AMAP Faroe Islands Heavy metals and POPs Core programme 2005-2008

Katrin Hoydal and Maria Dam

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Written by Katrin Hoydal and Maria Dam

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DANCEA
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Contents

Preface

The present report is part of the national contribution to the international Arctic Monitoring and Assessment Programme, AMAP, as operated under the auspices of the Arctic Council. The report summarises the results of the core programme monitoring of heavy metals and persistent organic pollutants in terrestrial, freshwater and marine environments of the Faroe Islands. The monitoring is done according to guidelines adopted by AMAP, with adaptations that reflect the special Faroese pollution exposure issues and the experience gained from earlier work.

Úrtak

Hendan frágreiðingin tekur samanum úrslit, sum eru fingin í sambandi við eftiransing av dálkingarevnum í AMAP (Arctic Monitoring and Assessment Programme) kanningarsamstarvinum. Frágreiðingin fevnir um kanningar av tungmetalum og seint niðurbrótiligum lívrunnnum eiturevnum, POP, í feskvatni, á landi og í havumhvørvinum í Føroyum. Úrslitini eru partur av áhaldandi arbeiði, sum byrjaði í 1996 og hevur hildið áfram við skiftandi orku síðani tá.

Í Talvu 0.1 sæst hvørji sløg av sýnum eru kannað í AMAP tungmetal og POP kanningarskránni fyri Føroyar, og vera viðgjørd í hesi frágreiðing. Talvan vísir eisini hvør vevnaður er kannaður, og hvørji dálkingarevni eru kannað.

Talva 0.1 Yvirlit yvir kannaði sløg í 2005-2008

Slag	**Innsavningar ár**	**Vevnaður**	**Kanning**			
			Hg	Cd	Se	POPs
Grind (Pilot whale)	2001, 2002, 2003, 2004, 2006, 2007	Spik				+
		Tvøst	+	+	+	
		Livur	+	+	+	
		Nýra		+		
Ulka (Short-horn sculpin)	2002	Livur	+	+	+	+
Toskur (Cod)	2006, 2007	Livur				+
		Flak	+			
Teisti (Black guillemot)	2002, 2005, 2007	Livur	+	+	+	
		Fjaðrar	+			
	2002,2006	Egg	+			+
Bleikja (Arctic char)	2002, 2005, 2007	Flak	+		+	+
Hara (Mountain hare)	2004, 2006*	Livur	+	+		+

*Í 2006 vórðu harusýnini oyðiløgd á veg til kanningarstovuna, har kanningarnar av POP skuldu verða gjørdar. Tí inniheldur hendan frágreiðingin bert úrslit frá metalkanningum í haru. Nýggj sýnir vórðu tikin úr sýnisgoymsluni og eru nú send til kanningar.

Afturat nýggju kanningarúrslitunum eru aðrar dátur, sum stuðla uppundir tulkingina av úrslitunum, við í frágreiðingini; bæði lívfrøðilig dáta fyri viðurskifti, sum kunnu elva til variatión í innihaldinum av dálkingarevnum, men eisini ein útvaldur partur av eldri dátum, sum eru við til at seta nýggju úrslitini í perspektiv. Hendan lýsingin av eldri dátum er gjørd í tann mun, har dátur hava verið lutfalsliga lætt atkomuligar, og er sostatt ikki gjørd miðvíst fyri øll sløg. Summi av hesum eldru úrslitunum eru fingin til vega í AMAP høpi, meðan onnur eru fingin til vega áður í sambandi við aðrar kanningar. Metingar av broytingum í konsentratiónum við tíðini eru ikki gjørdar sum ein innbygdur partur av kanningarætlanini, men verða gjørdar í sambandi við arbeiðið í altjóða AMAP serfrøðingabólkum, og verða tøkar í sambandi við tað arbeiði.

Summary

The present report summarizes monitoring data acquired as part fulfillment of the AMAP circumpolar monitoring programme. The contribution encompasses analyses of heavy metal and persistent organic pollutants (POPs) in freshwater/terrestrial and marine environments of the Faroe Islands. The monitoring results are part of an ongoing effort which began in 1996, and has continued with varying intensity since.

The abiotic and biotic sample types included in the AMAP Faroe Islands heavy metals (HM) and POPs core programme presented in this report are shown in Table 0.1. The table also specifies the various tissues and the contaminants that have been analysed.

Table 0.1 Overview of analysed species 2005-2008

Species	**Sampling years**	**Matrix**	**Analysis**			
			Hg	Cd	Se	POPs
Pilot whale	2001, 2002, 2003, 2004, 2006, 2007	Blubber				+
		Muscle	+	+	+	
		Liver	+	+	+	
		Kidney		+		
Short-horn sculpin	2002	Liver	+	+	+	+
Cod	2006, 2007	Liver				+
		Muscle	+			
Black guillemot	2002, 2005, 2007	Liver	+	+	+	
		Feather	+			
	2002,2006	Egg	+			+
Arctic char	2002, 2005, 2007	Muscle	+		+	+
Mountain hare	2004, 2006*	Liver	+	+		+

* 2006 hare samples were lost *en route* to the laboratory where POPs analyses were to be done, hence the present report contain metals results only. Replacement samples for POPs analyses were extracted from the Environment Specimen Bank and are in the process of being analysed.

Besides presenting the newly acquired analytical data the report contains information that assists in interpreting the results, both in terms of those biological parameters that give rise to variability in pollutants concentrations, but also by putting the most recent data into perspective by presenting a suitable selection of previously acquired data. This presenting of older /additional data has been undertaken to the extent that data has been relatively easily accessible and has thus not been systematically done for all species. Some of the older data has been acquired in the AMAP programme context and some has been acquired earlier on in connection with other programmes. Assessment of time-trends has not been done as an integral exercise of the present core programme, but is done in parallel in connection with the work of international AMAP expert groups, and is available for inclusion in that work.

1 Introduction

Monitoring of environmental contaminants according to the guidelines adopted by the AMAP programme began in the Faroe Islands in 1996. The monitoring has been adjusted and optimized when pertinent, and the resulting monitoring scheme is shown below (Table 1.1).

The results in this report are from analyses in 2005-2008 and are part of the AMAP phase III. Faroe Islands has contributed in the two previous phases and the results are reported in Larsen and Dam, 1999, Olsen *et al*., 2003, Hoydal *et al*., 2003 and Hoydal and Dam, 2005.

The metal analyses include mercury, cadmium and selenium and the POP analyses include PCB and organochlorine pesticides (14 single congeners, chlordanes, ß-HCH), DDT (o,p-isomers and metabolites) and toxaphene (5 individual congeners).

Table 1.1 Overveiw of the monitoring series forming part of the AMAP Faroe Islands core Heavy Metals and POPs monitoring programme.

	Chemical parameters	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Pilot whales																
blubber	PCB, pesticides		v		v	v	v	v	v	v			v		v	v
muscle	Hg, Cd, Se		v		v	v	v	v	v	v		v	v		v	v
kidney	Cd				v	v	v	v				v	v		v	v
liver	Hg, Cd, Se						v	v		(v)		v	v		v	v
Black guillemot																
eggs	PCB, pesticides, Hg				v	v	v	v		v		v		v		
liver	Hg, Cd, Se	v						v			v		v		v	
feather	Hg	v						v			v		v		v	
Sculpin																
liver	PCB, pesticides, Hg, Cd, Se				v	v	v	v		v						
Cod																
muscle	Hg		v			v	v		v	v	v	v	v	v	v	v
liver	PCB, pesticides		v			v	v		v	v	v	v	v	v	v	v
Arctic char																
muscle	PCB, pesticides, Hg, Se			(v)		v	v	v		v	v		v		v	v
Sheep																
liver	Hg, Cd		v		v		v				v			v		v
Hare			v		v		v			v						
liver	PCB, pesticides, Hg, Cd, Se		v		v		v			v		v		v		v

v: Covered by the ongoing AMAP Faroe Islands 2009-2010 core program.

1.1 Analytical methods

The mercury and cadmium analyses were performed at the Food and Veterinary agency on the Faroe Islands (FVA) and the selenium analyses and the POP analyses were performed at Centre de Toxicologie du Quebec (CTQ), except for the sculpin samples, for which analysis of all three metals were performed at CTQ, and for the hare samples from 2004, for which analysis of POPs were performed at Alcontrol in Sweden.

1.1.1 Metal analysis

At the FVA cadmium was analysed with atom absorption spectrophotometry using either graphite (Perkin Elmer 1100B) or flame (Perkin Elmer 2380) depending on the content of the examined material. Mercury was analysed with the FIMS 400 (Mercury analysis system).
Quality assurance: Double determinations were performed. A certified reference material and a blank control sample were analysed in connection with each series. The certified reference material and the blank were digested in the same manner as the samples. A 4-point standard curve was always made. The laboratory participates in regular intercalibration, for example Quasimeme[1]. The laboratory is accredited for mercury and cadmium analysis.

At CTQ cadmium and selenium were determined by ICP-MS after sample digestion using concentrated nitric acid. Mercury was analysed on the same digest but by cold vapour atomic absorption spectrometry.

1.1.2 POPs

All samples, except those of hares, for which POP results are presented in the present report were analysed for POPs by CTQ using GC/MS method E-448, Gas chromatograph # 6890 (Agilent) with mass detector (Agilent, 5973 Network). A more detailed description of the analyses is available in the files of the Environment Agency at US-6-003/08-38. The “Aroclor 1260” value reported in this report was calculated from individually quantified congeners, using a factor of calibration that was determined on a human tissue matrix.

Hare samples were analysed at Alcontrol, Sweden, using GC/MS. The method description is available in the files of the Environment Agency at US-6-003/08-40. Hexachlorobenzene determination was performed on a 5973 GC/MS in EI mode on DB5 MS capillary column.

All determinations of PCB and Pesticides were carried out using an Agilent 5973 gas chromatograph equipped with a PTV injector and an AutoSpec Ultima High Resolution Mass Spectrometer (HRMS) from Waters/Micromass. The HRMS was operated at Resolution 10 000 at 10%. All chromatography was performed on 60m, 0.25mm DB5 MS capillary column.

[1]Quality assurance of information for marine environmental monitoring in Europe

2 Sampling

2.1 Shorthorn sculpin (*Myoxocephalus scorpius*)

Shorthorn sculpin were sampled by fish-traps outside the village of Kaldbak in January and July 2002. The sculpins were taken to the laboratory in containers with seawater, where the livers were dissected and samples were taken for enzymatic analyses in another study (Hoydal, 2004). The rest of the livers were stored in polymethylpentene jars in the freezer at -20ºC until shipment to the laboratory for analysis.

The liver samples were analysed for Hg, Cd and Se as well as for POPs at Centre de Toxicologie du Quebec (CTQ).

The weight and length of the sculpin were recorded before dissection. The sex was recorded, and the gonads as well as the stomach with content and samples of muscle were stored at -20ºC and deposited in the Environmental Specimens Bank (ESB) for potential use in later studies.

Table 2.1 Composition of sculpin liver samples from 2002

Date	Sample ID	Length, cm	Weight, g	Gender	Liver weight, g
15.01.2002	Ms-0115	28	488	F	23.7
15.01.2002	Ms-0116	29	374	M	8.2
15.01.2002	Ms-0117	30	536	F	28.0
16.01.2002	Ms-0118	28	438	F	20.9
16.01.2002	Ms-0119	32	520	F	7.9
11.07.2002	Ms-0109	31	600	-	13.3

2.2 Black Guillemot (*Cepphus grylle*)

2.2.1 Black Guillemot eggs

Black guillemot eggs were sampled at two locations, Koltur and Skúvoy, by local people in early June 2002 and 2006. Only one egg was sampled from each nest and the eggs were stored in a refrigerator (ca.+5°C) until further treatment.

The eggs were weighed and height and breadth were measured. A hole was made in the top of the egg and the content was poured into a heat-treated glass (400ºC for four hours).

The yolk and white were mixed with a fork, and subsamples were taken in polymethylpentene jars for POP analysis at CTQ in Canada. The remaining egg sample was analysed for Hg at the FVA. The samples were stored at -20ºC until shipment to the laboratories.

The eggshell thickness of all the eggs was measured with a micrometer-caliper at three different places as near to the equator as possible with the membrane left on. The results of the eggshell thickness are shown in Attachment 2.

2.2.2 Black Guillemot liver

The Black guillemots were shot at Sveipur and Tindhólmur between the 14th and 23rd of April 2005, and the 20th and 30th of April 2007, respectively. The weight of each bird was recorded before the sampling. The sex was recorded and the stomach with content was taken for storage in the Environmental Specimen Bank for potential future use. The livers were sampled and stored in polymethylpentene jars and frozen at -20ºC until analysis. The livers were analysed for Hg and Cd at the FVA and for Se at CTQ. Feather samples were taken and analysed for Hg at the FVA, along with 10 feather samples from black guillemots shot at Sveipur in 2002 and previously analysed for Hg in the liver (Hoydal and Dam, 2005).

Samples of kidney and muscle were stored in polyethylene bags[2] at -20ºC and deposited in the ESB for potential use in later studies.

2.3 Cod (*Gadus morhua*)

Cod were sampled by the research vessel “Magnus Heinason” with trawl at the station “Mýlingsgrunnurin” North-East of the Faroe Islands in 2006 and 2007. 25 cod were sampled in October 2006 and 16 in the end of September 2007. The cod were frozen whole until sample preparation.

During the sample preparation the cod were weighed and the fork length measured before the liver was dissected out and stored in heat-treated glass jars at -20ºC until analysis. Samples were taken of muscle from the right side fillet and stored in heat-treated aluminium foil at -20ºC until analysis. The sex and maturity was established from the gonads.

The cod from 2006 were analysed as 13 individual samples and two pooled samples with 6 individuals in each. The cod from 2007 were all analysed individually. The liver samples were analysed for POPs at CTQ and the muscle samples were analysed for Hg at the FVA.

2.4 Long-finned pilot whale (*Globicephala melas*)

Pilot whale samples are collected in connection with traditional hunting. The sampling takes place after the killing and before the meat distribution. At this time the whales are cut open by an abdominal cut, to facilitate cooling. The samples of blubber and muscle are taken at the ventral and caudal side of these abdominal cuts. Before the sampling the length of the whale and the size in *skinn*[3] are measured and the sex is determined.

The pilot whale samples were collected from 2001 to 2007 (Table 2.2). Pieces of blubber, muscle, liver and kidney were sampled in polyethylene bags and stored at -20ºC until shipment for analysis.

[2] The polyethylene bags used for sample storage are invariably of the reg. trademark Minigrip type.
[3] *Skinn* is a special Faroese unit for measuring the size of the whale on an assessment of the mass fit for human consumption.

Table 2.2 Number of pilot whale samples analysed in 2005-2008

Location	Date	Number of samples analysed			
		Muscle	Blubber	Liver	Kidney
Miðvágur	06.07.01	25	25	20	20
Tórshavn	03.09.02	25	25	20	20
Hvalvík	30.08.03	25	25	-	-
Bøur	04.06.04	23	23	-	-
Hvannasund	28.08.06	15	15	8	8
Leynar	06.09.06	10	10	7	7
Tórshavn	03.07.07	11	11	9	9
Gøta	13.07.07	14	14	6	6
Sum		148	148	70	70

The muscle and liver samples were analysed for Hg and Cd at the FVA on the Faroe Islands and for Se at CTQ in Canada.

The kidney samples were analysed for Cd at the FVEA on the Faroe Islands.

The blubber samples were analysed for POPs (PCB and organochlorine pesticides including DDT and toxaphene among others) at CTQ. During the preparation of the blubber samples the outer part of the blubber which had been in contact with the wrapping was removed, and the blubber samples were transferred to polymethylpentene jars and kept frozen until analyses.

2.4.1 Defining groups

Following studies by Desportes *et al.* (1993) and Martin & Rothery (1993) the pilot whales have been divided into the following groups as regards their sexual maturity:

Juvenile females:	All females < 375 cm
Adult females:	All females ≥ 375 cm
Juvenile males:	All males < 494 cm
Adult males:	All males ≥ 494 cm

The number and size of the analysed pilot whales is shown in Table 2.3.

In 2001 and 2002 muscle, blubber, kidney and liver were sampled from both juveniles and adults. In 2003 and 2004 only muscle and blubber were sampled. In 2006 and 2007 muscle and blubber were sampled from preferably young individuals, whereas liver and kidney were sampled from preferably old (large) individuals (see Attachment 8). This new sampling strategy was chosen following statistical analyses of timeseries (Dam and Riget, 2006) which established a higher probability of detecting directional trends in younger (immature) whales, than in older individuals. Thus it was decided to adapt the monitoring so that pilot whale muscle and blubber samples were analysed with the purpose of detecting possible time-trends, whereas liver and kidney samples were analysed with the objective of detecting negative biological effects of pollutants.

Table 2.3 Number and size of the analysed pilot whales

	Age and sex group		Juveniles			Adult females			Adult males		
			skinn	length	n	skinn	length	n	skinn	length	n
2001	06.07.01	Min	1	186	8 (M=4, F=4)	6	400	14	11	565	3
		Max	7	445		11	498		11	565	
		Mean	**3.9**	**321**		**8.6**	**454**		**11**	**565**	
2002	03.09.02	Min	1.5	210	7 (M=6, F=1)	5	375	10	14	535	8
		Max	9	450		9	450		19	585	
		Mean	**4.1**	**316**		**7.6**	**423**		**16.4**	**559**	
2003	03.08.03 *	Min	2.5		11 (M=9, F=2)	5		10	11		4
		Max	8			8			11		
		Mean	6.2			6.8			**11.0**		
2004	08.06.04	Min	1	270	6 (M=2, F=4)	6	420	12	9	510	7
		Max	7	460		8	490		12	580	
		Mean	**3.5**	**353**		**7.2**	**442**		**10.7**	**550**	
2006[#]	28.08.06	Min	1 (1)	197 (197)	15 (18) (M=8(11), F=7(7))	8 (6)	430 (386)	4 (15)	12	510	4
		Max	6 (11)	385 (470)		8 (8)	449 (449)		15	550	
		Mean	**3.5 (4.5)**	**293 (319)**		**8.0 (7.3)**	**440 (420)**		**14.0**	**531**	
	06.09.06 *	Min	2		10 (M=7, F=3)	9 (6)		4 (12)	11		3
		Max	10			10 (10)			16		
		Mean	**6.8**			**9.5 (8.1)**			**13.0**		
2007	03.07.07	Min	2	260	10 (M=6, F=4)	9	435	5	12	505	4
		Max	11	475		12	480		17	560	
		Mean	**5.2**	**350**		**9.6**	**449**		**15.8**	**539**	
	13.07.07	Min	3	270	11 (M=7, F=4)	10	470	3	15	540	3
		Max	9	460		20	580		15	580	
		Mean	**5.1**	**359**		**14.3**	**517**		**15.0**	**563**	

*In 2003 and one of the schools from 2006 the length of the whales was not registered and the division into age groups has been made from the size in skinn.

[#]The numbers in brackets apply to the individuals that have been analysed for Hg in muscle. The number that are not in brackets apply to the individuals analysed for either POPs in blubber and Se in muscle (juveniles) or Cd in kidney and Hg,Cd and Se in liver (adults).

2.5 Mountain Hare (*Lepus timidus*)

The hares were shot at the locations Signabøhagi and Norðradalur during November and December 2004 using steel or lead shot ammunition and in November and December 2006 using only lead ammunition. The lengths and weights of the hares were recorded as well as the lengths of a foot and their skull. Liver, intestinal fat and pieces of muscle were sampled. Livers were stored in heat-treated glass jars (400ºC for 4 hours), intestinal fat in polymethylpentene jars and muscle in polyethylene bags.

The livers were analysed for Hg and Cd at the FVA and the livers from 2004 were also analysed for POPs at Alcontrol. The Hg analyses were made on individual samples, whereas the analyses of POPs were made on 5 individual samples and two pooled samples with 5 individuals in each. The samples of muscle and intestinal fat were stored at -20ºC and stored in the ESB for potential use in later studies.

2.6 Arctic char (*Salvelinus alpinus*)

The Arctic char were caught by angling in the lake Á Mýrunum by members of the anglers association "Føroya Sílaveiðufelag" in July in 2004, 2005 and 2007, by special permission from the Veterinary department of the FVA. The fish were wrapped in plastic bags and frozen at -20ºC until further treatment. Before and after fishing, the fishing tackle was disinfected with the commercial disinfectant VirkonS.

Length and weight of the fish were recorded. Muscle samples were taken from the right fillet and analysed for Hg at the FVA and for Se and POPs at CTQ. The otoliths were sampled and sent to The Natural History Museum of Kópavogur in Iceland for age determination.

The livers were placed in heat-treated glass jars (400ºC for four hours) in the freezer (-20ºC) and stored in the ESB for potential use in later studies.

3 Heavy metal results

3.1 Shorthorn sculpin

The concentrations of mercury, selenium and cadmium in sculpin livers are shown in Table 3.1. Analyses results were reported on a dry weight basis, and are given as such in the table. The calculation of wet weight based results may be done using the measured dry weight content in the liver samples and if presented on wet weight basis the mean concentrations would be 1.44 mg/kg Hg, 1.09 mg/kg Cd and 1.58 mg/kg Se.

Table 3.1 Cadmium, mercury and selenium in sculpin liver from 2002.

ID	Dry matter* %	Hg mg/kg dw	Cd mg/kg dw	Se mg/kg dw
Ms-0115	30	3.4	1.2	3.9
Ms-0116	32	9.8	3.0	6.0
Ms-0117	37	3.3	0.4	3.7
Ms-0118	27	4.2	2.0	4.1
Ms-0119	31	5.6	8.2	7.4
Ms-0109	35	1.1	5.7	4.6
Min.	27	1.1	0.44	3.7
Max.	37	9.8	8.2	7.4
Mean	**32**	**4.6**	**3.4**	**5.0**
Std. dev.	*3.5*	*2.95*	*2.97*	*1.46*

Sculpin livers from the Faroe Islands have been analysed earlier in the AMAP context. Sculpins from 1999 to 2001 (Olsen *et al.*, 2003) and 2004 (Hoydal and Dam, 2005) were analysed for heavy metals, and high variability in the results was noted, both interannually and within the year (Figure 3.1). In the 25-32 cm size group the mean concentration of mercury was higher in 2002 than in other years,, although significantly higher only to the 2004 samples (ANOVA p=0.002).

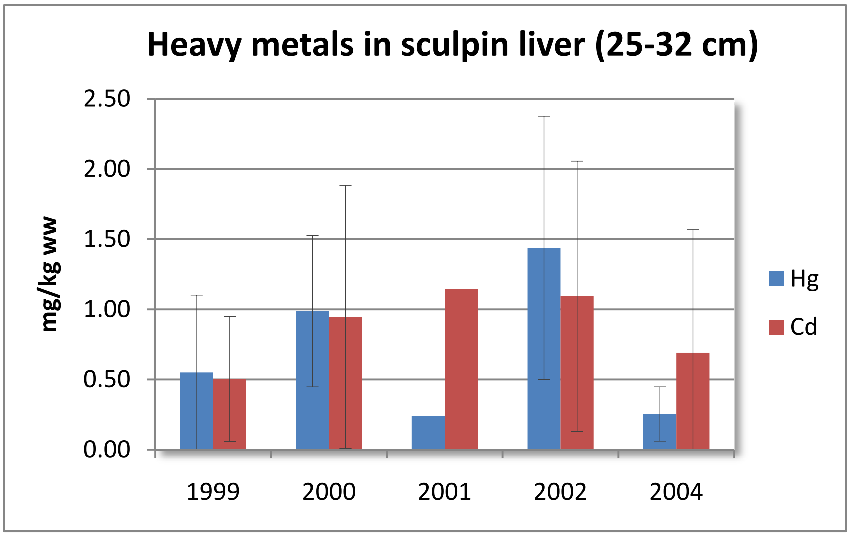

Figure 3.1 Mercury and cadmium content in sculpin liver in the size group 25-32 cm from 1999 to 2004. The sculpins from 2001 were analysed as pooled samples.

Sculpins are very stationary and opportunistic in their feeding behaviour so the variability in the heavy metal results is probably due to individual and local exposure from food or items taken as food. The high variability in the heavy metal concentrations makes sculpin unsuitable for long term monitoring, and monitoring of sculpins was therefore discontinued following 2004. If monitoring of pollutants in sculpin is to be taken up again, then a sampling station known to be free from local pollution should be sought.

3.2 Black guillemot

3.2.1 Black guillemot eggs

The individual mercury data for black guillemot eggs are given in Table 3.2, with summary results in Table 3.3.

Table 3.2 Mercury in black guillemot eggs from 2002 and 2006

Location:		Koltur			**Location:**		Skúvoy	
ID	**date**	**tissue**	**Hg, mg/kg**		**ID**	**date**	**tissue**	**Hg, mg/kg**
Cg-0230	June 2002	Egg	0.588		Cg-0240	June 2002	Egg	0.430
Cg-0231	June 2002	Egg	0.342		Cg-0241	June 2002	Egg	0.420
Cg-0232	June 2002	Egg	0.330		Cg-0242	June 2002	Egg	0.300
Cg-0233	June 2002	Egg	0.290		Cg-0243	June 2002	Egg	0.367
Cg-0234	June 2002	Egg	0.389		Cg-0244	June 2002	Egg	0.379
Cg-0235	June 2002	Egg	0.898		Cg-0245	June 2002	Egg	0.269
Cg-0236	June 2002	Egg	0.377		Cg-0246	June 2002	Egg	0.317
Cg-0237	June 2002	Egg	0.328					
Cg-0238	June 2002	Egg	0.385					
Cg-0239	June 2002	Egg	0.455					
mean			**0.438**		**mean**			**0.355**
std.dev			*0.182*		*std.dev*			*0.061*
min			0.290		min			0.269
max			0.898		max			0.430

Location:		Koltur			**Location:**		Skúvoy	
ID	**date**	**tissue**	**Hg, mg/kg**		**ID**	**date**	**tissue**	**Hg, mg/kg**
Cg-0280	June 2006	Egg	0.315		Cg-0290	June 2006	Egg	0.52
Cg-0281	June 2006	Egg	0.223		Cg-0291	June 2006	Egg	0.378
Cg-0282	June 2006	Egg	0.267		Cg-0292	June 2006	Egg	0.867
Cg-0283	June 2006	Egg	0.584		Cg-0293	June 2006	Egg	0.926
Cg-0284	June 2006	Egg	0.402		Cg-0294	June 2006	Egg	0.632
Cg-0285	June 2006	Egg	1.31		Cg-0295	June 2006	Egg	0.569
Cg-0286	June 2006	Egg	0.295		Cg-0296	June 2006	Egg	0.374
Cg-0287	June 2006	Egg	0.234		Cg-0297	June 2006	Egg	0.896
Cg-0288	June 2006	Egg	0.395		Cg-0298	June 2006	Egg	1.25
Cg-0289	June 2006	Egg	0.306		Cg-0299	June 2006	Egg	0.925
mean			**0.433**		**mean**			**0.734**
std.dev			*0.326*		*std.dev*			*0.283*
min			0.223		min			0.374
max			1.31		max			1.25

Table 3.3 Summary of mercury in black guillemot eggs in 2002 and 2006.

Year		**2002**	**2006**
N of cases		17	20
	Min	0.269	0.223
	Max	0.898	1.310
Hg, mg/kg	Median	0.377	0.461
	Mean	**0.404**	**0.583**
	Std.dev.	*0.148*	*0.335*

The mean Hg concentration in black guillemot eggs from 2006 is the highest since the regular analysis of black guillemot eggs from the Faroe Islands started in 1999. The mean concentration in eggs from Koltur has not changed since 2004, but the mercury concentration in eggs from Skúvoy has increased (Figure 3.2). One sample from Koltur in 2006, had the highest concentration of mercury measured to date in black guillemot eggs from the Faroe Islands. The difference from the egg with the second highest mercury concentration was however low at less than 5%, and thus well within what may be assumed to be the analytical error.

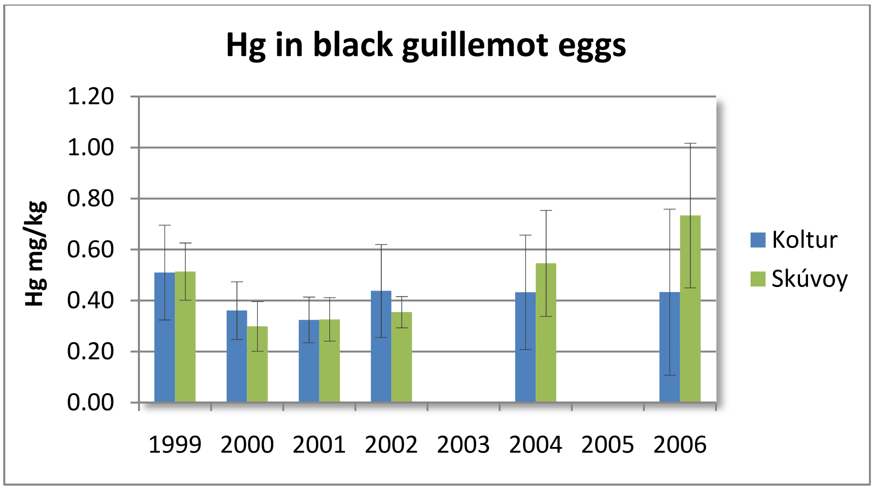

Figure 3.2 Hg in black guillemot eggs from Koltur and Skúvoy from 1999-2006.

3.2.2 Black guillemot liver

The concentration of heavy metals in black guillemot liver was analysed in birds shot for scientific purposes near Sveipur and Tindhólm, 5 females and 5 males in April 2005 and 8 females and 7 males in April 2007. Summary results of mercury, cadmium and selenium are given in Table 3.4 and Figure 3.3; individual results are given in Attachment 3.

Table 3.4 Mercury, cadmium and selenium concentration in black guillemot liver 2005.

Year	Number of birds		Hg, mg/kg	Cd, mg/kg	Se, mg/kg
2005	10	Min	0.67	0.33	1.50
		Max	2.50	0.68	2.52
		Mean	**1.07**	**0.40**	**2.04**
		Std.dev	*0.57*	*0.10*	*0.33*
2007	15	Min	0.59	0.38	1.70
		Max	1.42	0.79	3.30
		Mean	**0.99**	**0.57**	**2.21**
		Std.dev	*0.23*	*0.13*	*0.40*

The levels of heavy metals in black guillemot liver seem to be unchanged from 2005 to 2007 (Figure 3.3). If looking at the male and female birds apart (Figure 3.4) the mercury concentration seems to be higher in males than in females, whereas a similar difference is not seen with the cadmium concentration (Figure 3.5). The apparent sex dependence of the mercury concentration could be associated with diet, for instance if male black guillemots have a larger preference for fish than their female counterparts, or it could be associated with differences in fish availability between the two sampling areas because the Tindhólm samples tend to be dominated by males whereas the Sveipur ones tend to be dominated by females.

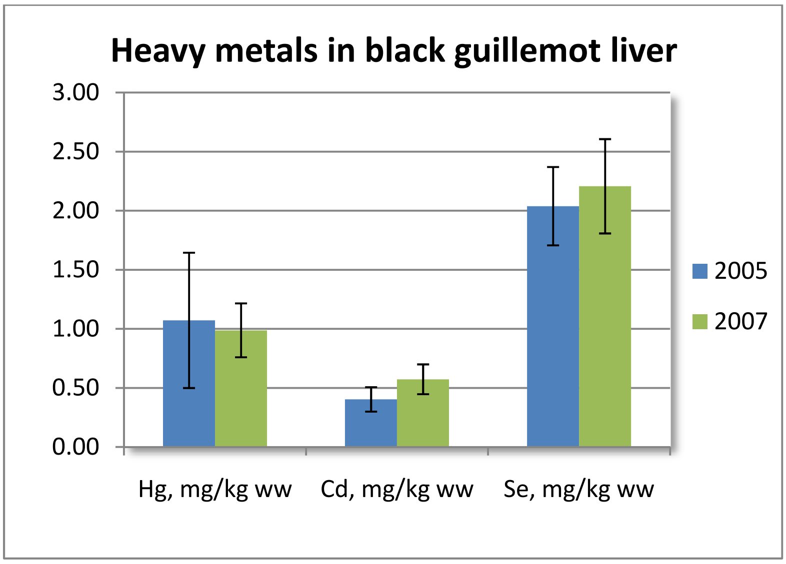

Figure 3.3 Heavy metals in black guillemot liver from 2005 and 2007

Figure 3.4 Boxplot of Hg in black guillemot liver from 2005 and 2007. F: females, M: males.

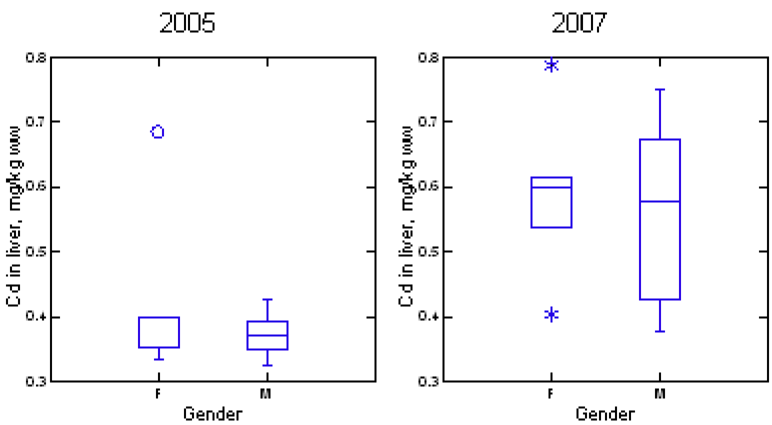

Figure 3.5 Boxplot of Cd in black guillemot liver from 2005 and 2007. F: females, M: males.

3.2.3 Black guillemot feathers

Feathers of black guillemots from 2002, 2005 and 2007 were analysed for Hg. The mean results are shown in Table 3.5. Individual results are shown in Attachment 3.

Table 3.5 Mercury in black guillemot feathers from 2002, 2005 and 2007

Year	Number of birds		Hg, mg/kg
2002	10	Min	2.52
		Max	4.87
		Mean	**3.78**
		Std.dev	*0.80*
2005	10	Min	2.57
		Max	6.63
		Mean	**3.64**
		Std.dev	*1.21*
2007	15	Min	1.49
		Max	4.65
		Mean	**2.81**
		Std.dev	*0.84*

The Hg content in black guillemot feather is at the same level or lower in 2007 than the previous years. Figure 3.6 is a boxplot of the Hg content in black guillemot feather for the various age and gender groups.

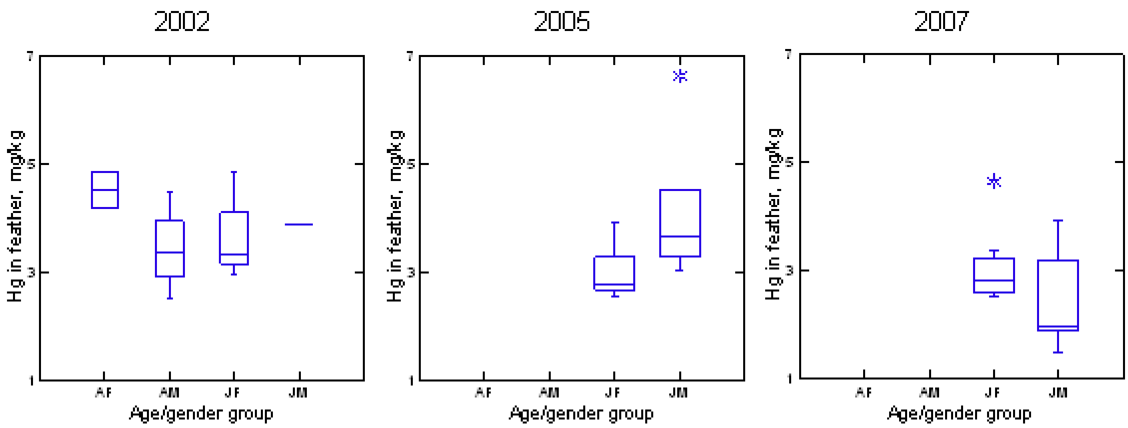

Figure 3.6 Hg in black guillemot feather from 1996 to 2007. Age and gender groups: AF: adult females, AM: adult males, JF: juvenile females, JM: juvenile males.

The Hg concentrations in liver and feather are not correlated (Figure 3.7). Only in 2005 was a positive correlation found (r^2=0.65, p=0.005), but this was due to an outlier. When the outlier was removed the positive correlation disappeared (r^2=0.03, p=0.634).

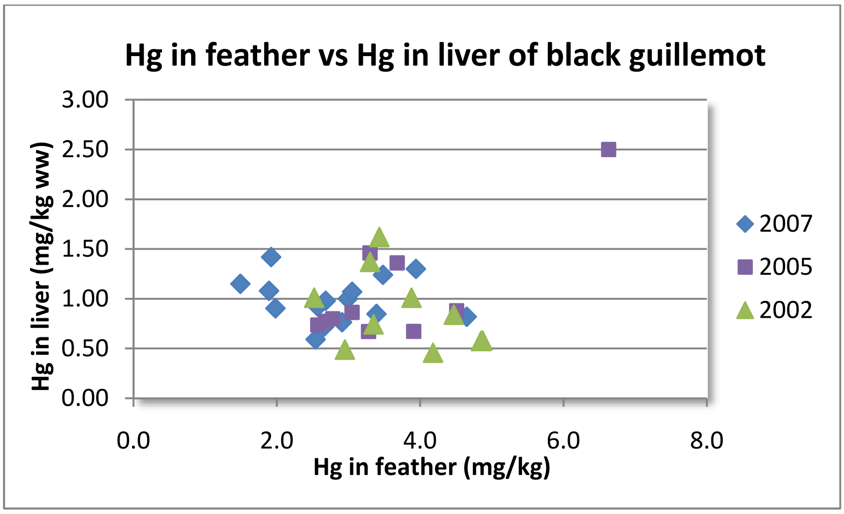

Figure 3.7 Correlation between Hg in liver and feather of black guillemot from 2002, 2005 and 2007

The birds from 2005 and 2007 were shot in April and were immature birds hatched the previous summer. In the 2005 samples the moult status has not been registered, but in the 2007 samples all but two birds were still growing feathers from the moult that begins around February. The concentration of mercury in the feathers reflects the concentration of readily bioavailable mercury in the blood and thus mainly the mercury taken with food during the period of feather growth. On the other hand the concentration of mercury in the liver is the result of accumulation, biotransformation and depletion processes from the time of hatching until the sampling, including the load which was transferred from the mother bird to the egg, and gives as such a more time-integrated view of the mercury status of the ambient environment.

3.3 Cod

Cod muscle samples from 2006 and 2007 were analysed for mercury and the mean results are shown in Table 3.6. Individual results and data on biological parameters can be seen in Attachment 4.

Table 3.6 Mercury in cod muscle, mg/kg ww

Year	N		Length, cm	Dry matter %	Hg, mg/kg
2006	25*	Min	41	19.9	0.021
		Max	58	23.3	0.063
		Mean	**48.8**	**21.6**	**0.040**
		Std.dev.	*4.40*	*1.03*	*0.011*
2007	16	Min	30	19.8	0.019
		Max	55	21.6	0.059
		Mean	**47.6**	**20.8**	**0.036**
		Std.dev.	*7.23*	*0.56*	*0.013*

*Analysed as 13 individual samples and two pooled samples with 6 individuals in each.

The mean Hg concentration in cod muscle was around 0.04 mg/kg in both 2006 and 2007. Hg in cod muscle from the Faroe Islands has been analysed for several years, although for many of these years the analyses have been done on salt fish rather than on fresh fish. Since 1994, when monitoring of cod as an indicator on environmental pollution status begun, the mean muscle mercury concentration has been around 0.02 mg/kg, apart from in 2005, when the mean concentration was 0.06 mg/kg. The results from 2006 and 2007 are thus somewhat lower than in 2005, but higher than in the previous years (Figure 3.8). Although the data from this work seems to show an increasing trend, analyses of cod data from the Faroe Islands using data from the 1970's and until 2005 show a decreasing trend (Dam and Riget, 2006; AMAP 2007).

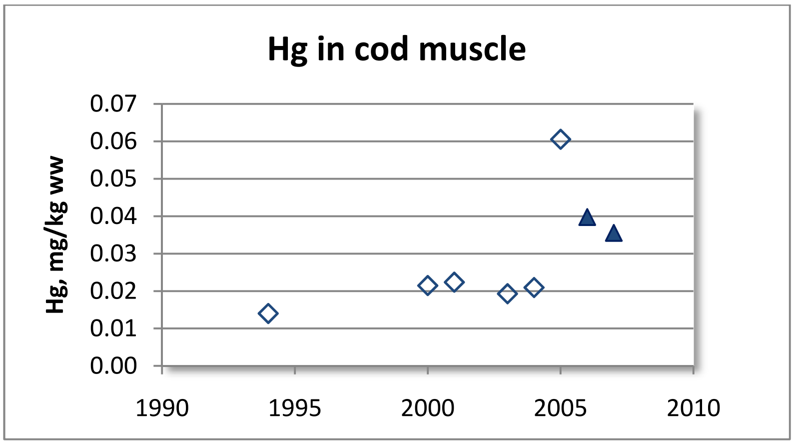

Figure 3.8 Mercury in cod muscle from the Faroe shelf, length: 40-60 cm.
Filled triangles ▲ : Data from this work. Open diamonds ◇: data from previous analyses of cod from the Faroe Islands (Dam and Hoydal, 2005; 2007).

3.4 Pilot whale

Pilot whales sampled in 2001 to 2007 were analysed for mercury, cadmium and selenium in muscle and liver, and for cadmium in kidney. The results of heavy metals in the various tissues are shown below and complete dataset in Attachment 5.

3.4.1 Muscle

Table 3.7 shows the mean results of the heavy metals and selenium analyses in pilot whale muscle.

The results of Hg in pilot whale muscle seem to be at the same level in all analysed years except for the results in 2002, where the level in adults and thus the normalized[4] mean is somewhat higher (Figure 3.9). The level of Hg does not show any increasing or decreasing trend when looking at the years analysed in this work only.

The problem when comparing data of Hg in pilot whale between years is that the Hg content increases with age due to accumulation (Figure 3.10) and thus the analysed whales have to be at the same age to enable comparison. Age is not a parameter that is easy to measure, but to some extent length is a measure for age at least for the young individuals (Bloch et al., 1993b) and thus the mean length of the analysed groups needs to be the same each year when mean values of Hg are compared.

When looking at the mean lengths of the analysed whales (Figure 3.11 and Table 2.3) the means for the juvenile whales are between approximately 300 and 350 cm and show a small increase from 2001 to 2007. This increase could stem from differences in the ratio of males to females, as an increased ratio of juvenile males would pull the average length up because males are sorted into the Adult Male group only after attaining a body length that is approx. 120 cm longer that a female is when put into the corresponding Adult Female group. However, taking the length differences for face value, and calculating the anticipated increase in mercury

[4] Normalization of the mean is based on the distribution of males, females and young individuals in a "normal" pilot whale school, as described by to Bloch et al., 1993a.

stemming from the regression of muscle mercury vs. body length curve (Figure 3.10), it is seen that the mercury increase in the period 2001-2007 is actually less than could be expected from the increased length.

Table 3.7 Heavy metals in pilot whale muscle. Number and size of the analysed whales is given in Table 2.3

	Age and sex group		Juveniles				Adult females				Adult males			
Year	Date		Dry weight %	Hg	Cd	Se	Dry weight %	Hg	Cd	Se	Dry weight %	Hg	Cd	Se
2001	06.07.01	Min	24	0.29	0.008	0.500	24	1.52	0.090	0.52	26	1.8	0.108	0.476
		Max	29	2.08	0.208	0.936	33	2.3	0.775	1.22	28	2.9	0.206	0.494
		Mean	**26.5**	**1.17**	**0.11**	**0.64**	**27.5**	**1.90**	**0.36**	**0.64**	**27.0**	**2.43**	**0.17**	**0.49**
		Std.dev.	*1.60*	*0.70*	*0.06*	*0.15*	*2.47*	*0.27*	*0.18*	*0.18*	*1.00*	*0.57*	*0.05*	*0.01*
2002	03.09.02	Min	24	0.31	0.006	0.546	24	1.51	0.147	0.468	25	2.48	0.144	0.475
		Max	28	2.02	0.133	0.884	29	6.92	1.02	1.512	30	3.71	0.259	0.945
		Mean	**26.1**	**1.32**	**0.069**	**0.653**	**26.6**	**3.15**	**0.44**	**0.89**	**27.3**	**3.18**	**0.203**	**0.669**
		Std.dev.	*1.21*	*0.72*	*0.043*	*0.124*	*1.35*	*1.59*	*0.25*	*0.37*	*1.80*	*0.37*	*0.039*	*0.168*
2003	03.08.03	Min	25	0.22	0.04	0.6	20	1.15	0.04	0.44	26	1.5	0.04	0.53
		Max	37	2.28	0.07	1.5	32	3.57	0.25	0.92	31	3.03	0.09	0.71
		Mean	**29.45**	**1.52**	**0.05**	**0.85**	**26.90**	**1.78**	**0.1**	**0.66**	**28.75**	**2.11**	**0.06**	**0.61**
		Std.dev.	*3.83*	*0.51*	*0.01*	*0.27*	*3.54*	*0.69*	*0.07*	*0.16*	*2.06*	*0.67*	*0.02*	*0.08*
2004	08.06.04	Min	24	0.46	0.01	0.42	26	1.28	0.09	0.42	26	1.24	0.03	0.42
		Max	29	1.52	0.07	0.73	36	4.44	0.43	2.4	31	2.54	0.36	0.58
		Mean	**27.7**	**0.99**	**0.04**	**0.58**	**29.3**	**2.16**	**0.22**	**0.77**	**27.9**	**1.90**	**0.17**	**0.51**
		Std.dev.	*1.86*	*0.54*	*0.02*	*0.12*	*2.57*	*0.92*	*0.11*	*0.53*	*1.68*	*0.44*	*0.12*	*0.06*
2006	28.08.06	Min	27	0.36	0.008	0.59	-	1.77	0.17	-	-	1.75	0.12	-
		Max	32	2.29	0.196	1.7	-	4.46	0.86	-	-	2.16	0.27	-
		Mean	**28.7**	**1.16**	**0.08**	**0.80**	-	**2.32**	**0.38**	-	-	**2.04**	**0.18**	-
		Std.dev.	*1.5*	*0.51*	*0.05*	*0.31*	-	*0.64*	*0.23*	-	-	*0.19*	*0.08*	-
	06.09.06	Min	27	0.66	0.02	0.49	-	0.29	-	-	-	-	-	-
		Max	34	2.25	0.10	0.71	-	3.0	-	-	-	-	-	-
		Mean	**29.6**	**1.50**	**0.06**	**0.59**	-	**1.86**	-	-	-	-	-	-
		Std.dev.	*2.4*	*0.63*	*0.03*	*0.07*	-	*0.73*	-	-	-	-	-	-
2007	03.07.07	Min	26	0.75	0.006	0.55	-	-	-	-	-	-	-	-
		Max	31	2.08	0.071	0.89	-	-	-	-	-	-	-	-
		Mean	**28.3**	**1.5**	**0.026**	**0.69**	-	-	-	-	-	-	-	-
		Std.dev.	*1.4*	*0.4*	*0.02*	*0.13*	-	-	-	-	-	-	-	-
	13.07.07	Min	26	0.66	0.012	0.43	-	-	-	-	-	-	-	-
		Max	30	1.62	0.133	0.99	-	-	-	-	-	-	-	-
		Mean	**28.0**	**1.13**	**0.055**	**0.66**	-	-	-	-	-	-	-	-
		Std.dev.	*1.18*	*0.32*	*0.05*	*0.16*	-	-	-	-	-	-	-	-

Grey shaded: n=the number in brackets in Table 2.3

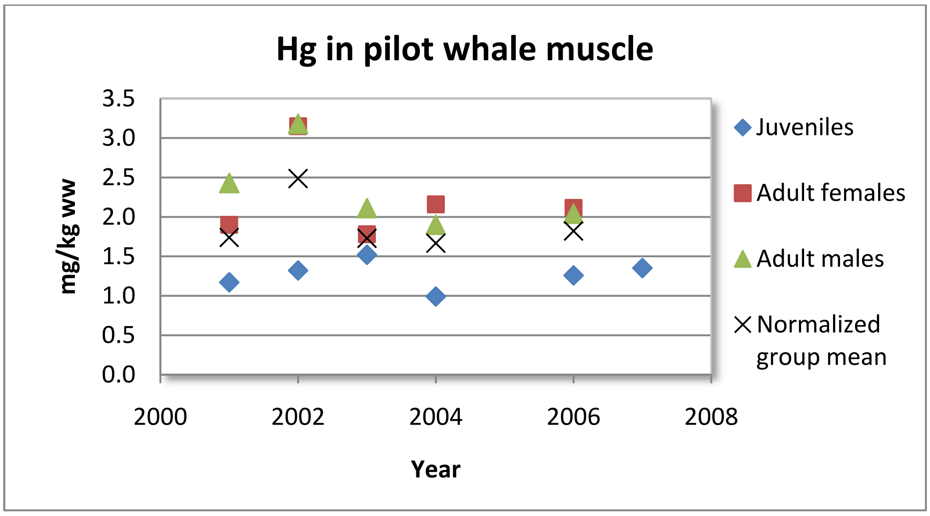

Figure 3.9 Mean content of mercury in pilot whale muscle for different size groups and normalized[4] group mean.

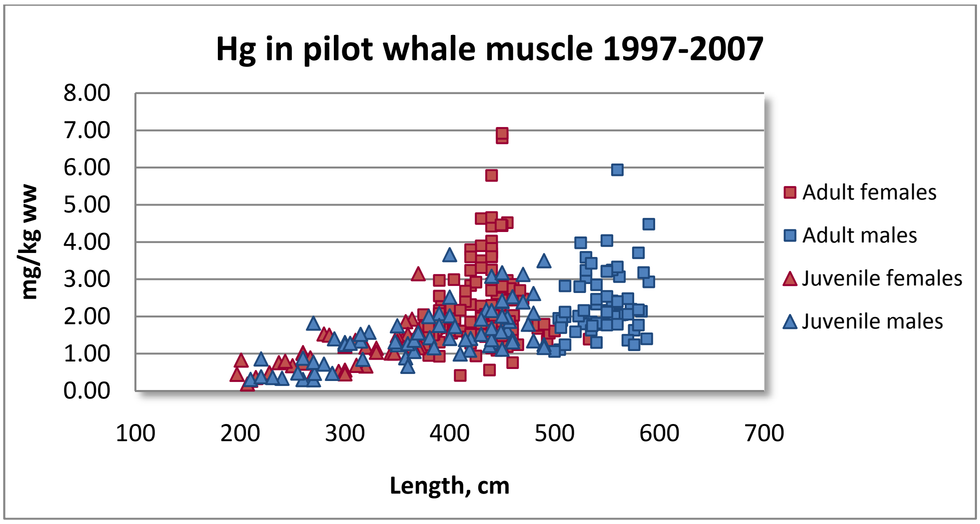

Figure 3.10 Hg versus length for the pilot whales from 1997-2007 in which Hg and length has been measured.

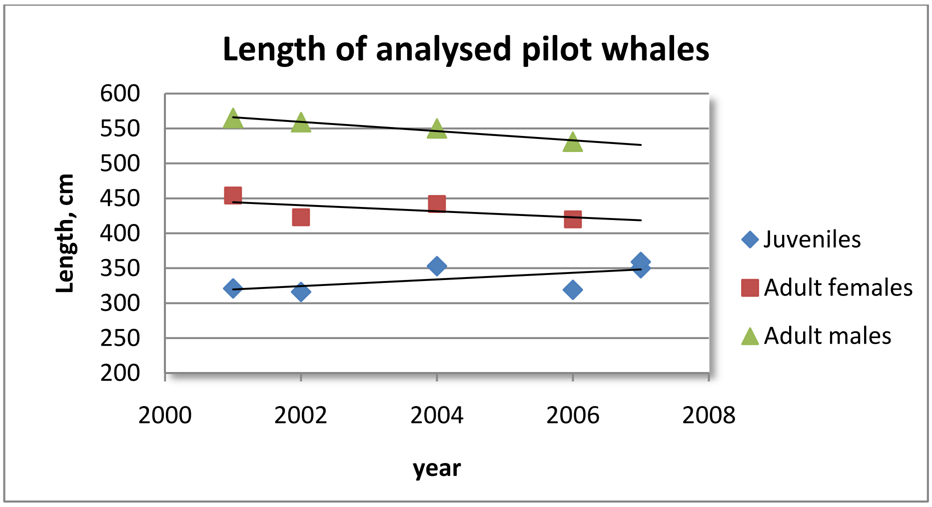

Figure 3.11 Mean length of the analysed pilot whales. In 2003 and in one of the schools from 2006 length was not measured

3.4.2 Liver

The results of the heavy metal and selenium analyses in liver are shown in Table 3.8 and Figure 3.12.

Table 3.8 Heavy metals in pilot whale liver from 2001 to 2007 (mg/kg ww)

Year	Date	Number		Dry weight %	Hg	Cd	Se
2001	06.07.01	10 (M=1, F=9)	Min	24	3.5	7.1	9.1
			Max	31	123	137	48.6
			Mean	**26.9**	**57.8**	**55.8**	**24.9**
			Std.dev.	*2.0*	*32.5*	*37.8*	*11.2*
2002	03.09.02	10 (M=4, F=6)	Min	25	153	7.3	17.7
			Max	32	574	139	153
			Mean	**28.6**	**294.4**	**62.4**	**88.0**
			Std.dev.	*2.4*	*138.0*	*39.0*	*48.0*
2006	28.08.06	8 (M=4, F=4)	Min	25	54.7	31.1	18
			Max	29	158	85.5	77
			Mean	**27.5**	**91.5**	**64.2**	**36.6**
			Std.dev.	*1.5*	*41.1*	*18.5*	*19.1*
	06.09.06	7 (M=3, F=4)	Min	26	26.6	9.24	13
			Max	28	143	51.1	54
			Mean	**26.9**	**82.6**	**28.9**	**30.9**
			Std.dev.	*0.9*	*45.3*	*16.2*	*16.5*
2007	03.07.07	9 (M=4, F=5)	Min	26	54.1	6.9	29
			Max	33	351	44.4	150
			Mean	**29.2**	**136.9**	**17.5**	**64.7**
			Std.dev.	*2.2*	*92.6*	*13.0*	*44.7*
	13.07.07	6 (M=3, F=3)	Min	24	26.3	8.82	14
			Max	30	70.9	67.9	31
			Mean	**27.8**	**50.6**	**34.2**	**21.5**
			Std.dev.	*2.2*	*19.8*	*25.8*	*6.8*

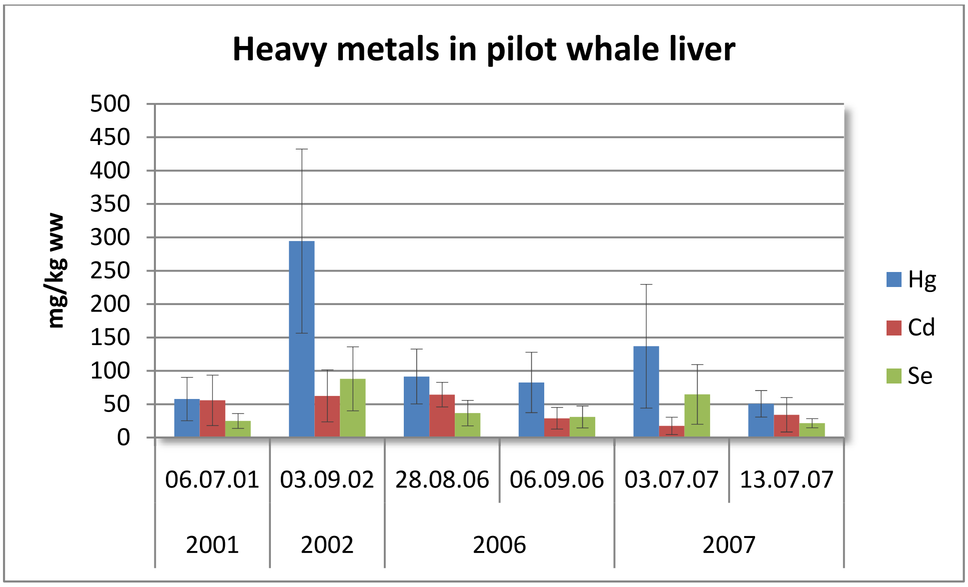

Figure 3.12 Heavy metals in pilot whale liver.

The results show as in muscle that the Hg content in liver is highest in 2002 with a mean of 294.4 mg/kg while the means of the other years analysed are between 50 and 150 mg/kg. Results of Hg in liver from previous analyses in the 70's and 80's show mean values around 50 to 100 mg/kg, apart from one school which has a mean around 300mg/kg (Julshamn et al., 1987). Direct comparison between the older data and the present are not meaningful because the analyses from the 70's and 80's were on both juvenile and adult whales while the recent analyses are on adults only. What is seen though is that mercury in liver and muscle correlate (Figure 3.13).

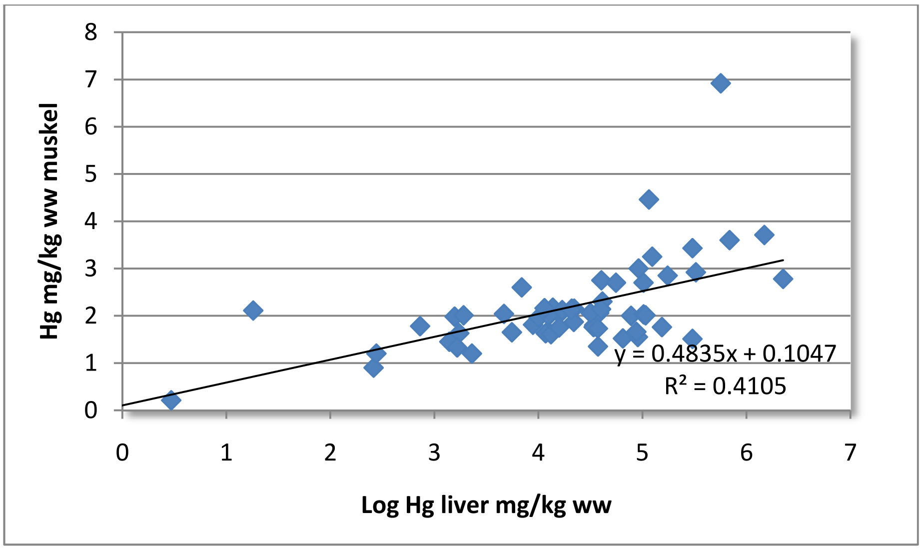

Figure 3.13 Muscle mercury vs. log transformed liver mercury in pilot whales, n= 59. Both female and male whales are included as are whales of all sizes, the only criteria used was that both liver and muscle mercury data for the same individual should be available. Data from Hvannasund 1978 (n= 8, Julshamn et al., 1987) and Vestmanna 2001 (n= 15, Hoydal and Dam, 2005) are included along with the data from the present study.

The mean cadmium concentration in liver does not show the same pattern as mercury (Figure 3.12) but shows less variation between years. The liver is however not the organ that primarily accumulates Cd; the highest concentrations of Cd are found in the kidney (see following section).

Selenium is known to have a protective effect against Hg toxicity and comparing the concentrations of Hg and Se shows a correlation between the two metals (Figure 3.14). On average, the median liver mercury concentration was 75 mg/kg, and the molar ratio between Se and Hg in these liver samples were 0.99 ± 4.82, with 50% (n=25) of the sampled individuals having a Se/Hg molar ratio <1.0. The minimum Se/Hg mole ratio found in these individuals was 0.45, in a male whose liver Hg concentration was 153 mg/kg ww. In the individual having the highest liver Hg concentration among these sampled whales, a female whose liver concentration was quantified to 574 mg/kg Hg, the Se/Hg mole ratio was 0.62 and potentially with more than 200 mg/kg of "unsequestered" Hg.

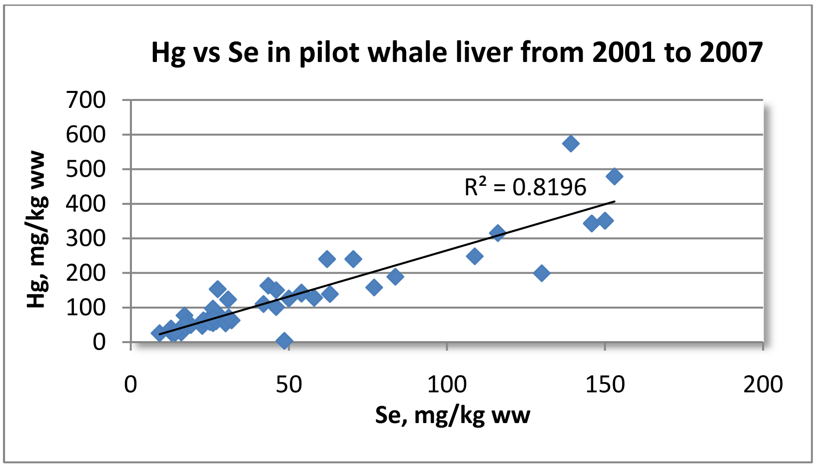

Figure 3.14 Correlation between Hg and Se in pilot whale liver from 2001 to 2007, n=50.

The threshold for observed liver damage as an effect of mercury in marine mammals is 60 mg/kg ww (AMAP 2002). 34 individuals who correspond to 68% of the pilot whales analysed in this work exceeded this level above which negative effects may be seen.

The limit for potential liver dysfunction in marine mammals as an effect of cadmium is 200 mg/kg ww (AMAP 2002). 8 individuals which corresponds to 16% of the analysed pilot whales in this work exceeded this limit.

3.4.3 Kidney

Kidney samples from 50 adult pilot whales were analysed for cadmium. The results are shown in Table 3.9.

Table 3.9 Cadmium in pilot whale kidney (mg/kg ww.).

Year	Date	Number		Cd
2001	06.07.01	10 (M=1, F=9)	Min	38.6
			Max	178
			Mean	**112.2**
			Std.dev.	*50.4*
2002	03.09.02	10 (M=4, F=6)	Min	73.9
			Max	107
			Mean	**88.5**
			Std.dev.	*11.4*
2006	28.08.06	8 (M=4, F=4)	Min	107
			Max	188
			Mean	**142.8**
			Std.dev.	*28.4*
	06.09.06	7 (M=3, F=4)	Min	52.7
			Max	153
			Mean	**87.5**
			Std.dev.	*34.8*
2007	03.07.07	9 (M=4, F=5)	Min	22.6
			Max	64.9
			Mean	**39.1**
			Std.dev.	*11.9*
	13.07.07	6 (M=3, F=3)	Min	39.5
			Max	174
			Mean	**95.6**
			Std.dev.	*49.8*

The cadmium concentration in kidney show large variations between the different schools, the highest mean is in the school from 28.06.06 on 142.8 mg/kg.

The limit for potential kidney dysfunction as an effect of cadmium in marine mammals is 400mg/kg ww (AMAP 2002). None of the pilot whales analysed in this work exceeded this effect limit, where the highest level measured was 188 mg/kg ww.

3.5 Mountain hare

15 hares were shot in 2004 in Signabø (n=13) and Norðradalur (n=2) and 17 hares were shot in 2006 in Signabø (n=6) and Norðradalur (n=11). The length and weight of the hares are shown in Figure 3.15 and Figure 3.16.

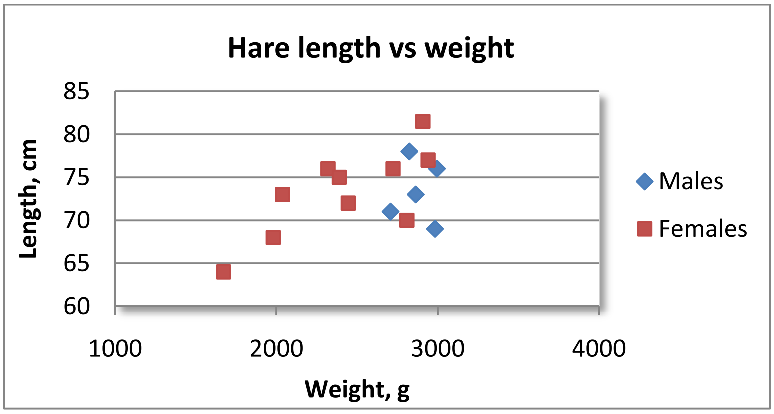

Figure 3.15 Length versus weight of hares shot in 2004.

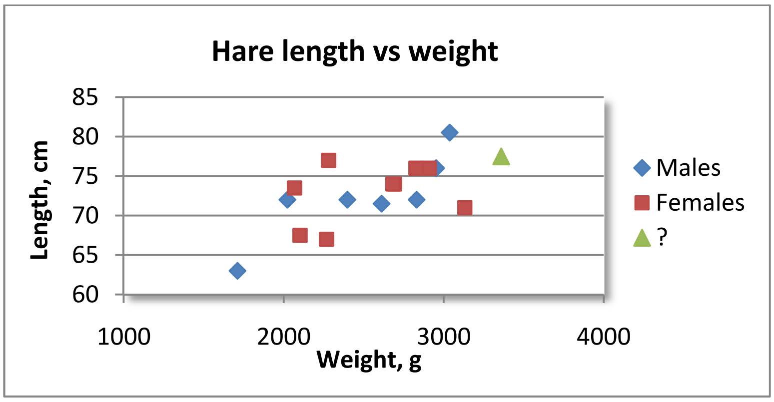

Figure 3.16 Length versus weight of hares shot in 2006. ?: sex unknown.

The hares were analysed for the heavy metals mercury and cadmium and the results are shown in Table 3.10. Individual results and data on biological parameters are in Attachment 6.

Table 3.10 Mercury and cadmium in hare liver from 2004 and 2006

Year	n		Hg, mg/kg	Cd, mg/kg
2004	15	Min	0.02	0.02
		Max	0.21	1.36
		Mean	**0.09**	**0.29**
		Std.dev.	*0.04*	*0.35*
2006	17	Min	0.02	0.04
		Max	0.34	0.50
		Mean	**0.10**	**0.16**
		Std.dev.	*0.09*	*0.11*

Figure 3.17 shows individual results of Hg versus Cd for the hares from 2004 and 2006.

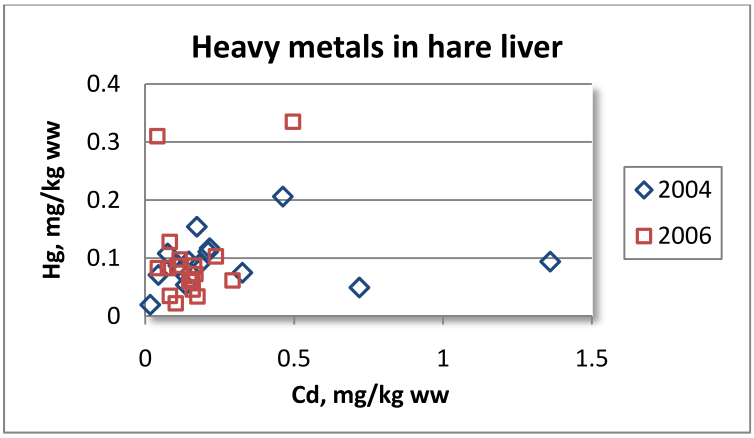

Figure 3.17 Hg versus Cd in hare liver from 2004 and 2006.

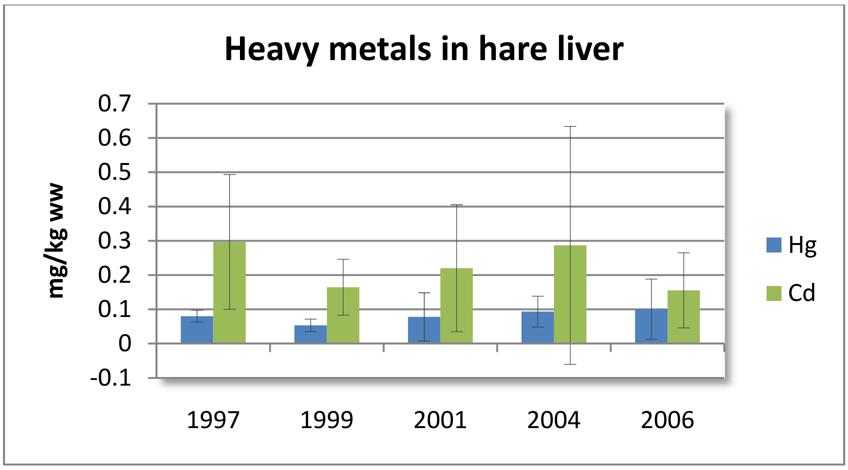

Figure 3.18 Hg and Cd in hare liver from 1997 to 2006

The hares accumulate more cadmium than mercury. The average Hg and Cd levels recorded for the various years are shown in Figure 3.18. The levels vary between years but do not show a directional trend. Since 2001 the hares have been shot in the locations Signabøhagi and Heimihagi, Norðradalur. No significant difference was found either between year or location (ANOVA $p>0.05$).

3.6 Arctic char

Arctic char muscle was analysed for Hg and Se. The mean results of the heavy metals in Arctic char are shown in Table 3.11 and individual results are found in Attachment 7.

Table 3.11 Mercury and selenium concentration in Arctic char muscle from 2002, 2005 and 2007

Year	n		Length, cm	Weight, g	Age, years	Dry matter %	Hg, mg/kg	Se, mg/kg
2002	20	Min	35	433	6	20	0.12	1.3
		Max	40	701	13	30	0.45	1.6
		Mean	**36.9**	**550.7**	**9**	**24**	**0.28**	**1.4**
		Std.dev.	*1.3*	*64.0*	*2.0*	*2.6*	*0.09*	*0.09*
2005	20	Min	33	369	3	19	0.13	1.3
		Max	39.5	634	10	30	0.59	2.1
		Mean	**36.0**	**488.0**	**7.0**	**24.2**	**0.32**	**1.6**
		Std.dev.	*1.7*	*66.9*	*1.7*	*3.05*	*0.11*	*0.18*
2007	13	Min	33	321	3	20	0.14	1.3
		Max	37.5	576	9	26	0.48	1.8
		Mean	**36.1**	**439.2**	**6.5**	**22.3**	**0.33**	**1.5**
		Std.dev.	*1.16*	*74.7*	*2.1*	*1.89*	*0.12*	*0.14*

The mean Hg is at the same level the three years. Figure 3.19 shows the age versus the length of Arctic char. No clear correlation between age and length was found in any of the analysed years, nor was a correlation between Hg and age (Figure 3.20).

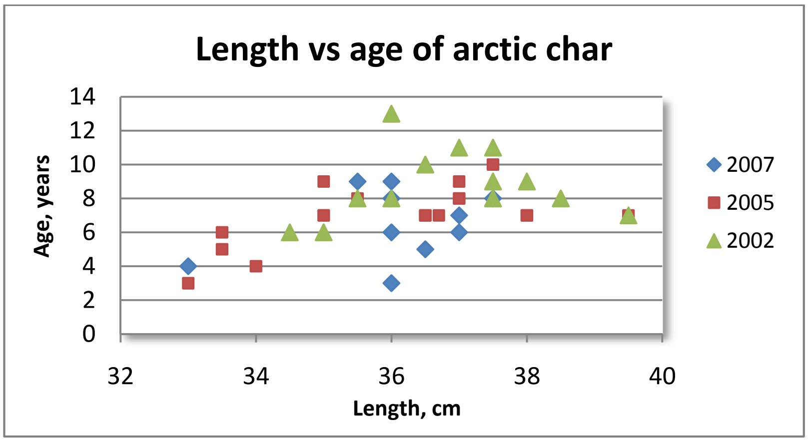

Figure 3.19 Length versus age of Arctic char.

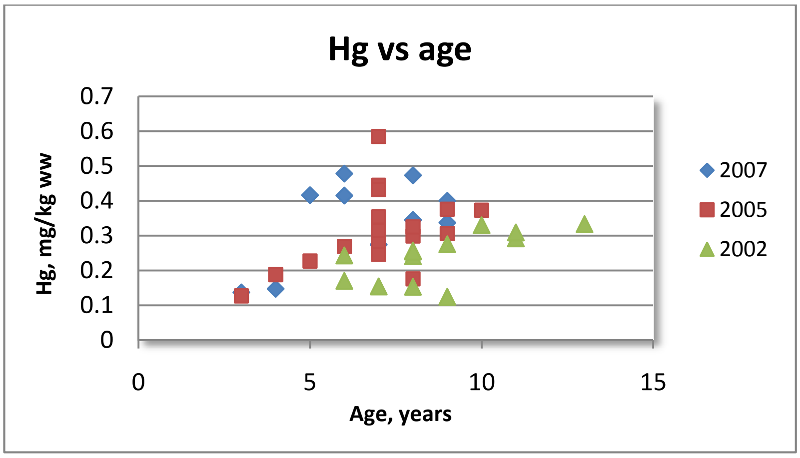

Figure 3.20 Hg versus age in Arctic char muscle.

Negative correlations between muscle Hg concentration and fish weight (r^2=0.490, p=0.000) (Figure 3.21), and muscle Hg and fish condition factor (r^2=0.552, p=0.000) (Figure 3.22) were found. A similar negative correlation between Hg concentration and condition factor was also seen in Arctic char from 2000 (Olsen et al., 2003).

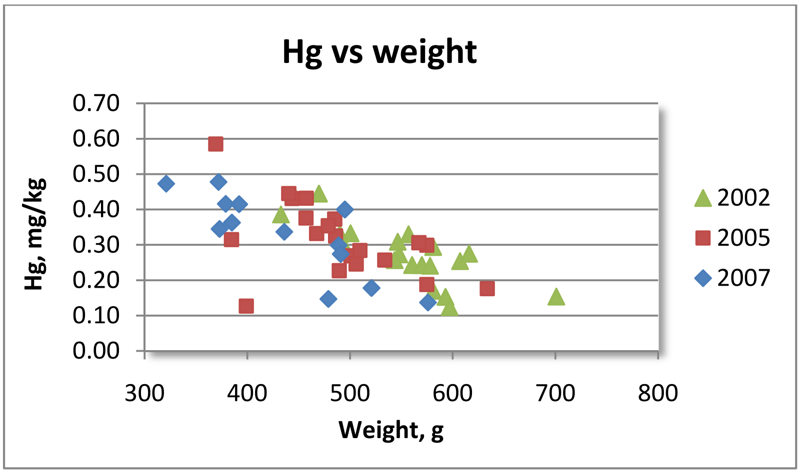

Figure 3.21 Hg versus weight in Arctic char muscle.

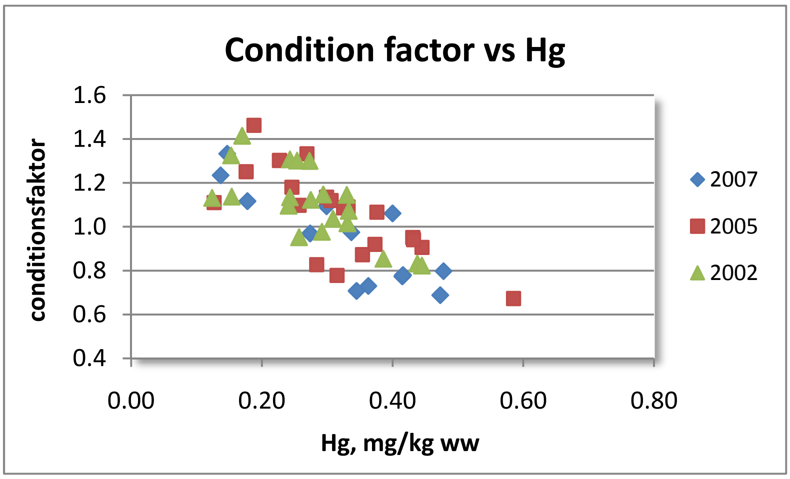

Figure 3.22 Condition factor versus Hg in Arctic char muscle.

Selenium does not seem to increase with increasing muscle mercury concentration, but appears to be constant between 1.3 and 1.8 mg/kg, independent of mercury concentrations at this level (Figure 3.23).

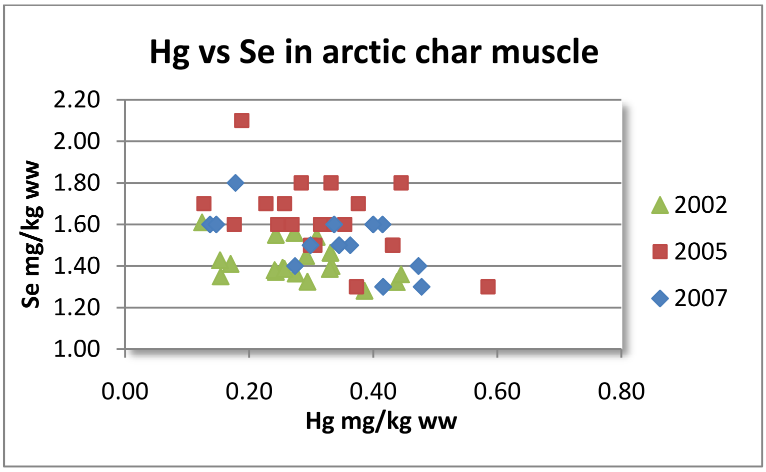

Figure 3.23 Mercury versus selenium in Arctic char muscle.

4 POP results

4.1 Sculpin

Sculpin livers from 2002 were analysed for POPs. The mean results are shown below. Individual results are in Attachment 1.

Table 4.1 PCB in sculpin liver (µg/kg of lipids).

Year	Length	n		Lipids %	Aroclor 1260	CB 153	PCB 6*
2002	28-31 cm	6	Min	1.4	890	110	258
			Max	12.0	9500	990	2786
			Mean	**6.2**	**5198**	**585**	**1515**
			Std.dev.	*4.3*	*3296*	*350*	*971*

*CB 52 was not detected in any of the sculpin samples and since the detection limits were high CB 52 was not included in the calculation. For other congeners the half of the detection limit was used in the calculation of PCB 6 when results were reported as not detected.

Table 4.2 Toxaphene and p,p'-DDE in sculpin liver (µg/kg of lipids).

Year	Length	n		Toxaphene		p,p'-DDE
				Parlar no. 26 (T2)	**Parlar no. 50** (T12)	
2002	28-31 cm	6	Min	8.2	8.2	130
			Max	93	180	1300
			Mean	**32.1**	**52.0**	**855**
			Std.dev.	*32.7*	*67.9*	*512*

Table 4.3 Organochlorine pesticides in sculpin liver (µg/kg of lipids).

Year	Length	n		cis-nona chlor	hexa-chloro-benzene	mirex	oxy chlor dane	trans nona chlor
2002	28-31 cm	6	Min	12	34.0	3.0	14.0	21
			Max	110	98.0	40.0	76.0	170
			Mean	**57.8**	**69.0**	**20.3**	**40.2**	**75.3**
			Std.dev.	*37.0*	*22.2*	*15.3*	*21.6*	*59.1*

Alpha-chlordane, gamma-chlordane, ß-HCH, pp'-DDT, toxaphene parlar no. 32, 62, and 69 were either not detected in any of the samples, or the level was just above the detection limit (see Attachment 1).

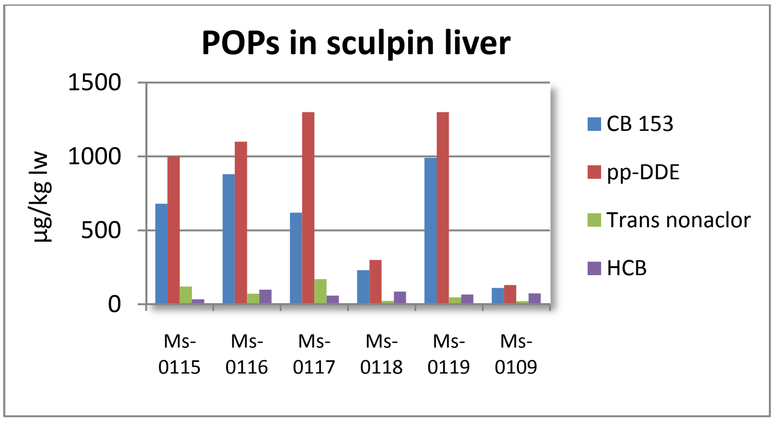

Figure 4.1 POPs in sculpin livers from 2002

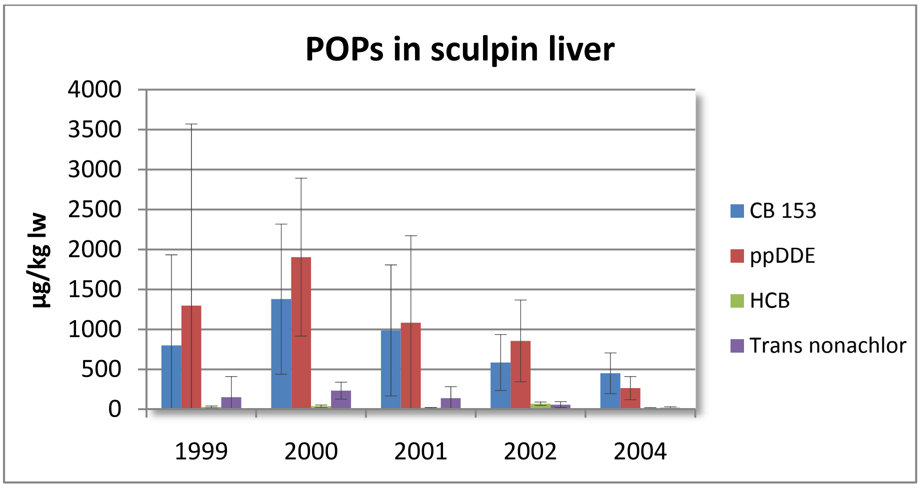

Figure 4.2 Mean concentrations of PCB and DDE in liver of sculpins in the 25-32 cm size group from 1999 to 2004

As with the Hg results, the POP sculpin liver results show high between year variability. However, when comparing the mean concentrations for the five years the POP concentrations seem to show a decreasing trend at least from 2000 to 2004 (Figure 4.2). Although the concentrations are different CB153, pp'-DDE and trans-nonachlor show the same relative distribution pattern, whereas Hexachlorobenzene differs in 2002 (Figure 4.3).

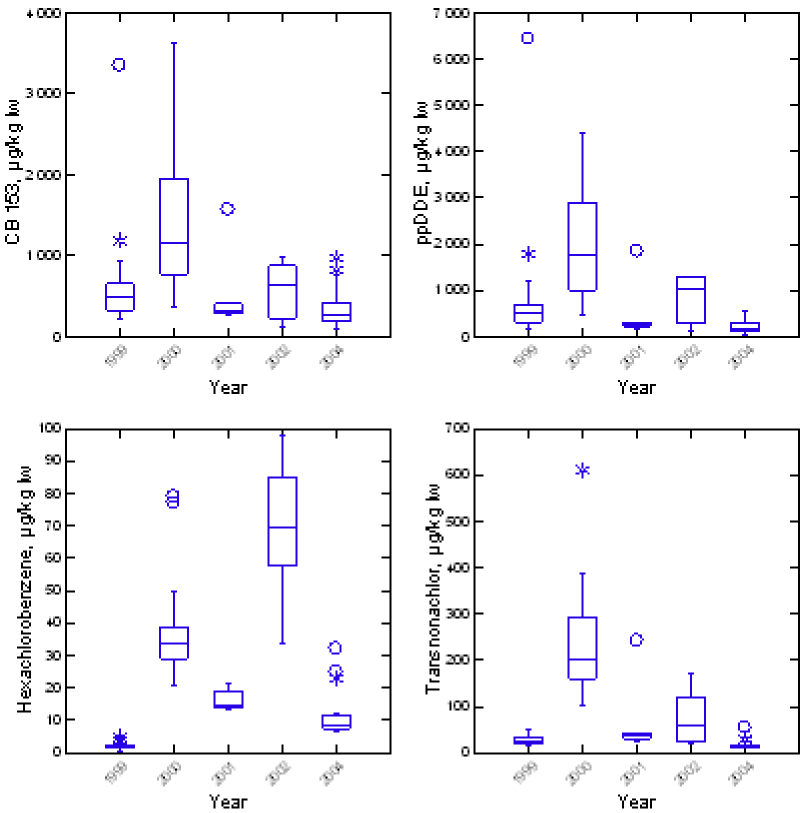

Figure 4.3 Boxplot of POPs in sculpin liver from 1999 to 2004.

4.2 Black guillemot eggs

Black guillemot eggs sampled on the islands Koltur and Skúvoy in 2002 and 2006 were analysed for POPs as in 1999, 2000, 2001 (Hoydal *et al.*, 2003) and 2004 (Hoydal and Dam, 2005). The mean levels are shown below; individual results can be seen in Attachment 2.

Table 4.4 PCB in black guillemot eggs (µg/kg of lipids).

Year	Location	n		**Aroclor 1260** mg/kg of lipids	**CB 153**	**PCB 6***
2002	Koltur	10	Min	3100	410	885
			Max	5600	750	1613
			Mean	**4150**	**572**	**1185**
			Std.dev.	*732*	*97*	*213*
	Skúvoy	7	Min	2900	380	822
			Max	6900	890	1922
			Mean	**4600**	**597**	**1300**
			Std.dev.	*1405*	*178*	*392*
2006	Koltur	10	Min	1400	210	409
			Max	17000	2000	4691
			Mean	**4370**	**573**	**1220**
			Std.dev.	*4638*	*532*	*1275*
	Skúvoy	10	Min	2400	350	678
			Max	4300	600	1194
			Mean	**3450**	**475**	**953**
			Std.dev.	*657*	*85.4*	*175*

*CB 52 was not detected in any of the black guillemot samples and since the detection limits were high, CB 52 was not included in the calculation. For other congeners (CB 28), half of the detection limit was used in the calculation of PCB 6, when results were reported as not detected.

Table 4.5 Toxaphene and p,p'-DDE in black guillemot eggs (µg/kg of lipids).

Year	Location	n		% Lipids	**Parlar no. 26** (T2)	**Parlar no. 32**	**Parlar no. 50** (T12)	**Parlar no. 62** (T20)	p,p'-DDE
2002	Koltur	10	Min	7.4	16	3.0	53	12	350
			Max	13	42	7.0	130	36	640
			Mean	**9.3**	**26.2**	**4.9**	**82.9**	**21.0**	**483**
			Std.dev.	*1.6*	*8.5*	*1.2*	*24.7*	*7.8*	*91*
	Skúvoy	7	Min	9.1	29	3.4	92	21	420
			Max	11	62	7.9	210	72	970
			Mean	**9.8**	**45.0**	**4.8**	**141.7**	**45.0**	**656**
			Std.dev.	*0.6*	*13.9*	*1.5*	*44.1*	*20.7*	*186*
2006	Koltur	10	Min	8.4	5.5	1.5	17	7.4	100
			Max	12	81	4.6	220	46	2000
			Mean	**9.7**	**20.3**	**2.8**	**62.3**	**15.8**	**403**
			Std.dev.	*1.1*	*22.0*	*1.0*	*58.2*	*11.3*	*573*
	Skúvoy	10	Min	6.1	13	1.7	43	14	180
			Max	20	26	3.5	95	24	380
			Mean	**11.3**	**20.6**	**2.9**	**67.7**	**18.0**	**273**
			Std.dev.	*3.6*	*4.6*	*0.6*	*14.8*	*3.2*	*75.4*

Table 4.6 Organochlorine pesticides in black guillemot eggs (µg/kg of lipids).

Year	Location	n		ß-HCH	alpha-chlor dane*	cis-nona chlor	hexa-chloro-benzene	mirex	oxy chlor dane	trans nona chlor
2002	Koltur	10	Min	12	0.4	24	98	19	31	15
			Max	37	2.1	54	250	49	60	29
			Mean	**23.1**	**1.0**	**38.2**	**157.8**	**32.8**	**41.2**	**19.5**
			Std.dev.	*9.0*	*0.6*	*10.2*	*51.2*	*8.2*	*8.3*	*4.8*
	Skúvoy	7	Min	7.5	0.4	39	94	20	34	15
			Max	15	1.6	85	220	52	60	32
			Mean	**11.5**	**1.0**	**56.3**	**142.6**	**36.7**	**45.0**	**23.0**
			Std.dev.	*2.9*	*0.4*	*16.6*	*47.4*	*12.1*	*10.2*	*7.2*
2006	Koltur	10	Min	7.8	0.40	6.7	75	17	10	4.9
			Max	16	2.60	140	220	65	65	59
			Mean	**12.4**	**0.71**	**31.2**	**126**	**31.6**	**31.2**	**14.0**
			Std.dev.	*2.6*	*0.67*	*39.2*	*40.9*	*14.7*	*16.3*	*16.1*
	Skúvoy	10	Min	10	0.25	19	89	27	21	9.7
			Max	16	1.10	41	150	43	44	22
			Mean	**12.3**	**0.71**	**29.3**	**117**	**34.7**	**30.3**	**13.6**
			Std.dev.	*1.8*	*0.28*	*7.0*	*16.5*	*5.5*	*7.09*	*3.7*

* Some individual analyses results were lower than the detection limit. When analytical data, reported as less than the detection limit, were used in calculations of the mean, half of the detection limit was used.

Toxaphene parlar no. 69, pp'-DDT and gamma-chlordane were either not detected in any of the samples, or the level in one single sample was recorded at a level just above the detection limit.

Of the eggs analysed at this time the POP concentrations are at the same level at both locations both years. When looking at all the analysed years (Figure 4.4) the levels vary, but there is an overall decreasing trend for the shown contaminants PCB, DDT, HCB and toxaphene, although not significant.

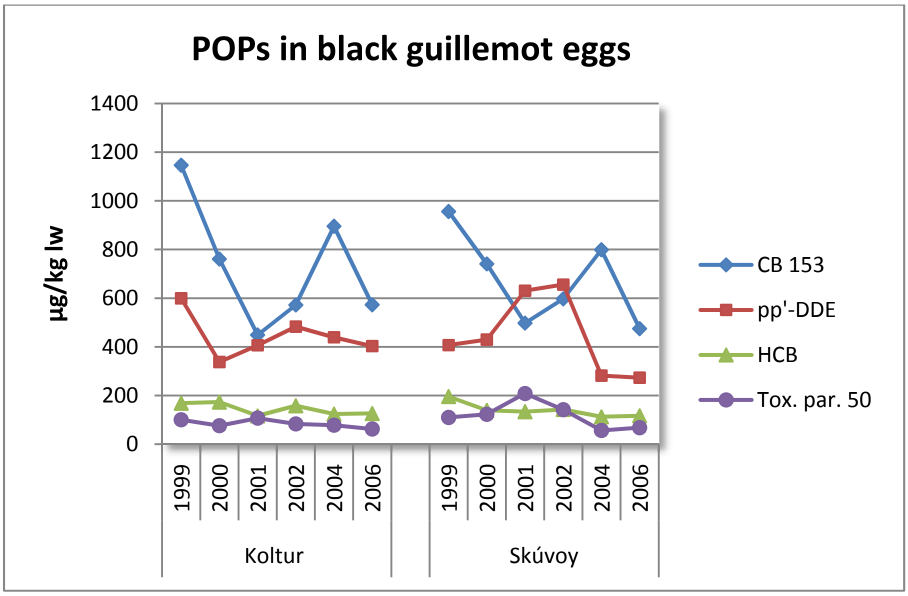

Figure 4.4 POPs in black guillemot eggs from 1999 to 2006

4.3 Cod

The cod livers from 2006 an 2007 were analysed for POPs and the mean results are shown in Table 4.7 to Table 4.9 and Figure 4.5. PCB results are shown as Aroclor, CB 153 and PCB 6. All individual POP results can be seen in Attachment 4.

Table 4.7 PCB in in cod liver (µg/kg of lipids).

Year	n		Aroclor 1260	CB 153	PCB 6*
2006	25	Min	150	19	45.5
		Max	1000	120	332
		Mean	**333**	**42.0**	**98.4**
		Std.dev.	*230*	*28.8*	*72.5*
2007	16	Min	140	18	45
		Max	650	82	184
		Mean	**252**	**32.5**	**75.5**
		Std.dev.	*116*	*14.7*	*32.1*

*CB 52 was not detected in any of the cod samples and since the detection limits were high, CB 52 was not included in the calculation. For other congeners (CB 28), half of the detection limit was used in the calculation of PCB 6, when results were reported as not detected.

Table 4.8 Toxaphen and DDT in cod liver (µg/kg of lipids).

Year	n		% Lipids	Parlar no. 26 (T2)	Parlar no. 32*	Parlar no. 50 (T12)	Parlar no. 62 (T20)	p,p'-DDE	p,p'-DDT
2006	25	Min	41	7.8	<0.1	17	3.4	26	1.7
		Max	62	60.0	1.5	120	15.0	220	36.0
		Mean	**53.3**	**14.3**	**0.8**	**28.5**	**5.8**	**56.9**	**4.9**
		Std.dev.	*7.15*	*12.94*	*0.47*	*25.8*	*3.14*	*52.7*	*8.64*
2007	16	Min	32	8.6	<0.2	13.0	3.3	25	<0.5
		Max	65	20.0	1.3	43.0	14.0	87	3.7
		Mean	**51.6**	**12.2**	**0.6**	**24.3**	**6.3**	**38.8**	**1.8**
		Std.dev.	*9.98*	*4.04*	*0.39*	*9.38*	*3.31*	*14.94*	*1.18*

*When results were reported as not detected half of the detection limit was used in the calculation of the mean.

Toxaphene parlar no. 69 was not detected in the cod samples.

Table 4.9 Organochlorine pesticides in cod liver (µg/kg of lipids).

Year	n		ß-HCH	alpha-chlor dane*	gamma -chlor dane	cis-nona chlor	hexa-chloro-benzene	mirex	oxy chlor dane	trans nona chlor
2006	25	Min	0.58	5.2	0.64	4.0	13	0.88	2.6	9.3
		Max	3.5	51.0	5.9	46.0	70.0	8.1	14.0	120
		Mean	**1.7**	**10.3**	**1.3**	**8.9**	**37.3**	**2.2**	**5.1**	**21.4**
		Std.dev.	*0.95*	*11.4*	*1.29*	*10.4*	*21.1*	*1.70*	*2.77*	*27.5*
2007	16	Min	<0.5	4.1	0.6	4.4	11.0	1.1	2.2	10.0
		Max	1.50	13.0	1.9	9.3	48.0	4.9	10.0	28.0
		Mean	**0.89**	**7.6**	**1.0**	**6.0**	**28.4**	**1.9**	**4.8**	**14.9**
		Std.dev.	*0.32*	*2.48*	*0.40*	*1.62*	*11.81*	*0.92*	*1.99*	*5.15*

The mean concentrations appear to be a little lower in 2007 than in 2006 but there are no significant differences between these.

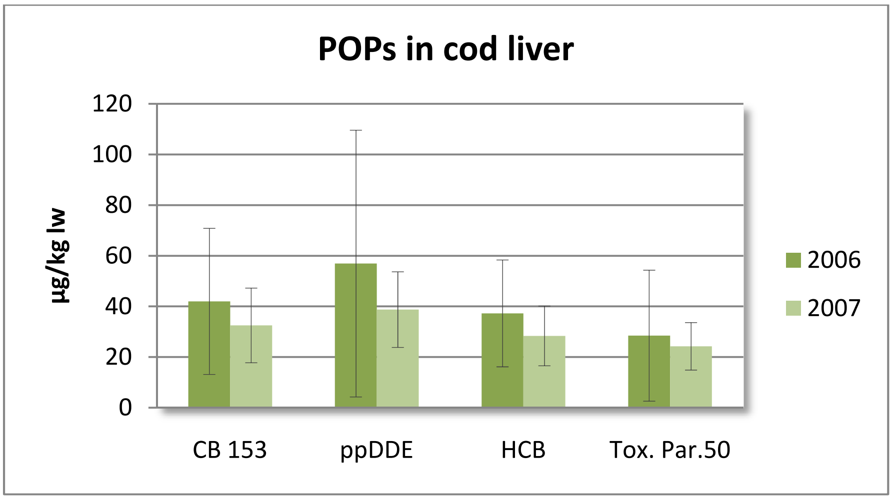

Figure 4.5 Selected POPs in cod liver from 2006 and 2007.

Some POPs have been analysed in cod from the Faroe shelf since 1994 (Figure 4.6) and the trend seems to be increasing although the mean levels vary. Statistical analyses (PIA, using power= 80% and alpha =5%) gives no clear picture, but concentration trends apparently vary randomly, with one exception only, CB 153, which increases significantly.

It is important to establish if PCB is related to cod length as it appears that the length of the cod monitored for PCB since 1994 is not constant, but varies somewhat between years and is on a decreasing trend. Regression analyses (linear) for CB 153 as dependent variable and length as the independent, on all cod PCB data in the period 1994 to 2007 grouped by year, showed that there is a significant relationship between PCB as CB 153 and fish length in 4 out of 7 years for which analyses can be done. With these results it is thus assumed that there is no significant correlation between length and CB 153 in general for these cod samples.

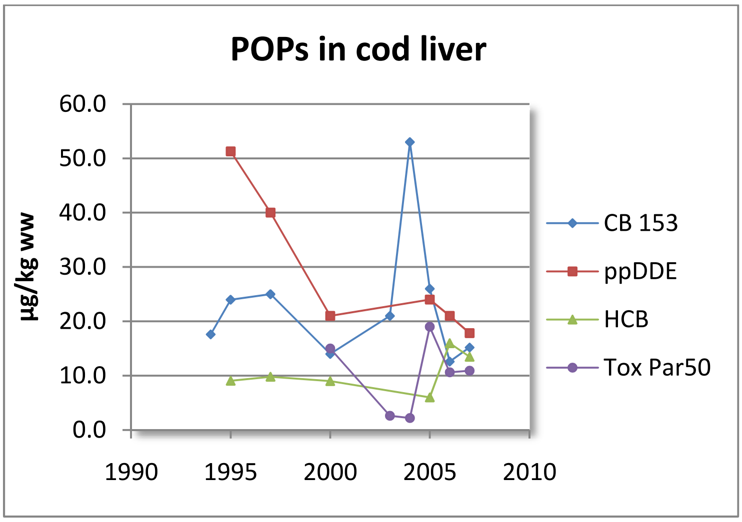

Figure 4.6 Median concentrations in µg/kg wet weight of selected POPs in cod liver from 1994 to 2007. The livers from 1997 were analysed as two pooled samples, and the livers from 1994 as one pooled sample.

4.4 Pilot whale

Pilot whale blubber was analysed for PCBs, DDTs, toxaphenes and other organochlorine pesticides.

4.4.1 PCB

The mean results of PCBs as Aroclor, CB 153 and PCB 7 are shown in Table 4.10 and Table 4.11. All the analysed PCB congeners are shown as individual results in Attachment 5.

Table 4.10 PCB in blubber from juvenile pilot whales from 2001 to 2007 (µg/kg of lipids).

	Age and sex group			Juveniles			
Year	**Date**	**n***		**Lipids %**	**Aroclor 1260**	**CB 153**	**PCB 7**
2001	06.07.01	8 (M=4, F=4)	Min	62	15000	1700	4959
			Max	83	78000	8700	24754
			Mean	**72.9**	**48375**	**5388**	**15872**
			Std.dev.	*8.1*	*22219*	*2477*	*7002*
2002	03.09.02	7 (M=6, F=1)	Min	63	13000	1400	4713
			Max	87	120000	13000	38610
			Mean	**77.1**	**40429**	**4414**	**13543**
			Std.dev.	*9.3*	*36069*	*3894*	*11381*
2003	03.08.03	11 (M=9, F=2)	Min	67	20000	2100	6457
			Max	85	70000	7200	20641
			Mean	**79.2**	**34182**	**3645**	**10548**
			Std.dev.	*4.9*	*15112*	*1572*	*4292*
2004	08.06.04	6 (M=2, F=4)	Min	59	18000	2000	6125
			Max	94	66000	6800	23470
			Mean	**81.0**	**39167**	**4100**	**13521**
			Std.dev.	*11.6*	*19354*	*1963*	*7080*
2006	28.08.06	15 (M=8, F=7)	Min	58	20000	2200	7043
			Max	83	86000	9200	27389
			Mean	**69.9**	**34000**	**3660**	**11784**
			Std.dev.	*7.9*	*17321*	*1831*	*5479*
	06.09.06	10 (M=7, F=3)	Min	74	13000	1400	4270
			Max	90	43000	4600	13744
			Mean	**83.4**	**21900**	**2390**	**7315**
			Std.dev.	*5.7*	*8962*	*949*	*2725*
2007	03.07.07	10 (M=6, F=4)	Min	67	9600	1100	2950
			Max	88	71000	7500	22074
			Mean	**77.2**	**26160**	**2830**	**8443**
			Std.dev.	*6.3*	*18064*	*1895*	*5591*
	13.07.07	11 (M=7, F=4)	Min	85	15000	1600	5054
			Max	99	38000	3900	12847
			Mean	**93.6**	**22545**	**2300**	**7351**
			Std.dev.	*3.64*	*7421*	*744*	*2491*

*M: males, F: females

The mean levels of PCB in the analysed whales show different trends for the different sex and age groups. Figure 4.7 shows the mean PCB 7 content in the analysed pilot whales from 2001 to 2007. The trend seems to be decreasing for juveniles and adult males and increasing for adult females. When analysing the time trend, parameters that can influence the concentration have to be taken into consideration. For pilot whales the length and age of the whales are important when looking at contaminants that can accumulate in the whale tissue. The age of pilot whales may be determined from teeth-analyses, however, the age is correlated to length until they reach maturity (Bloch et al., 1993b), which makes the juvenile whales the group of choice for analyses of possible trends in contaminants concentrations.

Table 4.11 PCB in blubber from adult pilot whales from 2001-2004 (µg/kg of lipids).

	Age and sex group			Adult females				Adult males			
Year	Date	n*		Lipids %	Aroclor 1260	CB 153	PCB 7	Lipids %	Aroclor 1260	CB 153	PCB 7
2001	06.07.01	F = 14 M = 3	Min	58	4500	520	1595	50	33000	3700	10533
			Max	87	27000	2900	9142	80	64000	7000	20260
			Mean	**76.5**	**13093**	**1460**	**4530**	**66.3**	**53000**	**5900**	**16815**
			Std.dev.	*7.6*	*7535*	*830.9*	*2580*	*15.2*	*17349*	*1905*	*5449*
2002	03.09.02	F = 10 M = 8	Min	62	4100	460	1462	40	38000	4200	12583
			Max	88	35000	3900	12034	82	140000	16000	44510
			Mean	**74.4**	**13280**	**1474**	**4631**	**67.8**	**61000**	**6763**	**20173**
			Std.dev.	*9.4*	*9807*	*1086*	*3343*	*12.9*	*33509*	*3884*	*10405*
2003	03.08.03	F = 10 M = 4	Min	65	11000	1300	3728	81	18000	1900	5714
			Max	84	61000	6600	17616	85	43000	4400	13589
			Mean	**78.8**	**31000**	**3320**	**9501**	**83.3**	**27000**	**2825**	**8579**
			Std.dev.	*6.3*	*17512*	*1791*	*5100*	*1.7*	*11576*	*1162*	*3595*
2004	08.06.04	F = 12 M = 7	Min	68	14000	1600	4709	69	15000	1600	5065
			Max	86	49000	5100	15542	91	53000	5900	18350
			Mean	**78.8**	**25333**	**2775**	**8542**	**81.4**	**32714**	**3614**	**11159**
			Std.dev.	*5.1*	*9670*	*1006*	*2990*	*7.2*	*15681*	*1780*	*5233*

*F: females, M: males

The mean concentration of CB 153 versus the mean length in the analysed groups of juveniles, for which length has been registered, is shown in Figure 4.8. The figure shows that schools from 2007 are among the groups with the largest mean length, and schools from 2001 and 2002 are among the groups with the smallest mean.

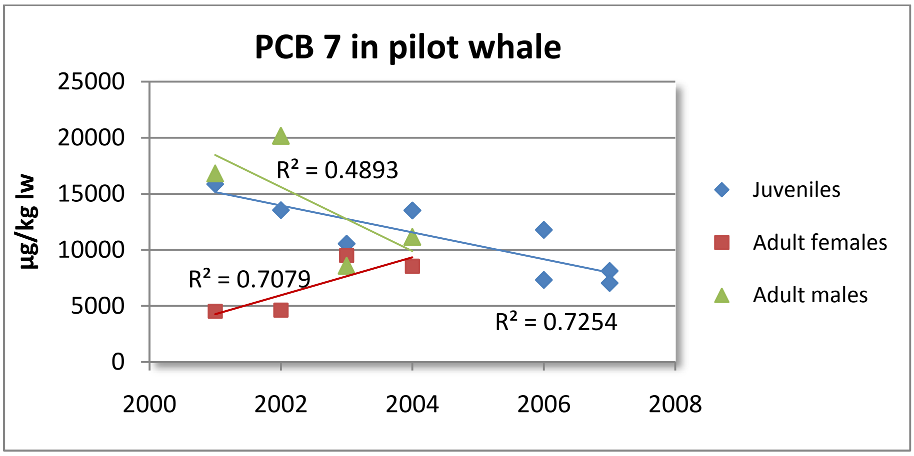

Figure 4.7 PCB 7 in pilot whale blubber from 2001 to 2007

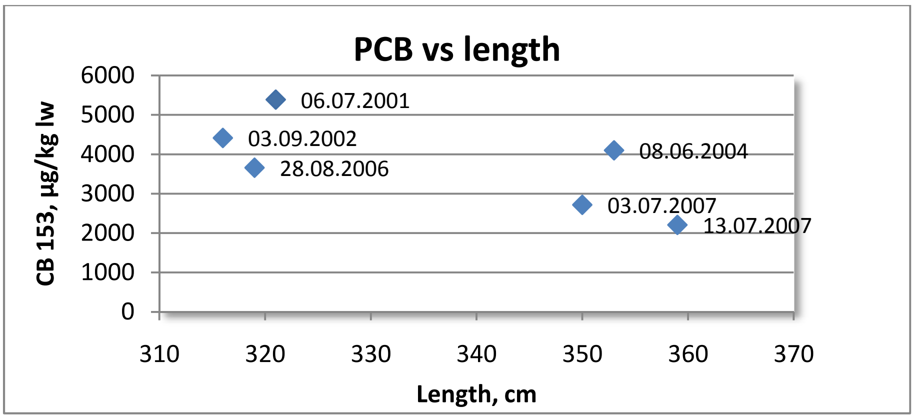

Figure 4.8 Mean concentration of CB 153 in blubber versus mean length of the analysed schools of juvenile pilot whales from 2001 to 2007.

4.4.2 DDT

DDT was analysed in blubber of juvenile and adult pilot whales from 2001 to 2004, and only in juveniles from 2006 and 2007. In 2001, 2002 and 2006 all metabolites of DDT were analysed[5], whereas in 2003, 2004 and 2007 only pp'-DDE and pp'-DDT were analysed. The mean results of pp'-DDE, pp'-DDT and sum DDT for the groups that have been analysed for all isomers and metabolites are shown in Table 4.12 and Table 4.13. All individual values are shown in Attachment 5.

Table 4.12 DDT in blubber from juvenile pilot whales from 2001-2007 (µg/kg of lipids)

	Age and sex group			Juveniles		
Year	**Date**	**n***		**p,p'-DDE**	**p,p'-DDT**	**sumDDT****
2001	06.07.01	8 (M=4, F=4)	Min	3700	680	5668
			Max	16000	1600	21020
			Mean	**9813**	**1278**	**13690**
			Std.dev.	*4353*	*357*	*5466*
2002	03.09.02	7 (M=6, F=1)	Min	3300	870	5266
			Max	17000	2200	23800
			Mean	**7614**	**1180**	**10951**
			Std.dev.	*4449*	*468*	*6017*
2003	03.08.03	11 (M=9, F=2)	Min	4900	590	-
			Max	26000	1800	-
			Mean	**10655**	**979**	-
			Std.dev.	*6160*	*328*	-
2004	08.06.04	6 (M=2, F=4)	Min	3000	400	-
			Max	6800	1100	-
			Mean	**5083**	**805**	-
			Std.dev.	*1599*	*251*	-
2006	28.08.06	15 (M=8, F=7)	Min	4000	650	6320
			Max	12000	1300	17350
			Mean	**6193**	**923**	**9269**
			Std.dev.	*2330*	*183*	*3164*
	06.09.06	10 (M=7, F=3)	Min	3300	380	4565
			Max	11000	1600	14894
			Mean	**5750**	**671**	**7717**
			Std.dev.	*2430*	*373*	*3172*
2007	03.07.07	10 (M=6, F=4)	Min	2300	210	-
			Max	17000	540	-
			Mean	**5480**	**427**	-
			Std.dev.	*4269*	*95.3*	-
	13.07.07	11 (M=7, F=4)	Min	3300	450	-
			Max	5500	680	-
			Mean	**4245**	**572**	-
			Std.dev.	*861*	*94.0*	-

*F: females, M: males
**Sum of pp'-DDT, pp'-DDE, pp'-DDD, op'-DDT, op'-DDE and op'-DDD

Figure 4.9 shows the mean values of pp'-DDE in the analysed pilot whales from 2001 to 2007. pp'-DDE is the DDT isomer found in highest concentrations in pilot whales blubber. Figure 4.10 shows the distribution of the different DDT isomers and metabolites in the pilot whales that were analysed for all metabolites and isomers. The figure shows that pp'-DDE represents the largest part of all isomers combined followed by pp'-DDT and then op'-DDT and pp'-DDD. op'-DDD and op'-DDE, on the other hand, make up only a very small percentage part of the DDTs. DDT is often reported as total DDT as the sum of the three p,p´-isomers plus o,p´-DDT. Total DDT of the pilot whales analysed for all DDT isomers and metabolites are shown in Figure 4.11.

[5] pp'-DDT,pp'-DDE, pp'-DDD, op'-DDT, op'-DDE and op'-DDD

Table 4.13 DDT in blubber from adult pilot whales from 2001-2007 (µg/kg of lipids)

	Age and sex group			Adult females			Adult males		
Year	**Date**	**n***		**p,p'-DDE**	**p,p'-DDT**	**sumDDT***	**p,p'-DDE**	**p,p'-DDT**	**sumDDT****
2001	06.07.01	F = 14 M = 3	Min	1000	380	1882	7500	920	10480
			Max	5600	900	8240	14000	1300	18630
			Mean	**3064**	**626**	**4748**	**11833**	**1107**	**15700**
			Std.dev.	*1615*	*189*	*2233*	*3753*	*190*	**4532**
2002	03.09.02	F = 10 M = 8	Min	1000	310	1640	9400	1200	12600
			Max	7400	980	10430	23000	2800	30760
			Mean	**3140**	**635**	**4747**	**12863**	**1650**	**17241**
			Std.dev.	*2010*	*244*	*2767*	*4327*	*499*	*5730*
2003	03.08.03	F = 10 M = 4	Min	3400	450	-	4400	450	-
			Max	26000	1100	-	13000	1400	-
			Mean	**9970**	**679**	**-**	**8475**	**813**	**-**
			Std.dev.	*6551*	*220*	-	*4176*	*412*	-
2004	08.06.04	F = 12 M = 7	Min	2600	380	-	2400	450	-
			Max	9600	830	-	7500	730	-
			Mean	**4817**	**576**	**-**	**5000**	**593**	**-**
			Std.dev.	*1771*	*129*	-	*1706*	*100*	-

*F: females, M: males
**Sum of pp'-DDT, pp'-DDE, pp'-DDD, op'-DDT, op'-DDE and op'-DDD

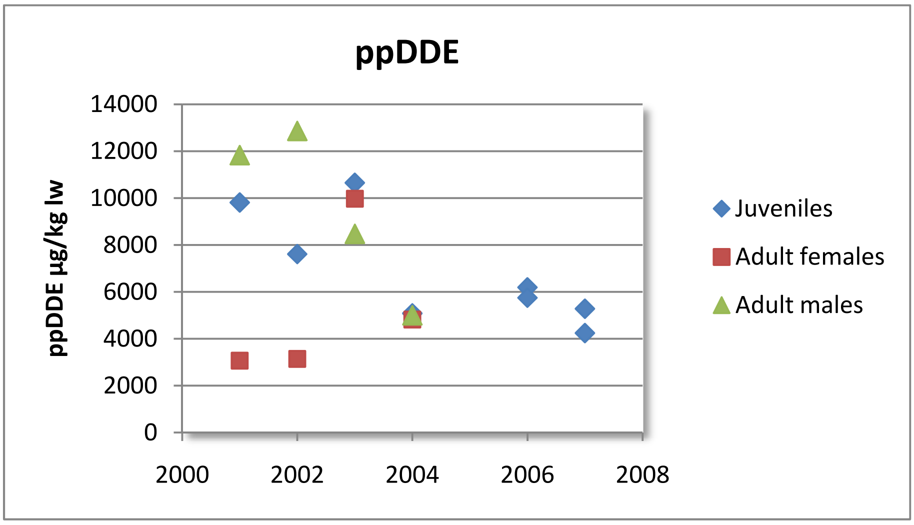

Figure 4.9 pp'-DDE in pilot whale blubber.

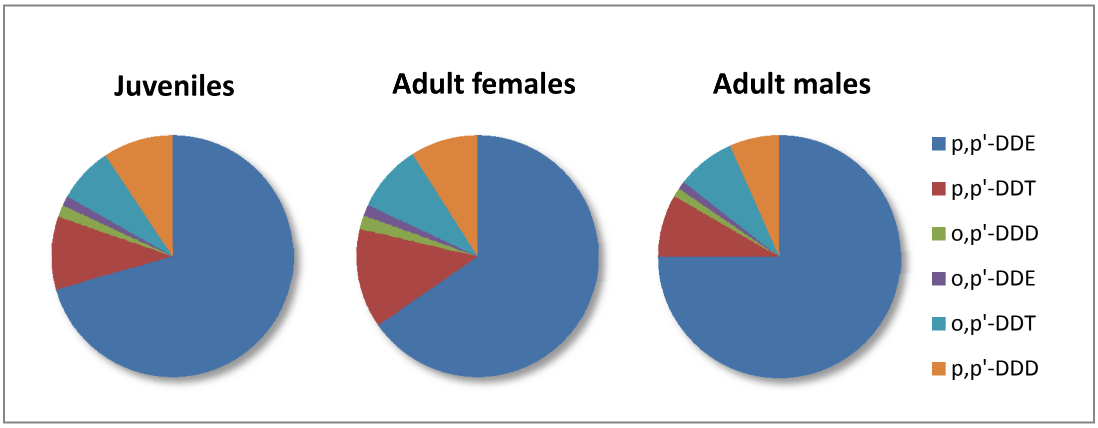

Figure 4.10 The mean distribution of DDT isomers and metabolites in pilot whale blubber, based on analyses of four pilot whale schools from 2001-2006. Juveniles: n=40, ad. females: n=24, ad. males: n=11.

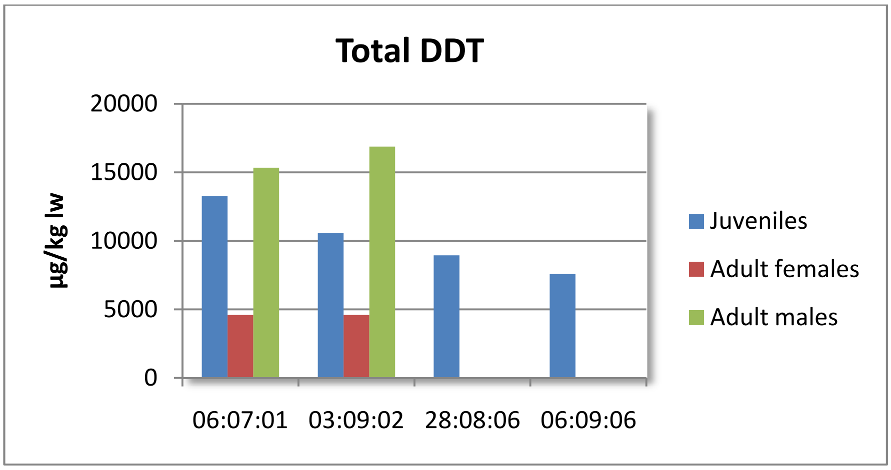

Figure 4.11 Total DDT in pilot whale blubber. Total DDT=Sum of pp'-DDE, pp'-DDT, pp'-DDD and op'-DDT.

4.4.3 Toxaphene

The mean results of toxaphene in pilot whale blubber are shown in Table 4.14. Individual results are found in Attachment 5.

Table 4.14 Toxaphene in blubber of juvenile pilot whales (µg/kg of lipids).

	Age and sex group			Juveniles				
Year	Date	n*		Par. no. 26	Par. no. 32	Par. no. 50	Par. no. 62	Par. no. 69
2001	06.07.01	8 (M=4, F=4)	Min	1000	4	1800	480	ND
			Max	4900	20	6500	1600	ND
			Mean	**3100**	**9.5**	**4575**	**821**	ND
			Std.dev.	*1407*	*5.2*	*1745*	*357*	ND
2002	03.09.02	7 (M=6, F=1)	Min	880	3.7	1600	280	ND
			Max	9600	26	15000	3100	ND
			Mean	**2754**	**8.0**	**4357**	**860**	ND
			Std.dev.	*3053*	*8.0*	*4747*	*993*	ND
2003	03.08.03	11 (M=9, F=2)	Min	1100	<1	1600	220	ND
			Max	3000	9.1	3500	800	ND
			Mean	**1745**	**3.08**	**2455**	**319**	ND
			Std.dev.	*582*	*2.72*	*635*	*163*	ND
2004	08.06.04	6 (M=2, F=4)	Min	1300	<0.9	1900	260	<2
			Max	4500	29	6600	1100	29
			Mean	**2850**	**13.0**	**4183**	**677**	**10.8**
			Std.dev.	*1265*	*11.5*	*1900*	*312*	*11.9*
2006	28.08.06	15 (M=8, F=7)	Min	1300	<0.9	2300	350	ND
			Max	5700	32	6700	1400	ND
			Mean	**2440**	**13.2**	**4000**	**744**	ND
			Std.dev.	*1153*	*8.5*	*1259*	*311*	ND
	06.09.06	10 (M=7, F=3)	Min	670	<1	1100	180	ND
			Max	3000	11	4600	980	ND
			Mean	**1337**	**6.4**	**2130**	**371**	ND
			Std.dev.	*743*	*3.5*	*1114*	*256*	ND
2007	03.07.07	10 (M=6, F=4)	Min	240	<0.7	420	84	ND
			Max	3300	3.9	3900	540	ND
			Mean	**1442**	**1.1**	**2102**	**277**	ND
			Std.dev.	*909*	*1.3*	*1066*	*133*	ND
	13.07.07	11 (M=7, F=4)	Min	780	<0.9	1300	210	<2
			Max	2300	3.4	3700	740	4.3
			Mean	**1245**	**0.7**	**1900**	**339**	**2.0**
			Std.dev.	*452*	*0.8*	*707*	*155*	*1.4*

*F: females, M: males

Table 4.15 Toxaphene in blubber of adult pilot whales (µg/kg of lipids).

	Age and sex group			Adult females					Adult males				
Year	Date	n*		Par. no. 26	Par. no. 32	Par. no. 50	Par. no. 62	Par. no. 69	Par. no. 26	Par. no. 32	Par. no. 50	Par. no. 62	Par. no. 69
2001	06.07.01	F=14 M=3	Min	220	2.7	440	180	ND	1800	5.8	2800	460	ND
			Max	1700	9	2500	560	ND	3100	7.5	4200	630	ND
			Mean	**792**	**5.2**	**1359**	**338**	ND	**2500**	**6.6**	**3567**	**537**	ND
			Std.dev.	*509*	*2.0*	*761*	*127*	ND	*656*	*0.9*	*709*	*86.2*	ND
2002	03.09.02	F=10 M=8	Min	180	3.1	390	130	ND	1900	4.9	2900	580	ND
			Max	1900	5.2	2900	500	ND	6900	10	11000	1600	ND
			Mean	**735**	**3.9**	**1293**	**302**	ND	**3050**	**6.1**	**4413**	**804**	ND
			Std.dev.	*537*	*0.6*	*796*	*120*	ND	*1635*	*1.8*	*2705*	*334*	ND
2003	03.08.03	F=10 M=4	Min	590	<1	840	110	ND	1100	<1	1600	200	ND
			Max	2300	5.7	3300	340	ND	2300	4.4	3300	400	ND
			Mean	**1415**	**2.05**	**1854**	**207**	ND	**1450**	**2.4**	**2025**	**273**	ND
			Std.dev.	*674*	*1.87*	*714*	*77.2*	ND	*574*	*1.6*	*850*	*95.0*	ND
2004	08.06.04	F=12 M=7	Min	780	<0.9	1300	240	<2	840	<1	1300	220	<2
			Max	2400	7.3	2700	370	34	3400	10	4800	700	24
			Mean	**1507**	**2.9**	**2117**	**310**	**6.2**	**1977**	**6.4**	**2743**	**400**	**7.7**
			Std.dev.	*397*	*2.6*	*417*	*42.6*	*10.8*	*902*	*3.0*	*1203*	*153*	*9.6*

*F: females, M: males

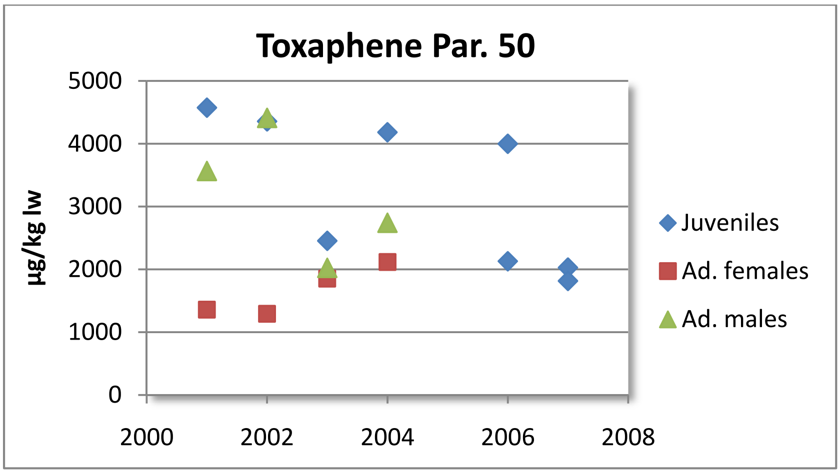

Figure 4.12 Toxaphene parlar 50 in pilot whale blubber from 2000 to 2007.

4.4.4 Chlordanes and other pesticides

Mean values of the analysed chlordanes and other organochlorinated pesticides are shown in Table 4.16 to Table 4.18. Individual results are found in Attachment 5.

Table 4.16 Chlordanes and other organochlorine pesticides in blubber from juvenile pilot whales (µg/kg of lipids).

Age and sex group				Juveniles							
Year	**Date**	**n***		**ß-HCH**	**alpha-chlor dane**	**gamma-chlor dane**	**cis-nona chlor**	**trans-nona chlor**	**hexa-chloro-benzene**	**mirex**	**oxy chlor dane**
2001	06.07.01	8 (M=4, F=4)	Min	23	310	11	460	1500	490	55	240
			Max	68	1200	75	2000	8600	1700	230	1400
			Mean	**54.8**	**640**	**28.6**	**1290**	**5013**	**1045**	**154**	**859**
			Std.dev.	*13.8*	*290*	*20.7*	*548*	*2497*	*388*	*58.8*	*428*
2002	03.09.02	7 (M=6, F=1)	Min	20	220	7.8	410	1200	410	110	200
			Max	120	2200	78	4000	12000	2500	400	2200
			Mean	**45.6**	**607**	**20.7**	**1211**	**3886**	**989**	**206**	**657**
			Std.dev.	*34.5*	*705*	*25.5*	*1247*	*3670*	*707*	*98*	*691*
2003	03.08.03	11 (M=9, F=2)	Min	21	150	4.2	440	1300	320	97	280
			Max	45	310	10	1000	3800	1400	240	780
			Mean	**29.9**	**225**	**5.95**	**672**	**2027**	**547**	**172**	**502**
			Std.dev.	*7.7*	*45.7*	*1.8*	*176*	*742*	*302*	*47.8*	*161*
2004	08.06.04	6 (M=2, F=4)	Min	27	250	7.2	510	1900	350	78	300
			Max	120	830	28	1500	5400	1600	200	1200
			Mean	**65.2**	**492**	**17.5**	**1008**	**3283**	**902**	**143**	**772**
			Std.dev.	*40.1*	*259*	*9.8*	*377*	*1541*	*514*	*50.2*	*349*
2006	28.08.06	15 (M=8, F=7)	Min	27	250	8.2	570	2000	430	100	360
			Max	120	820	50	2000	8200	2500	200	1300
			Mean	**54.5**	**525**	**24.1**	**1001**	**3513**	**1297**	**141**	**617**
			Std.dev.	*24.8*	*188*	*14.1*	*388*	*1658*	*601*	*30.6*	*271*
	06.09.06	10 (M=7, F=3)	Min	19	110	3.5	280	950	260	77	180
			Max	76	380	15	1100	2300	1600	280	1100
			Mean	**41.8**	**200**	**6.85**	**539**	**1545**	**805**	**123**	**415**
			Std.dev.	*18.5*	*79.9*	*3.3*	*252*	*383*	*481*	*61.3*	*300*
2007	03.07.07	10 (M=6, F=4)	Min	3.6	39	2.1	120	500	140	93	51
			Max	70	360	7.1	1000	5200	1600	180	890
			Mean	**27**	**201**	**3.8**	**545**	**1882**	**570**	**129**	**357**
			Std.dev.	*17.8*	*100*	*1.5*	*274*	*1280*	*408*	*31.8*	*239*
	13.07.07	11 (M=7, F=4)	Min	16	110	3.3	280	940	230	68	160
			Max	62	490	13	890	2700	1000	190	510
			Mean	**28.4**	**224**	**6.9**	**481**	**1589**	**447**	**108**	**285**
			Std.dev.	*11.7*	*98.43*	*3.2*	*164*	*524*	*197*	*38.2*	*104*

*F: females, M: males

Table 4.17 Chlordanes and other organochlorine pesticides in blubber from adult female pilot whales (µg/kg of lipids).

Age and sex group				Adult females							
Year	**Date**	**n**		**ß-HCH**	**alpha-chlor dane**	**gamma-chlor dane**	**cis-nona chlor**	**trans-nona chlor**	**hexa-chloro-benzene**	**mirex**	**oxy chlor dane**
2001	06.07.01	14	Min	5.5	81	9.8	120	360	100	68	49
			Max	50	360	21	740	2700	580	200	460
			Mean	**22.1**	**206**	**14.5**	**356**	**1226**	**376**	**112**	**192**
			Std.dev.	*13*	*100*	*3.5*	*204*	*744*	*168*	*44.8*	*132*
2002	03.09.02	10	Min	5	71	7.5	120	340	70	96	38
			Max	32	340	12	890	3100	580	270	500
			Mean	**15.5**	**184**	**10.2**	**364**	**1152**	**308**	**150**	**173**
			Std.dev.	*8.3*	*85.7*	*1.6*	*241*	*846*	*173*	*65.5*	*139*
2003	03.08.03	10	Min	9.7	77	3.4	240	910	120	100	140
			Max	40	250	8.8	800	3200	610	290	690
			Mean	**21.8**	**170**	**5.54**	**535**	**1912**	**341**	**181**	**377**
			Std.dev.	*10.9*	*52.4*	*2.13*	*222*	*940*	*158*	*62.6*	*203*
2004	08.06.04	12	Min	15	160	5.6	360	1300	370	79	170
			Max	52	320	11	770	3800	1200	230	550
			Mean	**31.6**	**236**	**8.2**	**557**	**2233**	**618**	**155**	**379**
			Std.dev.	*9.5*	*40.6*	*1.5*	*109*	*683*	*260*	*48.9*	*110*

Table 4.18 Chlordanes and other organochlorine pesticides in blubber from adult male pilot whales (µg/kg of lipids).

	Age and sex group			Adult males							
Year	**Date**	**n**		**ß-HCH**	**alpha-chlor dane**	**gamma-chlor dane**	**cis-nona chlor**	**trans-nona chlor**	**hexa-chloro-benzene**	**mirex**	**oxy chlor dane**
2001	06.07.01	3	Min	44	360	9.6	700	2800	400	120	430
			Max	63	520	19	1300	5600	590	260	780
			Mean	**51.3**	**427**	**14.2**	**1033**	**4133**	**500**	**207**	**617**
			Std.dev.	*10.2*	*83.3*	*4.7*	*306*	*1405*	*95.4*	*75.7*	*176*
2002	03.09.02	8	Min	26	360	16	870	3100	580	200	450
			Max	66	1100	35	2800	12000	1100	860	1200
			Mean	**37.3**	**560**	**20.3**	**1273**	**4825**	**769**	**378**	**613**
			Std.dev.	*13.2*	*231*	*6.3*	*634*	*2966*	*215*	*208*	*244*
2003	03.08.03	4	Min	19	160	5.4	410	1300	290	100	270
			Max	30	340	11	920	2900	980	270	630
			Mean	**24.5**	**215**	**7.3**	**570**	**1950**	**528**	**160**	**380**
			Std.dev.	*4.7*	*84.3*	*2.58*	*236*	*681*	*321*	*76.2*	*168*
2004	08.06.04	7	Min	27	210	8.2	320	1100	420	51	210
			Max	99	710	23	1300	4900	1500	260	730
			Mean	**44.6**	**334**	**12.9**	**730**	**2957**	**817**	**143**	**494**
			Std.dev.	*26.9*	*181*	*4.8*	*352*	*1426*	*356*	*69.4*	*199*

The chlordanes and the other organochlorine pesticides in this section that were found in highest concentrations were cis-nonachlor, trans-nonachlor and hexachlorobenzene (Figure 4.13 to Figure 4.15)

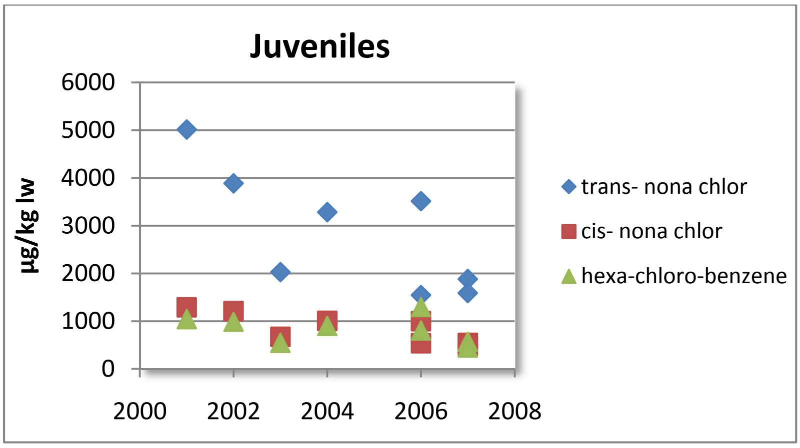

Figure 4.13 Selected pesticides analysed in blubber of juvenile pilot whales.

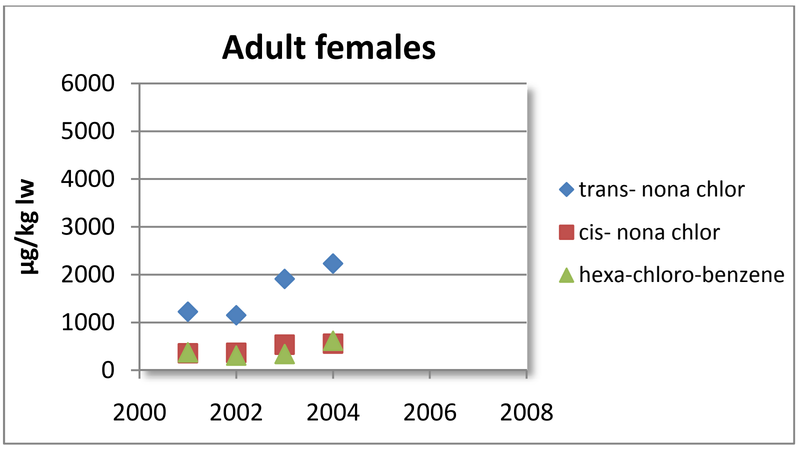

Figure 4.14 Selected pesticides analysed in blubber of adult female pilot whales.

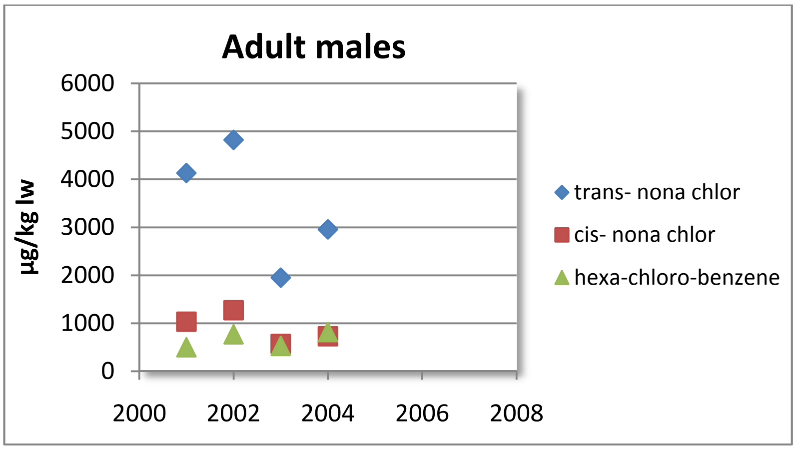

Figure 4.15 Selected pesticides analysed in blubber of adult male pilot whales.

4.4.5 Discussion of the POP results in pilot whales

POPs have been analysed in both juvenile and adult pilot whales until 2004, but only in juveniles in 2006 and 2007. Juvenile pilot whales have shown to be more suitable for detecting a trend in the Hg concentration (Dam and Riget, 2006) probably partly due to the more simple length to age relationship, which enables comparison between years for predefined whale size groups.
The POPs analysed in pilot whales generally show the same trends; the levels in juveniles and adult males appear to be decreasing whereas the level in adult females is increasing. The level in females is generally found to be lower than in males and also than in juveniles. This is due to the excretion of accumulated lipid soluble compounds to the offspring with lactation. The apparent decrease in the POP levels of juveniles and adult males would be in line with similar observations - although not on the same species - in for instance the Baltic sea. The increase in adult females at the same time is however puzzling, but could be connected to changes in the breeding behaviour of the whales such as lowered birth frequency which would lead to a lesser excretion and thus higher accumulation in the adult females. More investigations for instance to shed light on possible changes in population demographics are needed before such conclusions can be made.

4.5 Mountain hare

The 15 hares were analysed as 5 individual samples and 2 pooled samples of 5 individuals each. The samples were analysed for seven PCBs, DDTs, HCB and β-HCH. The results are shown below in lipid weight. The results from the laboratory were given in wet weight and are shown in Attachment 6.

Table 4.19 POPs in hare liver from 2004 (µg/kg of lipids).

ID	Sample ID	Lipids %	CB 153	PCB 7	pp'-DDE	pp'-DDT	SUM DDT*	hexa-chloro benzene	ß-HCH
Lt-0051	Lt-0051	1.43	0.62	28.67	<7.0	<7.0	69.2	52.45	<7.0
Lt-0053	Lt-0053	1.12	1.79	9.82	13.39	34.82	133.9	16.96	<8.9
Lt-0054	Lt-0054	1.68	1.43	10.12	5.95	11.31	54.8	27.98	<6.0
Lt-0058	Lt-0058	1.47	1.56	65.99	8.16	10.20	51.0	27.21	<6.8
Lt-0059	Lt-0059	2.32	0.32	12.50	<4.3	7.33	28.5	10.34	<4.3
Lt-0052, Lt-0057, Lt-0061, Lt-0062, Lt-0063	Lt-2004-1	1.17	3.27	64.33	<5.8	8.19	39.2	23.98	<5.8
Lt-0055, Lt-0056, Lt-0060, Lt-0064, Lt-0065	Lt-2004-2	1.48	1.69	40.54	<6.8	9.46	39.9	26.35	<6.8
	Mean	**1.52**	**1.53**	**33.14**			**59.5**	**26.47**	
	Mean LB				3.93	11.62	56.8		0.00
	Mean UB				7.35	12.61	62.2		6.51

*Sum DDT: pp'-DDT + op'-DDT + pp'-DDE + pp'-DDD. When values reported as lower than the detection limit were used in calculations of Sum DDT half of the detection limit was used.
LB: Lower bound values. Not detected values have been set to be 0 in calculations.
UB: Upper bound values. Not detected values have been set to be the equal to the detection limit in calculations.

β-HCH was not detected in any of the hare samples.

In 2001 the mean HCB concentration was 33.8 µg/kg of lipids but given that this included an outlier male with an HCB concentration of 208 µg/kg of lipids, it is more pertinent to look at the median of 25 µg/kg. The median HCB concentration in 2004 was 26 µg/kg, and thus the level of hexachlorobenzene in 2004 was very similar to that in 2001 (Hoydal et al., 2003). The levels of PCBs and DDTs were below detection limits in 2001. The 2004 and 2001 samples were however not analysed at the same laboratory, leading to considerably lower detection limits in 2004 than in 2001 samples where the DDTs and PCBs were largely undetected, and between year comparison is not feasible.

4.6 Arctic char

Arctic char from 2002, 2005 and 2007 were analysed for POPs and the mean results are shown in Table 4.20 and Table 4.21. Individual results are given in Attachment 7.

Table 4.20 PCB in Arctic char muscle (µg/kg of lipids).

Year	n		Lipids %	Aroclor 1260 µg /kg of lipids	CB 153 µg/kg of lipids	PCB 6* µg/kg of lipids
2002	20	Min	0.6	53.0	5.9	17.4
		Max	13.0	760	95.0	231.5
		Mean	**3.2**	**408**	**50.3**	**132.1**
		Std. dev.	*3.4*	*225*	*28.6*	*71.3*
2005	20	Min	0.5	100	11.0	40.7
		Max	4.4	880	100.0	298.0
		Mean	**2.3**	**422**	**47.9**	**142.5**
		Std. dev.	*1.0*	*245*	*28.4*	*77.6*
2007	13	Min	0.8	79.0	8.8	27.8
		Max	2.5	670	71.0	197.0
		Mean	**1.4**	**445**	**50.9**	**140.4**
		Std. dev.	*0.6*	*168*	*19.7*	*50.0*

*CB 52 was not detected in any of the Arctic char samples and as the detection limits were high, CB 52 was not included in the calculation. For other congeners, when results were reported as not detected, half of the detection limit was used in the calculation of PCB 6.

Table 4.21 Organochlorine pesticides in Arctic char muscle (µg/kg of lipids).

Year	n		pp' -DDE	alpha-chlor dane*	cis-nona chlor*	hexa-chloro benzene	Mirex*	oxy chlor dane*	trans-nona chlor	Toxaphene Parlar no. 26 (T2) *	Toxaphene Parlar no. 50 (T12)
2002	20	Min	9.1	1.40	1.00	5.9	0.10	0.93	2.5	1.3	3.2
		Max	99.0	8.40	8.50	39.0	5.30	5.80	21.0	8.3	20.0
		Mean	**61.6**	**5.51**	**4.73**	**23.6**	**1.83**	**3.32**	**11.8**	**5.0**	**12.0**
		Std. dev.	*28.8*	*1.90*	*2.16*	*6.9*	*1.43*	*1.09*	*5.1*	*1.8*	*4.3*
2005	20	Min	22.0	1.5	1.0	19.0	0.35	0.50	4.8	<3	3.5
		Max	170.0	14.0	13.0	110.0	4.90	5.80	32.0	14.0	33.0
		Mean	**65.0**	**4.60**	**3.55**	**51.9**	**2.18**	**2.73**	**10.2**	**4.49**	**10.2**
		Std. dev.	*36.5*	*2.67*	*2.76*	*31.7*	*1.19*	*1.04*	*6.3*	*2.81*	*6.5*
2007	13	Min	13.0	2.30	1.40	9.7	1.10	2.10	3.50	1.9	5.2
		Max	79.0	7.00	7.00	35.0	2.70	4.50	17.0	6.6	18.0
		Mean	**47.5**	**4.19**	**3.96**	**17.7**	**2.07**	**3.11**	**9.08**	**4.13**	**10.1**
		Std. dev.	*16.4*	*1.62*	*1.55*	*6.6*	*0.55*	*0.80*	*3.77*	*1.59*	*4.6*

* Some individual analyses results were lower than the detection limit. When analytical data reported as lower than the detection limit were used in calculations of the mean value, half of the detection limit was used.

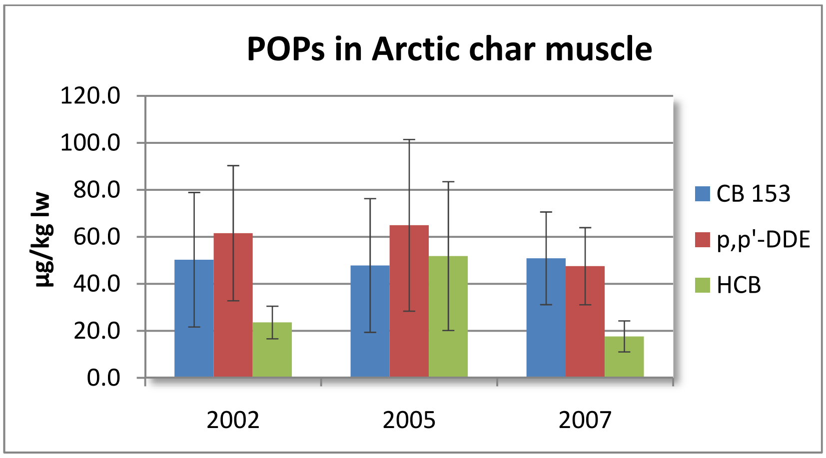

Figure 4.16 Mean levels and standard deviations of CB-153, pp'-DDE and HCB in Arctic char muscle.

POPs in Arctic char appear to be at the same level from 2002 to 2007, except for hexachlorobenzene which is at the same level in 2002 and 2007 but is significantly higher in 2005 (ANOVA p=0.000).

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Attachments

Attachment 1: Short-horn sculpin

Species	ID	Date	Location	Length, cm	Weight, g	Gender	Liver, g	% moisture liver	Hg, µg/g dw liver	Cd, µg/g dw liver	Se, µg/g dw liver	Dry matter liver, g/100 g	Hg, µg/g ww liver	Cd, µg/g ww liver	Se, µg/g ww liver
Myoxocephalus scorpius	Ms-0115	15.01.02	Kaldbak	28	488	F	23.69	70	3.4	1.2	3.9	30	1.02	0.36	1.17
Myoxocephalus scorpius	Ms-0116	15.01.02	Kaldbak	29	374	M	8.24	68	9.8	3.0	6.0	32	3.14	0.96	1.92
Myoxocephalus scorpius	Ms-0117	15.01.02	Kaldbak	30	536	F	27.98	63	3.3	0.4	3.7	37	1.22	0.16	1.37
Myoxocephalus scorpius	Ms-0118	16.01.02	Kaldbak	28	438	F	20.88	73	4.2	2.0	4.1	27	1.13	0.54	1.11
Myoxocephalus scorpius	Ms-0119	16.01.02	Kaldbak	32	520	F	7.88	69	5.6	8.2	7.4	31	1.74	2.54	2.29
Myoxocephalus scorpius	Ms-0109	11.07.02	Kaldbak	31	600		13.34	65	1.1	5.7	4.6	35	0.39	2.00	1.61

PCBs in sculpin livers (µg/kg of lipids)

ID	PCB Aroclor 1260	CB 28	CB 52	CB 99	CB 101	CB 105	CB 118	CB 128	CB 138	CB 153	CB 156	CB 163	CB 170	CB 180	CB 183	CB 187
Ms-0115	5700	<20	<200	120	<6	68	240	64	420	680	38	24	70	250	33	16
Ms-0116	7800	<22	<220	82	<6.5	75	270	98	630	880	60	20	140	520	60	2.8
Ms-0117	5300	33	<89	100	<2.7	63	200	67	400	620	38	41	91	290	38	7.7
Ms-0118	2000	<31	<310	48	<9.4	28	92	26	160	230	15	11	24	79	11	<3.1
Ms-0119	9500	<71	<710	120	<21	110	360	150	830	990	75	12	170	560	65	<7.1
Ms-0109	890	<8.2	<82	13	<2.5	12	34	12	66	110	6.8	6.9	14	43	4.7	<0.82

Organochlorinated pesticides and toxaphene in sculpin livers (µg/kg of lipids)

ID	% of Lipids	Alpha chlor dane	Cis-nona chlor	Trans-nona chlor	Gamma-chlor dane	Hexa chloro benzene	Mirex	Oxychlor dane	ß-HCH	p,p'-DDE	p,p'-DDT	Toxa phene Parlar no. 26	Toxa phene Parlar no. 32	Toxa phene Parlar no. 50	Toxa phene Parlar no. 62	Toxa phene Parlar no. 69
Ms-0115	5	6.2	82	120	<2	34	15	49	<6	1000	29	45	<2	78	21	<4
Ms-0116	4.5	<2.2	55	71	<2.2	98	29	43	<6.5	1100	<6.5	19	<2.2	19	<4.3	<4.3
Ms-0117	11	7.5	110	170	<0.89	58	31	76	<2.7	1300	78	93	<0.89	180	<1.8	<1.8
Ms-0118	3.1	<3.1	21	23	<3.1	85	4	25	<9.4	300	<9.4	8.2	<3.1	12	<6.3	<6.3
Ms-0119	1.4	<7.1	67	47	<7.1	66	40	34	<21	1300	<21	19	<7.1	15	<14	<14
Ms-0109	12	<0.82	12	21	<0.82	73	3	14	<2.5	130	<2.5	8.6	<0.82	8.2	<1.6	<1.6

Attachment 2: Black guillemot eggs

Species	ID	Location	Sampling date	Tissue	Full weight, g	Egg height, mm	Egg breadth, mm	Weight, yolk and white, g	Weight, shell, g	Egg shell thickness, mm separate readings, measured as near as equator as possible				Mean egg shell thickness	Hg, mg/kg ww
Cepphus grylle	Cg-0230	Koltur	June 2002	Egg	50.99	58	40	43.92	7.07	0.325	0.322	0.321	0.32	0.322	0.588
Cepphus grylle	Cg-0231	Koltur	June 2002	Egg	48	61.5	39.5	42.67	5.07	0.32	0.32	0.32	0.33	0.323	0.342
Cepphus grylle	Cg-0232	Koltur	June 2002	Egg	46.98	58.7	38	40.55	6.3	0.33	0.33	0.322	0.33	0.328	0.33
Cepphus grylle	Cg-0233	Koltur	June 2002	Egg	46.9	57	38.6	40.96	5.93	0.375	0.37	0.37	0.365	0.370	0.29
Cepphus grylle	Cg-0234	Koltur	June 2002	Egg	44.03	61	38	39.69	4.19	0.32	0.33	0.33	0.33	0.328	0.389
Cepphus grylle	Cg-0235	Koltur	June 2002	Egg	45.42	59	39	40.76	4.48	0.34	0.339	0.335	0.35	0.341	0.898
Cepphus grylle	Cg-0236	Koltur	June 2002	Egg	48.69	55	40.3	42.64	5.9	0.33	0.335	0.33	0.33	0.331	0.377
Cepphus grylle	Cg-0237	Koltur	June 2002	Egg	46.49	57	39	40.58	5.91	0.32	0.35	0.36	0.36	0.348	0.328
Cepphus grylle	Cg-0238	Koltur	June 2002	Egg	37.49	55	37.3	33.66	3.729	0.325	0.32	0.32	0.32	0.321	0.385
Cepphus grylle	Cg-0239	Koltur	June 2002	Egg	45.72	58.6	40	40.96	4.75	0.31	0.31	0.305	0.31	0.309	0.455
Cepphus grylle	Cg-0240	Skúvoy	June 2002	Egg	44.8	56	39.4	38.77	5.06	0.353	0.385	0.36	0.343	0.360	0.43
Cepphus grylle	Cg-0241	Skúvoy	June 2002	Egg	45.56	58	39.7	39.35	5.0	0.315	0.315	0.315	0.312	0.314	0.42
Cepphus grylle	Cg-0242	Skúvoy	June 2002	Egg	44.15	56.7	39	38	5.82	0.325	0.32	0.321	0.32	0.322	0.3
Cepphus grylle	Cg-0243	Skúvoy	June 2002	Egg	44.56	59	39	40.22	4.34	0.32	0.325	0.33	0.323	0.325	0.367
Cepphus grylle	Cg-0244	Skúvoy	June 2002	Egg	45.18	58.9	38.6	41.46	4.2	0.305	0.302	0.303	0.301	0.303	0.379
Cepphus grylle	Cg-0245	Skúvoy	June 2002	Egg	45.71	58.7	40	40.37	4.76	0.325	0.322	0.325	0.325	0.324	0.269
Cepphus grylle	Cg-0246	Skúvoy	June 2002	Egg	41.92	56.8	37.4	37.22	4.61	0.33	0.33	0.328	0.325	0.328	0.317

Species	ID	Location	Sampling date	Tissue	Full weight, g	Egg height, mm	Egg breadth, mm	Weight, yolk and white, g	Weight, shell, g	Egg shell thickness, mm separate readings, measured as near as equator as possible				Mean egg shell thickness	Hg, mg/kg ww	Dry matter, g/100g
Cepphus grylle	Cg-0280	Koltur	7. June 2006	Egg	47.51	58	38.5	41.84	5.67	0.312	0.331	0.331	0.33	0.326	0.315	25.9
Cepphus grylle	Cg-0281	Koltur	7. June 2006	Egg	43.7	56	38.2	39.05	4.65	0.36	0.355	0.365	0.32	0.350	0.223	
Cepphus grylle	Cg-0282	Koltur	7. June 2006	Egg	40.73	55	37.2	35.08	5.65	0.343	0.31	0.318		0.324	0.267	
Cepphus grylle	Cg-0283	Koltur	12. June 2006	Egg	43.44	52.3	39	37.96	5.48	0.304	0.305	0.295		0.301	0.584	26
Cepphus grylle	Cg-0284	Koltur	12. June 2006	Egg	48.65	56.5	40	44.24	4.41	0.365	0.308	0.373	0.368	0.354	0.402	28.1
Cepphus grylle	Cg-0285	Koltur	12. June 2006	Egg	49.4	57	39.5	42.51	6.89	0.332	0.331	0.337		0.333	1.31	28.3
Cepphus grylle	Cg-0286	Koltur	12. June 2006	Egg	48.96	62.5	39	43.71	5.25	0.35	0.36	0.35	0.363	0.356	0.295	27.2
Cepphus grylle	Cg-0287	Koltur	12. June 2006	Egg	44.74	56.5	39	40.57	3.77	0.359	0.359	0.373	0.36	0.363	0.234	26.3
Cepphus grylle	Cg-0288	Koltur	12. June 2006	Egg	49.83	60	39.5	44.39	5.44	0.373	0.387	0.383		0.381	0.395	25.4
Cepphus grylle	Cg-0289	Koltur	12. June 2006	Egg	47.87	55	39.5	41.85	6.02	0.396	0.372	0.353	0.378	0.375	0.306	26.9
Cepphus grylle	Cg-0290	Skúvoy	June 2006	Egg	49.88	58	40.0	44.28	5.6	0.309	0.303	0.315	0.309	0.309	0.52	27.3
Cepphus grylle	Cg-0291	Skúvoy	June 2006	Egg	50.62	58.3	40.0	44.15	6.47	0.335	0.34	0.35		0.342	0.378	31.9
Cepphus grylle	Cg-0292	Skúvoy	June 2006	Egg	45.42	58	38.5	39.86	5.56	0.353	0.353	0.355		0.354	0.867	25
Cepphus grylle	Cg-0293	Skúvoy	June 2006	Egg	44.62	58	38.5	40.13	4.49	0.319	0.319	0.322		0.320	0.926	28.7
Cepphus grylle	Cg-0294	Skúvoy	June 2006	Egg	44.45	52	41	40.09	4.36	0.324	0.326	0.323		0.324	0.632	15.8
Cepphus grylle	Cg-0295	Skúvoy	June 2006	Egg	49.49	57.5	40.5	44.09	5.4	0.325	0.33	0.335		0.330	0.569	28
Cepphus grylle	Cg-0296	Skúvoy	June 2006	Egg	42.2	52.7	39	37.13	5.07	0.322	0.34	0.342	0.342	0.337	0.374	27.2
Cepphus grylle	Cg-0297	Skúvoy	June 2006	Egg	50.95	59.5	41	46.37	4.58	0.34	0.35	0.35		0.347	0.896	30.2
Cepphus grylle	Cg-0298	Skúvoy	June 2006	Egg	44.5	56	39.5	39.97	4.53	0.365	0.358	0.368		0.364	1.25	27.9
Cepphus grylle	Cg-0299	Skúvoy	June 2006	Egg	44.88	59	40.5	40.42	4.46	0.348	0.349	0.35		0.349	0.925	17.2

PCBs in black guillemot eggs from 2002 (µg/kg of lipids)

ID	Location	% of Lipids	PCB Aroclor 1260	CB 28	CB 52	CB 99	CB 101	CB 105	CB 118	CB 128	CB 138	CB 153	CB 156	CB 163	CB 170	CB 180	CB 183	CB 187
Cg-0230	Koltur	7.8	3900	<12	<120	55	17	34	110	36	230	530	29	32	77	210	33	53
Cg-0231	Koltur	8.4	4500	11	<110	73	17	52	160	42	230	640	42	32	90	250	35	68
Cg-0232	Koltur	8.5	4000	9.4	<82	57	10	41	120	34	200	580	36	30	82	230	32	65
Cg-0233	Koltur	9.2	5600	15	<110	71	18	51	160	55	320	750	49	51	130	350	54	120
Cg-0234	Koltur	9.9	3500	<9.7	<97	52	13	40	120	32	180	490	33	24	71	190	27	52
Cg-0235	Koltur	11	4400	12	<88	64	17	40	130	39	240	610	36	35	88	240	37	64
Cg-0236	Koltur	8.8	4400	13	<110	61	11	40	130	37	240	600	36	34	89	240	38	77
Cg-0237	Koltur	7.4	4700	14	<110	64	16	42	130	45	270	630	40	41	110	280	44	98
Cg-0238	Koltur	13	3100	<7.5	<75	47	41	34	110	32	180	410	24	33	54	140	25	56
Cg-0239	Koltur	9.3	3400	<11	<110	50	13	31	100	28	180	480	26	26	66	190	30	52
Cg-0240	Skúvoy	9.9	2900	<9.3	<93	44	18	28	95	29	180	380	20	30	51	140	25	51
Cg-0241	Skúvoy	9.1	3800	<10	<100	70	21	40	130	39	240	500	26	39	61	170	32	70
Cg-0242	Skúvoy	9.3	6900	12	<94	110	40	70	230	72	440	890	49	74	120	310	60	130
Cg-0243	Skúvoy	10	3200	<8.6	<86	50	19	32	110	33	200	420	22	36	54	150	28	60
Cg-0244	Skúvoy	10	4900	<9.5	<95	81	44	51	170	50	310	640	34	55	83	240	42	91
Cg-0245	Skúvoy	11	5000	<7.8	<78	81	37	49	170	54	320	640	35	54	87	240	42	91
Cg-0246	Skúvoy	9.5	5500	<9.3	<93	87	60	57	180	57	350	710	40	64	97	260	47	110

PCBs in black guillemot eggs from 2006 (µg/kg of lipids)

ID	Location	% of Lipids	PCB Aroclor 1260	CB 28	CB 52	CB 99	CB 101	CB 105	CB 118	CB 128	CB 138	CB 153	CB 156	CB 163	CB 170	CB 180	CB 183	CB 187
Cg-0280	Koltur	8.5	3400	<9	<90	45	9.7	26	87	23	180	480	24	20	63	200	28	49
Cg-0281	Koltur	9.7	2800	<10	<100	35	5.1	26	87	23	170	360	18	21	50	130	22	49
Cg-0282	Koltur	9.9	2600	<9	<90	35	9.2	23	72	15	99	400	24	11	60	200	25	37
Cg-0283	Koltur	8.8	6000	<10	<100	82	9.9	40	150	40	340	810	37	45	120	350	58	91
Cg-0284	Koltur	11	2000	<6	<60	25	4.6	15	50	13	100	280	15	11	37	120	16	30
Cg-0285	Koltur	9.5	17000	21	<100	330	130	170	590	180	1300	2000	98	140	240	650	160	270
Cg-0286	Koltur	12	1600	<8	<80	18	<2	11	37	9.1	66	230	13	6.4	33	110	13	20
Cg-0287	Koltur	9	4200	<10	<100	62	7.4	36	120	32	250	570	26	31	72	210	34	60
Cg-0288	Koltur	10	2700	<10	<100	37	5.4	21	70	18	140	390	19	16	49	150	22	40
Cg-0289	Koltur	8.4	1400	<10	<100	16	<3	9.5	33	7.4	59	210	12	5.8	30	100	12	20
Cg-0290	Skúvoy	9.9	4300	<8	<80	57	10	37	120	45	240	600	27	27	72	220	38	64
Cg-0291	Skúvoy	8.2	2900	<10	<100	41	7.3	25	82	30	160	400	20	17	49	150	24	41
Cg-0292	Skúvoy	13	2900	<5	<50	37	5.1	24	80	29	170	400	18	14	49	150	25	37
Cg-0293	Skúvoy	11	2400	<7	<70	27	6.3	17	58	21	120	350	17	11	39	140	21	30
Cg-0294	Skúvoy	6.1	2900	<10	<100	41	8.1	23	80	28	160	400	19	17	47	150	24	39
Cg-0295	Skúvoy	11	3400	<8	<80	48	20	29	96	34	200	460	21	21	55	170	29	52
Cg-0296	Skúvoy	11	3700	<7	<70	48	14	30	100	35	190	520	25	22	59	190	32	54
Cg-0297	Skúvoy	11	4000	<4	<40	55	11	34	120	42	230	530	24	28	62	190	33	54
Cg-0298	Skúvoy	12	3700	<5	<50	52	7.7	32	110	38	210	510	24	23	58	180	30	47
Cg-0299	Skúvoy	20	4300	5.9	<40	62	11	38	130	47	250	580	26	29	67	200	38	67

Organochlorinated pesticides and toxaphene in black guillemot eggs from 2002 (µg/kg of lipids)

ID	% of Lipids	Alpha-chlordane	Cis-nonachlor	Gamma-chlordane	Hexachlorobenzene	Mirex	Oxychlordane	p,p'-DDE	p,p'-DDT	ß-HCH	Trans-nonachlor	Toxaphene Parlar no. 26	Toxaphene Parlar no. 32	Toxaphene Parlar no. 50	Toxaphene Parlar no. 62	Toxaphene Parlar no. 69
Cg-0230	7.8	1.8	30	1.2	130	31	36	370	<3.7	14	15	21	4.8	69	14	<2.4
Cg-0231	8.4	1.4	54	<1.1	220	37	60	550	<3.4	37	25	42	7	130	29	<2.3
Cg-0232	8.5	<0.82	34	<0.82	250	32	44	490	<2.5	31	15	23	3.7	74	17	<1.6
Cg-0233	9.2	<1.1	51	<1.1	190	49	46	640	<3.2	31	23	29	6.4	95	27	<2.1
Cg-0234	9.9	1.1	42	<0.97	170	30	45	440	<2.9	29	20	31	5.5	97	21	<1.9
Cg-0235	11	1.1	31	<0.88	120	31	39	460	<2.6	18	18	22	4.4	69	16	<1.8
Cg-0236	8.8	<1.1	28	<1.1	130	30	33	560	<3.3	18	16	17	3	55	14	<2.2
Cg-0237	7.4	<1.1	44	<1.1	170	42	41	540	<3.4	28	19	24	4.8	77	24	<2.3
Cg-0238	13	2.1	44	<0.75	100	19	37	430	5.7	12	29	37	5.3	110	36	<1.5
Cg-0239	9.3	<1.1	24	<1.1	98	27	31	350	<3.2	13	15	16	3.9	53	12	<2.2
Cg-0240	9.9	1.6	39	<0.93	94	20	40	420	<2.8	7.5	27	36	3.5	110	34	<1.9
Cg-0241	9.1	<1	45	<1	120	29	36	590	<3	11	18	29	4.3	100	22	<2
Cg-0242	9.3	1.3	85	<0.94	190	52	60	970	<2.8	15	32	61	7.9	210	72	<1.9
Cg-0243	10	<0.86	42	<0.86	94	25	34	460	<2.6	8	15	34	3.4	92	21	<1.7
Cg-0244	10	1.1	58	<0.95	140	44	51	710	<2.9	12	23	55	5	160	54	<1.9
Cg-0245	11	<0.78	55	<0.78	220	40	39	720	<2.3	14	15	38	4.2	140	44	<1.6
Cg-0246	9.5	1.3	70	<0.93	140	47	55	720	<2.8	13	31	62	5	180	68	<1.9

Organochlorinated pesticides and toxaphene in black guillemot eggs from 2006 (µg/kg of lipids)

ID	Tissue % of Lipids	Alpha-chlor dane	Cis-nona chlor	Gamma-chlor dane	Hexa chloro benzene	Mirex	Oxy chlor dane	p,p'-DDE	p,p'-DDT	ß-HCH	Trans-nona chlor	Toxaphene Parlar no. 26	Toxaphene Parlar no. 32	Toxaphene Parlar no. 50	Toxaphene Parlar no. 62	Toxaphene Parlar no. 69
Cg-0280	8.5	<0.9	29	<0.9	120	37	34	250	<3	12	13	25	4.6	76	20	<2
Cg-0281	9.7	<1	19	<1	75	23	46	180	<3	13	7.3	8.8	2.2	36	10	<2
Cg-0282	9.9	<0.9	13	<0.9	110	25	20	210	<3	12	7.4	13	2.8	41	12	<2
Cg-0283	8.8	<1	30	<1	97	46	33	500	3.6	7.8	14	15	3	55	17	<2
Cg-0284	11	0.71	15	<0.6	110	20	24	170	<2	15	9.4	14	2.7	40	10	<1
Cg-0285	9.5	2.6	140	<1	220	65	65	2000	7.5	11	59	81	4.5	220	46	<2
Cg-0286	12	<0.8	8.9	<0.8	130	22	13	110	<2	16	5.5	8	1.6	23	7.7	<2
Cg-0287	9	<1	31	<1	170	34	39	300	<3	14	12	19	2.4	63	14	<2
Cg-0288	10	<1	19	<1	120	27	28	210	<3	14	7.4	14	3	52	14	<2
Cg-0289	8.4	<1	6.7	<1	110	17	10	100	<3	8.7	4.9	5.5	1.5	17	7.4	<2
Cg-0290	9.9	1.1	38	<0.8	120	43	44	380	<2	12	22	24	3.2	95	20	<2
Cg-0291	8.2	1	26	<1	120	27	29	220	<3	12	13	18	2.7	61	18	<2
Cg-0292	13	0.7	23	<0.5	89	33	25	180	<2	12	9.7	20	2.4	60	14	<1
Cg-0293	11	<0.7	19	<0.7	110	27	24	180	<2	12	12	14	1.7	52	15	<1
Cg-0294	6.1	<1	22	<1	120	29	21	220	<4	10	10	13	2.3	43	15	<2
Cg-0295	11	0.8	30	<0.8	120	36	29	310	<2	11	13	26	3.5	72	21	<2
Cg-0296	11	0.85	31	<0.7	150	38	30	380	<2	16	16	25	3.5	77	24	<1
Cg-0297	11	0.66	32	<0.4	100	37	28	300	<1	11	13	20	3	68	19	<0.9
Cg-0298	12	<0.5	31	<0.5	110	37	33	240	<2	15	11	21	3	69	15	<1
Cg-0299	20	0.91	41	<0.4	130	40	40	320	<1	12	16	25	3.4	80	19	<0.9

Attachment 3: Black guillemot

Species	ID	Location	Date	Gender	Sexstatus	Age	Total weigth, g	Liver, g	Hg in feather, mg/kg	Hg in liver, mg/kg ww	Cd in liver, mg/kg ww	Se in liver, ug/g dw	Se in liver, mg/kg ww	% moisture in liver
Cepphus grylle	Cg-0201	Sveipur	02-05-2002	male	+		393	25.78	3.3	1.37	1.02	5.5	1.98	64
Cepphus grylle	Cg-0202	Sveipur	02-05-2002	female	immature		433	24.53	2.95	0.489	0.65	6.3	2.08	67
Cepphus grylle	Cg-0203	Sveipur	02-05-2002	male	+		368	20.37	4.47	0.84	0.68	6.4	2.11	67
Cepphus grylle	Cg-0204	Sveipur	02-05-2002	female	immature		400	22.67	4.85	0.575	0.76	6.2	2.17	65
Cepphus grylle	Cg-0205	Sveipur	02-05-2002	male		1K	387	21.09	3.88	1.01	1.32	4.4	1.41	68
Cepphus grylle	Cg-0206	Sveipur	02-05-2002	female		1K	413	23.09	3.35	0.742	0.89	6.9	2.28	67
Cepphus grylle	Cg-0207	Sveipur	02-05-2002	male	+		419	23.5	2.52	1.01	0.95	7.6	2.58	66
Cepphus grylle	Cg-0208	Sveipur	02-05-2002	female	+		418	24.11	4.18	0.458	1.13	7.2	2.30	68
Cepphus grylle	Cg-0209	Sveipur	02-05-2002	male	+		399	18.8	3.43	1.62	0.74	4.6	1.52	67
Cepphus grylle	Cg-0210	Sveipur	02-05-2002	female	+		409	25.13	4.87	0.581	0.76	7.2	2.30	68
Cepphus grylle	Cg-0264	Sveipur	15-04-2005	female		2y	433.0	30.7	2.78	0.799	0.683	5.7	1.88	67
Cepphus grylle	Cg-0265	Sveipur	14-04-2005	female		2y	445.9	29.5	3.28	0.67	0.399	7.0	2.31	67
Cepphus grylle	Cg-0266	Sveipur	14-04-2005	male		2y	454.3	27.8	4.51	0.88	0.348	5.2	1.61	69
Cepphus grylle	Cg-0267	Sveipur	15-04-2005	female		2y	458.3	32.7	2.68	0.773	0.333	6.1	1.95	68
Cepphus grylle	Cg-0268	Sveipur	15-04-2005	male		2y	436.6	24.6	3.05	0.863	0.325	7.4	2.52	66
Cepphus grylle	Cg-0272	Tindholmur	16-04-2005	male		2y	452.1	26	6.63	2.5	0.392	7.4	2.44	67
Cepphus grylle	Cg-0273	Tindholmur	16-04-2005	female		2y	449.6	28.7	2.57	0.737	0.399	7.0	2.17	69
Cepphus grylle	Cg-0274	Tindholmur	23-04-2005	female		2y	454.2	27.4	3.91	0.672	0.353	6.3	2.02	68
Cepphus grylle	Cg-0275	Tindholmur	23-04-2005	male		2y	434.8	24.5	3.68	1.36	0.425	5.0	1.50	70
Cepphus grylle	Cg-0276	Tindholmur	23-04-2005	male		2y	389.8	23.4	3.3	1.46	0.37	6.6	1.98	70

Not analysed in this study.

Species	ID	Location	Date	Gender	Sexstatus	Age	Total weigth, g	Liver, g	Hg in feather, mg/kg	Hg in liver, mg/kg ww	Cd in liver, mg/kg ww	Se in liver, ug/g dw	Se in liver, mg/kg ww	% moisture in liver
Cepphus grylle	Cg-0300	Sveipur	20-04-2007	female	immature	2K	464	28.36	2.99	1.00	0.616		2.4	68
Cepphus grylle	Cg-0301	Sveipur	20-04-2007	female	immature	2K	442	29.43	3.39	0.847	0.536		2	69
Cepphus grylle	Cg-0302	Sveipur	20-04-2007	female	immature	2K	403	26.84	4.65	0.819	0.403		2.3	68
Cepphus grylle	Cg-0303	Sveipur	20-04-2007	male	immature	2K	455	26.85	1.89	1.08	0.626		1.7	69
Cepphus grylle	Cg-0304	Sveipur	20-04-2007	female	immature	2K	416	27.32	2.54	0.591	0.788		2.5	67
Cepphus grylle	Cg-0305	Sveipur	20-04-2007	male	immature	2K	396	22.87	1.98	0.904	0.378		1.9	68
Cepphus grylle	Cg-0306	Sveipur	20-04-2007	female	immature	2K	372	26.11	2.66	0.72	0.538		2.1	67
Cepphus grylle	Cg-0307	Sveipur	20-04-2007	female	immature	2K	452	28.75	2.68	0.98	0.614		3.3	69
Cepphus grylle	Cg-0308	Tindholmur	30-04-2007	male	immature	2K	402	21.85	1.49	1.15	0.387		1.7	71
Cepphus grylle	Cg-0309	Tindholmur	30-04-2007	male	immature	2K	429	23.6	1.92	1.42	0.464		2.3	68
Cepphus grylle	Cg-0310	Tindholmur	30-04-2007	male	immature	2K	383	21.79	3.94	1.3	0.75		2.2	69
Cepphus grylle	Cg-0311	Tindholmur	30-04-2007	female	immature	2K	409	25.52	3.05	1.07	0.609		1.9	69
Cepphus grylle	Cg-0312	Tindholmur	30-04-2007	female	immature	2K	459	26.94	2.57	0.922	0.587		2.3	68
Cepphus grylle	Cg-0313	Tindholmur	30-04-2007	male	immature	3K	449	30.94	3.48	1.24	0.719		2	69
Cepphus grylle	Cg-0314	Tindholmur	30-04-2007	male	immature	2K	393	25.17	2.91	0.764	0.579		2.5	69

Attachment 4: Cod

ID	Species	Location	Date	Length, cm	Round weight, g	Whole liver, g	Gender	Gonad weight, g	Sample ID	Hg muscle, µg/kg	Hg muscle, mg/kg	Dry matter %
Gm-0354	Gadus morhua	Mýlingsgrunnur	01-10-2006	48	1290	58.16	M	2.64	Gm-0354	45.2	0.0452	21.2
Gm-0355	Gadus morhua	Mýlingsgrunnur	01-10-2006	48	1170	49.45	M	1.73	Gm-0355	38.5	0.0385	22.4
Gm-0356	Gadus morhua	Mýlingsgrunnur	01-10-2006	47.5	1370	57.38	F	6.41	Gm-0356	58.2	0.0582	21.9
Gm-0357	Gadus morhua	Mýlingsgrunnur	01-10-2006	51.5	1720	80.2	F	5.86	Gm-0357	45.9	0.0459	21.6
Gm-0359	Gadus morhua	Mýlingsgrunnur	01-10-2006	49	1380	70.31	M	3.09	Gm-2006-1	36.1	0.0361	22.6
Gm-0360	Gadus morhua	Mýlingsgrunnur	02-10-2006	50	1270	44.71	M	0.89				
Gm-0365	Gadus morhua	Mýlingsgrunnur	02-10-2006	50.5	1330	73.13	M	0.94				
Gm-0366	Gadus morhua	Mýlingsgrunnur	02-10-2006	54.5	1730	95.66	M	3.05				
Gm-0367	Gadus morhua	Mýlingsgrunnur	02-10-2006	53.5	1690	75.42	M	3.18				
Gm-0368	Gadus morhua	Mýlingsgrunnur	02-10-2006	50	1450	73.29	M	2.35				
Gm-0358	Gadus morhua	Mýlingsgrunnur	01-10-2006	51	1550	59.6	F	8.38	Gm-2006-2	34.5	0.0345	20.5
Gm-0361	Gadus morhua	Mýlingsgrunnur	02-10-2006	49	1430	64.65	F	9.08				
Gm-0362	Gadus morhua	Mýlingsgrunnur	02-10-2006	52	1390	37.03	F	5.07				
Gm-0363	Gadus morhua	Mýlingsgrunnur	02-10-2006	50	1450	63.81	F	6.32				
Gm-0364	Gadus morhua	Mýlingsgrunnur	01-10-2006	49.5	1440	75.62	F	7.43				
Gm-0369	Gadus morhua	Mýlingsgrunnur	02-10-2006	52	1600	82.99	F	8.08				
Gm-0370	Gadus morhua	Mýlingsgrunnur	02-10-2006	42	820	-	M	c. 0,5	Gm-0370	37.6	0.0376	21
Gm-0371	Gadus morhua	Mýlingsgrunnur	02-10-2006	41	810	48.42	F	2.18	Gm-0371	30.1	0.0301	22.7
Gm-0372	Gadus morhua	Mýlingsgrunnur	02-10-2006	45	950	31.42	M	0.52	Gm-0372	21	0.021	21.6
Gm-0373	Gadus morhua	Mýlingsgrunnur	02-10-2006	50	1450	47.41	M	2.13	Gm-0373	43.3	0.0433	21.9
Gm-0374	Gadus morhua	Mýlingsgrunnur	02-10-2006	46	1260	57.19	F	3.99	Gm-0374	35.3	0.0353	22.3
Gm-0375	Gadus morhua	Mýlingsgrunnur	02-10-2006	47.5	1170	50.11	F	3.04	Gm-0375	26.7	0.0267	23.3
Gm-0376	Gadus morhua	Mýlingsgrunnur	02-10-2006	58	2040	83.98	F	9.4	Gm-0376	33.5	0.0335	20.5
Gm-0377	Gadus morhua	Mýlingsgrunnur	02-10-2006	54	1530	34.96	M	0.79	Gm-0377	62.6	0.0626	20
Gm-0378	Gadus morhua	Mýlingsgrunnur	02-10-2006	51.5	1560	70.97	F	7.26	Gm-0378	48	0.048	19.9

ID	Species	Location	Date	Length, cm	Round weight, g	Whole liver, g	Gender	Gonad weight, g	Sample ID	Hg muscle, µg/kg	Hg muscle, mg/kg	Dry matter %
Gm-0379	Gadus morhua	Mýlingsgrunnur	29-09-2007	31	290	4.39	M?	0.05	Gm-0379	19.5	0.0195	20.3
Gm-0380	Gadus morhua	Mýlingsgrunnur	29-09-2007	30	340	7.65	M?	0.05	Gm-0380	21.3	0.0213	21.1
Gm-0381	Gadus morhua	Mýlingsgrunnur	29-09-2007	52	1420	66.57	M	1.61	Gm-0381	35.3	0.0353	20.6
Gm-0382	Gadus morhua	Mýlingsgrunnur	29-09-2007	46	1010	33.19	F	3.29	Gm-0382	40.1	0.0401	20.1
Gm-0383	Gadus morhua	Mýlingsgrunnur	29-09-2007	48	1230	59.57	F	6	Gm-0383	32.7	0.0327	21.5
Gm-0384	Gadus morhua	Mýlingsgrunnur	29-09-2007	53	1830	111.8	M	4.75	Gm-0384	59	0.059	21.1
Gm-0385	Gadus morhua	Mýlingsgrunnur	29-09-2007	55	1830	80.86	F	11	Gm-0385	48.2	0.0482	20.4
Gm-0386	Gadus morhua	Mýlingsgrunnur	29-09-2007	50.5	1410	57.84	M	c. 2-3	Gm-0386	49.6	0.0496	21.5
Gm-0387	Gadus morhua	Mýlingsgrunnur	29-09-2007	52	1580	86.35	M	3.35	Gm-0387	20.8	0.0208	20.4
Gm-0388	Gadus morhua	Mýlingsgrunnur	29-09-2007	46	1040	38.08	F	5.45	Gm-0388	33.1	0.0331	21.1
Gm-0389	Gadus morhua	Mýlingsgrunnur	29-09-2007	49.5	1430	83.71	M	3.43	Gm-0389	33.6	0.0336	20.6
Gm-0390	Gadus morhua	Mýlingsgrunnur	29-09-2007	47.5	1260	52.5	F	7.5	Gm-0390	31.5	0.0315	20.6
Gm-0391	Gadus morhua	Mýlingsgrunnur	29-09-2007	54	1690	76.59	F	11.08	Gm-0391	52.5	0.0525	19.8
Gm-0392	Gadus morhua	Mýlingsgrunnur	29-09-2007	51	1610	87.97	M	2.16	Gm-0392	33.6	0.0336	21.6
Gm-0393	Gadus morhua	Mýlingsgrunnur	29-09-2007	50	1480	50.07	F	5.61	Gm-0393	39.4	0.0394	21.6
Gm-0394	Gadus morhua	Mýlingsgrunnur	29-09-2007	46.5	1170	40.35	M	1.25	Gm-0394	18.5	0.0185	20.7

PCBs in cod liver from 2006 (µg/kg of lipids)

ID	Sample ID	PCB Aroclor 1260	CB 28	CB 52	CB 99	CB 101	CB 105	CB 118	CB 128	CB 138	CB 153	CB 156	CB 163	CB 170	CB 180	CB 183	CB 187
Gm-0354	Gm-0354	290	<2	<20	5.1	7.3	3.8	12	3.8	20	36	1.6	1.9	3.5	10	2.1	4
Gm-0355	Gm-0355	270	<2	<20	5.1	6	3.5	10	3.4	18	35	1.8	1.5	3.6	11	1.9	3
Gm-0356	Gm-0356	220	<2	<20	4.3	3.7	2.9	8.8	3.1	16	27	1.4	0.69	2.9	8.6	1.6	2
Gm-0357	Gm-0357	200	<2	<20	3.5	3.2	2.7	8	2.7	13	26	1.2	0.77	2.6	7.1	1.4	2
Gm-0359	Gm-2006-1	260	<1	<10	5.3	6.2	3.3	9.8	3.4	17	32	1.5	1.3	3.2	9.5	1.9	3
Gm-0360																	
Gm-0365																	
Gm-0366																	
Gm-0367																	
Gm-0368																	
Gm-0358	Gm-2006-2	360	<2	<20	7	5.4	4.2	13	4.3	23	45	2	1.7	4.5	13	2.6	3
Gm-0361																	
Gm-0362																	
Gm-0363																	
Gm-0364																	
Gm-0369																	
Gm-0370	Gm-0370	320	<2	<20	5.9	3.6	3.8	12	3.8	20	41	2	0.83	4.1	12	2.2	2
Gm-0371	Gm-0371	150	<2	<20	3.8	4.9	2.1	6	1.9	9.5	19	0.88	0.8	1.6	5.1	0.91	2
Gm-0372	Gm-0372	230	<2	<20	4.7	5.3	3.6	10	3.3	16	28	1.5	1.7	2.9	8	1.6	3
Gm-0373	Gm-0373	340	<2	<20	6.6	6.2	4.3	13	4.4	23	42	2	1.8	4.3	13	2.5	3
Gm-0374	Gm-0374	730	<1	<10	11	5.5	2.8	11	4.4	40	100	1.9	1	6.8	29	6.6	3
Gm-0375	Gm-0375	170	<2	<20	3.7	4.8	2.7	7.7	2.4	12	21	1	1.2	2.1	5.4	1.2	2
Gm-0376	Gm-0376	250	<2	<20	5.8	5.8	3.6	10	3.5	17	31	1.4	2.1	3	8.8	1.9	3
Gm-0377	Gm-0377	1000	5.1	<20	33	41	18	56	17	77	120	6.2	7.5	11	33	9.6	10
Gm-0378	Gm-0378	210	<1	<10	5.2	5.7	3.3	9.9	3.2	14	27	1.5	1.3	2.7	7.9	1.6	2

PCBs in cod liver from 2007 (µg/kg of lipids)

ID	Sample ID	PCB Aroclor 1260	CB 28	CB 52	CB 99	CB 101	CB 105	CB 118	CB 128	CB 138	CB 153	CB 156	CB 163	CB 170	CB 180	CB 183	CB 187
Gm-0379	Gm-0379	270	<3	<30	6.9	9.9	4.1	12	3.8	17	36	1.7	3.5	3.2	9.1	1.7	7
Gm-0380	Gm-0380	230	5.3	<20	6.7	10	3.6	12	3.1	14	30	1.2	2.1	2.1	6.5	1.4	4
Gm-0381	Gm-0381	140	<1	<10	4.2	5.7	2.1	6.1	1.9	9.4	18	0.9	1.3	1.5	4.8	0.94	2
Gm-0382	Gm-0382	290	<2	<20	6.2	5	3.9	12	3.6	17	40	2	2.1	4.1	13	2.2	4
Gm-0383	Gm-0383	190	<2	<20	4.3	4.7	2.8	8.1	2.7	12	24	1.4	1.4	2.5	7.2	1.3	3
Gm-0384	Gm-0384	200	<2	<20	4.6	4.9	2.6	7.8	2.5	12	26	1.2	1.1	2.4	7.4	1.4	2
Gm-0385	Gm-0385	230	<2	<20	4.7	4.1	3.1	9.3	3.1	15	29	1.6	1	3.3	10	1.8	2
Gm-0386	Gm-0386	270	<2	<20	7.2	7.4	3	11	3.2	16	36	1.5	1.5	3.2	9.9	1.8	3
Gm-0387	Gm-0387	160	<2	<20	3.5	4.6	2.3	7.1	2.1	10	20	0.97	0.65	1.9	5.5	1	1
Gm-0388	Gm-0388	240	<2	<20	5.6	4.5	3.6	11	3.5	16	30	1.6	1.7	3.3	9.2	1.8	3
Gm-0389	Gm-0389	170	<1	<10	3.5	4.7	2.5	7.1	2.3	10	21	1.1	1.5	2.1	6.4	1.1	3
Gm-0390	Gm-0390	270	<2	<20	5.2	4.9	3.6	11	3.5	17	36	1.7	2.6	3.7	10	2	5
Gm-0391	Gm-0391	230	<2	<20	4	5.5	2.5	7.9	2.8	15	29	1.4	1.2	3.4	10	1.9	2
Gm-0392	Gm-0392	200	<2	<20	4.8	5.3	2.4	7.6	2.5	12	26	1.2	1.7	2.7	8.5	1.5	3
Gm-0393	Gm-0393	290	<2	<20	6	6.5	3.6	11	3.6	18	37	2	1.5	3.8	11	1.9	3
Gm-0394	Gm-0394	650	<3	<30	11	8.3	7.5	23	7.7	44	82	3.8	2.5	8.4	25	5.4	5

Organochlorinated pesticides and toxaphene in cod livers from 2006 (µg/kg of lipids)

ID	Sample ID	% of Lipids	Alpha-chlordane	Cis-nonachlor	Gamma-chlordane	Hexachloro benzene	Mirex	Oxychlor dane	p,p'-DDE	p,p'-DDT	ß-HCH	Trans-nonachlor	Toxa phene, Parlar no. 26	Toxa phene, Parlar no. 32	Toxa phene, Parlar no. 50	Toxa phene, Parlar no. 62	Toxa phene, Parlar no. 69
Gm-0354	Gm-0354	57	7.1	6.5	1.1	28	1.6	4.3	41	2.4	1.5	16	9.5	<0.2	18	4.2	<0.3
Gm-0355	Gm-0355	61	5.2	5.4	0.64	16	2.1	3.6	45	2.8	0.81	13	7.8	0.6	17	4.2	<0.3
Gm-0356	Gm-0356	53	6.6	6.1	0.97	13	1.7	4.4	35	1.7	0.58	13	11	1.3	20	4.4	<0.3
Gm-0357	Gm-0357	57	5.6	5.2	0.65	24	1.9	4.3	26	3.2	1.5	12	8.9	0.54	18	5	<0.3
Gm-0359	Gm-2006-1	58	7.9	6.6	1.1	19	1.6	4	44	3.2	0.8	15	10	0.92	22	4.3	<0.3
Gm-0360																	
Gm-0365																	
Gm-0366																	
Gm-0367																	
Gm-0368																	
Gm-0358	Gm-2006-2	44	10	9.9	0.95	69	2.3	8.6	47	2.2	2	23	19	0.5	35	4.2	<0.4
Gm-0361																	
Gm-0362																	
Gm-0363																	
Gm-0364																	
Gm-0369																	
Gm-0370	Gm-0370	43	6.4	6.2	0.81	13	2.6	5.3	37	1.8	0.81	15	11	1.2	23	5.8	<0.4
Gm-0371	Gm-0371	53	7.1	4	1	49	0.88	2.6	27	2.4	2.6	9.3	9	0.84	18	3.6	<0.3
Gm-0372	Gm-0372	45	5.7	5.4	0.69	55	1.8	4.7	39	2.6	3.5	12	9.5	0.91	18	3.4	<0.4
Gm-0373	Gm-0373	55	11	8.8	1.5	70	2.2	4.8	50	4.6	2.3	19	14	1.4	30	11	<0.3
Gm-0374	Gm-0374	61	7.3	5.5	1.2	23	1.6	4.1	140	2.5	1.3	14	10	0.96	22	6.8	<0.3
Gm-0375	Gm-0375	50	6.5	4.4	0.93	62	1	3.7	30	2.4	3.2	10	9.4	0.91	17	4.4	<0.3
Gm-0376	Gm-0376	60	9.8	7.4	1.3	40	1.8	4.7	35	2.4	2.3	15	14	1.5	27	5.4	<0.3
Gm-0377	Gm-0377	41	51	46	5.9	57	8.1	14	220	36	0.82	120	60	<0.2	120	15	<0.4
Gm-0378	Gm-0378	62	6.6	6.1	0.97	21	1.6	4	38	2.7	0.8	14	12	<0.1	22	5.1	<0.3

Organochlorinated pesticides and toxaphene in cod livers from 2007 (µg/kg of lipids)

ID	Sample ID	% of Lipids	Alpha-chlordane	Cis-nonachlor	Gamma-chlordane	Hexachloro benzene	Mirex	Oxychlor dane	p,p'-DDE	p,p'-DDT	ß-HCH	Trans-nonachlor	Toxa phene, Parlar no. 26	Toxa phene, Parlar no. 32	Toxa phene, Parlar no. 50	Toxa phene, Parlar no. 62	Toxa phene, Parlar no. 69
Gm-0379	Gm-0379	32	13	8.5	1.8	22	2.2	7.1	48	3.3	<0.9	21	19	1	41	14	<0.6
Gm-0380	Gm-0380	37	13	7.8	1.9	48	1.3	7.1	38	<0.7	0.9	20	20	0.88	43	14	<0.5
Gm-0381	Gm-0381	63	7.1	4.5	1.2	18	1.1	2.6	25	1.8	0.67	10	9	1	19	5.8	<0.3
Gm-0382	Gm-0382	58	8.2	7.9	0.6	48	2.4	10	51	2.3	1.5	20	19	0.74	40	8.3	<0.3
Gm-0383	Gm-0383	53	5.6	4.8	0.75	19	1.4	4.5	32	<0.5	0.67	12	9.2	<0.2	19	4.9	<0.4
Gm-0384	Gm-0384	60	5.3	4.8	0.63	11	1.3	3.6	29	2.2	0.5	12	8.6	0.53	13	3.7	<0.3
Gm-0385	Gm-0385	51	5.8	5.5	0.66	46	1.9	4.7	37	<0.6	1	13	10	<0.2	17	3.3	<0.4
Gm-0386	Gm-0386	56	8.2	6.4	1.3	28	2	4.2	39	3.2	1.1	17	12	1.3	26	7.9	<0.4
Gm-0387	Gm-0387	58	7.1	4.7	1	42	1.2	3.2	25	<0.5	1.3	11	9.4	<0.2	21	5.7	<0.3
Gm-0388	Gm-0388	55	4.1	4.6	0.55	15	1.9	5.1	37	1.6	<0.5	12	8.8	<0.2	15	3.5	<0.3
Gm-0389	Gm-0389	65	6.1	4.4	0.86	22	1.1	3.7	30	2.4	1.2	10	8.8	0.84	17	5.2	<0.3
Gm-0390	Gm-0390	54	7.8	6.2	0.78	31	2.1	6.3	33	2.1	0.82	15	15	0.81	28	5.9	<0.4
Gm-0391	Gm-0391	55	5.8	4.8	0.86	23	2	2.2	29	1.9	1	10	8.6	0.56	19	5.6	<0.3
Gm-0392	Gm-0392	51	7.2	4.8	0.94	31	1.5	3.6	35	<0.6	1	11	11	0.6	21	4.2	<0.4
Gm-0393	Gm-0393	43	8.5	6.8	1	24	2.6	4	45	2.7	0.9	16	13	0.48	25	5.1	<0.4
Gm-0394	Gm-0394	34	8.7	9.3	1.2	26	4.9	4.7	87	3.7	0.9	28	13	1.1	24	3.9	<0.5

Attachment 5: Pilot whale

Species	ID	Date	Location	Grind	Sex	Skinn	Length	Muscle			
								Hg, mg/kg ww	Cd, mg/kg ww	% Moisture	Se, µg/g ww
Globicephala melas	060701-0006	05-07-2001	Miðvági	6	M	2	247	0.36	0.061	74	0.55
Globicephala melas	060701-0009	05-07-2001	Miðvági	9	M	5	377	2.08	0.167	76	0.55
Globicephala melas	060701-0016	05-07-2001	Miðvági	16	M	11	565	290	0.200	73	0.49
Globicephala melas	060701-0020	05-07-2001	Miðvági	20	F	5	352	1.47	0.130	73	0.59
Globicephala melas	060701-0022	05-07-2001	Miðvági	22	M	11	565	1.8	0.108	72	0.48
Globicephala melas	060701-0024	05-07-2001	Miðvági	24	F	1	186	0.45	0.008	74	0.94
Globicephala melas	060701-0026	05-07-2001	Miðvági	26	F	10	488	1.56	0.236	71	0.75
Globicephala melas	060701-0027	05-07-2001	Miðvági	27	F	6	373	1.23	0.089	72	0.59
Globicephala melas	060701-0029	05-07-2001	Miðvági	29	F	9	480	1.52	0.624	71	0.61
Globicephala melas	060701-0031	05-07-2001	Miðvági	31	F	8	450	2.3	0.285	75	0.55
Globicephala melas	060701-0032	05-07-2001	Miðvági	32	F	8	455	2.04	0.090	73	0.76
Globicephala melas	060701-0033	05-07-2001	Miðvági	33	F	9	463	2.17	0.775	74	0.52
Globicephala melas	060701-0034	05-07-2001	Miðvági	34	F	6	400	1.63	0.165	71	0.52
Globicephala melas	060701-0035	05-07-2001	Miðvági	35	F	11	498	2.15	0.414	69	0.56
Globicephala melas	060701-0036	05-07-2001	Miðvági	36	M	3	345	1.75	0.208	75	0.50
Globicephala melas	060701-0038	05-07-2001	Miðvági	38	F	10	474	1.97	0.429	73	1.22
Globicephala melas	060701-0039	05-07-2001	Miðvági	39	F	9	453	2.11	0.366	73	0.62
Globicephala melas	060701-0040	05-07-2001	Miðvági	40	F	8	441	2.04	0.459	73	0.57
Globicephala melas	060701-0041	05-07-2001	Miðvági	41	F	8	430	1.63	0.371	67	0.53
Globicephala melas	060701-0065	05-07-2001	Miðvági	65	F	2	240	0.29	0.100	71	0.78
Globicephala melas	060701-0066	05-07-2001	Miðvági	66	M	7	445	1.69	0.119	73	0.59
Globicephala melas	060701-0067	05-07-2001	Miðvági	67	F	8	450	1.55	0.297	74	0.62
Globicephala melas	060701-0068	05-07-2001	Miðvági	68	F	8	432	1.81	0.197	76	0.55
Globicephala melas	060701-0071	05-07-2001	Miðvági	71	M	11	565	2.6	0.206	74	0.49
Globicephala melas	060701-0075	05-07-2001	Miðvági	75	F	8	447	2.15	0.330	75	0.55

Species	ID	Date	Location	Grind	Sex	Skinn	Length	Muscle			
								Hg, mg/kg ww	Cd, mg/kg ww	% Moisture	Se, µg/g ww
Globicephala melas	030902-0001	03-09-2002	Sandagerði	1	F	7	415	2.52	0.378	74	0.81
Globicephala melas	030902-0002	03-09-2002	Sandagerði	2	F	8	425	2.92	0.481	74	0.78
Globicephala melas	030902-0003	03-09-2002	Sandagerði	3	M	15	540	2.85	0.166	75	0.55
Globicephala melas	030902-0004	03-09-2002	Sandagerði	4	M	14	570	2.48			
Globicephala melas	030902-0008	03-09-2002	Sandagerði	8	M	9	450	2.01	0.133	73	0.59
Globicephala melas	030902-0009	03-09-2002	Sandagerði	9	M	19	580	3.71	0.215	72	0.64
Globicephala melas	030902-0011	03-09-2002	Sandagerði	11	F	8	440	4.66	1.020	73	1.51
Globicephala melas	030902-0013	03-09-2002	Sandagerði	13	M	6	400	2.02	0.092	76	0.55
Globicephala melas	030902-0014	03-09-2002	Sandagerði	14	F	5	375	2.05	0.147	72	0.53
Globicephala melas	030902-0015	03-09-2002	Sandagerði	15	F	3	285	1.5	0.094	74	0.55
Globicephala melas	030902-0016	03-09-2002	Sandagerði	16	F	8	420	3.6	0.426	74	1.35
Globicephala melas	030902-0017	03-09-2002	Sandagerði	17	M	1.5	210	0.31	0.006	74	0.75
Globicephala melas	030902-0019	03-09-2002	Sandagerði	19	M	3	300	1.3	0.060	72	0.64
Globicephala melas	030902-0020	03-09-2002	Sandagerði	20	M	5	350	1.75	0.073	74	0.60
Globicephala melas	030902-0021	03-09-2002	Sandagerði	21	M	19	585	3.18	0.144	75	0.48
Globicephala melas	030902-0022	03-09-2002	Sandagerði	22	F	7	415	2.4	0.177	76	0.48
Globicephala melas	030902-0025	03-09-2002	Sandagerði	25	M	15	535	3.43	0.234	70	0.84
Globicephala melas	030902-0027	03-09-2002	Sandagerði	27	F	9	430	1.51	0.464	73	0.73
Globicephala melas	030902-0028	03-09-2002	Sandagerði	28	M	17	555	3.25	0.259	73	0.95
Globicephala melas	030902-0031	03-09-2002	Sandagerði	31	F	8	450	6.92	0.330	73	1.19
Globicephala melas	030902-0036	03-09-2002	Sandagerði	36	M	16	560	3.33	0.190	72	0.67
Globicephala melas	030902-0037	03-09-2002	Sandagerði	37	M	16	550	3.21	0.213	72	0.56
Globicephala melas	030902-0038	03-09-2002	Sandagerði	38	F	8	450	2.78	0.650	71	1.07
Globicephala melas	030902-0039	03-09-2002	Sandagerði	39	F	8	410	2.17	0.303	74	0.47
Globicephala melas	030902-0040	03-09-2002	Sandagerði	40	M	1.5	220	0.38	0.025	74	0.88

Species	ID	Date	Location	Grind	Sex	Skinn	Length	Muscle			
								Hg, mg/kg ww	Cd, mg/kg ww	% Moisture	Se, µg/g ww
Globicephala melas	030803-001	03-08-2003	Hvalvík	1	M	7	-	2.28	0.042	72	0.82
Globicephala melas	030803-002	03-08-2003	Hvalvík	2	M	5	-	1.48	0.054	71	0.69
Globicephala melas	030803-003	03-08-2003	Hvalvík	3	F	7	-	1.45	0.202	71	0.48
Globicephala melas	030803-004	03-08-2003	Hvalvík	4	F	8	-	1.62	0.065	72	0.56
Globicephala melas	030803-005	03-08-2003	Hvalvík	5	M	11	-	1.76	0.087	71	0.71
Globicephala melas	030803-006	03-08-2003	Hvalvík	6	F	6	-	1.97	0.037	80	0.71
Globicephala melas	030803-007	03-08-2003	Hvalvík	7	F	5	-	1.37	0.057	73	0.92
Globicephala melas	030803-010	03-08-2003	Hvalvík	10	M	8	-	1.80	0.064	74	0.66
Globicephala melas	030803-017	03-08-2003	Hvalvík	17	M	7	-	1.81	0.069	70	0.83
Globicephala melas	030803-020	03-08-2003	Hvalvík	20	M	11	-	2.13	0.047	71	0.63
Globicephala melas	030803-021	03-08-2003	Hvalvík	21	M	7	-	1.87	0.043	73	0.68
Globicephala melas	030803-025	03-08-2003	Hvalvík	25	F	7	-	2.12	0.090	71	0.85
Globicephala melas	030803-026	03-08-2003	Hvalvík	26	F	8	-	3.57	0.247	76	0.51
Globicephala melas	030803-028	03-08-2003	Hvalvík	28	F	6	-	1.48	0.100	71	0.75
Globicephala melas	030803-029	03-08-2003	Hvalvík	29	F	5	-	1.15	0.056	72	0.92
Globicephala melas	030803-031	03-08-2003	Hvalvík	31	F	8	-	1.77	0.095	77	0.76
Globicephala melas	030803-032	03-08-2003	Hvalvík	32	F	7	-	1.29	0.079	68	0.63
Globicephala melas	030803-035	03-08-2003	Hvalvík	35	M	5	-	1.56	0.073	70	0.6
Globicephala melas	030803-036	03-08-2003	Hvalvík	36	M	7	-	1.43	0.043	64	1.2
Globicephala melas	030803-037	03-08-2003	Hvalvík	37	M	11	-	3.03	0.057	74	0.53
Globicephala melas	030803-038	03-08-2003	Hvalvík	38	M	7	-	1.31	0.052	63	0.77
Globicephala melas	030803-045	03-08-2003	Hvalvík	45	M	8	-	1.56	0.043	71	0.65
Globicephala melas	030803-047	03-08-2003	Hvalvík	47	M	11	-	1.50	0.036	69	0.58
Globicephala melas	030803-048	03-08-2003	Hvalvík	48	F	2.5	-	0.22	<0,002	75	1.5
Globicephala melas	030803-106	03-08-2003	Hvalvík	106	F	6	-	1.42	0.078	73	0.44

Species	ID	Date	Location	Grind	Sex	Skinn	Length	Muscle			
								Hg, mg/kg ww	Cd, mg/kg ww	% Moisture	Se, µg/g ww
Globicephala melas	080604-005	08-06-2004	Bøur	5	F	1.0	270	0.49	0.019	71	0.73
Globicephala melas	080604-008	08-06-2004	Bøur	8	F	7.0	450	1.58	0.153	71	0.73
Globicephala melas	080604-011	08-06-2004	Bøur	11	F	7.0	420	1.28	0.173	64	0.52
Globicephala melas	080604-013	08-06-2004	Bøur	13	F	7.0	430	1.87	0.148	72	0.8
Globicephala melas	080604-014	08-06-2004	Bøur	14	F	4.0	360	1.52	0.062	72	0.64
Globicephala melas	080604-015	08-06-2004	Bøur	15	F	2.0	300	0.56	0.025	72	0.55
Globicephala melas	080604-016	08-06-2004	Bøur	16	M	9.0	510	1.24	0.181	69	0.57
Globicephala melas	080604-017	08-06-2004	Bøur	17	M	5.0	430	1.52	0.058	71	0.67
Globicephala melas	080604-018	08-06-2004	Bøur	18	M	12.0	580	1.77	0.355	73	0.42
Globicephala melas	080604-019	08-06-2004	Bøur	19	M	11.0	550	1.77	0.034	73	0.55
Globicephala melas	080604-025	08-06-2004	Bøur	25	M	11.0	560	1.79	0.064	73	0.5
Globicephala melas	080604-027	08-06-2004	Bøur	27	F	8.0	490	1.79	0.428	72	0.5
Globicephala melas	080604-030	08-06-2004	Bøur	30	M	10.0	550	2.54	0.177	74	0.49
Globicephala melas	080604-031	08-06-2004	Bøur	31	M	7.0	460	1.40	0.068	72	0.42
Globicephala melas	080604-032	08-06-2004	Bøur	32	F	7.0	450	4.44	0.355	71	2.4
Globicephala melas	080604-034	08-06-2004	Bøur	34	F	8.0	450	2.01	0.267	73	0.51
Globicephala melas	080604-035	08-06-2004	Bøur	35	F	8.0	450	2.81	0.302	72	0.72
Globicephala melas	080604-036	08-06-2004	Bøur	36	F	7.0	430	2.01	0.085	71	0.63
Globicephala melas	080604-038	08-06-2004	Bøur	38	F	6.0	420	1.52	0.124	69	0.42
Globicephala melas	080604-039	08-06-2004	Bøur	39	F	2.0	300	0.46	0.014	76	0.45
Globicephala melas	080604-040	08-06-2004	Bøur	40	F	6.0	430	1.81	0.120	70	0.55
Globicephala melas	080604-041	08-06-2004	Bøur	41	F	8.0	450	1.48	0.282	69	0.66
Globicephala melas	080604-042	08-06-2004	Bøur	42	M	11.0	560	2.40	0.285	72	0.58
Globicephala melas	080604-043	08-06-2004	Bøur	43	M	11.0	540	1.82	0.092	71	0.46
Globicephala melas	080604-045	08-06-2004	Bøur	45	F	7.0	430	3.31	0.244	74	0.83

Species	ID	Date	Location	Grind	Sex	Skinn	Length	Muscle			
								Hg (1), mg/kg ww	Cd, mg/kg ww	% Moisture	Se, µg/g ww
Globicephala melas	280806-001	28-08-2006	Hvannasund	1	F	8	410	2.05	0.253		
Globicephala melas	280806-002	28-08-2006	Hvannasund	2	F	2	201	0.83	0.034	71	0.66
Globicephala melas	280806-003	28-08-2006	Hvannasund	3	M	12	510	2.12	0.27		
Globicephala melas	280806-004	28-08-2006	Hvannasund	4	M	4	315	1.34	0.051	73	0.59
Globicephala melas	280806-005	28-08-2006	Hvannasund	5	M	2	231	0.36	0.008	73	1.7
Globicephala melas	280806-006	28-08-2006	Hvannasund	6	M	3	290	1.4	0.196	73	0.6
Globicephala melas	280806-007	28-08-2006	Hvannasund	7	F	8	449	4.46	0.864		
Globicephala melas	280806-008	28-08-2006	Hvannasund	8	F	7	386	1.77	0.233		
Globicephala melas	280806-009	28-08-2006	Hvannasund	9	M	11	470	2.29	0.106		
Globicephala melas	280806-010	28-08-2006	Hvannasund	10	M	9	430	1.74	0.097		
Globicephala melas	280806-011	28-08-2006	Hvannasund	11	M	15	550	2.12	0.117		
Globicephala melas	280806-012	28-08-2006	Hvannasund	12	M	14	528	2.16	0.166		
Globicephala melas	280806-013	28-08-2006	Hvannasund	13	M	6	366	1.36	0.035	NR	NR
Globicephala melas	280806-014	28-08-2006	Hvannasund	14	F	8	415	2.19	0.351		
Globicephala melas	280806-015	28-08-2006	Hvannasund	15	M	9	450	1.79	0.049		
Globicephala melas	280806-016	28-08-2006	Hvannasund	16	F	6	399	2.09	0.443		
Globicephala melas	280806-017	28-08-2006	Hvannasund	17	F	8	440	2.3	0.315		
Globicephala melas	280806-018	28-08-2006	Hvannasund	18	M	6	360	1.27	0.065	70	0.79
Globicephala melas	280806-019	28-08-2006	Hvannasund	19	M	4	317	0.85	0.034	72	0.61
Globicephala melas	280806-020	28-08-2006	Hvannasund	20	F	7	425	2.37	0.171		
Globicephala melas	280806-021	28-08-2006	Hvannasund	21	F	8	442	2.03			
Globicephala melas	280806-022	28-08-2006	Hvannasund	22	F	8	430	1.96			
Globicephala melas	280806-023	28-08-2006	Hvannasund	23	F	7	410	2.25			
Globicephala melas	280806-024	28-08-2006	Hvannasund	24	F	7	408	2.18			
Globicephala melas	280806-025	28-08-2006	Hvannasund	25	F	6	400	2.17			
Globicephala melas	280806-026	28-08-2006	Hvannasund	26	M	4	348	1.32	0.167	71	0.63
Globicephala melas	280806-027	28-08-2006	Hvannasund	27	F	2	243	0.8	0.077	68	0.86
Globicephala melas	280806-028	28-08-2006	Hvannasund	28	F	7	448	2.91			
Globicephala melas	280806-029	28-08-2006	Hvannasund	29	F	3	237	0.76	0.063	71	0.59
Globicephala melas	280806-030	28-08-2006	Hvannasund	30	F	4	350	1.49	0.117	71	0.82
Globicephala melas	280806-031	28-08-2006	Hvannasund	31	F	7	435	2.07			
Globicephala melas	280806-032	28-08-2006	Hvannasund	32	F	3	320	1.18	0.105	70	0.69
Globicephala melas	280806-033	28-08-2006	Hvannasund	33	F	7	408	2.06			
Globicephala melas	280806-034	28-08-2006	Hvannasund	34	M	6	385	1.16	0.144	NR	NR
Globicephala melas	280806-035	28-08-2006	Hvannasund	35	F	1	197	0.45	<0,002	71	1.1
Globicephala melas	280806-036	28-08-2006	Hvannasund	36	M	15	536	1.75			
Globicephala melas	280806-037	28-08-2006	Hvannasund	37	F	2	228	0.49	0.008	73	0.71

Species	ID	Date	Location	Grind	Sex	Skinn	Length	Muscle Hg (1), mg/kg ww	Hg, mg/kg ww	Cd, mg/kg ww	% Moisture	Se, µg/g ww
Globicephala melas	060906-004	06-09-2006	Leynar	4	F	4	-		0.66	0.024	68	0.71
Globicephala melas	060906-009	06-09-2006	Leynar	9	F	7	-	1.44				
Globicephala melas	060906-010	06-09-2006	Leynar	10	F	10	-	1.66				
Globicephala melas	060906-011	06-09-2006	Leynar	11	F	8	-	1.78				
Globicephala melas	060906-012	06-09-2006	Leynar	12	F	8	-	2.47				
Globicephala melas	060906-013	06-09-2006	Leynar	13	F	9	-	1.73				
Globicephala melas	060906-014	06-09-2006	Leynar	14	F	8	-	2.03				
Globicephala melas	060906-015	06-09-2006	Leynar	15	M	5	-	1.83	1.58	0.072	69	0.61
Globicephala melas	060906-016	06-09-2006	Leynar	16	F	9	-	3				
Globicephala melas	060906-017	06-09-2006	Leynar	17	F	6	-	1.39				
Globicephala melas	060906-018	06-09-2006	Leynar	18	F	4	-	0.73	0.67	0.02	70	0.61
Globicephala melas	060906-019	06-09-2006	Leynar	19	F	8	-	1.79				
Globicephala melas	060906-020	06-09-2006	Leynar	20	F	8	-	0.285				
Globicephala melas	060906-021	06-09-2006	Leynar	21	F	8	-	1.81				
Globicephala melas	060906-022	06-09-2006	Leynar	22	F	6	-	2.99				
Globicephala melas	060906-023	06-09-2006	Leynar	23	M	9	-		2.19	0.043	72	0.59
Globicephala melas	060906-024	06-09-2006	Leynar	24	M	8	-		2.25	0.096	72	0.64
Globicephala melas	060906-025	06-09-2006	Leynar	25	M	9	-		2.03	0.065	73	0.57
Globicephala melas	060906-031	06-09-2006	Leynar	31	M	10	-		1.83	0.045	69	0.49
Globicephala melas	060906-038	06-09-2006	Leynar	38	F	2	-		0.87	0.026	73	0.54
Globicephala melas	060906-046	06-09-2006	Leynar	46	M	9	-		1.85	0.099	72	0.63
Globicephala melas	060906-050	06-09-2006	Leynar	50	M	8	-		1.05	0.061	66	0.51

Species	ID	Date	Location	Grind	Sex	Skinn	Length	Muscle Hg, mg/kg ww	Muscle Cd, mg/kg ww	Muscle % Moisture	Muscle Se, µg/g ww
Globicephala melas	030707-002	03-07-2007	Sandagerði	2	F	4	310	1.36	0.012	72	0.89
Globicephala melas	030707-006	03-07-2007	Sandagerði	6	F	4	330	1.04	0.012	72	0.73
Globicephala melas	030707-007	03-07-2007	Sandagerði	7	F	7	390	2.08	0.071	70	0.56
Globicephala melas	030707-008	03-07-2007	Sandagerði	8	F	6	380	1.72	0.035	73	0.53
Globicephala melas	030707-009	03-07-2007	Sandagerði	9	M	4	315	1.52	0.010	72	0.57
Globicephala melas	030707-010	03-07-2007	Sandagerði	10	M	4	305	1.28	0.008	74	0.59
Globicephala melas	030707-011	03-07-2007	Sandagerði	11	M	11	475	1.79	0.066	69	0.62
Globicephala melas	030707-018	03-07-2007	Sandagerði	18	M	3	300	1.25	0.011	73	0.55
Globicephala melas	030707-022	03-07-2007	Sandagerði	22	M	6	380	2.00	0.037	72	0.86
Globicephala melas	030707-027	03-07-2007	Sandagerði	27	F	2	260	0.75	0.006	71	0.74
Globicephala melas	030707-028	03-07-2007	Sandagerði	28	M	7	405	1.73	0.032	72	0.74
Globicephala melas	130707-001	13-07-2007	Syðrugøta	1	F	5	380	0.95	0.04	76	0.46
Globicephala melas	130707-005	13-07-2007	Syðrugøta	5	M	7	460	1.32	0.13	71	0.58
Globicephala melas	130707-006	13-07-2007	Syðrugøta	6	M	5	360	0.66	0.03	73	0.7
Globicephala melas	130707-007	13-07-2007	Syðrugøta	7	M	11	500	1.06	0.11	72	0.69
Globicephala melas	130707-008	13-07-2007	Syðrugøta	8	F	6	380	1.54	0.03	73	0.75
Globicephala melas	130707-010	13-07-2007	Syðrugøta	10	M	7	410	0.99	0.13	72	0.63
Globicephala melas	130707-015	13-07-2007	Syðrugøta	15	M	3	280	0.72	0.01	73	0.99
Globicephala melas	130707-019	13-07-2007	Syðrugøta	19	M	9	450	1.12	0.07	74	0.48
Globicephala melas	130707-023	13-07-2007	Syðrugøta	23	F	3	330	1.15	0.02	72	0.65
Globicephala melas	130707-026	13-07-2007	Syðrugøta	26	F	3	300	1.20	0.10	71	0.43
Globicephala melas	130707-029	13-07-2007	Syðrugøta	29	F	5	370	1.62	0.04	70	0.76
Globicephala melas	130707-035	13-07-2007	Syðrugøta	35	M	3	270	0.77	0.01	72	0.87
Globicephala melas	130707-043	13-07-2007	Syðrugøta	43	M	6	370	1.56	0.02	73	0.59
Globicephala melas	130707-050	13-07-2007	Syðrugøta	50	F	5	350	1.33	0.04	71	0.62

Species	ID	Liver					Kidney
		Hg, mg/kg ww	Cd, mg/kg ww	% Moisture	Se, µg/g dw	Se, µg/g ww	Cd, mg/kg ww
Globicephala melas	060701-0029	123	137	72	110	30.8	178
Globicephala melas	060701-0032	39.2	34.2	74	49	12.7	67.5
Globicephala melas	060701-0033	62.7	60.2	71	110	31.9	126
Globicephala melas	060701-0034	25.5	20.9	76	38	9.1	38.6
Globicephala melas	060701-0035	77	34.5	75	68	17.0	72.4
Globicephala melas	060701-0039	3.52	48.7	73	180	48.6	80
Globicephala melas	060701-0040	66.9	47.3	74	95	24.7	171
Globicephala melas	060701-0041	58.5	83.8	73	88	23.8	157
Globicephala melas	060701-0071	46.5	7.14	74	87	22.6	78
Globicephala melas	060701-0075	75.2	84.3	69	91	28.2	153
Globicephala melas	030902-0002	248	78.9	68	340	108.8	107
Globicephala melas	030902-0003	189	53.1	69	270	83.7	90.8
Globicephala melas	030902-0004		21.7	74	68	17.7	
Globicephala melas	030902-0009	153	7.33	75	110	27.5	76.6
Globicephala melas	030902-0011	479	139	70	510	153.0	106
Globicephala melas	030902-0016	343	74.8	73	540	145.8	84.7
Globicephala melas	030902-0025	240	38.2	68	220	70.4	79.6
Globicephala melas	030902-0027	240	52.4	73	230	62.1	95.4
Globicephala melas	030902-0028	163	28.8	71	150	43.5	73.9
Globicephala melas	030902-0031	315	97.4	73	430	116.1	85.7
Globicephala melas	030902-0038	574	95.2	71	480	139.2	85.4
Globicephala melas	280806-003	74.8	60.4	71	93.1	27	188
Globicephala melas	280806-007	158	81.6	74	296.2	77	157
Globicephala melas	280806-011	68.6	85.5	71	89.7	26	107
Globicephala melas	280806-012	57.9	31.1	75	72.0	18	118
Globicephala melas	280806-017	101	53.1	72	164.3	46	121
Globicephala melas	280806-021	150	81.1	73	170.4	46	150
Globicephala melas	280806-022	54.7	54.1	71	89.7	26	130
Globicephala melas	280806-036	66.6	67	73	100.0	27	171

Species	ID	Liver					Kidney
		Hg, mg/kg ww	Cd, mg/kg ww	% Moisture	Se, µg/g dw	Se, µg/g ww	Cd, mg/kg ww
Globicephala melas	060906-006	60	9.24	73	100.0	27	71.4
Globicephala melas	060906-008	62.7	51.1	72	82.1	23	115
Globicephala melas	060906-010	140	40.3	74	207.7	54	81.6
Globicephala melas	060906-013	96.7	43.2	72	92.9	26	75.8
Globicephala melas	060906-016	143	12.5	74	207.7	54	52.7
Globicephala melas	060906-027	49.3	25.4	73	70.4	19	153
Globicephala melas	060906-028	26.6	20.5	74	50.0	13	63.1
Globicephala melas	030707-004	128	23.6	69	187.1	58	35.9
Globicephala melas	030707-013	139	13.3	74	242.3	63	42.1
Globicephala melas	030707-014	351	31.2	67	454.5	150	35.7
Globicephala melas	030707-015	54.1	10.5	71	103.4	30	22.6
Globicephala melas	030707-017	67.6	7.28	69	93.5	29	31.7
Globicephala melas	030707-020	126	11.6	72	178.6	50	47.2
Globicephala melas	030707-021	199	44.4	70	433.3	130	64.9
Globicephala melas	030707-024	110	6.9	73	155.6	42	39.4
Globicephala melas	030707-025	57.1	8.6	72	107.1	30	32.4
Globicephala melas	130707-003	57.8	25.9	72	89.3	25	95.5
Globicephala melas	130707-011	51.4	29	73	63.0	17	84.5
Globicephala melas	130707-014	27.5	8.82	72	57.1	16	51.9
Globicephala melas	130707-033	69.9	67.9	70	86.7	26	174
Globicephala melas	130707-038	26.3	9.82	76	58.3	14	39.5
Globicephala melas	130707-039	70.9	63.7	70	103.3	31	128

PCBs in pilot whale blubber (µg/kg of lipids):

ID	PCB congeners (µg/kg lw)															
	Aroclor 1260	CB 28	CB 52	CB 99	CB 101	CB 105	CB 118	CB 128	CB 138	CB 153	CB 156	CB 163	CB 170	CB 180	CB 183	CB 187
060701-0006	66000	210	880	2100	2700	810	2500	770	5100	7600	310	1300	940	2500	730	2300
060701-0009	66000	100	1100	2300	2900	850	2700	780	5400	7200	290	1200	810	2200	560	2100
060701-0016	62000	52	700	1900	2200	670	2200	720	5000	7000	250	1200	910	2500	680	2200
060701-0020	78000	54	1000	2800	3100	940	3200	950	6300	8700	320	1600	920	2400	680	2200
060701-0022	33000	63	370	960	1300	410	1300	390	2600	3700	160	610	480	1200	310	1100
060701-0024	15000	59	200	380	620	210	640	190	1200	1700	91	310	230	540	150	480
060701-0026	13000	76	180	300	440	160	480	160	1000	1500	80	270	280	650	170	570
060701-0027	20000	85	370	630	960	300	900	260	1600	2300	120	450	350	830	210	760
060701-0029	23000	90	310	730	980	330	940	310	1800	2600	170	520	430	1200	310	1000
060701-0031	4500	<12	<120	82	130	49	150	54	360	530	40	89	160	430	100	310
060701-0032	15000	39	150	410	630	200	630	190	1200	1700	94	320	280	700	180	610
060701-0033	7600	32	<110	210	290	94	280	88	620	850	46	150	160	520	120	390
060701-0034	27000	92	620	850	1200	400	1200	370	2200	2900	150	590	380	930	250	840
060701-0035	22000	64	530	590	870	310	920	280	1800	2500	140	500	420	1100	290	930
060701-0036	44000	60	910	1400	1700	590	1900	540	3600	4800	230	930	690	1800	470	1500
060701-0038	14000	48	290	370	620	220	630	180	1200	1500	99	320	250	650	170	570
060701-0039	4700	21	<130	99	150	55	160	58	370	540	39	110	120	330	80	270
060701-0040	15000	19	<120	260	310	110	360	160	1200	1700	100	290	430	1300	310	900
060701-0041	5900	35	<110	130	180	73	220	69	480	660	44	120	150	430	100	320
060701-0065	52000	210	940	1500	2000	660	2000	700	4300	5800	280	1100	710	1800	510	1600
060701-0066	46000	100	810	1500	2000	670	2000	600	3800	5000	250	980	640	1600	440	1400
060701-0067	4600	15	<100	130	170	65	190	56	360	520	36	110	99	290	69	220
060701-0068	8000	81	200	150	210	95	280	96	700	840	71	190	230	610	140	420
060701-0071	64000	60	1000	1600	2000	690	2200	770	5300	7000	290	1200	1000	2700	720	2100
060701-0075	19000	170	370	480	750	280	800	240	1600	2100	130	420	370	1000	250	800

ID	PCB congeners (µg/kg lw)															
	Aroclor 1260	CB 28	CB 52	CB 99	CB 101	CB 105	CB 118	CB 128	CB 138	CB 153	CB 156	CB 163	CB 170	CB 180	CB 183	CB 187
030902-0001	7100	100	150	170	310	110	320	92	570	800	54	150	140	400	94	310
030902-0002	4100	12	<120	71	130	49	140	49	320	460	36	83	110	340	77	250
030902-0003	46000	90	840	1200	1800	660	2000	640	3800	5100	290	1000	880	2300	550	1700
030902-0004	140000	210	1900	3300	4500	1500	5100	1600	11000	16000	690	2300	2200	5800	1400	4300
030902-0008	28000	72	530	760	1200	400	1200	380	2300	3200	170	590	450	1200	300	920
030902-0009	71000	110	1200	1800	2600	950	2700	910	6000	7700	420	1400	1200	3300	750	2200
030902-0011	21000	81	360	480	770	300	860	280	1700	2300	160	440	420	1100	260	830
030902-0013	30000	87	520	970	1500	560	1600	480	2400	3300	220	740	520	1300	320	1100
030902-0014	21000	51	450	520	820	300	890	270	1700	2300	140	420	360	970	230	740
030902-0015	37000	120	780	990	1600	590	1700	490	3000	4000	230	750	540	1400	340	1100
030902-0016	9300	86	210	210	360	140	410	120	760	1000	74	200	190	520	120	390
030902-0017	13000	83	310	330	590	240	650	180	1100	1400	94	280	220	580	140	450
030902-0019	20000	94	460	560	910	330	940	270	1600	2200	130	440	300	790	210	700
030902-0020	35000	77	700	960	1300	450	1400	440	2900	3800	180	720	520	1300	370	1200
030902-0021	38000	43	640	1000	1400	490	1500	490	3200	4200	200	760	630	1600	430	1300
030902-0022	5000	11	<110	75	120	41	130	56	390	570	41	98	150	430	100	320
030902-0025	49000	77	1100	1400	2100	670	1900	660	4100	5400	290	1000	850	2300	590	1800
030902-0027	15000	78	270	370	620	230	670	200	1300	1700	110	340	300	800	200	640
030902-0028	49000	44	820	1300	1800	620	1900	620	4100	5400	250	960	850	2300	580	1800
030902-0031	35000	64	670	970	1400	500	1500	450	2900	3900	210	730	590	1600	410	1300
030902-0036	55000	82	910	1500	2200	750	2100	740	4600	5900	330	1100	970	2500	670	2100
030902-0037	40000	55	560	1000	1500	530	1500	520	3300	4400	230	810	680	1800	460	1400
030902-0038	8500	59	190	200	330	120	350	110	680	950	59	180	160	440	110	360
030902-0039	6800	23	<120	140	200	79	230	83	540	760	51	140	180	510	120	390
030902-0040	120000	110	1900	3600	5000	1700	5400	1500	9600	13000	480	2300	1400	3600	990	3300

ID	PCB congeners (µg/kg lw)															
	Aroclor 1260	**CB 28**	**CB 52**	**CB 99**	**CB 101**	**CB 105**	**CB 118**	**CB 128**	**CB 138**	**CB 153**	**CB 156**	**CB 163**	**CB 170**	**CB 180**	**CB 183**	**CB 187**
030803-001	22000	32	520	560	650	250	760	230	2000	2300	93	230	280	790	220	640
030803-002	35000	47	680	860	1000	400	1300	360	3300	3500	150	430	420	1300	330	1000
030803-003	42000	34	500	970	1000	290	990	410	3800	4300	120	500	570	1700	450	1500
030803-004	47000	24	1100	1100	1200	390	1300	470	4200	4800	160	520	650	2000	500	1700
030803-005	18000	24	370	480	600	190	590	190	1600	1900	72	260	240	630	190	620
030803-006	42000	21	1100	1100	1100	390	1300	430	3700	4400	140	480	500	1500	390	1100
030803-007	20000	27	490	500	660	220	670	210	1800	2100	85	260	260	710	200	640
030803-010	21000	23	220	510	620	240	680	240	1800	2300	97	390	330	880	250	770
030803-017	35000	20	440	990	1000	380	1200	400	3100	3800	130	520	420	1100	330	1000
030803-020	28000	33	390	720	820	280	820	320	2500	3000	110	430	400	1200	310	990
030803-021	49000	25	620	1300	1200	470	1500	530	4100	5400	170	640	640	2000	510	1500
030803-025	20000	21	170	500	490	210	620	240	1500	2400	100	360	390	1200	300	830
030803-026	11000	28	110	320	440	160	450	140	870	1300	68	230	180	530	140	440
030803-028	15000	27	<100	410	540	190	570	180	1200	1700	81	240	240	690	190	580
030803-029	61000	26	690	1700	1300	420	1500	620	5200	6600	140	960	750	2300	600	1800
030803-031	17000	21	180	480	520	200	590	210	1400	1800	75	250	260	700	190	570
030803-032	14000	11	<100	330	340	120	370	160	1200	1600	62	230	280	810	210	620
030803-035	70000	41	1000	2000	1900	640	2000	760	6200	7200	200	930	820	2300	650	2000
030803-036	41000	30	480	1000	1100	390	1200	410	3400	4500	150	540	560	1600	440	1300
030803-037	43000	59	630	1200	1400	550	1500	520	3800	4400	200	680	630	1800	470	1500
030803-038	35000	30	500	950	960	350	1100	390	3000	3800	130	490	500	1300	380	1100
030803-045	23000	30	360	600	620	250	740	260	1900	2600	100	340	350	970	270	770

ID	PCB congeners (µg/kg lw)															
	Aroclor 1260	CB 28	CB 52	CB 99	CB 101	CB 105	CB 118	CB 128	CB 138	CB 153	CB 156	CB 163	CB 170	CB 180	CB 183	CB 187
080604-005	58000	180	1700	2000	3200	920	2900	910	5100	6100	210	910	610	1600	480	1400
080604-008	49000	42	1300	1500	1600	410	1400	700	4300	5100	99	610	670	1800	550	1600
080604-011	26000	52	680	780	1100	290	940	380	2200	2800	87	380	340	930	260	780
080604-013	23000	72	650	720	1200	330	980	370	2000	2500	90	360	300	850	240	780
080604-014	36000	22	870	1300	1200	400	1300	550	3300	3700	100	430	440	1200	370	1000
080604-015	66000	170	2100	2400	3800	960	3000	1000	5900	6800	220	960	640	1700	540	1700
080604-016	22000	66	820	750	1000	280	840	360	2000	2400	72	310	290	780	230	670
080604-017	36000	31	930	1200	1300	460	1300	580	3200	3700	130	430	460	1300	370	1000
080604-018	40000	120	1200	1300	2100	550	1700	640	3500	4300	140	550	490	1300	390	1100
080604-019	15000	45	350	450	690	190	560	240	1300	1600	63	220	200	520	150	460
080604-025	28000	45	540	890	1100	390	1200	350	2300	3100	110	450	400	1100	290	920
080604-027	21000	51	390	730	850	290	880	260	1700	2300	90	340	350	970	240	790
080604-030	53000	150	1400	1700	2500	760	2300	670	4300	5900	230	910	690	1800	520	1600
080604-031	18000	75	400	550	790	250	710	240	1400	2000	86	330	280	750	190	650
080604-032	23000	82	570	680	1100	330	990	290	1900	2500	110	340	340	970	260	860
080604-034	14000	67	330	430	650	210	630	180	1100	1600	74	260	230	620	160	540
080604-035	36000	58	690	1100	1500	470	1500	430	2900	4100	160	610	520	1400	380	1200
080604-036	14000	29	200	350	530	170	510	170	1100	1600	52	230	250	740	190	620
080604-038	19000	45	410	590	760	250	770	230	1600	2100	81	330	280	720	190	640
080604-039	21000	130	540	690	990	350	1000	270	1700	2300	130	350	290	740	200	650
080604-040	30000	33	430	800	1100	330	1100	350	2400	3300	110	470	480	1400	350	1200
080604-041	26000	68	490	750	1100	320	990	330	2100	2900	120	420	470	1300	330	1100
080604-042	52000	72	720	1500	1900	560	1800	610	4100	5900	190	810	790	2200	560	1700
080604-043	19000	55	540	600	710	250	790	230	1600	2100	72	320	260	700	190	610
080604-045	23000	62	490	720	770	340	960	290	2000	2500	120	350	360	1000	270	800

ID	PCB congeners (µg/kg lw)															
	Aroclor 1260	**CB 28**	**CB 52**	**CB 99**	**CB 101**	**CB 105**	**CB 118**	**CB 128**	**CB 138**	**CB 153**	**CB 156**	**CB 163**	**CB 170**	**CB 180**	**CB 183**	**CB 187**
280806-002	50000	320	1200	1700	2600	820	2500	820	4300	5200	210	670	470	1400	420	1300
280806-004	34000	100	730	1000	1400	460	1400	500	2900	3600	120	460	400	1200	360	1100
280806-005	49000	180	1600	1800	2500	780	2400	770	4200	5300	190	610	440	1200	390	1200
280806-006	86000	89	2200	2800	3200	890	3200	1200	7400	9200	210	1200	770	2100	610	2000
280806-013	21000	66	590	730	990	320	980	330	1700	2300	85	340	260	710	200	630
280806-018	21000	87	580	680	970	310	940	330	1800	2300	93	330	280	750	220	680
280806-019	24000	100	820	780	1100	370	1100	370	2000	2600	93	370	300	810	230	720
280806-026	35000	42	1000	1500	1400	430	1400	530	2900	3700	120	530	470	1300	370	1200
280806-027	25000	120	920	880	1200	400	1100	400	2100	2700	91	390	310	830	240	770
280806-029	32000	130	1200	1200	1700	520	1500	520	2700	3500	130	500	410	1100	320	990
280806-030	36000	100	1500	1200	1500	450	1400	550	3000	3900	130	490	420	1200	320	1000
280806-032	20000	63	540	690	980	290	840	330	1700	2200	88	310	260	720	210	660
280806-034	23000	58	590	760	1000	300	910	380	2000	2500	92	370	310	840	240	760
280806-035	21000	110	700	830	1100	340	1000	330	1800	2300	89	340	250	690	200	640
280806-037	33000	160	1200	1200	1700	510	1500	510	2700	3600	130	490	420	1200	330	1000
060906-004	43000	44	1000	1500	1300	550	1500	650	3600	4600	160	510	560	1700	450	1200
060906-015	13000	40	230	380	560	190	560	200	1000	1400	62	220	170	480	140	430
060906-018	28000	63	710	1000	1000	470	1300	470	2400	3000	110	390	310	820	240	660
060906-023	27000	27	410	710	700	300	920	380	2100	3000	89	340	390	1200	320	840
060906-024	17000	59	290	650	690	230	670	280	1400	1800	82	290	230	610	180	570
060906-025	21000	65	380	560	790	270	810	340	1800	2400	100	360	310	850	240	740
060906-031	20000	34	550	710	520	270	780	340	1800	2100	85	280	310	850	240	640
060906-038	17000	240	840	630	820	290	840	280	1400	1900	88	310	210	590	170	540
060906-046	20000	81	630	550	740	250	760	310	1700	2200	86	320	280	800	220	650
060906-050	13000	59	380	420	510	170	530	200	1100	1500	53	220	210	620	160	510

ID	PCB congeners (µg/kg lw)															
	Aroclor 1260	CB 28	CB 52	CB 99	CB 101	CB 105	CB 118	CB 128	CB 138	CB 153	CB 156	CB 163	CB 170	CB 180	CB 183	CB 187
030707-002	71000	74	1900	2400	2300	670	2300	820	6100	7500	170	1000	700	1900	530	1800
030707-006	42000	52	970	1400	1500	530	1700	520	3600	4500	130	660	500	1400	390	1200
030707-007	9600	<9	<9	170	160	57	180	98	770	1100	32	140	230	690	180	540
030707-008	15000	36	320	420	570	200	590	180	1200	1600	62	210	190	550	150	480
030707-009	22000	45	380	650	870	320	950	270	1800	2400	84	360	270	770	210	660
030707-010	17000	62	370	540	760	270	740	220	1500	1800	81	290	220	580	170	570
030707-011	24000	23	390	720	710	260	860	280	2000	2600	80	360	330	940	250	740
030707-018	13000	45	240	360	510	190	550	160	1100	1400	62	200	190	530	140	460
030707-022	22000	35	300	600	770	270	820	260	1800	2500	86	320	320	900	250	780
030707-027	25000	68	540	730	1000	380	1100	300	2000	2800	100	370	300	830	230	730
030707-028	16000	44	270	450	620	220	640	200	1400	1700	68	270	230	620	170	560
130707-001	22000	49	530	660	890	300	900	260	2000	2300	99	370	250	670	190	660
130707-005	17000	28	250	440	570	190	580	180	1500	1700	50	240	210	560	160	520
130707-006	28000	53	530	830	1000	350	1100	320	2700	2800	93	420	310	750	220	720
130707-007	18000	36	340	510	600	230	690	200	1600	1800	68	280	220	560	150	510
130707-008	14000	56	300	350	550	180	530	160	1200	1500	57	230	190	570	150	510
130707-010	16000	48	320	500	630	250	710	200	1500	1600	71	270	200	510	140	460
130707-015	38000	87	760	1100	1700	520	1600	420	3500	3900	120	520	410	1300	320	1200
130707-019	17000	38	440	470	620	210	640	200	1600	1700	61	270	220	580	160	520
130707-023	29000	82	500	730	1100	380	1100	320	2500	3000	88	420	330	940	260	860
130707-026	29000	59	600	870	1100	410	1300	340	2700	2800	110	450	340	950	230	770
130707-029	20000	32	290	480	640	230	680	230	1900	2100	81	310	290	790	220	720
130707-035	17000	51	270	410	640	230	640	190	1500	1800	62	260	230	660	180	590
130707-043	15000	34	270	400	580	210	600	180	1400	1600	56	240	200	570	150	480
130707-050	22000	37	410	620	950	280	860	260	1900	2300	81	390	260	720	210	710

Organochlorinated pesticides and toxaphene in pilot whale blubber (µg/kg of lipids):

ID	% of Lipids	Organochlorinated pesticides (µg/kg lw)								DDT isomeres and metabolites (µg/kg lw)						Toxaphene (µg/kg lw)				
		Alpha-chlordane	Gamma-chlordane	Cis-nonachlor	Trans-nonachlor	Hexachlorobenzene	Mirex	Oxychlordane	ß-HCH	p,p'-DDE	p,p'-DDT	o,p'-DDD	o,p'-DDE	o,p'-DDT	p,p'-DDD	Parlar no. 26	Parlar no. 32	Parlar no. 50	Parlar no. 62	Parlar no. 69
060701-006	82	1200	75	1800	6900	1700	230	1200	65	11000	1400	230	210	1100	1000	4300	20	6500	1600	<14
060701-009	65	510	14	1600	7200	890	190	1300	58	13000	1500	260	260	1500	1300	4300	7.4	5900	720	<18
060701-016	69	520	19	1300	5600	510	260	780	44	14000	1100	200	190	1400	1100	3100	5.8	4200	630	<16
060701-020	73	820	19	2000	8600	830	170	1400	57	16000	1600	270	250	1600	1300	4900	6.5	6200	660	<15
060701-022	50	360	14	700	2800	400	120	430	47	7500	920	150	130	820	960	1800	6.5	2800	520	<24
060701-024	77	310	25	460	1500	870	55	240	23	3700	680	120	88	530	550	1000	5.7	1800	480	<15
060701-026	77	160	11	300	1200	320	91	150	27	3800	580	85	80	510	490	710	4	1200	310	<15
060701-027	76	320	11	560	1900	490	84	330	54	4300	740	120	100	540	710	1300	4	2300	480	<16
060701-029	85	330	18	610	2300	540	200	360	30	5400	870	130	110	710	620	1500	5.1	2400	480	<14
060701-031	78	81	10	120	360	100	130	49	5.5	1000	430	36	26	190	200	220	2.9	440	180	<14
060701-032	81	260	19	430	1600	320	120	230	20	4000	690	110	84	510	550	990	3.6	1500	410	<14
060701-033	87	170	17	230	800	250	79	120	13	1800	440	57	42	300	320	490	5.4	930	270	<13
060701-034	84	330	12	740	2700	580	71	460	50	5600	770	150	140	860	720	1700	9	2400	380	<11
060701-035	75	360	17	590	1900	540	110	330	41	4600	890	130	110	740	610	1400	8.9	2500	560	<12
060701-036	83	750	24	1400	4500	880	200	820	54	7600	1400	220	170	1100	980	3100	14	5000	880	<12
060701-038	77	250	12	430	1300	480	89	250	33	3000	700	100	84	490	560	930	5	1800	420	<15
060701-039	67	85	9.8	140	440	220	70	59	13	1200	380	36	31	200	220	260	2.7	550	190	<16
060701-040	74	150	15	290	1100	130	200	110	8.8	3400	690	75	63	500	370	520	4.3	950	260	<15
060701-041	80	120	14	170	540	380	75	84	12	1400	450	57	43	300	290	340	3.8	660	220	<13
060701-065	65	630	40	1200	4800	1400	150	730	68	13000	1400	250	260	1500	1200	2800	10	4200	930	<14
060701-066	62	580	21	1300	4700	1300	150	850	59	9900	1500	250	230	1400	1200	3100	8.5	4700	820	<17
060701-067	78	120	13	150	460	280	68	69	12	1300	380	51	45	220	260	310	6.1	610	210	<12
060701-068	70	140	14	220	670	580	110	99	19	2000	600	64	48	330	340	420	4.5	890	310	<14
060701-071	80	400	9.6	1100	4000	590	240	640	63	14000	1300	210	220	1700	1200	2600	7.5	3700	460	<14
060701-075	58	330	21	560	1800	540	150	320	25	4400	900	130	91	590	600	1300	7.2	2200	530	<19

		Organochlorinated pesticides (µg/kg lw)								DDT isomeres and metabolites (µg/kg lw)						Toxaphene (µg/kg lw)				
ID	% of Lipids	Alpha-chlor dane	Gamma-chlor dane	Cis-nona chlor	Trans-nona chlor	Hexa chloro benzene	Mirex	Oxy chlor dane	ß-HCH	p,p'-DDE	p,p'-DDT	o,p'-DDD	o,p'-DDE	o,p'-DDT	p,p'-DDD	Parlar no. 26	Parlar no. 32	Parlar no. 50	Parlar no. 62	Parlar no. 69
030902-0001	70	160	12	240	690	320	100	120	13	1800	460	75	54	290	350	480	3.4	940	270	<16
030902-0002	83	76	7.5	120	340	70	110	38	7.4	1000	310	28	22	120	160	200	3.5	430	130	<14
030902-0003	79	490	21	1100	3400	590	340	450	35	11000	1500	150	110	870	950	2200	5.1	3800	820	<15
030902-0004	40	1100	35	2800	12000	1100	860	1200	66	23000	2800	340	320	2400	1900	6900	10	11000	1600	<29
030902-0008	84	220	9.3	600	2300	410	180	320	24	7100	870	140	130	670	650	1400	4.9	1800	280	<13
030902-0009	82	590	18	1300	5100	730	440	590	45	12000	1600	150	120	1000	1000	3100	7.5	4100	710	<14
030902-0011	88	240	11	530	1600	390	260	220	18	4500	910	110	86	470	540	1100	4	2000	440	<13
030902-0013	87	400	9.7	970	3100	640	220	480	35	7400	1200	180	140	820	950	2100	4.7	3200	590	<14
030902-0014	87	250	8.4	530	1700	460	160	250	24	4500	820	120	100	500	570	1100	3.6	1800	320	<13
030902-0015	86	380	7.8	970	3600	760	240	520	52	6200	1100	160	140	680	830	2100	3.7	3600	510	<13
030902-0016	80	160	10	270	800	290	150	110	14	2500	640	71	53	270	350	540	4.2	1100	300	<14
030902-0017	74	290	18	410	1200	720	110	200	20	3300	880	110	86	410	480	880	6.7	1600	510	<15
030902-0019	78	380	11	660	1900	690	120	350	28	4500	910	160	130	680	780	1300	4.6	2500	570	<15
030902-0020	68	380	11	870	3100	1200	170	530	40	7800	1100	190	170	920	890	1900	5.7	2800	460	<15
030902-0021	69	420	21	910	3300	610	200	500	28	9500	1300	180	170	1200	1000	2000	5.6	2900	590	<17
030902-0022	73	71	8.2	120	370	83	96	39	5	1100	320	32	21	150	160	180	3.6	390	140	<13
030902-0025	64	480	17	1000	3800	1100	290	560	34	12000	1500	200	150	1200	1000	3300	4.9	3000	580	<17
030902-0027	62	250	11	470	1500	480	150	250	21	4300	850	140	110	640	590	990	4	1700	390	<19
030902-0028	66	460	16	1000	3700	670	310	540	27	13000	1500	210	160	1300	1100	2300	5.3	3300	640	<18
030902-0031	65	340	11	890	3100	580	270	500	32	7400	980	170	150	890	840	1900	5.2	2900	500	<17
030902-0036	68	580	18	1200	4200	770	340	600	37	13000	1800	190	160	1200	1100	2700	5.5	4100	810	<17
030902-0037	74	360	16	870	3100	580	240	460	26	9400	1200	150	140	920	790	1900	4.9	3100	680	<15
030902-0038	66	170	12	270	820	260	100	120	11	2500	580	73	59	340	360	530	3.1	1000	310	<17
030902-0039	70	120	11	200	600	150	100	85	10	1800	480	57	37	280	280	330	4.6	670	220	<15
030902-0040	63	2200	78	4000	12000	2500	400	2200	120	17000	2200	420	380	1900	1900	9600	26	15000	3100	<18

ID	% of Lipids	Organochlorinated pesticides (µg/kg lw)										Toxaphene (µg/kg lw)				
		Alpha-chlordane	Gamma-chlordane	Cis-nonachlor	Trans-nonachlor	Hexachlorobenzene	Mirex	Oxychlordane	ß-HCH	p,p'-DDE	p,p'-DDT	Parlar no. 26	Parlar no. 32	Parlar no. 50	Parlar no. 62	Parlar no. 69
030803-001	67	180	5.9	470	1300	630	140	360	22	6100	680	1100	<1	1600	220	<3
030803-002	77	260	4.7	740	1900	500	220	540	29	7500	930	1800	3.9	2700	340	<2
030803-003	74	180	8.8	510	2500	230	190	320	15	13000	570	1400	<1	1600	170	<3
030803-004	83	200	4.8	750	2900	380	290	510	29	12000	990	1900	3.1	2200	180	<2
030803-005	85	190	6.9	410	1700	290	120	270	19	4400	450	1100	2.1	1600	200	<2
030803-006	82	250	6.2	800	2700	610	210	690	40	11000	740	2300	4.2	3300	340	<2
030803-007	79	250	7.4	520	1500	430	150	310	30	4900	590	1200	4.8	1900	280	<2
030803-010	85	150	4.7	440	1400	320	130	280	21	7900	700	1100	<1	1600	240	<2
030803-017	77	200	4.4	700	2300	380	140	530	28	12000	970	1900	<1	2500	280	<2
030803-020	83	170	5.4	500	1900	310	150	310	26	11000	640	1300	<1	1600	200	<2
030803-021	79	240	5	870	2600	650	240	640	34	17000	1200	2300	<1	3000	260	<2
030803-025	81	160	6.4	440	1300	220	190	270	14	6800	670	1000	2.6	1500	180	<2
030803-026	82	200	8.8	350	910	330	130	170	14	3400	460	780	2.4	1500	290	<2
030803-028	72	130	3.7	350	1000	400	110	210	14	5200	520	840	<1	1400	180	<3
030803-029	84	170	3.4	770	3200	310	210	610	30	26000	740	2300	<1	2300	150	<2
030803-031	65	110	3.4	340	1100	230	100	260	16	6200	550	940	<1	1400	160	<3
030803-032	81	77	3.4	240	910	120	130	140	9.7	5100	450	590	<1	840	110	<2
030803-035	82	310	7.7	1000	3800	510	200	780	42	26000	1800	3000	5.8	3500	290	<2
030803-036	82	240	5	740	2300	460	240	550	25	10000	1100	1900	2.8	3000	300	<2
030803-037	81	340	11	920	2900	530	270	630	30	13000	1400	2300	2.5	3300	400	<2
030803-038	77	200	4.2	690	2200	380	180	510	29	12000	960	1800	2.8	2400	240	<3
030803-045	82	190	6.5	490	1300	360	150	350	24	7100	840	1200	2.7	1900	260	<2

ID	% of Lipids	Organochlorinated pesticides (µg/kg lw)										Toxaphene (µg/kg lw)				
		Alpha-chlor dane	Gamma-chlor dane	Cis-nona chlor	Trans-nona chlor	Hexa chloro benzene	Mirex	Oxy chlor dane	ß-HCH	p,p'-DDE	p,p'-DDT	Parlar no. 26	Parlar no. 32	Parlar no. 50	Parlar no. 62	Parlar no. 69
080604-005	84	780	27	1400	5100	1400	140	1200	120	4700	880	4200	29	6600	960	<2
080604-008	80	250	8.5	770	3800	920	230	550	41	9600	830	2400	5.4	2500	310	34
080604-011	68	210	8.2	510	2200	850	97	320	29	4300	560	1400	6	1700	250	8.9
080604-013	80	230	8.5	540	2000	1200	140	340	35	4400	680	1500	7.3	2100	370	22
080604-014	59	270	7.2	910	2500	440	170	710	42	6800	900	2500	9.9	3200	450	20
080604-015	82	830	24	1500	5400	1600	180	1100	110	6000	930	4500	25	6400	1100	13
080604-016	91	250	11	550	2200	910	110	360	34	4000	640	1500	8.4	2100	340	18
080604-017	94	320	9.6	960	2400	650	200	840	58	6500	1100	2700	9.5	3800	630	29
080604-018	76	320	10	730	3300	900	140	630	62	4800	730	2400	7.2	3200	460	24
080604-019	69	210	13	320	1100	420	51	210	29	2400	450	840	10	1300	300	7.7
080604-025	87	230	8.2	650	2600	610	160	570	34	5800	600	1800	5.3	2800	380	<2
080604-027	79	230	8.8	510	2100	500	130	390	23	3600	540	1400	<1	2300	350	<2
080604-030	82	710	23	1300	4700	840	190	730	99	6400	610	3400	7	4800	700	<2
080604-031	84	250	9.3	510	1900	350	88	300	27	3500	400	1300	4.1	1900	260	<2
080604-032	81	320	9.2	630	2300	540	180	370	33	4700	610	1600	<1	2300	360	<2
080604-034	83	250	11	440	1500	400	97	270	28	2600	420	1100	<0.9	1800	310	<2
080604-035	83	240	7.3	670	3000	630	210	530	52	5000	500	1900	<0.9	2700	310	<2
080604-036	81	190	7.1	360	1300	370	160	170	15	3300	380	780	<0.9	1300	240	<2
080604-038	78	240	10	500	2000	390	79	330	25	4200	570	1300	<1	1700	270	<2
080604-039	83	500	28	770	2400	970	78	480	34	3000	620	1900	<0.9	3200	660	<2
080604-040	86	230	6.5	600	2500	470	180	360	30	5700	580	1500	4.1	2200	280	<2
080604-041	71	280	7.8	620	2500	410	150	410	39	4500	490	1600	4.6	2600	340	<2
080604-042	82	410	14	1100	4900	540	260	650	27	7500	650	2700	6.2	3400	400	<2
080604-043	83	210	11	460	1900	1500	87	310	27	4100	470	1200	<1	1600	220	<2
080604-045	76	160	5.6	530	1600	730	210	510	29	5900	750	1600	4.1	2200	330	<2

ID	% of Lipids	Organochlorinated pesticides (µg/kg lw)								DDT isomeres and metabolites (µg/kg lw)						Toxaphene (µg/kg lw)				
		Alpha-chlordane	Gamma-chlordane	Cis-nonachlor	Trans-nonachlor	Hexachlorobenzene	Mirex	Oxychlordane	ß-HCH	p,p'-DDE	p,p'-DDT	o,p'-DDD	o,p'-DDE	o,p'-DDT	p,p'-DDD	Parlar no. 26	Parlar no. 32	Parlar no. 50	Parlar no. 62	Parlar no. 69
280806-002	82	730	27	1500	5200	2100	150	970	83	8400	1200	270	230	1100	1300	3700	4.3	5500	900	<2
280806-004	83	410	8.2	910	3600	1200	180	590	52	6000	860	180	140	750	890	2200	<0.9	3400	440	<2
280806-005	76	730	34	1400	5400	2500	130	1000	120	9400	1100	300	240	1200	1300	3600	<1	5000	830	<2
280806-006	79	750	25	2000	8200	1400	160	1300	73	12000	1300	310	240	1700	1800	5700	21	6700	720	<2
280806-013	69	320	8.8	660	2200	610	110	390	30	4700	810	140	100	610	850	1500	9.9	2900	500	<3
280806-018	71	430	20	720	2400	830	110	420	32	4500	790	140	96	600	800	1700	13	3100	640	<3
280806-019	71	580	36	840	2500	1300	120	450	44	4600	880	170	110	630	920	1900	20	3800	950	<2
280806-026	59	400	9.7	970	3600	820	180	620	44	8000	1000	210	150	960	1200	2400	10	3800	480	<3
280806-027	69	590	36	890	2800	1500	130	540	59	4900	1000	180	110	720	1000	2100	18	4100	970	<3
280806-029	73	820	50	1200	3500	1700	160	650	63	5000	950	180	110	700	1000	2800	32	5500	1400	<2
280806-030	66	350	10	900	3600	1300	150	540	61	7300	800	160	130	830	940	2100	11	3200	440	<3
280806-032	67	250	8.5	570	2000	460	100	360	27	4200	650	130	90	550	700	1300	9.1	2300	350	<3
280806-034	66	310	14	640	2300	430	120	370	30	5000	660	130	90	620	720	1500	10	2600	450	<3
280806-035	59	500	30	720	2200	1400	110	450	38	4000	840	150	100	580	760	1600	17	3200	890	<3
280806-037	58	700	45	1100	3200	1900	200	600	61	4900	1000	180	110	710	980	2500	21	4900	1200	<3
060906-004	74	240	6.1	1100	2300	1300	280	1100	62	11000	1600	78	56	360	1800	3000	9.1	4600	980	<2
060906-015	87	130	6.2	310	1200	280	77	200	19	3300	380	74	61	300	450	760	7	1400	210	<2
060906-018	87	260	6	820	1900	950	100	790	58	7600	920	74	50	280	1300	2300	8.4	3500	620	<2
060906-023	84	190	3.6	590	1500	460	170	420	32	7100	730	58	43	300	860	1400	6.6	2200	360	<2
060906-024	88	190	8.5	430	1600	260	80	240	20	4000	440	88	76	390	520	960	6.7	1500	200	<2
060906-025	89	210	7.7	450	1600	340	100	250	43	4300	380	71	48	340	540	980	9	1700	250	<2
060906-031	90	110	3.5	470	1200	650	120	410	38	6800	730	50	35	240	920	1200	5.4	1500	220	<2
060906-038	79	380	15	570	1700	1600	100	330	76	3600	610	130	85	410	700	1200	11	2400	460	<2
060906-046	76	160	7.2	370	1500	910	110	230	31	5900	510	91	80	490	560	900	<1	1400	230	<2
060906-050	80	130	4.7	280	950	1300	88	180	39	3900	410	81	63	330	480	670	<1	1100	180	<2

ID	% of Lipids	Organochlorinated pesticides (µg/kg lw) Alpha-chlordane	Gamma-chlordane	Cis-nonachlor	Trans-nonachlor	Hexachlorobenzene	Mirex	Oxychlordane	ß-HCH	p,p'-DDE	p,p'-DDT	Toxaphene (µg/kg lw) Parlar no. 26	Parlar no. 32	Parlar no. 50	Parlar no. 62	Parlar no. 69
030707-002	78	250	3.4	1000	5200	1600	160	890	70	17000	540	3300	3.9	3500	310	<2
030707-006	88	360	5.3	1000	3100	780	180	710	46	6300	460	2700	<0,7	3900	450	<1
030707-007	83	39	2.1	120	500	140	110	51	3.6	2300	210	240	<0,9	420	84	3.5
030707-008	76	100	2.6	330	1100	430	100	230	21	3300	350	860	1.7	1300	180	<2
030707-009	75	270	4.6	610	1800	480	140	310	22	3700	410	1300	<0,9	2000	250	<2
030707-010	79	260	4.7	560	1600	540	93	280	27	3400	450	1200	3.3	2000	310	<2
030707-011	77	130	2.8	440	1500	260	150	360	19	6500	420	1200	<1	1700	200	<2
030707-018	77	150	3	340	1000	450	93	190	16	2900	380	780	<1	1300	210	<2
030707-022	68	170	2.9	500	1700	340	150	300	19	4900	480	1200	<1	1800	230	<2
030707-027	80	330	7.1	700	1900	920	150	370	33	3900	540	1600	<1	3000	540	<2
030707-028	67	150	3	390	1300	330	93	240	20	3900	380	900	<1	1400	190	<2
130707-001	92	240	7	530	1800	590	88	370	41	3700	550	1400	<1	2000	310	<2
130707-005	92	150	6.2	340	1400	260	75	220	16	4000	460	900	<0,9	1300	210	<2
130707-006	91	300	13	590	2100	520	68	380	30	4900	600	1500	<1	2200	370	<2
130707-007	86	160	6	400	1500	310	80	260	22	4100	520	1000	<1	1600	250	<2
130707-008	94	110	3.3	280	940	340	110	160	19	3800	440	680	1	920	140	<2
130707-010	85	230	9	460	1400	460	72	280	25	3400	670	1100	<1	1700	300	<2
130707-015	96	490	13	890	2700	1000	190	510	62	5500	670	2300	<0,9	3700	740	3.9
130707-019	95	150	5.4	350	1200	350	74	230	29	3300	450	930	<0,9	1300	220	<2
130707-023	99	280	4.5	600	1800	580	180	300	33	5500	630	1400	<1	2200	360	<2
130707-026	94	290	7	670	2400	520	110	430	31	4300	680	1700	<0,9	2300	330	<2
130707-029	94	170	5.6	410	1300	230	130	190	21	5300	550	930	<0,9	1400	250	3.4
130707-035	93	250	10	420	1100	450	120	180	23	3800	640	960	<1	1800	470	<2
130707-043	97	130	3.5	330	1000	330	100	190	21	3300	490	780	<0,9	1300	230	3.4
130707-050	94	190	3.7	470	1600	320	110	290	24	4500	450	1200	3.4	1700	250	4.3

Attachment 6: Mountain hare

Species	ID	Date when shoot	Location	Weigth, g	Length, cm	Length - foot	Length - head	Gender	Age	Liver, g	Ammonition	Liver Hg, µg/kg	Liver Cd, µg/kg
Lepus timidus	Lt-0051	20-11-2004	Signabøhagi	2708	71	14	10.4	M		76.2	Steel	49.3	719
Lepus timidus	Lt-0052	20-11-2004	Signabøhagi	2824	78	14.6	9.8	M		88.2	Steel	19.6	16.5
Lepus timidus	Lt-0053	20-11-2004	Signabøhagi	2995	76	13.8	9.9	M		67.5	Lead	93.9	1360
Lepus timidus	Lt-0054	27-11-2004	Heimihagi, Norðadalur	2908	81.5	14.6	9.9	F		61.4	Lead	154	173
Lepus timidus	Lt-0055	27-11-2004	Heimihagi, Norðadalur	2446	72	13.7	9.2	F		108.2	Lead	108	74.9
Lepus timidus	Lt-0056	18-12-2004	Signabøhagi	2864	73	14	9.9	M		81.3	Steel	54	136
Lepus timidus	Lt-0057	18-12-2004	Signabøhagi	1980	68	13.2	8.5	F		78.8	Lead	71	43.8
Lepus timidus	Lt-0058	18-12-2004	Signabøhagi	2940	77	14.4	8.8	F		88	Lead	111	211
Lepus timidus	Lt-0059	18-12-2004	Signabøhagi	2320	76	14.5	9.6	F		59.9	Lead	206	462
Lepus timidus	Lt-0060	18-12-2004	Signabøhagi	2723	76	15	9.9	F		94	Lead	117	216
Lepus timidus	Lt-0061	18-12-2004	Signabøhagi	2039	73	14.5	9.4	F		61.2	Lead	94.4	146
Lepus timidus	Lt-0062	18-12-2004	Signabøhagi	2390	75	15	9.7	F		69.7	Lead	86.9	111
Lepus timidus	Lt-0063	28-12-2004	Signabøhagi	1673	64	11.6	8.5	F		54.9	Lead	78.4	119
Lepus timidus	Lt-0064	28-12-2004	Signabøhagi	2809	70	13.8	9.5	F		88.6	Lead	74.8	326
Lepus timidus	Lt-0065	28-12-2004	Signabøhagi	2983	69	13.5	9.8	M		69.1	Lead	90.1	183
Lepus timidus	Lt-0066	02-11-2006	Heimihagi, Norðadalur	1711	63	12	8.4	M		51.7	Lead	310	40.2
Lepus timidus	Lt-0067	02-11-2006	Heimihagi, Norðadalur	2831	72	14	9.9	M		67.2	Lead	335	496
Lepus timidus	Lt-0068	02-11-2006	Heimihagi, Norðadalur	2693	74	14	9.7	F		139	Lead	33.9	175
Lepus timidus	Lt-0069	02-11-2006	Heimihagi, Norðadalur	2682	74	14	9.7	F		74	Lead	86.9	107
Lepus timidus	Lt-0070	02-12-2006	Signabøhagi	2910	76	13.5	9.5	F	½ Adult	129.2	Lead	60.3	148
Lepus timidus	Lt-0071	02-12-2006	Signabøhagi	3132	71	14	10.3	F	½ Adult	102.7	Lead	61.5	293
Lepus timidus	Lt-0072	08-12-2006	Heimihagi, Norðadalur	2953	76	14	10.5	M	Adult	104.8	Lead	72.5	168
Lepus timidus	Lt-0073	08-12-2006	Heimihagi, Norðadalur	2023	72	11.5	9	M	juvenile	60.7	Lead	97.6	115
Lepus timidus	Lt-0074	08-12-2006	Heimihagi, Norðadalur	2826	76	14	9.5	F	½ Adult	92.5	Lead	103	237
Lepus timidus	Lt-0075	22-12-2006	Signabøhagi	2398	72	14	9.7	M	Adult	79.9	Lead	45.7	159
Lepus timidus	Lt-0076	22-12-2006	Signabøhagi	3038	80.5	15	9.7	M	Adult	70.9	Lead	62.5	157
Lepus timidus	Lt-0077	22-12-2006	Signabøhagi	2281	77	14	9.2	F	½ Adult	63.4	Lead	86.8	164
Lepus timidus	Lt-0078	22-12-2006	Signabøhagi	2068	73.5	12.5	9.4	F	juvenile	62.5	Lead	34.9	82.6
Lepus timidus	Lt-0079	27-12-2006	Heimihagi, Norðadalur	2268	67	12.5	9	F	juvenile	62.3	Lead	128	82
Lepus timidus	Lt-0080	27-12-2006	Heimihagi, Norðadalur	2612	71.5	14	11	M	Adult	64.6	Lead	82.9	76
Lepus timidus	Lt-0081	27-12-2006	Heimihagi, Norðadalur	2102	67.5	12.5	9.5	F	juvenile	64.3	Lead	82.7	42.2
Lepus timidus	Lt-0082	27-12-2006	Heimihagi, Norðadalur	3359	77.5	15	11		Adult	90.7	Lead	22.1	102

PCBs in hare liver (ng/g of wet weight)

Parameter	CB 28	CB 52	CB 101	CB 118	CB 138	CB 153	CB 180	Sum PCB 7
Enhet	ng/g ww	ng/g ww	ng/g ww	ng/g ww	ng/g ww	ng/g ww	ng/g ww	ng/g ww
Lt-0051	0.026	0.0051	<0.001	0.039	0.019	0.0088	0.33	0.41
Lt-0053	0.017	0.0075	0.0065	0.018	0.014	0.02	0.043	0.11
Lt-0054	0.02	0.0091	0.0071	0.025	0.016	0.024	0.09	0.17
Lt-0058	0.015	0.0058	<0.001	0.012	0.015	0.023	0.91	0.97
Lt-0059	0.014	0.0068	<0.001	0.017	0.015	0.0074	0.24	0.29
Lt-2004-1	0.024	0.0099	<0.001	0.022	0.038	0.056	1	1.1
Lt-2004-2	0.019	0.0062	<0.001	0.024	0.014	0.025	0.52	0.6

Organochlorinated pesticides and toxaphene in hare liver (ng/g of wet weight)

Parameter	Hexaklorbensen	o,p-DDD	p,p-DDD	o,p-DDE	p,p-DDE	o,p-DDT	p,p-DDT	ß-HCH	Fett livsmedel
Enhet	ng/g ww	ng/g ww	ng/g ww	ng/g ww	ng/g ww	ng/g ww	ng/g ww	ng/g ww	g/100 g
Lt-0051	0.75	<0.1	0.21	<0.1	<0.1	0.68	<0.1	<0.1	1.43
Lt-0053	0.19	0.35	0.34	0.14	0.15	0.62	0.39	<0.1	1.12
Lt-0054	0.47	0.26	0.19	<0.1	0.1	0.44	0.19	<0.1	1.68
Lt-0058	0.4	0.25	0.24	0.12	0.12	0.24	0.15	<0.1	1.47
Lt-0059	0.24	<0.1	0.14	<0.1	<0.1	0.3	0.17	<0.1	2.32
Lt-2004-1	0.41	<0.1	0.11	<0.1	<0.1	0.37	0.14	<0.1	1.17
Lt-2004-2	0.39	<0.1	<0.1	<0.1	<0.1	0.35	0.14	<0.1	1.48

Attachment 7: Arctic char

Species	ESB ID	Catching date	Length, cm	Weight, g	Liver, g	Condition index	Gender	Hg in muscle mg/kg	% moisture	Se, ug/g dw	Se, ug/g ww
Salvelinus alpinus	**Sa-0130**	July 2002	36.4	490	9.6	1.02	female	0.331	76	6.1	1.46
Salvelinus alpinus	**Sa-0131**	July 2002	37.7	446	5.5	0.83	female	0.438	79	6.3	1.32
Salvelinus alpinus	**Sa-0132**	July 2002	36.9	570	4.9	1.13	male	0.243	75	6.2	1.55
Salvelinus alpinus	**Sa-0133**	July 2002	34.8	548	5.8	1.30	female	0.273	74	6	1.56
Salvelinus alpinus	**Sa-0134**	July 2002	37.0	581	8.4	1.15	female	0.294	75	5.3	1.33
Salvelinus alpinus	**Sa-0135**	July 2002	37.5	597	5.7	1.13	male	0.124	77	7	1.61
Salvelinus alpinus	**Sa-0136**	July 2002	38.5	543.5	6.2	0.95	male	0.257	78	6.3	1.39
Salvelinus alpinus	**Sa-0137**	July 2002	35.0	560.5	8.7	1.31	female	0.243	72	4.9	1.37
Salvelinus alpinus	**Sa-0138**	July 2002	37.5	578	6.8	1.10	male	0.241	77	6	1.38
Salvelinus alpinus	**Sa-0139**	July 2002	35.5	593	7.3	1.33	male	0.153	72	5.1	1.43
Salvelinus alpinus	**Sa-0140**	July 2002	38.5	469.7	5.6	0.82	male	0.445	80	6.8	1.36
Salvelinus alpinus	**Sa-0141**	July 2002	38.0	616	4.6	1.12	male	0.275	78	6.2	1.36
Salvelinus alpinus	**Sa-0142**	July 2002	36.5	557	6.2	1.15	male	0.33	78	6.3	1.39
Salvelinus alpinus	**Sa-0143**	July 2002	36.0	500.5	5.5	1.07	female	0.333	75	5.6	1.40
Salvelinus alpinus	**Sa-0144**	July 2002	39.5	701	4.7	1.14	male	0.154	75	5.4	1.35
Salvelinus alpinus	**Sa-0145**	July 2002	37.0	495	8.1	0.98	female	0.292	77	6.3	1.45
Salvelinus alpinus	**Sa-0146**	July 2002	37.5	546.5	5.6	1.04	male	0.309	77	6.7	1.54
Salvelinus alpinus	**Sa-0147**	July 2002	37.0	432.7	6.1	0.85	male	0.386	79	6.1	1.28
Salvelinus alpinus	**Sa-0148**	July 2002	34.5	581	9.7	1.41	female	0.17	70	4.7	1.41
Salvelinus alpinus	**Sa-0149**	July 2002	36.0	607.2	7.4	1.30	male	0.254	76	5.8	1.39

Species	ESB ID	Catching date	Length, cm	Weight, g	Liver, g	Condition index	Gender	Hg in muscle mg/kg	% moisture	Se, ug/g ww
Salvelinus alpinus	**Sa-0150**	July 2005	36	443.6	7.25	0.95	female	0.431	79	1.5
Salvelinus alpinus	**Sa-0151**	July 2005	37	574.8	8.89	1.13	female	0.299	73	1.5
Salvelinus alpinus	**Sa-0152**	July 2005	37.5	485.1	4.93	0.92	female	0.373	78	1.3
Salvelinus alpinus	**Sa-0153**	July 2005	35	457.1	4.66	1.07	male	0.376	78	1.7
Salvelinus alpinus	**Sa-0154**	July 2005	33.5	501	6.48	1.33	female	0.269	71	1.6
Salvelinus alpinus	**Sa-0155**	July 2005	35.5	486	4.29	1.09	male	0.325	76	1.6
Salvelinus alpinus	**Sa-0156**	July 2005	35	467.5	5.14	1.09	male	0.332	77	1.8
Salvelinus alpinus	**Sa-0157**	July 2005	38	369.2	4.36	0.67	male	0.585	81	1.3
Salvelinus alpinus	**Sa-0158**	July 2005	33	399	6.04	1.11	female	0.127	73	1.7
Salvelinus alpinus	**Sa-0159**	July 2005	34	574.8	6.12	1.46	male	0.188	70	2.1
Salvelinus alpinus	**Sa-0160**	July 2005	37	567.1	5.83	1.12	female	0.306	76	1.5
Salvelinus alpinus	**Sa-0161**	July 2005	37	633.7	6.03	1.25	male	0.176	77	1.6
Salvelinus alpinus	**Sa-0162**	July 2005	33.5	489.6	6.78	1.30	female	0.227	70	1.7
Salvelinus alpinus	**Sa-0163**	July 2005	36.5	533.8	4.83	1.10	male	0.257	75	1.7
Salvelinus alpinus	**Sa-0164**	July 2005	38	478.8	3.8	0.87	male	0.354	77	1.6
Salvelinus alpinus	**Sa-0165**	July 2005	36.5	440.4	6.09	0.91	male	0.445	78	1.8
Salvelinus alpinus	**Sa-0166**	July 2005	36.5	457.5	7.88	0.94	female	0.432	78	1.5
Salvelinus alpinus	**Sa-0167**	July 2005	39.5	509.7	4.84	0.83	male	0.284	77	1.8
Salvelinus alpinus	**Sa-0168**	July 2005	35	506	4.78	1.18	male	0.246	74	1.6
Salvelinus alpinus	**Sa-0169**	July 2005	36.7	384.6	5.36	0.78	female	0.315	78	1.6
Salvelinus alpinus	**Sa-0176**	July 2007	37	392	3.36	0.77	male	0.415	79	1.6
Salvelinus alpinus	**Sa-0177**	July 2007	36	495	4.57	1.06	female	0.4	76	1.6
Salvelinus alpinus	**Sa-0178**	July 2007	36	372	3.55	0.80	male	0.478	79	1.3
Salvelinus alpinus	**Sa-0179**	July 2007	35.5	489	3.81	1.09	male	0.299	76	1.5
Salvelinus alpinus	**Sa-0180**	July 2007	37.5	385	2.9	0.73	male	0.363	80	1.5
Salvelinus alpinus	**Sa-0181**	July 2007	36	576	4.12	1.23	male	0.137	78	1.6
Salvelinus alpinus	**Sa-0182**	July 2007	33	479	5.65	1.33	female	0.147	74	1.6
Salvelinus alpinus	**Sa-0183**	July 2007	36	321	2.91	0.69	male	0.473	79	1.4
Salvelinus alpinus	**Sa-0184**	July 2007	37	491	4.03	0.97	male	0.274	78	1.4
Salvelinus alpinus	**Sa-0185**	July 2007	37.5	373	3.23	0.71	male	0.345	80	1.5
Salvelinus alpinus	**Sa-0186**	July 2007	36.5	379	4.03	0.78	female	0.416	79	1.3
Salvelinus alpinus	**Sa-0187**	July 2007	36	521	4.52	1.12	male	0.178	76	1.8
Salvelinus alpinus	**Sa-0188**	July 2007	35.5	436	3.49	0.97	male	0.337	76	1.6

PCBs in Arctic char muscle (µg/kg of lipids):

ID	Aroclor 1260	CB 28	CB 52	CB 99	CB 101	CB 105	CB 118	CB 128	CB 138	CB 153	CB 156	CB 163	CB 170	CB 180	CB 183	CB 187
Sa-0130	700	<28	<280	<28	14	3.8	15	8.4	50	84	5	11	16	47	11	25
Sa-0131	580	<45	<450	<45	<14	<4.5	13	8.2	41	71	4.8	8.9	16	49	9.5	22
Sa-0132	510	<14	<140	<14	13	3.3	13	7.2	38	61	3.9	8.9	12	28	6.8	17
Sa-0133	230	<11	<110	<11	8.1	2.5	7.3	3.6	18	26	1.8	4	4.7	11	2.8	7.3
Sa-0134	280	<8	<80	<8	10	2.8	9	4	22	32	2.1	4.5	5.8	14	3.3	8.6
Sa-0135	540	<11	<110	<11	15	4	16	7.4	37	66	5.2	11	14	34	8	21
Sa-0136	760	<11	<110	<11	13	4.4	17	9.7	51	95	6.6	13	19	50	12	30
Sa-0137	150	<4.3	<43	<4.3	6.2	1.6	5.1	2.3	11	18	1.2	2.6	3	7.4	1.9	5
Sa-0138	300	<10	<100	<10	11	3.2	8.8	4.3	22	37	2.2	5.3	5.9	14	3.7	9.6
Sa-0139	110	<5.3	<53	<5.3	4.7	1.3	3.7	1.7	7.6	13	0.81	1.6	1.9	4.7	1.3	3.2
Sa-0140	610	<21	<210	<21	9.7	2.6	9.9	6.7	37	81	5.3	9.5	17	58	13	30
Sa-0141	340	<19	<190	<19	12	3.1	9.7	5.1	25	40	2.2	5.1	5.9	15	4	10
Sa-0142	540	<13	<130	<13	14	4.3	15	7.3	36	67	4.5	8.6	12	31	7.4	19
Sa-0143	470	<12	<120	<12	11	3.6	12	6	33	57	4.1	7.8	11	30	6.8	17
Sa-0144	170	<11	<110	<11	8.9	2.3	6.5	2.6	13	21	1.4	2.9	3	7.7	2	5
Sa-0145	630	<12	<120	<12	12	4	15	7.6	43	78	5.7	11	17	47	10	25
Sa-0146	630	<13	<130	<13	12	3.7	14	7.7	41	81	5.2	12	15	43	9.7	23
Sa-0147	500	<15	<150	<15	8.7	2.2	8.7	5.8	31	66	4.2	8.6	14	44	9.9	24
Sa-0148	53	<2.1	<21	<2.1	2.4	0.64	1.7	0.77	4.2	5.9	0.37	0.83	0.96	2.5	0.61	1.7
Sa-0149	54	<2	<20	<2	1.9	0.56	1.6	0.79	4.2	6.2	0.39	0.95	1	2.5	0.63	1.6

ID	Aroclor 1260	CB 28	CB 52	CB 99	CB 101	CB 105	CB 118	CB 128	CB 138	CB 153	CB 156	CB 163	CB 170	CB 180	CB 183	CB 187
Sa-0150	540	<10	<100	<10	13	4.1	13	8.7	41	63	4.4	8	12	35	8.1	20
Sa-0151	180	<7	<70	<7	6.5	2	5.6	3	15	21	1.3	2.3	3.1	8.1	2	5
Sa-0152	880	<50	<500	<50	23	7.7	23	15	68	100	8	15	21	59	14	34
Sa-0153	740	<20	<200	<20	13	5.4	16	11	57	85	5.5	10	14	41	9.9	20
Sa-0154	160	<9	<90	<9	5.5	2.1	5.7	3.1	13	18	1.2	2.3	2.9	7.4	1.9	5
Sa-0155	470	<10	<100	<10	11	4.1	12	7.5	37	52	3.6	6.5	8.9	24	5.4	10
Sa-0156	440	<10	<100	<10	9	2.7	10	6.4	35	50	2.9	6.2	7.2	21	5.1	10
Sa-0157	780	<20	<200	<20	7.2	3.8	11	9.7	56	95	6.9	8	22	71	15	35
Sa-0158	100	<20	<200	<20	6.9	<2	3.7	<2	8.1	12	<2	<2	<2	5.1	<2	4
Sa-0159	100	<20	<200	<20	<6	<2	3.4	2.5	9.1	11	<2	<2	<2	4.2	<2	3
Sa-0160	240	<30	<300	<30	11	4.1	7.2	5.1	20	26	<3	<3	4.1	10	<3	7
Sa-0161	600	<70	<700	<70	21	<7	18	14	47	68	<7	10	12	32	9	20
Sa-0162	110	<20	<200	<20	7.9	<2	4.6	3.8	9.8	12	2.3	<2	<2	5.3	<2	3
Sa-0163	350	<40	<400	<40	19	6.1	12	9.2	28	39	4.1	<4	6.8	16	4.6	10
Sa-0164	330	<30	<300	<30	12	3.6	8.9	6.9	29	34	3.3	3.6	6	15	4.1	9
Sa-0165	480	<50	<500	<50	15	4.9	11	10	37	56	5.7	6.5	11	30	7.4	20
Sa-0166	390	<50	<500	<50	<10	<5	13	7.7	33	43	<5	4.8	8.4	22	5.3	10
Sa-0167	830	<70	<700	<70	<20	<7	18	18	69	91	<7	12	19	49	11	30
Sa-0168	360	<50	<500	<50	<10	4.7	10	8.6	33	36	<5	<5	6.3	14	<5	8
Sa-0169	360	<10	<100	<10	5.1	1.8	5.8	4.6	25	45	3.2	4.8	10	35	7.4	20
Sa-0176	590	<20	<200	<20	7.4	2.8	10	7.8	42	71	4.4	9.3	12	40	9.1	20
Sa-0177	300	<10	<100	<10	8.7	3.1	8.6	5	25	32	2	3.8	4.8	13	3	8
Sa-0178	550	<20	<200	<20	<7	3.5	9.6	7.8	37	68	4.7	8.6	14	48	9.9	20
Sa-0179	400	<10	<100	<10	9.7	3	10	6.8	34	43	2.6	5.1	6.5	17	4.1	10
Sa-0180	430	<30	<300	<30	<8	<3	6.8	5.2	31	52	3.4	5.8	9.1	31	6.5	20
Sa-0181	270	<20	<200	<20	7.5	3	8.3	5.6	22	31	2.4	3.7	5.3	13	3.2	8
Sa-0182	79	<10	<100	<10	<3	<1	2.6	1.6	6.4	8.8	<1	1.2	1.4	3.5	<1	2
Sa-0183	580	<20	<200	<20	<6	2.9	9.2	8.5	46	66	5.3	8.3	16	46	9.5	20
Sa-0184	570	<20	<200	<20	8	2.8	11	8.2	47	62	3.9	6.9	10	31	6.9	20
Sa-0185	590	<30	<300	<30	<9	<3	8.7	7.7	43	71	5.3	8.7	16	53	11	30
Sa-0186	430	<30	<300	<30	8.2	<3	6.7	5.4	33	50	3.2	6.2	9.3	31	7	20
Sa-0187	330	<30	<300	<30	12	2.9	8.6	5.4	27	36	<3	4.5	5.7	15	3.7	10
Sa-0188	670	<20	<200	<20	15	4.7	15	9.2	57	71	4	8.1	11	29	7.3	20

Organochlorinated pesticides and toxaphene in Arctic char muscle (µg/kg of lipids):

ID	% of Lipids	Alpha-chlor dane	Cis-nona chlor	Gamma-chlor dane	Hexa chloro benzene	Mirex	Oxy chlor dane	ß-HCH	Trans-nona chlor	p,p'-DDE	p,p'-DDT	Toxaphene Parlar no. 26	Toxaphene Parlar no. 32	Toxaphene Parlar no. 50	Toxaphene Parlar no. 62	Toxaphene Parlar no. 69
Sa-0130	0.82	6.5	8.1	<2.8	30	4.6	3.5	<8.5	20	95	<8.5	6.2	<2.8	16	<5.7	<5.7
Sa-0131	0.55	<4.5	<4.5	<4.5	31	5.3	<4.5	<14	9.8	61	<14	<4.5	<4.5	8.3	<9	<9
Sa-0132	1.7	5.2	6.2	<1.4	19	2.8	2.7	<4.3	15	83	<4.3	4.5	<1.4	12	4	<2.9
Sa-0133	2.2	8.4	5	1.6	28	1.2	4.4	<3.2	12	48	<3.2	7.4	1.7	18	5.5	<2.1
Sa-0134	3.1	8.4	5.6	1.5	26	1.4	4.7	<2.4	14	53	2.6	8.3	1.5	20	5.3	<1.6
Sa-0135	2.2	6	8.5	1.2	19	1.6	4.5	<3.2	21	99	<3.2	5.4	<1.1	14	<2.2	<2.2
Sa-0136	2.3	4.6	4.9	1.2	24	2.7	2.5	<3.3	11	96	<3.3	4.3	1.3	9.3	<2.2	<2.2
Sa-0137	5.7	6.3	3.4	1.3	23	0.43	4.2	<1.3	8.4	31	1.9	5.6	1.6	13	3.9	<0.86
Sa-0138	2.4	6.2	5.1	1.3	20	<1	3.1	<3	13	56	<3	6	1.2	12	4.6	<2
Sa-0139	4.5	5.5	2.5	1.2	26	<0.53	3.3	<1.6	6.1	24	1.9	4.8	1.6	11	3.1	<1.1
Sa-0140	1	5.5	3.3	<2.1	31	2.9	3.7	<6.4	8.2	53	<6.4	4.8	<2.1	10	<4.2	<4.2
Sa-0141	1.3	8	5.7	<1.9	23	<1.9	3.5	<5.8	13	68	<5.8	6.5	<1.9	16	6.5	<3.9
Sa-0142	1.9	5.3	6.4	<1.3	21	1.9	3.1	<3.8	16	88	<3.8	5	<1.3	11	<2.6	<2.6
Sa-0143	2.1	6.3	6.8	1.3	22	1.9	3.6	<3.6	17	84	<3.6	6	<1.2	14	<2.4	<2.4
Sa-0144	2.1	7.6	3.8	1.5	39	<1.1	5.8	<3.3	9.7	40	4.4	7.8	2.1	18	6.9	<2.2
Sa-0145	2	5.2	7.4	<1.2	23	2.6	3.4	<3.5	18	98	<3.5	4.4	1.3	12	<2.4	<2.4
Sa-0146	1.8	4	4.2	<1.3	23	2.4	2.8	<3.9	10	82	<3.9	3.3	1.5	8.2	<2.6	<2.6
Sa-0147	1.7	4.8	3.1	<1.5	25	2.4	2.6	<4.4	7.5	53	<4.4	4.2	1.5	8.9	<2.9	<2.9
Sa-0148	12	2.8	1.3	0.61	13	<0.21	1.9	<0.64	3.3	11	1.3	2.5	0.84	5.7	1.6	<0.43
Sa-0149	13	1.4	1	0.32	5.9	<0.2	0.93	<0.59	2.5	9.1	<0.59	1.3	0.23	3.2	1.4	<0.4

ID	% of Lipids	Alpha-chlordane	Cis-nonachlor	Gamma-chlordane	Hexachlorobenzene	Mirex	Oxychlordane	ß-HCH	Trans-nonachlor	p,p'-DDE	p,p'-DDT	Toxaphene				
												Parlar no. 26	Parlar no. 32	Parlar no. 50	Parlar no. 62	Parlar no. 69
Sa-0150	1.8	6.7	7.1	<1	20	2.9	3.6	<4	18	92	<4	7.6	<1	18	8	<3
Sa-0151	3.6	6.7	3.7	1.3	28	<0.7	3.1	<2	8.8	30	<2	6.7	1.9	14	4.4	<1
Sa-0152	0.52	14	13	<5	32	4.9	5.8	<10	32	170	<10	14	<5	33	<10	<10
Sa-0153	1.3	4.9	4.9	<2	28	2.9	2.7	<6	12	100	<6	4.5	<2	8.5	<4	<4
Sa-0154	2.8	5.1	2.8	<0.9	31	<0.9	3	<3	7.6	31	<3	4.8	1.2	11	5.1	<2
Sa-0155	2.4	3.5	4.6	<1	24	1.7	2.1	<3	11	77	<3	2.6	<1	7.5	3.1	<2
Sa-0156	2.3	3.5	4	<1	19	1.7	2.7	<3	10	64	<3	3	<1	7.7	3.2	<2
Sa-0157	1.2	2.9	<2	<2	21	3.9	2.1	<6	5.1	43	<6	2.7	<2	5.8	<4	<4
Sa-0158	3.2	2.9	<2	<2	36	<2	2.7	<7	4.8	24	<7	3.6	<2	6.8	<4	<4
Sa-0159	4.4	3.4	<2	<2	39	<2	2.4	<6	4.8	22	<6	3.5	<2	8.2	<4	<4
Sa-0160	2.7	6.3	4.3	<3	50	<3	3.5	<10	11	63	<10	6.7	<3	15	<6	<6
Sa-0161	1.3	<7	<7	<7	110	<7	<7	<20	15	110	<20	<7	<7	10	<10	<10
Sa-0162	4.1	4.5	<2	<2	62	<2	2.4	<7	5.1	33	<7	5	<2	8.7	<5	<5
Sa-0163	2.1	5.7	4.9	<4	94	<4	<4	<10	13	68	<10	6.3	<4	12	<8	<8
Sa-0164	3.2	<3	<3	<3	48	<3	<3	<8	6	49	<8	<3	<3	5.1	<5	<5
Sa-0165	1.9	<5	<5	<5	97	<5	<5	<10	7.2	76	<10	<5	<5	5.4	<9	<9
Sa-0166	1.9	<5	<5	<5	110	<5	<5	<10	9.5	64	<10	<5	<5	6.7	<9	<9
Sa-0167	1.3	<7	<7	<7	86	<7	<7	<20	8.6	92	<20	<7	<7	<7	<10	<10
Sa-0168	2	5.3	<5	<5	73	<5	<5	<10	9.4	67	<10	<5	<5	11	<9	<9
Sa-0169	1.8	3	1.7	<1	29	2.2	<1	<4	5	24	<4	2.8	<1	6	<3	<3
Sa-0176	1.3	3.4	3.4	<2	19	2.2	2.5	<6	7.9	32	<6	3.4	<2	6.9	<4	<4
Sa-0177	2.1	7	4.6	1.3	24	<1	3.5	<3	11	44	<3	6.6	<1	16	5.8	<2
Sa-0178	1	2.5	2.7	<2	9.7	<2	<2	<7	6.6	51	<7	2.5	<2	6.1	<5	<5
Sa-0179	2.4	5.6	5.3	1	16	1.1	2.6	<3	13	67	<3	5.2	<1	14	4.8	<2
Sa-0180	0.95	2.6	<3	<3	16	2.7	<3	<8	5.4	34	<8	<3	<3	5.2	<5	<5
Sa-0181	1	4.9	4.1	<2	15	<2	4.5	<7	10	48	<7	4.9	<2	12	6.1	<5
Sa-0182	2.5	2.7	1.4	<1	23	<1	2.1	<3	3.5	13	<3	2.6	<1	6.4	<2	<2
Sa-0183	1.3	2.3	2.4	<2	17	2.3	<2	<6	5	40	<6	1.9	<2	5.2	<4	<4
Sa-0184	1.6	3	3.5	<2	13	1.8	<2	<5	8	58	<5	2.4	<2	7.1	<3	<3
Sa-0185	0.79	4.6	3.3	<3	35	<3	<3	<9	7.8	55	<9	4.1	<3	8.6	<6	<6
Sa-0186	0.96	3.7	4	<3	11	<3	<3	<8	9.9	48	<8	4.1	<3	10	<5	<5
Sa-0187	0.86	6	5.8	<3	15	<3	3.2	<9	13	49	<9	6	<3	18	<6	<6
Sa-0188	1.5	6.2	7	<2	16	2.3	3.4	<5	17	79	<5	5.9	<2	16	5.5	<3

Attachment 8: Pilot whale samples

Overview of pilot whale samples:

Date	Year	Location	Grind	Skin	Sex	Length	Muscle	Blubber	Liver	Kidney
03-08-2003	2003	Hvalvík	1	7	M	-	x	x		
03-08-2003	2003	Hvalvík	2	5	M	-	x	x		
03-08-2003	2003	Hvalvík	3	7	F	-	x	x		
03-08-2003	2003	Hvalvík	4	8	F	-	x	x		
03-08-2003	2003	Hvalvík	5	11	M	-	x	x		
03-08-2003	2003	Hvalvík	6	6	F	-	x	x		
03-08-2003	2003	Hvalvík	7	5	F	-	x	x		
03-08-2003	2003	Hvalvík	10	8	M	-	x	x		
03-08-2003	2003	Hvalvík	17	7	M	-	x	x		
03-08-2003	2003	Hvalvík	20	11	M	-	x	x		
03-08-2003	2003	Hvalvík	21	7	M	-	x	x		
03-08-2003	2003	Hvalvík	25	7	F	-	x	x		
03-08-2003	2003	Hvalvík	26	8	F	-	x	x		
03-08-2003	2003	Hvalvík	28	6	F	-	x	x		
03-08-2003	2003	Hvalvík	29	5	F	-	x	x		
03-08-2003	2003	Hvalvík	31	8	F	-	x	x		
03-08-2003	2003	Hvalvík	32	7	F	-	x	x		
03-08-2003	2003	Hvalvík	35	5	M	-	x	x		
03-08-2003	2003	Hvalvík	36	7	M	-	x	x		
03-08-2003	2003	Hvalvík	37	11	M	-	x	x		
03-08-2003	2003	Hvalvík	38	7	M	-	x	x		
03-08-2003	2003	Hvalvík	45	8	M	-	x	x		
03-08-2003	2003	Hvalvík	47	11	M	-	x	x		
03-08-2003	2003	Hvalvík	48	2.5	F	-	x	x		
03-08-2003	2003	Hvalvík	106	6	F	-	x	x		
				25			25	25	0	0

Date	Year	Location	Grind	Skin	Sex	Length	Muscle	Blubber	Liver	Kidney
08-06-2004	2004	Bøur	5	1.0	F	270	x	x		
08-06-2004	2004	Bøur	8	7.0	F	450	x	x		
08-06-2004	2004	Bøur	11	7.0	F	420	x	x		
08-06-2004	2004	Bøur	13	7.0	F	430	x	x		
08-06-2004	2004	Bøur	14	4.0	F	360	x	x		
08-06-2004	2004	Bøur	15	2.0	F	300	x	x		
08-06-2004	2004	Bøur	16	9.0	M	510	x	x		
08-06-2004	2004	Bøur	17	5.0	M	430	x	x		
08-06-2004	2004	Bøur	19	11.0	M	550	x	x		
08-06-2004	2004	Bøur	25	11.0	M	560	x	x		
08-06-2004	2004	Bøur	30	10.0	M	550	x	x		
08-06-2004	2004	Bøur	31	7.0	M	460	x	x		
08-06-2004	2004	Bøur	32	7.0	F	450	x	x		
08-06-2004	2004	Bøur	34	8.0	F	450	x	x		
08-06-2004	2004	Bøur	35	8.0	F	450	x	x		
08-06-2004	2004	Bøur	36	7.0	F	430	x	x		
08-06-2004	2004	Bøur	38	6.0	F	420	x	x		
08-06-2004	2004	Bøur	39	2.0	F	300	x	x		
08-06-2004	2004	Bøur	40	6.0	F	430	x	x		
08-06-2004	2004	Bøur	41	8.0	F	450	x	x		
08-06-2004	2004	Bøur	42	11.0	M	560	x	x		
08-06-2004	2004	Bøur	43	11.0	M	540	x	x		
08-06-2004	2004	Bøur	45	7.0	F	430	x	x		
							23	23	0	0

Date	Year	Location	Grind	Skin	Sex	Length	Muscle	Blubber	Liver	Kidney
28-08-2006	2006	Hvannasund	1	8	F	410	x			
28-08-2006	2006	Hvannasund	2	2	F	201	x	x		
28-08-2006	2006	Hvannasund	3	12	M	510	x		x	x
28-08-2006	2006	Hvannasund	4	4	M	315	x	x		
28-08-2006	2006	Hvannasund	5	2	M	231	x	x		
28-08-2006	2006	Hvannasund	6	3	M	290	x	x		
28-08-2006	2006	Hvannasund	7	8	F	449	x		x	x
28-08-2006	2006	Hvannasund	8	7	F	386	x			
28-08-2006	2006	Hvannasund	9	11	M	470	x			
28-08-2006	2006	Hvannasund	10	9	M	430	x			
28-08-2006	2006	Hvannasund	11	15	M	550	x		x	x
28-08-2006	2006	Hvannasund	12	14	M	528	x		x	x
28-08-2006	2006	Hvannasund	13	6	M	366	x	x		
28-08-2006	2006	Hvannasund	14	8	F	415	x			
28-08-2006	2006	Hvannasund	15	9	M	450	x			
28-08-2006	2006	Hvannasund	16	6	F	399	x			
28-08-2006	2006	Hvannasund	17	8	F	440	x		x	x
28-08-2006	2006	Hvannasund	18	6	M	360	x	x		
28-08-2006	2006	Hvannasund	19	4	M	317	x	x		
28-08-2006	2006	Hvannasund	20	7	F	425	x			
28-08-2006	2006	Hvannasund	21	8	F	442	x		x	x
28-08-2006	2006	Hvannasund	22	8	F	430	x		x	x
28-08-2006	2006	Hvannasund	23	7	F	410	x			
28-08-2006	2006	Hvannasund	24	7	F	408	x			
28-08-2006	2006	Hvannasund	25	6	F	400	x			
28-08-2006	2006	Hvannasund	26	4	M	348	x	x		
28-08-2006	2006	Hvannasund	27	2	F	243	x	x		
28-08-2006	2006	Hvannasund	28	7	F	448	x			
28-08-2006	2006	Hvannasund	29	3	F	237	x	x		
28-08-2006	2006	Hvannasund	30	4	F	350	x	x		
28-08-2006	2006	Hvannasund	31	7	F	435	x			
28-08-2006	2006	Hvannasund	32	3	F	320	x	x		
28-08-2006	2006	Hvannasund	33	7	F	408	x			
28-08-2006	2006	Hvannasund	34	6	M	385	x	x		
28-08-2006	2006	Hvannasund	35	1	F	197	x	x		
28-08-2006	2006	Hvannasund	36	15	M	536	x		x	x
28-08-2006	2006	Hvannasund	37	2	F	228	x	x		
							36	15	8	8

Date	Year	Location	Grind	Skin	Sex	Length	Muscle	Blubber	Liver	Kidney
06-09-2006	2006	Leynar	4	4	F	-	x	x		
06-09-2006	2006	Leynar	6	16	M	-			x	x
06-09-2006	2006	Leynar	8	10	F	-			x	x
06-09-2006	2006	Leynar	10	10	F	-			x	x
06-09-2006	2006	Leynar	13	9	F	-			x	x
06-09-2006	2006	Leynar	15	5	M	-	x	x		
06-09-2006	2006	Leynar	16	9	F	-			x	x
06-09-2006	2006	Leynar	18	4	F	-	x	x		
06-09-2006	2006	Leynar	23	9	M	-	x	x		
06-09-2006	2006	Leynar	24	8	M	-	x	x		
06-09-2006	2006	Leynar	25	9	M	-	x	x		
06-09-2006	2006	Leynar	27	11	M	-			x	x
06-09-2006	2006	Leynar	28	12	M	-			x	x
06-09-2006	2006	Leynar	31	10	M	-	x	x		
06-09-2006	2006	Leynar	38	2	F	-	x	x		
06-09-2006	2006	Leynar	46	9	M	-	x	x		
06-09-2006	2006	Leynar	50	8	M	-	x	x		
							10	10	7	7

Date	Year	Location	Grind	Skin	Sex	Length	Muscle	Blubber	Liver	Kidney
03-07-2007	2007	Sandagerði	2	4	F	310	x	x		
03-07-2007	2007	Sandagerði	4	12	F	480			x	x
03-07-2007	2007	Sandagerði	6	4	F	330	x	x		
03-07-2007	2007	Sandagerði	7	7	F	390	x	x		
03-07-2007	2007	Sandagerði	8	6	F	380	x	x		
03-07-2007	2007	Sandagerði	9	4	M	315	x	x		
03-07-2007	2007	Sandagerði	10	4	M	305	x	x		
03-07-2007	2007	Sandagerði	11	11	M	475	x	x		
03-07-2007	2007	Sandagerði	13	9	F	455			x	x
03-07-2007	2007	Sandagerði	14	9	F	435			x	x
03-07-2007	2007	Sandagerði	15	12	M	505			x	x
03-07-2007	2007	Sandagerði	17	9	F	440			x	x
03-07-2007	2007	Sandagerði	18	3	M	300	x	x		
03-07-2007	2007	Sandagerði	19	2	F	275				
03-07-2007	2007	Sandagerði	20	17	M	560			x	x
03-07-2007	2007	Sandagerði	21	9	F	435			x	x
03-07-2007	2007	Sandagerði	22	6	M	380	x	x		
03-07-2007	2007	Sandagerði	24	17	M	550			x	x
03-07-2007	2007	Sandagerði	25	17	M	540			x	x
03-07-2007	2007	Sandagerði	27	2	F	260	x	x		
03-07-2007	2007	Sandagerði	28	7	M	405	x	x		
							11	11	9	9

Date	Year	Location	Grind	Skin	Sex	Length	Muscle	Blubber	Liver	Kidney
13-07-2007	2007	Syðrugøta	1	5	F	380	x	x		
13-07-2007	2007	Syðrugøta	3	15	M	540			x	x
13-07-2007	2007	Syðrugøta	5	7	M	460	x	x		
13-07-2007	2007	Syðrugøta	6	5	M	360	x	x		
13-07-2007	2007	Syðrugøta	7	11	M	500	x	x		
13-07-2007	2007	Syðrugøta	8	6	F	380	x	x		
13-07-2007	2007	Syðrugøta	10	7	M	410	x	x		
13-07-2007	2007	Syðrugøta	11	15	M	580			x	x
13-07-2007	2007	Syðrugøta	14	15	M	570			x	x
13-07-2007	2007	Syðrugøta	15	3	M	280	x	x		
13-07-2007	2007	Syðrugøta	19	9	M	450	x	x		
13-07-2007	2007	Syðrugøta	23	3	F	330	x	x		
13-07-2007	2007	Syðrugøta	26	3	F	300	x	x		
13-07-2007	2007	Syðrugøta	29	5	F	370	x	x		
13-07-2007	2007	Syðrugøta	33	10	F	470			x	x
13-07-2007	2007	Syðrugøta	35	3	M	270	x	x		
13-07-2007	2007	Syðrugøta	38	20	F	580			x	x
13-07-2007	2007	Syðrugøta	39	13	F	500			x	x
13-07-2007	2007	Syðrugøta	43	6	M	370	x	x		
13-07-2007	2007	Syðrugøta	50	5	F	350	x	x		
							14	14	6	6