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Annex Table 1. Physical-chemical properties of persistent organic pollutants discussed in the text.

Common name	Isomer/congener/abbreviation or chemical name	Formula	CAS number	Molecular weight	Water solubility, Cs*(mmol/m^3) (at 25°C)	Log K_{ow} (at 25°C)	Henry's Law Constant, H (Pa m^3/mol) (at 25°C)	Henry's Law Constant (Pa m^3/mol) (at O°C)	Vapor pressure, Ps** Pa (at 25°C)	Atmospheric half-life (hrs)	Reference
Organochlorine pesticides											
Chlordane	*cis*-CHL	$C_{10}H_6Cl_8$	5103-71-9	409.8	0.137	6.0	0.342	0.87	0.0004	55 (~2 d)	1
	trans-CHL	$C_{10}H_6Cl_8$	5103-74-2	409.8	0.137	6.0	0.262	0.87	0.00052	55 (~2 d)	1
DDT	*o,p'*-DDE	$C_{14}H_8Cl_4$	3424-82-6	318	0.126	5.8	7.95	–	0.000866	170 (~1 wk)	1
	o,p'-DDT	$C_{14}H_9Cl_5$	789-02-6	354.5	0.0733	6.0	0.347	0.16	2.5×10^{-5}	–	1
	p,p'-DDT	$C_{14}H_9Cl_5$	50-29-3	354.5	0.0155	6.19	2.36	0.16	2.0×10^{-5}	170 (~1 wk)	1
Dieldrin	dieldrin	$C_{12}H_8Cl_6O$	60-57-1	380.9	0.446	5.20	1.12	–	0.0005	55 (~2 d)	1
Endosulfan	α-endosulfan	$C_9H_6Cl_6O_3S$	959-98-8	406.9	1.23	3.62	0.718	–	0.0013	–	1
Hexachlorocyclohexane	α-HCH	$C_6H_6Cl_6$	319-84-6	290.8	3.44	3.81	0.872	0.215 (8°C)	0.003	-	1
	β-HCH	$C_6H_6Cl_6$	319-85-7	290.8	0.344	3.8	0.116	–	4.0×10^{-5}	-	1
	γ-HCH	$C_6H_6Cl_6$	58-89-9	290.8	25.1	3.7	0.149	–	0.00374	170 (~1 wk)	1
Mirex	mirex	$C_{10}Cl_{12}$	2385-85-5	545.5	0.000119	6.9	839.4	–	0.0001	170 (~1 wk)	1
Toxaphene	technical	$C_{10}H_{10}Cl_8$	8001-35-2	413.8	1.21	5.50	0.745	0.067	0.0009	170 (~1 wk)	1
	P26	$C_{10}H_{10}Cl_8$	–	414	–	5.52	–	–	–	–	2
	P50	$C_{10}H_9Cl_9$	–	448	–	5.84	–	–	–	–	2
Byproducts											
Hexachlorobenzene	HCB	C_6Cl_6	118-74-1	284.8	0.0176	5.50	131	–	0.0023	17000 (~2 yr)	3
Pentachlorobenzene	PeCBz	C_6HCl_5	608-93-5	250.3	2.6	5.00	85	–	0.22	5500 (~8 mo)	3
Octachlorostyrene	OCS	C_8Cl_8	29082-74-4	379.7	0.00458	7.46	23.3	–	0.00176	–	4
Polychlorinated dibenzo-*p*-dioxins	TCDD	$C_{12}H_4O_2Cl_4$	30756-58-8, 67028-18-6, 30746-58-8, 1746-01-6	322	0.000993-0.0013	6.60-7.10	0.704-3.747	0.60 (10°C)	2.00×10^{-7}-1.00×10^{-6}	170 (~1 wk)	5
	PeCDD	$C_{12}H_3O_2Cl_5$	39227-61-7	356.4	0.000331	7.40	0.266	–	8.80×10^{-8}	550 (~3 wk)	5
	HxCDD	$C_{12}H_2O_2Cl_6$	39227-26-8	391.0	1.13×10^{-5}	7.80	1.084	–	5.10×10^{-9}	550 (~3 wk)	5
	HpCDD	$C_{12}HO_2Cl_7$	35822-46-9	425.3	5.64×10^{-6}	8.00	1.273	–	7.50×10^{-10}	550 (~3 wk)	5
	OCDD	$C_{12}O_2Cl_8$	3268-87-9	460	1.61×10^{-7}	8.20	0.684	–	1.10×10^{-10}	550 (~3 wk)	5
Polychlorinated dibenzofurans	TCDF	$C_{12}H_4OCl_4$	51207-31-9	306	1.37×10^{-3}	6.1	1.461	–	2.00×10^{-6}	170 (~1 wk)	5
	PnCDF	$C_{12}H_3OCl_5$	57117-31-4	340.42	6.93×10^{-4}	6.5	0.505	–	3.50×10^{-7}	550 (~3 wk)	5
	HxCDF	$C_{12}H_2OCl_6$	70658-26-9, 57117-44-9	374.87	2.2×10^{-5}-4.72×10^{-5}	7.0	0.741-1.454	–	3.20×10^{-8}-3.50×10^{-8}	–	5
	HpCDF	$C_{12}HOCl_7$	67462-39-4, 55673-89-7	409.31	3.30×10^{-6}	7.4	1.425	–	4.70×10^{-9}-6.20×10^{-9}	550 (~3 wk)	5
	OCDF	$C_{12}OCl_8$	39001-02-0	443.76	2.61×10^{-6}	8.0	0.191	–	5.0×10^{-10}	550 (~3 wk)	5
Polycyclic aromatic hydrocarbons											
Acenaphthene	1,8-hydroacenaphthylene	$C_{12}H_{10}$	83-32-9	154.2	24.642	3.92	12.17	–	0.3	–	5
Fluorene	diphenylenemethane	$C_{13}H_{10}$	86-73-7	166.2	11.43	4.18	7.87	–	0.09	55 (~2 d)	5
Phenanthrene	phenanthrene	$C_{14}H_{10}$	85-01-8	178.2	6.173	4.57	3.24	0.691 (15°C)	0.02	55 (~2 d)	5
Fluoranthene	1,2-benzacenaphthene	$C_{16}H_{10}$	206-44-0	202.3	1.186	5.22	1.037	0.134 (15°C)	0.00123	170 (~1 wk)	5
Pyrene	pyrene	$C_{16}H_{10}$	129-00-0	202.3	0.652	5.18	0.92	0.125 (15°C)	0.0006	170 (~1 wk)	5
Benzo[a]pyrene	benzo[a]pyrene	$C_{20}H_{12}$	50-32-8	252.3	0.0151	6.04	0.046	0.0079 (10°C)	7.00×10^{-7}	170 (~1 wk)	5
Benzo[k]fluoranthene	8,9-benzofluoranthene	$C_{20}H_{12}$	207-08-9	252.3	0.00317	6.00	0.016	0.111 (15°C)	5.20×10^{-8}	170 (~1 wk)	5
Perylene	perylene	$C_{20}H_{12}$	198-55-0	252.32	0.00159	6.25	0.003	–	1.40×10^{-8}	170 (~1 wk)	5
Halogenated flame retardants and surfactants											
Polychlorinated biphenyls	dichlorobiphenyls	$C_{12}H_8Cl_2$	25512-42-9	223.1	0.269-8.96	4.9-5.30	17.0-92.21	–	0.0048-0.279	170 (~1 wk)	3
	trichlorobiphenyls	$C_{12}H_7Cl_3$	25323-68-6	257.5	0.0582-1.55	5.5-5.90	24.29-92.21	–	0.0136-0.143	550 (~3 wk)	3
	tetrachlorobiphenyls	$C_{12}H_6Cl4$	26914-33-0	292	0.0147-0.342	5.6-6.50	1.72-47.59	–	5.9×10^{-5}-0.0054	1700 (~2 mo)	3
	pentachlorobiphenyls	$C_{12}H_5Cl_5$	25429-29-2	326.4	0.0123-0.0613	6.2-6.50	24.8-151.4	–	0.0003-0.0093	1700 (~2 mo)	3
	hexachlorobiphenyls	$C_{12}H_4Cl_6$	26601-64-9	360.9	0.0011-0.002	6.7-7.30	11.9-818	–	2.0×10^{-5}-0.0015	5500 (~8 mo)	3
	heptachlorobiphenyls	$C_{12}H_3Cl_7$	28655-71-2	395.3	0.00114-0.0051	6.7-7.0	5.4	–	2.73×10^{-5}	5500 (~8 mo)	3
	octachlorobiphenyls	$C_{12}H_2Cl_8$	31472-83-0	429.8	0.00047-0.0007	7.1	38.08	–	2.66×10^{-5}	17000 (2 yr)	3
	nonachlorobiphenyls	$C_{12}HCl_9$	53742-07-7	464.2	3.8×10^{-5}-2.4×10^{-4}	7.2-8.16	–	–	-	17000 (2 yr)	3
Polybrominated diphenyl ethers	BDE47	$C_{12}H_6Br_4O$	5436-43-1	485.2	0.0225	6	14	–	3.19×10^{-3}	–	6, 7
	BDE99	$C_{12}H_5Br_5O$	60348-60-9	564.75	0.0042	6.5	159	–	6.82×10^{-5}	–	6, 7
	BDE209	$C_{12}Br_{10}O$	1163-19-5	959.22	2.09E-08	~10	–	–	$<1\times10^{-6}$	–	6, 7
Short-chain chlorinated paraffins	SCCP	$C_{10\text{-}13}H_{16\text{-}20}Cl_{5\text{-}9}$***	85535-84-8	211.17-774.97	0.0045-6.32×10^{-7}	5.85-7.3	0.34-648	–	2.8 $\times10^{-7}$-0.5	–	8
Perfluoro-octane sulfonate	PFOS	$C_8F_{17}SO_3$	1763-23-1	499	1363	~1	$<1\times10^{-6}$	–	3×10^{-4}	–	9

* Cs = water solubility of the chemical in the solid state;
** Ps = vapor pressure of the pure chemical in the solid state.
*** Includes molecular formulas such as $C_{10}H_{20}Cl_2$, $C_{10}H_{18}Cl_4$, $C_{10}H_{17}Cl_5$, $C_{11}H_{20}Cl_4$, $C_{11}H_{19}Cl_5$, $C_{12}H_{24}Cl_2$, $C_{12}H_{20}Cl_6$, $C_{13}H_{23}Cl_5$, $C_{13}H_{16}Cl_{12}$.

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2. Fisk *et al.*, 1999a.
3. Mackay *et al.*, 1991.
4. Syracuse Research Corporation database website: http://exc.syrres.com/interkow/physdemo.htm
5. Mackay *et al.*, 1992.
6. Wong *et al.*, 2001 (subcooled liquid vapor pressures for PBDEs).
7. Hardy, 2001.
8. Tomy *et al.*, 1998.
9. US EPA, 1999b; 2000b.

Annex Table 2. List of POPs measured in air at each Arctic monitoring station.

PAH	Pesticides	PCB
Alert, Amderma, Dunai, and Tagish		
Acenaphthylene, acenaphthalene, fluorine, phenanthrene, anthracene, fluoranthene, pyrene, retene, benzo[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[e]pyrene, benzo[a]pyrene, indeno[123-cd]perylene, dibenz[ah]anthracene, benzo[ghi]perylene,dibenzothiophene, perylene	1,2,3,4-tetrachlorobenzene, 1,2,4,5-tetrachlorobenzene, α-HCH, HCB, β-HCH, *cis*-nonachlor, dieldrin, endrin, γ-HCH, heptachlor, heptachloro-exoepoxide, methoxychlor, mirex, octachlorostyrene, *o,p*'-DDD, *o,p*'-DDE, *o,p*'-DDT, oxychlordane, pentachloroanisole, pentachlorobenzene, photo-omirex, *p,p*'-DDD, *p,p*'-DDE, *p,p*'-DDT, tetra-chloroveratrole, *trans*-chlordane, *trans*-nonachlor, trichloroveratrole, trifluralin, *cis*-chlordane, endosulfan	CB 1, CB 3, CB 4/10, CB 7, CB 6, CB 8/5, CB 19, CB 18, CB 17, CB 24/27, CB 16/32, CB 26, CB 25, CB 31, CB 28, CB 33, CB 22, CB 45, CB46, CB 52, CB 49, CB 47, CB 48, CB 44, CB 42, CB 41/71, CB 64, CB 40, CB 74, CB 70/76, CB 66, CB 95, CB 56/60, CB 91, CB 84/89, CB 101, CB 99, CB 83, CB 97, CB 87, CB 85, CB 136, CB110, CB 82, CB 151, CB 144/135, CB 149, CB 118, CB 134, CB 114, CB 131, CB 146, CB 153, CB 132, CB 105, CB 141, CB 179, CB 137, CB 130/176, CB 138, CB 158, CB 178/129, CB 175, CB 187, CB 183, CB 128, CB 185, CB 174, CB 177, CB 171, CB 156, CB 201/157, CB 172/197, CB 180, CB 193, CB 191, CB 200, CB 170, CB 198, CB 199, CB 196/203, CB 189, CB 195, CB 207, CB 194, CB 205, CB 206, CB 209
Pallas		
Anthracene, benzo[a]pyrene, benzo[ghi]perylene, phenanthrene, pyrene, chrysene-triphenylene, fluoranthene, benz[a]anthracene, indeno-[123cd]pyrene, benzo[k]fluoranthene, benzo[b]fluoranthene	α-HCH, γ-HCH	CB 101, CB 138, CB 153, CB 180, CB 28, CB 52, CB 118
Stórhöfði		
—	α-HCH , β-HCH, *cis*-chlordane, dieldrin, γ-HCH, HCB, *p,p*'-DDD, *p,p*'-DDE, *p,p*'-DDT, *trans*-chlordane, *trans*-nonachlor, *o,p*'-DDE, *o,p*'-DDT	CB 101, CB 105, CB 118, CB 138, CB 153, CB 156, CB 180, CB 28, CB 31, CB 52
Zeppelin		
Naphthalene, dibenzothiophene, fluorine, dibenzofuran, acenaphthene, biphenyl, phenanthrene, acenaphthylene, N1methyl-naphthalene, N2methylnaphthalene, N2methyl-anthracene, N2methylphenanthrene, anthra-cene, benzo[a]fluoranthene, benzo[a]pyrene, chrysene-triphenylene, benzo[e]pyrene, benzo[bjk]fluoranthenes, benz[a]anthracene, perylene, benzo[ghi]perylene, coronene, dibenzo[ac-ah]anthracene, anthanthrene, indeno[123cd]pyrene, pyrene, retene, benzo[a]fluorine, benzo[b]fluorine, benzo[ghi]fluoranthene, cyclopenta[cd]pyrene, dibenzo[ae]pyrene, dibenzo[ai]pyrene, fluoranthene, N1methylphenanthrene, N9methylphenanthrene, dibenzo[ah]pyrene, N3methylphenanthrene	α-HCH, γ-HCH, *trans*-chlordane, *cis*-chlordane, *trans*-nonachlor, *cis*-nonachlor, *o,p*'-DDE, *p,p*'-DDE, *o,p*'-DDD, *p,p*'-DDD, HCB	CB 18, CB 28, CB 31, CB 33, CB 37, CB 47, CB 52, CB 60, CB 66, CB 74, CB 99, CB 101, CB 105, CB 114, CB 118, CB122, CB123, CB128, CB138, CB141, CB149, CB 153, CB 156, CB 157, CB 167, CB 170, CB 180, CB 183, CB 187, CB 189, CB 194, CB 206, CB 209

Annex Table 3. Concentrations of organochlorines in air, from Ny-Ålesund (Svalbard) and Bjørnøya (Bear Island), and fog water, snow and rainwater on Bjørnøya, Norway.

	Site	Year	n	Statistic	HCB	ΣHCHs	ΣCHLs	ΣPCBs	Reference
Air (pg/m^3)	Zeppelin mountain (Ny-Ålesund)	1999&2000	2	mean range	97.9 95.2-101	39.9 35.5-44.3	2.32 1.99-2.66	4.39 1.75-7.03	1
	Meteorological station (Bjørnøya)	1999&2000	2	mean range	93.4 88.0-98.8	50.6 46.0-55.3	5.10 4.5-5.7	33.5 16.1-51.0	1
Fog water (pg/L)	Meteorological station (Bjørnøya)	1999&2000	3	mean range	27.1 10.6-56.4	459 n.d.-2090	–	5783 2930-10900	2
	Lake Ellasjøen (Bjørnøya)	1999&2000	2	mean range	5.25 n.d.-10.5	502 n.d.-1004	–	7350 1605-13105	2
Snow (pg/L)	Meteorological station (Bjørnøya)	2000	1	mean	2	78	–	7220	2
	Lake Ellasjøen (Bjørnøya)	2000	1	mean	1.1	32	–	3200	2
Meltwater (pg/L)	Meteorological station (Bjørnøya)	2000	2	mean range	-	1145 491-1798	–	1010 845-1180	2
	Lake Ellasjøen (Bjørnøya)	1999&2000	2	mean range	14.4* 14.4*	830 750-920	–	2064 391-3737	2

n.d. = not detected.
* < limit of quantification.

References

1. Evenset *et al*., 2002; ΣHCHs = sum of α- and γ-HCH; ΣCHLs-sum of *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, chlordene, *cis*-heptachlor epoxide, and oxychlordane; ΣPCBs = sum of 7 congeners (101, 105, 118, 138, 153, 156, 180).
2. Evenset *et al*., 2002 as in footnote 1, except ΣPCBs = sum of 17 congeners (28/31, 52, 99, 101, 105, 118, 128, 138/163, 149, 153, 156, 169, 170, 180, 183, 187, 194).

Annex Table 4. Mean ± standard deviation (SD) concentrations of organochlorines (ng/g dw, except pg/g for PCDD/Fs) in terrestrial soil and vegetation.

Soil/species	Location	Year	Statistic	n	% org C	ΣCBz	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Mirex	ΣPBDEs	PCDD/Fs (pg/g)	Reference
Soil																
Surface soil	Alaska, USA	1991-93	mean±SE	16	–	0.25±0.08	0.18±0.08	0.19±0.16	19.5±19.5	13.2±12.4	–	–	–	–		1
,,	Kola Peninsula, Russia	1991-93	mean±SE	12	–	1.03±0.48	1.54±0.93	0.22±0.14	3.82±2.67	2.21±1.34	–	–	–	–		1
,,	Taymir Peninsula, Russia	1991-93	mean±SE	7	–	n.d.	n.d.	n.d.	n.d.	0.02±0.02	–	–	–	–		1
Peat, peat litter, litter, loamy sand & sand	Lovozero, Kola Peninsula	2000-01	mean±SE	5	–	0.74±0.30	1.19±0.70	0.18±0.05	1.72±0.76	4.07±0.59	–	<0.01	0.20±0.18	<0.05		2
Soil	Nelmin Nos, Pechora Basin	2000-01	–	1	–	0.67	0.22	0.14	0.62	3.17	–	<0.01	0.07	<0.05		2
,,	Dudinka, Taymir Peninsula	2000-01	–	1	–	0.18	0.19	<0.05	0.34	2.91	–	<0.01	0.10	<0.05		2
,,	Khatanga, Taymir Peninsula	2000-01	mean	2	–	0.58	0.18	<0.05	0.74	2.43	–	<0.05	0.08	<0.02		2
,,	Kanchalan, Chukotka Peninsula	2000-01	–	1	–	0.75	0.77	0.17	1.06	5.2	–	<0.01	0.41	0.23		2
,,	Lavrentiya, Chukotka Peninsula					0.9	0.46	0.08	0.92	12.9		<0.05	0.22	0.16		
,,	Norway, 67°00'N,15°98'E	1998-2000		1	15.1	–	–	–	–	406.1	253.3	–		–	–	3
,,	Norway, 67°00'N,15°98'E	1998-2001		1	94.4	–	–	–	–	1544.8	774.3	–		–	–	3
,,	Norway, 67°38'N,14°67'E	1998-2002		1	5.9	–	–	–	–	207.1	120.5	–		–	–	3
,,	Norway, 67°38'N,14°67'E	1998-2003		1	20.3	–	–	–	–	1286.0	715.0	–		–	–	3
,,	Russia, 67°44'N,63°76'E	1998-2004		1	82.4	–	–	–	–	10357.1	5605.5	–		–	–	3
,,	Russia, 67°45'N,63°72'E	1998-2005		1	84.4	–	–	–	–	6188.4	3324.3	–		–	–	3
,,	Russia, 67°61'N,53°16'E	1998-2006		1	41.5	–	–	–	–	46.5	0.0	–		–	–	3
,,	Russia, 67°83'N,32°79'E	1998-2007		1	48.3	–	–	–	–	10184.0	5567.2	–		–	–	3
,,	Russia, 67°86'N,32°79'E	1998-2008		1	59.5	–	–	–	–	48277.0	25065.1	–		–	–	3
,,	Norway, 67°97'N,15°95'E	1998-2009		1	80.7	–	–	–	–	5415.9	3085.1	–		–	–	3
,,	Greenland, 68°00'N,32°00'W	1998-2010		1	0.2	–	–	–	–	4.2	2.7	–		–	–	3
,,	Norway, 69°12'N,19°75'E	1998-2011		1	12.7	–	–	–	–	242.0	163.1	–		–	–	3
,,	Norway, 69°12'N,19°75'E	1998-2012		1	82.7	–	–	–	–	1723.2	998.4	–		–	–	3
,,	Norway, 69°78'N,18°63'E	1998-2013		1	89.6	–	–	–	–	5146.6	3026.6	–		–	–	3
,,	Norway, 69°83'N,25°17'E	1998-2014		1	94.7	–	–	–	–	3074.4	1683.7	–		–	–	3
,,	Norway, 70°47'N,27°97'E	1998-2015		1	96.3	–	–	–	–	2540.7	1325.2	–		–	–	3
,,	Norway (Bjørnøya), 75°00'N,19°00'E	1998-2016		1	3.6	–	–	–	–	17.2	16.2	–		–	–	3
,,	Norway (Bjørnøya), 75°00'N,19°00'E	1998-2017		1	4.3	–	–	–	–	18.1	15.8	–		–	–	3
,,	Norway (Bjørnøya), 75°00'N,19°00'E	1998-2018		1	7.3	–	–	–	–	10.3	10.3	–		–	–	3
,,	Norway (Bjørnøya), 75°00'N,19°00'E	1998-2019		1	4.3	–	–	–	–	4.4	1.8	–		–	–	3
,,	Canada, 78°88'N,76°00'W	1998-2020		1	31.5	–	–	–	–	3397.4	1855.0	–		–	–	3
,,	Canada, 81°75'N,64°92'W	1998-2021		1	5.8	–	–	–	–	62.6	38.4	–		–	–	3
,,	Alaska, 60°5'N,161°5'W	1998		1		–	–	–	–	–	–	–		–	316	4
,,	Yukon, 65°3'N,138°2'W	1998		1		–	–	–	–	–	–	–		–	6.21	4
,,	Yukon, 66°3'N,136°8'W	1998		1		–	–	–	–	–	–	–		–	13	4
,,	Yukon, 66°3'N,136°8'W	1998		1		–	–	–	–	–	–	–		–	28	4
,,	Yukon, 62°9'N,136°5'W	1998		1		–	–	–	–	–	–	–		–	246	4
,,	Yukon, 66°9'N,136°4'W	1998		1		–	–	–	–	–	–	–		–	21	4
,,	Yukon, 60°2'N,132°9'W	1998		1		–	–	–	–	–	–	–		–	249	4
,,	NWT, 62°5'N,114°2'W	1998		1		–	–	–	–	–	–	–		–	39	4
,,	W Greenland, 69°4'N,53°5'W	1998		1		–	–	–	–	–	–	–		–	229	4
,,	W Greenland, 69°4'N,53°5'W	1998		1		–	–	–	–	–	–	–		–	126	4
,,	Norway, 69°0'N,19°0'E	1998		1		–	–	–	–	–	–	–		–	134	4
Vegetation																
Tree bark	Alaska, 60°5'N,161°5'W	1998		1		–	–	–	–	–	–	–		–	9.2	4
,,	Yukon, 65°3'N,138°2'W	1998		1		–	–	–	–	–	–	–		–	2.1	4
,,	Yukon, 66°3'N,136°8'W	1998		1		–	–	–	–	–	–	–		–	3.7	4
,,	Yukon, 62°9'N,136°5'W	1998		1		–	–	–	–	–	–	–		–	2.4	4
,,	Yukon, 66°9'N,136°4'W	1998		1		–	–	–	–	–	–	–		–	4.7	4
,,	Yukon, 60°2'N,132°9'W	1998		1		–	–	–	–	–	–	–		–	17	4
,,	Yukon, 60°4'N,129°1'W	1998		1		–	–	–	–	–	–	–		–	<0.1	4
,,	NWT, 62°5'N,114°2'W	1998		1		–	–	–	–	–	–	–		–	10	4
,,	Norway, 69°0'N,19°0'E	1998		1		–	–	–	–	–	–	–		–	5	
Cassiope tetragona	Alaska	1991-93	–	5	–	n.d.	n.d.	n.d.	n.d.	n.d.	–	–	–	–	–	1
Carex spp.	Alaska	1991-93	–	1	–	n.d.	n.d.	n.d.	n.d.	n.d.	–	–	–	–	–	1
Dryas octapetala achenes	Alaska	1991-93	mean	2	–	n.d.	n.d.	n.d.	n.d.	n.d.	–	–	–	–	–	1
Epilobium latifolium	Alaska	1991-93	–	1	–	0.10	1.48	0.15	0.12	1.96	–	–	–	–	–	1
Mushroom	Alaska	1991-93	–	1	–	n.d.	n.d.	n.d.	n.d.	n.d.	–	–	–	–	–	1
Oxytropis spp.	Alaska	1991-93	–	1	–	n.d.	0.12	n.d.	n.d.	n.d.	–	–	–	–	–	1
Berries																
Vaccinium uliginosum (blueberry)	Alaska	1991-93	mean±SE	6	–	0.07±0.04	0.43±0.11	0.77±0.24	0.11±0.08	2.81±1.29	–	–	–	–	–	1
Vaccimum uliginosum	Dudinka, Taymir Peninsula	2000-01	–	1 pool (n=20)	–	0.72	n.d.	0.14	1.04	4.25	–	<0.02	<0.10	<0.05	–	2
Vaccinium vitis-idaea, V. uliginosum	Kanchalan, Chukotka Peninsula	2000-01	mean	2 pools (n=8,10)	–	0.54	0.19	n.d.	0.13	1.15	–	<0.02	<0.10	<0.05	–	2
Vaccinium vitis-idaea, V. uliginosum	Khatanga, Taymir Peninsula	2000-01	mean	2 pools (n=8,10)	–	0.32	0.18	n.d.	0.79	1.55	–	<0.02	0.20	<0.05	–	2
Rubus chamaemorus, Empetrum nigrum	Lavrentiya, Chukotka Peninsula	2000-01	mean	2 pools (n=8,12)	–	0.16	n.d.	n.d.	0.05	1.24	–	<0.02	<0.10	<0.05	–	2
Vaccinium vitis-idaea, V. myrtilis	Lovozero, Kola Peninsula	2000-01	mean	2 pools (n=4,16)	–	0.20	0.06	0.08	1.50	1.54	–	<0.02	<0.10	<0.05	–	2
Vaccinium vitis-idaea, V. myrtilis	Nelmin Nos, Pechora Basin	2000-01	mean	2 pools (n=10)	–	0.26	0.16	<0.1	0.21	1.59	–	<0.02	<0.10	<0.05	–	2

continued next page

Annex Table 4 continued.

Soil/species	Location	Year	Statistic	n	% org C	ΣCBz	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Mirex	ΣPBDEs	PCDD/Fs (pg/g)	Reference
Lichens																
Masonhalea richardsonii	Alaska	1991-93	mean±SE	36	–	0.16±0.05	0.58±0.08	0.05±0.01	0.14±0.05	1.47±1.14	–	–	–	–	–	1
Cetraria cucullata	Alaska, USA	1991-93	mean±SE	32	–	1.20±0.13	4.23±0.32	0.08±0.02	0.03±0.01	4.09±0.71	–	–	–	–	–	1
	Kola Peninsula	1991-93	mean±SE	8	–	1.19±0.18	6.26±0.78	0.19±0.04	0.34±0.09	2.56±0.26	–	–	–	–	–	1
	Taymir Peninsula	1991-93	mean±SE	9	–	3.05±0.30	7.98±0.83	0.07±0.01	0.18±0.02	8.41±1.27	–	–	–	–	–	1
Cetraria islandica	Alaska	1991-93	mean	2	–	0.15	0.43	0.05	0.04	0.29	–	–	–	–	–	1
	Kola Peninsula	1991-93	mean±SE	8	–	0.26±0.10	1.87±0.29	0.15±0.03	0.32±0.07	0.71±0.11	–	–	–	–	–	1
Cetraria islandica, Cladonia rangiferina	Dudinka, Taymir Peninsula	2000-01	mean	2 pools (n=10)	–	1.28	1.37	0.18	3.04	3.36	–	<0.02	0.18	<0.05	–	2
Cetraria cuculata, Cladina rangiferina	Kanchalan, Chukotka Peninsula	2000-01	mean	2 pools (n=10)	–	0.95	0.88	n.d.	1.29	3.33	–	<0.02	<0.10	<0.05	–	2
Cladonia rangiferina, Cetraria islandica	Khatanga, Taymir Peninsula	2000-01	mean	2 pools (n=10)	–	2.09	1.63	0.47	2.83	3.38	–	<0.02	0.29	<0.05	–	2
Cetraria cuculata	Lavrentiya, Chukotka Peninsula	2000-01	–	1 pool (n=20)	–	0.70	0.76	n.d.	1.13	3.81	–	<0.02	<0.10	<0.05	–	2
Cladina rangifornia, C. alpica, C. islandica, C. stellaris, C. mitis	Lovozero, Kola Peninsula	2000-01	mean±SE	4 pools (n=3-6)	–	1.15±0.23	0.44±0.11	0.05±0.05	0.89±0.14	3.76±0.16	–	<0.02	<0.10	<0.05	–	2
	Nelmin Nos, Pechora Basin	2000-01	–	1 pool (n=20)	–	2.12	0.64	0.29	2.07	3.06	–	<0.02	0.52	<0.05	–	2
Mosses																
Racomitrium lanuginosum	Alaska	1991-93	mean±SE	25	–	0.07±0.02	1.19±0.28	0.19±0.09	0.04±0.01	0.61±0.21	–	–	–	–	–	1
	Kola Peninsula	1991-93	mean	2	–	n.d.	8.59±2.61	0.52±0.25	1.92±0.36	4.75±2.33	–	–	–	–	–	1
	Taymir Peninsula	1991-93	mean±SE	3	–	0.32±0.16	2.20±0.75	0.35±0.05	0.10±0.01	1.07±0.68	–	–	–	–	–	1
Hylocomium splendens	Alaska	1991-93	mean±SE	33	–	0.24±0.02	1.24±0.16	0.15±0.03	0.06±0.02	1.57±0.39	–	–	–	–	–	1
	Taymir Peninsula	1991-93	mean±SE	6	–	0.35±0.11	1.59±0.48	0.14±0.05	0.06±0.03	10.6±2.98	–	–	–	–	–	1
Hylocomium splendens	Nelmin Nos, Pechora Basin	2000-01	–	1 pool (n=20)	–	1.15	1.38	0.33	2.24	7.45	–	<0.02	0.44	<0.05	–	2
Hylcomium splendens, Sphagnum balticum	Dudinka, Taymir Peninsula	2000-01	mean	2 pools (n=6,14)	–	1.68	2.32	0.69	2.47	11.7	–	<0.02	0.47	<0.05	–	2
Hylocomium splendens, Sphagnum balticum	Khatanga, Taymir Peninsula	2000-01	mean	2 pools (n=10)	–	1.50	1.94	0. 46	2.94	10.2	–	<0.02	0.19	<0.05	–	2
Dicranum sp., *Sphagnum balticum*	Kanchalan, Chukotka Peninsula	2000-01	mean	2 pools (n=10)	–	1.17	0.69	n.d.	1.32	13.0	–	<0.02	<0.10	<0.05	–	2
Dicranum sp.	Lavrentiya, Chukotka Peninsula	2000-01	–	1 pool (n=20)	–	0.60	0.36	n.d.	0.92	13.8	–	<0.02	<0.10	<0.05	–	2
Sphagnum magellanicum, Pleurozium schreberi & *Politrichum commune*	Lovozero, Kola Peninsula	2000-01	mean	3 pools (n=3-7)	–	0.37	0.71	n.d.	1.21	12.5	–	<0.02	0.15	<0.05	–	2

$ΣPCB_{10}$ = sum of 28, 31, 52, 101, 105, 118, 138, 153, 156, 180.

References

1. Ford *et al.*, 2000; CBz = HCB; ΣHCHs = α-, β-, and γ-HCH; ΣCHL = sum of *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, oxychlordane, heptachlor, and heptachlor epoxide; ΣDDTs = *o,p'*- and *p,p'*-DDE, *p,p'*-DDD, and *p,p'*-DDT; ΣPCBs = sum of 22 congeners (8, 18, 28, 29, 44, 50, 52, 66, 87, 101, 105, 118, 128, 138, 153, 170, 180, 187, 195, 200, 206, 209).
2. RAIPON/AMAP/GEF Project, 2001; ΣCBz = 1,2,3,4-, 1,2,3,5- and 1,2,4,5-tetrachlorobenzene, and hexachlorobenzene; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = sum of *o,p'*- and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 15 congeners (28, 31, 52, 99, 101, 105, 118, 128, 138, 153, 156, 170, 180, 183, 187); Toxaphene = sum of Parlars 26, 50, 62; ΣPBDEs = sum of 2,2',4,4'-tetrabromodiphenyl, 2,2',4,4', 5-pentabromodiphenyl and 2,2',4,4',5'-pentabromodiphenyl ethers.
3. Ockenden *et al.*, 2002. ΣPCBs = sum of 27 congeners (18, 31, 28 , 52, 49 , 44 , 70, 95, 90/101, 99, 87, 110, 123, 118, 151, 149, 153/132 , 141, 138, 158, 187, 183, 180, 170, 199, 203, 194), $ΣPCB_{10}$ = sum of 31, 28, 52, 101, 105, 118, 153/132, 138, 156, 180).
4. Wagrowski and Hites, 2000.

Annex Table 5. Mean ± standard deviation (SD) concentrations of organochlorines in terrestrial mammals and birds.

Species/Location	Tissue	Year	Sex	% lipid	n	Statistic	ΣCBz	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	Heptachlor epoxide	Oxy-chlordane	ΣPBDEs	Ref-erence
Terrestrial mammals (ng/g ww)																			
Arctic hare (*Lepus timidus*)																			
Lovozero, Kola Peninsula	kidney	2000-01	m,f	–	2 pools (n=4,6)	mean	0.06	0.23	0.05	0.10	0.61	–	<0.02	–	<0.05	–	–	<0.05	1
,,	liver	2000-01	m,f	–	2 pools (n=4,6)	mean	0.43	0.43	0.14	0.38	0.93	–	<0.02	–	≤0.06	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	2 pools (n=4,6)	mean	0.29	0.32	0.05	0.07	0.84	–	<0.02	–	<0.05	–	–	<0.05	1
Nelmin Nos, Pechora Basin	kidney	2000-01	m,f	–	2 pools (n=7,8)	mean	0.05	0.25	0.06	0.10	0.70	–	<0.02	–	<0.05	–	–	<0.05	1
,,	liver	2000-01	m,f	–	2 pools (n=7,8)	mean	0.48	0.55	0.17	0.38	1.12	–	<0.02	–	<0.05	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	2 pools (n=7,8)	mean	0.31	0.42	0.07	0.05	0.77	–	<0.02	–	<0.05	–	–	<0.05	1
Dudinka, Taymir Peninsula	kidney	2000-01	m,f	–	2 pools (n=5,10)	mean	0.17	0.18	n.d.	0.12	0.27	–	<0.02	–	<0.05	–	–	<0.05	1
,,	liver	2000-01	m,f	–	2 pools (n=5,10)	mean	0.40	0.46	0.18	0.40	0.47	–	<0.02	–	≤0.12	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	2 pools (n=5,10)	mean	0.31	0.17	0.05	0.08	0.48	–	<0.02	–	≤0.06	–	–	<0.05	1
Khatanga, Taymir Peninsula	kidney	2000-01	m,f	–	2 pools (n=6,8)	mean	0.05	0.26	0.05	0.09	0.21	–	<0.02	–	0.07	–	–	<0.05	1
,,	liver	2000-01	m,f	–	2 pools (n=6,8)	mean	0.55	0.47	0.31	0.30	0.35	–	<0.02	–	0.05	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	2 pools (n=6,8)	mean	0.23	0.38	0.07	0.06	0.43	–	<0.02	–	0.07	–	–	<0.05	1
Kanchalan, Chukotka Peninsula	kidney	2000-01	m,f	–	2 pools (n=4,6)	mean	0.15	0.27	0.08	0.13	0.38	–	<0.02	–	<0.05	–	–	<0.05	1
,,	liver	2000-01	m,f	–	2 pools (n=4,6)	mean	0.62	0.66	0.31	0.47	0.60	–	<0.02	–	0.09	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	2 pools (n=4,6)	mean	0.39	0.24	0.08	0.06	0.54	–	<0.02	–	<0.05	–	–	<0.05	1
Qeqertarssuaq, SW Greenland	kidney	1999	m,f	32.5±18.8	5	mean±SD	2.46±1.65	0.46±0.27	0.92±0.67	0.18±0.18	6.09±3.78	0.80±0.76	2.63±0.08	–	–	–	–	–	2
	liver	1999	m,f	4.1±0.5	5	mean±SD	0.22±0.05	0.05±0.02	3.41±2.19	0.05±0.06	0.44±0.14	0.10±0.04	0.48±0.30	–	–	–	–	–	2
	muscle	1999	m,f	3.8±2.7	5	mean±SD	0.36±0.20	0.05±0.03	0.16±0.09	0.01±0.02	1.55±1.08	0.11±0.08	0.04±0.04	–	–	–	–	–	2
Faroe Islands, Denmark	liver	1999	juveniles	2.12±0.87	1 pool (n=4)	mean±SD	0.93±0.94	–	0.76±0.21	0.14±0.05	0.09±0.01	–	n.d.	–	0.07±0.02	–	0.76±0.21	–	3
,,			adults f	1.94±0.57	1 pool (n=4)	mean±SD	0.50±0.38	–	0.40±0.18	0.14±0.04	0.06±0.03	–	n.d.	–	n.d.	–	0.40±0.18	–	3
,,			adults m	1.77±0.41	1 pool (n=5)	mean±SD	0.45±0.22	–	0.46±0.14	0.10±0.05	0.08±0.03	–	n.d.	–	0.05±0.02	–	0.46±0,14	–	3
Sheep/lamb (*Ovis* spp.)																			
Narsaq, SW Greenland	fat	1999	m,f	90.2±3.1	5	mean±SD	1.21±0.29	0.22±0.09	0.28±0.07	1.20±0.65	7.13±10.9	1.85±0.75	<0.1	–	–	–	–	–	2
,,	kidney	1999	m,f	4.2±0.4	5	mean±SD	0.21±0.05	0.13±0.04	0.03±0.02	0.11±0.06	2.31±1.82	0.51±0.33	<0.1	–	–	–	–	–	2
,,	liver	1999	m,f	9.6±2.0	5	mean±SD	0.51±0.13	0.15±0.08	0.08±0.04	0.39±0.26	5.33±7.45	2.04±1.93	<0.1	–	–	–	–	–	2
,,	muscle	1999	m,f	12.3±9.8	5	mean±SD	0.59±0.32	0.08±0.04	0.11±0.05	0.33±0.12	1.19±0.81	0.71±0.39	<0.1	–	–	–	–	–	2
Faroe Islands, Denmark	liver	1997	–(lambs)	7.50±0.15	17	mean	0.75	–	n.d.	0.225	0.375	–	n.d.	–	–	–	–	–	4
,,	tallow near kidney	1997	–(lambs)	89.0±0.04	17	mean	3.56	–	n.d.	n.d.	0.445-1.78	–	n.d.	–	–	–	–	–	4
,,	liver	1997	–(sheep)	7.13±0.65	8	mean	0.713	–	n.d.	0.428	0.143	–	n.d.	–	–	–	–	–	4
	tallow near kidney	1997	–(sheep)	88.3±0.07	8	mean	3.53	–	n.d.	n.d.	0.441-1.77	–	n.d.	–	–	–	–	–	4
Muskox (*Ovibos moschatus*)																			
Kangerlussuaq, SW Greenland	fat	1999	m,f	72.1±39.8	5	mean±SD	3.43±1.94	0.53±0.27	0.36±0.22	0.32±0.25	2.99±1.40	1.54±0.82	<0.1	–	–	–	–	–	2
,,	kidney	1999	m,f	3.2±0.6	5	mean±SD	0.43±0.10	0.17±0.03	0.1±0.02	0.06±0.04	1.08±0.96	0.40±0.41	<0.1	–	–	–	–	–	2
,,	liver	1999	m,f	10.3±1.8	5	mean±SD	1.24±0.20	0.59±0.07	0.68±0.30	0.11±0.02	2.22±0.44	0.83±0.21	<0.1	–	–	–	–	–	2
,,	muscle	1999	m,f	15.3±29.8	5	mean±SD	2.72±5.49	0.31±0.51	0.19±0.37	0.11±0.22	3.23±5.83	1.46±2.77	<0.1	–	–	–	–	–	2
Reindeer (*Rangifer tarandus*)																			
Finland	fat	2000	–	–	10	mean±SD	14.3±4.44	n.d.	5.0	6.14±1.92	3.5±8.8	–	–	–	–	–	–	–	5
Lovozero, Kola Peninsula	kidney	2000-01	m,f	–	6 pools (n=1-5)	mean±SE	0.19±0.03	0.19±0.07	0.09±0.03	0.41±0.05	0.67±0.06	–	<0.02	–	0.12±0.03	–	–	<0.05	1
,,	liver	2000-01	m,f	–	6 pools (n=1-5)	mean±SE	0.67±0.06	1.07±0.20	0.22±0.05	0.85±0.14	1.47±0.17	–	<0.02	–	0.11±0.01	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	6 pools (n=1-5)	mean±SE	0.54±0.06	0.27±0.07	0.08±0.03	0.43±0.07	1.28±0.24	–	<0.02	–	<0.05	–	–	<0.05	1
Nelmin Nos, Pechora Basin	kidney	2000-01	m,f	–	6 pools (n=1-5)	mean±SE	0.18±0.03	0.35±0.09	0.06±0.03	0.38±0.04	0.76±0.07	–	<0.02	–	<0.05	–	–	<0.05	1
,,	liver	2000-01	m,f	–	6 pools (n=1-5)	mean±SE	0.69±0.09	1.05±0.11	0.16±0.05	0.68±0.13	1.78±0.16	–	<0.02	–	<0.05	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	6 pools (n=1-5)	mean±SE	0.43±0.04	0.28±0.03	0.04±0.02	0.37±0.05	1.78±0.27	–	<0.02	–	<0.05	–	–	<0.05	1
Dudinka, Taymir Peninsula	kidney	2000-01	m,f	–	5 pools (n=1-3)	mean±SE	0.18±0.03	0.18±0.04	0.07±0.03	0.31±0.08	0.53±0.06	–	<0.02	–	<0.05	–	–	<0.05	1
,,	liver	2000-01	m,f	–	5 pools (n=1-3)	mean±SE	0.84±0.04	0.79±0.13	0.10±0.07	0.51±0.11	1.31±0.23	–	<0.02	–	0.09	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	5 pools (n=1-3)	mean±SE	0.32±0.04	0.18±0.01	0.03±0.02	0.34±0.09	1.35±0.19	–	<0.02	–	<0.05	–	–	<0.05	1
Khatanga, Taymir Peninsula	kidney	2000-01	m,f	–	4 pools (n=1-3)	mean±SE	0.14±0.02	0.38±0.09	0.08±0.06	0.38±0.06	0.34±0.07	–	<0.02	–	<0.05	–	–	<0.05	1
,,	liver	2000-01	m,f	–	4 pools (n=1-3)	mean±SE	0.67±0.10	0.73±0.12	0.20±0.07	0.42±0.07	0.70±0.15	–	<0.02	–	0.13	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	4 pools (n=1-3)	mean±SE	0.32±0.04	0.31±0.05	0.09±0.01	0.45±0.04	0.67±0.18	–	<0.02	–	<0.05	–	–	<0.05	1
Kanchalan, Chukotka Peninsula	kidney	2000-01	m,f	–	2 pools (n=4,6)	mean	0.47	0.93	n.d.	0.46	0.37	–	<0.02	–	<0.05	–	–	<0.05	1
,,	liver	2000-01	m,f	–	2 pools (n=4,6)	mean	1.78	1.75	0.23	1.34	0.89	–	<0.02	–	£0.06	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	2 pools (n=4,6)	mean	0.66	0.89	0.20	0.41	0.62	–	<0.02	–	0.18	–	–	<0.05	1
Lavrentiya, Chukotka Peninsula	kidney	2000-01	m,f	–	2 pools (n=4,6)	mean	0.60	0.87	<0.05	0.55	0.42	–	<0.02	–	<0.05	–	–	<0.05	1
,,	liver	2000-01	m,f	–	2 pools (n=4,6)	mean	2.05	1.56	0.18	1.32	0.88	–	<0.02	–	<0.05	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	2 pools (n=4,6)	mean	0.76	0.87	0.17	0.42	0.77	–	<0.02	–	<0.05	–	–	<0.05	1
Wolf (*Canis lupus*)																			
Tver & Smoliensk, Russia	liver	–	m,f	4.89 1.22-63.4	58	median range	–	–	–	–	25 n.d.-559	–	–	13.1 (n.d.-79.8)	–	–	–	–	6
Watson Lake & Haines Junction, Yukon	liver	1993-94	m, <18mo	4.1	1 pool (n=3)	–	4.2	n.d.	0.50	n.d.	0.7	–	–	n.d.	n.d.	–	–	–	7
,,	liver	1993-94	m, 19-36 mo	5.3	1 pool (n=2)	–	2.0	n.d.	4.9	n.d.	8.1	–	–	0.3	n.d.	–	–	–	7
,,	liver	1993-94	f, 19-36 mo	3.7	1 pool (n=7)	–	2.6	n.d.	1.5	n.d.	9.5	–	–	1.5	n.d.	–	–	–	7
,,	liver	1993-94	m, >36 mo	4.9	1 pool (n=5)	–	7.2	n.d.	2.4	n.d.	5.2	–	–	0.4	n.d.	–	–	–	7
,,	liver	1993-94	f, >36 mo	4.4	1 pool (n=3)	–	3.2	n.d.	2.8	n.d.	15.1	–	–	0.8	n.d.	–	–	–	7
Wolverine (*Gulo gulo*)																			
Qurluqtuuq area, NWT	liver	1999-2000		3.84±1.74	12	mean±SD	1.48±1.19	1.15±2.13	14.3±27.2	7.91±17.4	75.4±80.2	50.0±55.5	–	1.93±4.40	1.04±1.55	0.46±1.25	13.4±25.7	–	8

Continued next page.

Annex Table 5 continued.

Species/Location	Tissue	Year	Sex	% lipid	n	Statistic	ΣCBz	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	Heptachlor epoxide	Oxy-chlordane	ΣPBDEs	Ref-erence
Birds (ng/g ww)																			
American peregrine falcon (*Falco peregrinus anatum*)																			
Alaska	eggs	1979-84			31	geo.mean range	– –	– –	–	10700 4300-30700	2700 800-28000	–	–	200 n.d.-700	–	300 n.d.-3300	100 n.d.-1000	–	9
,,	eggs	1988-90			26	geo.mean range	** –	** –	–	5030 1690-17000	2000.0 700-15000	–	–	80 13-1187	**	130 n.d.-730	80 30-330	–	9
,,	eggs	1991-95			32	geo.mean range	30** n.d.-1020	30** n.d.-390	–	3410 480-14100	1600 400-8500	–	–	70 10-360	130** 20-540	50 10-570	50 20-130	–	9
Arctic peregrine falcon (*Falco peregrinus tundrius*)																			
Alaska	eggs	1979-84			19	geo.mean range	– –	– –	–	9400 1500-46400	2100 600-6300	–	–	300 n.d.-1700	–	300 n.d.-1900	100 30-300	–	9
,,	eggs	1988-90			29	geo.mean range	** –	** –	–	3170 0610-10300	2100 700-14800	–	–	110 20-570	**	150 n.d.-880	90 40-200	–	9
,,	eggs	1991-95			20	geo.mean range	20** n.d.-1280	30** n.d.-500	–	3040 1230-13300	1300 600-6000	–	–	100.00 20-320	130** 30-530	60 20-160	60 20-140	–	9
Peregrine falcon (*Falco peregrinus*)																			
Norway	eggs	1991-97	–	–	5	mean range	*	–	3120 1530-5470	*	10600 2270-25600	–	8.0 n.d.-32	*	–	*	*	–	10
Merlin (*Falco columbarius*)																			
Norway	eggs	1991-97	–	–	3	mean range	*	–	3050 2360-3520	*	1650 1400-1970	–	n.d.	*	–	*	*	–	10
Gyrfalcon (*Falco rusticolus*)																			
Norway	eggs	1991-97	–	–	3	mean range	*	–	353 102-766	*	2020 285-5310	–	7.0 n.d.-21	*	–	*	*	–	10
Golden eagle (*Aquila chrysaetos*)																			
Norway	eggs	1991-97	–	–	12	mean range	*	–	602 36-1900	*	1450 264-4720	–	30 n.d.-131	*	–	*	*	–	10
Willow grouse (*Lagopus lagopus*)																			
Lovozero, Kola Peninsula	liver	2001	m,f	–	2 pools (n=9,12)	mean	0.43	0.85	0.20	1.64	1.62	–	<0.02	–	0.06	–	–	<0.05	1
,,	muscle	2001	m,f	–	2 pools (n=9,12)	mean	0.25	0.26	n.d.	0.61	1.70	–	<0.02	–	<0.05	–	–	<0.05	1
Khatanga, Taymir Peninsula	liver	2000-01	m,f	–	2 pools (n=2,18)	mean	0.58	0.57	0.24	1.18	0.94	–	<0.02	–	<0.05	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	2 pools (n=2,18)	mean	0.23	0.24	n.d.	0.54	0.90	–	<0.02	–	<0.05	–	–	<0.05	1
Kanchalan, Chukotka Peninsula	liver	2000-01	m,f	–	2 pools (n=9,11)	mean	0.92	1.60	0.38	1.82	1.28	–	<0.02	–	0.09	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	2 pools (n=9,11)	mean	0.56	0.34	n.d.	0.76	1.13	–	<0.02	–	<0.05	–	–	<0.05	1
Lavrentiya, Chukotka Peninsula	liver	2000-01	m,f	–	2 pools (n=6,14)	mean	0.80	0.82	0.40	1.65	1.24	–	<0.02	–	<0.05	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	2 pools (n=6,14)	mean	0.46	0.34	n.d.	0.85	1.12	–	<0.02	–	<0.05	–	–	<0.05	1
Ptarmigan (*Lagopus mutus*)																			
Nuuk, SW Greenland	liver	1999	m,f	6.8±0.5	5	mean±SD	0.79±0.70	0.16±0.03	0.68±0.43	0.69±0.46	18.3±13.6	1.55±1.12	0.73±0.45	–	–	–	–	–	2
,,	muscle	1999	m,f	3.8±0.7	5	mean±SD	0.22±0.08	0.22±0.12	1.66±0.06	0.04±0.02	9.02±4.16	1.76±0.62	0.69±0.49	–	–	–	–	–	2
Nelmin Nos, Pechora Basin	liver	2001	m,f	–	2 pools (n=8,12)	mean	0.48	0.60	0.18	1.55	1.77	–	<0.02	–	<0.05	–	–	<0.05	1
,,	muscle	2001	m,f	–	2 pools (n=8,12)	mean	0.11	0.24	n.d.	0.61	1.47	–	<0.02	–	<0.05	–	–	<0.05	1
Dudinka, Taymir Peninsula	liver	2000-01	m,f	–	2 pools (n=8,12)	mean	0.50	0.76	0.24	1.25	0.86	–	<0.02	–	<0.05	–	–	<0.05	1
,,	muscle	2000-01	m,f	–	2 pools (n=8,12)	mean	0.22	0.23	n.d.	0.05	0.80	–	<0.02	–	<0.05	–	–	<0.05	1

$ΣPCB_{10}$ = sum of 28, 31, 52, 101, 105, 118, 138, 153, 156, 180.

* Data for sum of pesticides; sum of HCB, *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, oxychlordane, heptachlor epoxide, *p, p*'-DDE, and dieldrin are summed and listed together under ΣCHLs.

** 1988-90 and 1991-95 data were combined for ΣHCHs, ΣCBz, and mirex.

References

1. RAIPON/AMAP/GEF Project, 2001; ΣCBz = 1,2,3,4-, 1,2,3,5- and 1,2,4,5-tetrachlorobenzene, and hexachlorobenzene; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = sum of *o,p*'- & *p,p*'-DDE, -DDD, and -DDT;
ΣPCBs = sum of 15 congeners (28, 31, 52, 99, 101, 105, 118, 128, 138, 153, 156, 170, 180, 183, 187); Toxaphene = sum of Parlars 26, 50, 62; ΣPBDEs = sum of 2,2',4,4'-tetrabromodiphenyl, 2,2',4,4',5-pentabromodiphenyl and 2,2',4,4',5'-pentabromodiphenyl ethers.
2. Muir and Johansen, 2001; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, heptachlor epoxide and methoxychlor; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 106 congeners peaks (1, 3, 4/10, 7/9, 6, 8/5, 19, 30, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33/20, 53, 51, 22, 45, 46, 52, 43, 49, 47/48, 44, 59, 42, 71/41/64, 40, 100, 3, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 81/87, 85, 136, 110, 82, 151, 135/144, 147, 107, 149, 118, 133, 114, 134/131, 146, 153, 132, 105, 141, 179, 137, 176, 130, 163/138, 158, 129, 178, 175, 182/187, 183, 128, 167, 185, 174, 177, 202/171, 156,173, 157/200, 204, 172, 197, 180, 193, 191, 199, 170/190, 198, 201, 203/196, 189, 208/195, 207, 194, 205, 206, 209).
3. Hoydal *et al*., 2001; ΣCBz = HCB; ΣCHLs = oxychlordane, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = PCB 153.
4. Larsen and Dam, 1999; ΣDDTs = *p,p*'-DDE; ΣPCBs = sum of 153 and 138.
5. Hirvi and Hentonen, 2002; ΣCBz = HCB; ΣHCHs = γ-HCH; ΣCHLs = oxychlordane, *cis*- and *trans*-chlordane, *trans*-nonachlor, heptachlor, and heptachlor epoxide; ΣDDTs = *p,p*'-DDT, *o,p*'- and *p,p*'-DDT, -DDE, and -DDD; ΣPCBs = sum of 15 congeners (8, 15, 28, 52, 101, 114, 118, 128, 138, 141, 149, 151, 153, 170, 180).
6. Shore *et al*., 2001; ΣPCBs = as Aroclor 1254.
7. Gamberg and Braune, 1999; ΣCBz = sum of di-, tri-, tetra-, penta-, and hexa-chlorobenzene; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of oxychlordane, *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, and heptachlor epoxide; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 101 congeners (8/5, 15, 16/32, 17, 18, 19, 22, 24/27, 25, 26, 31/28, 33, 40, 41/71/64, 42, 44, 45, 46, 47/48, 49, 52, 56/60, 66, 70/76, 74, 83, 84/89, 85, 87, 90/101, 91, 95, 97, 99, 105, 107, 110, 114, 118, 128, 129, 130, 131, 134, 136, 137, 138/163/164, 141, 144/135, 146, 149, 151, 153, 156, 157, 158, 170/190, 171, 172, 174, 175, 176, 177, 178, 179, 180, 183, 185, 187/182, 189, 191, 193, 194, 195, 196/203, 197, 198, 199, 201, 205, 206, 207, 208, 209).
8. Braune *et al*., 2001d; ΣCBz = 1,3-,1,4-,1,2-diCBz, 1,3,5-,1,2,4-,1,2,3-triCBz, 1,2,3,4-tetraCBz, and HCBz; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, oxychlordane, heptachlor, and heptachlor epoxide; ΣDDTs = *o,p*' and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 106 congeners (1, 3, 4/10, 7/9, 6, 8/5, 19, 30, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33/20, 53, 51, 22, 45, 46, 52, 43, 49, 47/48, 44, 59, 42, 71/41/64, 40, 100, 63, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 81/87, 85, 136, 110, 82, 151, 135/144, 147, 107, 149, 118, 133, 114, 134/131, 146, 153, 132, 105, 141, 179, 137, 176, 130, 163/138, 158, 129, 178, 175, 182/187, 183, 128, 167, 185, 174, 177, 202/171, 156, 173, 157/200, 204, 172, 197, 180, 193, 191, 199, 170/190, 198, 201, 203/196, 189, 208/195, 207, 194, 205, 206, 209).
9. Ambrose *et al*., 2000; ΣCBz = HCB; ΣHCHs = α-, β-, and γ-HCH; ΣDDTs = *p, p*'-DDE; ΣPCBs = Aroclor sum.
10. Herzke *et al*., 2002; ΣPCBs = sum of 15 congeners (99, 101, 105, 118, 126, 128, 138, 149, 153, 169, 170, 180, 183, 187, 194); Toxaphene = Parlars 26, 32, 38, 50, 51, 58, 62, 69.

Annex Table 6. Mean concentrations of organochlorines in freshwater, and lake and river sediments.

Species/Location	Region	Approx. Lat/long	Year	n	Statistic	ΣCBz	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Reference
Water (ng/L)														
Lake Lovozero	Lovozero, Kola Peninsula	68°00'N, 34°30'E	2000-01	4 pools (n=3-9)	mean±SE	0.65±0.17	0.23±0.15	0.41±0.02	0.17±0.02	1.85±0.36	3.00±0.49	–	<0.01	1
Pechora River	Nelmin Nos, Pechora Basin	68°00'N, 54°00'E	2000-01	3 pools (n=4)	mean±SE	0.30±0.01	0.23±0.04	0.21±0.05	0.14±0.03	0.85±0.10	1.93±0.20	–	<0.01	1
Yenisey River	Dudinka, Taymir Peninsula	69°00'N, 86°00'E	2000-01	2 pools (n=4)	–	0.44	0.24	0.28	0.08	0.31	1.24	–	<0.01	1
Khatanga River	Khatanga, Taymir Peninsula	72°00'N, 102°00'E	2000-01	2 pools (n=4)	–	0.66	0.27	0.33	0.03	0.91	2.07	–	<0.01	1
Kanchalan River	Kanchalan, Chukotka	65°20'N, 176°30'E	2000-01	1 pool (n=8)	–	0.30	0.30	1.01	<0.05	0.44	1.72	–	<0.05	1
River sediments (ng/g dw)														
Pechora River	Nelmin Nos, Pechora Basin	68°00'N, 54°00'E	2000-01	1 pool (n=10)	–	0.56	0.21	0.96	0.26	69.4	2.38	–	<0.01	1
Yenisey River	Dudinka, Taymir Peninsula	69°00'N, 86°00'E	2000-01	1 pool (n=10)	–	0.44	0.18	0.11	0.13	0.85	2.48	–	<0.01	1
Khatanga River	Khatanga, Taymir Peninsula	72°00'N, 102°00'E	2000-01	1 pool (n=10)	–	0.48	0.14	0.13	0.13	1.02	2.39	–	<0.01	1
Kanchalan River	Kanchalan, Chukotka	65°20'N, 176°30'E	2000-01	1 pool (n=10)	–	0.53	0.21	0.09	<0.05	0.16	1.58	–	<0.05	1
Lake sediments														
Bjørnøya, Norway	Lake Ellasjøen (0-1 cm)	74°30'N, 19°00'E	1996	1 pool (n=4)	–	–	<0.8	<0.2	0.69	6.9	–	60 *	–	2
,,	Lake Ellasjøen (13-15 cm)	74°30'N, 19°00'E	1996	1 pool (n=4)	–	–	n.d.	n.d.	n.d.	0.05	–	0.5 *	–	2
,,	Lake Øyangen (0-1 cm)	74°30'N, 19°00'E	1996	1 pool (n=4)	–	–	<0.8	<0.4	0.17	0.8	–	4.4 *	–	2
,,	Lake Øyangen (13-15 cm)	74°30'N, 19°00'E	1996	1 pool (n=4)	–	–	n.d.	n.d.	n.d.	0.2	–	0.4 *	–	2
Lake Lovozero	Lovozero, Kola Peninsula	68°00'N, 34°30'E	2000-01	1 pool (n=10)	–	0.15	0.15	0.02	0.07	0.87	2.52	–	<0.01	1
Chandler	Alaska north slope	68°18'N, 152°40'W	1994	1	–	–	–	–	–	–	0.06	–	–	3
Lindeman Lake	Northern BC	59°47'N, 135°03'W	1994	1	–	0.5	–	0.1	0.3	0.9	8.3	1.8	–	4
Fox Lake	Southern Yukon	61°15'N, 135°29'W	1993	1	–	0.7	–	0.8	0.0	0.7	33.5	12.7	1.3	4,5
Lake Laberge	,,	61°12'N, 135°11'W	1992	2	–	0.4	–	1.2	0.4	0.8	12.7	3.7	0.18	4,5
Little Atlin Lake	,,	60°16'N, 134°00'W	1993	1	–	0.3	–	1.1	3.9	3.5	28.3	7.4	–	4
Yaya	Mackenzie River Delta	69°10'N, 134°39'W	1994	1	–	1.57	–	0.06	0.23	0.43	6.23	2.1	–	6
Lake 6	,,	68°41'N, 134°29'W	1993	1	–	–	–	0.15	–	1.30	2.60	–	–	7
Lake 7	,,	68°41'N, 134°28'W	1993	1	–	–	–	1.40	–	0.10	10.80	–	–	7
Hanson Lake	Central Yukon	64°00'N, 135°21'W	1995	1	–	1.4	–	0.6	0.6	1.3	25.9	5.9	600	4,5
Watson Lake	Southern Yukon	60°06'N, 128°48'W	1995	2	–	1.3	–	0.7	0.9	122.6	38.6	5.2	–	4
Great Bear	Central NWT	65°05'N, 120°47'W	1994	1	–	1.87	–	0.20	0.18	0.50	27.8	7.1	–	8
Great Slave	Southern NWT	61°40'N, 114°00'W	1995	1	–	1.41	–	0.31	0.26	0.41	8.75	3.0	1.3	9
Char	Cornwallis Island	74°40'N, 94°50'W	1998	1	–	0.01	–	0.01	0.52	0.14	0.96	0.4	1.00	10
Peter Lake	Western Nunavut	63°00'N, 92°00'W	1994	1	–	0.28	–	0.09	0.17	0.11	4.44	1.0	–	11
DV09	Devon Island	75°34'N, 89°19'W	1999	1	–		–	0.23	0.18	0.07	2.97	–	0.72	12
Ax-Aj	Axel Heiberg Island	80°00'N, 87°00'W	1999	1	–	0.10	–	0.14	0.51	0.23	2.66	0.2	–	10
Romulus	Ellesmere Island	79°54'N, 85°06'W	2000	1	–	0.27	–	0.69	0.10	0.06	3.65	1.2	–	10
Baird Inlet	,,	79°20'N, 75°00'W	1999	1	–	0.07	–	0.08	0.05	0.03	0.17	0.0	–	10
Bjørnvatnet	NW Spitsbergen	79°45'N, 11°30'E	1995	1	–	–	–	–	–	–	–	6.4 **	–	13
Ytertjørna	,,	79°30'N, 12°00'E	1995	1	–	–	–	–	–	–	–	6.44 **	–	13
Ossian	,,	79°00'N, 13°00'E	1995	1	–	–	–	–	–	–	–	2.74 **	–	13
Daltjørna	SW Spitsbergen	77°30'N, 14°00'E	1995	1	–	–	–	–	–	–	–	2.58 **	–	13
Tenndammen	,,	78°15'N, 15°00'E	1995	1	–	–	–	–	–	–	–	13.52 **	–	13
Latnjajaure	Swedish Arctic	68°30'N, 18°20'E	1998-2000	1	–	–	0.16	0.06	–	0.3	–	0.6 ***	–	14
Njalakjaure	,,	67°00'N, 16°45'E	1998-2000	1	–	–	0.15	0.08	–	0.4	–	0.6 ***	–	14
Louvvajaure	,,	66°45'N, 18°00'E	1998-2000	1	–	–	0.16	0.14	–	1.7	–	1.4 ***	–	14
Jutsajaure	,,	67°00'N, 20°10'E	1998-2000	1	–	–	0.07	0.13	–	0.6	–	1 ***	–	14
Pahajärvi	,,	66°55'N, 23°30'E	1998-2000	1	–	–	0.12	0.15	–	2.6	–	1.4 ***	–	14
Abiskojaure	,,	68°30'N, 18°25'E	1998-2000	1	–	–	0.13	0.02	–	0.2	–	0.3 ***	–	14

$ΣPCB_{10}$ = sum of 28, 31, 52, 101, 105, 118, 138, 153, 156, 180.
* sum of 7 congeners (101, 105, 118, 138, 153, 156, 180).
** sum of 7 congeners (28, 52, 101, 118, 138, 153, 180).
*** sum of 7 congeners (28, 52, 101, 105, 138, 153, 180).

References

1. RAIPON/AMAP/GEF Project, 2001. ΣCBz = 1,2,3,4-, 1,2,3,5- and 1,2,4,5-tetrachlorobenzene, and hexachlorobenzene; ΣHCH = α-, β-, and γ-HCH; ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = sum of *o,p*' and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 15 congeners (28, 31, 52, 99, 101, 105, 118, 128, 138, 153, 156, 170, 180, 183, 187); Toxaphene = sum of Parlars 26, 50, 62.
2. Evenset *et al*., 2002; ΣHCHs = sum of α- and γ-HCH.
3. Cleverly *et al*., 1996.
4. Rawn *et al*., 2001.
5. Lockhart *et al*., 1997.
6. Lockhart, 1997.
7. Graf Pannatier, 1997.
8. Muir and Lockhart 1997, unpublished.
9. Evans *et al*., 1996. ΣCHLs = sum of *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, and oxychlordane; ΣDDTs = *o,p*' and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = 102 congeners; Toxaphene = total toxaphene using single response factor.
10. Muir *et al*., 2002b. Toxaphene determined by GC-ECNIMS.
11. Kidd *et al*., 1998.
12. Stern and Lockhart, 2001. Toxaphene determined by GC-ECNIMS.
13. Rose *et al*., 2003.
14. Söderström *et al*., 2002.

Annex Table 7. Mean concentrations of organochlorines in freshwater invertebrates and fish. All Arctic char data are for landlocked fish; values for anadromous fish are in Annex Table 10 (marine and anadromous fish).

Species/Region	Location	Tissue	Year	Sex	% lipid	n	Statistic	ΣCBz	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	Endrin	ΣPBDEs	Reference
Invertebrates (ng/g ww)																				
Plankton																				
NWT	Great Slave Lake, W Basin	whole body	1993-95	–	1.4±0.6	?	mean±SD	–	–	–	0.2±0.1	0.3±0.3	3.4±2.4	–	1.2±0.2	0.1±0.1	–	–	–	3
,,	Great Slave Lake, E Arm	whole body	1993-95	–	26.2±12.6	?	mean±SD	–	–	–	2.2±3.6	0.5±0.2	3.9±1.9	–	9.2±2.2	0.7±1.1	–	–	–	3
Mysids																				
NWT	Great Slave Lake, W Basin	whole body	1993-95		33.6±4.6	?	mean±SD	–	–	–	0.89±0.6	0.3±0.1	2.2±0.7	–	6.5±2.2	0.2±0.2	–	–	–	3
Amphipods																				
NWT	Great Slave Lake, W Basin	whole body	1993-95	–	2.2±0.6	?	mean±SD	–	–	–	0.7±0.4	0.4±0.2	2.4±0.8	–	6.1±1.1	0.2±0.1	–	–	–	3
,,	Great Slave Lake, E Arm	whole body	1993-95	–	9.9±8.2	?	mean±SD	–	–	–	1.4±1.2	0.8±0.6	2.6±1.2	–	7.1±3.4	0.3±0.2	–	–	–	3
Unidentified zooplankton																				
Bjørnøya	Lake Ellasjøen	whole body	1996	–	2.02	–	–	–	0.56	–	–	3.48	–	32.0**	–	–	–	–	–	2
,,	,,	whole body	1999	–	1.48	–	–	–	0.76	–	–	1.71	27.0	17.6**	–	–	–	–	–	2
,,	Lake Øyangen	whole body	1996	–	1.54	–	–	–	0.31	–	–	0.47	–	4.29**	–	–	–	–	–	2
,,	,,	whole body	1999	–	0.62	–	–	–	0.08	–	–	0.16	2.15	1.13**	–	–	–	–	–	2
,,	Lake Skutilen	whole body	1999	–	1.31	–	–	–	0.16	–	–	0.25	7.18	2.57**	–	–	–	–	–	2
Chironomidae sp.																				
Bjørnøya	Lake Ellasjøen	whole body	1996	–	2.81	2	–	–	0.88	–	–	10.2	–	56.6**	–	–	–	–	–	2
,,	,,	whole body	1999	–	3.68	–	–	–	1.92	–	–	5.42	44.2	46.1**	–	–	–	–	–	2
,,	Lake Øyangen	whole body	1996	–	2.15	–	–	–	0.37	–	–	2.10	–	20.9**	–	–	–	–	–	2
Lepidurus arcticus																				
Bjørnøya	Lake Øyangen	whole body	1998	–	2.37	–	–	–	0.62	–	–	0.54	7.09	4.12**	–	–	–	–	–	2
,,	Lake Skutilen	whole body	1999	–	0.39	–	–	–	0.06	–	–	0.11	1.93	0.93**	–	–	–	–	–	
Freshwater fish (ng/g ww)																				
Lota lota (burbot)																				
Alaska	Fairbanks	liver	1998		40 6-57	9	median range	–	15 4-19	–	2.65 <0.32-15	48 0.79-470	540 270-1400	–	140 24-200	3 1.4-5.6	–	–	–	
,,	Kanuti	liver	1998		12 4-32	6	median range	–	1.4 0.9-3.7	–	– <0.32-0.46	– 0.08-44	– <16-110	–	– <2.9-18	– <0.26-2.8	–	–	–	4
,,	Tetlin	liver	1998		32 4-48	11	median range	–	2.4 1.1-7.1	–	0.0435 <0.32-1	– <0.40-28	– <1.6-170.0	–	12 <2.9-27.0	0.6 <0.26-1.2	–	–	–	4
,,	Yukon Flats	liver	1998		57 53-61	3	median range	–	31 23-45	–	4.75 1.8-21	7.2 0.45-290	420 160-950	–	290 87-420	8 3-14	–	–	–	4
,,	Nuiqsut (Colville R.)	liver	2000	–	41.4±2.92	11	mean±SE	10.2±0.67	8.76±0.58	4.8±0.45	30.24±4.10	18.4±1.35	51.8±4.50	–	–	4.79±0.31	0.35±0.09	0.64±0.09	–	5
NWT	Great Slave Lake, W Basin	liver	1993		22.9±8.9	?	mean±SD	–	–	–	63.1±16.0	26.9±5.1	76.7±16.9	–	263±100	–	–	–	–	3
,,	,,	liver	1995		21.2±13.7	?	mean±SD	–	–	–	92.3±29.0	50.0±16.9	158±21.6	–	424±199	–	–	–	–	3
,,	,,	liver	1996		43.3±9.2	?	mean±SD	–	–	–	74.7±16.7	27.7±2.2	96.4±9.5	–	348±114	–	–	–	–	3
,,	,,	liver	1999		–	?	mean±SD	–	–	–	71.7±19.3	32.0±9.1	114±47.3	–	277±48.4	–	–	–	–	3
,,	Great Slave Lake, E Arm	liver	1993		30.0±7.9	?	mean±SD	–	–	–	93.5±34.7	51.2±25.7	138±52.2	–	762±298	–	–	–	–	3
,,	,,	liver	1999		–	?	mean±SD	–	–	–	45.7±23.0	23.0±12.1	79.3±50.4	–	190±60.6	–	–	–	–	3
,,	Fort Good Hope (Mackenzie R.)	liver	1988	m,f	30.2±13.5	10	mean±SD	13.6±4.21	13.7±4.06	5.53±1.71	23.8±7.37	16.2±5.25	58.1±18.4	–	60.8±19.3	2.38±0.74	0.57±0.17	–	–	6
,,	,,	liver	1994	m,f	30.6±11.6	9	mean±SD	8.63±2.63	8.17±2.48	4.31±1.27	17.3±6.14	19.0±8.28	50.0±17.5	–	46.8±14.5	2.02±0.62	0.41±0.14	–	–	6
,,	,,	liver	1999	m,f	42.1±13.3	21	mean±SD	10.0±3.81	5.43±2.17	3.78±1.38	21.0±8.04	22.8±8.59	62.8±22.3	–	54.0±20.4	2.38±0.93	0.59±0.24	–	1.59±1.15	6
,,	,,	liver	2000	m,f	36.2±15.2	20	mean±SD	8.72±5.24	4.78±2.89	3.29±1.98	19.0±12.5	21.2±14.9	54.6±36.2	–	47.0±29.0	2.21±1.57	0.58±0.55	–	–	6
Yukon	Fox Lake	liver	1998	m,f	29.1±7.57	9	mean±SD	0.49±0.18	4.45±1.61	9.26±3.42	16.8±6.17	41.3±13.4	32.2±10.3	–	40.8±13.9	3.11±1.34	0.35±0.14	–	–	7
,,	Lake Laberge	liver	1997	f	54.5	1	–	5.20	–	19.4	5.20	1620	915	–	1950	–	–	–	–	8
,,	,,	liver	1999	m,f	53.8±6.56	11	mean±SD	41.6±17.6	–	50.3±23.7	248±122	2850±1200	1630±727	–	3050±1210	–	–	–	–	7
,,	,,	liver	1999	m,f	47.9±2.47	7	mean±SE	3.45±0.27	–	17.6±1.80	3.45±0.27	2380±497	985±148	–	2450±463	–	–	–	–	8
,,	Kusawa Lake	liver	1999	m,f	23.8±8.46	11	mean±SD	5.28±2.10	–	5.55±2.15	35.6±16.8	56.2±31.1	130±51.6	–	208±69.0	–	–	–	–	7
,,	,,	liver	1999	m,f	25.6±2.67	9	mean±SE	0.90±0.13	–	5.11±0.62	0.90±0.13	46.1±7.45	116±15.3	–	618±85.5	–	–	–	–	8
,,	Quite Lake	liver	1997	–	30.0±4.66	7	mean±SE	1.06±0.14	–	14.7±1.77	1.06±0.14	92.8±13.9	48.3±7.16	–	74.4±11.7	–	–	–	–	8
,,	,,	liver	1997-99	m,f	25.6±12.3	9	mean±SD	7.26±1.72	–	13.3±4.97	27.8±11.6	87.9±32.3	121±114	–	99.6±46.1	–	–	–	–	7
,,	Klukshu Lake	liver	1996	–	36.0	1	–	1.94	–	3.07	1.94	45.6	54.3	–	53.0	–	–	–	–	8
Norway	Lake Grensefoss (Pasvikelva)	muscle	1999-2000	–	11.6	1	–	–	–	–	–	–	205	–	–	–	–	–	20.3	16
Russia	Kola Peninsula	liver	2001	f	–	2 pools (n=6,7)	mean±SD	–	–	3.36±0.13	22.9±5.36	48.6±0.14	62.3±5.36	–	–	–	0.75±0.33	–	–	1
,,	,,	liver	2001	m	–	2 pools (n=6,7)	mean±SD	–	–	0.52±0.23	4.27±0.51	17.0±12.4	33.1±1.08	–	–	–	0.10	–	–	1
,,	,,	muscle	2001	f	–	2 pools (n=6,7)	mean±SD	–	–	0.05±0.06	<0.05	0.84±1.08	2.34±0.04	–	–	–	0.06	–	–	1
,,	,,	muscle	2001	m	–	2 pools (n=6,7)	mean±SD	–	–	0.19±0.13	<0.05	1.03±0.17	5.36±0.52	–	–	–	<0.05	–	–	1
,,	Dudinka, Taymir Peninsula	liver	2001	f	–	3 pools (n=2-6)	mean±SD	–	–	1.13±0.30	30.7±9.00	472±44.6	516±55.7	–	–	–	0.68±0.12	–	–	1
,,	,,	muscle	2001	f	–	3 pools (n=2-6)	mean±SD	–	–	0.06	<0.05	1.08±0.18	5.16±0.41	–	–	–	0.13±0.03	–	–	1
,,	,,	liver	2001	m	–	3 pools (n=1-5)	mean±SD	–	–	2.07±0.14	21.9±3.72	366±60.2	390±45.7	–	–	–	0.65±0.05	–	–	1
,,	,,	muscle	2001	m	–	3 pools (n=1-5)	mean±SD	–	–	0.06	0.12	0.69±0.07	4.35±1.16	–	–	–	0.12	–	–	1
,,	Khatanga, Taymir Peninsula	liver	2001	f	–	2 pools (n=2,5)	mean±SD	–	–	3.67±0.31	40.1±6.47	90.6±11.9	108±18.4	–	–	–	1.65	–	–	1
,,	,,	liver	2001	m	–	2 pools (n=3,10)	mean±SD	–	–	2.9±0.03	26.0±2.33	84.4±11.5	105±6.02	–	–	–	2.33	–	–	1
,,	,,	muscle	2001	f	–	2 pools (n=2,5)	mean±SD	–	–	0.12±0.04	<0.05	0.23±0.13	2.16±0.10	–	–	–	<0.05	–	–	1
,,	,,	muscle	2001	m	–	2 pools (n=3,10)	mean±SD	–	–	0.02±0.03	<0.05	0.57	1.83±0.18	–	–	–	<0.05	–	–	1

Continued next page.

Annex Table 7 continued.

Species/Region	Location	Tissue	Year	Sex	% lipid	n	Statistic	ΣCBz	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	Endrin	ΣPBDEs	Reference
Salvelinus alpinus (Arctic char)																				
Cornwallis Isl.,	Resolute Lake	muscle+skin	1997	–	5.17±2.79	10	mean±SD	1.70±1.64	1.55±1.52	0.67±0.58	6.80±8.89	9.23±13.0	160±208		–	1.63±1.60	0.09±0.13	–	–	9
Nunavut	,,	muscle+skin	1999	–	3.85±1.28	10	mean±SD	1.47±0.41	1.34±0.37	0.70±0.28	4.67±2.26	6.69±3.34	96.5±56.7		–	1.47±0.47	0.08±0.06	–	–	9
,,	Resolute Lake	muscle+skin	2000	–	5.45±1.52	8	mean±SD	2.08±0.56	1.90±0.52	0.70±0.18	1.73±0.66	8.79±4.83	133±68.7		–	1.95±0.56	0.10±0.08	–	–	9
Cornwallis Isl.,	Char Lake	muscle+skin	1999	–	2.86±1.77	4	mean±SD	1.14±0.55	1.06±0.50	0.33±0.17	1.03±0.40	32.3±8.29	125±48.1		–	1.85±1.32	0.48±0.26	–	–	9
Nunavut	,,	muscle+skin	2000	–	2.76±0.40	3	mean±SD	1.00±0.05	0.87±0.04	0.46±0.07	2.13±0.75	14.8±9.27	64.9±31.4		–	1.24±0.14	0.14±0.06	–	–	9
SW Greenland	Isortoq	muscle	1999	m	1.1±1.1	9	mean±SD	0.33±0.31	0.31±0.28	0.13±0.13	1.5±0.8	1.6±0.8	14±6	1.6±0.5	–	0.23±0.2	0.16±0.07	–	–	10
,,	,,	muscle	1999	f	1.4±0.8	9	mean±SD	0.45±0.20	0.42±0.18	0.14±0.08	2.1±0.9	2.1±1.2	16±7	2.7±2.5	–	0.31±0.18	0.18±0.08	–	–	10
NE Greenland	Zackenberg	muscle	1999	m	2.5±0.7	2	mean±SD	1.29±0.06	1.22±0.04	0.2±0.05	2.3±0.4	1.7±0.4	11±2	4.5±0.9	–	0.47±0.13	0.1±0.02	–	–	10
,,	,,	muscle	1999	f	2.2±1.4	11	mean±SD	1.13±0.62	1.06±0.58	0.20±0.12	2.0±1.8	1.5±1.1	6±4	2.5±1.3	–	0.71±0.74	0.05±0.04	–	–	10
,,	,,	muscle	1999	both	1.0±0.4	8	mean±SD	0.51±0.18	0.49±0.17	0.06±0.05	2.1±1.0	2.6±1.7	14±9	4.7±3.2	–	0.36±0.17	0.1±0.07	–	–	10
,,	Ittoqqortoormiit	muscle	2000	m	2.9±1.4	6	mean±SD	0.74±0.25	0.65±0.20	0.65±0.50	4.9±1.8	5.3±2.6	23±12	7.7±3.9	–	1.3±0.29	0.05±0.03	–	–	10
,,	,,	muscle	2000	f	2.4±1.1	14	mean±SD	0.69±0.26	0.62±0.23	0.43±0.39	3.6±1.7	3.8±2.4	16±8	5.4±2.8	–	1.16±0.44	0.05±0.03	–	–	10
Faroe Islands	mountain dam	muscle	2000-2001	–	–	65	mean	–	0.9	–	–	1	0.9	–	–	–	–	–	–	11
Jan Mayen	–	liver	1995/96	–	2.5	1 pool	mean	–	0.9	1.50	8.8	70.7	155	–	–	–	–	–	–	12
Bjørnøya	Lake Øyangen	muscle	1998	–	2.18 1.57-2.97	3 pools (n=3)	mean range	–	–	–	–	3.85 1.62-6.46	64.8 32.2-97.5	37.1* 18.2–55.9	–	–	–	–	–	2
,,	Lake Ellasjøen	muscle	1999	–	3.14 6.65-4.03?	3 pools (n=1-2)	mean range	–	–	–	–	62.7 40.9-84.7	1140 596-1630	643* 374-907						2
Finland	Lake Pahtajärvi	muscle	1999	f	1.34±0.49	5	mean±SD	–	0.10±0.49	0.02±0.02	0.04±0.02	0.18±0.02	0.15±0.06							13
,,	,,	muscle	1999	m	1.09±0.42	5	mean±SD	–	0.09±0.03	0.01±0.02	0.02±0.03	0.24±0.21	0.28±0.46							13
,,	Lake Kilpisjärvi	muscle	2001	–	0.97	1 pool (n=5)	–	–	0.26	0.07	0.37	0.93	3.33							13
Esox locius (northern pike)																				
NWT	Great Slave Lake, W Basin	muscle	1996	–	2.2±0.6	?	mean±SD	–	–	–	2.3±0.7	2.7±0.8	5.3±1.5	–	22.2±6.6	–	–	–	–	3
,,	,,	muscle	1999	–	0.9±0.3	?	mean±SD	–	–	–	1.9±1.1	2.3±1.1	4.8±2.5	–	21.5±7.3	–	–	–	–	3
,,	Great Slave Lake, E Arm	muscle	1999	–	1.1±0.8	?	mean±SD	–	–	–	0.8±0.2	1.3±0.4	2.5±0.9	–	12.1±2.5	–	–	–	–	3
Finland	Lake Inari	muscle	1997,99	f	0.43±0.09	2	mean±SD	–	0.16±0.04	n.d.	0.16±0.03	0.89±0.78	1.62±0.83	–	–	–	–	–	–	13
,,	River Tornionjoki	muscle	1997	m	0.35	1	–	–	0.09	0.03	n.d.	0.10	0.33	–	–	–	–	–	–	13
,,	,,	muscle	1997	f	0.46	1	–	–	0.22	n.d.	0.35	2.36	8.78	–	–	–	–	–	–	13
,,	Reservoir Lokka	muscle	1997-2001	f	0.35±0.08	4	mean±SD	–	0.08±0.02	0.01±0.02	0.01±0.02	0.15±0.18	n.d.	–	–	–	–	–	–	13
,,	,,	muscle	2001	m	0.28±0.03	3	mean±SD	–	0.07±0.01	n.d.	n.d.	0.10±0.02	0.13±0.15	–	–	–	–	–	–	13
,,	Lake Kemijärvi	muscle	2001	f	0.26±0.04	3	mean±SD	–	0.26±0.04	n.d.	n.d.	0.22±0.08	0.90±0.28	–	–	–	–	–	–	13
,,	,,	muscle	2001	m	0.30±0.01	2	mean±SD	–	0.07±0.01	n.d.	0.06±0.03	0.78±0.64	2.47±1.44	–	–	–	–	–	–	13
Russia	Kola Peninsula	liver	2001	f	–	2 pools (n=6,7)	mean±SD	–	–	0.64±0.03	1.47±0.82	4.15±2.10	11.9±2.38	–	–	–	0.12	–	–	1
,,	,,	liver	2001	m	–	2 pools (n=3,5)	mean±SD	–	–	0.73±0.04	2.05±1.39	4.31±0.64	10.5±2.45	–	–	–	0.14	–	–	1
,,	,,	muscle	2001	f	–	2 pools (n=6,7)	mean±SD	–	–	0.18±0.03	0.11±0.03	0.51±0.19	1.33±0.32	–	–	–	<0.05	–	–	1
,,	,,	muscle	2001	m	–	2 pools (n=5,3)	mean±SD	–	–	0.10±0.06	<0.05	0.90±0.21	1.18±0.45	–	–	–	<0.05	–	–	1
,,	Kanchalan, Chukotka Peninsula	liver	2001	f	–	3 pools (n=2-6)	mean±SD	–	–	1.2±0.40	4.83±1.36	10.6±2.46	10.2±3.13	–	–	–	<0.05	–	–	1
,,	,,	liver	2001	m	–	3 pools (n=1-5)	mean±SD	–	–	0.97±0.28	1.52±0.53	5.87±1.58	7.97±1.59	–	–	–	<0.05	–	–	1
,,	,,	muscle	2001	f	–	3 pools (n=2-6)	mean±SD	–	–	<0.10	<0.05	0.15±0.25	1.73±0.65	–	–	–	<0.05	–	–	1
,,	,,	muscle	2001	m	–	3 pools (n=1-5)	mean±SD	–	–	0.07±0.06	<0.05	<0.05	2.91±0.96	–	–	–	<0.05	–	–	1
Perca fluviatilis (European perch)																				
Finland	Lake Inari	muscle	1997	m	0.69	1	–	–	0.13	0.03	0.07	0.32	0.42	–	–	–	–	–	–	13
,,	Reservoir Lokka	muscle	1997	f	0.44	1	–	–	0.14	0.03	<0.06	n.d.	n.d.	–	–	–	–	–	–	13
Russia	Pechora Basin	liver	2001	f	–	3 pools (n=5-9)	mean±SD	–	–	1.95±0.92	0.33±0.18	2.32±0.34	3.50±0.41	–	–	–	<0.05	–	–	1
		muscle	2001	f	–	3 pools (n=5-9)	mean±SD	–	–	0.25±0.24	0.17±0.08	0.99±0.40	1.03±0.40	–	–	–	<0.05	–	–	1
Coregonus sp. (whitefish)																				
Yukon	Lake Laberge	muscle	1998	–	1.39±0.14	5	mean±SE	0.004±0.002	–	0.32±0.06	2.32±0.25	24.6±2.36	4.58±1.00	–	42.7±7.68	–	–	–	–	8
,,	Watson Lake	muscle	1997	f	2.99±1.55	2	mean	0.02	–	2.66	9.02	6.43	24.7	–	20.3±3.13	–	–	–	–	8
,,	,,	muscle	1998	m,f	1.71±0.12	12	mean±SE	0.26±0.04	–	0.89±0.15	1.66±0.23	6.54±0.79	7.92±1.03	–	7.26±0.98	–	–	–	–	8
NWT	Great Slave Lake, W Basin	?	1993–95	–	9.9±7.0	?	mean±SD	–	–	–	4.2±3.9	1.9±1.2	4.7±4.2	–	21.7±16.6	0.7±0.3	–	–	–	3
,,	Great Slave Lake, E Arm	?	1993–95	–	5.9±4.1	?	mean±SD	–	–	–	2.9±2.3	2.8±1.1	6.6±2.8	–	25.5±14.3	0.5±0.2	–	–	–	3
Finland	Lake Inari	muscle	2001	f	0.78±0.31	2	mean±SD	–	0.12±0.05	0.02±0.03	0.05±0.02	0.29±0.22	0.64±0.63	–	–	–	–	–	–	13
,,	,,	muscle	2001	m	0.71±0.27	3	mean±SD	–	0.13±0.04	0.01±0.02	0.06±0.03	0.37±0.17	0.80±0.19	–	–	–	–	–	–	13
,,	River Tornionjoki	muscle	2001	f	0.70	1	mean±SD	–	0.62	n.d.	0.63	10.3	19.5	–	–	–	–	–	–	13
,,	,,	muscle	2001	m	0.78±0.36	4	mean±SD	–	0.51±0.37	n.d.	0.57±0.43	5.32±4.48	14.7±10.1	–	–	–	–	–	–	13
,,	Lake Nitsijärvi	muscle	2001	f	0.49	1	mean±SD	–	0.06	0.02	n.d.	0.22	0.47	–	–	–	–	–	–	13
,,	,,	muscle	2001	m	0.77±0.36	4	mean±SD	–	0.10±0.04	0.03±0.04	0.09±0.09	0.41±0.21	1.09±0.57	–	–	–	–	–	–	13
,,	Reservoir Lokka	muscle	2001	f	0.75±0.67	5	mean±SD	–	0.08±0.06	0.02±0.04	0.01±0.02	0.06±0.06	0.02±0.04	–	–	–	–	–	–	13
,,	,,	muscle	2001	m	0.68±0.35	5	mean±SD	–	0.07±0.02	0.02±0.03	0.01±0.01	0.04±0.04	0.01±0.02	–	–	–	–	–	–	13
C. lavaretus (common whitefish)																				
Russia	Kola Peninsula	liver	2001	f	–	2 pools (n=4)	mean±SD	–	–	0.93±0.33	1.78±0.16	6.56±2.02	5.42±1.10	–	–	–	≤0.05	–	–	1
,,	,,	liver	2001	m	–	2 pools (n=6)	mean±SD	–	–	0.47±0.17	1.12±0.24	4.29±1.48	5.43±0.91	–	–	–	0.11±0.06	–	–	1
,,	,,	muscle	2001	f	–	2 pools (n=4)	mean±SD	–	–	0.39±0.06	0.19	1.94±0.04	2.22±0.42	–	–	–	<0.05	–	–	1
,,	,,	muscle	2001	m	–	2 pools (n=6)	mean±SD	–	–	0.36±0.08	0.24±0.03	1.74±0.19	2.31±0.28	–	–	–	<0.05	–	–	1
,,	Pechora Basin	liver	2001	f	–	2 pools (n=3,4)	mean±SD	–	–	0.62±0.39	0.36±0.31	3.42±2.31	2.67±0.46	–	–	–	–	–	–	1
,,	,,	liver	2001	m	–	3 pools (n=1-7)	mean±SD	–	–	0.74±0.17	0.47±0.37	3.44±0.89	2.90±0.57	–	–	–	–	–	–	1

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Annex Table 7 continued.

Species/Location	Region	Tissue	Year	Sex	% lipid	n	Statistic	ΣCBz	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	Endrin	ΣPBDEs	Reference
Russia	Pechora Basin	muscle	2001	f	–	2 pools (n=3,4)	mean±SD	–	–	0.15	0.07	1.53±0.32	1.81±0.35	–	–	–	<0.05	–	–	1
,,	,,	muscle	2001	m	–	3 pools (n=1-7)	mean±SD	–	–	0.17±0.15	0.41±0.13	1.75±0.26	2.03±0.47	–	–	–	<0.05	–	–	1
,,	Dudinka, Taymir Peninsula	liver	2001	f	–	2 pools (n=4,6)	mean±SD	–	–	0.33±0.26	0.67±0.16	3.19±0.25	3.35±1.24	–	–	–	<0.05	–	–	1
,,	,,	muscle	2001	f	–	2 pools (n=4,6)	mean±SD	–	–	0.13±0.18	0.49±0.24	2.22±0.41	4.13±2.98	–	–	–	≤0.05	–	–	1
,,	,,	liver	2001	m	–	2 pools (n=3,7)	mean±SD	–	–	0.37±0.03	0.67±0.18	3.64±0.57	4.13±2.00	–	–	–	<0.05	–	–	1
,,	,,	muscle	2001	m	–	2 pools (n=3,7)	mean±SD	–	–	0.18±0.13	0.29±0.09	2.15±0.10	2.81±0.84	–	–	–	<0.05	–	–	1
,,	Khatanga, Taymir Peninsula	liver	2001	f	–	3 pools (n=1-3)	mean±SD	–	–	0.36±0.13	3.49±1.32	3.35±0.68	4.48±2.26	–	–	–	0.19±0.01	–	–	1
,,	,,	liver	2001	m	–	3 pools (n=3-6)	mean±SD	–	–	0.53±0.25	3.57±0.57	4.11±1.28	5.12±1.92	–	–	–	0.17±0.11	–	–	1
,,	,,	muscle	2001	f	–	3 pools (n=1-3)	mean±SD	–	–	0.22±0.09	1.41±0.39	2.74±0.54	3.08±0.90	–	–	–	<0.05	–	–	1
,,	,,	muscle	2001	m	–	3 pools (n=3-6)	mean±SD	–	–	0.27±0.05	1.56±0.08	2.22±0.55	3.15±0.64	–	–	–	<0.05	–	–	1
C. nasus (broad whitefish)																				
Russia	Khatanga, Taymir Peninsula	liver	2001	f	–	3 pools (n=2-5)	mean±SD	–	–	0.84±0.62	0.97±0.46	0.80±0.37	2.32±0.30	–	–	–	<0.05	–	–	1
,,	,,	liver	2001	m	–	3 pools (n=1-6)	mean±SD	–	–	0.78±0.53	1.06±0.47	0.76±0.34	2.18±1.02	–	–	–	≤0.05	–	–	1
,,	,,	muscle	2001	f	–	3 pools (n=2-5)	mean±SD	–	–	0.08±0.14	1.48±0.69	1.41±0.65	3.21±0.52	–	–	–	≤0.05	–	–	1
,,	,,	muscle	2001	m	–	3 pools (n=1-6)	mean±SD	–	–	0.16±0.15	0.69±0.38	1.11±0.30	2.35±0.79	–	–	–	0.06	–	–	1
,,	Kanchalan, Chukotka Peninsula	liver	2001	f	–	1 pool (n=13)	–	–	–	0.42	0.37	1.01	1.72	–	–	–	0.10	–	–	1
,,	,,	liver	2001	m	–	1 pool (n=7)	–	–	–	0.54	0.09	0.98	1.78	–	–	–	0.14	–	–	1
,,	,,	muscle	2001	f	–	1 pool (n=13)	–	–	–	0.22	0.13	0.63	1.15	–	–	–	<0.05	–	–	1
,,	,,	muscle	2001	m	–	1 pool (n=7)	–	–	–	0.16	<0.05	0.71	1.31	–	–	–	<0.05	–	–	1
Salvelinus namaycush (lake trout)																				
Yukon	Atlin Lake	muscle	1998	m,f	1.76±0.58	11	mean±SD	2.24±0.84	–	1.73±0.60	4.71±2.76	4.39±1.58	17.2±7.16	–	12.7±4.97	–	–	–	–	7
,,	Fox Lake	muscle	1998	m,f	1.07	2	mean	0.05	–	0.31	0.52	1.46	2.37	–	5.19	–	–	–	–	8
,,	Kusawa Lake	muscle	1999	m,f	4.21±0.62	3	mean±SE	0.32±0.03	–	2.22±0.65	20.8±2.72	197±41.3	125±21.2	–	307±58.0	–	–	–	–	8
,,	,,	muscle	1999	m,f	4.61±2.98	14	mean±SD	1.52±0.73	–	1.68±0.84	27.4±10.2	139±73.8	91.1±44.3	–	149±110	–	–	–	–	7
,,	Lake Laberge	muscle	1993	m,f	8.22±4.49	15	mean±SD	4.09±2.77	–	5.10±3.53	42.9±27.4	250±98.4	183±91.1	–	229±66.9	–	–	–	–	7
,,	,,	muscle	1996	m,f	8.07±4.17	5	mean±SD	2.24±0.90	–	2.16±0.82	22.3±13.2	102±51.1	74.7±35.1	–	125±35.1	–	–	–	–	7
,,	,,	muscle	1998	m,f	8.98±1.27	7	mean±SD	2.06±0.56	–	1.92±0.51	13.1±3.62	52.7±14.6	42.6±10.5	–	70.9±38.2	–	–	–	–	7
,,	,,	muscle	1999	m	3.45	1	–	0.15	–	0.20	2.73	19.6	22.8	–	8.06	–	–	–	–	8
,,	Quiet Lake	muscle	1999	m,f	2.40±0.90	8	mean±SD	0.93±0.30	–	0.25±0.12	3.01±0.72	1.62±0.79	7.24±2.27	–	5.99±1.88	–	–	–	–	7
,,	Coal Lake	muscle	1999	m,f	3.97±2.79	12	mean±SD	0.59±0.44	–	0.73±0.53	4.67±5.43	11.9±9.70	25.2±20.1	–	6.78±4.85	–	–	–	–	7
,,	Mandanna Lake	muscle	2000	f	1.83	2	mean	0.15	–	0.45	0.65	3.40	8.18	–	15.2	–	–	–	–	8
NWT	Great Slave Lake, W Basin	?	1993-95	–	12.8±3.1	?	mean±SD	–	–	–	9.0±5.6	5.8±3.4	13.9±7.2	–	48.5±23.4	0.7±0.4	–	–	–	3
,,	Great Slave Lake, E Arm	?	1993-95	–	10.8±6.2	?	mean±SD	–	–	–	14.6±8.5	8.9±5.8	23.2±5.3	–	122±88.1	1.1±0.5	–	–	–	3
,,	Great Slave Lake Lutsel K'e Region	muscle	1995	–	16.0±5.8	?	mean±SD	–	–	–	–	8.0±3.0	20.5±9.0	–	77.1±28.1	–	–	–	–	3
,,	,,	liver	1995	–	9.6±6.2	?	mean±SD	–	–	–	–	13.9±11.4	89.4±65.5	–	164±121	–	–	–	–	3
,,	,,	stomach	1995	–	17.9±12.8	?	mean±SD	–	–	–	–	6.1±3.5	42.7±27.8	–	331±234	–	–	–	–	3
,,	Great Slave Lake, W Basin	muscle	1993	–	12.8±3.1	?	mean±SD	–	–	–	9.0±5.6	5.1±3.7	12.3±8.2	–	43.5±27.2	–	–	–	–	3
,,	,,	muscle	1999	–	12.6±6.8	?	mean±SD	–	–	–	12.6±6.8	6.7±3.4	30.2±16.7	–	80.3±28.9	–	–	–	–	3
,,	Great Slave Lake, E Arm	muscle	1993	–	7.6±3.9	?	mean±SD	–	–	–	16.8±9.9	9.6±7.2	24.9±18.5	–	151±102	–	–	–	–	3
,,	,,	muscle	1995	–	16.0±5.8	?	mean±SD	–	–	–	11.2±4.5	8.0±3.0	20.6±9.0	–	77.1±28.1	–	–	–	–	3
,,	,,	muscle	1999	–	4.9±3.7	?	mean±SD	–	–	–	6.3±2.7	6.4±2.5	14.4±6.8	–	52.4±21.1	–	–	–	–	3
Salmo trutta (brown trout), landlocked																				
Faroe Islands	Fjallavatn Lake	liver	1997	–	–	9(28.6 cm)	mean	–	0.5	–	1-2	3-4	2-4	–	–	–	–	–	–	14
,,	,,	liver	1997	–	–	19(23.4 cm)	mean	–	0.5	–	1-2	3-4	2-4	–	–	–	–	–	–	14
,,	Leitisvatn Lake	liver	1997	–	–	23(23.4 & 28.6 cm)	mean	–	0.5	–	1-2	3-4	2-4	–	–	–	–	–	–	14
Norway	Lake Takvatn	muscle	1999-2000	–	1.8	1?	–	–	–	–	–	–	–	2.04*	–	–	–	–	0.15	16
,,	Lake Fjellfrøsvatnet	muscle	1999-2000	–	1.1	1?	–	–	–	–	–	–	–	0.87*	–	–	–	–	0.14	16
,,	Lake Grunnvatnet	muscle	1999-2000	–	1.3	1?	–	–	–	–	–	–	–	0.23*	–	–	–	–	0.10	16
,,	Lake Store Raudvannet	muscle	1999-2000	–	2.5	1?	–	–	–	–	–	–	–	3.20*	–	–	–	–	0.36	16
Stizostedion vitreum (walleye)																				
NWT	Great Slave Lake, W Basin	?	1996	?	3.4±1.3	?	mean±SD	–	–	–	1.3±0.6	1.6±1.0	4.5±1.5	–	14.7±9.8	0.1±0.02	–	–	–	3
Stenodus leucichthys nelma (inconnu)																				
Yukon	Peel River	muscle	1999	m,f	5.70±1.22	10	mean±SE	0.22±0.04	–	0.09±0.02	1.19±0.24	1.28±0.17	3.44±0.41	–	1.46±0.33	–	–	–	–	8
NWT	Great Slave Lake, W Basin		1996		20.5±6.2		mean±SD	–	–	–	6.8±1.9	4.4±1.1	11.5±2.0	–	31.3±5.5	0.9±0.3	–	–	–	3
Stenodus nelma (nelma)																				
Russia	Kanchalan, Chukotka Peninsula	liver	2001	m	–	2 pools (n=3,6)	mean±SD	–	–	0.30±0.15	0.70±0.21	2.55±1.11	5.07±0.71	–	–	–	0.31±0.02	–	–	1
,,	,,	muscle	2001	m	–	2 pools (n=3,6)	mean±SD	–	–	0.21±0.30	0.12±0.16	0.96±0.13	1.30±0.13	–	–	–	<0.05	–	–	1
Coregonus autumnalis (Arctic cisco)																				
NWT	Great Slave Lake, W Basin		1995		8.1±6.3		mean±SD	–	–	–	0.6±0.4	1.5±0.4	3.4±3.3	–	1.7±0.8	0.1±0.1	–	–	–	3
Russia	Dudinka, Taymir Peninsula	liver	2001	f	–	2 pools (n=4,6)	mean±SD	–	–	0.54±0.28	1.48±0.78	5.15±0.26	3.65±1.10	–	–	–	0.08	–	–	1
,,	,,	muscle	2001	f	–	2 pools (n=2,8)	mean±SD	–	–	0.27±0.25	0.62±0.42	1.80±1.08	3.21±0.54	–	–	–	<0.05	–	–	1
,,	,,	liver	2001	m	–	2 pools (n=4,6)	mean±SD	–	–	0.37±0.06	1.14±0.29	4.48±0.37	3.78±0.64	–	–	–	<0.05	–	–	1
,,	,,	muscle	2001	m	–	2 pools (n=2,8)	mean±SD	–	–	0.34±0.05	0.99±0.35	2.16±1.38	4.17±0.52	–	–	–	0.07	–	–	1
Thymallus arcticus (Arctic grayling)																				
Alaska	Nuiqsut (Colville R.)	muscle	2000	m	4.45±1.91	2	mean±SE	4.83±1.83	3.41±2.24	0.26±0.20	1.28±0.63	1.32±0.51	2.13±1.21	–	–	0.08±0.07	0.04±0.03	0.04±0.02	–	5

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Annex Table 7 continued.

Species/Location	Region	Tissue	Year	Sex	% lipid	n	Statistic	ΣCBz	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	Endrin	ΣPBDEs	Reference
Thymallus thymallus (grayling)																				
Russia	Lavrentiya, Chukotka Peninsula	liver	2001	f	–	1	–	–	–	0.18	1.12	14.1	5.28	–	–	–	<0.05	–	–	1
,,	,,	liver	2001	m	–	1 (6)	–	–	–	0.24	1.13	12.5	5.19	–	–	–	<0.05	–	–	1
,,	,,	muscle	2001	f	–	1	–	–	–	0.19	0.66	3.81	1.89	–	–	–	<0.05	–	–	1
,,	,,	muscle	2001	m	–	1 (6)	–	–	–	0.12	0.43	4.50	2.04	–	–	–	<0.05	–	–	1
Leuciscus idus (European carp)																				
Russia	Pechora Basin	liver	2001	f	–	2 pools (n=2,5)	mean±SD	–	–	1.45±0.25	0.27±0.17	2.46±0.09	2.75±0.36	–	–	–	<0.05	–	–	1
,,	,,	liver	2001	m	–	3 pools (n=3-5)	mean±SD	–	–	1.39±0.41	0.49±0.24	2.01±0.55	2.84±0.81	–	–	–	<0.05	–	–	1
,,	,,	muscle	2001	f	–	2 pools (n=2,5)	mean±SD	–	–	0.47±0.02	0.14±0.07	1.73±0.27	1.83±0.24	–	–	–	≤0.05	–	–	1
,,	,,	muscle	2001	m	–	3 pools (n=3-5)	mean±SD	–	–	0.59±0.10	0.33±0.17	1.05±0.34	1.58±0.36	–	–	–	≤0.07	–	–	1
Acipenser spp. (sturgeon)																				
Russia	Kara Sea	liver	1993	–	–	–	mean±SD	–	–	23±10	18±10	640±390	290±200	–	–	–	–	–	–	15

$ΣPCB_{10}$ = sum of 28, 31, 52, 101, 105, 118, 138, 153, 156, 180.
* sum of 7 congeners (101, 105, 118, 138, 153, 156, 180).

References

1. RAIPON/AMAP/GEF Project, 2001; ΣCBz = 1,2,3,4-, 1,2,3,5-, and 1,2,4,5-tetrachlorobenzene, hexachlorobenzene; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = sum of *o,p'*- and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 15 congeners (28, 31, 52, 99, 101, 105, 118, 128, 138, 153, 156, 170, 180, 183, 187); Toxaphene = sum of Parlars 26, 50, 62; ΣPBDEs = sum of 2,2',4,4'-tetrabromodiphenyl, 2,2',4,4',5-pentabromodiphenyl and 2,2',4,4',5'-pentabromodiphenyl ethers.
2. Evenset *et al*., 2002; ΣHCHs = sum of α- and γ-HCH; ΣDDTs = sum of *o,p'*- and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 33 congeners (18, 28, 31, 33, 37, 47, 52, 60, 66, 74, 99, 101, 105, 114, 118, 122, 123, 128, 138, 141, 149, 153, 156, 157, 167, 170, 180, 183, 187, 189, 194, 206, 209)
3. Evans, 2001; ΣCHLs = sum of *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, and oxychlordane; ΣDDTs = *o,p'* and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = 102 congeners; Toxaphene = total toxaphene.
4. Mueller and Matz, 2000; ΣDDTs = sum of *o,p'*- and *p,p'*-DDE, -DDD, and -DDT; ΣCHLs = sum of *cis*-chlordane and heptachlor epoxide; ΣPCBs = total Aroclors 1242, 1254, 1260.
5. Hoekstra, 2002a; ΣCBz = sum of 1,2-diCBz, 1,4-diCBz, 1,2,3-triCBz, 1,2,4-triCBz, 1,3,5-triCBz, 1,2,3,4-tetraCBz, 1,2,3,5-tetraCBz, pentaCBz, and hexaCBz; ΣHCHs = sum of α-, β-, and γ-, δ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, and *cis*-heptachlor epoxide; ΣDDTs = sum of *o,p'*- and *p,p'*-DDD, -DDE, and -DDT; ΣPCBs = sum of 101 congeners (4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16, 32, 54/29, 26, 25, 50, 31/28, 33/21/53, 51, 22, 45, 46, 52/49, 43, 47/48, 44, 59, 42, 64, 41/71, 40, 100, 63, 74, 76/98, 70, 95, 66, 91, 55, 56/60, 92/84, 101, 99, 119, 83, 97, 87, 81, 85, 136, 110, 82, 151, 135, 144, 107/147, 149/133, 118, 114, 143, 141, 145, 153, 132, 105, 141/179, 137, 176/130, 163, 138, 158, 129/178, 175, 187, 182, 183, 128, 167, 185, 174, 177, 171, 156, 202/173, 172, 197, 180/193, 191, 199, 170/190, 198, 201, 176/203, 189, 206, 195, 207, 194, 205, 208, 209).
6. Stern *et al.,* 2001a; ΣCBz = 1,2,3,4-, 1,2,3,5- and 1,2,4,5-tetrachlorobenzene, and hexachlorobenzene; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, and oxychlordane; ΣDDTs = *o,p'* and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = 102 congeners; Toxaphene = total toxaphene.
7. Stern *et al*., 2000; ΣCBz = 1,2,3,4-, 1,2,3,5- and 1,2,4,5-tetrachlorobenzene, and hexachlorobenzene; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, oxychlordane; ΣDDTs = *o,p'* and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = 102 congeners.
8. Palmer and Roach, 2001; ΣCBz = 1,2,3,4-, 1,2,3,5- & 1,2,4,5-tetrachlorobenzene, hexachlorobenzene; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, and oxychlordane; ΣDDTs = *o,p'* and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = 102 congeners.
9. Muir *et al*., 2001a ; ΣCBz = sum of 1,2,3,4-tetra, penta- and hexachlorobenzene; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of heptachlor, heptachlor epoxide, *trans*- and *cis*-chlordane, and *trans*- and *cis*-nonachlor; ΣDDTs = *o,p'*-DDT, *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 103 congeners (1, 3, 4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33, 20, 53, 51, 22, 45, 46, 52, 49, 43, 48/47, 44, 59, 42, 64/41/71, 40, 100, 63, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 87/81, 85, 136, 110, 82, 151, 135/144, 147, 107, 149, 118, 133, 114, 134/131, 146, 153, 132, 105, 141, 179, 137, 176, 130, 138/163, 158, 129, 178, 175, 187/182, 183, 128, 167, 185, 174, 177, 202/171, 156, 173, 157/201, 172, 197, 180, 193, 191, 200, 170/190, 198, 199, 203/196, 189, 208/195, 207, 194, 205, 206, 209).
10. Denmark, 2002; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, heptachlor epoxide, and methoxychlor; ΣHCHs = sum of α-, β-, and γ-HCH; ΣDDTs = sum of *o,p'*- and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 104 congeners.
11. Hoydal *et al*., 2001; ΣDDTs = *p,p'*-DDE; ΣPCBs = CB153.
12. Gabrielsen *et al*., 1997; ΣPCBs = sum of 33 congeners.
13. Mannio, 2002; ΣHCHs = sum α-, β-, and γ-HCH; ΣCHLs = sum *cis*-chlordane and *trans*-nonachlor; ΣDDTs = *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum 15 congeners (28, 31, 52, 66, 101, 149, 118, 153, 105, 138, 187, 156, 180, 170).
14. Larsen and Dam, 1999; ΣCHLs = *trans*-nonachlor; ΣDDTs = *p,p'*-DDE; ΣPCBs = sum of 3 congeners (153, 138/163, 180).
15. Sericano *et al*., 2001; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, and heptachlor epoxide; ΣDDTs = *o,p'*- and *p,p'*-DDE, -DDD, -DDT; ΣPCBs = sum of all measurable congeners.
16. Schlabach *et al*., 2001.

Annex Table 8. Concentrations (mean ±SE) of major OC groups in seawater (ng/L) from the Arctic.

Region	Location/year/depth	n	Method	ΣCBz	ΣHCHs	ΣCHLs	ΣDDTs	Endosulfan	Toxaphene	ΣPCBs	ΣPCB_{10}	Reference/ cruise
Central Archipelago, Canada	Resolute, 1999, surface	1	SPE	–	3.9	–	–	–	–	–	–	1
,,	Hudson Strait, 1999, surface	9	SPE	–	3.1	0.013	–	0.0091	–	–	–	1
,,	Foxe Basin/Channel, 1999, surface	4	SPE	–	3	0.005	–	0.0049	–	–	–	1
,,	Melville Sound/McClure Strait, 1997, surface	10	Go-Flo & XAD	0.04 ±0.03	3.09±0.136	0.007±0.001	0.024±0.032	0.002±0.002	–	0.740±0.731	0.208±0.209	2
,,	Hudson Str., Foxe Basin, Pr. Regent In., 1999, surface	6	Go-Flo & XAD	0.017±0.003	1.33±0.081	0.011±0.007	0.017±0.014	<0.001	–	0.277±0.126	0.065±0.004	3
Chukchi Sea, Chukchi Plateau	SHEBA 1998 (July and Sept, 10-30 m)	4	Infiltrex, *in situ*	0.013± 0.007	1.10 ±0.80	0.005±0.003	0.001±0.001	0.0007±0.0004	0.040 ±0.016	0.042 ±0.022	–	4
North Barents Sea	Oden cruise, 1996, surface	20	Go-Flo & XAD	0.004 ±0.002	0.967±0.499	0.009±0.014	0.003±0.003	0.001±0.002	–	0.161±0.074	0.057±0.027	5
,,	Oden cruise, 1996, >100 m	21	Go-Flo & XAD	0.086	0.549	0.007	0.008	0.002	–	0.053		5
,,	Oden cruise, 1996–50-300 m	17	Go-Flo & XAD	–	0.971±0.45	–	–	–	–	–		6
,,	Oden cruise, 1996, 500-1000 m	10	Go-Flo & XAD	–	0.465±0.23	–	–	–	–	–		6
SW Beaufort Sea	Barrow, AK 1999-2000, surface	7	Infiltrex, *in situ*	0.120±0.006	2.11±0.46	0.010±0.004	0.019±0.006	0.001±0.001	0.188±0.046	0.231±0.090	0.058±0.058	7
SE Beaufort Sea	Holman, NWT 1999, surface	3	Infiltrex, *in situ*	0.043±0.004	2.28±0.15	0.008±0.002	0.005±0.001	0.002±0.001	0.150±0.040	0.135±0.018	0.039±0.013	7
North Baffin Bay	Northwater Polynya, 1998, >100 m	9	Go-Flo & XAD	0.094	0.959	0.004	0.015	0.002	–	0.405	–	8
,,	Northwater Polynya, 1998, surface	8	Go-Flo & XAD	0.018±0.005	1.42±0.273	0.010±0.004	0.008±0.006	0.003±0.002	–	0.187±0.098	0.058±0.046	8
NW Russia White Sea	West Onega Bay; Central Basin, 1999-00, surface	10	Infiltrex, *in situ*	0.009± 0.004	0.84 ±0.273	0.007±0.004	0.003±0.001	0.003±0.002	0.041±0.008	0.105±0.057	0.028±0.014	9
Greenland Sea, E	74.6°N, 12.0°E, surface	5	SPE	–	0.572±0.203	–	–	–	–	–		10
,,	74.9°N, 4.2°E, surface	2	SPE	–	0.371	–	–	–	–	–	–	10
,,	76.0°N, 1.2°E, surface	1	SPE	–	0.487	–	–	–	–	–	–	10
,,	62.1°N, 5.9°W, surface	2	SPE	–	0.698	–	–	–	–	–	–	10
Greenland Sea, W	74.6°N, 6.0°W, surface	1	SPE	–	0.131	–	–	–	–	–	–	10
,,	68.2°N, 10.1°W, surface	1	SPE	–	0.438	–	–	–	–	–	–	10
,,	77.2°N, 11.1°W, surface	1	SPE	–	0.26	–	–	–	–	–	–	10
NW Atlantic	63.67°N, 33.0°W, 50 m	1	Kiel *in situ*	–	–	–	–	–	–	–	0.00195	11
,,	63.67°N, 33.0°W, 100 m	1	Kiel *in situ*	–	–	–	–	–	–	–	0.00066	11
Greenland Sea	68.2°N, 22.67°W, 300 m	1	Kiel *in situ*	–	–	–	–	–	–	–	0.00209	11
,,	68.2°N, 22.67°W, 870 m	1	Kiel *in situ*	–	–	–	–	–	–	–	0.00054	11
Norwegian Sea	62.11°N, 4.57°E-66.43°N, 10.32°E	2	On-lineGFF/XAD	–	–	–	–	–	–	–	0.0014±0.00023	12
Barents Sea	77.50°N, 29.54°E-88.57°N, 1.13°W	4	On-lineGFF/XAD	–	–	–	–	–	–	–	0.00055±0.00043	12
,,	76°58'6''N, 32°59'6''W	1	Large volume & XAD	–	–	–	–	–	–	0.00164	0.00086	13
,,	76°07'N, 32°56'W	1	Large volume & XAD	–	–	–	–	–	–	0.00211	0.00125	13
Laptev Sea	72-75°N, 115-135°W (1993-96)	16	Kiel *in situ*; dissolved phase	–	0.018 (0.0008-0.060)	–	0.00093 (0.0001-0.00178)	–	–	0.0034 (0.0001-0.011)	–	14
Laptev Sea	72-75°N, 115-135°W (1993-96)	15	Kiel *in situ*, particle phase	–	0.0002 (<0.0001-0.0003)	–	0.00065 (0.00036-0.00087)	–	–	0.005 (0.0006-0.022)		14
Chukotka Peninsula, Russia	Lavrentiya (0-29 m)	3 pools (n=3)	SPE	1.04±0.70	0.2	0.12	0.56	–	<0.05	2.31±0.54		15

ΣPCB_{10} = sum of 28, 31, 52, 101, 105, 118, 138, 153, 156, 180.

References

1. Jantunen and Bidleman, 2002, Tundra 1999; ΣHCHs = α-HCH and γ-HCH; ΣCHLs = sum of *cis*-chlordane, *trans*-chlordane, oxychlordane, *cis*-nonachlor, *trans*-nonachlor, heptachlor, and *cis*-heptachlor epoxide.
2. Strachan, 2002, Strachan *et al.,* 2000, JOIST cruise, 1997; ΣCBz = sum of 1,2-diCBz, 1,4-diCBz, 1,2,3-triCBz, 1,2,4-triCBz, 1,3,5-triCBz, 1,2,3,4-tetraCBz, 1,2,3,5-tetraCBz, pentaCBz, and hexaCBz; ΣHCHs = α-HCH and γ-HCH; ΣCHLs = sum of *cis*-chlordane, *trans*-chlordane, oxychlordane, *cis*-nonachlor, *trans*-nonachlor, heptachlor, and *cis*-heptachlor epoxide; ΣDDTs = sum of *o,p*'- and *p,p*'-DDD, -DDE, and -DDT; ΣPCBs = sum of 101 congeners (4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16, 32, 54/29, 26, 25, 50, 31/28, 33/21/53, 51, 22, 45, 46, 52/49, 43, 47/48, 44, 59, 42, 64, 41/71, 40, 100, 63, 74, 76/98, 70, 95, 66, 91, 55, 56/60, 92/84, 101, 99, 119, 83, 97, 87, 81, 85, 136, 110, 82, 151, 135, 144, 107/147, 149/133, 118, 114, 143, 141, 145, 153, 132, 105, 141/179, 137, 176/130, 163, 138, 158, 129/178, 175, 187, 182, 183, 128, 167, 185, 174, 177, 171, 156, 202/173, 172, 197, 180/193, 191, 199, 170/190, 198, 201, 176/203, 189, 206, 195, 207, 194, 205, 208, 209).
3. Strachan, 2002; Strachan *et al.*, 2000; Tundra 99; see footnote 2.
4. Macdonald *et al.,* 2001.
5. Strachan *et al.*, 2000; ODEN cruise; see footnote 2.
6. Harner *et al.*, 1999; ΣHCHs = α- and γ-HCH.
7. Hoekstra *et al.*, 2002b; see footnote 4.
8. Strachan *et al.*, 2000; Northwater; ΣCBz = sum of 1,2-diCBz, 1,4-diCBz, 1,2,3-triCBz, 1,2,4-triCBz, 1,3,5-triCBz, 1,2,3,4-tetraCBz, 1,2,3,5-tetraCBz, pentaCBz, and hexaCBz; ΣHCHs = α-HCH and γ-HCH; ΣCHLs = sum of *cis*-chlordane, *trans*-chlordane, oxychlordane, *cis*-nonachlor, *trans*-nonachlor, heptachlor, and *cis*-heptachlor epoxide; ΣDDTs = sum of *o,p*'- and *p,p*'-DDD, -DDE, and -DDT; ΣPCBs = sum of 101 congeners (4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16, 32, 54/29, 26, 25, 50, 31/28, 33/21/53, 51, 22, 45, 46, 52/49, 43, 47/48, 44, 59, 42, 64, 41/71, 40, 100, 63, 74, 76/98, 70, 95, 66, 91, 55, 56/60, 92/84, 101, 99, 119, 83, 97, 87, 81, 85, 136, 110, 82, 151, 135, 144, 107/147, 149/133, 118, 114, 143, 141, 145, 153, 132, 105, 141/179, 137, 176/130, 163, 138, 158, 129/178, 175, 187, 182, 183, 128, 167, 185, 174, 177, 171, 156, 202/173, 172, 197, 180/193, 191, 199, 170/190, 198, 201, 176/203, 189, 206, 195, 207, 194, 205, 208, 209).
9. Muir *et al.*, 2002a; see footnote 4, except ΣHCHs = γ-HCH only.
10. Lakaschus *et al.*, 2002; ΣHCHs = α-HCH and γ-HCH.
11. Schultz-Bull *et al.,* 1998. Sum of 23 PCB congeners including 28, 31, 52, 101, 105, 118, 138, 153, 156, 180.
12. Sobek and Gustafsson, 2002. Sum of CB8, 28, 52, 70, 90/101, 110, 123, 149, 118, 153, 132, 105, 138, 158/160, 180, 199, 194.
13. Olsson, 2002. Sum of CB8, 28, 52, 70, 90/101, 110, 123, 149, 118, 153, 132, 105, 138, 158/160, 180, 199, 194.
14. Utschakowski, 1998. ΣPCBs = sum of 40 congeners. Two high PCB values, 1428 pg/L and 97.3 pg/L omitted from the mean. Sample numbers refer to number analyzed for PCBs.
15. RAIPON/AMAP/GEF Project, 2001; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 15 congeners (28, 31, 52, 99, 101, 105, 118, 128, 138, 153, 156, 170, 180, 183, 187); Toxaphene = sum of Parlars 26, 50, 62; ΣCBz = 1,2,3,4-, 1,2,3,5-, and 1,2,4,5-tetrachlorobenzene, and hexachlorobenzene.

Annex Table 9. Concentrations of major OC groups in marine surficial sediments (ng/g dw) from the Arctic.

Region	Location	Year	Water depth	n	Statistic	ΣCBz	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	Toxaphene	OCS	Reference
Canada	Beaufort	Sep-1998	370 m	1	–	–	–	0.04	0.13	0.08	0.78	–	–	1
,,	M'Clure Strait	Sep-1998	499 m	1	–	–	–	0.01	0.04	0.05	0.29	–	–	1
,,	V. Melville Sound	Sep-1997	203 m	1	–	–	–	0.02	0.08	0.04	0.28	–	–	1
,,	Barrow Strait	Sep-1998	221 m	1	–	–	–	0.07	0.11	0.28	1.42	–	–	1
,,	Peary Channel	Aug-1998	635 m	1	–	–	–	0.04	0.06	0.08	0.68	–	–	1
,,	Penny Strait	Aug-1998	307 m	1	–	–	–	0.01	0.01	0.01	0.09	–	–	1
,,	Barrow Strait	Sep-1997	264 m	1	–	–	–	0.35	0.19	0.23	2.70	–	–	1
,,	Massey Sound	Aug-1998	292 m	1	–	–	–	0.06	0.12	0.13	0.45	–	–	1
,,	Wellington Channel	Aug-1998	252 m	1	–	–	–	0.15	0.08	0.07	0.36	–	–	1
,,	Norwegian Bay	Aug-1998	492 m	1	–	–	–	0.06	0.20	0.12	2.76	–	–	1
,,	Lancaster Sound	Aug-1998	550 m	1	–	–	–	0.01	0.06	0.09	0.75	–	–	1
,,	Strathcona Sound	Sep-1998	229 m	1	–	–	–	0.04	0.12	0.09	2.57	–	–	1
,,	Jones Sound	Sep-1998	844 m	1	–	–	–	0.18	0.20	0.44	2.87	–	–	1
,,	E Hudson Bay	Sep-1993	133 m	1	–	–	–	0.14	0.30	0.51	8.37	–	–	2
,,	N Baffin Bay	Jul-1998	265-560 m	14	–	–	–	0.16	0.17	0.27	1.80	–	–	3
N Norway	Tromsø	1997	–	18	range	–	0.20-3.1	0.04-0.79	–	0.34-9.8	3.3-49	–	0.02-0.20	4
,,	Harstad	1997	–	14	range	–	0.05-6.7	n.d.-3.8	–	0.23-67	1.8-308	–	0.01-0.38	4
,,	Honningsvåg	1997	–	7	range	–	0.39-3.6	0.05-2.1	–	1.1-8.6	14-50	–	0.03-0.13	4
,,	Hammerfest	1997	–	9	range	–	0.12-1.7	0.06-0.31	–	0.61-17	8.6-438	–	0.01-0.17	4
Kola Peninsula	Kola Bay	1993	–	5	range	–	0.10-1.5	0.10-0.40	–	2.30-10	11-253	–	<0.1	4
,,	Penchenga	1997	–	7	range	–	0.28-1.8	0.08-0.68	–	0.27-37	0.70-32	–	n.d.-0.10	4
,,	Guba Zapadnaya Litsa	1997	–	3	range	–	0.15-2.8	0.65	0.04-0.16	0.44-33	112-371	19-85	–	5
,,	Kola Bay	1997	–	10	range	–	0.09-1350	5.5-42	0.11-0.47	24.5-2040	31-8740	3.5-681	0.16-0.18	5
,,	Guba Penchanga (Liinakhamari)	1997	–	7	range	–	0.28-1.76	0.08 - 0.68		0.27 - 36.7	1.11 - 37.9	–	–	6
S Barents Sea	Guba Penchanga (outer areas)	1997	–	3	range	–	0.74-1.33	0.05 - 0.54		0.27 - 3.72	1.06 - 4.1	–	–	6
White Sea	Kandalashka Bay	1999	–	1	–	–	0.2	0.80	–	4.4	26.4	–	–	7
Chukota Peninsula	Kanchalan	2000-2001	–	1	–	0.44	–	0.09	n.d.	0.17	1.56	–	–	8
,,	Lavrentiya	2000-2001	–	1	–	0.21	0.49	0.06	0.07	0.61	2.79	–	–	8
Kara Sea	–	1993	<10 m	39	mean±SD	–	–	0.36±0.30	<0.10	0.44±0.30	0.41±0.34	–	–	9
Svalbard	Kongsfjorden	1997	363 m	1	–	0.416	–	0.230	0.12	0.377	0.503	<0.1	–	10
,,	Kongsfjorden	1997	290 m	1	–	0.121	–	0.098	0.03	0.086	0.139	<0.1	–	10
,,	Kongsfjorden	1997	80 m	1	–	–	–	–	–	–	–	–	–	10
,,	Questrenna	1997	2224 m	1	–	0.252	–	–	0.03	0.618	0.611	<0.1	–	10
,,	Lomfjorden	1997	56 m	1	–	0.0286	–	0.026	0.03	0.016	0.025	<0.1	–	10
,,	Linhopen	1997	160 m	1	–	0.166	–	0.191	0.04	0.084	0.124	<0.1	–	10
,,	Erik Eriksen Strait	1997	107 m	1	–	0.163	–	0.253	0.05	0.100	0.107	<0.1	–	10
,,	Erik Eriksen Strait	1997	80 m	1	–	0.32	–	<1550	0.02	0.0186	0.0466	<0.1	–	10
,,	Erik Eriksen Strait	1997	219 m	1	–	0.174	–	0.068	0.07	0.186	0.153	<0.1	–	10
,,	Kong Karls Land	1997	117 m	1	–	0.184	–	0.222	0.08	0.134	0.141	<0.1	–	10
,,	Storfjorden	1997	109 m	1	–	0.362	–	0.661	0.10	0.131	0.148	<0.1	–	10
Laptev Sea	Offshore Lena River Delta	1993	<10 m	19	mean±SD	–	–	–	–	–	0.525±419	–	–	11

n.d. = not detected.

References

1. Stern and Lockhart, 2001; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, and oxychlordane; ΣDDTs = *o,p*' and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = 102 congeners.
2. Lockhart, 1997; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, and oxychlordane; ΣDDTs = *o,p*' and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = 102 congeners.
3. Fisk *et al*., 2002c; ΣCBz = 1,2,3,4-, 1,2,3,5- and 1,2,4,5-tetrachlorobenzene, hexachlorobenzene; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, oxychlordane; ΣDDTs = *o,p*' and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = 102 congeners.
4. Dahle *et al*., 2000; ΣHCHs = α- and γ-HCH; ΣDDTs = *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 7 congeners (28, 52, 101, 118, 153, 138, 180).
5. Savinova *et al*., 2000a; see Reference 4; Toxaphene = sum of Parlars 26, 32, 50, 62.
6. Savinov *et al*., 2003. See Reference 4.
7. Muir *et al*., 2002a; see Reference 4, except ΣHCHs = γ-HCH only.
8. RAIPON/AMAP/GEF Project, 2001; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 15 congeners (28, 31, 52, 99, 101, 105, 118, 128, 138, 153, 156, 170, 180, 183, 187); Toxaphene = sum of Parlars 26, 50, 62, ΣCBz, = 1,2,3,4-, 1,2,3,5- & 1,2,4,5-tetrachlorobenzene, hexachlorobenzene.
9. Sericano *et al*., 2001; ΣHCHs = α-, β-, γ-HCH; ΣPCBs = sum of all measurable congeners.
10. Evenset *et al*., 2002; ΣCBz = HCB; ΣHCHs = α-, γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, oxychlordane, heptachlor, heptachlor epoxide; ΣDDTs = *o,p*'- and *p,p*'-DDE, -DDD and -DDT; ΣPCBs = sum of 7 congeners (101, 105, 118, 138, 153, 156,1 80); Toxaphene = sum of Parlars 26, 32, 50, 62.
11. Utschakowski, 1998.

Annex Table 10. Concentrations of organochlorines in marine invertebrates and marine and anadromous fish.

Species	Region	Location	Tissue	Year	Sex	Length, cm	% lipid	n	Statistic	ΣCBz	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	Endrin	ΣPBDEs	Reference
Marine invertebrates (ng/g ww)																						
Phytoplankton	Barents Sea	Bjørnøya	–	2000	–	–	–	–	–	–	0.03	<0.1	<0.1	0.09	0.65	0.34*	0.30	<0.1	–	<0.1	–	1
Zooplankton																						
Copepods																						
Calanus spp.[a]	Beaufort Sea	Holman, NWT	whole body	1999	–	–	48.90±6.60	5	mean±SE	3.83±0.58	–	6.21±1.08	3.32±0.85	5.33±0.94	33.8±6.1	–	38.4±3.3	–	–	–	–	2
,,	,,	Kaktovik, AK	whole body	1998	–	–	43.3±4.2	5	mean±SE	2.16±0.28	–	5.61±1.66	1.13±0.19	3.22±0.62	29.2 ±7.26	–	32.4±9.26	–	–	–	–	2
,,	Chukchi Sea	Barrow, AK	whole body	2000	–	–	27.3±0.9	3	mean±SE	2.89±0.35	–	5.08±0.64	0.79±0.45	1.18±0.95	12.6±0.74	–	26.0±7.50	–	–	–	–	2
Calanus hyperboreus	Baffin Bay	–	whole body	1998	–	–	6.3±0.70	20	mean±SE	0.43±0.05	–	2.5±0.79	0.85±0.19	0.84±0.15	5.1±0.63	–	–	–	–	–	–	3
,,	N of Svalbard	–	whole body	1999	–	–	9.5±0.8	6	mean±SD	–	0.11±0.01	1.03±0.19	1.10±0.14	0.66±0.11	1.25±0.15	–	–	–	–	–	–	4
,,	Greenland Sea	–	whole body	1999	–	–		5	mean±SD	–	0.06±0.01	2.26±0.30	2.41±0.16	0.86±0.31	1.54±0.22	–	–	–	–	–	–	4
Metridia longa	Baffin Bay	–	whole body	1998	–	–	2.1±0.12	3	mean±SE	0.32±0.09	–	0.78±0.11	1.3±0.12	1.8±0.27	7.6±1.9	–	–	–	–	–	–	3
Euchaeta glacialis	,,	–	whole body	1998	–	–	5.4±0.33	3	mean±SE	0.59±0.03	–	1.3±0.11	2.8±0.11	2.5±0.12	6.0±0.04	–	–	–	–	–	–	3
Copepods (90% *C. glacialis*)	Barents Sea	Bjørnøya	whole body	1995	–	–	1.45	2	mean	–	0.20	0.34	0.17	0.35	0.65	–	–	–	–	–	–	5
Mainly copepods	,,	Bjørnøya	whole body	2000	–	<1 mm	3.26	–	–	–	0.17	0.36	0.17	0.53	2.50	1.43*	0.29	0.38	–	0.12	–	1
Euphausiids																						
Mysis occulata	Baffin Bay	–	whole body	1998	–	–	5.0±0.53	7	mean±SE	0.35±0.05	–	0.58±0.18	0.73±0.18	1.4±0.11	5.8±0.46	–	–	–	–	–	–	3
Pandalus sp.	,,	–	whole body	1998	–	–	4.9	2	mean	0.65	–	1.5	1.7	2	29.9	–	–	–	–	–	–	3
Pandalus borealis	Barents Sea	S & SE Svalbard	whole body	1991	–	–	1.9	3	median	–	–	–	–	–	130	–	–	–	–	–	–	6
Thysanoessa inermis (90%)	Barents Sea	Bjørnøya	whole body	1995	–	–	6.35	2	mean	–	1.05	2.16	0.79	0.76	18.1	–	–	–	–	–	–	5
Thysanoessa inermis	Greenland Sea	–	whole body	1999	–	–	10.7±0.4	4	mean±SD	–	2.11±0.12	2.78±0.10	1.99±0.21	1.17±0.20	2.12±0.42	–	–	–	–	–	–	4
Amphipods																						
Themisto libellula (adults)	Baffin Bay	–	whole body	1998	–	–	2.2±0.40	4	mean±SE	0.43±0.04	–	1.7±0.25	3.8±0.45	3.1±0.53	8.8±1.3	–	–	–	–	–	–	3
Themisto libellula (juvs)	,,	–	whole body	1998	–	–	3.1	1	mean	0.29	–	0.81	0.9	0.55	3.2	–	–	–	–	–	–	3
Anonyx nugax	,,	–	whole body	1998	–	–	2.5±0.31	5	mean±SE	2.2±0.57	–	10.0±4.7	5.0±0.32	5.0±0.29	16.5±4.0	–	–	–	–	–	–	3
,,	Cumberland Sound	Pangnirtung	whole body	1999	–	–	4.2	1	mean	5.7	–	26.2	20.5	19.8	54.6	–	–	–	–	–	–	3
Themisto libellula	Barents Sea	Bjørnøya	whole body	1995	–	–	3.35	2	mean	–	0.68	1.10	0.75	0.63	1.54	–	–	–	–	–	–	5
,,	N of Svalbard	–	whole body	1999	–	–	5.8±0.8	1	mean±SD	–	0.76	0.93	1.82	1.32	2.18	–	–	–	–	–	–	4
,,	Greenland Sea	–	whole body	1999	–	–		3	mean±SD	–	1.72±0.42	1.65±0.50	5.04±0.51	4.74±0.16	4.56±0.62	–	–	–	–	–	–	4
Miscellaneous																						
Eukrohnia hamata &	N of Svalbard		whole body	1999	–	–	1.4±0.5	1	mean±SD	–	0.19	0.14	0.76	0.59	0.86	–	–	–	–	–	–	4
Sagitta elegans	Greenland Sea		whole body	1999	–	–		1	mean±SD	–	0.25	0.36	0.65	0.44	0.68	–	–	–	–	–	–	4
Apherusa glacialis	N of Svalbard	–	whole body	1999	–	–	7.7±0.8	3	mean±SD	–	1.56±0.20	1.49±1.15	2.30±0.57	1.40±0.48	2.48±0.61	–	–	–	–	–	–	4
,,	Greenland Sea	–	whole body	1999	–	–		2	mean±SD	–	1.47±0.06	2.65±0.09	1.83±0.15	1.02±0.12	1.90±0.08	–	–	–	–	–	–	4
Gammarus wilkitzkii	N of Svalbard	–	whole body	1999	–	–	3.9±0.3	8	mean±SD	–	1.18±0.25	1.53±1.47	1.22±0.39	0.73±0.37	1.49±0.34	–	–	–	–	–	–	4
,,	Greenland Sea	–	whole body	1999	–	–		6	mean±SD	–	1.62±0.40	3.44±2.51	1.09±0.59	0.37±0.25	1.62±0.59	–	–	–	–	–	–	4
Onisimus glacialis &	N of Svalbard	–	whole body	1999	–	–	10.1±0.4	1	mean±SD	–	3.34	2.19	5.17	2.51	5.1	–	–	–	–	–	–	4
Onisimus nanseni	Greenland Sea	–	whole body	1999	–	–		2	mean±SD	–	2.70±0.78	6.03±0.38	5.81±5.43	4.19±4.66	8.24±6.25	–	–	–	–	–	–	4
Sagitta spp.	N Baffin Bay	–	whole body		–	–	2.1±0.30	6	mean±SE	0.31±0.16	–	0.23±0.06	0.33±0.09	0.36±0.04	2.2±0.25	–	–	–	–	–	–	3
Mainly comb jellies, arrow worms & medusa	Barents Sea	Bjørnøya	whole body	2000	–	>1mm	4.08	–	–	–	0.33	0.32	0.39	0.98	11.5	7.40*	0.67	0.64	–	0.42	–	1
Crustaceans from the gullet of little auks	,,	,,	whole body	2000	–	–	7.03	–	–	–	0.94	1.23	0.48	1.52	4.69	2.11*	2.16	3.28	–	1.33	–	1
Calanus spp, *Th. libellula*, ctenophores, gasteropods[a]	Barents Sea	S & SE Svalbard	whole body	1991	–	–	0.26	6	median	–	–	–	–	–	230	–	–	–	–	–	–	6
Benthic Invertebrates																						
Echinodermata																						
Gorgonocephalus arcticus	Baffin Bay	–	soft tissue	1998	–	–	8.5±1.2	3	mean±SE	0.64±0.12	–	3.7±1.4	26.3±6.9	25.5±7.5	28.1±9.6	–	–	–	–	–	–	3
,,	Cumberland Sound	Pangnirtung	soft tissue	1999	–	–	11.4±1.3	3	mean±SE	2.0±0.30	–	13.5±0.94	48.5±5.8	27.1±4.8	31.6±4.1	–	–	–	–	–	–	3
Ctenodiscus crispatus	Baffin Bay	–	soft tissue	1998	–	–	1.4±1.8	2	mean±SE	0.21±0.12	–	0.04±0.01	0.03±0.02	0.08±0.08	2.0±2.2	–	–	–	–	–	–	3
Bivalves																						
Y. thraciaeformis	Baffin Bay	–	soft tissue	1998	–	–	2.3	1	mean±SE	0.22	–	0.04	0.07	0.33	3.4	–	–	–	–	–	–	3
Mytilus edulis	N Quebec	Quaqtaq	soft tissue, 1kg pooled	1998	–	–	4.95	2	mean	0.57	–	2.79	1.30	1.29	29.0	6.7	–	1.20	0.0	–	–	3
(Blue mussel)	,,	Kuujjuaq	soft tissue, 1kg pooled	1998	–	–	2.95	2	mean	1.11	–	1.37	0.97	0.86	45.8	12.8	–	0.77	0.03	–	–	3
,,	,,	Kangipsujuaq (Wakeham)	soft tissue, 1kg pooled	1998	–	–	4.75	2	mean	0.63	–	2.94	1.83	1.48	13.8	4.38	–	1.25	0.01	–	–	3
,,	,,	Kangiqsualujjuaq (George River)	soft tissue, 1kg pooled	1998	–	–	2.00	2	mean	0.29	–	1.12	0.79	0.49	7.01	20.9	–	0.55	0.02	–	–	3
,,	Labrador	Makkovik	soft tissue, 1kg pooled	1998	–	–	2.16	3	mean	2.52	–	1.85	9.29	1.89	5.83	1.27	–	1.25	0.24	–	–	3
,,	,,	Nain	soft tissue, 1kg pooled	1998	–	–	2.49	2	mean	2.06	–	1.69	7.10	1.42	7.09	1.49	–	1.36	0.01	–	–	3
,,	N Quebec	Deception Bay	soft tissue, 1kg pooled	1998	–	–	1.65	3	mean	1.20	–	0.61	2.22	0.24	3.68	0.81	–	0.39	0.07	–	–	3
,,	SW Greenland	Usuk	soft tissue	2000	–	–	2.0	1 pool	mean	–	–	0.28	1.1	0.44	0.78	0.64	0.21	–	–	–	–	7
,,	Iceland	9 sites around	soft tissue	1998		4-6	0.41±0.06	10	mean±SE	–	0.21±0.04	0.46±0.10	0.90±0.53	1.82±0.74	5.56±2.04	–	0.94±0.38	–	–	–	–	8
,,		9 sites around	soft tissue	1999		4-6	0.28±0.04	9	mean±SE	–	0.13±0.01	0.38±0.04	0.50±0.05	0.75±0.11	2.69±0.57	–	0.77±0.12	–	–	–	–	8
,,	Faroe Islands	–	soft tissue	1997	–	–	2.0	1 pool (n=57)	maximum	n.d.	–	0.1	–	0.7	0.7	–	–	–	–	–	–	9
M. truncata	Frobisher Bay	Iqaluit	soft tissue	1993	–	–	1.5±0.26	6	mean±SE	0.27±0.04	–	0.49±0.03	0.94±0.19	0.64±0.06	7.8±0.89	–	–	–	–	–	–	3
Isopods																						
S. entamon[a]	Chukchi/Beaufort Sea	Barrow, AK	whole body	1998	–	–	2.1±0.4	3	mean±SE	0.36±0.04	–	1.7±0.3	0.61±0.05	0.50±0.07	3.1±0.16	–	0.72±0.34	–	–	–	–	10

Continued next page.

Annex Table 10 continued.

Species	Region	Location	Tissue	Year	Sex	Length, cm	% lipid	n	Statistic	ΣCBz	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	Endrin	ΣPBDEs	Reference
Decapods																						
Deep sea shrimp	SW Greenland	Nuuk	muscle	2000	–	–	0.94±0.12	11	mean±SD	0.69±0.19	–	0.06±0.04	0.51±0.11	0.15±0.07	1.70±2.93	0.69±0.87	–	–	–	–	–	11
Chionoecetes opilio	,,	,,	muscle	2000	–	–	0.74±0.17	5	mean±SD	0.48±0.18	–	0.36±0.16	3.52±0.87	2.15±0.82	3.83±2.50	1.97±1.34	–	–	–	–	–	11
(Snow crab)	,,	,,	hepatopancreas	2000	–	–	5.97±5.62	5	mean±SD	3.03±2.83	–	2.36±1.64	5.25±4.47	37.9±46.2	69.1±75.7	41.0±44.8	–	–	–	–	–	11
Hyas araneus	Barents Sea	N Bjørnøya	muscle	1999	–	<5	6.76	1 pool (n=12)	–	–	1.21	1.75	0.91	3.77	13.5	8.55	1.54	1.55	–	0.90	–	1
(Spider crab)	,,	,,	muscle	1999	–	>5	9.00	1 pool (n=11)	–	–	2.32	2.22	1.09	6.84	26.4	15.8	2.15	1.98	–	1.24	–	1
,,	,,	SW Bjørnøya	muscle	2000	–	<5	9.47	1 pool (n=16)	–	–	1.70	1.57	1.27	4.55	19.1	12.0	1.30	1.19	–	0.74	–	1
,,	,,	,,	muscle	2000	–	>5	9.79	1 pool (n=12)	–	–	2.03	1.53	0.42	4.24	16.5	10.0	1.46	1.11	–	0.72	–	1
,,	,,	Svalbard	hepatopancreas	1998-99	–	–	–	38	mean	–	–	–	–	–	16.59	–	–	–	–	–	–	12
Gastropods (snails)																						
Buccinum undatum	Barents Sea	Svalbard	upper soft parts	1998-99	–	–	–	33	mean±SD	–	0.250±0.127	–	–	–	5.72±6.52	–	–	–	–	–	–	12
Buccinum glaciale	,,	,,	upper soft parts	1998-99	–	–	–	6	mean±SD	–	0.339±0.318	–	–	–	5.69±5.59	–	–	–	–	–	–	12
Worms (*Nephthys* sp., Sipanclid, wormtube)[a]	Kara Sea	–	whole body	1993	–	–	–	–	mean±SD	–	–	1.0±0.55	0.46±0.38	1.6±1.9	2.6±0.69	–	–	–	–	–	–	13
Crustaceans (isopods, amphipods)[a]	,,	–	whole body	1993	–	–	–	–	mean±SD	–	–	3.8±2.0	5.6±3.9	18±24	14±6.1	–	–	–	–	–	–	13
Bivalves (clams)[a]	,,	–	whole body	1993	–	–	–	–	mean±SD	–	–	8.4±4.0	7.3±4.1	26±35	21±20	–	–	–	–	–	–	13
Marine fish (ng/g ww)																						
Anarchichas minor (Spotted wolffish)	SW Greenland	Usuk	liver	2000	m	–	15.5	1 pool	mean	–	4.0	4.4	44.4	30	29	26	8.5	–	–	–	–	7
Boreogadus saida	Alaska	Barrow	whole body	1998	–	10.5±0.2	4.43±0.42	3 pools	mean±SE	1.05±0.34	0.83±0.08	1.62±0.20	1.10±0.13	0.57±0.05	2.38±0.60	–	–	0.41±0.07	–	0.31±0.07	–	2
(Arctic or polar cod)	,,	,,	whole body	2000	–	15.4±0.5	3.45±0.45	9	mean±SE	3.63±0.32	1.79±0.18	1.65±0.26	3.41±0.56	2.76±0.28	11.9±2.18	–	8.04±1.45	0.51±0.08	0.05±0.01	0.18±0.11	–	2
,,	Baffin B. (Greenland)	Qaanaq	muscle, with skin	1998	f,m	–	1.21±0.71	8	mean±SD	1.17±0.32	–	0.93±0.53	3.13±0.97	2.61±0.62	3.73±1.46	–	–	–	–	–	–	14
,,	Jan Mayen	–	liver	1995-96	–	–	55.1±3.7	2	mean±SD	–	9.4±0.5	10.8±1.1	25.5±5.1	30.7±3.7	74.7±4.4	–	–	–	–	–	–	15
,,	Barents Sea	Svalbard	pooled extracts	1995	–	–	7.1±0.7	3	mean	–	2.77	2.63	5.40	1.21	7.67	–	–	–	–	–	–	5
Gadus ogac (Greenland cod)	Beaufort Sea	Holman, NWT	whole body	1999	–	47.0±2.2	2.61±0.75	10	mean±SD	1.11±0.48	1.03±0.45	2.40±0.97	2.44±1.32	0.71±0.42	0.89±0.51	–	–	–	–	–	–	2
Gadus morhua	SW Greenland	Nuuk	muscle	2000	m,f	–	0.67±0.05	9	mean±SD	0.27±0.10	–	0.13±0.07	0.43±0.09	0.60±0.30	3.96±3.27	1.44 ±1.86	–	–	–	–	3.35	11
(Atlantic cod)	,,	,,	liver	2000	m,f	–	57.6±3.81	3	mean±SD	17.5±2.29	–	15.1±0.99	65.2±19.9	82.8±18.6	162±24.4	53.0±8.61	–	–	–	–	5.13±0.85	11
,,	,,	Usuk	liver	2000	m	–	34.9	1 pool	–	–	18.2	8.3	244	156	178	161	41.4	–	–	–	–	7
,,	,,	,,	liver	2000	f	–	43.9	1 pool	–	–	20.9	11.1	138	102	120	105	28.4	–	–	–	–	7
,,	Iceland	E, NE, NW of Iceland	liver	1999	m,f	30-45	47.4±2.2	23	mean±SE	–	32.6±1.8	10.5±0.6	82.8±2.5	92.1±3.11	80.1±3.1	–	81.7±2.7	–	–	–	–	8
,,	,,	NE, NW, W of Iceland	liver	2000	m,f	30-45	41.0±3.4	21	mean±SE	–	15.6±1.5	6.38±0.6	51.7±3.4	72.8±3.7	68.0±2.1	–	69.0±5.2	–	–	–	–	8
,,	Faroe Islands shelf	–	liver	1997	–	–	56.9	45	mean	–	–	–	20	40	25	–	–	–	–	–	–	9
,,	Barents Sea	Svalbard	pooled extracts	1995	–	–	3.8±0.2	3	mean±SE	–	2.47	1.56	3.80	1.60	7.79	–	–	–	–	–	–	5
Gadus sp. (all)	White Sea	–	muscle	1999-2000	–	–	1.01±0.30	8	mean±SD	0.25±0.06	0.17±0.05	0.26±0.14	0.52±0.12	5.10±2.80	15.6±7.57	6.16±3.46	1.47±0.27	–	–	–	–	16
Clupea pallazi (Herring)	,,	–	whole fish	1999-2000	–	–	7.80±0.24	3 pools (n=10)	mean±SD	6.31±2.89	2.36±0.43	3.40±1.10	3.69±0.18	21.3±2.34	41.2±5.57	17.7±3.10	28.5±1.65	–	–	–	–	16
Eliginus navaga (Navaga)	,,	–	whole fish	1999-2000	–	–	1.54±0.11	3 pools (n=10)	mean±SD	5.95±1.52	0.62±0.05	1.71±0.26	4.30±2.98	15.8±4.30	40.6±5.92	20.7±5.81	1.41±0.39	–	–	–	–	16
Myoxocephalus scorpius (Shorthorn sculpin)	Centr. W Greenland	Qeqertarsuaq	liver	1999	m	26.4±7.2	19.6±7.0	5	mean±SD	2.9±1.1	2.5±0.9	5.7±2.0	6.7±2.8	6.1±3.7	10.7±5.4	6.2±3.0	–	2.8±1.1	0.07±0.04	–	–	17
,,	,,	,,	liver	1999	f	31.1±4.9	14.6±4.5	15	mean±SD	2.8±2.0	2.4±1.7	4.6±2.6	7.9±6.4	6.0±4.4	14.9±11.3	7.4±5.3	–	2.7±2.2	0.12±0.12	–	–	17
,,	,,	,,	liver	2000	m	21.6±2.8	9.4±1.3	4	mean±SD	1.9±0.6	1.7±0.5	2.8±0.3	6.3±5.6	7.1±4.2	52.7±40.5	14.7±8.9	–	2.5±0.9	0.19±0.17	–	–	17
,,	,,	,,	liver	2000	m	29.6±4.7	11.1±3.0	11	mean±SD	3.8±1.2	1.7±0.6	2.9±0.9	3.8±1.2	4.4±1.9	29±13.4	8.4±2.9	–	2.5±1.0	0.06±0.02	–	–	17
,,	NE Greenland	Ittoqqortoormiit	liver	1999	–	–	19.3±7.5	20	mean±SD	12.9±5.5	11.2±4.9	14.2±5.2	49.7±25.9	44.3±23.0	101±41	47±19	–	13.3±6.7	0.96±0.38	–	–	17
,,	,,	,,	liver	2000	m	20.9±1.9	23.3±10.5	6	mean±SD	13.0±5.9	11.0±5.0	14.4±4.8	40.3±17.3	37.9±18.8	137±37	59±15	–	11.9±4.9	0.92±0.30	–	–	17
,,	,,	,,	liver	2000	f	24.8±2.5	22.0±6.7	13	mean±SD	13.1±3.2	10.9±2.8	13.6±3.8	38.1±10.6	40.6±14.2	111±27	46±16	–	11.4±2.7	0.78±0.30	–	–	17
,,	SW Greenland	Usuk	liver	2000	m	–	19.1	1 pool	–	–	6.1	4.2	84.8	34.3	42.7	39.1	36.3	–	–	–	–	7
,,	,,	Usuk,Igaliko, Qaqortoq	liver	2000	f	–	17.7	3 pools	mean±SD	–	9.8±5.7	4.6±1.2	48.9±4.2	41.8±9.5	140±160	128±146	37.7±2.3	–	–	–	–	7
,,	Faroe Islands	–	liver	1999	–	18.97±5.44	7.77±3.3	13	mean	–	2.19±1.3	–	97.87	76.46±105.8	54.1±53.36	–	8.43	–	1.58±1.56	–	–	18
,,	,,	–	liver	2000	–	23.3±4.3	6.22±4.1	15	mean	–	1.1±0.5	–	24.8	98.0±55.0	38.1±39.1	–	12.62	–	0.75±0.81	–	–	18
,,	,,	–	liver	2001	–	25.33±3.7	6.22±4.2	5 pools	mean	–	2.05±1.4	–	11.8	38.74±49.0	66.5±25.10	–	2.67	–	1.95±0.81			18
Myoxocephalus quadricornis (Fourhorn sculpin)	Alaska	Barrow	whole body	1998	–	–	1.44±0.48	7	mean±SE	2.67±0.79	0.24±0.06	0.35±0.12	0.44±0.06	0.38±0.07	6.46±1.07	–	–	0.12±0.04	0.06±0.02	0.09±01	–	2
Myoxocephalus spp. (sculpin)	White Sea	–	muscle & skin	–	–	–	1.11±0.09		mean±SD	0.13±0.05	0.10±0.04	0.24±0.14	1.52±0.81	14.4±7.49	26.3±7.12	12.6±4.95	–	–	–	–	–	16
Limanda limanda (dab)	Iceland	NW, SW, E,W of Iceland	liver	1999	m,f	20-35	11.4±0.48	6	mean±SE	–	4.08±0.44	1.53±0.05	8.87±1.48	14.3±2.49	18.8±1.35	–	8.33±1.55	–	–	–	–	8
,,	,,	SW, NW, W of Iceland	liver	2000	m,f	20-35	15.2	1	–	–	5.00	1.50	16.5	34.8	30.1	–	28.6	–	–	–	–	8
Raja radiata (Starry ray)	SW Greenland	Usuk	liver	2000	m	–	42.0	1 pool	–	–	17.2	12.6	101	78	88	80	19.3	–	–	–	–	7
Reinhardtius hippoglossoides (Turbot/Greenl. halibut)	Cumberland Sound	Pangnirtung	muscle, with skin	1999	–	60.8±6.0	18.6±2.44	4	mean±SE	10.2±1.56	–	14.8±1.38	31.1±7.25	15.0±3.1	11.1±3.97		–	–	–	–	–	3
	SW Greenland	Nuuk	muscle	2000	m,f	–	9.87±2.96	6	mean±SD	4.71±1.96	–	0.88±0.54	14.5±8.21	26.7±17.1	33.9±19.7	11.5±7.04	–	–	–	–	–	11
Sebastes marinus, mentella (Redfish)	,,	,,	muscle	2000	m,f	–	2.48±1.56	5	mean±SD	0.92±0.69	–	0.66±0.57	3.45±2.77	4.75±3.96	9.31±6.06	3.17±2.05	–	–	–	–	–	11

Continued next page.

Annex Table 10 continued.

Species	Region	Location	Tissue	Year	Sex	Length, cm	% lipid	n	Statistic	ΣCBz	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	Endrin	ΣPBDEs	Reference
Reinhardtius hippoglossoides	Cumberland Sound	Pangnirtung	muscle, with skin	1999	–	60.8±6.0	18.6±2.44	4	mean±SE	10.2±1.56	–	14.8±1.38	31.1±7.25	15.0±3.1	11.1±3.97		–	–	–	–	–	3
(Turbot/Greenl. halibut)	SW Greenland	Nuuk	muscle	2000	m,f	–	9.87±2.96	6	mean±SD	4.71±1.96	–	0.88±0.54	14.5±8.21	26.7±17.1	33.9±19.7	11.5±7.04	–	–	–	–	–	11
Sebastes marinus, mentella	,,	,,	muscle	2000	m,f	–	2.48±1.56	5	mean±SD	0.92±0.69	–	0.66±0.57	3.45±2.77	4.75±3.96	9.31±6.06	3.17±2.05	–	–	–	–	–	11
(Redfish)																						
Mallotus villosus (Capelin)	,,	,,	muscle	2000	m	–	1.78±0.69	10	mean±SD	0.92±0.25	–	0.45±0.20	3.38±0.68	5.62±1.01	6.12±1.45	1.84±0.41	–	–	–	–	–	11
(Capelin)	Jan Mayen	–	liver	1995-96	–	–	1.7±0.7	2, pooled	mean±SD	–	0.4±0.2	0.4±0.2	0.8±0.1	2.8±1.4	12.5±5.5	–	–	–	–	–	–	15
Hippoglossoides platessoides	,,	–	liver	1995-96	–	–	14.4±8.7	3	mean±SD	–	4.9±2.7	3.2±1.6	10.6±5.9	24.5±14.7	170.4±88.7	–	–	–	–	–	–	15
(Long rough dab)																						
Eutrigla gurnardus	,,	–	liver	1995-96	–	–	7.7±4.4	2, pooled	mean±SD	–	2.2±1.7	1.3±1.1	6.9±6.3	9.4±9.4	27.1±22.7	–	–	–	–	–	–	15
(Grey gurnard)																						
Pollachius virens	,,	–	liver	1995-96	–	–	51.5±5.9	5	mean±SD	–	8.4±1.1	10.5±1.1	25.2±4.7	24.1±2.2	62.6±6.2	–	–	–	–	–	–	15
(Coalfish)																						
Leptagonus decagonus	,,	–	liver	1995-96	–	–	11.2±4.5	2, pooled	mean±SD	–	3.8±1.6	2.3±1.1	18.0±8.9	30.9±15.0	91.6±21.8	–	–	–	–	–	–	15
(Atlantic poacher)																						
Lumpenus maculatus	,,	–	liver	1995-96	–	–	2.6±4.5	2, pooled	mean±SD	–	0.7±0.4	0.3±0.4	1.8±0.2	4.6±0.2	17.2±0.7	–	–	–	–	–	–	15
(Daubed shanny)																						
Lycodes vahli	,,	–	liver	1995-96	–	–	19.3	1	mean	–	6.4	3.8	16.7	20.6	273	–	–	–	–	–	–	15
(Checkered eelpout)																						
Somniosus microcephalus	Cumberland Sound	Pangnirtung	liver	1999	–	283.6±5.7	39.7±3.6	15	mean±SE	192±30	–	29.1±3.5	1050±185	4158±830	2000±426	–	–	–	–	–	–	3
(Greenland shark)	Davis Strait		liver	1997	–	135±0	55.9±2.1	2	mean±SE	53.5±4.74	–	27.1±10.5	262±28.4	817±39.5	590±176	–	–	–	–	–	–	3
Anadromous fish																						
Salvelinus alpinus	Alaska	Barrow	fillet	1998	–	–	8.54±3.45	2	mean±SE	0.83±0.79	–	2.46±1.88	–	1.64±1.08	12.0±5.06	–	11.4±9.06	1.08±0.82	–	0.45±0.11	–	2
(Arctic char)	E Canada	Kangirsuk	muscle, with skin	1998	–	–	8.53±2.21	9	mean±SD	1.11±0.64	0.90±0.56	1.14±0.75	1.19±0.63	1.66±1.25	17.6±14.9	4.49±4.15	–	0.94±0.67	0.02±0.05	–	–	19
,,	,,	Makkovik	muscle, with skin	1998	–	–	4.88±1.23	2	mean±SD	9.26±23.3	9.13±23.4	1.66±0.68	1.22±0.57	2.61±2.7	29.8±54.8	3.43±1.53	–	1.07±0.79	0.06±0.14	–	–	19
,,	,,	Nain	muscle, with skin	1998	–	–	6.86±2.00	7	mean±SD	1.22±0.8	1.22±0.63	2.64±1.30	1.71±0.63	3.38±2.98	63.3±77.4	7.99±7.72	–	1.47±0.70	0.12±0.22	–	–	19
,,	,,	Quaqtaq	muscle, with skin	1998	–	–	6.06±6.12	7	mean±SD	1.13±0.96	1.09±0.81	1.01±1.02	1.13±0.81	1.16±0.96	14.2±16.1	4.53±4.69	–	1.06±0.86	0.02±0.04	–	–	19
,,	,,	Wakeham	muscle, with skin	1998	–	–	3.9±3.58	7	mean±SD	1.03±0.54	0.91±0.45	0.47±0.27	1.29±0.69	1.25±0.73	12.7±8.80	2.97±1.86	–	0.99±0.70	0.04±0.03	–	–	19
,,	Finland	Lake Pahtajärvi	muscle	1999	f	304±11.9	1.34±0.49	5	mean±SD	–	0.10±0.49	0.02±0.02	0.04±0.02	0.18±0.02	0.15±0.06	–	–	–	–	–	–	20
,,	,,	,,	muscle	1999	m	346±17.1	1.09±0.42	5	mean±SD	–	0.09±0.03	0.01±0.02	0.02±0.03	0.24±0.21	0.28±0.46	–	–	–	–	–	–	20
,,		Lake Kilpisjärvi	muscle	1999	?	210	0.97	5, pooled	–	–	0.26	0.07	0.37	0.93	3.33	–	–	–	–	–	–	20
,,	Russia	Lavrentiya, Chukotka Peninsula	liver	2001	f	–	–	8, pooled	–	–	–	0.81	2.18	6.20	31.3	–	–	–	2.62	–	–	21
,,	,,	,,	liver	2001	m	–	–	12, pooled	–	–	–	0.53	1.84	5.47	10.6	–	–	–	2.69	–	–	21
,,	,,	,,	muscle	2001	f	–	–	8, pooled	–	–	–	0.21	2.28	6.53	26.1	–	–	–	0.33	–	–	21
,,	,,	,,	muscle	2001	m	–	–	12, pooled	–	–	–	0.24	0.67	1.62	6.14	–	–	–	0.23	–	–	21
Salmo salar	SW Greenland	Nuuk	muscle	2000	m,f	–	11.2±5.59	7	mean±SD	1.84±0.72	–	3.77±1.90	5.10±2.04	12.0±3.97	17.9±5.26	5.96±1.71	–	–	–	–	–	11
(Atlantic salmon)																						
Oncorhynchus gorbuscha	Alaska	Barrow	muscle	1998	–	–	1.25±0.05	7	mean±SE	0.23±0.08	–	0.24±0.05	–	2.58±0.46	6.64±1.08	–	2.07±0.44	0.21±0.04	–	0.23±0.03	–	2
(Pink salmon)																						
Oncorhynchus keta	Russia	Lavrentiya, Chukotka Peninsula	liver	2001	f	–	–	11, pooled	–	–	–	0.65	2.74	4.15	3.59	–	–	–	<0.05	–	–	21
(Chum salmon)																						
,,	,,	,,	liver	2001	m	–	–	9, pooled	–	–	–	0.72	2.80	5.97	4.66	–	–	–	0.07	–	–	21
,,	,,	,,	muscle	2001	f	–	–	11, pooled	–	–	–	0.56	0.75	2.21	1.34	–	–	–	<0.05	–	–	21
,,	,,	,,	muscle	2001	m	–	–	9, pooled	–	–	–	0.58	0.53	1.52	1.13	–	–	–	<0.05	–	–	21
Coregonus sardinella	Alaska	Nuiqsut (Colville R.)	fillet	2000	f	–	3.10±1.07	2	mean±SE	4.89±2.93	4.14±2.82	0.85±0.01	1.32±0.90	1.47±0.62	2.32±0.92	–	–	0.12±0.10	0.02±0.01	0.14±0.10	–	2
(Least cisco)																						

[a] concentrations are dry weight.
PCB_{10} = sum of 28, 31, 52, 101, 105, 118, 138, 153, 156, 180.
* sum of 7 congeners (101, 105, 118, 138, 153, 156, 180).

References

1. Evenset *et al.*, 2002; ΣHCHs = α-HCH; ΣCHLs = oxychlordane; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 33 congeners (18, 28, 31, 33, 37, 47, 52, 60, 66, 74, 99, 101, 105, 114, 118, 122, 123, 128, 138, 141, 149, 153, 156, 157, 167, 170, 180, 183, 187, 189, 194, 206, 209); Toxaphene = sum of Parlars 26, 50, 62.
2. Hoekstra *et al.*, 2002b; ΣCBz = sum of 1,2-diCBz, 1,4-diCBz, 1,2, 3-triCBz, 1,2,4-triCBz, 1,3, 5-triCBz, 1,2,3,4-tetraCBz, 1,2,3,5-tetraCBz, pentaCBz, and hexaCBz; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, and *cis*-heptachlor epoxide; ΣDDTs = sum of *o,p*'- and *p,p*'-DDD, -DDE, and -DDT; ΣPCBs = sum of 101 congeners (4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16, 32, 54/29, 26, 25, 50, 31/28, 33/21/53, 51, 22, 45, 46, 52/49, 43, 47/48, 44, 59, 42, 64, 41/71, 40, 100, 63, 74, 76/98, 70, 95, 66, 91, 55, 56/60, 92/84, 101, 99, 119, 83, 97, 87, 81, 85, 136, 110, 82, 151, 135, 144, 107/147, 149/133, 118, 114, 143, 141, 145, 153, 132, 105, 141/179, 137, 176/130, 163, 138, 158, 129/178, 175, 187, 182, 183, 128, 167, 185, 174, 177, 171, 156, 202/173, 172, 197, 180/193, 191, 199, 170/190, 198, 201, 176/203, 189, 206, 195, 207, 194, 205, 208, 209); Toxaphene = total toxaphene.
3. Fisk *et al.*, 2002a; ΣCBz = sum of 1,2,4,5-tetraCBz, 1,2,3,4-tetraCBz, pentaCBz, and hexaCBz.; ΣHCHs = sum of α-, β-, and γ-HCH.; ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*-chlordane, *trans*-chlordane, *cis*-nonachlor, *trans*-nonachlor, and oxychlordane; ΣDDTs = sum of *p,p*'- and *o,p*-DDD, -DDE, and -DDT; ΣPCBs = sum of 86 congeners (1, 3, 4/10, 7, 6, 8/5, 19, 18, 17, 24/27, 16/32, 26, 25, 31, 28, 33, 22, 45, 46, 52, 49, 47, 48, 44, 42, 41/71, 64, 40, 74, 70/76, 95/66, 56/60, 91, 84/89, 101, 99, 83, 97, 87, 85, 136, 110, 82, 151, 144/135, 149, 118, 134, 114, 131, 146, 153, 132, 105, 141, 130/176, 179, 137, 138, 158, 178/129, 175, 187, 183, 128, 185, 194, 196/203, 189, 208, 195, 207, 194, 205, 206, 209).
4. Borgå *et al.*, 2002a; ΣCHLs = sum of oxychlordane, *cis*- and *trans*-chlordane, and *trans*-nonachlor; ΣDDTs = sum of *p,p*'-DDE, -DDD and-DDT; ΣPCBs = sum of 9 congeners (31, 28, 52, 99, 118, 153, 105, 138, 180).
5. Borgå *et al.*, 2001; see footnote 4; data converted from lipid weight to wet weight using mean % lipid content.
6. Joiris *et al.*, 1997; ΣPCBs = Aroclor 1254.
7. Denmark, 2002; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = sum of *o,p*'-DDT and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 13 congeners; Toxaphene = sum of Parlars 26, 40, 41, 44, 50, and 62.
8. Yngvadóttir and Halldórsdóttir, 2002; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *trans*-nonachlor, *cis*- and *trans*-chlordane, oxychlordane; ΣDDTs = sum of *p,p*'-DDE, -DDD and -DDT, and *o,p*'-DDT; ΣPCBs = sum of 7 congeners (28, 52, 101, 118, 138, 153, 180); Toxaphene = sum of Parlars 26, 50, and 62.
9. Larsen and Dam, 1999; ΣCBz = HCB; ΣHCHs = γ-HCH; ΣDDTs = *p,p*'-DDE; ΣPCBs = congener 153.
10. Fisk *et al.*, 2002a; ΣCBz = sum of 1,2-diCBz, 1,4-diCBz, 1,2,3-triCBz, 1,2,4-triCBz, 1,3, 5-triCBz, 1,2,3,4-tetraCBz, 1,2,3,5-tetraCBz, pentaCBz,

and hexaCBz; ΣHCHs = sum of α-, β-, γ-, and δ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, and *cis*-heptachlor epoxide; ΣDDTs = sum of *o,p'*- and *p,p'*-DDD, -DDE, and -DDT; ΣPCBs = sum of 101 congeners.

11. Muir and Johansen, 2001; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, heptachlor epoxide, and methoxychlor; ΣDDTs = sum of *o,p'*- and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 104 congeners peaks (1, 3, 4/10, 7/9, 6, 8/5, 19, 30, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33/20, 53, 51, 22, 45, 46, 52, 43, 49, 47/48, 44, 59, 42, 71/41/64, 40, 100, 63, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 81/87, 85, 136, 110, 82, 151, 135/144, 147, 107, 149, 118, 133, 114, 134/131, 146, 153, 132, 105, 141, 179, 137, 176, 130, 163/138, 158, 129, 178, 175, 182/187, 183, 128, 167, 185, 174, 177, 202/171, 156, 173, 157/200, 204, 172, 197, 180, 193, 191, 199, 170/190, 198, 201, 203/196, 189, 208/195, 207, 194, 205, 206, 209).
12. Hop *et al*., 2001; ΣPCBs = sum of 33 congeners (18, 28, 31, 33, 37, 47, 52, 60, 66, 74, 99, 101, 105, 114, 118, 122, 123, 128, 138, 141, 149, 153, 156, 157, 167, 170, 180, 183, 187, 189, 194, 206, 209).
13. Sericano *et al*., 2001; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, and heptachlor epoxide, ΣDDTs = *o,p'*- and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of all measurable congeners.
14. Fisk, 2002c; see footnote 10.
15. Gabrielsen *et al*., 1997; ΣPCBs = sum of 33 congeners.
16. Muir *et al*., 2003; ΣCBz = sum of 1,2-diCBz, 1,4-diCBz, 1,2,3-triCBz, 1,2,4-triCBz, 1,3,5-triCBz, 1,2,3,4-tetraCBz, 1,2,3,5-tetraCBz, pentaCBz, and hexaCBz; ΣHCHs = sum of α-, β-, γ-, and δ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, and *cis*-heptachlor epoxide; ΣDDTs = sum of *o,p'*- and *p,p'*-DDD, -DDE and -DDT; ΣPCBs = sum of 101 congeners (4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16, 32, 54/29, 26, 25, 50, 31/28, 33/21/53, 51, 22, 45, 46, 52/49, 43, 47/48, 44, 59, 42, 64, 41/71, 40, 100, 63, 74, 76/98, 70, 95, 66, 91, 55, 56/60, 92/84, 101, 99, 119, 83, 97, 87, 81, 85, 136, 110, 82, 151, 135, 144, 107/147, 149/133, 118, 114, 143, 141, 145, 153, 132, 105, 141/179, 137, 176/130, 163, 138, 158, 129/178, 175, 187, 182, 183, 128, 167, 185, 174, 177, 171, 156, 202/173, 172, 197, 180/193, 191, 199, 170/190, 198, 201, 176/203, 189, 206, 195, 207, 194, 205, 208, 209).
17. Denmark, 2002; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, heptachlor epoxide, and methoxychlor; ΣDDTs = sum of *o,p'*- and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 104 congeners peaks (1, 3, 4/10, 7/9, 6, 8/5, 19, 30, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33/20, 53, 51, 22, 45, 46, 52, 43, 49, 47/48, 44, 59, 42, 71/41/64, 40, 100, 63, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 81/87, 85, 136, 110, 82, 151, 135/144, 147, 107, 149, 118, 133, 114, 134/131, 146, 153, 132, 105, 141, 179, 137, 176, 130, 163/138, 158, 129, 178, 175, 182/187, 183, 128, 167, 185, 174, 177, 202/171, 156, 173, 157/200, 204, 172, 197, 180, 193, 191, 199, 170/190, 198, 201, 203/196, 189, 208/195, 207, 194, 205, 206, 209).
18. Hoydal *et al*., 2001; ΣDDTs = *p,p'*-DDE; ΣPCBs = congener 153.
19. Muir *et al*., 2001a; ΣCBz = sum of 1,2,3,4-tetra, penta-, and hexachlorobenzene; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*-chlordane, *trans*-chlordane, *cis*-nonachlor, and *trans*-nonachlor; ΣDDTs = sum of *p,p'*-DDE, -DDD and-DDT, and *o,p'*-DDT; ΣPCBs = sum of 103 congeners (1, 3, 4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33, 20, 53, 51, 22, 45, 46, 52, 49, 43, 48/47, 44, 59, 42, 64/41/71, 40, 100, 63, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 87/81, 85, 136, 110, 82, 151, 135/144, 147, 107, 149, 118, 133, 114, 134/131, 146, 153, 132, 105, 141, 179, 137, 176, 130, 138/163, 158, 129, 178, 175, 187/182, 183, 128, 167, 185, 174, 177, 202/171, 156, 173, 157/201, 172, 197, 180, 193, 191, 200, 170/190, 198, 199, 203/196, 189, 208/195, 207, 194, 205, 206, 209).
20. Mannio, 2002; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum *cis*-chlordane, *trans*-nonachlor; ΣDDTs = *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum 15 congeners (28, 31, 52, 66, 101, 149, 118, 153, 105, 138, 187, 156, 180, 170).
21. RAIPON/AMAP/GEF Project, 2001; ΣHCHs = α-, β-, and γ-HCH; ΣCHL = sum of heptachlor, heptachlor epoxide, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = sum of *o,p'* and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 15 congeners (28, 31, 52, 99, 101, 105, 118, 128, 138, 153, 156, 170, 180, 183, 187).

Annex Table 11. Recent mean concentrations (ng/g ww) of organochlorines in Arctic seabirds.

Species/Location	Tissue	Year	Sex	Age	% lipid	n(#pools)	Statistic	ΣCBz	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	References
Somateria mollissima (common eider)																		
Nuuk, SW Greenland	liver	1999	m,f	–	5.1±0.3	5	mean±SD	3.63±0.95	–	0.81±0.23	12.8±5.55	5.78±4.14	25.5±17.2	13.2±11.0	12.4±4.92	–	–	1
,,	muscle	1999	m,f	–	3.9±0.8	10	mean±SD	2.50±0.82	–	0.58±0.20	4.57±0.69	3.84±1.40	23.0±31.2	12.9±20.0	14.3±7.43	–	–	1
W Iceland	liver	1993, Feb	–	–	3.5	3	mean(range)	–	0.66(0.52-0.75)	–	–	17.4 (8.1-26.8)	90.1 (78.0-99.3)	–	–	–	–	2
,,	muscle	1993, Feb	–	–	3.4	3	mean(range)	–	0.58(0.25-0.83)	–	–	11.0 (10.0-12.2)	97.5 (85.4-111)	–	–	–	–	2
,,	muscle	1993, Feb	f	–	2.67	10	mean	–	0.85	–	–	10.3	77	–	–	–	–	2
,,	muscle	1993, Feb	m	–	2.97	7	mean	–	0.77	–	–	13.1	90.7	–	–	–	–	2
,,	liver	1993, May	–	–	4.1	4	mean(range)	–	1.96(1.39-2.48)	–	–	23.1 (14.0-35.6)	66.6 (58.4-85.7)	–	–	–	–	2
,,	muscle	1993, May	–	–	2.8	4	mean(range)	–	2.02(0.53-3.97)	–	–	17.9 (2.99-36.4)	58.9 (13.6-109)	–	–	–	–	2
,,	muscle	1993, May	f	–	4.26	7	mean	–	2.36	–	–	17.1	80.7	–	–	–	–	2
,,	muscle	1993, May	m	–	3.14	7	mean	–	3.43	–	–	24.7	100	–	–	–	–	2
,,	liver	1993, June	–	–	3.9	4	mean(range)	–	6.9(4.4-11.8)	–	–	47.4 (31.8-72.4)	207 (164-253)	–	–	–	–	2
,,	muscle	1993, June	–	–	2.8	4	mean(range)	–	6.5(0.59-14.9)	–	–	50.9 (7.74-144)	252 (77.0-688)	–	–	–	–	2
,,	muscle	1993, June	f	–	1.42	5	mean	–	4.07	–	–	44.4	247	–	–	–	–	2
,,	muscle	1993, June	m	–	2.36	8	mean	–	4.46	–	–	36.2	182	–	–	–	–	2
,,	muscle	1993, Nov	–	–	5.2	7	mean(range)	–	1.93(0.34-3.85)	–	–	21.2 (5.4-49.0)	169 (21.2-404)	–	–	–	–	2
,,	muscle	1993, Nov	f	–	3.09	3	mean	–	1.93	–	–	19.6	146	–	–	–	–	2
,,	muscle	1993, Nov	m	–	3.94	4	mean	–	1.66	–	–	21.8	181	–	–	–	–	2
Lavrentiya, Chukotka Peninsula, Russia	liver	2001	f	1-3	–	11(1)	–	–	–	0.81	0.55	0.70	2.45	–	–	–	0.15	3
,,	muscle	2001	f	1-3	–	11(1)	–	–	–	<0.10	<0.05	0.26	3.38	–	–	–	<0.05	3
Somateria spectabilis (king eider)																		
Nuuk, SW Greenland	liver	1999	–	–	5.2±0.3	5	mean±SD	4.13±1.79	–	1.28±0.72	16.0±9.69	5.70±2.66	27.3±10.7	8.71±2.77	13.5±10.2	–	–	1
,,	muscle	1999	–	–	3.9±1.2	10	mean±SD	3.14±1.40	–	1.03±0.38	4.98±1.78	3.88±2.15	14.5±5.55	6.46±2.33	8.67±11.2	–	–	1
Bucephala clangula (goldeneye)																		
Kola Peninsula, Russia	liver	2001	f	1-3	–	5(1)	–	–	–	0.36	1.43	6.9	21.5	–	–	–	0.09	3
,,	liver	2001	m	1-3	–	5(1)	–	–	–	0.68	2.2	13.9	26.2	–	–	–	0.08	3
,,	muscle	2001	f	1-3	–	5(1)	–	–	–	0.50	0.23	1.29	2.47	–	–	–	<0.05	3
,,	muscle	2001	m	1-3	–	5(1)	–	–	–	0.47	0.37	1.84	5.76	–	–	–	<0.05	3
Aythya marila (greater scaup)																		
,,	liver	2001	f	1-3	–	2(1)	–	–	–	0.36	0.12	15.4	14.3	–	–	–	0.14	3
,,	liver	2001	m	2-3	–	2(1)	–	–	–	0.29	0.13	13.2	18.1	–	–	–	0.06	3
,,	muscle	2001	f	1-3	–	2(1)	–	–	–	<0.10	0.13	1.25	3.48	–	–	–	0.11	3
,,	muscle	2001	m	2-3	–	2(1)	–	–	–	<0.10	0.15	1.51	4.41	–	–	–	0.10	3
Anas acuta (northern pintail)																		
,,	liver	2001	f	1-3	–	4(1)	–	–	–	0.07	0.24	0.47	2.41	–	–	–	<0.05	3
,,	liver	2001	m	1-3	–	6(1)	–	–	–	0.10	0.16	0.34	2.23	–	–	–	–	3
,,	muscle	2001	f	1-3	–	4(1)	–	–	–	<0.10	0.06	0.41	1.61	–	–	–	0.13	3
,,	muscle	2001	m	1-3	–	6(1)	–	–	–	<0.10	0.06	0.23	1.44	–	–	–	0.16	3

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Annex Table 11 continued.

Species/Location	Tissue	Year	Sex	Age	% lipid	n(#pools)	Statistic	ΣCBz	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	References
Dudinka, Taymir Peninsula, Russia	liver	2001	f	1-3	–	4(1)	–	–	–	0.11	0.20	1.51	2.20	–	–	–	–	3
,,	liver	2001	m	1-3	–	1	–	–	–	0.10	0.32	2..21	2.13	–	–	–	–	3
,,	muscle	2001	f	1-3	–	4(1)	–	–	–	0.34	0.08	10.8	2.87	–	–	–	0.09	3
,,	muscle	2001	m	1-3	–	1	–	–	–	0.06	0.14	2.06	2.19	–	–	–	<0.05	3
,,	liver	2001	f	2-3	–	1	–	–	–	0.27	0.32	1.49	1.30	–	–	–	<0.05	3
,,	muscle	2001	f	2-3	–	1	–	–	–	0.19	0.47	1.67	2.05	–	–	–	<0.05	3
Anas penelope (wigeon)																		
Pechora Basin, Russia	liver	2001	f	1-3	–	3(1)	–	–	–	0.2	1.77	2.81	4.51	–	–	–	–	3
,,	liver	2001	m	1-3	–	2(1)	–	–	–	0.79	2.01	2.53	–	–	–	–	–	3
,,	muscle	2001	f	1-3	–	3(1)	–	–	–	0.33	0.42	0.34	2.75	–	–	–	<0.05	3
,,	muscle	2001	m	1-3	–	2(1)	–	–	–	0.74	0.17	0.47	–	–	–	–	<0.05	3
Anas crecca (green-winged teal)																		
Dudinka, Taymir Peninsula, Russia	liver	2001	m	1-2	–	2(1)	–	–	–	0.07	1.27	5.75	4.34	–	–	–	0.10	3
,,	muscle	2001	m	1-2	–	2(1)	–	–	–	0.40	0.36	3.67	3.37	–	–	–	<0.05	3
Khatanga, Taymir Peninsula, Russia	liver	2001	m	1-2	–	2(1)	–	–	–	1.15	1.54	6.91	5.34	–	–	–	<0.05	3
,,	muscle	2001	m	1-2	–	2(1)	–	–	–	0.97	0.92	4.87	2.39	–	–	–	<0.05	3
Clangula hyernalis (oldsquaw)																		
Khatanga, Taymir Peninsula, Russia	liver	2001	f	1-2	–	4(1)	–	–	–	9.01	8.06	31.7	42.3	–	–	–	1.28	3
,,	liver	2001	m	1-2	–	2(1)	–	–	–	6.49	7.80	23.7	38.3	–	–	–	0.90	3
,,	muscle	2001	f	1-2	–	4(1)	–	–	–	1.78	2.06	9.63	17.2	–	–	–	0.09	3
,,	muscle	2001	m	1-2	–	2(1)	–	–	–	2.64	3.70	10.6	10.7	–	–	–	0.08	3
Melanitta sp. (scoter)																		
Kanchalan, Chukotka Peninsula, Russia	liver	2001	f	2-3	–	1	–	–	–	<0.10	0.11	0.94	2.16	–	–	–	0.10	3
,,	liver	2001	m	2-3	–	2(1)	–	–	–	<0.10	0.10	0.64	1.82	–	–	–	<0.05	3
,,	muscle	2001	f	2-3	–	1	–	–	–	<0.10	<0.05	0.31	1.64	–	–	–	0.05	3
,,	muscle	2001	m	2-3	–	2(1)	–	–	–	<0.10	<0.05	0.54	1.58	–	–	–	0.08	3
Anser albifrons (greater white-footed goose)																		
Dudinka, Taymir Peninsula, Russia	liver	2001	f	1-3	–	9(1)	–	–	–	0.13	0.17	8.62	2.31	–	–	–	<0.05	3
,,	muscle	2001	f	1-3	–	9(1)	–	–	–	0.18	<0.05	3.45	1.92	–	–	–	0.06	3
,,	liver	2001	m	1-3	–	4(1)	–	–	–	0.21	0.23	8.01	2.72	–	–	–	<0.05	3
,,	muscle	2001	m	1-3	–	4(1)	–	–	–	0.18	0.07	4.89	3.72	–	–	–	0.15	3
Khatanga, Taymir Peninsula, Russia	liver	2001	f	1-4	–	5(1)	–	–	–	0.11	0.45	8.75	2.13	–	–	–	0.28	3
,,	muscle	2001	f	1-4	–	5(1)	–	–	–	0.12	0.15	4.67	2.45	–	–	–	0.21	3
,,	liver	2001	m	1-4	–	5(1)	–	–	–	0.15	0.58	11.0	2.97	–	–	–	0.23	3
,,	muscle	2001	m	1-4	–	5(1)	–	–	–	0.18	0.12	6.04	3.01	–	–	–	0.07	3
Anser fabalis (bean goose)																		
Kanchalan, Chukotka Peninsula, Russia	liver	2001	f	1-2	–	2(1)	–	–	–	<0.10	0.25	2.01	2.05	–	–	–	0.31	3
,,	muscle	2001	f	1-2	–	2(1)	–	–	–	<0.10	0.06	0.48	0.94	–	–	–	<0.05	3
Phalacrocorax aristolelis (shag)																		
Sklinna Island, central Norway	egg, yolk sac	1995	–	–	6.8±1.8	10	mean±SD	–	–	–	–	–	1220±5	–	–	–	–	4
Ardea cinerea (grey heron)																		
Froya, central Norway	egg, yolk sac	?	–	–	5.8±3.0	4	mean±SD	–	–	–	–	–	2070±1820	–	–	–	–	5
Finnfjordoy, N Norway	egg, yolk sac	?	–	–	11.0±4.5	7	mean±SD	–	–	–	–	–	2450 ±1410	–	–	–	–	5
Alle alle (dovekie or little auk)																		
N Baffin Bay	liver	1998	–	–	4.0±0.2	7(2)	mean±SE	2.9±0.47	2.0±0.33	3.5±0.82	10.2±1.9	9.4±1.5	15.7±3.2	–	–	–	–	6,7
,,	fat	1998	–	–	63.7±2.1	10	mean±SE	102±8.3	63.5±5.4	149±12.4	459±32.8	364±63.5	635±63.5	–	–	175±14.8	10.1±1.1	6,7
Jan Mayen	liver	1995-96	–	–	6.7±1.8	5	mean±SD	–	11.3±3.9	2.6±0.9	21.6±9.7	60.4±25.2	105.7±34	–	–	–	2.0±0.6	8
Bjørnøya	muscle	1999	m	–	2.31 (2.24-2.43)	3	mean (range)	–	3.56 (2.01-5.57)	1.26 (0.82-1.71)	4.94 (3.35-6.50)	38.9 (27.4-46.9)	208 (83.3-313)	59.3** (12.4-80.5)	8.12 (5.38-12.4)	10.8 (4.21-22.3)	–	9
,,	guano		–	–	0.43	–	–	–	0.54	0.11	0.01	–	6.42	3.09**	–	<0.04	–	9
,,	posterior colon content	1999	–	–	2.21	15(1)	–	–	5.98	0.25	2.68	15.6	60.6	29.1**	4.47	3.51	–	9
Uria lomvia (thick-billed murre or Brünnich's guillemot)																		
St. George Isl., Bering Sea	eggs	2000	–	–	8.4±3.6	10	mean±SD	–	52.5±10	–	9.48±2.55	97.4±14.7	86.7±21	–	–	2.31±1.7	0.625±0.23	10
Bogoslof Isl., Bering Sea	eggs	2000	–	–	11.1±1.4	7	mean±SD	–	51.7±12	–	10.6±3.43	122±34.3	87.5±29	–	–	10.3±13	0.975±0.60	10
Prince Leopold Isl., Lancaster Sound	eggs	1998	–	–	12.9±0.4	15(5)	mean±SE	53±2.0	–	17±1.0	30±0.4	100±7.0	130±9.0	–	–	15±1.0	3.0±0.5	11
N Baffin Bay	liver	1998	–	–	4.1±0.5	10	mean±SE	11.7±1.3	9.8±1.2	2.6±0.35	6.7±0.72	33.4±3.8	37.3±5.1	–	–	–	–	6,7
,,	fat	1998	–	–	60.0±1.9	10	mean±SE	178±15.0	149±13.6	50.6±4.1	158±14.9	658±57.2	772±62.2	–	–	76.4±9.6	11.4±1.1	6,7
Nuuk, SW Greenland	liver	1999	–	–	5.4±0.7	5	mean±SD	6.4±2.1	–	0.63±0.17	4.57±1.31	8.11±3.41	20.2±6.10	8.81±2.95	53.0±15.1	–	–	1
,,	muscle	1999	–	–	3.5±0.4	19	mean±SD	3.9±2.4	–	0.73±0.24	4.97±5.17	6.97±5.22	19.6±11.1	8.43±5.03	27.3±9.19	–	–	1
Barents Sea, Svalbard	liver	1995	–	–	2.5±0.5	10	mean	–	14.4	1.12	4.8	26.9	44.5	–	–	–	–	12
Bjørnøya	eggs	2000	–	–	12.5 (11.8-13.7)	3	mean (range)	–	51.4 (43.9-58.9)	3.69 (1.66-5.79)	10.4 (5.59-13.6)	136 (117-166)	194 (123-274)	92.0** (87.4-133)	31.8 (17.8-40.8)	10.6 (4.29-14.2)	–	9

Continued next page.

Annex Table 11 continued.

Species/Location	Tissue	Year	Sex	Age	% lipid	n(#pools)	Statistic	ΣCBz	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	References
Cepphus grylle (black guillemot)																		
Saglek Bay (reference site), Labrador	liver	1999	m,f	22d	–	10	mean (range)	–	2.3	–	0.39	1.8	25 (18-34)	–	–	1.2	–	13
Saglek Bay (island sites), Labrador	liver	1999	m,f	22d	–	10	mean (range)	–	3.4	–	0.64	4.1	73 (46-117)	–	–	1.2	–	13
Saglek Bay (beach site), Labrador	liver	1999	m,f	22d	–	11	mean (range)	–	8.1	–	n.d.	8.9	830 (340-2030)	–	–	n.d.	–	13
N Baffin Bay	liver	1998	–	–	3.4±0.3	9	mean±SE	8.6±1.4	7.5±1.2	5.7±0.71	24.9±2.5	54.5±11.0	59.6±11.3	–	–	–	–	6,7
,,	fat	1998	–	–	60.0±6.0	7	mean±SE	277±32.4	222±25.4	161±20.6	681±75.9	602±74.6	1263±177	–	–	135±15	16.7±2.3	6,7
Qeqertarsuaq, central W Greenland	egg	2001	–	–	10.3±0.6	7	mean±SD	–	22.9±4.7	5.6±0.9	–	44.5±9.8	109±23	82.2±17.7	57.9±14.8	–	–	14
,,	liver	1999	m	juveniles	4.3±0.1	2	mean±SD	10.6±5.9	9.6±5.4	2.2±1.5	15.8±9.3	22.3±2.7	53.6±11.5	22.7±2.6	–	6.8±5.6	0.5±0.04	15
,,	liver	1999	f	juveniles	3.9	1	mean	13.6	12.2	2.3	17.4	26.1	16.3	44.7	–	3.8	1.36	15
,,	liver	1999	m	adults	4.9±1.2	6	mean±SD	17.1±6.4	15.7±6.0	3.3±1.4	25.9±7.6	37.3±14.3	103±34	50.8±18.4	–	8.6±3.7	1.3±0.5	15
,,	liver	1999	f	adults	5.5±0.9	9	mean±SD	19.7±3.0	17.6±2.8	3.5±0.6	26.8±3.9	39.9±10.5	135±62	69.5±36.3	–	7.5±2.5	1.6±0.7	15
,,	liver	2000	m	adults	6.6±1.8	9	mean±SD	–	20.6±7.0	3.7±1.3	22.5±6.9	28.3±7.2	45.2±16.4	34.6±12.8	28.2±11.1	–	–	14
,,	liver	2000	f	adults	6.0±1.5	10	mean±SD	–	14.6±6.3	2.8±1.2	16.8±7.2	24.4±9.9	34.3±16.6	27.1±14.3	21.6±10.9	–	–	14
Ittoqqortoormiit, NE Greenland	egg	1999	–	–	9.3±0.6	10	mean±SD	34.1±5.3	30.1±4.8	17.3±2.4	60±8.9	110±17.0	293±55	153±31	–	12±1.7	3.4±0.8	15
,,	liver	2000	m	juveniles	5.0	1	mean	–	9.4	4.1	9.7	12.4	20.9±	14.6	13.5	–	–	14
,,	liver	2000	f	juveniles	5.4±3.1	2	mean±SD	–	10.4±1.9	4.7±1.0	12.7	14.5±0.9	27.1±5.0	17.7±2.0	13.1	–	–	14
,,	liver	2001	m	adults	3.6±1.8	8	mean±SD	–	20.1±13.1	4.0±3.7	26.9±9.7	47.8±33.3	102±63	64.4±48.0	32.0±15.7	–	–	14
,,	liver	2002	f	adults	8.7±4.1	4	mean±SD	–	31.7±19.9	6.9±5.1	71.9±40.3	79.9±47.9	164±106	113±74	64.1±47.9	–	–	14
W Iceland	muscle	1991, '92, '96	–	–	2.5	10	mean	–	6.4	0.36	–	22.5	114	–	–	–	–	22
Faroe Islands	liver	1995-1996	–	adults	–	56	mean	–	3.85	–	–	15.8	51.0	–	–	–	–	16
Jan Mayen	liver	1995-1996	–	–	7.8	1	mean	–	13.7	3.7	31.5	456	1197	–	–	–	12.8	8
Barents Sea, Svalbard	liver	1995	–	–	4.4±0.8	10	mean	–	14.7	1.58	12.8	31.5	96.3	–	–		–	12
Bjørnøya	eggs	2000	–	–	12.1	3	mean	–	38.1	1.39	10.5	137	251	148**	14.7	5.06	–	9
					11.1-12.8		range		33.7-42.8	1.09-1.65	10.3-10.6	125-143	221-290	105-196	13.0-16.3	3.59-7.23		
Rissa tridactyla (black-legged kittiwakes)																		
Prince Leopold Isl., Lancaster Sound	eggs	1998	–	–	9.0±0.2	15(5)	mean±SE	29±4.0	–	5.0±0.8	58.0±9.0	60.0±8.0	281±22.0	–	–	9.0±0.2	10.0±7.0	11
N Baffin Bay	liver	1998	–	–	4.1±0.5	10	mean±SE	13.2±1.2	11.6±1.1	2.5±0.3	25.8±3.0	58.9±6.5	143±13.4	–	–	–	–	6,7
,,	fat	1998	–	–	72.4±3.9	8	mean±SE	223±84.7	186±19.1	32.8±3.0	385±33.9	921±147	3343±480	–	–	103±10.7	64.2±10.0	6,7
Nuuk, SW Greenland	liver	1999	m,f	–	6.9±2.3	5	mean±SD	9.10±4.62	–	1.09±0.67	4.68±4.65	8.31±5.65	126±125	73.8±73.7	47.9±23.8	–	–	1
,,	muscle	1999	m,f	–	14.3±5.4	9	mean±SD	18.8±3.37	–	4.08±0.73	23.9±6.46	30.9±12.1	191±140	98.1±77.0	96.4±32.7	–	–	1
Jan Mayen	liver	1995-1996	–	–	4.1±0.8	6	mean±SD	–	9.6±3.2	0.8±0.3	13.3±4.4	19.6±11.9	378.5±150.6	–	8.6±4.0	–	–	8
Bjørnøya	liver	1995-1996	–	–	est. 4	–	mean	–	–	–	–	20	520	–	–	–	–	8
Svalbard	liver	1995-1996	–	–	est. 4	–	mean	–	–	–	–	60	480	–	–	–	–	8
Chornaya Bay, Novaya Zemlya	liver	1995-1996	–	–	est. 4	–	mean	–	–	–	–	48	400	–	–	–	–	8
Kharlov, Kola Peninsula	liver	1995-1996	–	–	est. 4	–	mean	–	–	–	–	36	560	–	–	–	–	8
Franz Josef Land	liver	1995-1996	–	–	est. 4	–	mean	–	–	–	–	76	760	–	–	–	–	8
Chornaya Bay, Novaya Zemlya	liver	1995-1996	–	–	est. 4	–	mean	–	–	–	–	60	840	–	–	–	–	8
Vajgach Island, southeast of Novaya Zemlya	liver	1995-1996	–	–	est. 4	–	mean	–	–	–	–	32	440	–	–	–	–	8
Barents Sea, Svalbard	liver	1995	–	–	3.6±0.7	10	mean	–	31.2	1.55	16.1	53.0	647	–	–	–	–	12
Bjørnøya	muscle	1999	m	–	9.24	3	mean	–	11.7	1.95	31.7	40.2	736	507**	18.5	10.3	–	9
					(5.54-7.64)		range		(6.83-17.4)	(1.32-2.95)	(15.0-40.4)	(25.1-68.4)	(332-938)	(188-672)	(17.2-19.8)	(8.08-14.1)		
,,	posterior colon content	1999	–	–	2.87	10	–	–	5.59	0.14	9.39	–	178	107**	–	4.57	–	9
Pagophila eburnea (ivory gull)																		
N Baffin Bay	liver	1998	–	–	3.4±0.6	5	mean±SE	20.1±2.8	18.3±2.6	8.5±2.3	89.7±25.9	260±50.6	325±71.3	–	–	–	–	6,7
,,	fat	1998	–	–	81.1±5.0	4	mean±SE	459±129	396±108	112±21.1	1618±297	5717±463	11664±796	–	–	292±41.9	203±15.9	6,7
Larus hyperboreus (glaucous gull)																		
N Baffin Bay	liver	1998	–	–	5.6±0.4	11	mean±SE	30.3±2.1	26.1±1.8	23.9±3.6	120±12.0	382±52	453±75.2	–	–	–	–	6,7
N Baffin Bay	fat	1998	–	–	72.8±4.2	11	mean±SE	508±35.8	427±31.9	327±39.0	1985±196	4336±355	11719±1891	–	–	389±53.9	226±54.5	6,7
Jan Mayen	liver	1995-1996	–	–	4.8±1.0	7	mean±SD	–	228.2±278.7	88.1±213.9	1659±3263	6983±11894	22727±40088	–	–	–	317.5±488.7	8
Jan Mayen	liver	1995-1996	–	–	est. 5	–	mean	–	–	–	–	2500	7600	–	–	–	–	8
Bjørnøya	liver	1995-1996	–	–	est. 5	–	mean	–	–	–	–	250	1300	–	–	–	–	8
Svalbard	liver	1995-1996	–	–	est. 5	–	mean	–	–	–	–	550	1650	–	–	–	–	8
Kolguyev Island, SW of Novaya Zemlya	liver	1995-1996	–	–	est. 5	–	mean	–	–	–	–	1050	3300	–	–	–	–	8
Franz Josef Land	liver	1995-1996	–	–	est. 5	–	mean	–	–	–	–	3500	11700	–	–	–	–	8
Chornaya Bay, Novaya Zemlya	liver	1995-1996	–	–	est. 5	–	mean	–	–	–	–	1200	3600	–	–	–	–	8
Vajgach Island, SE of Novaya Zemlya	liver	1995-1996	–	–	est. 5	–	mean	–	–	–	–	1500	3500	–	–	–	–	8
Barents Sea, Svalbard	liver	1995	–	–	4.1±0.5	10	mean	–	46.0	10.4	227	1720	5350	–	–	–	–	12
Bjørnøya	liver	1996	–	–	5.97)	40	mean(range)	–	133(40-428)	–	–	1439	4413	–	–	–	–	17
					(3.6-10.0)							(226-1294)	(782-17381)					
SE Bjørnøya	liver	1996	m,f	>3 yrs	–	40	mean	–	112	–	321	1250	3760	–	–	–	58	18
Bjørnøya	liver	1999	m,f	–	5.9	15	mean (range)	–	29.7	–	113	570	1261(f), 4206(m)	–	29	–	112	19
					(3.4-11.5)			–	(6.3-91.6)			(86.2-1420)	–			–	(12.2-510)	
,,	intestines	1999		–	–	1	–	–	96.4	–	153	764	4500	–	85	–	–	1
,,	muscle	1999	m	–	8.72	3	mean (range)	–	99.1	11.7	390	1610	14400	9550**	175	9.9	–	9
					(6.64-11.0)				(43.8-159)	(3.5-18.1)	(97.1-831)	(819-2660)	(4270-32300)	(2580-22100)	(51.2-346)	(11.5-253)		
,,	guano		–	–	0.11	–	–	–	2.91	0.06	0.01	–	85.3	51.9**	–	<0.04	–	9
,,	posterior colon content	1999	–	–	5.94	15	–	–	94.6	0.31	153	764	5710	3370**	53.1	35.1	–	9

Continued next page.

Annex Table 11 continued.

Species/Location	Tissue	Year	Sex	Age	% lipid	n(#pools)	Statistic	ΣCBz	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	References
Larus marinus (great black-backed gull)																		
Jan Mayen	liver	1995-1996	–	–	6.9	1	mean	–	195	26.3	543	3140	9565	–	–	–	175	8
Fulmarus glacialis (northern fulmars)																		
Prince Leopold Isl., Lancaster Sound	eggs	1998	–	–	11.3±0.4	15(5)	mean±SE	35±4.0	–	2.0±0.2	96±10	209±22	268±20	–	–	14±1.0	13±2.0	11
N Baffin Bay	liver	1998	–	–	3.8±0.6	10	mean±SE	18.7±1.7	17.4±1.6	1.8±1.7	95.7±6.9	174±22.9	158±18.5	–	–	–	–	6,7
,,	fat	1998	–	–	71.9±4.0	10	mean±SE	460±31.2	410±29.9	45.2±3.0	1195±92.1	3502±422	6832±894	–	–	133±17.0	162±24.0	6,7
Jan Mayen	liver	1995-1996	–	–	4.8±0.7	6	mean±SD	–	36.4±19.4	0.6±0.3	172.0±75.7	467.8±488.4	686±735	–	–	–	10.5±8.5	8
Haliaeetus leucocephalus (bald eagle)																		
Kiska Isl., Aleutian Archipelago	eggs	1993-1994	–	–	–	25	geo. mean	–	40	50	–	2750	2000	–	–	40	–	20
Adak Isl., Aleutian Archipelago	eggs	1993-1994	–	–	–	25	geo. mean	–	20	20	–	750	2100	–	–	10	–	20
Tanaga Isl., Aleutian Archipelago	eggs	1993-1994	–	–	–	25	geo. mean	–	20	30	–	800	700	–	–	20	–	20
Amchitka Isl., Aleutian Archipelago	eggs	1993-1994	–	–	–	25	geo. mean	–	20	20	–	950	1700	–	–	20	–	20
Haliaeetus albicilla (white-tailed sea eagle)																		
Norway	eggs	1991-1997	–	–	–	7	mean(range)	–	*	–	1690(617-4320)	*	8960(3080-13000)	–	90(n.d.-243)	*	–	21
Stercocarius skua (great skua)																		
Jan Mayen	liver	1995-1996	–	–	4.7±0.2	3	mean±SD	–	237.7±101.6	17.3±6.0	911.5±911.9	5415±2229	15887±6674	–	–	–	262±94.7	8

$ΣPCB_{10}$ = sum of 28, 31, 52, 101, 105, 118, 138, 153, 156, 180.

* Data for sum of pesticides; sum of HCB, *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, oxychlordane, heptachlor epoxide, *p, p*'-DDE, and dieldrin are summed and listed together under ΣCHLs.

** sum of 7 congeners (101, 105, 118, 138, 153, 156, 180).

References

1. Muir and Johansen, 2001; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, heptachlor epoxide, and methoxychlor; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 104 congeners (1, 3, 4/10, 7/9, 6, 8/5, 19, 30, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33/20, 53, 51, 22, 45, 46, 52, 43, 49, 47/48, 44, 59, 42, 71/41/64, 40, 100, 63, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 81/87, 85, 136, 110, 82, 151, 135/144, 147, 107, 149, 118, 133, 114, 134/131, 146, 153, 132, 105, 141, 179, 137, 176, 130, 163/138, 158, 129, 178, 175, 182/187, 183, 128, 167, 185, 174, 177, 202/171, 156, 173, 157/200, 204, 172, 197, 180, 193, 191, 199, 170/190, 198, 201, 203/196, 189, 208/195, 207, 194, 205, 206, 209).
2. Olafsdottir *et al*., 1998.
3. RAIPON/AMAP/GEF Project, 2001; ΣCBz = 1,2,3,4-, 1,2,3,5- and 1,2,4,5-tetrachlorobenzene, and hexachlorobenzene; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 15 congeners (28,31,52,99,101,105,118,128,138,153,156,170,180,183,187); Toxaphene = sum of Parlars 26, 50, 62.
4. Murvoll *et al*., 1999.
5. Jenssen *et al*., 2001.
6. Fisk *et al*., 2001b; ΣCBz = sum of 1,2-diCBz, 1,4-diCBz, 1,2,3-triCBz, 1,2,4-triCBz, 1,3,5-triCBz, 1,2,3,4-tetraCBz, 1,2,3,5-tetraCBz, pentaCBz, and hexaCBz; ΣHCHs = sum of α-, β-, γ-, and δ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, and *cis*-heptachlor epoxide; ΣDDTs = sum of *o,p*'- and *p,p*'-DDD, -DDE, and -DDT; ΣPCBs = sum of 101 congeners.
7. Fisk, 2002c; see footnote 6.
8. Gabrielsen *et al*., 1997; ΣPCBs = sum of 33 congeners. Concentrations converted to wet weight assuming 4% lipid for black-legged kittiwakes and 5% lipid for glaucous gulls.
9. Evenset *et al*., 2002; ΣHCHs = α-HCH; ΣCHLs = oxychlordane; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 33 congeners (18, 28, 31, 33, 37, 47, 52, 60, 66, 74, 99, 101, 105, 114, 118, 122, 123, 128, 138, 141, 149, 153, 156, 157, 167, 170, 180, 183, 187, 189, 194, 206, 209); Toxaphene = sum of Parlars 26, 50, 62.
10. Vander Pol *et al*., 2002; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, and heptachlor epoxide; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 53 congeners.
11. Braune *et al*., 2001b
12. Borgå *et al*., 2001; ΣCHLs = sum of oxychlordane, *cis*- and *trans*-chlordane, *trans*-nonachlor; ΣDDTs = sum of *p,p*'-DDE, -DDD, and-DDT; ΣPCBs = sum of 9 congeners (31, 28, 52, 99, 118, 153, 105, 138, 180); converted to lipid weight from wet weight using mean % lipid content.
13. Kuzyk *et al*., 2002; ΣCHLs = *cis*-nonachlor; ΣDDTs = *p,p*'-DDE; ΣPCBs = sum of 45 congeners; n = 1, 2, 1 for pesticide concentrations.
14. Denmark, 2002; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = sum of *o,p*'-DDT and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 22 congeners peaks; Toxaphene = sum of Parlars 26, 40, 41, 44, 50, 62.
15. Denmark, 2002; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, heptachlor epoxide, and methoxychlor; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 104 congeners (1, 3, 4/10, 7/9, 6, 8/5, 19, 30, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33/20, 53, 51, 22, 45, 46, 52, 43, 49, 47/48, 44, 59, 42, 71/41/64, 40, 100, 63, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 81/87, 85, 136, 110, 82, 151, 135/144, 147, 107, 149, 118, 133, 114, 134/131, 146, 153, 132, 105, 141, 179, 137, 176, 130, 163/138, 158, 129, 178, 175, 182/187, 183, 128, 167, 185, 174, 177, 202/171, 156, 173, 157/200, 204, 172, 197, 180, 193, 191, 199, 170/190, 198, 201, 203/196, 189, 208/195, 207, 194, 205, 206, 209).
16. Hoydal *et al*., 2001; ΣHCHs = sum of α-, β-, and γ-HCH; ΣDDTs = *p,p*'-DDE; ΣHCHs = sum of α-, β-, and γ-HCH; ΣPCBs = congener 7; converted to wet weight from lipid weight assuming 5.5% lipid content.
17. Henriksen *et al*., 2000; ΣHCHs = sum of α-, β-, and γ-HCH; ΣPCBs = sum of 9 congeners (28, 52, 99, 101, 118, 138, 153, 170, 180), ΣHCH = sum of α-, β-, and γ-HCH; ΣDDTs = *p,p*'-DDE only.
18. Sagerup *et al*., 2002; ΣCHLs = oxychlordane; ΣDDTs = sum of *p,p*'-DDE and -DDT; ΣPCBs = sum of 9 congeners (28, 52, 101, 99, 118, 153, 138, 180, 170). Converted from lipid weight to wet weight assuming a 5% lipid content.
19. Herzke *et al*., 2003; ΣCHLs = oxychlordane; ΣDDTs = *p,p*'-DDE, ΣPCBs = sum of 15 congeners.
20. Anthony *et al*., 1999; ΣHCHs = β-HCH; ΣPCBs = Aroclor 1260; ΣDDTs = *p,p*'-DDE.
21. Herzke *et al*., 2002; ΣHCHs = sum of α-, β-, and γ-HCH; ΣPCBs = sum of 15 congeners (99, 101, 105, 118, 126, 128, 138, 149, 153, 169, 170, 180, 183, 187, 194); Toxaphene = sum of 8 Parlars (26, 32, 38, 50, 51, 58, 62, 69).
22. Olafsdottir *et al*., 2001; ΣDDTs = sum of *p,p*-DDT, -DDD and -DDE, and *o,p*'-DDT; ΣHCHs = sum of α-, β-, and γ-HCH; ΣPCBs = sum of 21 congeners.

Annex Table 12. Concentrations (ng/g ww) of organochlorines in pinnipeds inhabiting Arctic waters.

Species/Region/Location	Tissue	Year	Sex	Age, years	% lipid	n	Statistic	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	ΣPBDEs	Ref.
Ringed seal																		
Alaska																		
Barrow	blubber	1998-1999	f	1-7	87.0±6.47	6	mean±95% CI	127±25.1	115±18.5	391±135	178±43.5	465±140	–	734±511	11.9±2.53	18.4±6.92	–	1
,,	blubber	1998-1999	m	1-20	82.2±4.45	14	mean±95% CI	102±3.53	167±44.6	390±75.8	237±47.6	566±89.6	–	479±94.1	18.4±4.56	19.9±3.40	–	1
,,	blubber	1988-98	f	3.3±1.9 (n=9)	81.8±1.6	10	mean±95% CI	29.4±9.8	233±97 (n=7)	452±182	429±100	632±78	–	–	38.5±13	9.3±3.4	–	2
,,	blubber	1988-98	m	5.6±1.6	86.0±1.5	7	mean±95% CI	12.2±2.8	318±167 (n=5)	855±484	575±2.5	782±254	–	–	41.9±20	14.3±10 (n=5)	–	2
Nome	blubber	1988-98	f	2.9±2.4 (n=5)	86.2±3.7	8	mean±95% CI	18.3±4.3	197±66	269±96	214±65	342±77	–	–	20.0±5.5	7.6±2.8	–	2
,,	blubber	1988-98	m	1.0±0.4 (n=5)	87.3±1.6	8	mean±95% CI	23.3±9.2	236±127 (n=3)	195±66	193±52	301±8 (n=3)	–	–	23.4±17 (n=7)	3.3±1.0 (n=7)	–	2
Norton Sound	blubber	1989-95	f	2,?	87±1.0	2	mean±SD	26.0±1.0	–	255±40	194±27	346±17	–	–	26.0±5.0	–	–	3
,,	blubber	1989-95	m	1-2,?	89±4.0	6	mean±SD	20.3±13.9	–	157±67	188±63	249±75	–	–	14.8±5.2	–	–	3
Canada																		
Holman, NWT	blubber	2001	f	8-25	85.7±10.7	5	mean±SD	64.0±15.3	234±137	367±87.0	188±37.6	335±19.9	–	–	50.4±4.49	11.1±2.83	–	1
,,	blubber	2001	m	2-14	83.0±6.38	5	mean±SD	64.6±29.4	225±131	514±218	263±134	487±306	–	–	44.2±6.93	7.59±2.20	–	1
Hudson Strait (Salluit+Quaqtaq)	blubber	1998	f	–	80.4±10.4	10	mean±SD	5.9±2.8	117±38.4	190±162	405±403	608±500	329±285	266±250	43.7±16.5	5.3±4.9	–	4
,,	blubber	1998	m	–	77.0±9.8	11	mean±SD	9.0±13.3	140±91.7	303±493	884±2130	1010±1860	559±1030	309±218	70.6±97.3	10.8±27.4	–	4
Ungava Bay (George R, Kangnirsuk, Kuujjuaq)	blubber	1998	f	–	101±16.5	16	mean±SD	8.2±2.8	155±63.3	161±78.6	259±142	513±225	278±127	87.7±55.1	58.3±39.0	4.1±3.1	–	4
,,	blubber	1998	m	–	92.4±15.7	5	mean±SD	11.4±4.4	299±171	81.1±24.6	728±526	1040±670	542±324	117±82.4	78.4±24.6	6.5±6.5	–	4
,,																		
Labrador (Nain+Makkovik)	blubber	1998	f	–	87.3±5.6	6	mean±SD	5.1±3.7	103±41.8	109±62.0	187±107	730±450	397±246	n.d.	32.1±19.8	3.4±3.0	–	4
,,	blubber	1998	m	–	88.2±5.5	14	mean±SD	5.2±0.2	90.8±47.9	108±45.1	198±86.0	572±290	321±161	n.d.	31.6±21.2	2.3±1.9	–	4
Nain, Labrador	blubber	1998	m	1-24	–	4	mean/range	–	–	–	228	344-625	–	–	–	–	–	5
Saglek Bay, Labrador	blubber	1997-1998	m	1-11	–	6	range	–	–	–		500-9400	–	–	–	–	–	5
Arctic Bay, Nunavut	blubber	2000	f	6.9±3.5	94.1±4.7	7	mean±SD	10.4±4.5	133±87.0	172±43.3	200±108	358±145	174±78	–	57.4±17.0	4.0±4.2	–	6
Pangnirtung, Baffin Island	blubber	1998	f	–	–	3	mean±SD	–	–	–	510±190	585±180	–	207±33	–	–	0.50±0.18	7
,,	blubber	1998	m	–	–	3	mean±SD	–	–	–	1200±1660	976±1090	–	185±121	–	–	0.97 (n=2)	7
Grise Fiord, Nunavut	blubber	1998	f	19±3.9	90.4±1.8	15	mean±SE	42±4	148±12	338±38	394±89	483±86	–	–	–	–	–	8
,,	blubber	1998	m	14.8±3.0	91.2±1.4	12	mean±SE	47±10	179±38	854±168	963±271	1000±206	–	–	–	–	–	8
NW Greenland																		
Qaanaaq	blubber	1998	f	15.3±3.6	85.6±3.6	14	mean±SE	25±3	68±6	187±27	390±63	476±78	–	–	–	–	–	8
,,	blubber	1998	m	14.8±3.3	87.8±4.7	13	mean±SE	38±6	136±31	546±156	944±229	1480±348	–	–	–	–	–	8
Avanersuaq	blubber	1998	m	15.3±13.2	85.8±13.0	14	mean±SD	11.0±3.5	68.1±21.3	187±98	390±225	476±282	269±165	–	33.0±11.0	5.3±4.1	–	9
,,	blubber	1998	f	14.9±11.5	87.7±16.2	13	mean±SD	14.4±9.2	136±107	546±539	944±793	1480±1210	894±738	–	74.0±59.0	10.4±10.3	–	9
Central W Greenland																		
Qeqertarsuaq	blubber	1998	m,f	–	92.2±4.9	10	mean±SD	14.8±5.58	74.1±26.9	241±114	439±205	544±231	286±132	219±81.0	–	–	–	10
,,	liver	1998	m,f	–	5.5±0.6	5	mean±SD	0.60±0.31	2.2±0.81	9.21±2.61	8.18±3.00	46.7±51.3	7.51±1.44	0.81±0.08	–	–	–	10
,,	kidney	1998	m,f	–	3.8±0.5	5	mean±SD	0.33±0.17	0.75±0.20	1.71±0.72	2.07±0.48	6.1±2.5	1.48±0.15	39.6±12.4	–	–	–	10
,,	muscle	1998	m,f	–	5.4±6.4	20	mean±SD	0.71±1.0	3.0±5.1	7.5±11.1	13.5±20.3	22.9±27.8	10.9±15.3	8.58±14.5	–	–	–	10
,,	blubber	1999	f	3.5±2.9	92.3±3.0	4	mean±SD	8.3±3.4	59.8±19.3	148±49	305±100	403±73	31±5.0	–	42±21	2.3±1.5	–	11
,,	blubber	1999	m	1.6±1.9	92.1±6.1	6	mean±SD	6.9±0.8	83.7±28.4	285±102	528±213	645±254	43±11	–	52±29	3.0±1.8	–	11
,,	muscle	1999	f	3.4±3.1	5.5±8.1	9	mean±SD	0.4±0.6	2.5±3.9	5.9±9.4	9.8±17.1	23±29	1.7±2.2	–	1.7±2.7	0.09±0.10	–	11
,,	muscle	1999	m	1.3±1.4	5.3±5.3	10	mean±SD	0.4±0.5	3.8±6.3	9.3±12.8	17.6±23.9	31±30	2.0±2.1	–	2.2±3.2	0.11±0.12	–	11
,,	liver	1999	f	4.3±2.9	5.4±0.6	3	mean±SD	0.4±0.4	2.3±1.0	8.4±3.0	6.8±2.5	69±64	2.1±0.9	–	8.1±2.3	0.11±0.07	–	11
,,	liver	1999	m	1	5.6±0.9	2	mean±SD	0.3±0.1	2.0±0.8	10.7±1.4	10.4±2.9	24±0.4	1.8±0.2	–	6.5±3.0	0.14±0.05	–	11
,,	kidney	1999	f	4.3±2.9	3.9±0.5	3	mean±SD	0.3±0.1	0.8±0.2	1.5±0.5	2.2±0.7	12±2.0	0.6±0.0	–	1.2±0.7	0.04±0.01	–	11
,,	kidney	1999	m	1	3.6±0.5	2	mean±SD	0.2±0.1	0.8±0.2	2.0±1.1	2.1±0.3	8.0±2.0	0.7±0.2	–	0.9±0.2	0.03±0.01	–	11
,,	blubber	2000	f	1.0	92.5±3.0	6	mean±SD	6.3±2.1	59.9±19.0	264±107	301±102	235±79	198±63	49.0±73.3	–	–	–	12
,,	blubber	2000	m	1.3±1.2	91.2±2.8	14	mean±SD	8.0±2.1	69.5±21.3	268±101	298±148	237±89	203±79	13.2±11.4	–	–	–	12
NE Greenland																		
Ittoqqortoormiit	blubber	1999	f	4.7±2.6	101±16.3	8	mean±SD	12.4±2.3	97.8±63.3	287±140	598±244	921±470	339±470	–	61±14	7.2±4.9	–	13
,,	blubber	1999	m	4.7±2.9	102±14.0	11	mean±SD	9.1±5.4	108±64.1	395±368	671±381	969±828	312±227	–	106±87	8.3±10.5	–	13
,,	liver	1999	f	4	5.3±0.8	3	mean±SD	0.61±0.10	2.8±1.1	10.7±1.6	12.6±2.7	35.9±18.3	2.67±1.84	–	7.6±1.8	0.62±0.47	–	13
,,	liver	1999	m	6.5±4.9	6.6±1.6	2	mean±SD	0.94±0.49	5.1±4.2	34.0±24.2	47.0±38.1	111±86	8.4±6.0	–	8.3±2.2	1.72±1.36	–	13
,,	muscle	1999	f	4.7±2.6	12.2±6.9	9	mean±SD	1.99±1.74	11.3±9.0	30.0±22.6	95.0±95.8	181±182	19.2±23.1	–	6.8±5.3	1.67±1.95	–	13
,,	muscle	1999	m	4.7±2.9	11.9±10.3	11	mean±SD	1.44±1.57	11.6±19.2	30.9±42.7	42.8±25.7	111±160	8.7±12.7	–	10.6±16.0	0.89±1.24	–	13
,,	blubber	2000	f	4.4±2.4	90.0±3.4	11	mean±SD	14.9±6.1	93.1±59.1	461±301	892±304	924±171	719±158	41.4±60.1	–	–	–	12
,,	blubber	2000	m	4.5±2.3	88.1±5.9	8	mean±SD	15.1±7.7	83.6±30.3	558±487	1050±1220	1450±1750	1190±1520	26.9±20.5	–	–	–	12
Barents Sea																		
Kongsfjorden, Svalbard	blubber	–	f	4	–	7	mean, 95%CI	–	–	–	–	910, 795-1050	–	35.4	–	–	–	14
,,	blubber	–	m	4	–	7	mean, 95%CI	–	–	–	–	1800, 1330-2410	–	43.3	–	–	–	14
,,	blubber	–	juv	≤4	–	14	mean, 95%CI	–	–	–	–	444, 398-494	–	23.4	–	–	–	14
,,	blubber	1992	f	6.0±1.4	84.6-98.0	4	range	–	–	–	639-1332	1010-2650	–	–	–	–	–	15
,,	blubber	1992	m	7.3±3.9	84.9-89.8	4	range	–	–	–	783-5300	696-6500	–	–	–	–	–	15
,,	blubber	1992	m,f	1.7±0.6	75.4-95.4	3	range	–	–	–	272-1850	382-1680	–	–	–	–	–	15
,,	blubber	1995	m	12 (5-16)	95(91-97)	6	mean (range)	13(10-24)	74(45-126)	804(368-1460)	2580(861-5510)	2660(946-5440)	–	–	–	–	–	16
Svalbard	blubber	1996	f	8.5±6.6	–	11	mean	–	–	–	375	963	702	–	–	–	–	1
,,	blubber	1996	m	7.6±5.1	–	8	mean	–	–	–	643	1520	1120	–	–	–	–	17
Kongsfjorden, Svalbard	blood	1994-1996	f	–	0.65±0.13	6	mean	0.11	0.35	0.74	1.07	2.19	–	–	–	0.07	–	18
,,	blood	1994-1996	m	–	0.75±0.15	6	mean	0.11	0.32	1.40	4.66	4.69	–	–	–	0.09	–	18

Continued next page.

Annex Table 12 continued.

Species/Region/Location	Tissue	Year	Sex	Age, years	% lipid	n	Statistic	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	ΣPBDEs	Ref.
Russia																		
Sorocskaya Guba Bay, White Sea	blubber	1993	m,f	(1- >15)	–	12	mean (range)	17 (14-30)	–	–	3200(2100-6500)	2600(1800-4400)	–	–	–	–	–	19
Dvina Bay, White Sea	blubber	1998	m,f	1.1±0.6	86.4±6.0	17	mean±SD	9.9±7.1	42.8±15.0	171±132	1530±1250	1500±931	1070±677	166±233	–	8.8±5.5	–	20
Gorlo Basin, White Sea	blubber	2001	f	6.6±3.1	92.2±2.1	9	mean±SD	24.5±15.1	19.2±7.7	39.9±24.9	517±123	1170±388	759±238	–	–	–	–	20
,,	blubber	2001	m	6.8±3.1	91.0±2.5	15	mean±SD	17.7±3.5	20.8±10.1	40.1±23.9	587±256	1120±445	705±310	–	–	–	–	20
Lavrentiya, Chukotka Peninsula	blubber	2001	f	1-3	–	3	mean±SD	–	49.1±11.1	27.6±6.72	48.1±23.9	97.0±9.45	–	–	–	1.95±0.31	–	21
,,	blubber	2001	m	1-3	–	3	mean±SD	–	63.8±10.9	72.8±24.4	82.4±27.5	110±42.3	–	–	–	3.74±0.85	–	21
,,	liver	2001	f	1-3	–	3	mean±SD	–	1.29±0.23	0.38±0.06	1.74±0.17	2.58±0.46	–	–	–	<0.05	–	21
,,	liver	2001	m	1-3	–	3	mean±SD	–	1.10±0.30	0.65±0.47	1.78±0.62	2.44±0.93	–	–	–	<0.05	–	21
,,	kidney	2001	f	1-3	–	3	mean±SD	–	0.94±0.12	0.69±0.30	1.26±0.50	2.92±0.47	–	–	–	<0.05	–	21
,,	kidney	2001	m	1-3	–	3	mean±SD	–	0.74±0.33	0.65±0.22	1.28±0.61	1.26±0.35	–	–	–	<0.05	–	21
,,	muscle	2001	f	1-3	–	3	mean±SD	–	1.49±0.26	0.94±0.12	1.91±0.40	2.65±0.20	–	–	–	<0.05	–	21
,,	muscle	2001	m	1-3	–	3	mean±SD	–	0.61±0.14	0.60±0.19	1.19±0.32	1.73±0.40	–	–	–	<0.05	–	21
Yenisey River estuary, Kara Sea	blubber	1995	m	4.8±2.2	89±3.6	29	mean	25	160	420	3200	3700	–	–	–	–	–	33
,,	blubber	1995	f	6.3±5.6	92±1.4	9	mean	23	110	360	2100	3100	–	–	–	–	–	33
Harp seal																		
Barents Sea																		
E of Svalbard	blubber	1997	–	≤4	–	13	geo. mean (95% CI)	49.1(43.5-76.7)	53.1(52.7-74.0)	249(221-389)	297(278-437)	(247-381)	261	422(418-587)	45.1	–	–	22, 23
,,	blubber	1995	m	19(6-27)	85(71-96)	7	mean (range)	230(44.2-813)	91.8(35.7-150)	4290(329-7560)	5820(1240-8840)	9440(1780-17300)	–	–	–	–	–	16
N of White Sea	blubber	1993	m	10(7-18)	94(92-97)	9	mean (range)	77.1(34.8-183)	84(61.1-112)	1020(324-2240)	1590(514-3730)	2300(704-4860)	–	–	–	–	–	16
White Sea																		
Gorlo Basin	blubber	1998	f	14.2±4.1	85.1±3.7	20	mean±SD	43.7±15.1	29.4±8.7	282±134	525±276	904±429	596±319	548±148	–	65.2±40.2	–	20
,,	blubber	1998	m,f	<0.1	68.3±3.1	10	mean±SD	49.3±29.5	29.8±8.3	157±55.0	340±104	403±123	236±74.9	658±234	–	2.9±1.1	–	20
,,	blubber	1992	m,f	<0.1	80.4±9.7	11	mean±SD	145±101	69.3±22.0	526±240	710±437	1140±547	795±388	–	–	12.0±7.5	–	20
Harbour seal																		
Gulf of Alaska																		
Prince William Sound	blubber	1992-1993	f	adults	89	2	mean±SD	9.0±1.0	–	91±11	139±9.0	233±7.0	–	–	3.5±0.5	–	–	3
,,	blubber	1992-1993	m	pup,adults	66	3	mean±SD	13.7±2.6	–	281±38	430±67	599±143	–	–	6.3±2.1	–	–	3
Barents Sea																		
Jarfjord, N. Norway	blubber	1989-1990	m,f	7 (1-17)	92±2	7	geo. mean	10.1	73.6	647	1900	4490	–	–	–	–	–	24
Grey seal																		
Faroe Islands																		
–	blubber	1993-1995	m	>8yr (adults)	–	4	mean	–	–	–	–	4900	–	–	–	–	–	25,26
–	blubber	1993-1995	f	adults, pregnant	–	20	mean	–	–	–	–	540	–	–	–	–	–	25,26
–	blubber	1993-1995	–	2-4 yrs (juveniles)	–	21	mean	–	–	–	–	1200	–	–	–	–	–	25,26
Barents Sea																		
Jarfjord, N Norway	blubber	1989-90	m,f	10 (0.2-26)	93±3	23	geo. mean	40	26	684	1840	5220	–	–	–	–	–	24
Bearded seal																		
Alaska																		
Barrow	blubber	2000	f	4-18	76.8±6.30	4	mean±SE	32.0±13.2	98.7±67.5	155±2.12	132±12.7	284±43.0	–	–	9.54±4.04	27.2±1.79	–	1
,,	blubber	2000	m	2-4	83.1±4.40	3	mean±SE	19.8±2.17	76.6±6.56	232±7.62	188±44.3	305±53.5	–	–	4.95±1.05	10.8±1.44	–	1
Norton Sound	blubber	1993-1995	f	–	78	1	–	6.6	–	168	96	199	–	–	4.5	–	–	3
,,	blubber	1993-1995	m	mature	80±5	5	mean±SD	4.0±2.7	–	152±159	104±133	153±110	–	–	3.5±3.0	–	–	3
Barents Sea																		
Kongsfjorden, Svalbard	blood	1994-1996	f	–	0.39±0.13	6	mean±SD	0.018±0.010	0.26±0.18	0.22±0.16	0.18±0.16	0.62±0.51	–	–	–	0.050±0.015	–	18
,,	blood	1994-1996	m	–	0.39±0.12	6	mean±SD	0.036±0.005	0.310±0.072	0.52±0.11	0.63±0.28	0.97±0.36	–	–	–	0.041±0.013	–	18
Russia																		
Dvina Bay, White Sea	blubber	1998	m	2.5	84.8	2	mean	6.7	14.3	396	3360	3540	2860	518	–	25.3	–	20
Lavrentiya, Chukotka Peninsula	blubber	2001	m	2-3	–	2	mean±SD	–	8.92±2.72	34.4±3.20	50.5±15.4	87.2±11.8	–	–	–	1.22	–	21
,,	liver	2001	m	2-3	–	2	mean±SD	–	0.33±0.08	0.64±0.35	1.99±0.42	3.48±0.32	–	–	–	0.12	–	21
,,	kidney	2001	m	2-3	–	2	mean±SD	–	0.59±0.12	1.63±0.18	2.63±0.76	4.72±0.39	–	–	–	<0.05	–	21
,,	muscle	2001	m	2-3	–	2	mean±SD	–	<0.10	0.18±0.18	1.31±0.97	2.07±0.11	–	–	–	<0.05	–	21
Spotted seal																		
Russia																		
Lavrentiya, Chukotka Peninsula	blubber	2001	f	1-2	–	5	mean±SD	–	60.1±25.5	39.7±16.2	68.9±32.0	127±23.0	–	–	–	1.73±0.92	–	21
,,	blubber	2001	m	1-2	–	5	mean±SD	–	51.4±13.4	34.2±7.00	48.8±7.03	121±15.6	–	–	–	2.44±1.98	–	21
,,	liver	2001	f	1-2	–	5	mean±SD	–	1.39±0.53	0.63±0.22	2.47±0.58	3.15±1.12	–	–	–	<0.05	–	21
,,	liver	2001	m	1-2	–	5	mean±SD	–	1.35±0.31	0.66±0.33	2.47±1.31	2.66±0.91	–	–	–	<0.05	–	21
,,	kidney	2001	f	1-2	–	5	mean±SD	–	0.79±0.36	0.46±0.22	1.05±0.23	1.77±0.35	–	–	–	£0.10	–	21
,,	kidney	2001	m	1-2	–	5	mean±SD	–	0.69±0.22	0.40±0.21	0.95±0.38	1.58±0.33	–	–	–	<0.05	–	21
,,	muscle	2001	f	1-2	–	5	mean±SD	–	3.32±0.98	1.92±1.23	5.64±1.73	8.02±1.56	–	–	–	0.15±0.01	–	21
,,	muscle	2001	m	1-2	–	5	mean±SD	–	2.26±0.76	1.73±0.28	3.73±0.70	7.27±1.62	–	–	–	0.16±0.04	–	21

Continued next page.

Annex Table 12 continued.

Species/Region/Location	Tissue	Year	Sex	Age, years	% lipid	n	Statistic	HCB	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	ΣPBDEs	Ref.
Steller sea lion																		
Gulf of Alaska																		
SE Alaska	blubber	1998-2000	–	7<12mo, 3~23mo.	38.0±10.4	10	mean	–	–	–	616	631	–	–	–	–	–	27
Prince William Sound	blubber	1998-2000	–	14<12mo, 5~23mo.	32.0±80.3	19	mean	–	–	–	435	467	–	–	–	–	–	27
Northern fur seal																		
Alaska																		
Pribilof Islands	blubber	1997-2000	m,f	subadults	58.6±11.0	10	mean	–	–	–	1710	1190	–	–	–	–	–	27
,,	blubber	1997-2000	–	pups	35.3±20.6	3	mean	–	–	–	4170	2130	–	–	–	–	–	27
,,	blubber	1997-2000	f	adults	45.7±4.27	4	mean	–	–	–	3050	1350	–	–	–	–	–	27
,,	blubber	1997-2000	–	fetuses	38.5±21.9	2	mean	–	–	–	1810	624	–	–	–	–	–	27
St. Paul Isl., Pribilof Islands	blubber	1990	m	2-3, subadults	54±14	7	mean±SD	0.6±0.7	–	792±361	2710±1470	1340±522	–	–	52.3±85.5	–	–	3
St. George Isl., Pribilof Islands	blood	1996		neonates of young dams	0.30±0.39	23	mean±SD	–	–	–	13.2±11.7	22.8±7.62	–	–	–	–	–	28
,,	blood	1996		neonates of old dams	0.22±0.15	25	mean±SD	–	–	–	2.94±2.16	18.5±5.53	–	–	–	–	–	28
,,	blood	1996		pups of young dams	0.28±0.48	21	mean±SD	–	–	–	6.64±3.42	16.2±4.54	–	–	–	–	–	28
,,	blood	1996		pups of old dams	0.31±0.32	21	mean±SD	–	–	–	6.05±4.72	19.1±7.26	–	–	–	–	–	28
Walrus																		
Bering Sea																		
Russia & Alaska	blubber	1991	m	13.1±9.5	78.6±11.8	8	mean±SD	n.d.	120±50	140±90	n.d.	450±410	–	–	80±30	n.d.	–	29
,,	blubber	1991	f	15.2±9.7	82.7±3.7	19	mean±SD	n.d.	90±50	60±60	n.d.	160±160	–	–	50±50	n.d.	–	29
Alaska	blubber	1993-1996	m	8–25	67.2± 12.7	9	mean±SD	<0.6-2.06	96.0±55.3	111±56.8	6.1±3.7	107±58.3	–	–	51.2±23.5	–	–	30
,,	blubber	1993-1996	f	5–10	81.4± 2.15	5	mean±SD	<0.6	138±79.3	71.4±33.9	5.5±1.22	63.0±30.7	–	–	62.3±34.4	6.35± 3.02	–	30
,,	blubber	1996	f	calf	64.3	1	–	<0.6	90.8	22.8	4.3	21.2	–	–	28.3	<1	–	30
Canada																		
E Hudson Bay	blubber	1999	–	–	84.3±3.96	6	mean±SD	0.33±0.06	104±47.8	291±167	53.9±34.5	300±157	129±81.7	–	–	–	–	31
NW Greenland																		
Avanersuaq	blubber	1978	m	15±3	79.6±14.8	8	mean±SD	0.97±0.68	74.9±52.8	89.1±62.2	60.7±43.2	246±138	–	321±95.0	46.5±35.4	7.91±6.23	–	32
,,	blubber	1978	f	15±4	85.8±5.2	9	mean±SD	0.74±0.48	60.1±51.2	71.0±60.6	48.2±50.4	189±131	–	212±89.0	25.2±18.4	4.71±3.83	–	32
,,	blubber	1988	m	10±0	86.9±4.7	5	mean±SD	0.92±0.35	109±29	116±45.0	79.3±48.2	301±99.0	–	319±39.0	100±59.0	8.86±1.92	–	32
,,	blubber	1988	f	10±1	86.3±3.4	11	mean±SD	1.04±0.54	107±20	98.6±38.9	70.4±39.0	244±67.0	–	314±41.0	85.9±43.5	7.36±2.72	–	32
NE Greenland																		
Ittoqqortoormiit	blubber	1989	m	18±6	83.7±2.2	8	mean±SD	1.52±0.37	66.7±34.1	744±226	3410±1350	2860±1010	–	1610±305	761±215	19.4±7.0	–	32

$ΣPCB_{10}$ = sum of 28, 31,52, 101, 105, 118, 138, 153, 156, 180.
n.d. = not detected;

References

1. Hoekstra, 2003a; ΣCBz = sum of 1,2-diCBz, 1,4-diCBz, 1,2,3-triCBz, 1,2,4-triCBz, 1,3,5-triCBz, 1,2,3,4-tetraCBz, 1,2,3,5-tetraCBz, pentaCBz, and hexaCBz; ΣCBz = sum of 1,2-diCBz, 1,4-diCBz, 1,2,3-triCBz, 1,2,4-triCBz, 1,3,5-triCBz, 1,2,3,4-tetraCBz, 1,2,3,5-tetraCBz, pentaCBz, and hexaCBz; ΣHCHs = sum of α-, β-, γ-, and δ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, and *cis*-heptachlor epoxide; ΣDDTs = sum of *o,p'*- and *p,p'*-DDD, -DDE, and -DDT; ΣPCBs = sum of 101 congeners (4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16, 32, 54/29, 26, 25, 50, 31/28, 33/21/53, 51, 22, 45, 46, 52/49, 43, 47/48, 44, 59, 42, 64, 41/71, 40, 100, 63, 74, 76/98, 70, 95, 66, 91, 55, 56/60, 92/84, 101, 99, 119, 83, 97, 87, 81, 85, 136, 110, 82, 151, 135, 144, 107/147, 149/133, 118, 114, 143, 141, 145, 153, 132, 105, 141/179, 137, 176/130, 163, 138, 158, 129/178, 175, 187, 182, 183, 128, 167, 185, 174, 177, 171, 156, 202/173, 172, 197, 180/193, 191, 199, 170/190, 198, 201, 176/203, 189, 206, 195, 207, 194, 205, 208, 209).
2. Kucklick and Krahn, 2002; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of oxychlordane, heptachlor, heptachlor epoxide, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = sum of 2,4'- and 4,4'-DDD, DDE, and DDT; ΣPCBs = sum of 29 congeners.
3. Krahn *et al*., 1997; ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*-chlordane, *trans*-nonachlor, and oxychlordane; ΣDDTs = sum of *o,p'*- and *p,p'*-DDD, -DDE, and -DDT; ΣPCBs = sum of 17 congeners (18, 28, 44, 52, 66, 101, 105, 118, 128, 138, 153, 170, 180, 187, 195, 206, 209).
4. Muir *et al*., 1999c; ΣHCHs = sum of α-, β-, and γ-HCH, ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor, ΣDDTs = sum *o,p'*- and *p,p'*-DDE, -DDD, and -DDT, ΣPCBs = sum 103 congeners (1, 3, 4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33, 20, 53, 51, 22, 45, 46, 52, 49, 43, 48/47, 44, 59, 42, 64/41/71, 40, 100, 63, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 87/81, 85, 136, 110, 82, 151, 135/144, 147, 107, 149, 118, 133, 114, 134/131, 146, 153, 132, 105, 141, 179, 137, 176, 130, 138/163, 158, 129, 178, 175, 187/182, 183, 128, 167, 185, 174, 177, 202/171, 156, 173, 157/201, 172, 197, 180, 193, 191, 200, 170/190, 198, 199, 203/196, 189, 208/195, 207, 194, 205, 206, 209); Toxaphene = total toxaphene.
5. Environmental Sciences Group (ESG), 2002.
6. Muir *et al*., 2001c; ΣHCHs = sum of α-, β-, and γ-HCH, ΣCHLs = sum of heptachlor, heptachlor epoxide, *trans*- and *cis*-chlordane, and *trans*- and *cis*-nonachlor, ΣDDTs = sum *o,p'*- and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 86 peaks (103 congeners: 1, 3, 4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33, 20, 53, 51, 22, 45, 46, 52, 49, 43, 48/47, 44, 59, 42, 64/41/71, 40, 100, 63, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 87/81, 85, 136, 110, 82, 151, 135/144, 147, 107, 149, 118, 133, 114, 134/131, 146, 153, 132, 105, 141, 179, 137, 176, 130, 138/163, 158, 129, 178, 175, 187/182, 183, 128, 167, 185, 174, 177, 202/171, 156, 173, 157/201, 172, 197, 180, 193, 191, 200, 170/190, 198, 199, 203/196, 189, 208/195, 207, 194, 205, 206, 209); Toxaphene = total toxaphene.
7. Muir *et al*., 1999d; ΣDDTs = *o,p'* and *p,p'*-DDD, -DDT, and -DDE; ΣPCBs = 102 congeners; Toxaphene = determined by GC-ECD; ΣPBDEs = sum of mono-, di-, tri-, tetra-, penta-, hexa-, and hepta-brominated diphenyl ethers.
8. Fisk *et al*., 2002c; HCB = sum of 1,2,4,5-TeCBz, 1,2,3,4-TeCBz, pentaCBz, and hexaCBz; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, and oxychlordane. ΣDDTs = sum of *p,p'*- and *o,p'*-DDD, -DDE, and -DDT; ΣPCBs = sum of 77congeners (1, 3, 4/10, 7, 6, 8/5, 19, 18, 17, 24/27, 16/32, 26, 25, 31, 28, 33, 22, 45, 46, 52, 49, 47, 48, 44, 42, 41/71, 64, 40, 74, 70/76, 95/66, 56/60, 91, 84/89, 101, 99, 83, 97, 87, 85, 136, 110, 82, 151, 144/135, 149, 118, 134, 114, 131, 146, 153, 132, 105, 141, 130/176, 179, 137, 138, 158, 178/129, 175, 187, 183, 128, 185, 194, 196/203, 189, 208, 195, 207, 194, 205, 206, 209).
9. Denmark, 2002; ΣHCHs = sum of α-, β-, γ-, and δ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, and heptachlor epoxide; ΣDDTs = sum of *p,p'*-DDD, -DDE, and -DDT; ΣPCBs = sum of 59 congeners
10. Muir and Johansen, 2001; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, heptachlor epoxide, and methoxychlor; ΣDDTs = sum of *o,p*- and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 104 congeners (1, 3, 4/10, 7/9, 6, 8/5, 19, 30, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33/20, 53, 51, 22, 45, 46, 52, 43, 49, 47/48, 44, 59, 42, 71/41/64, 40, 100, 63, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 81/87, 85, 136, 110, 82, 151, 135/144, 147, 107, 149, 118, 133, 114, 134/131, 146, 153, 132, 105, 141, 179, 137, 176, 130, 163/138, 158, 129, 178, 175, 182/187, 183, 128, 167, 185, 174, 177, 202/171, 156, 173, 157/200, 204, 172, 197, 180, 193, 191, 199, 170/190, 198, 201, 203/196, 189, 208/195, 207, 194, 205, 206, 209)
11. Denmark, 2002; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, heptachlor epoxide, and methoxychlor; ΣDDTs = sum of *o,p'*- and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 104 congeners (1, 3, 4/10, 7/9, 6, 8/5, 19, 30, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33/20, 53, 51, 22, 45, 46, 52, 43, 49, 47/48, 44, 59, 42, 71/41/64, 40, 100, 63, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 81/87, 85, 136, 110, 82, 151, 135/144, 147, 107, 149, 118, 133, 114, 134/131, 146, 153, 132, 105, 141, 179, 137, 176, 130, 163/138, 158, 129, 178, 175, 182/187, 183, 128, 167, 185, 174, 177, 202/171, 156, 173, 157/200, 204, 172, 197, 180, 193, 191, 199, 170/190, 198, 201, 203/196, 189, 208/195, 207, 194, 205, 206, 209).
12. Denmark, 2002; ΣHCHs and ΣDDTs see footnote 11, but ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, and *cis*- and *trans*-nonachlor; ΣPCBs = sum of 22 congeners; Toxaphene = sum of Parlars 26, 40, 41, 44, 50, and 62.
13. Denmark, 2002; see footnote 11 except ΣPCBs = sum of 102 congeners .
14. Wolkers *et al*., 1998b; ΣPCBs = sum of 15 congeners (28, 52, 74, 99, 101, 105, 118, 128, 138, 149, 153, 156, 170, 180, 187); Toxaphene = 3 times sum of Parlars 26 and 50. Wet weight values estimated assuming 85% lipid content.
15. Severinsen *et al*., 2000; ΣDDTs = *p,p'*-DDE only; ΣPCBs = sum of 12 congeners (99, 101, 105, 118, 128, 138, 149, 153, 156, 170, 180, 187); used data from animals back, ranges include inner and outer layers of blubber. Wet weight values estimated assuming 90% lipid content.
16. Kleivane *et al*., 2000; ΣHCHs = γ-, α-, and β-HCH; ΣCHLs = oxychlordane and *trans*-nonachlor; ΣDDTs = *p,p'*-DDT and -DDE; ΣPCBs = sum of 16 congeners (66, 101, 99, 118, 153, 105, 138, 187, 128, 156, 157, 180, 170, 194, 206, 209). Wet weight values estimated assuming mean % lipid level.

17. Nyman *et al.*, 2002; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 33 congeners (18, 33, 51, 52, 49, 47, 74, 80, 66, 60, 101, 99, 110, 123, 118, 114, 122, 105, 153, 141, 138, 167, 128, 156, 157, 180, 170, 187, 183, 189, 194, 206, 209). Wet weight values estimated assuming 90% lipid content.
18. Bang *et al.*, 2001; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = oxychlordane, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = *o,p*'-DDD and -DDT, *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 33 congeners (31, 28, 52, 47, 74, 66, 56, 101, 99, 87, 136, 110, 151, 149, 118, 114, 153, 105, 141, 137, 138, 187, 128, 156, 157, 180, 170, 199, 196, 189, 194, 206, 209). Wet weight values estimated assuming mean % lipid level.
19. Kostamo *et al.*, 2000; ΣDDTs = sum of *p,p*'-DDT, -DDE, and -DDD; ΣPCBs = sum of 7 congeners (28, 52, 101, 118, 138, 153, 180).
20. Muir *et al.*, 2000c; see footnote 5
21. RAIPON/AMAP/GEF Project, 2001; ΣCBz = 1, 2, 3, 4-, 1, 2, 3, 5-, and 1, 2, 4, 5-tetrachlorobenzene, and hexachlorobenzene; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 15 congeners (28, 31, 52, 99, 101, 105, 118, 128, 138, 153, 156, 170, 180, 183, 187); Toxaphene = sum of Parlars 26, 50, 62; ΣPBDEs = sum of 2,2',4,4'-tetrabromodiphenyl, 2,2',4,4',5-pentabromodiphenyl and 2,2',4,4',5'-pentabromodiphenyl ethers.
22. Wolkers *et al.*, 1999, Wet weight values estimated assuming 85% lipid content, to revert to actual lipid weight values divide all values by 0.85.
23. Wolkers *et al.*, 2000; ΣHCHs = sum α-, β-, and γ-HCH; ΣCHLs = sum *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, oxychlordane, heptachlor epoxide, U82, MC5, and MC7; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; Toxaphene = 3 times sum of Parlars 26 and 50. Wet weight values estimated assuming 85% lipid content.
24. Ruus *et al.*, 1999; ΣHCHs = sum of α-, β-, and γ- HCH; ΣCHLs = sum of oxychlordane and *trans*-nonachlor; ΣDDTs = sum of *p,p*'-DDT, -DDD and -DDE, and *o,p*'-DDD; ΣPCBs = sum of 17 congeners (28, 99, 101, 105, 118, 128, 138, 141, 153, 156, 157, 170, 180, 187, 194, 206, 209). Wet weight values estimated assuming mean % lipid level.
25. Larsen and Dam, 1999; ΣPCBs = congener 153.
26. Dam, 2001; ΣPCB = congener 153.
27. Beckmen, 2002; ΣDDTs = *p,p*'-DDE only; ΣPCBs = sum of 11 congeners (101/99/149/196, 105, 110, 118, 128, 138, 153/87, 156, 157, 170/194, 180). Wet weight values estimated assuming mean % lipid level.

28. Beckmen et al., 1999; ΣDDTs = sum of *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 11 congeners (101/99/149/196, 105, 110, 118, 128, 138, 153/87, 156, 157, 170/194, 180).
29. Seagars and Garlich-Miller, 2001; ΣHCHs = sum of α-, β-, γ-, and δ-HCH; ΣCHLs = sum of heptachlor epoxide, oxychlordane, *cis*- and *trans*-chlordane, and *cis*-nonachlor; ΣDDTs = sum of *o,p*' and *p,p*'-DDD, -DDE and DDT;
30. Kucklick and Struntz, 2002; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, and heptachlor epoxide; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and-DDT; ΣPCBs = sum of 35 congeners (8, 18, 29, 31/50, 28, 52, 49, 104, 44, 95, 66, 101, 99, 87, 154, 110, 151, 154, 149, 118, 188, 153, 105, 138, 187, 183, 128, 201, 156, 180, 170, 195, 194, 206, 209).
31. Muir and Kwan, 2000; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of oxychlordane, *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, heptachlor, and heptachlor epoxide; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCB = sum of 92 congeners (1, 3, 4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33/20, 53, 51, 22, 45, 46, 52, 43, 49, 47/48, 44, 59, 42, 71/41/64, 40, 100, 63, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 81/87, 85, 136, 110, 82, 151, 135/144, 147, 137, 176, 130, 163/138, 158, 129, 178, 175, 182/187, 183, 128, 167, 185, 174, 177, 202/171, 156, 173, 157/200, 172, 197, 180, 193, 191, 199, 170/190, 198, 201, 203/196, 189, 208/195, 207, 194, 205, 206, 209).
32. Muir *et al.*, 2000e; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of 'C', heptachlor, MC1, MC3, MC4, MC5, MC6, photoheptachlor, oxychlordane, *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, and heptachlor epoxide; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCB = sum of 85 congeners (8/5, 19, 18, 17, 24/27, 16/32, 26, 25, 31, 28, 33, 22, 45, 46, 52, 49, 47, 48, 44, 42, 41/71, 64, 40, 74, 70/76, 66, 95, 56/60, 91, 84/89, 101, 99, 83, 97, 87, 85, 136, 110, 82, 151, 144/135, 149, 118, 134, 114, 131, 146, 153, 132, 105, 141, 130/176, 179, 137, 138/163, 158, 178/129, 175, 187, 183, 128, 185, 174, 177, 171, 156, 201/157, 172/197, 180, 193, 191, 200, 170, 190, 198, 199, 196/203, 189, 208, 195, 207, 194, 205, 206, 209).
33. Nakata *et al.*, 1998a; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of oxychlordane, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = sum of 4,4'-DDE, -DDD, and -DDT; ΣPCBs = sum of 50 congeners (31/28, 41/64, 47, 49/69, 52, 58/74, 60, 66, 70, 83, 84/90/92, 85, 87/117, 91/95, 97/113, 99, 101, 102, 105, 118, 132, 137, 138, 141, 144/149, 151, 153, 156, 170, 172, 173, 177, 178, 180, 187, 194, 196/201, 198, 202 and 8 unidentified congeners).

Annex Table 13. Mean concentrations (ng/g ww) of organochlorines in cetaceans inhabiting Arctic waters.

Species/Region/Location	Tissue	Year	Sex	Age, years	Length, cm	% lipid	n	Statistic	HCB[a]	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	ΣPBDEs	Reference
MYSTICETES																			
Minke whales																			
W Greenland																			
Davis Strait	blubber	1998	f	juveniles, adults	683±124	72	34	mean±SD	81.8±73.9	67.9±58.7	311±261	650±561	2290±2900	–	595±732	275±203	6.49±10.0	–	1,2
Davis Strait	blubber	1998	m	juveniles, adults	663±117	73.3±14.8	8	mean±SD	83.3±61.8	73.3±25.6	356±213	732±383	2560±2130	–	671±627	262±75.5	5.69±4.69	–	1,2
SW Greenland																			
Ammassalik	blubber	1998	f	juveniles, adults	795±125	73.4±12.4	4	mean±SD	41.8±32.5	70.0±45.9	408±396	242±173	855±320	–	152±101	129±88.9	2.06±1.47	–	1,2
Greenland Sea																			
Jan Mayen	blubber	1998	f	juveniles, adults	775±53.2	73.7±8.6	19	mean±SD	72.3±36.3	36.6±13.7	279±99.1	809±653	1660±749	–	1630±1220	210±80.2	6.51±3.37	–	1,2
Jan Mayen	blubber	1998	m	juveniles, adults	645±48.0	75.1±5.6	4	mean±SD	127±24.5	41.3±4.36	491±230	1320±425	3430±2000	–	2740±4250	326±149	11.9±4.56	–	1,2
North Sea	blubber	1998	f	juveniles, adults	786±94.9	66.3±12.5	14	mean±SD	44.1±47.5	45.7±18.1	254±134	621±380	1220±816	–	1240±928	326±160	4.55±3.53	–	1,2
North Sea	blubber	1998	m	juveniles, adults	755±65.2	66.9±12.9	9	mean±SD	241±412	76.4±40.2	572±299	2130±1630	4100±2930	–	3470±1890	593±492	36.5±81.3	–	1,2
North Sea	blubber	2001	f	adults	783(639-881)	72(43-88)	5	mean (range)	–	–	–	–	2190(876-3650)	–	–	–	–	–	3
Norwegian Sea																			
Vestfjorden/Lofoten	blubber	1998	f	juveniles, adults	719±128	82.4±8.0	7	mean±SD	72.0±42.9	40.5±22.3	318±194	549±289	1120±816	–	185±106	250±149	6.35±9.54	–	1,2
Vestfjorden/Lofoten	blubber	1998	m	juveniles, adults	624±151	71.3±10.4	7	mean±SD	93.6±32.9	56.2±14.9	484±284	1750±1550	2570±1860	–	262±131	509±324	7.88±8.13	–	1,2
Barents Sea																			
West Svalbard	blubber	1998	f	juveniles, adults	768±41.1	57.3±12.0	15	mean±SD	67.3±43.0	38.1±15.1	209±83.6	510±238	1420±610	–	1090±644	226±87.6	5.75±3.44	–	1,2
West Svalbard	blubber	1998	m	adult	700	79.2	1	mean	27.4	39.2	126	541	1410	–	785	225	6.28	–	1,2
Spitsbergen	blubber	2001	f	adult	775(698-832)	63(35-75)	5	mean (range)	–	–	–	–	461(162-595)	–	–	–	–	–	3
NW Kola Peninsula	blubber	1998	f	juveniles, adults	757±19.3	65±8.1	30	mean±SD	89.8±44.1	37.4±20.2	343±271	693±282	2360±1330	–	589±547	238±113	6.36±3.86	–	1,2
NW Kola Peninsula	blubber	1998	m	adults	764±42.9	67.5±3.4	3	mean±SD	176±45.5	84.1±35.9	475±127	1830±1240	4820±2280	–	1090±902	398±143	8.08±3.91	–	1,2
N Norway, NW Russia	blubber	1992	m	adults	797(720-878)	89(82-97)	22	mean (range)	231.4(107-338)	133(53.4-347)	1450(427-4510)	3440(1130-13140)	5140(2030-18500)	–	–	–	–	–	4
N Norway, NW Russia	blubber	1992	f	adults	773(670-882)	87(71-96)	22	mean (range)	165(69.6-374)	69.6(34.8-157)	652(244-1640)	1310(609-2930)	1970	–	–	–	–	–	4
N Norway, NW Russia	blubber	1992	m	juveniles	634(500-712)	90(85-90)	15	mean (range)	207(126-423)	81(36-162)	819(270-1760)	1750(468-4068)	2680(540-5240)	–	–	–	–	–	4
N Norway, NW Russia	blubber	1992	f	juveniles	625(485-742)	86(72-96)	13	mean (range)	310(146-929)	129(51.6-499)	1100(396-2740)	2380(808-5640)	3240(1190-8920)	–	–	–	–	–	4
Gray whales																			
Russia																			
Chirikov Basin, Bering Sea	blubber	1994	f	juveniles	884±28	48±6.1	13	mean±SE	240±41	–	–	180±40	680±98	–	–	–	–	–	5,6
Chirikov Basin, Bering Sea	blubber	1994	m	juveniles	833±26	48±11	4	mean±SE	200±16	–	–	87±10	480±130	–	–	–	–	–	5,6
Lavrentiya, Chukotka Peninsula	blubber	2001	m	2-3	–	–	1	–	–	135	101	93.0	195	–	–	–	1.58	–	7
Lavrentiya, Chukotka Peninsula	liver	2001	m	2-3	–	–	1	–	–	5.86	1.27	2.25	2.98	–	–	–	<0.05	–	7
Lavrentiya, Chukotka Peninsula	kidney	2001	m	2-3	–	–	1	–	–	1.44	0.42	0.73	1.87	–	–	–	<0.05	–	7
Lavrentiya, Chukotka Peninsula	muscle	2001	m	2-3	–	–	1	–	–	1.23	0.53	0.92	1.41	–	–	–	<0.05	–	7

Continued next page.

Annex Table 13 continued.

Species/Region/Location	Tissue	Year	Sex	Age, years	Length, cm	% lipid	n	Statistic	HCB[a]	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	ΣPCB_{10}	Toxaphene	Dieldrin	Mirex	ΣPBDEs	Reference
Bowhead whales																			
Bering-Chukchi-Beaufort Sea																			
Barrow & Kaktovik, Alaska	blubber	1997-2000	m,f	–	–	75.8±1.6	71	mean±SE	106±7.5*	230±13	183±11	331±55	359±28	–	455±45	–	–	–	8
,,	liver	1997-2000	m,f	–	–	6.6±0.4	23	mean±SE	4.2±0.4*	9.5±0.5	5.5±0.5	3.7±0.3	9.1±0.9	–	8.8±5	–	–	–	8
ODONTOCETES																			
Beluga whales																			
Gulf of Alaska																			
Cook Inlet, Alaska	blubber	1992-97	f	9.9±5.6 (n=4)	–	89±4.9	10	mean±SD	150±130	–	300±220	590±450	790±560	–	–	57±50	9.1±3.7	–	9
,,	blubber	1992-97	m	9.3±0.9 (n=4)	–	90±1.4	10	mean±SD	220±93	–	560±250	1350±730	1490±700	–	–	92±47	13±5.6	–	9
Bering-Chukchi Sea																			
Point Lay, Alaska	blubber	1998-1999	m	–	–	84.8±1.82	20	mean±SE	238±20	212±36	1091±100	1979±213	2734±229	–	975±173	215±19	59±6.2	–	10
,,	blubber	1992		fetus	–	–	1	–	–	–	621	522	1215	–	3340	–	–	–	11
			f	16 (mother)	–	–	1	–	–	–	558	468	1130	–	2880	–	–	–	11
Point Lay, Alaska	blubber	1992	f	12(11-19)	–	–	3	mean (range)	–	–	560(288-891)	631(288-1050)	1260(630-1940)	–	2810(2140-3190)	–	–	–	11
,,	blubber	1992	m	9.5(6-13)	–	–	2	mean (range)	–	–	2860(2220-3490)	4500(2860-6150)	6600(4720-8480)	–	9000(3650-14300)	–	–	–	11
,,	blubber	1990-1996	f	16.4±7.5	–	89±4.1	8	mean±SD	230±280	–	790±610	930±850	1500±1120	–	–	120±96	22±6.6	–	9
,,	blubber	1990-1996	m	12.3±4.5	–	86±6.3	11	mean±SD	810±120	–	2420±460	3630±900	5200±900	–	–	390±86	63±21	–	9
Beaufort Sea																			
Point Hope, Alaska	blubber	1989	f	6.3(4.5-8)	–	92(89-94)	2	mean (range)	570(230-900)	–	1300(1080-1530)	1240(1140-1330)	2220(1880-2560)	–	–	210(140-280)	17(14-20)	–	9
W Canada																			
Hendrikson Island	brain	1992	m	–	441(427-457)	8.88(2.16-13.1)	3	mean (range)	45.3(32.0-68.3)	24.9(19.4-30.4)	13.1(9.90-13.5)	46(21.9-86.5)	130(107-173)	–	–	11.8	1.56	–	12
,,	liver	1992	m	–	441(427-457)	2.82(2.01-3.71)	3	mean (range)	37.9(17.0-70.4)	2.7(2.1-3.3)	19.8(17.2-23)	73.6(39.0-100)	132(85.8-172)	–	–	13.6	2.05	–	12
,,	muscle	1992	m	–	441(427-457)	0.98(0.61-1.31)	3	mean (range)	10.7(9.0-12.8)	1.0(0.5-1.4)	9(8.1-10.4)	28.2(16.5-43.9)	56.1(32.9-81.5)	–	–	4.71	0.70	–	12
,,	blubber	2001				92.2±4.21	10	mean±SD	418±265*	172±97.4	929±61	1120±846	2790±1060	–	2330±925	–	–	–	13
E Canada																			
Naskapoka R., E Hudson Bay	blubber	1999	f	–			2	mean (range)	203**(88.4-318)	120(97.1-142)	904(784-1020)	1300(1240-1360)	2220(2140-2300)	755(734-777)	–	–	–	–	14
,,	blubber	1999	m	–			8	mean±SD	253±97**	119±50.9	1460±768	2630±1930	3550±1950	1270±720	–	–	–	–	14
								(range)	(97.2-414)	(62.2-205)	(578-2860)	(732-6480)	(1260-7010)	(453-2540)					
W Hudson Bay	blubber	1993	f	–	–	35.3±16.9	4	mean±SD	256±127***	171±59.2	1240±232	1070±172	1490±225	–	–	318±124	15.4±5.04	–	15
,,	blubber	1993	m	–	–	40.7±19.0	6	mean±SD	340±76.7***	216±57.2	1590±293	2100±857	2200±363	–	–	477±134	20.2±4.47	–	15
Cumberland Sound	blubber	1982	m	9.7±5.4	–	90.8±2.4	8	mean±SD	455±66*	267±37	1650±372	5340±2550	4230±1360	–	9650±2390	616±108	–	–	16
,,	blubber	1986	m	5.6±1.7	–	91.2±2.3	17	mean±SD	379±93*	261±69	1420±313	3280±1050	2570±609	–	7760±1790	445±102	–	–	16
,,	blubber	1992	m	12.9±4.9	–	90.9±2.4	11	mean±SD	343±182*	189±48	2030±519	5650±1870	3990±1140	–	9430±2540	387±119	–	–	16
,,	blubber	1996-1997	m	13.5±5.4	–	89.8±4.1	17	mean±SD	694±226*	217±57	2110±552	5570±1740	4570±942	–	10600±3850	568±215	–	–	17
Kimmirut, NT	blubber	1994	f	21± 18	–	92.9±1.7	3	mean±SD	–	–	–	3540±2620	4390±3120	–	7350±4460	–	–	1.44±1.01	18
,,	blubber	1994	m	6±6	–	93.5±1.9	3	mean±SD	–	–	–	7110±3360	7650±2870	–	16300±8890	–	–	2.84±0.90	18
Central W Greenland																			
Saqqaq	blubber	2000	m,f	–	–	87.9±2.4	10	mean±SD	260±158*	136±72.2	1200±624	1560±765	2450±1130	1020±483	–	–	–	–	19
,,	kidney	2000	m,f	–	–	4.4±2.2	5	mean±SD	10.9±9.28*	2.48±1.99	21.2±19.0	35.2±36.5	76.7±72.9	26.1±24.3	–	–	–	–	19
,,	liver	2000	m,f	–	–	6.8±3.0	5	mean±SD	13.3±7.96*	2.60±1.22	17.4±8.59	24.1±12.1	55.3±25.2	20.4±8.93	–	–	–	–	19
,,	muscle	2000	m,f	–	–	2.3±1.0	20	mean±SD	8.20±5.55*	2.64±1.60	23.6±20.1	29.2±25.2	59.5±46.0	21.7±17.9	–	–	–	–	19
,,	skin	2000	m,f	–	–	3.6±0.8	5	mean±SD	6.76±4.97*	3.10±1.45	44.7±24.4	57.1±26.5	78.5±42.6	35.4±18.8	–	–	–	–	19
Barents Sea																			
E Spitsbergen (Svalbard)	blubber	1998	m,f	sub-adults	–	–	5	geo. mean	2.97	–	848	3440	2970	–	1420	–	–	–	20
Svalbard	blubber	1995-97	m	adults	–	28±30	10	mean	142	43.4	804	1430	1430	–	3190	319	–	–	21,22
,,	blubber	1998	m,f	juveniles, adults	205-440	4-90	9	range	–	–	–	–	–	–	–	–	–	17-170	23
Narwhals																			
Canada																			
Broughton Isl., E. Baffin Island	blubber	1993-1996	f	–	398±62	84.4±4.0	18	mean±SD	440±177*	112±41	1470±482	3610±1340	3890±1330	–	5150±1410	–	–	–	13
,,	blubber	1993-1997	m	–	443±45	86.6±4.5	32	mean±SD	512±191*	126±48	1750±610	4830±2270	4820±1830	–	7440±4030	–	–	–	13
Grise Fiord, Jones Sound	blubber	1993-1995	f	–	394	82.5±5.4	2	mean±SD	332±115*	81±3.4	1420±96	3800±417	3500 ±440	–	8090±210	–	–	–	13
,,	blubber	1995-1999	m	–	407±93	87.6±4.6	13	mean±SD	369±130*	102±32	1500±450	4020±1750	3440±955	–	7950±1960	–	–	–	13
Pangnirtung, SE Baffin Island	blubber	1996	m	–	358±54	91.2±3.9	5	mean±SD	458 ±70*	117±31	1850±348	4950±1990	4600±1090	–	8760±3670	–	–	–	13
Pond Inlet, NE Baffin Island	blubber	1994-1999	f	–	393±33	92.1±4.8	10	mean±SD	344±84*	114±32	1610±525	4470±945	2980±721	–	5200±1470	–	–	–	13
,,	blubber	1992-1999	m	–	387±52	92.6±3.7	14	mean±SD	672±362*	165±74	2600±1060	7220±2380	5820±2020	–	11800±4440	–	–	–	13
NW Greenland																			
Avanersuaq	blubber	1984	f	5.4±4.0	350	97.7±10.9	4	mean±SD	350±316	119±53	559±383	1900±1230	–	766±476	4450±2950	–	–	–	24
,,	blubber	1985	m	5.1±3.3	351±103	89.1±9.2	15	mean±SD	618±293	203±72	919±312	3620±1350	–	1620±578	4970±1720	–	–	–	24
,,	blubber	1985	f	5.2±2.8	350±85	90.6±5.1	7	mean±SD	404±489	139±95	611±564	2170±2170	–	972±893	4760±4580	–	–	–	24
,,	blubber	1993	m	13.0	454	96.6	1	–	1300	227	2000	3650	–	2114	6700	–	–	–	24
,,	blubber	1993	f	8.7±1.5	390±22	96.0±2.8	3	mean±SD	80±20	68±16	233±101	436±147	–	246±71	2030±321	–	–	–	24
Balgoni Island	blubber	1993	m	3.4±3.9	298±97	95.7±2.5	4	mean±SD	1450±1270	156±36	3250±2780	9720±11700	–	4541±5190	8820±3920	–	–	–	24
,,	blubber	1993	f	4.6±4.9	345±121	96.6±0.6	2	mean±SD	865±1040	150±133	2360±2320	6920±6620	–	2980±2980	7250±5300	–	–	–	24

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Annex Table 13 continued

Species/Region/Location	Tissue	Year	Sex	Age, years	Length, cm	% lipid	n	Statistic	HCB[a]	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	$ΣPCB_{10}$	Toxaphene	Dieldrin	Mirex	ΣPBDEs	Reference
Central W Greenland																			
Kitsissuarsuit	blubber	1990	m	16.0	441±23	96.8±0.5	2	mean±SD	830±170	204±11	1950±354	6600±2500	–	3210±590	7500±1270	–	–	–	24
,,	blubber	1990	m	2.9±0.7	299±19	96.2±4.6	2	mean±SD	835±106	178±88	1010±127	1710±587	–	1190±383	6800±1560	–	–	–	24
Uummannaq	blubber	1993	m	9.7±7.6	385±94	93.1±5.7	33	mean±SD	662±293	179±64	1220±292	3460±1350	–	1540±468	5190±1150	–	–	–	24
,,	blubber	1993	f	6.1±4.5	349±72	93.8±4.0	17	mean±SD	522±537	158±107	1010±942	2260±2440	–	1140±1200	4020±2330	–	–	–	24
Saqqaq	blubber	2000	–	–	–	78.6±16.0	3	mean±SD	462±253*	128±86	1190±736	1910±1330	3280±1870	991±557	–	–	–	–	19
Barents Sea																			
E Spitsbergen (Svalbard)	blubber	1998	m,f	sub-adults	–	–	3	geo. mean	522	110	9180	11400	8910	–	4780	–	–	–	20
Killer whales																			
Alaska, USA (residents)																			
Kenai Fiords/Prince William S.	blubber	1994-1999	m,f	immature & mature	–	27±9.9	66 (30m, 31f, 5?)	mean±SD	220±230	–	–	3800±4700	3900±4400	–	–	–	–	–	25
Alaska, USA (transients)																			
Kenai Fiords/Prince William S.	blubber	1994-1999	m,f	immature & mature	–	23±11	14 (6m, 6f, 2?)	mean±SD	1300±1200	–	–	78000±63000	55000±43000	–	–	–	–	–	25
Long-finned pilot whales																			
Faroe Islands																			
Hvannasund	blubber	1994	f	adult	395-512	82	1 pool (n=9)	–	–	–	–	–	–	–	–	–	–	691	23
Vestmanna	blubber	1996	m,f	adults, juveniles	244-533	66-79	4 pools (n=19,8,13,4)	range	–	–	–	–	–	–	–	–	–	828-2400	23,26
Tórshavn	blubber	1997	m,f	adults, juveniles	–	52-85	12	range	–	–	–	–	–	–	–	–	–	133-1470	23,26
Leynar	blubber	1997	m,f	adults, juveniles	–	83-86	4 pools (n=3,28,9,10)	range	–	–	–	–	–	–	–	–	–	231-686	23,26
Sandavágur	blubber	1997	m,f	adults, juveniles	–	64-80	4 pools (n=8,18,19,7)	range	–	–	–	–	–	–	–	–	–	313-987	23,26
Hvalvik	blubber	1998	m,f	adults, juveniles	–	66-83	4 pools (n=6,20,9,16)	range	–	–	–	–	–	–	–	–	–	339-655	23,26
,,	blubber	2000	f,?	3 adults, 3 fetuses	–	2-83	6	range	–	–	–	–	–	–	–	–	–	7.7-277	23
Harbour porpoises																			
SW Greenland																			
Davis Strait	blubber	1995	m,f	1-2	1250(1220-1320)	–	4	median(range)	117(63-162)	36(18-126)	–	702(486-810)	1180(792-1380)	–	–	–	–	–	27
Norwegian Sea																			
W coast of Norway	blubber	1988-1990	m	5.7±0.89 (5-7)	–	–	8	mean (range)	–	–	–	8190(2790-19800)	13500(6480-29700)	–	–	–	–	–	28

[a] Hexachlorobenzene unless otherwise indicated.

* Sum of 1,2-diCBz, 1,4-diCBz, 1,2,3-triCBz, 1,2,4-triCBz, 1,3,5-triCBz, 1,2,3,4-tetraCBz, 1,2,3,5-tetraCBz, pentaCBz, and hexaCBz.
** Sum of 1,2,3,4-tetra, penta-, and hexachlorobenzene.
*** Sum of 1,2,4,5-tetraCBz, 1,2,3,4-tetraCBz, penta-CBz, and HCBz;

References

1. Hobbs *et al.*, 2003; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, heptachlor epoxide, and methoxychlor; ΣDDTs = sum of *o,p'*- and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 102 congeners (4/10, 7/9, 6, 8/5, 19, 30, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 50/31, 28, 20/53/33, 51, 22, 45, 46, 52, 43, 49, 48, 47, 44, 59, 42, 64/41/71, 40, 100, 63, 74, 70, 76/98, 66/95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 87/81, 85, 136, 110, 82, 151, 135/144, 147/107, 149, 118, 133, 114/134, 131, 146, 153, 132, 105, 141, 179, 137, 176/130, 138/163, 158, 129, 178, 175, 187/182, 183, 128, 167, 185, 174, 177, 202/171/156, 157/200/173, 204, 172, 197, 180, 193, 191, 199, 170, 190, 198, 201, 203/196, 189, 208, 195, 207, 194, 205, 206, 209).
2. Hobbs *et al.*, 2002a; Toxaphene = total toxaphene.
3. Skaare *et al.*, 2001c; ΣPCBs = sum of 35 congeners (28, 31, 52, 47, 74, 66, 56, 101, 99, 87, 136, 110, 151, 149, 118, 114, 153, 105, 141, 132, 137, 138, 187, 183, 128, 156, 157, 180, 170, 199, 196, 189, 194, 206, 209).
4. Kleivane and Skaare, 1998; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = oxychlordane, *trans*- and *cis*-chlordane, and *trans*- and *cis*-nonachlor); ΣDDTs = *p,p'*-DDT, -DDE and -DDD, and *o,p'*-DDT and -DDD; ΣPCBs = sum of 18 congeners (66, 101, 99, 110, 149, 118, 153, 105, 138, 187, 128, 156, 157, 180, 170, 194, 206, 209). Concentrations converted from lipid weight to wet weight using mean % lipid content values.
5. Krahn *et al.*, 2001; ΣDDTs = sum of *o,p'*- and *p,p'*-DDD, -DDE, and -DDT; ΣPCBs = sum of 17 congeners (18, 28, 44, 52, 66, 101, 105, 118, 128, 138, 153, 170, 180, 187, 195, 206, 209) multiplied times two to estimate total PCB concentrations.
6. Tilbury *et al.*, 2002; see reference 5 for details of contaminants analyzed.
7. RAIPON/AMAP/GEF Project, 2001; ΣCBz = 1,2,3,4-, 1,2,3,5-, and 1,2,4,5-tetrachlorobenzene, hexachlorobenzene; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*- and *trans*-chlordane, and *cis*- and *trans*-nonachlor; ΣDDTs = sum of *o,p'*- and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 15 congeners (28, 31, 52, 99, 101, 105, 118, 128, 138, 153, 156, 170, 180, 183, 187); Toxaphene = sum of congeners 26, 50, 62; ΣPBDEs = sum of 2,2',4,4'-tetrabromodiphenyl, 2,2',4,4',5-pentabromodiphenyl and 2,2',4,4',5'-pentabromodiphenyl ethers.
8. Hoekstra *et al.*, 2002c; ΣHCHs = sum of α-, β-, γ-, and δ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, and *cis*- and *trans*-nonachlor, heptachlor, and *cis*-heptachlor epoxide; ΣDDTs = sum of *o,p'*- and *p,p'*-DDD, -DDE, and -DDT; ΣPCBs = sum of 101 congeners (4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16, 32, 54/29, 26, 25, 50, 31/28, 33/21/53, 51, 22, 45, 46, 52/49, 43, 47/48, 44, 59, 42, 64, 41/71, 40, 100, 63, 74, 76/98, 70, 95, 66, 91, 55, 56/60, 92/84, 101, 99, 119, 83, 97, 87, 81, 85, 136, 110, 82, 151, 135, 144, 107/147, 149/133, 118, 114, 143, 141, 145, 153, 132, 105, 141/179, 137, 176/130, 163, 138, 158, 129/178, 175, 187, 182, 183, 128, 167, 185, 174, 177, 171, 156, 202/173, 172, 197, 180/193, 191, 199, 170/190, 198, 201, 176/203, 189, 206, 195, 207, 194, 205, 208, 209); Toxaphene = sum of 24 chloroborane congeners.
9. Krahn *et al.*, 2000; ΣCHLs = sum of heptachlor, heptachlor epoxide, *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, oxychlordane, and nonachlor III; ΣDDTs = sum of *o,p'*- and *p,p'*-DDD, -DDE, and -DDT; ΣPCBs = sum of 17 congeners (18, 28, 44, 52, 66, 101, 105, 118, 128, 138, 153, 170, 180, 187, 195, 206, 209) multiplied by 2 to estimate total PCBs.
10. Hoekstra, 2002d; ΣHCHs = sum of α-, β-, γ-, and δ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, and *cis*-heptachlor epoxide; ΣDDTs = sum of *o,p'*- and *p,p'*-DDD, -DDE, and -DDT; ΣPCBs = sum of 101 congeners (4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16, 32, 54/29, 26, 25, 50, 31/28, 33/21/53, 51, 22, 45, 46, 52/49, 43, 47/48, 44, 59, 42, 64, 41/71, 40, 100, 63, 74, 76/98, 70, 95, 66, 91, 55, 56/60, 92/84, 101, 99, 119, 83, 97, 87, 81, 85, 136, 110, 82, 151, 135, 144, 107/147, 149/133, 118, 114, 143, 141, 145, 153, 132, 105, 141/179, 137, 176/130, 163, 138, 158, 129/178, 175, 187, 182, 183, 128, 167, 185, 174, 177, 171, 156, 202/173, 172, 197, 180/193, 191, 199, 170/190, 198, 201, 176/203, 189, 206, 195, 207, 194, 205, 208 & 209).
11. Wade *et al.*, 1997; Concentrations converted from lipid weight to wet weight assuming 90% lipid content.
12. Metcalfe *et al.*, 1999; ΣHCHs = sum of α-, β-, γ-, and δ-HCH; ΣCHLs = sum of *trans*- and *cis*-chlordane, and *trans*- and *cis*-nonachlor; ΣDDTs = sum of *p,p'*-DDT, -DDD, and -DDE; ΣPCBs = sum of 27 congeners (18, 28, 31, 52, 49, 47, 44, 66, 87, 99, 101, 110, 105, 118, 119, 151, 149, 153, 156, 138, 180, 170, 199, 195, 196, 194, 209).
13. Stern, 2001; ΣPCBs = sum of 86 peaks (103 congeners); ΣDDTs = sum *o,p'*- and *o,p'*-DDE, -DDD, and -DDT; Toxaphene = determined by GC-ECD.
14. Sang *et al.*, 2000; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of heptachlor, heptachlor epoxide, *trans*- and *cis*-chlordane, and *trans*- and *cis*-nonachlor; ΣDDTs = sum *o,p'*- and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 103 congeners(1, 3, 4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33, 20, 53, 51, 22, 45, 46, 52, 49, 43, 48/47, 44, 59, 42, 64/41/71, 40, 100, 63, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 87/81, 85, 136, 110, 82, 151, 135/144, 147, 107, 149, 118, 133, 114, 134/131, 146, 153, 132, 105, 141, 179, 137, 176, 130, 138/163, 158, 129, 178, 175, 187/182, 183, 128, 167, 185, 174, 177, 202/171, 156, 173, 157/201, 172, 197, 180, 193, 191, 200, 170/190, 198, 199, 203/196, 189, 208/195, 207, 194, 205, 206, 209).
15. Hobbs *et al.*, 2002b; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, oxychlordane, nonachlor, C, C3, C5, heptachlor, C1B/U6, C2/U5, and heptachlor epoxide; ΣDDTs = sum of *o,p'*- and *p,p'*-DDE, -DDD, and -DDT; ΣPCBs = sum of 85 congeners (1, 3, 4/10, 7, 6, 8/5, 19, 18, 17, 24/27, 16/32, 26, 25, 31, 28, 33, 22, 45, 46, 52, 49, 47/48, 44, 42, 41/71/64, 40, 74, 70/76, 66, 95, 56/60, 91, 84/89, 101, 99, 83, 97, 87, 85, 136, 110, 82, 151, 144/135, 149, 118, 134/131, 114, 146, 153, 132, 105, 141, 130/176, 179, 137, 138, 158, 178/129, 175, 187, 183, 128, 185, 174, 177, 171, 156, 201/157, 172/197, 180, 193, 191, 200, 170/190, 198, 199, 196/203, 189, 208/195, 207, 194, 205, 206, 209).

16. Stern, 1999; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, oxychlordane, heptachlor, heptachlor epoxide, and nonachlor III; ΣDDTs = sum of *o,p*' and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 90 PCB congeners; Toxaphene = quantified using a single response factor based on 27 peaks in a technical mixture (primarily Parlars 26, 50).
17. Stern and Addison, 1999; see reference 16 for details of contaminants analyzed.
18. Muir *et al*., 1999d; ΣPCBs = sum of 86 peaks (103 congeners), ΣDDTs = sum *o,p*'- and *o,p*'-DDE, -DDD, and -DDT; Toxaphene = determined by GC-ECD, ΣPBDEs = sum of mono-, di-, tri-, tetra-, penta-, hexa-, and hepta-brominated diphenyl ethers.
19. Muir and Johansen, 2001; ΣHCHs = sum of α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, heptachlor epoxide, and methoxychlor; ΣDDTs = sum of *o,p*'- and *p,p*'-DDE, -DDD, and -DDT; ΣPCBs = sum of 104 congeners peaks (1, 3, 4/10, 7/9, 6, 8/5, 19, 30, 12/13, 18, 15/17, 24/27, 16/32, 54/29, 26, 25, 31/28, 50, 33/20, 53, 51, 22, 45, 46, 52, 43, 49, 47/48, 44, 59, 42, 71/41/64, 40, 100, 63, 74, 70/76/98, 66, 95, 91, 55, 56/60, 92, 84, 101, 99, 119, 83, 97, 81/87, 85, 136, 110, 82, 151, 135/144, 147, 107, 149, 118, 133, 114, 134/131, 146, 153, 132, 105, 141, 179, 137, 176, 130, 163/138, 158, 129, 178, 175, 182/187, 183, 128, 167, 185, 174, 177, 202/171, 156, 173, 157/200, 204, 172, 197, 180, 193, 191, 199, 170/190, 198, 201, 203/196, 189, 208/195, 207, 194, 205, 206, 209).
20. Wolkers, 2002; ΣHCHs = α-, β-, and γ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, *cis*- and *trans*-nonachlor, oxychlordane, heptachlor epoxide; ΣDDTs = sum of *o,p*'-DDD, *o,p*'- and *p,p*'-DDE, and -DDT; ΣPCBs = sum of 23 congeners (28, 52, 70, 76, 95, 99, 101, 105, 110, 118, 128, 138, 141, 146, 149, 153, 156, 169, 170, 174, 180, 183, 187); Toxaphene = sum of Parlars 26, 32, 40, 44, 50; Concentrations converted from lipid weight to wet weight assuming 90% lipid content.

21. Andersen *et al*., 2001a; ΣCHLs = sum of heptachlor epoxide, oxychlordane, *cis*- and *trans*-nonachlor, and *cis*-nonachlor; ΣDDTs = *p,p*'-DDT, -DDE, and -DDD; ΣPCBs = sum of 27 congeners (47, 52, 66, 74, 87, 99, 101, 105, 110, 118, 128, 136, 137, 138, 141, 149, 151, 153, 156, 157, 170, 180, 183, 187, 194, 196, 206).; Concentrations converted from lipid weight to wet weight basis using mean % lipid value.
22. Andersen *et al*., 2002; Toxaphene = sum of congeners 26, 50, 62.; Concentrations converted from lipid weight to wet weight basis using mean % lipid value.
23. van Bavel *et al*., 2001; ΣPBDEs = sum of 21 tetra-, penta- and hexa-BDEs (several unnamed, but includes 47, 99, 85, 153, 138).
24. Denmark, 2002; ΣHCHs = sum of α-, β-, γ-HCH; ΣCHLs = only *trans*-nonachlor; ΣDDTs = sum of *p,p*'-DDE, -DDD, -DDT; Toxaphene = total toxaphene.
25. Ylitalo *et al*., 2001; ΣDDTs = sum of *o,p*'-DDD and -DDT, *p,p*'-DDD, -DDE and -DDT; ΣPCBs = sum of 17 congeners (77, 105, 110, 118, 126, 156, 157, 169, 189, 101/99/149/183/196, 128, 138, 156, 157, 153/87, 170/194, 180), determined by a different method (HPLC, not ECD).
26. Lindström *et al*., 1999; ΣPBDEs = sum of 21 tetra-, penta- and hexa-BDEs (several unnamed, but includes 47, 99, 85, 153, 138).
27. Bruhn *et al*., 1999; ΣHCHs = α-HCH; ΣDDTs = *p,p*'-DDE; ΣPCBs = sum of 49 congeners (44, 52, 66, 74, 91, 92, 95, 97, 99, 101, 105, 107, 110, 118, 128, 130, 132, 136, 138, 141, 146, 149, 151, 153, 156, 158, 170, 171, 172, 174, 175, 137/176, 177, 178, 179, 180, 183, 185, 187, 189, 191, 193, 194, 197, 199, 201, 202, 196/203, 195/208); Concentrations converted from lipid weight to wet weight assuming 90% lipid content.
28. Berggren *et al*., 1999; ΣDDTs = sum of *o,p*' and *p,p*'-DDD, and -DDT; ΣPCBs = sum of 6 congeners (52, 101, 118, 138, 153, 180); Concentrations converted from lipid weight to wet weight assuming 90% lipid content.

Annex Table 14. Mean concentrations of organochlorines in Arctic fox, polar bears and sea otters.

Species/ Region/Location	Tissue	Year	Sex	Age, years	% lipid	n	Statistic	ΣCBz	HCB	α-HCH	β-HCH	γ-HCH (lindane)	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	Toxaphene	Dieldrin	Mirex	ΣPBDEs	Reference
Arctic fox (*Alopex lagopus*) (ng/g ww)																					
Alaska																					
Pribilof Islands	fat	1996-97	f	~2	60	2	mean (range)	–	24.5(10-39)	–	141(43-240)	–	–	853(148-1560)	107(4-210)	1320(140-2500)	–	38.4(4.9-72)	7.5(2-13)	–	1
,,	fat	1996-97	m	1.7	66	5	mean±SD	–	23.7±26.4	–	810±632	–	–	2850±2150	254±233	3330±3090	–	157±138	36.9±37.6	–	1
Barrow	muscle	1999-2000	m,f	<1	7.1±1.2	18	mean±SE	9.9±2.6	6.1±1.3	1.7±0.23	11±4.8	–	14±5.0	42±17	5.8±0.7	81±22	10±2.6	–	–	–	2
,,	liver	1999-2000	m,f	<1	7.7±1.6	18	mean±SE	12±1.7	9.9±2.6	2.0±0.23	18±5.5	–	22±5.1	236±82	8.7±0.9	124±32	28±8.1	–	–	–	2
Canada																					
Holman, NWT	muscle	1999-2000	m,f	0-2	5.6±0.6	20	mean±SD	4.43±0.63	1.4±0.25	1.5±0.39	3.9±0.64	–	5.40±0.91	34.0±8.86	1.91±0.47	48.0±9.15	4.5±1.2	–	–	–	2
,,	liver	1999-2000	m,f	0-2	9.2±1.3	20	mean±SD	4.16±0.95	2.8±0.85	3.1±0.94	7.7±1.6	–	10.9±2.12	219±56	3.99±0.82	124±39.4	17±4.5	–	–	–	2
Iceland																					
Árnessysla (inland)	liver	1993-1994	m,f	7 mo-3 yr	6	6	mean±SD	–	3.6±2.79	–	6.83±3.92	6.5±3.51	13.3±7.23	30.8±19.6	2.00±1.26	60.8±38.3	–	–	–	–	3
Borgarfjörður E (coast)	liver	1993-1994	m,f	5 mo-4 yr	6	4	mean±SD	–	59.7±39.7	–	11.5±4.04	3.75±1.5	15.2±4.35	3680±3550	46.0±57.4	4350±4100	–	–	–	–	3
Polar bear (*Ursus maritimus*) (ng/g ww, except for reference 5 which are ng/g lw)																					
Beaufort Sea																					
Barrow, Alaska	fat	1996-1997	f	adults	74.7±12.5	3	mean±SD	–	57±12.0	–	–	<1	–	2020±493	137±97	4870±2080	–	89±20	–	–	1
,,	fat	1996-1997	f	–	80.2±4.6	3	mean±SD	–	201±111	–	–	1.5±0.8	–	2010±247	167±103	5130±874	–	147±21	–	–	1
Barrow & St. Lawrence Island	fat	1996-1998	m	adults	83.3±9.3	7	mean±SD	–	106	59±25	768±479	4.1±2.4	829±460	573±383	80±71	3330±1570	–	89±20	–	–	1
Barrow, Alaska	fat	1996-1997	m	cubs, unknown	78.2±7.4	2,4	mean±SD	–	137±121	–	–	1.6±0.5	–	2080±1280	71±40	7520±2400	–	151±74	–	–	1
Southern Beaufort Sea																					
N Alaska	fat	1996-2002	m	adults	79.5 (57.3-100)	11	geo.mean(range)	180	(96.9-462)	–	–	–	766	932(355-2210)	46.9(210-1940)	3450(18.3-117)	(1760-6950)	90.6	(36.6-302)	–	4
Chukchi/Bering Sea																					
W Alaska	fat	1996-2002	m	adults	79.4 (36.8-100)	16	geo.mean(range)	131	(63.5-649)	–	–	–	759	588(1530-2830)	47.6(224-1260)	2090(11.1-240)	(720-8640)	75.4	(34.9-305)	–	4
Canadian Arctic																					
Queen Maud Gulf,	fat	1984				8-10	geo.mean(range)	244(136-423)	–	–	–	–	358*(167-475)	1459(861-2547)	98*(42-225)	3004(963-6992)	–	172*(98-274)	–	–	5
Larsen Sound (I)	fat	1990				8-10	geo.mean(range)	175(66-374)	–	–	–	–	228*(89-478)	1284(333-4194)	29.7*(13-151)	2616(718-6514)	–	88*(25-167)	–	–	5
Barrow Strait,	fat	1984				8-10	geo.mean(range)	197(111-394)	–	–	–	–	206*(137-281)	1201(492-2449)	109(55-246)	3377(1637-8261)	–	148*(76-229)	–	–	5
Lancaster Sound (II)	fat	1990				8-10	geo.mean(range)	129(75-39)	–	–	–	–	294*(147-485)	928(378-1372)	96(31-233)	3018(1884-4622)	–	89*(40-139)	–	–	5
N Baffin Bay (III)	fat	1984				8-10	geo.mean(range)	188(23-345)	–	–	–	–	184(80-361)	1048(301-2483)	131(68-204)	3725(910-8233)	–	148(40-251)	–	–	5
,,	fat	1990				8-10	geo.mean(range)	225(130-384)	–	–	–	–	252(148-335)	1746(691-4501)	140(89-218)	4887(1096-8493)	–	169	–	–	5
W Hudson Bay (V)	fat	1968				8-10	geo.mean(range)	196*(135-378)	–	–	–	–	235(130-616)	1086(453-4527)	884*(275-1851)	3824*(1926-9467)	–	191(114-482)	–	–	5
,,	fat	1984				8-10	geo.mean(range)	320*(107-839)	–	–	–	–	335(161-648)	2525(1244-5255)	525*(214-1142)	7132*(4252-14944)	–	215(47-750)	–	–	5
,,	fat	1989				8-10	geo.mean(range)	169*(39-432)	–	–	–	–	252(125-461)	1383(457-5839)	148*(21-587)	4602*(1849-11912)	–	234(82-566)	–	–	5
Davis Strait (IV)	fat	1984				8-10	geo.mean(range)	221(148-322)	–	–	–	–	172(111-263)	1293*(880-1637)	288(105-1147)	4268(2201-13683.4)	–	149(96-250)	–	–	5
,,	fat	1990				8-10	geo.mean(range)	186(138-301)	–	–	–	–	181(113-494)	1838*(838-4999)	152(78-390)	7541(2140-20215)	–	209(114-536)	–	–	5
Resolute	whole plasma	1997	–	subadults	–	6	mean±SD	7.5±5.2	–	–	–	–	5.0±2.7	56±46	1.5±1.1	79±54	–	–	–	–	6
,,	whole plasma	1997	m	adults	–	13	mean±SD	3.0±0.8	–	–	–	–	3.6±1.2	14±5.8	0.7±0.4	42±16	–	–	–	–	6
,,	whole plasma	1997	f	adults	–	14	mean±SD	3.2±1.7	–	–	–	–	2.9±1.2	29±16	1.7±3.2	33±21	–	–	–	–	6

Continued next page.

Annex Table 14 continued.

Species/ Region/Location	Tissue	Year	Sex	Age, years	% lipid	n	Statistic	ΣCBz	HCB	α-HCH	β-HCH	γ-HCH (lindane)	ΣHCHs	ΣCHLs	ΣDDTs	ΣPCBs	Toxaphene	Dieldrin	Mirex	ΣPBDEs	Reference
E Greenland	fat	1999-2000	?	<3	65.9	2	mean	26.0	–	–	–	–	95.1	459	299	3190	–	–	–	–	7
,,	fat	1999-2000	f	2-10	82.6±4.86	8	mean±SD	37.4±34.1	–	–	–	–	132±52.0	678±292	282±52.8	5980±2310	–	–	–	–	7
,,	fat	1999-2000	m	2-10	79.7±8.62	9	mean±SD	19.5±10.3	–	–	–	–	231±171	487±226	371±231	6120±2730	–	–	–	–	7
NW Iceland																					
pack ice, near Horn	fat	1993	?	3.5	–	1	–	–	102	98	84	8	190	1570	678	7860	–	–	–	–	3
,,	liver	1993		3.5	–	1	–	–	15	12	16	8	36	1760	270	1660	–	–	–	–	3
Barents Sea																					
Svalbard	fat	1998	m,f	5-26 yrs	5-67	20	range	–	–	–	–	–	–	–	–	–	–	–	–	(3.6-49.0)	8
,,	blood plasma	1995-1998	–	cubs (<1 yr)	1.3	33	geo.mean(range)	–	–	–	–	–	–	–	–	160(45.2-377)	–	–	–	–	9
,,	blood plasma	1995-1998	f	adults w. cub	1.2	25	geo.mean(range)	–	–	–	–	–	–	–	–	69.8(19.1-139)	–	–	–	–	9
,,	blood plasma	1995-1998	–	yearling	1.6	12	geo.mean(range)	–	–	–	–	–	–	–	–	109(24.5-376)	–	–	–	–	9
,,	blood plasma	1995-1998	f	adults w. yearl.	1.3	10	geo.mean(range)	–	–	–	–	–	–	–	–	38.3(13.8-97.8)	–	–	–	–	9
,,	whole plasma	1998	–	subadults	–	4	mean±SD	4.5±1.6	–	–	–	–	1.4±0.8	55±16	0.8±0.2	228±36	–	–	–	–	6
,,	whole plasma	1998	m	adults	–	18	mean±SD	3.0±2.6	–	–	–	–	2.7±1.5	19±11	1.1±0.6	95±50	–	–	–	–	6
,,	whole plasma	1998	f	adults	–	16	mean±SD	2.1±1.0	–	–	–	–	1.9±1.9	26±8.7	1.0±0.6	92±43	–	–	–	–	6
,,	blood	1991-1994	f	adults	0.7 (0.34-1.04)	32	geo.mean (range)	–	1.08 (0.22-3.98)	0.57 (0.15-1.52)	1.05 (0.10-2.76)	–	–	11.3 (3.87-23.2)	0.43 (0.08-1.69)	35.3 (1.50-93.8	–	–	–	–	10,11
Franz Josef Land	blood	1995	f	adults	0.52 (0.35-0.77)	17	geo.mean (range)	–	1.16 (0.49-10.2)	0.30 (0.16-0.55)	0.83 (0.33-2.69)	–	–	15.4 (9.36-26.7)	0.44 (0.11-2.96)	58.2 (31.0-162)	–	–	–	–	10,11
Kara Sea	blood	1991-1994	f	adults	0.83 (0.76-1.13)	12	geo.mean (range)	–	21.7 (7.14-80.8)	2.90 (0.83-5.64)	21.6 5.06-44.9	–	–	2540 (665-4930)	7.80 (2.99-31.2)	781 (228-2040)	–	–	–	–	10,11
E-Siberian Sea	blood	1992-1993	f	adults	0.75 (0.55-0.97)	8	geo.mean (range)	–	1.41 (0.89-2.59)	0.82 (0.60-1.44)	2.22 1.02-4.42	–	–	20.5 (9.75-58.8)	0.28 (0.075-3.64)	26.7 (11.8-81.7)	–	–	–	–	10,11
Chukchi Sea	blood	1987-1992	f	adults	0.55 (0.39-0.76)	21	geo.mean (range)	–	1.78 (0.94-6.33)	14.9 (0.81-2.65)	2.95 1.45-6.22	–	–	15.8 (6.64-31.6)	0.14 (0.03-0.38)	18.4 (8.25-37.2)	–	–	–	–	10,11
Sea Otter (*Enhydra lutris*) (ng/g ww)																					
Alaska																					
SE Alaska	liver	1991	m	adults	3±1	7	mean±SD	–	1	–	6±3	–	–	1±1	1±3	8±14	–	2±4	–	–	12
Aleutian Islands	liver	1991-1992	m,f	adults/young	3±2	7	mean±SD	–	2±4	–	5±16	–	–	15±97	36±500	310±480	–	3±5	–	–	12

* Significant differences ($p < 0.05$) between 1984 and 1990.

References

1. Krahn *et al.*, 2002; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, nonachlor III, heptachlor, and heptachlor epoxide; ΣDDTs = sum of *o,p*'- and *p,p*'- DDE, -DDD, and -DDT; ΣPCBs = sum of 40 congeners (17, 18, 28, 31, 33, 44, 49, 52, 66, 70, 74, 87, 82, 95, 99, 101, 105, 110, 118, 128, 138, 149, 151, 153, 156, 158, 170, 171, 177, 180, 183, 187, 191, 194, 195, 199, 205, 206, 208, 209).
2. Hoekstra *et al.*, 2003b; ΣCBz = sum of 1,2-diCBz, 1,4-diCBz, 1,2,3-triCBz, 1,2,4-triCBz, 1,3,5-triCBz, 1,2,3,4-tetraCBz, 1,2,3,5-tetraCBz, pentaCBz, and hexaCBz; ΣHCHs = sum of α-, β-, γ-, and δ-HCH; ΣCHLs = sum of *cis*- and *trans*-chlordane, oxychlordane, *cis*- and *trans*-nonachlor, heptachlor, and *cis*-heptachlor epoxide; ΣDDTs = sum of *o,p*'- and *p,p*'-DDD, -DDE, and -DDT; ΣPCBs = sum of 101 congeners (4/10, 7/9, 6, 8/5, 19, 12/13, 18, 15/17, 24/27, 16, 32, 54/29, 26, 25, 50, 31/28, 33/21/53, 51, 22, 45, 46, 52/49, 43, 47/48, 44, 59, 42, 64, 41/71, 40, 100, 63, 74, 76/98, 70, 95, 66, 91, 55, 56/60, 92/84, 101, 99, 119, 83, 97, 87, 81, 85, 136, 110, 82, 151, 135, 144, 107/147, 149/133, 118, 114, 143, 141, 145, 153, 132, 105, 141/179, 137, 176/130, 163, 138, 158, 129/178, 175, 187, 182, 183, 128, 167, 185, 174, 177, 171, 156, 202/173, 172, 197, 180/193, 191, 199, 170/190, 198, 201, 176/203, 189, 206, 195, 207, 194, 205, 208 & 209); Toxaphene = sum of 24 chloroborane congeners.
3. Klobes *et al.*, 1998b; ΣHCHs = sum of β- and γ-HCH; ΣCHLs = sum of *trans*-nonachlor and oxychlordane; ΣDDTs = *p,p*'-DDE; ΣPCBs = sum of 7 congeners (118, 153, 138, 163, 180, 170, 194).
4. Evans, 2001; ΣCBz = sum of 3 compounds; ΣHCHs = α-, β-, γ-, δ-HCH; ΣDDTs = *o,p*'- and *p,p*'-DDE,-DDD and -DDT; ΣCHLs = sum of 13 compounds, including oxychlodane, nonachlor III, *trans*-nonachlor, and heptachlor epoxide; ΣPCBs = sum of 22 congeners. Concentrations converted to wet weight using mean % lipid content.
5. Norstrom, 1999a; 1999b; Muir and Norstrom, 2000; ΣCBz = sum of 1,2,4,5-TeCBz, PeCBz, and HCB; ΣHCHs = α-, β-, and γ-HCH.
6. Sandau, 2000.
7. Sonne-Hansen, 2002.
8. van Bavel *et al.*, 2001; ΣPBDEs = sum of 21 tetra-, penta-, and hexa-BDEs (several unnamed, but includes 47, 99, 85, 153, 138).
9. Lie *et al.*, 2000; ΣPCBs = sum of 34 congeners (28, 31, 47, 52, 56, 66, 74, 87, 99, 101, 105, 110, 114, 118, 128, 136, 137, 138, 141, 149, 151, 153, 156, 157, 170, 180, 183, 187, 189, 194, 196, 199, 206, 209). Concentrations converted to wet weight using mean % lipid content.
10. Andersen *et al.*, 2001b; ΣPCBs = sum of 6 congeners (99,118,153,156,180,194). Concentrations converted to wet weight using mean % lipid content.
11. Lie *et al.*, 2003; ΣCHLs = oxychlordane; ΣDDTs = *p,p*'-DDE; ΣPCBs = sum of 6 congeners (99, 118, 153, 156, 180, 194). Concentrations converted to wet weight using mean % lipid content.
12. Bacon *et al.*, 1999.

Annex Table 15. Congener specific concentrations of toxaphenes in marine biota.

Species/Region	Location	Tissue	Year	Sex	Age, years	% lipid	n	Statistic	Parlar 26	Parlar 32	Parlar 40	Parlar 44	Parlar 50	Parlar 62	Total toxaphene	Reference
Freshwater fish and invertebrates (ng/g ww)																
Unidentified zooplankton																
Bjørnøya	Lake Øyangen	whole body	1998	–	–	–	–	–	–	–	–	–	–	–	n.d.	1
,,	Lake Ellasjøen	whole body	1999	–	–	–	–	–	–	–	–	–	–	–	1.2	1
Arctic char																
Bjørnøya	Lake Øyangen	muscle	1998	–	–	–	1 pool (n=3)	–	–	–	–	–	–	–	4.5	1
,,	,,	muscle	1998	–	–	–	1 pool (n=3)	–	–	–	–	–	–	–	n.d.	1
	,,	muscle	1998	–	–	–	1 pool (n=3)	–	–	–	–	–	–	–	n.d.	1
	Lake Ellasjøen	muscle	1999	–	–	–	?	–	–	–	–	–	–	–	8.3	1
	,,	muscle	1999	–	–	–	?	–	–	–	–	–	–	–	7.8	1
	,,	muscle	1999	–	–	–	?	–	–	–	–	–	–	–	9.2	1
Marine fish (ng/g ww)																
Cod																
Norway	Jarfjord	liver	–	m	–	60±5	5	mean±SD	23±12	–	–	–	27±16	4.7±4.7	–	2
,,	,,	liver	–	f	–	61±3	5	mean±SD	21±11	–	–	–	26±15	4.2±1.6	–	2
Russia	White Sea	muscle & skin	–	–	–	1.01±0.30		mean±SD	0.1±0.10	–	–	–	0.08±0.06	n.d.	1.47±0.27	3
Redfish																
Barents Sea	N Norway	muscle	–	–	–	2.80(1.3-6.2)	24	mean (range)	–	–	–	–	–	–	76.2(37.0-181)	4
Navaga																
Russia	White Sea	muscle & skin	–		–	1.54±0.11	–	mean±SD	0.21±0.08	–	–	–	0.06±0.05	n.d.	1.41±0.39	3
Herring																
Russia	White Sea	muscle & skin	–		–	7.80±0.24	–	mean±SD	1.03±0.32	–	–	–	1.31±0.30	n.d.	28.5±1.65	3
Pinnipeds (ng/g ww)																
Ringed seal																
Alaska	Barrow	blubber	1998-1999	f	1-7	87.0±6.47	5	mean±SD	24.1±31.7	0.50± 0.30	3.6±3.2	29.1±31.1	4.7±5.0	–	272±194	5
,,	,,	blubber	1998-2000	m	1-20	82.2±4.45	14	mean±SD	13.2±17.10	0.47±0.52	9.66±12.7	80.3±83.8	12.4±26.2	–	479±339	5
Canada	Hudson Strait	blubber	1998	f		80.4±10.4	10	mean±SD	42.4±33.4	–	–	–	6.58±5.14	1.28±2.15	266±250	6
,,	,,	blubber	1998	m		77±9.8	11	mean±SD	49.4±26.9	–	–	–	7.36±4.21	1.78±1.97	309±218	6
,,	Ungava Bay	blubber	1998	f		101±16.5	16	mean±SD	16.7±10.4	–	–	–	2.28±1.68	0.32±0.54	87.7±55.1	6
,,	,,	blubber	1998	m		92.4±15.7	5	mean±SD	24.3±26.5	–	–	–	3.00±3.00	0.60±1.20	117±82.4	6
,,	Labrador	blubber	1998	f		87.3±5.6	6	mean±SD	n.d.	–	–	–	n.d.	n.d.	n.d.	6
,,	,,	blubber	1998	m		88.2±5.5	14	mean±SD	n.d.	–	–	–	n.d.	n.d.	n.d.	6
Barents Sea	Kongsfjorden, NW Svalbard	blubber	–	f	≥4	–	7	mean	5.67	–	–	–	6.75	–	37.4	7
,,	,,	blubber	–	m	≥4	–	7	mean	6.93	–	–	–	8.10	–	45.9	7
,,	,,	blubber	–	juv	≤4	–	14	mean	3.6	–	–	–	4.68	–	24.7	7
,,	,,	blubber	1992	f	6	98±1	5	mean±SD (range)	1.8±0.4(1.3-2.3)	–	–	–	3.1±0.5(2.6-3.9)	1.6±0.3(1.1-2.0)	–	2
,,	,,	blubber	1992	m		96±3	5	mean±SD (range)	2.6±1.1(1.4-3.9)	–	–	–	4.9±7.7(2.4-7.7)	1.8±1.1(0.8-3.4)	–	2
White Sea	Dvina Bay	blubber	1998	m,f	1.1±0.6	86.4±6.0	17	mean±SD	8.2±19.2	–	–	–	5.6±14.3	0.1±0.6	166±233	4
Harp seal																
Barents Sea	E of Svalbard	blubber	1997	–	≤4	–	13	geo. mean	67.5	–	–	–	81.0	14.7	446	8
White Sea	–	blubber	1998	f	14.2±4.1	85.1±3.7	20	mean±SD	64.9±17.7	–	–	–	50.3±13.4	6.9±2.3	548±148	4
,,	–	blubber	1998	m,f	<0.1	68.3±3.1	10	mean±SD	74.1±65.0	–	–	–	32.2±11.0	2.7±1.4	658±234	4
Bearded seal																
White Sea	–	blubber	1998	m	2.5	84.8	2	mean	34.0	–	–	–	32.2	n.d.	518	4
Cetaceans (ng/g ww)																
Beluga																
Barents Sea	E Spitsbergen (Svalbard)	blubber		–	subadults	–		geo. mean (95% CI)	398(189-838)	–	165(78.2-347)	–	863(409-1820)	–	1420(704-2890)	9
Narwhal																
Barents Sea	E Spitsbergen (Svalbard)	blubber		–	subadults	–		geo. mean (95% CI)	1520(1090-2140)	63.4(50.6-79.6)	634(452-891)	319(227-447)	2240(1590-3140)	–	4780(3400-6710)	9
Polar bears (ng/g ww)																
Polar bear																
Barents Sea	Svalbard	blubber	1990-94	f	>5	92±6(85-96)	3	mean±SD (range)	5.7±1.9(3.8-7.5)	–	–	–	3.3±0.9(2.2-3.8)	0.4±0.1(0.3-0.4)	–	2
,,	,,	blubber	1990-94	m	>5	72±33(7-91)	6	mean±SD (range)	17±26(0.8-68)	–	–	–	27±46(0.4-119)	4.1±6.2(0.2-11)	–	2
Seabirds (ng/g ww)																
Glaucous gull																
Barents Sea	Bjørnøya	liver	1995	m	–	8.1 (7.0-9.2)	3	mean±SD	44.4±23.6	n.d.	–	–	74.0±38.3	–	–	10
,,	,,	liver	1999	m,f	–	5.9 (3.4-11.5)	15	mean±SD	10.1±6.6	5.0±6.3	6.6±4.7	–	19.2±14.0	–	–	10
,,	,,	gut	1999	–	–	–	1 pool (n=15)	–	–	–	–	–	–	–	84.2	1
,,	Longyearbyen, Norway	liver	1995	m,f	–	7.0 (6.0-8.4)	4	mean±SD	17.7±5.2	n.d.	–	–	26.0±9.5	–	–	10
Great black-backed & herring gulls																
Norway	Alta	eggs	2001	–	–	–	20	mean	44.4	<0.2	–	–	111	44.3	200	11
,,	Kongsfjord (Finmark)	eggs	2001	–	–	–	20	mean	35.7	<0.24	–	–	102	26.6	165	11
,,	Sommarøy	eggs	2001	–	–	–	20	mean	55.7	<0.27	–	–	147	83.5	286	11
,,	Vardø	eggs	2001	–	–	–	20	mean	34.5	<0.33	–	–	94.6	41.1	170	11

References

1. Kallenborn, 2002c; Total toxaphene = sum 10 congeners (Parlars 26, 32, 38, 40, 44, 50, 51, 58, 62, 69). 2. Føreid *et al.*, 2000. 3. Muir *et al.*, 2003. 4. McHugh *et al.*, 2000; Total toxaphene = sum of Parlars 26, 50, 62. 5. Hoekstra, 2003a. 6. Muir *et al.*, 1999c. 7. Wolkers *et al.*, 1998b; Concentrations converted to wet weight assuming 90% lipid content. 8. Wolkers *et al.*, 2000; Concentrations converted to wet weight assuming 90% lipid content. 9. Wolkers, 2002; Concentrations converted to wet weight basis assuming 90% lipid content. 10. Herzke *et al.*, 2003. 11. Gabrielsen, 2002; Total toxaphene = sum of Parlars 26, 50, 62.

Annex Table 16. Concentrations and TEQs for PCDDs, PCDFs and non-*ortho* PCBs (nPCBs) in biota in pg/g dw, ww or lw.

								Concentration			TEQ			ΣTEQs		
Species/Region	Location	Tissue	Year	Age/Sex	% Lipid	n	Units	ΣPCDDs	ΣPCDFs	ΣnPCBs	ΣPCDDs	ΣPCDFs	ΣnPCBs	pg/g lw	pg/g ww	Reference
Freshwater invertebrates																
Plankton																
Great Slave Lake, NWT	W Basin	whole body	1994-95	–	–		pg/g ww	45.3	22.8	–	–	–	–	–	–	1
,,	E Arm	whole body	1994-95	–	–		pg/g ww	–	–	–	–	–	–	–	–	1
Freshwater fish																
Whitefish																
Great Slave Lake, NWT	W Basin	muscle	1994-95	–	–		pg/g ww	0.05	0.9	–	–	–	–	–	–	1
,,	E Arm	muscle	1994-95	–	–		pg/g ww	n.d.	0.6	–	–	–	–	–	–	1
Kola Peninsula	–	muscle	2000-01	7-11, m	0.9	10	pg/g ww	0.26	0.77	–	–	–	–	11.23	0.1	2
Pechora Basin	–	muscle	2000-01	7-14, m	4.0	12	pg/g ww	0.37	0.38	–	–	–	–	1.93	0.88	2
Taymir Peninsula	Dudinka	muscle	2000-01	8-14, m	1.7	10	pg/g ww	0.17	0.23	–	–	–	–	1.67	0.03	2
,,	Khatanga	muscle	2000-01	8-14, m	2.0	10	pg/g ww	0.12	0.27	–	–	–	–	1.98	0.04	2
Broad whitefish																
Chukotka Peninsula	Kanchalan	muscle	2000-01	7-11, m	1.1	10	pg/g ww	0.22	0.13	–	–	–	–	2.19	0.02	2
Taymir Peninsula	Khatanga	muscle	2000-01	6-14, m	1.6	10	pg/g ww	0.29	0.18	–	–	–	–	2.46	0.04	2
Lake trout																
Great Slave Lake, NWT	W Basin	muscle	1994-95	–	–		pg/g ww	0.15	1.0	–	–	–	–	–	–	1
,,	E Arm	muscle	1994-95	–	–		pg/g ww	n.d.	0.7	–	–	–	–	–	–	1
Norway	Lake Takvatn	muscle	1999/2000	–	1.8	1	pg/g ww	–	–	–	0.11	–	0.20	17.2	0.31	18
,,	Lake Fjellfrøsvatnet	muscle	1999/2000	–	1.1	1	pg/g ww	–	–	–	0.09	–	0.12	19.1	0.21	18
,,	Lake Grunnvatnet	muscle	1999/2000	–	1.3	1	pg/g ww	–	–	–	0.11	–	0.06	13.1	0.17	18
,,	Lake Store Raudvannet	muscle	1999/2000	–	2.5	1	pg/g ww	–	–	–	0.31	–	0.55	34.4	0.86	18
Burbot																
Great Slave Lake, NWT	W Basin	liver	1994-95	–	–		pg/g ww	1.05	2.7	–	–	–	–	–	–	1
,,	E Arm	liver	1994-95	–	–		pg/g ww	n.d.	5.7	–	–	–	–	–	–	1
Norway	Lake Grensefoss (Pasvikelva)	muscle	1999/2000	–	11.6	1	pg/g ww	–	–	–	3.25	–	9.50	120	12.8	18
Omul																
Taymir Peninsula	Dudinka	muscle	2000-01	8-12, m	2.9	10	pg/g ww	0.42	0.84	–	–	–	–	5.9	0.17	2
Arctic char																
Norway	Lake Ellasjøen	muscle	1999/2000	–	1.3	1	pg/g ww	–	–	–	0.2	–	7.16	566	7.4	18
Chukotka Peninsula	Lavrentiya	muscle	2000-01	3-7, m	3.1	10	pg/g ww	2.76	0.99	–	–	–	–	1.41	0.14	2
Ide																
Pechora Basin	–	muscle	2000-01	6-11, m	3.3	12	pg/g ww	0.42	0.23	–	–	–	–	1.31	0.04	2
Inconnu																
Chukotka Peninsula	Kanchalan	muscle	2000-01	7-14, m	0.76	10	pg/g ww	0.26	0.16	–	–	–	–	3.09	0.02	2
Northern Pike																
Kola Peninsula	–	muscle	2000-01	7-13, m	0.64	12	pg/g ww	0.26	0.50	–	–	–	–	11.15	0.07	2
Marine invertebrates																
Worms (Nephthys, Sipanclid, wormtube)																
Kara Sea	–	whole body	1993	–	–	–	pg/g dw	29	1.25	17	–	–	–	–	–	3
Crustaceans (isopods, amphipods)																
Kara Sea	–	whole body	1993	–	–	–	pg/g dw	7.8	20.0	84	–	–	–	–	–	3
Bivalves (clams)																
Kara Sea	–	whole body	1993	–	–	–	pg/g dw	23	6.8	33	–	–	–	–	–	3
Marine fish																
Chum salmon																
Chukotka Peninsula	Lavrentiya	muscle	2000-01	4-7, m	0.52	10	pg/g ww	0.32	0.40	–	–	–	–	14	0.07	2
Sturgeon																
Kara Sea	–	liver	1993	–	–	–	pg/g dw	3.4	33	77	–	–	–	–	–	3
Seabirds																
Black-legged kittiwake																
Lancaster Sound, NT	Prince Leopold Isl.	liver	1975	–	9.0	4 pools (n=3)	pg/g ww	59.4	58.50	1850	34	44	13.6	2390	214	4
,,	,,	liver	1993	–	4.3	5 pools (n=3)	pg/g ww	8.6	8.60	28	5.2	21.5	21.5	1120	47	4
,,	,,	egg	1993	–	5.1	1 pool (n=3)	pg/g ww	9.7	44.00	554	6.6	34	37	1530	78	4
Northern fulmar																
Lancaster Sound, NT	Prince Leopold Isl.	liver	1975	–	2.6	5 pools (n=3)	pg/g ww	222	712.0	140	70.5	621.0	10.1	27000	69	4
,,	,,	liver	1993	–	4.4	5 pools (n=3)	pg/g ww	108	318.00	1060	27.7	273	60	8190	357	4
,,	,,	egg	1993	–	8.9	1 pool (n=3)	pg/g ww	21.4	58.00	487	10.7	40	33	940	83	4
Thick-billed murres or Brünnich's guillemot																
Lancaster Sound, NT	Prince Leopold Isl.	liver	1975	–	8.6	3 pools (n=3)	pg/g ww	2.6	4.30	2760	1.7	3.4	161	1920	166	4
,,	,,	liver	1993	–	3.3	3 pools (n=3)	pg/g ww	5.6	14.20	167	3.0	9.6	11.2	720	24	4
,,	,,	egg	1993	–	6.8	1 pool (n=3)	pg/g ww	4.8	14.30	224	2.7	8.2	15.0	380	26	4
Black guillemots																
Labrador	Saglek Bay (beach site)	liver	1999	22 d	3.8	11	pg/g ww	8.30	4.50	63600	4.5		20.0	640	25	5

Continued next page.

Annex Table 16 continued.

Species/Region	Location	Tissue	Year	Age/Sex	% Lipid	n	Units	Concentration ΣPCDDs	Concentration ΣPCDFs	Concentration ΣnPCBs	TEQ ΣPCDDs	TEQ ΣPCDFs	TEQ ΣnPCBs	ΣTEQs pg/g lw	ΣTEQs pg/g ww	Reference
Common guillemot																
Faroe Islands	–	eggs	2000		15.0	10	pg/g ww	–	–	–	–	–	–	66	10	19
Great black-backed & herring gulls																
Norway	Alta	eggs	2001	–	–	1 pool (n=20)	pg/g ww	–	–	–	3.7	–	32.8	–	54	6
	Kongsfjord (Finmark)	eggs	2001	–	–	1 pool (n=20)	pg/g ww	–	–	–	4.2	–	43.0	–	72	6
	Sommarøy	eggs	2001	–	–	1 pool (n=20)	pg/g ww	–	–	–	3.7	–	32.5	–	59	6
	Vardø	eggs	2001	–	–	1 pool (n=20)	pg/g ww	–	–	–	5.2	–	0.20	–	36	6
Glaucous gull																
Svalbard	Longyearbyen	liver	1990	adults	4.2±0.2	13	pg/g ww	–	–	2700000	–	–	2500	60000	2500	20
Goldeneye																
Kola Peninsula	–	muscle	2001	1-3	3.3	1 pool (n=12)	pg/g ww	0.57	0.45	–	–	–	–	5	0.17	2
Northern pintail																
Pechora Basin	–	muscle	2001	1-3	2.6	1 pool (n=10)	pg/g ww	0.17	0.11	–	–	–	–	1	0.3	2
Taymir Peninsula	Dudinka	muscle	2001	1-3	2.4	1 pool (n=5)	pg/g ww	0.42	0.36	–	–	–	–	4.6	0.11	2
Oldsquaw																
Taymir Peninsula	Khatanga	muscle	2001	1-2	2.2	1 pool (n=6)	pg/g ww	0.10	0.22	–	–	–	–	6.4	0.14	2
Chukotka Peninsula	Kanchalan	muscle	2001	1-2	2.7	1 pool (n=2)	pg/g ww	0.12	0.09	–	–	–	–	1.9	0.52	2
,,	Lavrentiya	muscle	2001	1-3	3.6	1 pool (n=9)	pg/g ww	0.13	0.11	–	–	–	–	0.5	0.02	2
Grey heron																
mid-Norway	Frøya	yolk sac	–	1 d	–	4	pg/g ww	–	–	–	–	–	–	1170	79.4	7
N Norway	Finnfjordøy	yolk sac	–	1 d	–	7	pg/g ww	–	–	–	–	–	–	1020	93.2	7
Marine mammals																
Ringed seal																
NT, Canada	Pangnirtung, Cumberland Sound	blubber	1993	7-9, m		3	pg/g lw	–	–	31000±11200	–	–	0.72±0.20	0.72	–	8
,,	Pangnirtung, Cumberland Sound	blubber	1993	8-13, f		3	pg/g lw	–	–	17800±1590	–	–	0.59±0.12	0.59	–	8
NWT, Canada	Holman Island	blubber	2000	0-35 year old m,f	91.3±3.1	20	pg/g ww	–	–	–	2.6	–	8.6±7.3	25	22	9,24
Russia	Kara Sea	blubber	1995	adults, f	92	3	pg/g ww	–	–	6530	–	–	147	160	147	23
Chukotka Peninsula	Lavrentiya	muscle	2001	1-3	5.4	1 pool (n=6)	pg/g ww	0.64	0.44	–	–	–	–	1.9	0.10	2
,,	,,	blubber	2001	1-3	98.9	1 pool (n=6)	pg/g ww	4.86	4.84	–	–	–	–	1.1	1.10	2
Bearded seal																
Chukotka Peninsula	Lavrentiya	muscle	2001	2-3	2.3	1 pool (n=2)	pg/g ww	0.65	0.38	–	–	–	–	4.4	0.10	2
,,	,,	blubber	2001	2-3	86.2	1 pool (n=2)	pg/g ww	10.60	4.30	–	–	–	–	1.0	0.97	2
Spotted seal																
Chukotka Peninsula	Lavrentiya	muscle	2001	1-2	4.5	1 pool (n=10)	pg/g ww	0.79	1.16	–	–	–	–	4.3	0.19	2
,,	,,	blubber	2001	1-2	83.0	1 pool (n=10)	pg/g ww	4.52	3.84	–	–	–	–	1.5	1.25	2
Northern fur seal																
Alaska	Pribilof Islands	blubber	1997-2000	subadults m,f	58.6±11.0	10	pg/g lw	–	–	–	–	–	28.7±17.9	30	17	10
,,	,,	blubber	1997-2000	pups	35.3±20.6	3	pg/g lw	–	–	–	–	–	89.8±94.4	90	32	10
,,	,,	blubber	1997-2000	adults f	45.7±4.27	4	pg/g lw	–	–	–	–	–	46.2±25.7	46	21	10
,,	,,	blubber	1997-2000	fetuses	38.5±21.9	2	pg/g lw	–	–	–	–	–	28.4±1.43	28	11	10
,,	St. George Isl., Pribilof Islands	blood	1996	neonates of young dams	0.30±0.39	23	pg/g ww	–	–	–	–	–	0.13±0.10	43	0.13	11
,,	,,	blood	1996	neonates of old dams	0.22±0.15	25	pg/g ww	–	–	–	–	–	0.06±0.06	27	0.06	11
,,	,,	blood	1996	pups of young dams	0.28±0.48	21	pg/g ww	–	–	–	–	–	0.08±0.04	29	0.08	11
,,	,,	blood	1996	pups of old dams	0.31±0.32	21	pg/g ww	–	–	–	–	–	0.08±0.32	26	0.08	11
Minke whale																
North Sea	–	blubber	2001	adults f	72 43-88	5	pg/g ww	–	–	–	1.9 0.6-2.3	–	27.5 8.2-48.4	93	66.9 25.1-103	12
Barents Sea	Spitsbergen	blubber	2001	adults f	63 35-75	5	pg/g ww	–	–	–	1.2 0.5-1.8	–	11.8 5.3-19.7	38	24.1 10.3-36.6	12
Gray whale																
Chukotka Peninsula	Lavrentiya	muscle	2001	2-3		1	pg/g ww	0.61	0.22	–	–	–	–	8.1	0.06	2
,,	,,	blubber	2001	2-3		1	pg/g ww	8.60	2.25	–	–	–	–	1.76	0.75	2
Beluga																
NT, Canada	Kimmirut	blubber	1994	1-6, m		3	pg/g lw	–	–	185000±116000	–	–	1.84±0.66	1.84	–	13
,,	,,	blubber	1994	6-20, f		3	pg/g lw	–	–	68300±47100	–	–	1.49±1.05	1.49	–	13
Baffin Island	Cumberland Sound	blubber	1997											6.1		22
Killer whales																
Alaska (resident)	Kenai Fiords/ Prince William Sound	blubber	1994-99	immature and mature, m,f	28±9.8	64	pg/g ww	–	–	–	–	–	29±33	100±98	29±33	14
Alaska (transient)	Kenai Fiords/ Prince William Sound	blubber	1994-99	immature and mature, m,f	24±9.5	13	pg/g ww	–	–	–	–	–	220±190	860±640	220±190	14
Harbour porpoise																
Norwegian Sea	W coast of Norway	blubber	1988-90	m	–	8	pg/g lw	12±4.8		1560±2740	3.1		108	111	–	15
Greenland	SW coast	blubber	1995	immature and mature, m,f	–	4	pg/g lw	3.6			0.4	–	–	0.4	–	21
Arctic fox																
Alaska	Pribilof Islands	fat	1996-97	f	44.0	3	pg/g ww	–	–	–	–	–	22.7	48	22.7	16
,,	,,	fat	1996-97	m	49.0	5	pg/g ww	–	–	–	–	–	69.5	151	69.5	16

Continued next page.

Annex Table 16 continued.

Species/Region	Location	Tissue	Year	Age/Sex	% Lipid	n	Units	Concentration ΣPCDDs	Concentration ΣPCDFs	Concentration ΣnPCBs	TEQ ΣPCDDs	TEQ ΣPCDFs	TEQ ΣnPCBs	ΣTEQs pg/g lw	ΣTEQs pg/g ww	Reference
Polar bear																
Canada	Queen Maud Gulf (I)	adipose	1984	–	–	1 pool (n=9)	pg/g lw	13.6	–	–	–	–	–	–	–	17
,,	,,	adipose	1990	–	–	1 pool (n=10)	pg/g lw	3.78	–	–	–	–	–	–	–	17
,,	Barrow Strait (II)	adipose	1984	–	–	1 pool (n=7)	pg/g lw	15.8	–	–	–	–	–	–	–	17
,,	,,	adipose	1990	–	–	1 pool (n=9)	pg/g lw	3.40	–	–	–	–	–	–	–	17
,,	North Baffin Bay (III)	adipose	1984	–	–	1 pool (n=10)	pg/g lw	4.00	–	–	–	–	–	–	–	17
,,	,,	adipose	1990	–	–	1 pool (n=10)	pg/g lw	2.90	–	–	–	–	–	–	–	17
,,	Davis Strait (IV)	adipose	1984	–	–	1 pool (n=7)	pg/g lw	2.20	–	–	–	–	–	–	–	17
,,	,,	adipose	1990	–	–	1 pool (n=10)	pg/g lw	1.20	–	–	–	–	–	–	–	17
Terrestrial mammals & birds																
Reindeer																
Russia	Kola Peninsula	liver	2001	2-4	6.3	10	pg/g ww	6.49	23.6	–	–	–	–	105	6.52	2
,,	,,	muscle	2001	2-4	4.9	10	pg/g ww	0.78	4.24	–	–	–	–	20	0.98	2
,,	Pechora Basin	liver	2001	2-4	6.4	10	pg/g ww	1.52	10.5	–	–	–	–	38	2.45	2
,,	,,	muscle	2001	2-4	4.5	10	pg/g ww	0.37	0.38	–	–	–	–	2.2	0.10	2
,,	Dudinka, Taymir Peninsula	liver	2001	1-8	3.9	10	pg/g ww	0.59	2.40	–	–	–	–	18.2	0.71	2
,,	,,	muscle	2001	1-8	2.4	10	pg/g ww	0.16	0.13	–	–	–	–	1.3	0.03	2
,,	Khatanga, Taymir Peninsula	liver	2001	1-8	6.1	10	pg/g ww	0.61	1.51	–	–	–	–	8.0	0.49	2
,,	,,	muscle	2001	1-8	11.1	10	pg/g ww	0.29	0.19	–	–	–	–	0.75	0.08	2
,,	Kanchalan, Chukotka Peninsula	liver	2001	3-4	4.3	10	pg/g ww	1.03	0.80	–	–	–	–	5.2	0.22	2
,,	,,	muscle	2001	3-4	1.5	10	pg/g ww	0.32	0.34	–	–	–	–	4.4	0.07	2
,,	Lavrentiya, Chukotka Peninsula	liver	2001	2-5	5.7	10	pg/g ww	0.48	0.65	–	–	–	–	4.2	0.24	2
	,,	muscle	2001	2-5	2.1	10	pg/g ww	0.57	0.33	–	–	–	–	2.6	0.05	2
Hare																
Russia	Kola Peninsula	muscle	2001	0-2	2.0	10	pg/g ww	0.46	2.86	–	–	–	–	29.5	0.60	2
,,	Pechora Basin	muscle	2001	0-3	1.6	10	pg/g ww	0.09	0.20	–	–	–	–	2.7	0.04	2
,,	Dudinka, Taymir Peninsula	muscle	2001	0-3	2.3	15	pg/g ww	0.30	0.10	–	–	–	–	1.4	0.03	2
,,	Khatanga, Taymir Peninsula	muscle	2001	1-3	1.2	10	pg/g ww	0.14	0.09	–	–	–	–	3.4	0.04	2
,,	Lavrentiya, Chukotka Peninsula	liver	2001	1-3	3.9	10	pg/g ww	0.85	0.35	–	–	–	–	2.5	0.10	2
,,	,,	muscle	2001	1-3	2.1	10	pg/g ww	0.13	0.14	–	–	–	–	1.8	0.04	2
Ptarmigan																
Russia	Pechora Basin	muscle	2001	0-3	1.7	1 pool (n=10)	pg/g ww	0.12	0.25	–	–	–	–	2.8	0.05	2
,,	Dudinka, Taymir Peninsula	muscle	2001	1-3	2.1	1 pool (n=20)	pg/g ww	0.22	0.16	–	–	–	–	1.8	0.04	2
Willow grouse																
Russia	Kola Peninsula	muscle	2001	1-3	1.9	1 pool (n=20)	pg/g ww	0.40	0.24	–	–	–	–	3.1	0.06	2
,,	Khatanga, Taymir Peninsula	muscle	2001	1-2	2.2	1 pool (n=10)	pg/g ww	0.47	0.14	–	–	–	–	2.2	0.05	2
,,	Kanchalan, Chukotka Peninsula	muscle	2001	1-3	2.3	1 pool (n=10)	pg/g ww	0.07	0.08	–	–	–	–	0.9	0.20	2
,,	Lavrentiya, Chukotka Peninsula	muscle	2001	1-3	1.5	1 pool (n=10)	pg/g ww	0.03	0.08	–	–	–	–	1.2	0.02	2

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4. Braune *et al.*, 2001a; TEQ values calculated using World Health Organization (WHO) avian toxic equivalency factors (TEFs) for PCDDs, PCDFs, and non-*ortho* PCBs as given in van den Berg *et al.* (1998)
5. Kuzyk *et al.*, 2003; combined sum of ΣPCDDs and ΣPCDFs TEQs provided, ΣnPCBs = CB77, 126, 169; TEQ values calculated using World Health Organization (WHO) avian toxic equivalency factors (TEFs) for PCDDs, PCDFs and non-*ortho* PCBs as given in van den Berg *et al.* (1998)
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Annex Table 17. Congener specific concentrations of PBDEs in marine, freshwater and terrestrial biota.

Species/Region	Tissue	Year	Sex	% lipid	n	Statistic	BDE15	BDE52	BDE47	BDE49	BDE85	BDE99	BDE100	BDE138	BDE153	BDE154	BDE183	BDE209	ΣPBDEs	Reference
Terrestrial biota (ng/g ww)																				
Peregrine falcon																				
N Sweden	egg	1991-1999	–	5.57	17	mean	–	–	16			40	25		90	19	15	5.5 (n=8)	260	1
				4.05-6.73		range	–	–	1.3-150			7.6-130	4.3-210		17-410	3.2-180	3-68	1.3-14	43-1580	
Freshwater fish (ng/g ww)																				
Burbot																				
Fort Good Hope, NWT	liver	1988	m,f	30.2±13.5	10	mean±SD	–	–	226±280		–	84.5±131	35.2±46.7	–	29.4±44.7	20.5±28.9	–	–	–	2
,,	liver	1999	m,f	35.0±9.59	4	mean±SD	–	–	583±522		–	370±270	208±155	–	161±125	157±116	–	–	–	2
,,	liver	2000	m,f	33.3±13.1	11	mean±SD	–	–	620±629		–	320±274	180±183	–	135±134	81.3±84.2	–	–	–	2
Lake Hurdal, Norway	liver	–	–	45.7	1	–	<0.01	<0.02	149		–	43.0	–	–	26.8	–	–	–	–	3
Mjøsa/Furnes, Norway	liver	–	–	49.7	1	–	<0.01	<0.02	1040		–	910	–	–	188	–	–	–	–	3
Møsa/Lillehammer	liver	–	–	42.7	1	–	<0.01	<0.02	324		–	332	–	–	32.1	–	–	–	–	3
Lake Grensefoss (Pasvikelva), Norway	muscle	1999/2000	–	11.6	1?	–	–	–	9.69	–	–	10.6	–	–	–	–	–	–	20.3	4
Trout																				
Lake Takvatn, Norway	muscle	1999/2000	–	1.8	1?	–	–	–	0.10	–	–	0.06	–	–	–	–	–	–	0.15	4
Lake Fjellfrøsvatnet 99, Norway	muscle	1999/2000	–	1.1	1?	–	–	–	0.08	–	–	0.07	–	–	–	–	–	–	0.14	4
Lake Grunnvatnet, Norway	muscle	1999/2000	–	1.3	1?	–	–	–	0.06	–	–	0.04	–	–	–	–	–	–	0.10	4
Lake Store Raudvannet, Norway	muscle	1999/2000	–	2.5	1?	–	–	–	0.21	–	–	0.16	–	–	–	–	–	–	0.36	4
Char																				
Lake Ellasjøen, Svalbard	muscle	1999/2000	–	1.3	1?	–	–	–	8.27	–	–	8.02	–	–	–	–	–	–	16.3	4
Marine fish (ng/g ww)																				
Atlantic cod																				
Lofoten, Norway	liver	–	–	67.7	1	–	<0.01	<0.01	15.0	–	–	0.77	–	–	0.60	–	–	–	–	5
W coast, Norway	liver	–	–	75.2	1	–	<0.01	<0.03	19.5	–	–	0.83	–	–	1.00	–	–	–	–	5
S coast, Norway	liver	–	–	45.2	1	–	<0.02	<0.04	48.8	–	–	0.52	–	–	0.30	–	–	–	–	5
Oslofjord, Norway	liver	–	–	40.0	1	–	0.10	0.02	32.3	–	–	0.78	–	–	0.85	–	–	–	–	5
SW Greenland	liver	2000	–	57.6±3.8	3	mean±SD	–	–	1.79±0.20	–	–	0.32±0.07	–	–	–	–	–	–	5.13±0.85	6
,,	muscle	2000	–	0.7	2	mean	–	–	0.21	–	–	3.35	–	–	–	–	–	–	3.35	6
Greenland halibut																				
SW Greenland	liver	2000	–	36.3±6.3	3	mean±SD			1.04±0.58	–	–	0.18±0.07	–	–		–	–	–	2.71±0.99	6
Tusk																				
Norwegian Sea	liver	–	–	60.4	1	–	<0.02	<0.03	36.5	–	–	1.48	–	–	1.55	–	–	–	–	5
Nordfjord	liver	–	–	46.8	1	–	<0.02	<0.04	142	–	–	1.98	–	–	8.70	–	–	–	–	5
Seabirds (ng/g ww)																				
Glaucous gull																				
Bjørnøya	liver	1995	m,f	3.4-11.5	18	range	n.d.	n.d.	0.14-1.8		–	–	–	–	n.d.	–	–	–	–	7
Great black-backed and herring gulls																				
Alta, Norway	eggs	2001	–	–	20		–	–	38.3		–	2.8	–	–	–	–	–	–	–	9
Kongsfjord (Finmark), Norway	eggs	2001	–	–	20		–	–	40.9		–	3.7	–	–	–	–	–	–	–	9
Sommarøy, Norway	eggs	2001	–	–	20		–	–	51.6		–	1.7	–	–	–	–	–	–	–	9
Vardø, Norway	eggs	2001	–	–	20		–	–	50.2		–	4.5	–	–	–	–	–	–	–	9
Thick-billed murre																				
SW Greenland	liver	1999	–	5.1±0.6	4	mean±SD	–	–	0.36±0.11			0.26±0.10	–		–	–	–	–	1.71±1.55	6
Black guillemot																				
Greenland	liver	1999	–	4.9±1.2	5	mean±SD	–	–	1.12±0.56			0.22±0.09	–		–	–	–	–	2.97±2.80	6
Marine mammals (ng/g ww)																				
Ringed seal																				
Holman	blubber	1996	m	–	8	mean	–	–	2.8	–	–	–	–	–	–	–	–	–	3.44	10
,,	blubber	2000	m	–	8	mean	–	–	3.7	–	–	–	–	–	–	–	–	–	4.62	10
W Greenland	muscle	2000	–	10.5	2	mean	–	–	4.63	–	–	0.37	–	–	–	–	–	–	6.28	6
,,	blubber	2000	–	88.1±7.1	9	mean±SD	–	–	2.4±0.7	–	–	0.4±0.2	–	–	–	–	–	–	3.6±1.1	6
NE Greenland	blubber	2000	–	106±18.7	8	mean±SD	–	–	40.6±15.5	–	–	4.6±1.2	–	–	–	–	–	–	58.0±22.6	6
Pangnirtung, Baffin Island	blubber	1993	f	94±1.5	3	mean±SD	–	–	0.33±0.15	–	–	0.11±0.01	–	–	–	–	–	–	0.05±0.18	11
,,	blubber	1993	m	95	2	mean	–	–	0.76	–	–	0.09	–	–	–	–	–	–	0.97	11
Minke whale																				
Barents Sea	muscle	–	–	0.47	1	–	<0.01	<0.01	0.12	–	–	0.03	–	–	<0.05	–	–	–	–	3
			–	1.03	1	–	<0.01	<0.01	0.35	–	–	0.10	–	–	<0.03	–	–	–	–	3
Norwegian Sea	muscle	–	–	0.72	1	–	<0.01	<0.01	2.12	–	–	0.94	–	–	0.07	–	–	–	–	3
			–	3.62	1	–	<0.01	<0.01	11.0	–	–	3.48	–	–	<0.05	–	–	–		
Beluga																				
Kimmirut, Baffin Island	blubber	1994	f	92.9±1.7	3	mean±SD	–	–	1.09±0.82	–	–	0.19±0.06	–	–	–	–	–	–	1.44±1.01	11
,,	blubber	1994	m	93.5±1.9	3	mean±SD	–	–	2.14±0.66	–	–	0.32±0.07	–	–	–	–	–	–	2.84±0.90	11
Hendrickson Island, W Canada	blubber	1989	m	90.1±3.7	12	mean±SD	–	–	5.81±2.26	3.45±1.53	–	0.59±0.27	0.60±0.23	–	0.03±0.02	0.11±0.04	–	–	11.7±4.43	12
,,	blubber	1995	m	92.6±1.8	9	mean±SD	–	–	8.76±2.45	3.12±1.61	–	1.03±0.28	1.13±0.30	–	0.12±0.04	0.38±0.11	–	–	15.5±4.40	12
,,	blubber	2001	m	93.1±3.5	11	mean±SD	–	–	8.77±4.78	1.29±0.88	–	1.71±0.99	1.48±0.90	–	0.36±0.19	0.63±0.40	–	–	15.5±8.52	12
Svalbard	blubber	1998	m,f	4-90	9	mean±SD	–	–	77.8±46.4	–	n.d.	5.15±2.78	–	n.d.	n.d.	–	–	–	92.9±56.5	13

Continued next page.

Annex Table 17 continued.

Species/Region	Tissue	Year	Sex	% lipid	n	Statistic	BDE15	BDE52	BDE47	BDE49	BDE85	BDE99	BDE100	BDE138	BDE153	BDE154	BDE183	BDE209	ΣPBDEs	Reference
Long-finned pilot whales																				
Faroe Islands, Denmark																				
Hvannasund	blubber	1994	f	82	9, pooled	–	–	–	412	–	–	164	–	–	32.0	–	–	–	691	13
Vestmanna	blubber	1996	m,f	66-79	4 pools (n=19,8,13,4)	range	–	–	896±471	–	–	305±148	–	–	46.8±18.6	–	–	–	1620±790	13,14
Torshavn	blubber	1997	m,f	52-85	12	range	–	–	289±192	–	n.d.	61.9±36.9	–	n.d.	5.50±3.05	–	–	–	647±410	13,14
Leynar	blubber	1997	m,f	83-86	4 pools (n=3,28,9,10)	range	–	–	232±80.1	–	n.d.	46.6±9.46	–	n.d.	3.91±0.72	–	–	–	522±210	13,14
Sandavagur	blubber	1997	m,f	64-80	4 pools (n=8,18,19,7)	range	–	–	358±142	–	n.d.	64.1±26.0	–	n.d.	3.12±1.20	–	–	–	770±310	13,14
Hvalvik	blubber	1998	m,f	66-83	4 pools (n=6,20,9,16)	range	–	–	188±48.2	–	n.d.	34.8±7.92	–	n.d.	4.58±1.49	–	–	–	554±147	13,14
Faroe Islands	blubber	2000	f,?	2-83	6	range	–	–	76.6±53.5	–	n.d.	13.2±10.7	–	n.d.	2.1±0.3	–	–	–	144±107	13
Polar bear																				
Svalbard	adipose	1998	m,f	5-67	20	range	–	–	17.5±9.75	–	n.d.	n.d.	–	n.d.	n.d.	–	–	–	17.5±9.75	13

References

1. Sellström *et al.*, 2001; Lindberg *et al.*, 2004.
2. Stern *et al.*, 2001a.
3. Herzke *et al.*, 2001b.
4. Schlabach *et al.*, 2001. ΣPBDEs = sum of BDE47 and 99.
5. Herzke, 2002a; Concentrations converted from lipid weight to wet weight using mean % lipid content.
6. Muir and Johansen, 2001; ΣPBDEs = sum of 42 congeners, including 209.
7. Herzke, 2003.
8. Braune *et al.* 2001a.
9. Gabrielsen, 2002.
10. Ikonomou *et al.* 2002.
11. Muir *et al.*, 1999d; ΣPBDEs = sum of mono-, di-, tri- tetra-, penta-, hexa-, and hepta-brominated diphenyl ethers.
12. Stern, 2001.
13. van Bavel *et al.*, 2001; ΣPBDEs = sum of 21 tetra-, penta- and hexa-brominated diphenyl ethers (several unnamed, but includes 47, 99, 85, 153, 138).
14. Lindström *et al.*, 1999; see footnote 13.