7	
	2005-NILU		W							**841**	8E-05	11	5	2	
	2006-NILU		W							**841**	8E-05	12	7	6	
CDF9X	1995-NILU		W							**841**	2E-05	6	3	3	1
	1996-NILU		W	**841**	0	4				**841**	2E-05	18			1
	2002-NILU		W							**841**	2E-05	12			3
	2003-NILU		W							**841**	2E-05	12			7
	2004-NILU		W							**841**	2E-05	13	8	8	
	2005-NILU		W							**841**	2E-05	11	5	3	
	2006-NILU		W							**841**	2E-05	12	5	3	
CDFDN	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	1E-05	18			1
	2002-NILU		W							**841**	1E-05	12			
	2003-NILU		W							**841**	1E-05	12			1
	2004-NILU		W							**841**	1E-05	13			1
	2005-NILU		W							**841**	1E-05	11			
	2006-NILU		W							**841**	1E-05	12			1
CDFDX	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	2E-05	18			1
	2002-NILU		W							**841**	2E-05	12			1
	2003-NILU		W							**841**	2E-05	12	1		4
	2004-NILU		W							**841**	2E-05	13	1	1	
	2005-NILU		W							**841**	2E-05	11	1	1	
	2006-NILU		W							**841**	2E-05	12	1	1	
CDFO	1995-NILU		W							**841**	2E-05	6			1
	1996-NILU		W	**841**	0	4				**841**	1E-04	18	3	2	1
	2002-NILU		W							**841**	1E-04	11	1		
	2003-NILU		W							**841**	1E-04	12	1		2

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	2004-NILU		W							**841**	1E-04	13	1	1	1
	2005-NILU		W							**841**	1E-04	11	1	1	
	2006-NILU		W							**841**	1E-04	12	1	1	
CDFSN	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	1E-05	18			1
	2002-NILU		W							**841**	1E-05	12			
CDFSP	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	8E-05	18	6		1
	2002-NILU		W							**841**	8E-05	12	4		
CDFST	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	1E-05	18			
	2002-NILU		W							**841**	1E-05	12			
CDFSX	1995-NILU		W							**841**	2E-05	6			
	1996-NILU		W	**841**	0	4				**841**	2E-05	18			1
	2002-NILU		W							**841**	2E-05	12	1		
CHR	1992-NIVA		W	**309**	0.2	8				**309**	0.2	44			
	1995-NIVA		W							**309**	0.2	56			
	1996-NIVA		W							**309**	0.2	65			3
	2005-NIVA	F!	W							**309**	0.5	51			
	2006-NIVA	R44_EX705_BT-4	W							**309**	0.5	48			
CHRTR	1995-NIVA		W							**309**	0.2	15			2
	1997-NIVA		W							**309**	0.5	36			
	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA		W							**309**	0.5	56			
	2004-NIVA		W							**309**	0.5	58			
CO	1996-NIVA		D							**312**	330	18			
	1996-NIVA		W							**312**	330	3	3		
	2004-NIVA		W							**315**	0.5	28			
	2005-NIVA		W							**315**	0.5	21			
	2006-NIVA		W							**315**	0.5	20			
COR	1992-NIVA		W	**309**	0.2	8				**309**	0.2	46			
CR	1992-NIVA		W							**312**	10	6			
	1996-NIVA		D							**312**	10	18			
	1996-NIVA		W							**312**	10	3			
	2004-NIVA		W							**315**	100	28			
	2005-NIVA	A!	W							**315**	100	21			
	2006-NIVA	R44_EX702_BT-1	W							**315**	100	20			
CU	1981-NIVA		D							**311**	150	3			
	1982-NIVA		D							**311**	150	3			
	1983-SIIF	1G	W							**130**	10	12			
	1984-SIIF	1G	W							**130**	10	27			
	1986-NIVA	1H	D	**311**	150	56				**311**	150	20			
	1987-FIER	1G	W	**404**	50	37									
	1987-NIVA	1H	D	**311**	150	57				**311**	150	42			
	1988-NIVA	1H	D	**311**	150	61				**311**	150	55			
	1989-NIVA	1H	D	**311**	150	135				**311**	150	3			
	1989-NIVA	1H	W							**311**	150	36			
	1990-NIVA	1H	D							**311**	150	6			
	1990-NIVA	1H	W	**311**	150	189				**311**	150	77			
	1991-NIVA	1H	D							**311**	50	6			
	1991-NIVA	1H	W	**311**	50	193	2			**311**	50	67			
	1992-NIVA	1H	D							**311**	10	6			

Tissue				**Fish liver**						**Fish fillet, Shrimp tail, Mussel, Other**					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	1992-NIVA	1H	W	**311**	10	191				**311**	10	111			
	1993-NIVA	1H	D							**311**	10	5			
	1993-NIVA	1H	W	**311**	10	221				**311**	10	79			
	1994-NIVA	1Z	D							**311**	10	5			
	1994-NIVA	1Z	W	**311**	10	302				**311**	10	81			
	1995-NIVA		D							**311**	10	6			
	1995-NIVA		W	**311**	10	318				**311**	10	124			
	1996-NIVA	V1	D							**311**	10	21			
	1996-NIVA	V1	W							**311**	10	113			
	1996-NIVA	V2	W	**311**	10	368									
	1997-NIVA		W	**311**	5000a	287	1								
	1997-NIVA	AH	D							**311**	10	6			
	1997-NIVA	AH	W							**311**	10	96			
	1998-NIVA		W	**311**	10	285									
	1998-NIVA	CF	D							**311**	10	6			
	1998-NIVA	CF	W							**311**	10	72			
	1999-NIVA		W	**311**	10	235									
	1999-NIVA	EF	D							**311**	10	6			
	1999-NIVA	EF	W							**311**	10	120			
	2000-NIVA		W	**311**	10	227									
	2000-NIVA	GS	D							**311**	10	7			
	2000-NIVA	GS	W							**311**	10	70			
	2001-NIVA		W	**311**	10	261									
	2001-NIVA	IM	D							**311**	10	6			
	2001-NIVA	IM	W							**311**	10	72			
	2002-NIVA		W	**315**	10	230									
	2002-NIVA	LH	D							**315**	10	6			
	2002-NIVA	LH	W							**315**	10	86			
	2003-NIVA		W	**315**	10	233									
	2003-NIVA	MM	W							**315**	10	71			
	2004-NIVA		W	**315**	10	249				**315**	10	122			
	2005-NIVA	B!	W	**315**	10	272				**315**	10	123			
	2006-NIVA	R44_EX702_BT-1	W	**315**	10	278				**315**	10	100			
DBA3A	1992-NIVA		W	**309**	0.2	8				**309**	0.2	46			
	1995-NIVA		W							**309**	0.2	71			48
	1996-NIVA		W							**309**	0.2	65			53
	1997-NIVA		W							**309**	0.5	36			
	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA	MQ	W							**309**	0.5	56			
	2004-NIVA		W							**309**	0.5	58	26	14	
	2005-NIVA	E!	W							**309**	0.5	51			
	2006-NIVA	R44_EX705_BT-4	W							**309**	0.5	48			
DBP	1992-NIVA		W	**309**	0.2	8				**309**	0.2	46			
DBT	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA	MQ	W							**309**	0.5	56			20
	2004-NIVA	R5	W							**309**	0.5	58	31	20	
	2005-NIVA	F!	W							**309**	0.5	51			
	2006-NIVA	R44_EX705_BT-4	W							**309**	0.5	48			
DBTC1	1995-NIVA		W							**309**	0.2	57			14

Tissue				**Fish liver**						**Fish fillet, Shrimp tail, Mussel, Other**					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	1996-NIVA		W							**309**	0.2	65			9
	2004-NIVA		W							**309**	0.5	58			14
	2005-NIVA		W							**309**	0.5	51			47
	2006-NIVA		W							**309**	2	48			16
DBTC2	1995-NIVA		W							**309**	0.2	56			9
	1996-NIVA		W							**309**	0.2	62			11
	2004-NIVA		W							**309**	0.5	58			1
	2005-NIVA		W							**309**	0.5	51			22
	2006-NIVA		W							**309**	2	48			7
DBTC3	1995-NIVA		W							**309**	0.2	57			4
	1996-NIVA		W							**309**	0.2	65			5
	2004-NIVA		W							**309**	0.5	58			5
	2005-NIVA		W							**309**	0.5	51			13
	2006-NIVA		W							**309**	2	48			4
DBTIN	1997-NIVA		D							**320**	5	13			
	1998-NIVA		D							**320**	5	15			
	1999-NIVA		D							**320**	5	13			
	1999-NIVA		W							**320**	5	6	2		
	2000-NIVA		W							**320**	0.5	23			
	2001-GALG		W							**775**	0.15	11			
	2001-NIVA		W							**320**	0.5	16			1
	2002-EFDH		W							**777**	2	33	5	3	
	2002-NIVA		W							**320**	0.5	2			2
	2003-NIVA		W							**320**	2	36	14	7	
	2004-NIVA		W							**320**	2	72	40	12	
	2005-NIVA		W							**320**	2	34	21	14	
	2006-NIVA		W							**320**	2	47	13	3	19
DBTIO	1997-NIVA		W							**309**	0.5	34			
DDEPP	1982-VETN		W	**210**	50	53									
	1983-VETN	2E	W	**210**	50	48				**211**	50	48			
	1984-VETN	2E	W	**210**	50	66									
	1985-VETN	2E	W	**210**	50	45									
	1986-NACE	2Z	W	**510**	20	56									
	1987-NACE	2Z	W	**510**	40	53									
	1988-NACE	2Z	W	**510**	40	61									
	1989-NACE	2Z	W	**510**	20	93									
	1990-NIVA		W	**340**	1	169				**341**	0.05	58			
	1991-NIVA		W	**340**	1	179				**341**	0.05	68			
	1992-NIVA		W	**340**	5	192	2			**341**	0.1	146			
	1993-NIVA		W	**340**	4	212	3			**341**	0.1	138			
	1994-NIVA	2Z	W	**340**	4	300				**341**	0.1	170	27		
	1995-NIVA		W	**340**	4	318	2			**341**	0.1	231	30	6	
	1996-NIVA		W	**340**	4	332	2			**341**	0.1	243	47	10	
	1997-NIVA		W	**340**	4	260	3			**341**	0.1	221	1		
	1998-NIVA		W	**340**	4	284	6								
	1998-NIVA	CH	W							**341**	0.1	209	4	2	
	1999-NIVA		W	**340**	4	249									
	1999-NIVA	EG	W							**341**	0.1	232	2		
	2000-NIVA		W	**340**	4	230	7								
	2000-NIVA	GU	W							**341**	0.1	185	6		
	2001-NIVA		W	**340**	4	250			1						
	2001-NIVA	IO	W							**341**	0.1	211	1		7
	2002-NIVA		W	**340**	4	249	4			**341**	0.1	210	5		
	2003-NIVA	MO	W	**340**	4	239	4			**341**	0.1	183	3		
	2004-NIVA		W	**340**	4	272	6								
	2004-NIVA	R1	W							**341**	0.1	241	56	21	
	2005-NIVA		W	**340**	4	282	4								

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	2005-NIVA	C!	W							**341**	0.1	252	29	5	
	2006-NIVA	R44_EX704_BT-3	W	**340**	4	280	6			**341**	0.1	221	36	7	
DDTEP	1983-SIIF		W							**111**	0.5	12			
	1984-SIIF		W							**111**	0.5	24			1
	1985-SIIF		W							**111**	0.5	27	1	1	5
	1986-SIIF		W							**111**	0.5	21			
	1987-SIIF		W							**111**	0.5	21	1		
	1988-SIIF		D							**111**	0.5	6			
	1988-SIIF		W							**111**	0.5	22	1		
	1989-SIIF		W							**111**	0.5	36	1		
	1990-SIIF		W							**111**	0.2	41	1		
	1991-SIIF		W							**111**	0.3	35			
DDTPP	1986-NACE		W	**510**	40	56									
	1987-NACE		W	**510**	40	53									
	1988-NACE		W	**510**	40	61									
	1989-NACE		W	**510**	20	93									
	1991-NIVA		W							**340**	0.05	6			
	1992-NIVA		W							**340**	0.05	6			4
	1993-NIVA		W							**340**	0.05	5			1
	1994-NIVA		W							**340**	0.05	5			
	1995-NIVA		W							**340**	0.05	78			
	1996-NILU		W	**840**	miss	2									
	1996-NIVA		W	**340**	0.05	54			4	**340**	0.05	51			
	1997-NIVA		W	**340**	2	32									
	1997-NIVA	AJ	W							**340**	0.05	48			
	1998-NIVA		W	**340**	2	37	1		8	**340**	0.05	74			28
	1999-NIVA		W	**340**	2	29			4	**340**	0.05	99			7
	2000-NIVA		W	**340**	2	22				**340**	0.05	54			6
	2001-NIVA		W	**340**	2	46			2	**340**	0.05	53			11
	2002-NILU		W							**840**	miss	1			
	2002-NIVA		W	**340**	2	32			10	**340**	0.05	67			21
	2003-NIVA		W	**340**	2	35			10	**340**	0.05	45			22
	2004-NIVA		W	**340**	2	33				**340**	0.05	123			70
	2005-NIVA		W	**340**	2	248	15	9	42	**340**	0.05	241			163
	2006-NIVA		W	**340**	2	279	12	11	78	**341**	0.2	200			
DPTIN	1997-NIVA		D							**320**	5	13	5	5	
	1998-NIVA		D							**320**	2	15			6
	1999-NIVA		D							**320**	5	13	12	6	
	1999-NIVA		W							**320**	5	6	6		
	2000-NIVA		W							**320**	0.5	23	1	1	1
	2001-NIVA		W							**320**	0.5	16			16
	2002-NIVA		W							**320**	0.5	2			2
	2003-NIVA		W							**320**	2	36	36	35	
	2004-NIVA		W							**320**	2	72	70	67	
	2005-NIVA		W							**320**	2	34	34	34	
	2006-NIVA		W							**320**	2	47	26	26	21
EOCL	1989-SIIF		W							**605**	170	5			
EPOCL	1986-NACE		W	**610**	800	56									
	1986-SIIF		W							**605**	5000	21	21		
	1987-NACE		W	**610**	800	53									
	1987-SIIF		W							**605**	40	20			
	1988-NACE		W	**610**	800	60									
	1988-SIIF		W							**605**	40	27			
	1989-NACE		W	**610**	800	89	1								
	1989-SIIF		W							**605**	40	35			
	1990-NIVA		W	**615**	40	117			3						
	1990-SIIF		W							**605**	40	41			

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	1991-NIVA		W	**615**	40	116			12						
	1991-SIIF		W							**605**	130	35			
	1997-IFEN		W							**607**	50	6			
	1998-IFEN		W							**607**	1	6			
	2000-SIIF		W							**609**	1	6			
	2001-SIiF		W							**609**	1	6			
	2004-IFEN		W							**607**	1	5			
FLE	1992-NIVA		W	**309**	0.2	8				**309**	0.2	45			
	1995-NIVA		W							**309**	0.2	72			22
	1996-NIVA		W							**309**	0.2	65			6
	1997-NIVA	AL	W							**309**	0.5	34			
	1998-NIVA	CI	W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA	MQ	W							**309**	0.5	56			
	2004-NIVA	R5	W							**309**	0.5	58	18	9	
	2005-NIVA	F!	W							**309**	0.5	51			
	2006-NIVA	R44_EX705_BT-4	W							**309**	0.5	48			
FLU	1992-NIVA		W	**309**	0.2	8				**309**	0.2	44			
	1995-NIVA		W							**309**	0.2	72			
	1996-NIVA		W							**309**	0.2	65			
	1997-NIVA	AL	W							**309**	0.2	36			
	1998-NIVA	CI	W							**309**	0.2	39			
	1999-NIVA	EK	W							**309**	0.2	34			
	2000-NIVA		W							**309**	0.2	39			
	2001-NIVA		W							**309**	0.2	42			
	2002-NIVA		W							**309**	0.2	43			3
	2003-NIVA	MQ	W							**309**	0.2	56			
	2004-NIVA	R5	W							**309**	0.2	58			
	2005-NIVA	E!	W							**309**	0.2	51			
	2006-NIVA	R44_EX705_BT-4	W							**309**	0.5	48			
HBCDA	2001-NILU		W	**830**	miss	4				**830**	miss	5			2
HBCDB	2001-NILU		W	**830**	miss	4			4	**830**	miss	5			5
HBCDG	2001-NILU		W	**830**	miss	5			4	**830**	miss	4			4
HCB	1983-SIIF		W							**111**	0.5	12			
	1983-VETN	2Z	W	**210**	10	48				**211**	10	48			
	1984-SIIF		W							**111**	0.2	24			1
	1984-VETN	2Z	W	**210**	10	66									
	1985-SIIF		W							**111**	0.2	30	6	5	2
	1985-VETN	2Z	W	**210**	10	45			4						
	1986-NACE	2Z	W	**510**	10	56									
	1986-SIIF	2Z	W							**111**	0.2	21	3	2	
	1987-NACE	2Z	W	**510**	40	53									
	1987-SIIF	2Z	W							**111**	0.2	21	4		
	1988-NACE	2Z	W	**510**	40	61									
	1988-SIIF	2Z	D							**111**	0.2	6			
	1988-SIIF	2Z	W							**111**	0.2	22	2	2	
	1989-NACE	2Z	W	**510**	20	93									
	1989-SIIF	2Z	W							**111**	0.05	36			
	1990-NIVA		W	**340**	1	169	2	1		**341**	0.05	58			
	1990-SIIF	2Z	W							**111**	0.05	41	3		
	1991-NIVA		W	**340**	1	179	4	3	13	**341**	0.05	68	5		1
	1991-SIIF	2Z	W							**111**	0.1	35			
	1992-NIVA		W	**340**	5	189	3	3		**341**	0.1	146			
	1993-NIVA		W	**340**	4	212	31	6		**341**	0.1	138			

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	1994-NIVA	2Z	W	**340**	3	300	24		1	**341**	0.05	170	37	7	
	1995-NIVA		W	**340**	3	317	37	2		**341**	0.05	231	32	8	
	1996-NIVA		W	**340**	3	332	52	19		**341**	0.05	243	37	11	
	1997-NIVA		W	**340**	2	260	39	1							
	1997-NIVA	AJ	W							**341**	0.05	221	7		
	1998-NIVA		W	**340**	2	284	48	11	13	**341**	0.05	209	68	23	2
	1999-NIVA		W	**340**	2	249	18	1							
	1999-NIVA	EG	W							**341**	0.05	232	19		8
	2000-NIVA		W	**340**	2	230	40	1							
	2000-NIVA	GU	W							**341**	0.05	186	43	8	1
	2001-NIVA		W	**340**	2	250	36		1	**341**	0.05	211	36	1	3
	2002-NIVA		W	**340**	2	249	39			**341**	0.05	210	29	6	2
	2003-NIVA		W	**340**	2	239	31	3							
	2003-NIVA	MO	W							**341**	0.05	174	18	4	
	2004-NIVA		W	**340**	2	271	42	3							
	2004-NIVA	R1	W							**341**	0.05	241	109	48	
	2005-NIVA		W	**340**	2	281	48	1							
	2005-NIVA	D!	W							**341**	0.05	252	72	17	
	2006-NIVA	R44_EX704_BT-3	W	**340**	2	280	39	2	10	**341**	0.03	221			
HCHA	1990-NIVA		W	**340**	1	168				**341**	0.05	58			
	1991-NIVA		W	**340**	1	179	2		111	**341**	0.05	68	5	3	10
	1992-NIVA		W	**340**	5	192	3	3		**341**	0.1	146			
	1993-NIVA		W	**340**	4	212	45	18	22	**341**	0.1	138			
	1994-NIVA	2Z	W	**340**	3	296	32	8	3	**341**	0.05	170	85	34	
	1995-NIVA		W	**340**	3	318	45	9		**341**	0.05	231	100	69	
	1996-NIVA		W	**340**	3	332	111	45		**341**	0.05	237	100	62	
	1997-NIVA		W	**340**	0.5	260	2		10	**341**	0.05	221	20	7	11
	1998-NIVA		W	**340**	0.5	284	8	1	208	**341**	0.05	208	26	23	121
	1999-NIVA		W	**340**	0.5	249	17	7	78	**341**	0.05	232	23	23	151
	2000-NIVA		W	**340**	0.5	230	31	22	62	**341**	0.05	186	42	42	84
	2001-NIVA		W	**340**	0.5	250	25	16	50	**341**	0.05	211	20	20	184
	2002-NIVA		W	**340**	0.5	249	23	17	149	**341**	0.05	210			121
	2003-NIVA		W	**340**	0.5	239	4	1	201	**341**	0.05	183			99
	2004-NIVA		W	**340**	0.5	270	13	12	192	**341**	0.05	238	2	2	9
	2005-NIVA		W	**340**	0.5	280	37	17	83						
	2005-NIVA	D!	W							**341**	0.05	245			
	2006-NIVA	R44_EX704_BT-3	W	**340**	0.5	280	18	14	199	**341**	0.05	221			
HCHG	1986-NACE		W	**510**	30	56	1	1							
	1986-SIIF		W							**111**	3	21			
	1987-NACE		W	**510**	40	53									
	1987-SIIF		W							**111**	5	21			1
	1988-NACE		W	**510**	40	61									
	1989-NACE		W	**510**	20	93									
	1989-SIIF		W							**111**	50	36			
	1990-NIVA		W	**340**	1	169	1		9	**341**	0.05	58			
	1990-SIIF		W							**111**	0.1	41			
	1991-NIVA		W	**340**	1	179	3	3	18	**341**	0.05	68	5	5	1
	1991-SIIF		W							**111**	0.3	35			
	1992-NIVA		W	**340**	5	192	3	3		**341**	0.1	146			
	1993-NIVA		W	**340**	4	212	42	7	17	**341**	0.1	138			
	1994-NIVA	2Z	W	**340**	3	300	24	2	1	**341**	0.05	170	46	21	
	1995-NIVA		W	**340**	3	313	31	3		**341**	0.05	219	29	16	
	1996-NIVA		W	**340**	3	330	68	15		**341**	0.05	226	8	2	
	1997-NIVA		W	**340**	2	260	47	2							
	1997-NIVA	AJ	W							**341**	0.05	221	3		9
	1998-NIVA		W	**340**	2	284	25	9	63	**341**	0.05	209	10	3	23
	1999-NIVA		W	**340**	2	249	52	4	3	**341**	0.05	232	19	13	62

Tissue				**Fish liver**						**Fish fillet, Shrimp tail, Mussel, Other**					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	2000-NIVA		W	**340**	2	230	65	20	29	**341**	0.05	186	27	15	10
	2001-NIVA		W	**340**	2	250	96	18	20	**341**	0.05	211	21	21	160
	2002-NIVA		W	**340**	2	249	147	76	13	**341**	0.05	210			83
	2003-NIVA		W	**340**	2	239	96	86	85	**341**	0.05	181			102
	2004-NIVA		W	**340**	2	271	137	87	19	**341**	0.05	241			8
	2005-NIVA		W	**340**	2	281	236	133	10	**341**	0.05	248			
	2006-NIVA	R44_EX704_BT-3	W	**340**	2	280	140	112	1	**341**	0.05	221			
HG	1981-NIVA		D							**310**	10	3			
	1981-SIIF	1E	W	**120**	10	15			1	**120**	10	35			
	1982-NIVA		D							**310**	10	3			
	1982-SIIF	1E	W							**120**	10	18			
	1982-VETN		W	**220**	10	51				**220**	10	54			
	1983-SIIF	1E	W							**120**	10	17			
	1983-VETN	1Z	W							**220**	10	48			
	1984-FIER	1G	W							**401**	10	39			
	1984-SIIF	1G	W							**120**	10	27	6	1	
	1984-VETN	1Z	W							**220**	10	66			
	1985-SIIF	1G	D							**120**	10	30			
	1985-VETN	1Z	W							**220**	10	90			
	1986-NIVA	1H	D							**310**	10	74			
	1987-FIER	1G	W							**401**	10	38			
	1987-NIVA	1H	D							**310**	10	98			14
	1988-NIVA	1H	D							**310**	10	116			
	1989-NIVA	1H	D							**310**	100	137			
	1989-NIVA	1H	W							**310**	10	36	5		
	1990-NIVA	1H	D							**310**	10	6			
	1990-NIVA	1H	W							**310**	10	266			
	1991-NIVA	1H	D							**310**	100	6			
	1991-NIVA	1H	W							**310**	100a	264	126	6	
	1992-NIVA	1H	D							**310**	100	6			
	1992-NIVA	1H	W							**310**	100a	303	122		
	1993-NIVA	1H	D							**310**	5	5			
	1993-NIVA	1H	W							**310**	5	300			
	1994-NIVA	1Z	D							**310**	5	5			
	1994-NIVA	1Z	W							**310**	5	381			
	1995-NIVA		D							**310**	5	6			
	1995-NIVA		W							**310**	5	442	1		
	1996-NIVA	V1	D							**310**	5	24			
	1996-NIVA	V1	W							**310**	5	481			
	1997-NIVA	AH	D							**310**	5	6			
	1997-NIVA	AH	W							**310**	5	404			
	1998-NIVA	CF	D							**310**	5	6			
	1998-NIVA	CF	W							**310**	5	402			
	1999-NIVA		W	**310**	5	3									
	1999-NIVA	EF	D							**310**	5	6			
	1999-NIVA	EF	W							**310**	5	407			
	2000-NIVA	GS	D							**310**	5	7			
	2000-NIVA	GS	W							**310**	5	349			
	2001-NIVA	IM	D							**310**	5	6			
	2001-NIVA	IM	W							**310**	5	377			
	2002-NIVA	LH	D							**310**	5	6			
	2002-NIVA	LH	W							**310**	5	387			
	2003-NIVA	MM	W							**310**	5	368	2		
	2004-NIVA		W							**310**	5	441			
	2005-NIVA	A!	W							**310**	5	453	1		
	2006-NIVA	R42_Ex685_BT-1	W							**310**	5	429			
ICDP	1992-NIVA		W	**309**	0.2	8				**309**	0.2	46			

Tissue				**Fish liver**						**Fish fillet, Shrimp tail, Mussel, Other**					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	1995-NIVA		W							**309**	0.2	72			29
	1996-NIVA		W							**309**	0.2	65			23
	1997-NIVA		W							**309**	0.5	36			
	1998-NIVA	CI	W							**309**	0.5	37	2		
	1999-NIVA	EK	W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA	MQ	W							**309**	0.5	56			
	2004-NIVA	R5	W							**309**	0.5	58	7	4	
	2005-NIVA	F!	W							**309**	0.5	51			
	2006-NIVA	R44_EX705_BT-4	W							**309**	0.5	48			
MBTIN	1997-NIVA		D							**320**	5	13	4		
	1998-NIVA		D							**320**	5	15			
	1999-NIVA		D							**320**	5	13			
	1999-NIVA		W							**320**	5	6	6		
	2000-NIVA		W							**320**	0.5	23			
	2001-GALG		W							**775**	0.2	11			
	2001-NIVA		W							**320**	0.5	16			5
	2002-EFDH		W							**777**	0.8	33			15
	2002-NIVA		W							**320**	0.5	2			2
	2003-NIVA		W							**320**	0.8	36	1		31
	2004-NIVA		W							**320**	0.8	73	50	48	1
	2005-NIVA		W							**320**	0.8	34	22	22	
	2006-NIVA		W							**320**	0.8	47	13	8	21
MN	1984-SIIF		W							**132**	40	27			
	1985-SIIF		D							**132**	40	35			
	2004-NIVA		W							**315**	20	7			
MPTIN	1997-NIVA		D							**320**	5	13	5	5	
	1998-NIVA		D							**320**	2	15			6
	1999-NIVA		D							**320**	5	13	13	10	
	1999-NIVA		W							**320**	5	6	6		
	2000-NIVA		W							**320**	0.5	23	3	2	
	2001-NIVA		W							**320**	0.5	16			15
	2002-EFDH		W							**730**	4	1			
	2002-NIVA		W							**320**	4	2	2	2	
	2003-NIVA		W							**320**	4	36	36	35	
	2004-NIVA		W							**320**	4	71	71	67	
	2005-NIVA		W							**320**	4	34	34	31	
	2006-NIVA		W							**320**	4	47	47	46	
NAP	1992-NIVA		W	**309**	0.2	8				**309**	0.2	46			
	1995-NIVA		W							**309**	0.2	70			21
	1996-NIVA		W							**309**	0.2	61			11
	1997-NIVA		W							**309**	0.2	34			1
	1998-NIVA	CI	W							**309**	0.2	37			
	1999-NIVA		W							**309**	0.2	34			1
	2000-NIVA		W							**309**	0.2	37			7
	2001-NIVA		W							**309**	0.2	41			4
	2002-NIVA		W							**309**	0.2	42			19
	2003-NIVA	MQ	W							**309**	0.2	55			40
	2004-NIVA	R5	W							**309**	0.2	58			18
	2005-NIVA	E!	W							**309**	0.2	51			49
	2006-NIVA	R44_EX705_BT-4	W							**309**	0.5	48			47
NAP1M	1992-NIVA		W	**309**	0.2	8				**309**	0.2	46			
	1995-NIVA		W							**309**	0.2	15			13
	1997-NIVA		W							**309**	0.5	34			
	1998-NIVA		W							**309**	0.5	37			

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	41			
	2002-NIVA		W							**309**	0.5	42			9
	2003-NIVA		W							**309**	0.5	55			1
NAP2M	1992-NIVA		W	**309**	0.2	8				**309**	0.2	46			
	1995-NIVA		W							**309**	0.2	15			13
	1997-NIVA		W							**309**	0.5	34			
	1998-NIVA		W							**309**	0.5	37			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	41			
	2002-NIVA		W							**309**	0.5	42			9
	2003-NIVA		W							**309**	0.5	55			4
NAPC1	1995-NIVA		W							**309**	0.2	55			6
	1996-NIVA		W							**309**	0.2	61			
	2004-NIVA		W							**309**	2	58	23	15	
	2005-NIVA		W							**309**	2	51			
	2006-NIVA		W							**309**	2	48			29
NAPC2	1995-NIVA		W							**309**	0.2	57			6
	1996-NIVA		W							**309**	0.2	60			
	2004-NIVA		W							**309**	2	58	14	6	
	2005-NIVA		W							**309**	2	51			
	2006-NIVA		W							**309**	2	48			15
NAPC3	1995-NIVA		W							**309**	0.2	57			5
	1996-NIVA		W							**309**	0.2	60			
	2004-NIVA		W							**309**	2	58	3		5
	2005-NIVA		W							**309**	2	51			3
	2006-NIVA		W							**309**	2	48			5
NAPD2	1997-NIVA		W							**309**	0.5	34			
	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	41			
	2002-NIVA		W							**309**	0.5	42			
	2003-NIVA		W							**309**	0.5	55			
NAPD3	1997-NIVA		W							**309**	0.5	34			
	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	41			
	2002-NIVA		W							**309**	0.5	42			
	2003-NIVA		W							**309**	0.5	38			
NAPDI	1992-NIVA		W	**309**	0.2	8				**309**	0.2	46			
	1995-NIVA		W							**309**	0.2	15			6
	1997-NIVA		W							**309**	0.5	34			
	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	41			
	2002-NIVA		W							**309**	0.5	42			
	2003-NIVA		W							**309**	0.5	55			
NAPT2	1997-NIVA		W							**309**	0.5	34			
	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	42			

Tissue				**Fish liver**						**Fish fillet, Shrimp tail, Mussel, Other**					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA		W							**309**	0.5	56			
NAPT3	1997-NIVA		W							**309**	0.5	34			
	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA		W							**309**	0.5	56			
NAPT4	1997-NIVA		W							**309**	0.5	34			
	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA		W							**309**	0.5	56			
NAPTM	1992-NIVA		W	**309**	0.2	8				**309**	0.2	46			
	1995-NIVA		W							**309**	0.2	15			11
	1997-NIVA		W							**309**	0.5	34			
	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA		W							**309**	0.5	56			9
NI	1983-SIIF	1G	W							**130**	20	12			
	1992-NIVA		W							**312**	10	6			
	1996-NIVA		D							**312**	10	18			
	1996-NIVA		W							**312**	10	3			
	2004-NIVA		W							**315**	20	28			
	2005-NIVA	B!	W							**315**	20	21			
	2006-NIVA	R44_EX702_BT-1	W							**315**	20	20			
OCS	1990-NIVA		W	**340**	2	169	31	27	24	**341**	0.05	58			1
	1991-NIVA		W	**340**	2	179	14	13	81	**341**	0.05	62	5	5	8
	1992-NIVA		W	**340**	5	192	3	3		**341**	0.1	146			
	1993-NIVA		W	**340**	4	212	51	48	16	**341**	0.1	138			
	1994-NIVA		W	**340**	3	300	39	31	22	**341**	0.05	170	101	98	
	1995-NIVA		W	**340**	3	318	44	43		**341**	0.05	231	108	107	
	1996-NIVA		W	**340**	3	332	287	249		**341**	0.05	243	114	114	
	1997-NIVA		W	**340**	2	260	100	78		**341**	0.05	221	30	30	14
	1998-NIVA		W	**340**	2	277	132	132	101	**341**	0.05	209	188	188	1
	1999-NIVA		W	**340**	2	249	148	96	2	**341**	0.05	232	86	79	26
	2000-NIVA		W	**340**	2	230	140	104	21	**341**	0.05	186	103	98	59
	2001-NIVA		W	**340**	2	250	189	91	2	**341**	0.05	211	94	88	69
	2002-NIVA		W	**340**	2	218	183	108		**341**	0.05	201	96	90	6
	2003-NIVA		W	**340**	2	217	178	131		**341**	0.05	180	79	79	
	2004-NIVA		W	**340**	2	265	218	168		**341**	0.05	241	71	69	1
	2005-NIVA		W	**340**	2	274	230	174	1	**341**	0.05	252	12	12	
	2006-NIVA		W	**340**	2	280	139	124		**341**	0.05	220			
PA	1992-NIVA		W	**309**	0.2	8				**309**	0.2	45			
	1995-NIVA		W							**309**	0.2	72			
	1996-NIVA		W							**309**	0.2	65			
	1997-NIVA	AL	W							**309**	0.2	36			
	1998-NIVA	CI	W							**309**	0.2	39			
	1999-NIVA	EK	W							**309**	0.2	34			
	2000-NIVA		W							**309**	0.2	39			
	2001-NIVA		W							**309**	0.2	42			

Tissue				**Fish liver**						**Fish fillet, Shrimp tail, Mussel, Other**					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	2002-NIVA		W							**309**	0.2	43			
	2003-NIVA	MQ	W							**309**	0.2	56			
	2004-NIVA	R5	W							**309**	0.2	58			
	2005-NIVA	F!	W							**309**	0.2	51			2
	2006-NIVA	R44_EX705_BT-4	W							**309**	0.5	48			
PAC1	1995-NIVA		W							**309**	0.2	57			1
	1996-NIVA		W							**309**	0.2	65			
	2004-NIVA		W							**309**	2	58	8		
	2005-NIVA		W							**309**	2	46			
	2006-NIVA		W							**309**	2	48			1
PAC2	1995-NIVA		W							**309**	0.2	56			
	1996-NIVA		W							**309**	0.2	65			2
	2004-NIVA		W							**309**	2	58			
	2005-NIVA		W							**309**	2	51			
	2006-NIVA		W							**309**	2	48			1
PAC3	2004-NIVA		W							**309**	2	58	5		
	2005-NIVA		W							**309**	2	45			
	2006-NIVA		W							**309**	2	48			6
PADM1	1997-NIVA		W							**309**	0.5	36			
	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA		W							**309**	0.5	56			
PADM2	1997-NIVA		W							**309**	0.5	36			
	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			1
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA		W							**309**	0.5	56			
PAH	1987-NIVA		W	**309**	0.02	1									
PAM1	1992-NIVA		W	**309**	0.2	8				**309**	0.2	45			
	1995-NIVA		W							**309**	0.2	15			2
	1997-NIVA		W							**309**	0.5	36			
	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	39			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA		W							**309**	0.5	55			9
PAM2	1997-NIVA		W							**309**	0.5	36			
	1998-NIVA		W							**309**	0.5	39			
	1999-NIVA		W							**309**	0.5	34			
	2000-NIVA		W							**309**	0.5	38			
	2001-NIVA		W							**309**	0.5	42			
	2002-NIVA		W							**309**	0.5	43			
	2003-NIVA		W							**309**	0.5	56			
PB	1981-NIVA		D							**312**	150	3			
	1982-NIVA		D							**312**	150	3			
	1983-SIIF	1G	W							**130**	20	12			
	1984-SIIF	1G	W							**130**	20	27			2
	1985-SIIF	1G	D							**130**	20	35			
	1986-NIVA	1Z	D	**312**	150	56	4			**312**	150	20			
	1987-FIER	1G	W	**403**	10	37	1								

Tissue				**Fish liver**						**Fish fillet, Shrimp tail, Mussel, Other**					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	1987-NIVA	1Z	D	**312**	150	57			12	**312**	150	42			
	1988-NIVA	1Z	D	**312**	150	61	17	9	3	**312**	150	55			
	1989-NIVA	1Z	D	**312**	150	135	9	4	9	**312**	150	3			
	1989-NIVA	1Z	W							**312**	150	36			
	1990-NIVA	1Z	D							**312**	50	6			
	1990-NIVA	1Z	W	**312**	50	187	3	3	1	**312**	150	77	3		
	1991-NIVA	1Z	D							**312**	50	6			
	1991-NIVA	1Z	W	**312**	50	193	14	10		**312**	50	67			
	1992-NIVA	1Z	D							**312**	50	6			
	1992-NIVA	1Z	W	**312**	50	191	119	94		**312**	50	111	2	2	
	1993-NIVA	1H	D							**312**	30	5			
	1993-NIVA	1H	W	**312**	30	221	40	36		**312**	30	79			
	1994-NIVA	1Z	D							**312**	30	5			
	1994-NIVA	1Z	W	**312**	30	302	3	2		**312**	30	81			
	1995-NIVA		D							**312**	30	6			
	1995-NIVA		W	**312**	30	318	162	150	30	**312**	30	124			
	1996-NIVA	V1	D							**312**	30	24			
	1996-NIVA	V1	W							**312**	30	110			
	1996-NIVA	V2	W	**312**	30	368			109						
	1997-NIVA		D							**312**	40	6			
	1997-NIVA		W	**312**	40	287	10	8	28	**312**	40	113			
	1998-NIVA		W	**312**	40	285	126	117	2						
	1998-NIVA	CF	D							**312**	40	6			
	1998-NIVA	CF	W							**312**	40	111			
	1999-NIVA		W	**312**	40	235	118	116	11						
	1999-NIVA	EF	D							**312**	40	6			
	1999-NIVA	EF	W							**312**	40	150	10	7	
	2000-NIVA		W	**312**	40	227	67	62	4						
	2000-NIVA	GS	D							**312**	40	7			
	2000-NIVA	GS	W							**312**	40	106			
	2001-NIVA		W	**312**	40	261	156	148	6						
	2001-NIVA	IM	D							**312**	40	6			
	2001-NIVA	IM	W							**312**	40	111			
	2002-NIVA		D							**315**	40	6			
	2002-NIVA		W	**315**	40	230	164	37		**315**	40	128			
	2003-NIVA	MM	W	**315**	40	233	179	136	1	**315**	40	117			
	2004-NIVA		W	**315**	40	249	182	157		**315**	40	160			
	2005-NIVA	A!	W	**315**	40	272	219	149		**315**	40	162			
	2006-NIVA	R44_EX702_BT-1	W	**315**	40	278	194	165		**315**	40	139			
PBB15	1996-NILU		W	**843**	0.01	4			3						
	2001-NILU		W	**843**	0.01	6			6	**843**	0.01	6			
	2002-NILU		W							**843**	0.01	2			
PBB49	2001-NILU		W	**843**	0.01	6			1	**843**	0.01	6			
	2002-NILU		W							**843**	0.01	2			
PBB52	1996-NILU		W	**843**	0.01	4									
	2001-NILU		W	**843**	0.01	6			1	**843**	0.01	6			
	2002-NILU		W							**843**	0.01	2			
PCB	1981-SIIF	2D	W	**110**	10	27				**110**	10	35			
	1982-SIIF	2D	W							**111**	5	17			
	1982-VETN		W	**210**	50	53				**211**	50	54			
	1983-SIIF	2E	W							**111**	5	14			
	1983-VETN	2E	W							**211**	50	48			
	1983-VETN	2Z	W	**210**	50	48									
	1984-SIIF	2E	W							**111**	5	24			
	1984-VETN	2E	W							**211**	50	66			
	1984-VETN	2Z	W	**210**	50	66									
	1985-SIIF	2E	W							**111**	5	32			6

Tissue				Fish liver						Fish fillet, Shrimp tail, Mussel, Other					
Contamin.	Mon. Year	Inter-calibr. +basis		Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	Analys method code	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	1985-VETN	2E	W							211	50	90			1
	1985-VETN	2Z	W	210	50	45									
	1986-NACE	2Z	W	511	40a	56				511	20	56			
	1986-SIIF	2E	W							111	5	21			
	1987-NACE	2Z	W	510	40	53				511	20	54			
	1987-NIVA		W	340	0.1	2									
	1987-SIIF	2E	W							111	5	21			
	1988-NACE	2Z	W	510	40	61				511	20	13			
	1988-SIIF	2E	D							111	5	6			
	1988-SIIF	2E	W							111	5	22	4		
	1989-NACE	2Z	W	510	20	93				511	20	17			
	1989-SIIF	2E	W							111	5	36	6		
	1990-SIIF	2E	W							111	5	41			
	1991-SIIF	2E	W							111	5	35			
PCC26	1996-NILU		W							842	0.001	6			
PCC32	1996-NILU		W							842	0.003	6			4
PCC50	1996-NILU		W							842	0.001	6			
PCC62	1996-NILU		W							842	0.025	6			6
PCDD	1995-NILU		W							841	2E-05	6			
	1996-NILU		W	841	0	4				841	1E-04	18			
	2002-NILU		W							841	1E-04	12			
PCDF	1995-NILU		W							841	2E-05	6			
	1996-NILU		W	841	0	4				841	1E-04	18			
	2002-NILU		W							841	1E-04	11			
PER	1992-NIVA		W	309	0.2	8				309	0.2	46			
	1995-NIVA		W							309	0.2	72			32
	1996-NIVA		W							309	0.2	65			40
	1997-NIVA		W							309	0.5	36			
	1998-NIVA		W							309	0.5	39			
	1999-NIVA	EK	W							309	0.5	34			
	2000-NIVA		W							309	0.5	39			
	2001-NIVA		W							309	0.5	42			
	2002-NIVA		W							309	0.5	43			
	2003-NIVA	MQ	W							309	0.5	56			
	2004-NIVA		W							309	0.5	55	24	11	
	2005-NIVA	F!	W							309	0.5	51			
	2006-NIVA	R44_EX705_BT-4	W							309	0.5	48			
PYR	1992-NIVA		W	309	0.2	8				309	0.2	44			
	1995-NIVA		W							309	0.2	72			4
	1996-NIVA		W							309	0.2	65			1
	1997-NIVA	AL	W							309	0.2	36			
	1998-NIVA	CI	W							309	0.2	39			
	1999-NIVA	EK	W							309	0.2	34			
	2000-NIVA		W							309	0.2	39			
	2001-NIVA		W							309	0.2	42			
	2002-NIVA		W							309	0.2	43			3
	2003-NIVA	MQ	W							309	0.2	56			
	2004-NIVA	R5	W							309	0.2	58			
	2005-NIVA	F!	W							309	0.2	51			6
	2006-NIVA	R44_EX705_BT-4	W							309	0.2	48			3
QCB	1990-NIVA		W	340	2	169	33	25	39	341	0.05	58			
	1991-NIVA		W	340	2	178	13	11	97	341	0.05	63	5	5	13
	1992-NIVA		W	340	5	192	3	3		341	0.1	131			
	1993-NIVA		W	340	4	212	52	49	24	341	0.1	138			
	1994-NIVA		W	340	3	299	38	37	23	341	0.05	170	98	95	
	1995-NIVA		W	340	3	318	45	42		341	0.05	231	108	95	

Tissue				**Fish liver**						**Fish fillet, Shrimp tail, Mussel, Other**					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	1996-NIVA		W	**340**	3	332	306	250		**341**	0.05	243	109	103	
	1997-NIVA		W	**340**	2	260	79	37		**341**	0.05	221	27	20	10
	1998-NIVA		W	**340**	2	284	121	99	101	**341**	0.05	209	177	148	1
	1999-NIVA		W	**340**	2	242	185	113	2	**341**	0.05	232	88	87	14
	2000-NIVA		W	**340**	2	230	198	171	1	**341**	0.05	186	123	112	1
	2001-NIVA		W	**340**	2	232	216	114	1	**341**	0.05	211	95	85	63
	2002-NIVA		W	**340**	2	248	235	175		**341**	0.05	210	99	84	4
	2003-NIVA		W	**340**	2	186	182	151		**341**	0.05	183	79	79	
	2004-NIVA		W	**340**	2	229	227	178		**341**	0.05	241	215	206	
	2005-NIVA		W	**340**	2	271	239	172		**341**	0.05	241	223	202	
	2006-NIVA		W	**340**	2	255	184	103		**341**	0.03	221			
SCCP	2001-NILU		W	**850**	miss	4				**850**	miss	3			
SE	1982-VETN		W	**240**	10	46				**240**	10	54			
TBA	2001-NILU		W	**843**	0.35	6	3			**843**	0.35	6	2		
	2002-NILU		W							**843**	0.35	1			
TBBPA	2001-NILU		W	**830**	miss	6				**830**	miss	6			
TBTIN	1997-NIVA		D							**320**	5	13			
	1998-NIVA		D							**320**	5	15			
	1999-NIVA		D							**320**	5	13			
	1999-NIVA		W							**320**	5	6			
	2000-NIVA		W							**320**	0.5	23			
	2001-GALG		W							**775**	0.12	11			
	2001-NIVA		W							**320**	0.5	16			
	2002-EFDH		W							**777**	0.2	32			
	2002-NIVA		W							**320**	0.5	2			
	2003-NIVA		W							**320**	0.2	36	1		2
	2004-NIVA		W							**320**	0.2	72			1
	2005-NIVA		W							**320**	0.2	34			2
	2006-NIVA		W							**320**	0.2	47			12
TCDD	1995-NILU		W							**841**	2E-05	6	1		
	1996-NILU		W	**841**	0	4				**841**	1E-05	18			
	2002-NILU		W							**841**	1E-05	12			
	2003-NILU		W							**841**	1E-05	12			2
	2004-NILU		W							**841**	1E-05	13			
	2005-NILU		W							**841**	1E-05	11			
	2006-NILU		W							**841**	1E-05	12			1
TDEPP	1991-NIVA		W	**340**	1	138			1	**341**	0.05	68			
	1992-NIVA		W	**340**	5	191	3	3		**341**	0.1	146			
	1993-NIVA		W	**340**	4	212	24	12	3	**341**	0.1	138			
	1994-NIVA	2Z	W	**340**	3	300	17	3	5	**341**	0.05	170	47	22	
	1995-NIVA		W	**340**	3	318	36	20		**341**	0.05	228	51	30	
	1996-NIVA		W	**340**	3	332	23	3		**341**	0.05	243	16	5	
	1997-NIVA		W	**340**	3	260	23								
	1997-NIVA	AJ	W							**341**	0.05	221	11	2	
	1998-NIVA		W	**340**	3	278	19	6	26						
	1998-NIVA	CH	W							**341**	0.05	209	1	1	44
	1999-NIVA		W	**340**	3	249	6		1						
	1999-NIVA	EG	W							**341**	0.05	232	2	2	71
	2000-NIVA		W	**340**	3	230	35	7	4						
	2000-NIVA	GU	W							**341**	0.05	185	11	10	67
	2001-NIVA		W	**340**	3	250	24	3	3	**341**	0.05	210	1		101
	2002-NIVA		W	**340**	3	248	24	2	3	**341**	0.05	210			124
	2003-NIVA		W	**340**	3	239	18	5	9	**341**	0.05	183			106
	2004-NIVA		W	**340**	3	272	30	6		**341**	0.05	241			138
	2005-NIVA		W	**340**	3	282	41	11	1						
	2005-NIVA	C!	W							**341**	0.05	246			156
	2006-NIVA	R44_EX704_BT-3	W	**340**	3	280	51	25	19	**341**	0.2	221	194	166	

Tissue				**Fish liver**						**Fish fillet, Shrimp tail, Mussel, Other**					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
TPTIN	1997-NIVA		D							**320**	5	13			
	1998-NIVA		D							**320**	10	15			
	1999-NIVA		D							**320**	5	13			
	1999-NIVA		W							**320**	5	6	4		
	2000-NIVA		W							**320**	0.5	23			
	2001-GALG		W							**775**	0.1	11			1
	2001-NIVA		W							**320**	0.5	16			9
	2002-EFDH		W							**777**	2	24	13	12	
	2002-NIVA		W							**320**	0.5	2			2
	2003-NIVA		W							**320**	2	36	35	29	
	2004-NIVA		W							**320**	2	64	61	47	
	2005-NIVA		W							**320**	2	34	34	26	
	2006-NIVA		W							**320**	2	47	45	39	
V	1996-NIVA		D							**312**	330	18	1		
	1996-NIVA		W							**312**	330	3	3		
ZN	1981-NIVA		D							**311**	3000	3			
	1982-NIVA		D							**311**	3000	3			
	1983-SIIF	1G	W							**131**	400	12			
	1984-SIIF	1G	W							**132**	400	27			
	1985-SIIF	1G	D							**132**	400	35			
	1986-NIVA	1H	D	**311**	3000	56				**311**	3000	20			
	1987-FIER	1G	W	**405**	20	37									
	1987-NIVA	1H	D	**311**	3000	57				**311**	3000	42			
	1988-NIVA	1H	D	**311**	3000	61				**311**	3000	55			
	1989-NIVA	1H	D	**311**	3000	135			1	**311**	3000	3			
	1989-NIVA	1H	W							**311**	3000	36			
	1990-NIVA	1H	D							**311**	3000	6			
	1990-NIVA	1H	W	**311**	3000	189				**311**	3000	77			
	1991-NIVA	1H	D							**311**	1000	6			
	1991-NIVA	1H	W	**311**	1000	193				**311**	1000	67			
	1992-NIVA	1H	D							**311**	1000	6			
	1992-NIVA	1H	W	**311**	1000	191				**311**	1000	111			
	1993-NIVA	1H	D							**311**	1000	5			
	1993-NIVA	1H	W	**311**	1000	221				**311**	1000	79			
	1994-NIVA	1Z	D							**311**	1000	5			
	1994-NIVA	1Z	W	**311**	1000	302				**311**	1000	81			
	1995-NIVA		D							**311**	1000	6			
	1995-NIVA		W	**311**	1000	318				**311**	1000	142			
	1996-NIVA	V1	D							**311**	1000	24			
	1996-NIVA	V1	W							**311**	1000	131			
	1996-NIVA	V2	W	**311**	1000	368									
	1997-NIVA		W	**311**	1000	287									
	1997-NIVA	AH	D							**311**	1000	6			
	1997-NIVA	AH	W							**311**	1000	131			
	1998-NIVA		W	**311**	1000	285									
	1998-NIVA	CF	D							**311**	1000	6			
	1998-NIVA	CF	W							**311**	1000	72			
	1999-NIVA		W	**311**	1000	235									
	1999-NIVA	EF	D							**311**	1000	6			
	1999-NIVA	EF	W							**311**	1000	120			
	2000-NIVA		W	**311**	1000	227									
	2000-NIVA	GS	D							**311**	1000	7			
	2000-NIVA	GS	W							**311**	1000	70			
	2001-NIVA		W	**311**	1000	261									
	2001-NIVA	IM	D							**311**	1000	6			
	2001-NIVA	IM	W							**311**	1000	72			
	2002-NIVA		W	**315**	1000	230									

Tissue				**Fish liver**						**Fish fillet, Shrimp tail, Mussel, Other**					
Contamin.	Mon. Year	Inter-calibr. +basis		**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim	**Analys method code**	Detect limit (ppb)	Total value count	Count below d.lim	N (<) below d.lim	N (<) above d.lim
	2002-NIVA	LI	D							**315**	1000	6			
	2002-NIVA	LI	W							**315**	1000	86			
	2003-NIVA		W	**315**	1000	233									
	2003-NIVA	MM	W							**315**	1000	72			
	2004-NIVA		W	**315**	1000	249				**315**	1000	122			
	2005-NIVA	A!	W	**315**	1000	272				**315**	1000	132			
	2006-NIVA	R44_EX702_BT-1	W	**315**	1000	278				**315**	1000	109			
Sum of counts						97044	16628	8994	4313			96691	7515	5275	7944

a(11) > ambigous value (Maximum value displayed)

Long-term monitoring of environmental quality in Norwegian coastal waters

Joint Assesment and Monitoring Programme (JAMP)

Norwegian Pollution Control Authority (SFT)
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Title
Joint Assessment and Monitoring Programme (JAMP)

Overview of Norwegian analytical methods 1981-2007

Summary
This report is a compilation of analytical method codes and descriptions used in the Norwegian contribution to the Joint Assessment and Monitoring Programme (JAMP) for investigation of the levels and trends of contaminants in near shore marine waters. It concerns primarily selected metals, organochlorines (e.g. PCBs, DDTs, HCHs, HCB), polycyclic aromatic hydrocarbons (PAHs) in seawater (only metals), sediment and biota collected 1981-2006 and analysed through to 2007. The method descriptions are brief and focus on the principles involved.

4 *emneord*	4 subject words
Miljøgifter	Contaminants
Metoder	Methods
Marin	Marine
Norge	Norway

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Statlig program for forurensningsovervåking omfatter overvåking av forurensningsforholdene i luft og nedbør, skog, vassdrag, fjorder og havområder. Overvåkingsprogrammet dekker langsiktige undersøkelser av:

- overgjødsling
- forsuring (sur nedbør)
- ozon (ved bakken og i stratosfæren)
- klimagasser
- miljøgifter

Overvåkingsprogrammmet skal gi informasjon om tilstanden og utviklingen av forurensningssituasjonen, og påvise eventuell uheldig utvikling på et tidlig tidspunkt. Programmet skal dekke myndighetenes informasjonsbehov om forurensningsforholdene, registrere virkningen av iverksatte tiltak for å redusere forurensningen, og danne grunnlag for vurdering av nye tiltak. SFT er ansvarlig for gjennomføringen av overvåkningsprogrammet.

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