

Table 10-A1. Concentrations of petroleum hydrocarbons in freshwater.

Location	Year	n	Concentration, µg/L	Reference	Remarks	Analytical method
Canada						
Fort Simpson, NWT	1986		0.591	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	Method not specified
Wrigley, NWT	1986		0.147	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	Method not specified
Halfway Island, NWT	1986		0.239	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	Method not specified
Hardy Island, NWT	1986		0.41	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	Method not specified
Fort Good Hope, NWT	1986		0.505	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	Method not specified
Arctic Red River, NWT	1986		0.168	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	Method not specified
Inuvik, NWT	1986		0.219	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	Method not specified
Liard River, NWT	1986		0.284	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	Method not specified
Mackenzie River, NWT (E. Channel)	1986	20	<0.074	Erickson and Fowler 1987	nC12-nC36 alkanes; Bottle sampler	GD/FID
Mackenzie River at Norman Wells	1986		<0.01-0.06	Morgan <i>et al.</i> 1987		
Mackenzie River, NWT	1986	7	<0.023	Erickson and Fowler 1987	nC12-nC36 alkanes; <i>In situ</i> sampler	GC/FID
Mackenzie River, NWT	1986	22	0.05-0.5	Jefferies <i>et al.</i> 1996	nC11-nC36 alkanes	GC or GD/MS
Mackenzie River Delta, NWT	1969	1	Trace	Thomas <i>et al.</i> 1990	n-alkanes	GC
Russia						
Pechenga River	1989-1991		7-8% of samples > 50	ACOPS 1995	Total petroleum HCs	IR
Nama-Yoki River	1989/91/1993		15-20% of samples > 50	ACOPS 1995	Total petroleum HCs	IR
Luoytti-Yoki River	1991-1992		10% of samples > 50	ACOPS 1995	Total petroleum HCs	IR
Kolos-Yoki River	1992-1993		15-20% of samples > 50	ACOPS 1995	Total petroleum HCs	IR
Komariny Stream	Various		10-60% of samples > 50	ACOPS 1995	Total petroleum HCs	IR
Permus Lake	Various		10-20% of samples > 50	ACOPS 1995	Total petroleum HCs	IR
Norilo-Pyasinkay watershed	—		n.d.-200	ACOPS 1995	Total petroleum HCs	IR
Khatanga River, Khatanga Port	1992		~50-160	ACOPS 1995	Total petroleum HCs	IR
Lena River Delta	1992		<50	ACOPS 1995	Total petroleum HCs	IR
Mesen River, near inland port	1992		40 (average)	ACOPS 1995	Total petroleum HCs	IR
Onega River, near port facility	1992		~40	ACOPS 1995	Total petroleum HCs	IR
Pechora River, Naryan Mar	1992		50 (average)	ACOPS 1995	Total petroleum HCs	IR
Rivers of Kola Peninsula	1990	745	mean 20; max (95%) 90	Hydrochemical Institute 1992	Total petroleum HCs	IR
Rivers of Kola Peninsula	1991	702	mean 30; max (95%) 160	Hydrochemical Institute 1992	Total petroleum HCs	IR
Rivers of Kola Peninsula	1992	634	mean 20; max (95%) 110	Hydrochemical Institute 1993	Total petroleum HCs	IR
Rivers of Kola Peninsula	1993	683	mean 30; max (95%) 120	Hydrochemical Institute 1994	Total petroleum HCs	IR
Rivers of Kola Peninsula	1994	455	mean 10; max (95%) 80	Hydrochemical Institute 1996	Total petroleum HCs	IR
Northern Dvina River, average	1990	371	mean 30; max (95%) 90	Hydrochemical Institute 1992	Total petroleum HCs	IR
Northern Dvina River, average	1991	314	mean 30; max (95%) 90	Hydrochemical Institute 1992	Total petroleum HCs	IR
Northern Dvina River, average	1992	327	mean 30; max (95%) 110	Hydrochemical Institute 1993	Total petroleum HCs	IR
Northern Dvina River, average	1993	336	mean 40; max (95%) 180	Hydrochemical Institute 1994	Total petroleum HCs	IR
Northern Dvina River, average	1994	247	mean 59; max (95%) 170	Hydrochemical Institute 1996	Total petroleum HCs	IR
Northern Dvina River, Novodvinsk	1993		mean 50; max 450	ACEP 1994	Total petroleum HCs	IR
Northern Dvina River, Ust-Pinega	1993		max 350	ACEP 1994	Total petroleum HCs	IR
River Mezen, near Malonyogorskaya	1992		17% samples > 50	ACEP 1994	Total petroleum HCs	IR
River Mezen, average	1994		max > 50	Hydrochemical Institute 1996	Total petroleum HCs	IR
River Pechora, mouth	1991-1993		mean 25; range 10-95	Melnikov <i>et al.</i> 1996	Total petroleum HCs	IR
River Pechora, Naryan-Mar	VI-VII 1995		10-100	Melnikov 1995, unpubl. data	Total petroleum HCs	IR
River Ob, near Sytomino	1991		650-1250	Hydrochemical Institute 1992	Total petroleum HCs	IR
River Ob, Salekhard	1991		mean 600	Hydrochemical Institute 1992	Total petroleum HCs	IR
River Ob, near Sytomino	1992		mean 800	Hydrochemical Institute 1993	Total petroleum HCs	IR
River Ob, Salekhard	1992		mean 600; max 2150	Hydrochemical Institute 1993	Total petroleum HCs	IR
River Ob, near Sytomino	1993		mean 700	Hydrochemical Institute 1994	Total petroleum HCs	IR
River Ob, Salekhard	1993		mean 1500; max 3100	Hydrochemical Institute 1994	Total petroleum HCs	IR
River Ob, near Sytomino	1994		mean 550	Hydrochemical Institute 1996	Total petroleum HCs	IR
River Ob, Salekhard	1994		mean 500; max 1750	Hydrochemical Institute 1996	Total petroleum HCs	IR
River Ob, mouth	1985-1995		mean 23; range 10-65	Melnikov <i>et al.</i> 1996	Total petroleum HCs	IR
River Ob, average	1990	438	mean 540; max (95%) 2310	Hydrochemical Institute 1992	Total petroleum HCs	IR
River Ob, average	1991	396	mean 490; max (95%) 1830	Hydrochemical Institute 1993	Total petroleum HCs	IR
River Ob, average	1992	349	mean 430; max (95%) 1400	Hydrochemical Institute 1993	Total petroleum HCs	IR
River Ob, average	1993	341	mean 500; max (95%) 1730	Hydrochemical Institute 1996	Total petroleum HCs	IR
River Ob, average	1994	311	mean 450; max (95%) 980	Hydrochemical Institute 1996	Total petroleum HCs	IR
River Yenisey, Igarka	1991		mean 850	Hydrochemical Institute 1992	Total petroleum HCs	IR
River Yenisey, Dudinka	1991		mean 200	Hydrochemical Institute 1992	Total petroleum HCs	IR
River Yenisey, Lesosibirsk	1993		mean 100	Hydrochemical Institute 1994	Total petroleum HCs	IR
River Yenisey, Dudinka	1994		mean < 100	Hydrochemical Institute 1996	Total petroleum HCs	IR
River Yenisey, mouth	1985-1995		mean 21; range 15-85	Melnikov <i>et al.</i> 1996	Total petroleum HCs	IR
River Yenisey, average	1990	509	mean 410; max (95%) 1070	Hydrochemical Institute 1992	Total petroleum HCs	IR
River Yenisey, average	1991	456	mean 520; max (95%) 1330	Hydrochemical Institute 1992	Total petroleum HCs	IR
River Yenisey, average	1992	393	mean 460; max (95%) 1110	Hydrochemical Institute 1994	Total petroleum HCs	IR

River Yenisey, average	1993	346	mean 350; max (95%) 1010	Hydrochemical Institute 1994	Total petroleum HCs	IR
River Yenisey, average	1994	314	mean 380; max (95%) 940	Hydrochemical Institute 1996	Total petroleum HCs	IR
River Lena, average	1990	249	mean 80; max (95%) 280	Hydrochemical Institute 1992	Total petroleum HCs	IR
River Lena, average	1991	219	mean 90; max (95%) 330	Hydrochemical Institute 1992	Total petroleum HCs	IR
River Lena, average	1992	199	mean 130; max (95%) 580	Hydrochemical Institute 1994	Total petroleum HCs	IR
River Lena, average	1993	198	mean 100; max (95%) 490	Hydrochemical Institute 1994	Total petroleum HCs	IR
River Lena, average	1994	215	mean 30; max (95%) 150	Hydrochemical Institute 1996	Total petroleum HCs	IR
River Lena, mouth	1985-1995		mean 24; range 10-70	Melnikov <i>et al.</i> 1996	Total petroleum HCs	IR
River Kolyma, average	1990	379	mean 20; max (95%) 200	Hydrochemical Institute 1992	Total petroleum HCs	IR
River Kolyma, average	1991	354	mean 20; max (95%) 160	Hydrochemical Institute 1992	Total petroleum HCs	IR
River Kolyma, average	1992	267	mean 30; max (95%) 200	Hydrochemical Institute 1994	Total petroleum HCs	IR
River Kolyma, average	1993	243	mean 80; max. (95%) 290	Hydrochemical Institute 1994	Total petroleum HCs	IR
River Kolyma, average	1994	190	mean 100; max (95%) 410	Hydrochemical Institute 1996	Total petroleum HCs	IR
River Kolyma, mouth	1985-1995		mean 20; range 4-45	Melnikov <i>et al.</i> 1996	Total petroleum HCs	IR
USA						
Ponds and lakes (ANWR), Alaska	1988	93	<10-13	Snyder-Conn and Lubinski 1993	nC12-nC20 alkanes, pristane, phytane	Method not specified
Ponds and lakes (ANWR), Alaska	1989	95	<10-13	Snyder-Conn and Lubinski 1993	nC12-nC20 alkanes, pristane, phytane	Method not specified

Table 10-A2. Concentrations of petroleum hydrocarbons in freshwater particulates.

Location	Year	Depth, m	Concentration, µg/g dry weight	Reference	Remarks	Analytical method
Canada						
Mackenzie River at Fort Simpson, NWT	1986		1.523	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	GC/FID
Mackenzie River at Wrigley, NWT	1986		0.791	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	GC/FID
Mackenzie River at Halfway Island, NWT	1986		0.125	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	GC/FID
Mackenzie River at Hardy Island, NWT	1986		0.205	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	GC/FID
Mackenzie River at Fort Good Hope, NWT	1986		0.255	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	GC/FID
Mackenzie River at Arctic Red River, NWT	1986		1.116	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	GC/FID
Mackenzie River at Inuvik, NWT	1986		0.773	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	GC/FID
Liard River, NWT	1986		0.994	Nagy <i>et al.</i> 1987	nC12-nC26 alkanes	GC/FID
Mackenzie River Delta, NWT	1986	20	30 µg/L (average)	Erickson and Fowler 1987	nC25-nC36 alkanes; Bottle sampler	GC/FID
Mackenzie River Delta, NWT	1986	6	18 µg/L (average)	Erickson and Fowler 1987	nC25-nC36 alkanes; <i>in situ</i> sampler	GC/FID
Mackenzie River Delta, NWT	1986	4	14 µg/L (average)	Erickson and Fowler 1987	nC25-nC36 alkanes; Continuous flow centrifuge	GC/FID
Mackenzie River Delta, NWT	1986	10	3.9 (average)	Yunker <i>et al.</i> 1993	nC23-nC33 alkanes	GC/FID
Mackenzie River Delta, NWT	1987	10	8 (average)	Yunker <i>et al.</i> 1993	nC23-nC33 alkanes	GC/FID
Mackenzie River at Norman Wells, NWT	1987		0.4-0.8	Yunker <i>et al.</i> 1993	nC23-nC33 alkanes	GC/FID
Mackenzie River Delta, NWT	1987	36	12.4 (average)	Yunker and Macdonald 1995	nC13-nC36 alkanes	GC/FID

Table 10-A3. Concentrations of petroleum hydrocarbons in seawater.

Location	Year	n	Depth, m	Concentration, range/mean, µg/L	Reference	Remarks	Analytical method
Canada							
Tuktoyaktuk Harbor, NWT	1986	4		0.016-0.162	Thomas 1988	nC12 to nC38 + isoprenoids	IR
Tuktoyaktuk Harbor, NWT	1987	4	2	0.010-0.099	Thomas 1988	nC12 to nC38 + isoprenoids	IR
Coastal Baffin Island	1980			0.5-3	Cretney <i>et al.</i> 1987b		
Baffin Bay				<1.1	Levy 1981		
S. Beaufort Sea	1974	32	0-60	72-617 nL/L (STP)	Macdonald 1976	Methane	
S. Beaufort Sea	1974	33	0-60	0.14-0.92 nL/L (STP)	Macdonald 1976	Ethylene	
S. Beaufort Sea	1974	33	0-60	0.02-0.39 nL/L (STP)	Macdonald 1976	Propane	
S. Beaufort Sea	1974	33	0-60	0.09-1.59 nL/L (STP)	Macdonald 1976	Propylene	
S. Beaufort Sea	1974	32	0-60	0.01-0.25 nL/L (STP)	Macdonald 1976	Butane	
S. Beaufort Sea	1975	48	0-60	15.4-1151 nL/L (STP)	Macdonald 1976	Methane	
S. Beaufort Sea	1975	48	0-60	0.34-1.80 nL/L (STP)	Macdonald 1976	Ethane	
S. Beaufort Sea	1975	48	0-60	0.18-4.14 nL/L (STP)	Macdonald 1976	Ethylene	
S. Beaufort Sea	1975	48	0-60	0.11-0.90 nL/L (STP)	Macdonald 1976	Propane	
S. Beaufort Sea	1975	48	0-60	0.14-2.50 nL/L (STP)	Macdonald 1976	Propylene	
S. Beaufort Sea	1975	48	0-60	0.02-0.21 nL/L (STP)	Macdonald 1976	Butane	
Denmark (Greenland)							
Færingehavn				0.052-0.074	Ahnoff <i>et al.</i> 1983	nC13 to nC19	

Location	Year	n	Depth, m	Concentration range/mean, µg/L	Reference	Remarks	Analytical method
Russia							
Pechora Gulf (68°N, 54-57°E)	1995	10	0-1	11.2-33.0	RCMA 1995	Total petroleum HC	IR
White Sea (64-68°N, 35-43°E)	1995	12	1	11.7-28.7	RCMA 1995	Total petroleum HC	IR
White Sea (67°N, 43°E)	1995	1	30	13.5	RCMA 1995	Total petroleum HC	IR
White Sea (66°N, 41°E)	1995	1	35	30.6	RCMA 1995	Total petroleum HC	IR
White Sea (66°N, 38°E)	1995	1	100	18.5	RCMA 1995	Total petroleum HC	IR
White Sea (64°N, 38°E)	1995	1	12	12.4	RCMA 1995	Total petroleum HC	IR
White Sea (65°N, 30°E)	1995	1	72	12.8	RCMA 1995	Total petroleum HC	IR
Kara Sea (59-77°N, 59-85°E)	1995	22	1	<10-114.0	RCMA 1995	Total petroleum HC	IR
Kara Sea (69-73°N, 61-78°E)	1995	2	25	<10-14.8	RCMA 1995	Total petroleum HC	IR
Kara Sea (71°N, 61°E)	1995	1		21.2	RCMA 1995	Total petroleum HC	IR
Kara Sea (72°N, 60°E)	1995	1	115	13.6	RCMA 1995	Total petroleum HC	IR
Kara Sea (75°N, 80°E)	1995	1	36	49.5	RCMA 1995	Total petroleum HC	IR
Kara Sea (77°N, 86°E)	1995	1	50	<10	RCMA 1995	Total petroleum HC	IR
Kara Sea (75°N, 83°E)	1995	1	35	12.3	RCMA 1995	Total petroleum HC	IR
Kara Sea (74°N, 65-80°E)	1995	2	30	<10-20.0	RCMA 1995	Total petroleum HC	IR
Kara Sea (74°N, 78°E)	1995	1	15	22.5	RCMA 1995	Total petroleum HC	IR
Kara Sea (75°N, 73°E)	1995	1	28	13.2	RCMA 1995	Total petroleum HC	IR
Kara Sea (74°N, 74°E)	1995	1	24	161	RCMA 1995	Total petroleum HC	IR
Kara Sea (73°N, 64°E)	1995	1	65	<10	RCMA 1995	Total petroleum HC	IR
Kara Sea, Ob Gulf (68-72°N, 72-74°E)	1995	12	1	<10-66.5	RCMA 1995	Total petroleum HC	IR
Kara Sea, Ob Gulf (70-72°N, 72°E)	1995	2	18	28.5-31.3	RCMA 1995	Total petroleum HC	IR
Kara Sea, Ob Gulf (71°N, 72E°)	1995	1	16	16.3	RCMA 1995	Total petroleum HC	IR
Kara Sea, Ob Gulf (68°N, 74°E)	1995	1	15	29	RCMA 1995	Total petroleum HC	IR
Kara Sea, Yenisey Gulf (71-73°N, 79-83°E)	1995	8	1	<10-105	RCMA 1995	Total petroleum HC	IR
Kara Sea, Yenisey Gulf (73°N, 80°E)	1995	1	13	26	RCMA 1995	Total petroleum HC	IR
Kara Sea, Yenisey Gulf (72°N, 82°E)	1995	1	25	22.6	RCMA 1995	Total petroleum HC	IR
Kara Sea, Yenisey Gulf (71°N, 83°E)	1995	1	30	85	RCMA 1995	Total petroleum HC	IR
Kara Sea, Baydaratskaya Gulf (68-69°N, 65-67°E)	1995	5	1	14.5-31.5	RCMA 1995	Total petroleum HC	IR
Kara Sea, Baydaratskaya Gulf (70°N, 66°E)	1995	1	24	35.7	RCMA 1995	Total petroleum HC	IR
Kara Sea, Baydaratskaya Gulf (69°N, 66°E)	1995	1	22	24.2	RCMA 1995	Total petroleum HC	IR
Kara Sea, Baydaratskaya Gulf (69°N, 68°E)	1995	1	15	<10	RCMA 1995	Total petroleum HC	IR
Kara Sea, Baydaratskaya Gulf (69°N, 68°E)	1995	1	20	<10	RCMA 1995	Total petroleum HC	IR
White Sea	1987-1992		Surface	2-250	Melnikov <i>et al.</i> 1992	Total petroleum HC	IR
Barents Sea	1987-1992		Surface	0-150	Melnikov <i>et al.</i> 1992	Total petroleum HC	IR
Kara Sea	1987-1992		Surface	0-85	Melnikov <i>et al.</i> 1992	Total petroleum HC	IR
Laptev Sea	1987-1992		Surface	3-290	Melnikov <i>et al.</i> 1992	Total petroleum HC	IR
East Siberian Sea	1987-1992		Surface	0-62	Melnikov <i>et al.</i> 1992	Total petroleum HC	IR
Laptev Sea (72-75°N, 114-136°E)	1994	25	1	0-114	RCMA 1994	Total petroleum HC	IR
Laptev Sea (75°N-114°E)	1994	1	37	0	RCMA 1994	Total petroleum HC	IR
Laptev Sea (75°, 132°E)	1994	1	16	0	RCMA 1994	Total petroleum HC	IR
Laptev Sea (75°N, 136°E)	1994	1	17	0	RCMA 1994	Total petroleum HC	IR
Laptev Sea (74°N, 126°E)	1994	1	30	51	RCMA 1994	Total petroleum HC	IR
Laptev Sea (74°N, 132°E)	1994	1	15	12	RCMA 1994	Total petroleum HC	IR
Laptev Sea (73°N, 130°E)	1994	1	22	39	RCMA 1994	Total petroleum HC	IR
Laptev Sea (72°, 134°E)	1994	1	20	16	RCMA 1994	Total petroleum HC	IR
Laptev Sea (74°N, 125°E)	1994	1	30	0	RCMA 1994	Total petroleum HC	IR
Laptev Sea (74°N, 120°E)	1994	1	32	0	RCMA 1994	Total petroleum HC	IR
Aquatory of the Kara Sea (70-78°N, 58-87°E)	1994	19	1	0-102	RCMA 1994	Total petroleum HC	IR
Aquatory of the Kara Sea (73°N, 75°E)	1994	1	11	40	RCMA 1994	Total petroleum HC	IR
Aquatory of the Kara Sea (74°N, 78°E)	1994	1	13	0	RCMA 1994	Total petroleum HC	IR
Aquatory of the Kara Sea (75°N, 83°E)	1994	1	45	45	RCMA 1994	Total petroleum HC	IR
Kara Sea, Baydaratskaya Gulf (65-69°N, 65-68°E)	1994	18	1	18-38	RCMA 1994	Total petroleum HC	IR
Kara Sea, Baydaratskaya Gulf (60°N, 65°E)	1994	1	11	31	RCMA 1994	Total petroleum HC	IR
Kara Sea, Baydaratskaya Gulf (68-69°N, 66-68°E)	1994	3	9	22-70	RCMA 1994	Total petroleum HC	IR
Kara Sea, Baydaratskaya Gulf (69°N, 67°E)	1994	1	19	31.5	RCMA 1994	Total petroleum HC	IR
Kara Sea, Baydaratskaya Gulf (69°N, 68°E)	1994	1	8	33.8	RCMA 1994	Total petroleum HC	IR
Kara Sea, Baydaratskaya Gulf (69°N, 67°E)	1994	1	23	36	RCMA 1994	Total petroleum HC	IR
Kara Sea, Baydaratskaya Gulf (70°N, 66°E)	1994	1	24	18.4	RCMA 1994	Total petroleum HC	IR
Kara Sea, Yenisey Gulf (72-73°N, 79-82°E)	1994	8	1	4-64	RCMA 1994	Total petroleum HC	IR
Kara Sea, Yenisey Gulf (73°N, 80°E)	1994	1	19	19	RCMA 1994	Total petroleum HC	IR
Kara Sea, Yenisey Gulf (73°N, 79°E)	1994	1	17	9	RCMA 1994	Total petroleum HC	IR
Kara Sea, Yenisey Gulf (73°N, 80°E)	1994	1	14	33	RCMA 1994	Total petroleum HC	IR
Kara Sea, Yenisey Gulf (72°N, 82°E)	1994	1	7	31	RCMA 1994	Total petroleum HC	IR
Kara Sea, Yenisey Gulf (72°N, 80°E)	1994	1	8	16	RCMA 1994	Total petroleum HC	IR
Kara Sea, Ob Gulf (68-73°N, 72-74°E)	1994	17	17	1	RCMA 1994	Total petroleum HC	IR
Kara Sea, Ob Gulf (73°N, 73°E)	1994	1	23	0	RCMA 1994	Total petroleum HC	IR

Kara Sea, Ob Gulf (71-72°N, 72-73°E)	1994	2	12	0	RCMA 1994	Total petroleum HC	IR
Kara Sea, Ob Gulf (70°N, 73°E)	1994	1	11	15	RCMA 1994	Total petroleum HC	IR
Kara Sea, Ob Gulf (69°N, 74°E)	1994	1	9	45	RCMA 1994	Total petroleum HC	IR
Kara Sea, Ob Gulf (68°N, 74°E)	1994	1	15	52	RCMA 1994	Total petroleum HC	IR
Pechora Sea (68-69°N, 54-58°E)	1994	5	1	7.8-56.7	RCMA 1994	Total petroleum HC	IR
Koli Gulf (summer)	Various			All < 100	ACOPS 1995	Total petroleum HC	IR
Koli Gulf (winter)	Various			250-7,500	ACOPS 1995	Total petroleum HC	IR
White Sea, Candalaskaya Seaport	1993			All < 50	ACOPS 1995	Total petroleum HC	IR
Kara Sea, Dikson Port	1993			50-250	ACOPS 1995	Total petroleum HC	IR
Chaun Bay, Pevek Port	1993			All < 50	ACOPS 1995	Total petroleum HC	IR
Kara Sea, Amdermink	1993			50 (average), Values to 950	ACOPS 1995	Total petroleum HC	IR
Severnaya Dvina River Delta	1993			~ 40	ACOPS 1995	Total petroleum HC	IR
Kara Sea, Laptev Sea, E. Siberian Sea, Chukchi Sea, C. Arctic Basin	1993		1	<30-34	Melnikov <i>et al.</i> 1990		
Kara Sea, Laptev Sea, E. Siberian Sea, Chukchi Sea, C. Arctic Basin	1993		Sea ice	<30-45	Melnikov <i>et al.</i> 1990		
Pechora Sea (winter)				<50	Rosshelf <i>et al.</i> 1995		
Pechora Sea (summer)				50-100	Rosshelf <i>et al.</i> 1995		
USA							
Chukchi Sea	1976	32	Surface	100-500/157 nL/L (STP)	Cline <i>et al.</i> 1978	Methane	
Chukchi Sea	1976	32	5 m above bottom	130-3,260/543 nL/L (STP)	Cline <i>et al.</i> 1978	Methane	
Chukchi Sea	1976	32	Surface	0.2-1.2/0.6 nL/L (STP)	Cline <i>et al.</i> 1978	Ethane	
Chukchi Sea	1976	32	5 m above bottom	0.3-3.0/1.3 nL/L (STP)	Cline <i>et al.</i> 1978	Ethane	
Chukchi Sea	1976	32	Surface	0.7-2.2/1.2 nL/L (STP)	Cline <i>et al.</i> 1978	Ethylene	
Chukchi Sea	1976	31	5 m above bottom	1.1-4.3/2.6 nL/L (STP)	Cline <i>et al.</i> 1978	Ethylene	
Chukchi Sea	1976	32	Surface	0.1-0.7/0.3 nL/L (STP)	Cline <i>et al.</i> 1978	Propane	
Chukchi Sea	1976	31	Surface	0.0-0.8/0.4 nL/L (STP)	Cline <i>et al.</i> 1978	Propylene	
Norton Sound	1976	30	Surface	100-605/232 nL/L (STP)	Cline <i>et al.</i> 1978	Methane	
Norton Sound	1976	30	5 m above bottom	120-2,242/472 nL/L (STP)	Cline <i>et al.</i> 1978	Methane	
Norton Sound	1976	29	Surface	0.2-1.4/0.5 nL/L (STP)	Cline <i>et al.</i> 1978	Ethane	
Norton Sound	1976	24	5 m above bottom	0.3-10/2.1 nL/L (STP)	Cline <i>et al.</i> 1978	Ethane	
Norton Sound	1976	30	Surface	0.7-2.9/1.3 nL/L (STP)	Cline <i>et al.</i> 1978	Ethylene	
Norton Sound	1976	27	Surface	0.2-2.5/0.8 nL/L (STP)	Cline <i>et al.</i> 1978	Propane	
SE Bering Sea	1976	51	Surface	61-1,586/168 nL/L (STP)	Cline <i>et al.</i> 1978	Methane	
SE Bering Sea	1976	48	5 m above bottom	71-486/159 nL/L (STP)	Cline <i>et al.</i> 1978	Methane	
SE Bering Sea	1976	52	Surface	0.3-2.9/1.0 nL/L (STP)	Cline <i>et al.</i> 1978	Ethane	
SE Bering Sea	1976	44	5 m above bottom	0.6-2.9/1.2 nL/L (STP)	Cline <i>et al.</i> 1978	Ethane	
SE Bering Sea	1976	52	Surface	2.0-5.5/3.7 nL/L (STP)	Cline <i>et al.</i> 1978	Ethylene	
SE Bering Sea	1976	48	5 m above bottom	0.9-5.0/3.2 nL/L (STP)	Cline <i>et al.</i> 1978	Ethylene	
SE Bering Sea	1976	52	Surface	0.2-1.8/0.5 nL/L (STP)	Cline <i>et al.</i> 1978	Propane	
SE Bering Sea	1976	50	5 m above bottom	0.2-0.9/0.5 nL/L (STP)	Cline <i>et al.</i> 1978	Propane	

Table 10-A4. Concentrations of petroleum hydrocarbons in marine particulates.

Location	Year	n	Depth, m	Concentration, ng/g dry weight	Reference	Remarks	Analytical method
Canada							
Tuktoyaktuk Harbor, NWT	1986	8	2	52-196	Thomas 1988	Total isoprenoids	GC
Tuktoyaktuk Harbor, NWT	1986	8	2	50-1,100	Thomas 1988	Total alkanes	GC
Tuktoyaktuk Harbor, NWT	1987	4	2	28-162	Thomas 1988	Total isoprenoids	GC
Tuktoyaktuk Harbor, NWT	1987	4	2	27-853	Thomas 1988	Total alkanes	GC

Table 10-A5. Concentrations of petroleum hydrocarbons in freshwater sediments.

Location	Year	n	Depth, m	Concentration, µg/g dry weight	Reference	Remarks	Analytical method
Canada							
Mackenzie River Delta, NWT	1969	1		6.2	Thomas <i>et al.</i> 1990	n-alkanes	GC/FID
Mackenzie River Delta, NWT	1994-1995	11		9.1-37	Jefferies <i>et al.</i> 1996	nC11-nC36, squalene, pristane, phytane	GC/MS or GC
Mackenzie River, Norman Wells, NWT	1985			4-148	Morgan <i>et al.</i> 1987	Resolved alkanes	GC/FID
Mackenzie River, NWT	1986			0.2-1.5	Nagy <i>et al.</i> 1987	Resolved alkanes	GC/FID

Location	Year	n	Depth, m	Concentration, µg/g dry weight	Reference	Remarks	Analytical method
Russia							
Taimyr Peninsula (75°N, 99°E)	1994	1	2.5-0	5.1	RCMA 1994	Total petroleum HCs	Method not specified
Taimyr Peninsula (75°N, 99°E)	1994	1	5-2.5	4.2	RCMA 1994	Total petroleum HCs	Method not specified
Taimyr Peninsula (75°N, 99°E)	1994	1	7.5-5	4.4	RCMA 1994	Total petroleum HCs	Method not specified
Taimyr Peninsula (74°N, 99°E)	1994	1	2.5-0	3.2	RCMA 1994	Total petroleum HCs	Method not specified
Taimyr Peninsula (74°N, 99°E)	1994	1	5-2.5	2.7	RCMA 1994	Total petroleum HCs	Method not specified
Taimyr Peninsula (74°N, 99°E)	1994	1	7.5-5	3.6	RCMA 1994	Total petroleum HCs	Method not specified
Pechora River	1994			1-480	ACOPS 1995	Total petroleum HCs	IR
Pechora River, mouth	1989-1993			mean 58; range 8-250	Melnikov <i>et al.</i> 1996	Total petroleum HCs	IR
Brook Palmer-Shore	X 1994			14000	Melnikov and Vlasov 1994	Total petroleum HCs	IR
River Kolva, mouth	X 1994			520	Melnikov and Vlasov 1994	Total petroleum HCs	IR
River Usa, mouth, right bank	X 1994			16000	Melnikov and Vlasov 1994	Total petroleum HCs	IR
River Pechora, downstream of							
River Usa inflow	X 1994			max 100	Melnikov and Vlasov 1994	Total petroleum HCs	IR
Pechora River, mouth	VI-VII 1995			13-25 (sand); 120-640 (silt)	Melnikov 1995, unpubl. data	Total petroleum HCs	IR
River Ob, mouth	1985-1995			mean 46; range 23-130	Melnikov <i>et al.</i> 1996	Total petroleum HCs	IR
River Yenisey, mouth	1985-1995			mean 39; range 13-80	Melnikov <i>et al.</i> 1996	Total petroleum HCs	IR
River Khatanga, mouth	1985-1995			mean 36; range 10-85	Melnikov <i>et al.</i> 1996	Total petroleum HCs	IR
River Lena, mouth	1985-1995			mean 44; range 10-126	Melnikov <i>et al.</i> 1996	Total petroleum HCs	IR
River Indigirka, mouth	1985-1995			mean 32; range 7-75	Melnikov <i>et al.</i> 1996	Total petroleum HCs	IR
River Kolyma, mouth	1985-1995			mean 29; range 5-68	Melnikov <i>et al.</i> 1996	Total petroleum HCs	IR
USA							
Ponds and lakes (ANWR), Alaska	1988	10		0.12-6.68 (ww)	Snyder-Conn and Lubinsky 1993	nC12-nC20, octylcyclohexane, nonylcyclohexane, pristane, phytane	Method not specified
Ponds and lakes (ANWR), Alaska	1989	10		0.134-8.13 (ww)	Snyder-Conn and Lubinsky 1993	nC12-nC20, octylcyclohexane, nonylcyclohexane, pristane, phytane	Method not specified
Alaskan rivers	1984-1986			3-32	Steinhauer and Boehm 1992	nC10-nC34, 5 isoprenoids	GC/FID

Table 10-A6. Concentrations of petroleum hydrocarbons in marine sediments.

Location	Year	n	Depth, cm	Concentration range/mean, µg/g dry weight	Reference	Remarks	Analytical method
Canada							
Beaufort Sea Shelf, NWT	July-Aug. 1970	10		1.23-9.4 / 5.1	Thomas <i>et al.</i> 1990	Saturated HCs (C11-C36)	GC
Beaufort Sea Shelf, NWT	Aug.-Sept. 1974	14		18.4-137.7 / 82.4	Thomas <i>et al.</i> 1990	Non-polar HC total	GC
Balaena Bay, NWT	July 1980	2		12.8-36.3 / 24.7	Thomas <i>et al.</i> 1990	Aliphatic HCs	GC/FID
Balaena Bay, NWT (Beach sediment)	July 1980	2		14.6-69.7 / 42.2	Thomas <i>et al.</i> 1990	Aliphatic HCs	GC/FID
Beaufort Sea Shelf, NWT	Sept. 1981	12		1.3-80.3 / 30.3	Thomas <i>et al.</i> 1990	Aliphatic HCs	GC/FID
Beaufort Sea Shelf, NWT	May 1981-July 1982	5		0.06-2.1 / 0.982	Thomas <i>et al.</i> 1990	Isoprenoids	Method not specified
Beaufort Sea Shelf, NWT	May 1981-July 1982	5		0.23-12.1 / 6.226	Thomas <i>et al.</i> 1990	n-alkanes	Method not specified
Beaufort Sea Shelf, NWT	Aug.-Sept. 1985	29		0.023-3.1 / 1.381	Thomas <i>et al.</i> 1990	Total isoprenoids	Extr.; GC/FID
Beaufort Sea Shelf, NWT	Aug.-Sept. 1985	29		0.217-22.67 / 7.9	Thomas <i>et al.</i> 1990	Total n-alkanes	Extr.; GC/FID
Beaufort Sea Shelf, NWT	Sept.-Oct. 1985	30		0.003-5.03 / 1.025	Thomas <i>et al.</i> 1990	Total isoprenoids	Extr.; GC/FID
Beaufort Sea Shelf, NWT	Sept.-Oct. 1985	30		0.014-12 / 4.269	Thomas <i>et al.</i> 1990	Total n-alkanes	Extr.; GC/FID
Beaufort Sea Shelf, NWT	Apr. 1986	31		0.035-1.9 / 0.738	Thomas <i>et al.</i> 1990	Total isoprenoids	Extr.; GC/FID
Beaufort Sea Shelf, NWT	Apr. 1986	31		0.38-10.924 / 4.387	Thomas <i>et al.</i> 1990	Total n-alkanes	Extr.; GC/FID
Beaufort Sea Shelf, NWT	Sept. 1986	33		0.062-207.9 / 29.7	Thomas <i>et al.</i> 1990	Total isoprenoids	Extr.; GC/FID
Beaufort Sea Shelf, NWT	Sept. 1986	33		0.314-2270 / 84.22	Thomas <i>et al.</i> 1990	Total n-alkanes	Extr.; GC/FID
Beaufort Sea Shelf, NWT	Aug. 1987	30		0.591-99 / 7.85	Thomas <i>et al.</i> 1990	Total isoprenoids	Extr.; GC/FID
Beaufort Sea Shelf, NWT	Aug. 1987	30		0.794-178 / 14.81	Thomas <i>et al.</i> 1990	Total n-alkanes	Extr.; GC/FID
Beaufort Sea Shelf, NWT	Aug. 1987	10		9.79-35 / 22.59	Thomas <i>et al.</i> 1990	Total isoprenoids	Extr.; GC/FID
Beaufort Sea Shelf, NWT	Aug. 1987	10		13-41 / 27	Thomas <i>et al.</i> 1990	Total n-alkanes	Extr.; GC/FID
Tuktoyaktuk Harbor, NWT	Aug.-Sept. 1985	37		0.026-3.3 / 1.2	Thomas <i>et al.</i> 1990	Total isoprenoids	Extr.; GC/FID
Tuktoyaktuk Harbor, NWT	Aug.-Sept. 1985	37		0.168-20 / 6.72	Thomas <i>et al.</i> 1990	Total n-alkanes	Extr.; GC/FID
Beaufort Sea Shelf, NWT	Aug. 1975	1		36.9-109 / 66	Thomas <i>et al.</i> 1990	Total n-alkanes, non-polar HCs	GC
Beaufort Sea Shelf, NWT	July 1981	50		9-6144 / 314	Thomas <i>et al.</i> 1990	Hexane extractable compounds	Gravimetry
Kugmallit Bay, NWT	July 1981	9		5-15 / 11	Thomas <i>et al.</i> 1990	Hexane extractable compounds	Gravimetry
McKinley Bay, NWT	Aug. 1981	15		10-90 / 38.3	Thomas <i>et al.</i> 1990	Hexane extractable compounds	Gravimetry
McKinley Bay, NWT	Sept.-Oct. 1981	29		13-194 / 88.3	Thomas <i>et al.</i> 1990	Hexane extractable compounds	Gravimetry
McKinley Bay, NWT	Aug. 1981	24		1-637 / 83	Thomas <i>et al.</i> 1990	Hexane extractable compounds	Gravimetry
Beaufort Sea Shelf, NWT	Sept. 1981	37		< 5-45 / 19.1	Thomas <i>et al.</i> 1990	Hexane extractable compounds	Gravimetry

Tuktoyaktuk Harbor, McKinley Bay, NWT	July 1983	58		16-2570 / 233	Thomas <i>et al.</i> 1990	Hexane extractable compounds	Gravimetry
Hutchison Bay, NWT	July 1983	1		35	Thomas <i>et al.</i> 1990	Hexane extractable compounds	Gravimetry
McKinley Bay, NWT	Aug. 1983	10		38-216 / 103	Thomas <i>et al.</i> 1990	Hexane extractable compounds	Gravimetry
Beaufort Sea Shelf, Kugmallit Bay, NWT	July-Sept. 1982	43		4-24 / 42.9	Thomas <i>et al.</i> 1990	Hexane extractable compounds	Gravimetry
Beaufort Sea Shelf, Kugmallit Bay, NWT	July-Sept. 1982	201		5-2435 / 91.6	Thomas <i>et al.</i> 1990	Hexane extractable compounds	Gravimetry
Kogyuk Berm Site, Beaufort Sea, NWT	Aug. 1982	9		80-220 / 144	Thomas <i>et al.</i> 1990	Hexane extractable compounds	Gravimetry
Tuktoyaktuk Harbor, NWT	Aug.-Sept. 1980	38		50-227 / 110	Thomas <i>et al.</i> 1990	Oil and grease	Gravimetry
McKinley Bay, NWT	Aug.-Sept. 1980	13		45-2120 / 285	Thomas <i>et al.</i> 1990	Oil and grease	Gravimetry
Beaufort Sea Shelf, NWT	Aug.-Sept. 1980	60		65-660 / 268	Thomas <i>et al.</i> 1990	Oil and grease	Gravimetry
King Point, Stokes Point, NWT	Aug. 1982	41		< 55-2340 / 405	Thomas <i>et al.</i> 1990	Oil and grease	Gravimetry
Stokes Point, NWT	Aug. 1983	21		< 300-5200 / 1,508	Thomas <i>et al.</i> 1990	Oil and grease	Gravimetry
King Point, Stokes Point, NWT	Aug. 1984	45		200-2240/684	Thomas <i>et al.</i> 1990	Oil and grease	Gravimetry
Baffin Island (Buchan Gulf, Scott Inlet)	1979			2.5-10	Levy and Ehrhardt 1981	As bunker C fuel oil equivalents	
Baffin Island (Beach sediments)	1980			< 0.3-2.3	Cretney <i>et al.</i> 1987a	As Lagomedia crude oil equivalents	
Baffin Island (Coastal)	1980			< 0.3-3.8	Cretney <i>et al.</i> 1987a		GC/FID
Beaufort Sea (Beach sediment)	1982	16		0.08-26	Thomas <i>et al.</i> 1983	nC13-nC36	GC/FID
Beaufort Sea (Coastal embayments)	1982	43		0.1-28	Thomas <i>et al.</i> 1983	nC13-nC36	GC/FID
Beaufort Sea, Mackenzie Shelf	1987	6		9.8 (average)	Yunker and Macdonald 1995	nC13-nC36	
Norway							
North Norwegian harbors	Aug. 1994	39	0-2	21->6997	Konieczny 1996	Total nC12-nC35 HCs	GC/FID
Barents Sea	1992	≥ 6		5-60	dos Santos <i>et al.</i> 1996b	Total nC12-nC35 HCs	GC/FID
Franz Joseph Land	1992	≥ 6		10-30	dos Santos <i>et al.</i> 1996b	Total nC12-nC35 HCs	GC/FID
Russia							
Kara Sea	1993	13	0-1	1.29-22.14	dos Santos <i>et al.</i> 1996a	Total HCs	Method not specified
Barents Sea	1993		0-1	28-97	dos Santos <i>et al.</i> 1996b	Total HCs	Method not specified
Franz Joseph Land	1993		0-1	10-30	dos Santos <i>et al.</i> 1996b	Total HCs	Method not specified
Bering/Chukchi Seas	1988	188		2.7	Kennicott and Brooks 1990	Total resolvable average alkanes (nC15-nC32, pristane, phytane)	GC/FID
Pechora Sea	1994	32		0.1-8.1	GERG 1994	nC10-nC34 alkanes, pristane	GC/FID
Pechora Gulf (69°N, 55°E)	July 1995	10	0-5	6.9	RCMA 1995	Total petroleum HCs	IR
Pechora Bay (68°N, 54-57°E)	1995	10	0-5	6.9-25.9 / 15.9	RCMA 1995	Total petroleum HCs	IR
Barents Sea (77-78°N, 62-66°E)	1995	2	0-5	11.9-17.3 / 14.6	RCMA 1995	Total petroleum HCs	IR
White Sea (64-68°N, 35-43°E)	1995	9	0-5	10.6-23.6 / 15.3	RCMA 1995	Total petroleum HCs	IR
Kara Sea (69-77°N, 59-85°E)	1995	21	0-5	< 2-22.9 / 13.8	RCMA 1995	Total petroleum HCs	IR
Kara Sea (Yenisey Gulf) (71-73°N, 79-83°E)	1995	8	0-5	14.9-39.2 / 24.5	RCMA 1995	Total petroleum HCs	IR
Kara Sea (Ob Gulf) (68-72°N, 72-74°E)	1995	11	0-5	20.5-40.0 / 26.7	RCMA 1995	Total petroleum HCs	IR
Kara Sea (Baydaratskaya Gulf) (68-69°N, 65-67°E)	1995	5	0-5	10.5-29.7 / 22.3	RCMA 1995	Total petroleum HCs	IR
Laptev Sea (71-77°N, 105-135°E)	1995	9	0-5	11.3-322 / 95.8	RCMA 1995	Total petroleum HCs	IR
East Siberian Sea (69-76°N, 145-170°E)	1995	10	0-5	10.7-45.2 / 22.5	RCMA 1995	Total petroleum HCs	IR
White Sea	1987-1992			50-320	Melnikov <i>et al.</i> 1992	Total petroleum HCs	IR
Barents Sea	1987-1992			15-790	Melnikov <i>et al.</i> 1992	Total petroleum HCs	IR
Kara Sea	1987-1992			16-390	Melnikov <i>et al.</i> 1992	Total petroleum HCs	IR
Laptev Sea	1987-1992			10-180	Melnikov <i>et al.</i> 1992	Total petroleum HCs	IR
White Sea	1994	11	0-1	4.2-33.2	Killie and Dahl 1995	Total petroleum HCs	IR
Kara Sea (73-76°N, 60-87°E)	1994	15	0-5	4-154 / 46.7	RCMA 1994	Total petroleum HCs	IR
Kara Sea (Baydaratskaya Gulf) (69°N, 66-68°E)	1994	17	0-5	12-498 / 154.1	RCMA 1994	Total petroleum HCs	IR
Kara Sea (Yenisey Gulf) (72-73°N, 79-82°E)	1994	8	0-5	59-330 / 158.3	RCMA 1994	Total petroleum HCs	IR
Kara Sea (Ob Gulf) (68-73°N, 72-74°E)	1994	17	0-5	27-1680 / 430.9	RCMA 1994	Total petroleum HCs	IR
Laptev Sea (72-75°N, 114-136°E)	1994	14	0-5	5-92 / 22	RCMA 1994	Total petroleum HCs	IR
Pechora Sea (68°N, 54-57°E)	1994	5	0-5	5-180 / 55.4	RCMA 1994	Total petroleum HCs	IR
Pechora Sea (69°N, 55°E)	Aug. 1994	1	5-0	32	RCMA 1994	Total petroleum HCs	Method not known
Pechora Sea (69°N, 57°E)	Aug. 1994	1	5-0	45	RCMA 1994	Total petroleum HCs	Method not known
Bering Sea	1984			5-45	Kennicutt and Brooks 1990	nC15-nC32, pristane, phytane	GC/FID
Chukchi Sea	1988			Approx. 2-4	Kennicott <i>et al.</i> 1992	nC15-nC32, pristane, phytane	GC/FID
USA							
Lagoons (ANWR), Alaska	1988	82		0.08-1.42 (wet weight)	Snyder-Conn and Lubinsky 1993	Alkanes (nC12-nC20, pristane, phytane)	Method not specified
Lagoons (ANWR), Alaska	1989	120		n.d.-1.106 (wet weight)	Snyder-Conn and Lubinsky 1993	Alkanes (nC12-nC20, pristane, phytane)	Method not specified
Pokok Bluffs (ANWR), Alaska	1989	9		0.035-0.678 (wet weight)	Snyder-Conn and Lubinsky 1993	Alkanes (nC12-nC20, pristane, phytane)	Method not specified
Camden Bay (ANWR), Alaska	1988	9		0.122-1.183 (wet weight)	Snyder-Conn and Lubinsky 1993	Alkanes (nC12-nC20, pristane, phytane)	Method not specified
Beaufort Sea, Alaska	1989	81		0.07-15.1 / 2.0	Steinhauer and Boehm 1992	nC10-nC34 alkanes	Method not specified
Beaufort Sea, Alaska	1989	81		0.16-38 / 5.0	Steinhauer and Boehm 1992	Total petroleum HCs	Method not specified
Beaufort coast, Alaska	1984-1986			8-18	Steinhauer and Boehm 1992	nC10-nC34, 5 isoprenoids	GC/FID
Offshore Alaska	1984-1986			5-25	Steinhauer and Boehm 1992	nC10-nC34, 5 isoprenoids	GC/FID
Beaufort Sea	1976	11		21.3-59.8 / 37.85	Kaplan and Venkatesan 1985	Total HCs	GC
Norton Sound	1976	18		1.9-28.9 / 10.63	Kaplan and Venkatesan 1985	Total HCs	GC
Norton Sound	1977	12		0.8-15.35.58	Kaplan and Venkatesan 1985	Total HCs	GC
Norton Sound	1979	21		2.5-26.6 / 7.42	Kaplan and Venkatesan 1985	Total HCs	GC

Location	Year	n	Depth, cm	Concentration range/mean, µg/g dry weight	Reference	Remarks	Analytical method
Navarin Basin	1980	28		2.4-52.5 / 17.22	Kaplan and Venkatesan 1985	Total HCs	GC
Southeast Bering Sea	1975	21		1.9-240.9 / 22.12	Kaplan and Venkatesan 1985	Total HCs	GC
Beaufort Sea	1976	11		1.4-5	Kaplan and Venkatesan 1985	n-alkanes	GC
Norton Sound	1976-1979	51		0.01-5.4	Kaplan and Venkatesan 1985	n-alkanes	GC
Navarin Basin	1980	28		0.25-2.6	Kaplan and Venkatesan 1985	n-alkanes	GC
SE Bering Sea	1975	21		0.3-2.9	Kaplan and Venkatesan 1985	n-alkanes	GC

Table 10-A7. Concentrations of petroleum hydrocarbons in soils.

Location	Year	n	Depth, cm	Concentration range/mean, µg/g dry weight	Reference	Remarks	Analytical method
<i>Russia</i>							
Taimyr Peninsula (76°N, 111°E)	Aug. 1994	1	0-1	35	RCMA 1994	Total petroleum HCs	IR
Taimyr Peninsula (76°N, 111°E)	Aug. 1994	1	1-40	30	RCMA 1994	Total petroleum HCs	IR
Taimyr Peninsula (76°N, 99°E)	Aug. 1994	1	0-2	41	RCMA 1994	Total petroleum HCs	IR
Taimyr Peninsula (76°N, 99°E)	Aug. 1994	1	2-40	36	RCMA 1994	Total petroleum HCs	IR
Taimyr Peninsula (78°N, 104°E)	Aug. 1994	1	0-3	32	RCMA 1994	Total petroleum HCs	IR
Taimyr Peninsula (78°N, 104°E)	Aug. 1994	1	3-40	30	RCMA 1994	Total petroleum HCs	IR
Taimyr Peninsula (78°N, 104°E)	Aug. 1994	1	0-1	38	RCMA 1994	Total petroleum HCs	IR
Taimyr Peninsula (78°N, 104°E)	Aug. 1994	1	1-8	32	RCMA 1994	Total petroleum HCs	IR
Taimyr Peninsula (78°N, 104°E)	Aug. 1994	1	0-2	43	RCMA 1994	Total petroleum HCs	IR
Taimyr Peninsula (78°N, 104°E)	Aug. 1994	1	2-40	37	RCMA 1994	Total petroleum HCs	IR
Yamal Peninsula (70°N, 68°E)	Aug. 1994	1	0-3	62.2	RCMA 1994	Total petroleum HCs	IR
Yamal Peninsula (70°N, 68°E)	Aug. 1994	1	6-25	59	RCMA 1994	Total petroleum HCs	IR
Yamal Peninsula (73°N, 71°E)	Aug. 1994	1	0-5	66.4	RCMA 1994	Total petroleum HCs	IR
Yamal Peninsula (73°N, 71°E)	Aug. 1994	1	5-20	60.2	RCMA 1994	Total petroleum HCs	IR
Pechora River Bank, near Vosey Pipeline	June 1995			850-150000	ACOPS 1995	Total petroleum HCs; Contamination from Komi spill	IR
Yamal Peninsula (70°N, 67°E)	July 1995	1	0-5	35.2	RCMA 1995	Total petroleum HCs	IR
Yamal Peninsula (72°N, 72°E)	July 1995	1	0-5	60.1	RCMA 1995	Total petroleum HCs	IR
Taimyr Peninsula (76°N, 99°E)	July 1995	1	0-5	41	RCMA 1995	Total petroleum HCs	IR
Taimyr Peninsula (76°N, 99°E)	July 1995	1	3-20	24	RCMA 1995	Total petroleum HCs	IR
Taimyr Peninsula (78°N, 104°E)	July 1995	1	0-5	34.3	RCMA 1995	Total petroleum HCs	IR
Taimyr Peninsula (78°N, 104°E)	July 1995	1	5-20	42.8	RCMA 1995	Total petroleum HCs	IR
Taimyr Peninsula (77°N, 111°E)	July 1995	1	0-20	12.1	RCMA 1995	Total petroleum HCs	IR
Aion Island (70°N, 169°E)	July 1995	1	0-5	12862	RCMA 1995	Total petroleum HCs	IR
Aion Island (70°N, 169°E)	July 1995	1	5-35	8000	RCMA 1995	Total petroleum HCs	IR
Aion Island (70°N, 169°E)	July 1995	1	0-15	3800	RCMA 1995	Total petroleum HCs	IR
Vrangel Island (71°N, 179°E)	July 1995	1	0-9	61.8	RCMA 1995	Total petroleum HCs	IR
Vrangel Island (71°N, 179°E)	July 1995	1	9-30	72	RCMA 1995	Total petroleum HCs	IR
Vrangel Island (71°N, 179°E)	July 1995	1	0-3	98.7	RCMA 1995	Total petroleum HCs	IR
Yugorskiy Peninsula (69°N, 67°E)	July 1995	1	0-3	11.4	RCMA 1995	Total petroleum HCs	IR
Yugorskiy Peninsula (69°N, 66°E)	Sept. 1995	1	0-5	12.6	RCMA 1995	Total petroleum HCs	IR
Yugorskiy Peninsula (69°N, 66°E)	Sept. 1995	1	5-10	34.1	RCMA 1995	Total petroleum HCs	IR
Yugorskiy Peninsula (69°N, 66°E)	Sept. 1995	1	10-15	17.3	RCMA 1995	Total petroleum HCs	IR
Yugorskiy Peninsula (70°N, 62°E)	Aug. 1995	1	0-5	25.6	RCMA 1995	Total petroleum HCs	IR
Yugorskiy Peninsula (70°N, 62°E)	Aug. 1995	1	5-10	19.4	RCMA 1995	Total petroleum HCs	IR
River Kolva (66°N, 57°E)	July 1995	1	0-5	290000	RCMA 1995	Total petroleum HCs	IR
River Kolva (66°N, 57°E)	July 1995	1	0-5	250000	RCMA 1995	Total petroleum HCs	IR
River Kolva (66°N, 57°E)	July 1995	1	0-5	56000	RCMA 1995	Total petroleum HCs	IR
River Kolva (66°N, 57°E)	July 1995	1	0-5	40000	RCMA 1995	Total petroleum HCs	IR
River Kolva (66°N, 57°E)	July 1995	1	0-5	180000	RCMA 1995	Total petroleum HCs	IR

Table 10-A8. Concentrations of petroleum hydrocarbons in freshwater biota.

Location	Year	Species	Tissue	n	Concentration, µg/g wet weight	Reference	Remarks	Analytical method
Canada								
Mackenzie River at Norman Wells		<i>Lota lota</i> (burbot)	Muscle		n.d.-0.115	Lockhart <i>et al.</i> 1987	Ethyl benzene	
Mackenzie River at Norman Wells		<i>Lota lota</i> (burbot)	Muscle		n.d.-0.5	Lockhart <i>et al.</i> 1987	m,p-xylene	
Mackenzie River at Norman Wells		<i>Lota lota</i> (burbot)	Muscle		n.d.-0.004	Lockhart <i>et al.</i> 1987	o-xylene	
USA								
Ponds and lakes (ANWR), Alaska	1989	<i>Daphnia middendorffiana</i>		2	0.738-2.259	Snyder-Conn and Lubinski 1993	nC12-nC20 alkanes, pristane, phytane	GC
Ponds and lakes (ANWR), Alaska	1989	Fairy shrimp		1	0.216	Snyder-Conn and Lubinski 1993	nC12-nC20 alkanes, pristane, phytane	GC
Ponds and lakes (ANWR), Alaska	1988	<i>Daphnia pulex</i>		1	0.31	Snyder-Conn and Lubinski 1993	nC12-nC20 alkanes, pristane, phytane	GC
Ponds and lakes (ANWR), Alaska	1988	<i>Daphnia middendorffiana</i>		4	0.49-0.79	Snyder-Conn and Lubinski 1993	nC12-nC20 alkanes, pristane, phytane	GC
Ponds and lakes (ANWR), Alaska	1988	<i>Carex aquatilis</i>		24	0.72-9.99	Snyder-Conn and Lubinski 1993	nC12-nC20 alkanes, octylcyclohexane, phytane, nonylchlohexand, pristane	GC

Table 10-A9. Concentrations of petroleum hydrocarbons in marine biota.

Location	Year	Species	Tissue	n	Concentration range/mean, µg/g wet weight	Reference	Remarks	Analytical method
Canada								
Tuktoyuktuk Harbor, NWT	Aug. 1986	Arctic/Starry flounder	Bile	10	n.d.-18.517	Thomas <i>et al.</i> 1990	Total alkanes	GC
Tuktoyuktuk Harbor, NWT	Aug. 1986	Arctic/Starry flounder	Bile	10	n.d.-0.081	Thomas <i>et al.</i> 1990	Total isoprenoids	GC
Tuktoyuktuk Harbor, NWT	Aug. 1986	Arctic/Starry flounder	Dorsal muscle	10	n.d.-0.514	Thomas <i>et al.</i> 1990	Total alkanes	GC
Tuktoyuktuk Harbor, NWT	Aug. 1986	Arctic/Starry flounder	Dorsal muscle	10	0.003-2.17	Thomas <i>et al.</i> 1990	Total isoprenoids	GC
Tuktoyuktuk Harbor, NWT	Aug. 1986	Arctic/Starry flounder	Liver	10	n.d.-350.6	Thomas <i>et al.</i> 1990	Total alkanes	GC
Tuktoyuktuk Harbor, NWT	Aug. 1986	Arctic/Starry flounder	Liver	10	0.0508-1.841	Thomas <i>et al.</i> 1990	Total isoprenoids	GC
Tuktoyuktuk Harbor, NWT	Aug. 1987	Arctic/Starry flounder	Bile	20	n.d.-2.892	Thomas <i>et al.</i> 1990	Total alkanes	GC
Tuktoyuktuk Harbor, NWT	Aug. 1987	Arctic/Starry flounder	Dorsal muscle	20	0.0017-12.01	Thomas <i>et al.</i> 1990	Total isoprenoids	GC
Tuktoyuktuk Harbor, NWT	Aug. 1987	Arctic/Starry flounder	Dorsal muscle	20	n.d.-0.497	Thomas <i>et al.</i> 1990	Total alkanes	GC
Tuktoyuktuk Harbor, NWT	Aug. 1987	Arctic/Starry flounder	Liver	19	0.009-190	Thomas <i>et al.</i> 1990	Total isoprenoids	GC
Tuktoyuktuk Harbor, NWT	Aug. 1987	Arctic/Starry flounder	Liver	19	n.d.-280.6	Thomas <i>et al.</i> 1990	Total alkanes	GC
USA								
Beaufort Sea, Prudhoe Bay	1974	Arctic cisco	Flesh	2	10-13	Shaw and Cheek 1976	Extractable hydrocarbons	Gravimetry
Beaufort Sea, Prudhoe Bay	1974	Arctic cisco	Skin	1	50	Shaw and Cheek 1976	Extractable hydrocarbons	Gravimetry
Beaufort Sea, Prudhoe Bay	1974	Four-horned sculpin		2	3.8-4.2	Shaw and Cheek 1976	Extractable hydrocarbons	Gravimetry
Beaufort Sea, Prudhoe Bay	1974	Arctic char	Flesh	1	3.6	Shaw and Cheek 1976	Extractable hydrocarbons	Gravimetry
Beaufort Sea, Prudhoe Bay	1974	Arctic flounder	Flesh	2	4.2-9.6	Shaw and Cheek 1976	Extractable hydrocarbons	Gravimetry
Coastal lagoons (ANWR), Alaska	1988	Arctic flounder		31	0.04-1.79	Snyder-Conn and Lubinsky 1993	nC12-nC20 alkanes, pristane, phytane	GC
Coastal lagoons (ANWR), Alaska	1988	Four-horned sculpin		37	0.04-0.57	Snyder-Conn and Lubinsky 1993	nC12-nC20 alkanes, octylcyclohexane, pristane, nonylcyclohexane, phytane	GC
Simpson Cove (ANWR), Alaska	1989	Arctic flounder		5	0.521-1.14	Snyder-Conn and Lubinsky 1993	nC12-nC20 alkanes, pristane, phytane	GC
Simpson Cove (ANWR), Alaska	1989	Four-horned sculpin		5	0.323-0.934	Snyder-Conn and Lubinsky 1993	nC12-nC20 alkanes, pristane, phytane	GC
Beaufort Sea, Alaska	1989	<i>Anonyx</i> amphipods		20	0.34-6.17 / 1.4	Steinhauer and Boehm 1992	nC10-nC34 alkanes	GC
Beaufort Sea, Alaska	1989	<i>Anonyx</i> amphipods		20	1.6-12 / 5.6	Steinhauer and Boehm 1992	Total petroleum HCs	GC
Beaufort Sea, Alaska	1989	<i>Astarle</i> clams		16	0.67-7.73 / 2.3	Steinhauer and Boehm 1992	nC10-nC34 alkanes	GC
Beaufort Sea, Alaska	1989	<i>Astarle</i> clams		16	2.1-26 / 6.5	Steinhauer and Boehm 1992	Total petroleum HCs	GC
Beaufort Sea, Alaska	1989	<i>Cyrtodaria</i> clams		6	1.05-4.13 / 2.2	Steinhauer and Boehm 1992	nC10-nC34 alkanes	GC
Beaufort Sea, Alaska	1989	<i>Cyrtodaria</i> clams		6	2.4-6.6 / 4.05	Steinhauer and Boehm 1992	Total petroleum HCs	GC
Beaufort Sea, Alaska	1989	<i>Macoma</i> clams		2	0.99-2.26 / 1.6	Steinhauer and Boehm 1992	nC10-nC34 alkanes	GC
Beaufort Sea, Alaska	1989	<i>Macoma</i> clams		2	2.2-4.1 / 3.15	Steinhauer and Boehm 1992	Total petroleum HCs	GC
Beaufort Sea, Alaska	1989	<i>Potlandia</i> clams		2	1.41-4.6 / 3.0	Steinhauer and Boehm 1992	nC10-nC34 alkanes	GC
Beaufort Sea, Alaska	1989	<i>Potlandia</i> clams		2	3.1-6.9 / 5.0	Steinhauer and Boehm 1992	Total petroleum HCs	GC

Table 10-A10. Polynuclear aromatic hydrocarbons in freshwater particulates.

Location	Year	Depth, m	n	Concentration, ng/g dry weight	No. PAH compounds in total	Most abundant PAH compound(s)	Reference
Canada							
Mackenzie River, Fort Simpson to Inuvik, NWT	1986			52-418			Nagy <i>et al.</i> 1995
Liard River, NWT	1986			264			Nagy <i>et al.</i> 1995
Mackenzie River Delta	1986			20-710			Erikson and Fowler 1987
Mackenzie River Delta	1986		20	<34-8 ng/L			Erikson and Fowler 1987
Russia							
Pechora River	1995		6	90-14230	23	NAPH, ACE	RCMA 1995
Ob River	1995		3	2270-3470	23	PHEN	RCMA 1995
Yenisey River	1995		3	1720-3470	23	PHEN	RCMA 1995
Kolyma River	1995		4	15480-23590	23	PHEN	RCMA 1995
Other							
Various Arctic rivers				50-2100			Jeffries <i>et al.</i> 1994

Table 10-A11. Polynuclear aromatic hydrocarbons in seawater.

Location	Year	Depth, m	n	Total PAHs, ng/L	No. PAH compounds in total	Most abundant PAH compound(s)	Reference
Canada							
Tuktoyaktuk Harbour, NWT	1987		4	10-105	15	NAPH	Thomas 1988
Beaufort Sea Shelf	1982		15	14-221			Thomas <i>et al.</i> 1990
Beaufort Sea Shelf	1981		53	5-408	13	PERY	Erickson <i>et al.</i> 1983
Beaufort Sea Shelf				0.3-3.1			Yunker <i>et al.</i> 1994
Beaufort Sea Shelf	1975			13- 45			Wong <i>et al.</i> 1976
Denmark (Greenland)							
F��ringehavn				5-220			Anhoff <i>et al.</i> 1983
Russia							
Pechora Sea	1995	0.6-0.8	4	10-21	23	PHEN	RCMA 1995
Pechora Sea (winter)				0-6			Rosshelf <i>et al.</i> 1995
Pechora Sea (summer)				0-6			Rosshelf <i>et al.</i> 1995
White Sea	1995	1	2	37, 62	23	PHEN, NAPH	RCMA 1995
Kara Sea (Ob Gulf)	1995	1	5	27-69	23	PHEN	RCMA 1995
Kara Sea (Yenisey Gulf)	1995	1	5	14-68	23	PHEN, NAPH	RCMA 1995
Kara Sea (Baydaratskaya Gulf)	1995	1	5	16-38	23	PHEN, NAPH	RCMA 1995
Pechora Sea	1994	1 or bottom	8	< 62	43	-	GERG 1994
Bering Sea	1988	1	2	3.4-4.1	1	PYR	Irha <i>et al.</i> 1992
Bering Sea	1988	bottom	3	1.6-7.0	1	PYR	Irha <i>et al.</i> 1992
Bering Sea	1988	bottom	2	4.7-56	1	B[a]A/CHRY	Irha <i>et al.</i> 1992
Bering Sea	1988	1	9	0.07-5.2	1	B[e]P	Irha <i>et al.</i> 1992
Bering Sea	1988	bottom	11	0.2-88.4	1	B[c]P	Irha <i>et al.</i> 1992
Bering Sea	1988	1	3	0.1-0.5	1	B[k]F	Irha <i>et al.</i> 1992
Bering Sea	1988	bottom	5	0.02-0.3	1	B[k]F	Irha <i>et al.</i> 1992
Bering Sea	1988	1	4	0.1-6.4	1	B[b]F	Irha <i>et al.</i> 1992
Bering Sea	1988	bottom	7	0.2-4.3	1	B[b]F	Irha <i>et al.</i> 1992
Bering Sea	1988	1	19	n.d.-0.78	1	B[a]P	Irha <i>et al.</i> 1992
Bering Sea	1988	bottom	19	n.d.-0.74	1	B[a]P	Irha <i>et al.</i> 1992
Bering Sea	1988	bottom	9	0.8-6.8	1	B[a]P	Volodkovich and Belyaeva 1992
Chukchi Sea	1988	1	1	3.3	1	B[c]P	Irha <i>et al.</i> 1992
Chukchi Sea	1988	bottom	2	2, 10	1	B[c]P	Irha <i>et al.</i> 1992
Chukchi Sea	1988	1	1	1.8	1	B[b]F	Irha <i>et al.</i> 1992
Chukchi Sea	1988	bottom	3	1.2-3.2	1	B[b]F	Irha <i>et al.</i> 1992
Chukchi Sea	1988	1	30	0.01-0.5	1	B[a]P	Irha <i>et al.</i> 1992
Chukchi Sea	1988	bottom	26	0.01-0.6	1	B[a]P	Irha <i>et al.</i> 1992
Chukchi Sea	1988	bottom	6	0.9-12.5	1	B[a]P	Volodkovich and Belyaeva 1992
Bering Strait	1988	1	4	0.14-1.6	1	B[a]P	Irha <i>et al.</i> 1992
Bering Strait	1988	bottom	4	0.10-0.31	1	B[a]P	Irha <i>et al.</i> 1992

Table 10-A12. Polynuclear aromatic hydrocarbons in marine particulates.

Location	Year	Depth, m	n	Total PAHs, ng/g dry weight	No. PAH compounds in total	Most abundant PAH compound(s)	Reference
Canada							
Tuktoyaktuk Harbour, NWT	1987		22	910 (average)	14	PHEN	Thomas 1988
Tuktoyaktuk Harbour, NWT	1986		4	21 (average)	14	NAPH	Thomas 1988
Beaufort Sea	1986			710, 2000			Erickson and Fowler 1987
Beaufort Sea	1986			0.11-6			Yunker <i>et al.</i> 1994
Russia							
Kara Sea	1995	2	7	n.d.-6500	23	NAPH, PHEN	RCMA 1995
Kara Sea (Baydaratskaya Gulf)	1995	2	2	n.d.-11620	23	PHEN	RCMA 1995
Kara Sea (Ob Gulf)	1995	2	3	1690-2540	23	PHEN	RCMA 1995
Kara Sea (Yenisey Gulf)	1995	2	2	630-1320	23	PHEN	RCMA 1995
East Siberian Sea	1995	2	4	n.d.-14300	23	PHEN	RCMA 1995
Chukchi Sea	1995	2	3	610-720	23	PHEN	RCMA 1995
Bering Sea	1988	40-70, 170	2	253, 1019	5	B[b]F, B[c]P	RCMA 1995
Chukchi Sea	1988	1, 40-70	2	3626, 987	7, 4	DB[a]A, B[c]P	Irha <i>et al.</i> 1992

Table 10-A13. Polynuclear aromatic hydrocarbons in freshwater sediments.

Location	Year	Depth, m	n	Total PAHs, ng/g dry weight	No. PAH compounds in total	Most abundant PAH compound(s)	Reference
Canada							
Lac Belot, NWT		0-12	12	250-530			Lockhart 1994
Hawk Lake, NWT		0-22	20	10-280			Lockhart 1994
Upper Carp Lake, NWT			1	38	15	NAPH	Olding unpubl.
Mackenzie Delta, NWT	1994-1995		9	1619 (average)	33	C1NAPH	Jeffries <i>et al.</i> 1996
Amituk Lake, NWT		0-12	12	30-70			Lockhart 1996
Lake Kusawa, Yukon		0-30	29	30-180			Lockhart 1996
Baker Lake, NWT			1	24	15	FLR	Gregor unpubl.
Shultz Lake, NWT			1	2.8	15	B[b]F	Gregor unpubl.
Lake Laberge, Yukon			3	100-155			Muir and Lockhart 1994
Mackenzie River, NWT				52-418			Nagy <i>et al.</i> 1987
Finland							
Lake Pahtajärvi		0-30	10	81-1050	15	I[1,2,3-cd]P	Mannio 1996 unpubl. data
Lake 222		0-30	10	276-664	15	I[1,2,3-cd]P, B[b]F	Mannio 1996 unpubl. data
Norway							
Spitsbergen		0-2	1	944	22	C1NAPH	Skotvold <i>et al.</i> 1996
N. Scandinavia		0-3	28	116-6975	33	PERY	Skotvold <i>et al.</i> 1996
Russia							
Lake Nyulay		0-3	1	1211	25	PERY	Dahl-Hansen and Evenset 1995
Lake Kotyo		0-3	1	1430	25	PERY	Dahl-Hansen and Evenset 1995
Lake Kapylyt		0-3	1	1674	23	NAPH	Dahl-Hansen and Evenset 1995
Lake Kazyonnoe		surface	1	555	23	PERY	Dahl-Hansen and Evenset 1995
Taimyr Peninsula Lakes	1994	0-7.5	6	14-40	16	PHEN, B[ghi]P, FLRT	RCMA 1994
Ust-Lena Reserve	1995	0-10	3	< 10	1	B[a]P	Rovinsky <i>et al.</i> 1995
USA							
Alaska ponds/lakes	1988		107	< 10-150	14	B[a]P	Snyder-Conn and Lubinsky 1993
Alaska ponds/lakes	1989		108	< 10-708	24	B[c]P	Snyder-Conn and Lubinsky 1993

Table 10-A14. Polynuclear aromatic hydrocarbons in marine sediments.

Location	Year	Depth, m	n	Total PAHs, ng/g dry weight	No. PAH compounds in total	Most abundant PAH compound(s)	Reference
Canada							
Mackenzie River Delta	1987		10	820-1100		C0-C4 NAPH + C0-C4 PHEN	Yunker <i>et al.</i> 1994
Mackenzie Shelf	1987		5	590-1200		C0-C4 NAPH + C0-C4 PHEN + C0-C2 DBT	Yunker <i>et al.</i> 1994
Mackenzie Shelf Edge	1987		5	290-890		C0-C4 NAPH + C0-C4 PHEN + C0-C2 DBT	Yunker <i>et al.</i> 1994
Beaufort Sea	1991		8	220-760		C0-C4 NAPH + C0-C4 PHEN +	Yunker <i>et al.</i> 1994
Beaufort Sea Shelf, NWT	1970	Surface layer	10	100-1100	As aromatic fraction	–	Peake <i>et al.</i> 1972
Beaufort Sea Shelf, NWT	1974	Surface layer	15	236-920	As aromatic fraction	–	Wong <i>et al.</i> 1976
Beaufort Sea Shelf, NWT	1975	Core (60)	22	122-2888	Sum of unknown no. of compounds	–	Wong <i>et al.</i> 1976
Beaufort Sea Shelf, NWT	1981	0-1	12	1000-40100	11	PERY, PHEN, B[e]P	Thomas <i>et al.</i> 1982
Beaufort Sea Shelf, NWT	1982	0-1	12	7600-23500	13	PERY, PHEN, B[e]P, BF	Thomas <i>et al.</i> 1990
Beaufort Sea Shelf, NWT	1980	Surface layer			6	PHEN, PYR	Thomas <i>et al.</i> 1990
Beaufort Sea Shelf, NWT	1981	Surface layer	19	68-1856	11	PERY, PHEN, B[e]P	Erickson <i>et al.</i> 1983
Beaufort Sea beach sediment	1982	Surface layer	16	6-8000	13	Various	Thomas <i>et al.</i> 1983
Baffin Island coastal	1980	Surface layer		6-13			Cretney <i>et al.</i> 1987a
Coastal Beaufort Sea	1982	Surface layer		27-2250	13	Various	Thomas <i>et al.</i> 1983
Beaufort Sea				0.5-3.3	1	B[a]P	Stich and Dunn 1980
Norway							
Tromsø				36-85			Holte <i>et al.</i> 1992
Spitsbergen	1995	0-2	9		25		Holte <i>et al.</i> 1994
North Atlantic	1994		8		24		
Spitsbergen	1992	0-1	2	6266, 5676	23	C1NAPH, C2NAPH	Akvaplan-niva 1996 unpubl. data
Spitsbergen	1992	0-2	12	1565-8092	23	C1NAPH, C2NAPH	Akvaplan-niva 1996 unpubl. data
Spitsbergen	1992	0-10	7 intervals	5043-6643	23	C2NAPH	Akvaplan-niva 1996 unpubl. data
N. North Sea	1990	0-1	29	21-678	24	B[b]kF	NIMR 1996
Coastal	1992	0-2	6	44-194	24	I[1,2,3-cd]P, FLRT	Akvaplan-niva 1996 unpubl. data
Coastal	1992	15-20	1	39	24	B[ghi]P	Akvaplan-niva 1996 unpubl. data
Coastal	1992	25-30	1	24	24	PHEN	Akvaplan-niva 1996 unpubl. data
Coastal	1992	24-28	1	14	24	FLRT	Akvaplan-niva 1996 unpubl. data
Coastal	1992	29-34	1	18	24	PERY	Akvaplan-niva 1996 unpubl. data
Coastal	1992	35-40	1	26	24	C1PHEN	Akvaplan-niva 1996 unpubl. data
Coastal	1992	37-42	1	10	24	FLRT	Akvaplan-niva 1996 unpubl. data
Coastal	1994	0-2	12	100-274	24	I[1,2,3-cd]P, B[b]F	Akvaplan-niva 1996 unpubl. data
Coastal	1994	25-30	1	3	24	B[e]P	Akvaplan-niva 1996 unpubl. data
Coastal	1994	27-32	1	38	24	NAPH	Akvaplan-niva 1996 unpubl. data
Coastal	1994	28-33	1	12	24	PERY	Akvaplan-niva 1996 unpubl. data
Coastal	1994	30-35	4	7-31	24	PERY, B[e]P, C1NAPH	Akvaplan-niva 1996 unpubl. data
Coastal	1994	35-40	3	3-11	24	PERY, B[a]A	Akvaplan-niva 1996 unpubl. data
Coastal	1994	40-45	1	5	24	PERY	Akvaplan-niva 1996 unpubl. data
Coastal	1994	45-50	1	3	24	C1NAPH	Akvaplan-niva 1996 unpubl. data
Longyearbyen	Aug. 1992	0-2	3	3700-4800	22	PHEN, B(e)P	Holte <i>et al.</i> 1994
Barentsburg	Aug. 1992	0-2	6	2400-3600	22	PHEN, B(e)P	Holte <i>et al.</i> 1994
North Norwegian harbors	Aug. 1994	0-2	39	200-46200	23	B(bjk)F, FLRT, PYR	Konieczny 1996
Norway/Iceland							
Norwegian Sea	1994	0-1	8	17-147	24	B[b+j+k]F, NAPH	Stange and Klungsoyr 1995
Russia							
Pechora Gulf	1995	0-5	10	7-45	23	NAPH, PHEN	RCMA 1995
Ob Gulf	1995	0-5	10	4-147	23	NAPH, B[b]F, ZMNAPH, PHEN, PER	RCMA 1995
Yenisey Gulf	1995	0-5	3	40-108	23	B[b]F, PER	RCMA 1995
Baydaratskaya Gulf	1995	0-5	5	6-68	23	B[b]F, PHEN, NAPH	RCMA 1995
Pechora Sea	1994		32	4-973	43		GERG 1995
NW Barents Sea	1992		18	44-500		C0-24 NAPH + C0-C4 PHEN + C0-C2 DBT	Yunker <i>et al.</i> 1994
SE Barents Sea	1992		12	43-390		C0-24 NAPH + C0-C4 PHEN + C0-C2 DBT	Yunker <i>et al.</i> 1994
Barents Sea (Novaya Zemlya)	1992		10	18-160		C0-24 NAPH + C0-C4 PHEN + C0-C2 DBT	Yunker <i>et al.</i> 1994
Kara Sea	1994	0-5	5	41-69	23	B[ghi]P	RCMA 1994
Yenisey Gulf	1994	0-5	5	49-76	23	B[ghi]P	RCMA 1994
Ob Gulf	1994	0-5	5	25-51	23	B[ghi]P	RCMA 1994
Laptev Sea	1994	0-5	5	19-42	23	B[ghi]P	RCMA 1994
Pechora Sea	1994	0-5	5	6-30	23	B[ghi]P	RCMA 1994
Pechora Sea				253	16	NAPH	Dahl-Hansen and Evenset 1995
Barents Sea	1991-1993		117			C2NAPH	Klungsoyr <i>et al.</i> 1996
Pechora Sea	1992		7		26		Loring <i>et al.</i> 1996
White Sea	1994	0-1	11		27		Killie and Dahl 1995

Kara Sea	1993	0-1	13	7-464	27	PERY,C2NAPH, NAPH	dos Santos <i>et al.</i> 1996a
Kara Sea	1993	1-22	12	315-577	27	PERY	dos Santos <i>et al.</i> 1996a
Barents Sea	1992	0-10	12	317-3422	27	C1NAPH, C2NAPH	dos Santos <i>et al.</i> 1996b
Kara Sea	1993	0-1	5	47-276	27	C2NAPH, PERY	Akvaplan-niva 1996 unpubl. data
Kara Sea	1993	0-22	7 intervals	167-458	27	PERY	Akvaplan-niva 1996 unpubl. data
Kara Sea	1993	0-22	7 intervals	386-639	27	PERY	Akvaplan-niva 1996 unpubl. data
Kara Sea (Baydaratskaya Bay)	1993	0-1	4	18-122	27	PERY, C2NAPH	Akvaplan-niva 1996 unpubl. data
Kara Sea (Ob Gulf)	1993	0-1	3	62-362	27	PERY	Akvaplan-niva 1996 unpubl. data
White Sea	1994	0-2	9	8-110	27	B[bk]F, PERY	Akvaplan-niva 1996 unpubl. data
White Sea	1994	0-30	5 intervals	8-78	27	B[ghi]P, B[bk]F	Akvaplan-niva 1996 unpubl. data
Pechora Sea	1992	0-2	4	51-3342	27	PERY	Akvaplan-niva 1996 unpubl. data
Barents Sea	1992	0-2	2	663, 1007	27	C2NAPH, PERY	Akvaplan-niva 1996 unpubl. data
Franz Josef Land	1992	0-2	5	181-518	27	PERY, C2NAPH	Akvaplan-niva 1996 unpubl. data
Chukchi Sea	1988			10-200			Kennicutt <i>et al.</i> 1992
USA							
Coastal Alaskan Beaufort	1977			< 10-7300			Shaw <i>et al.</i> 1979
	1976			200-300			Venkatesan and Kaplan 1982
Coastal Alaskan Beaufort	1984-1986			160-1000			Steinhauer and Boehm 1992
Offshore Alaskan Beaufort	1984-1986			163-1030			Steinhauer and Boehm 1992
Beaufort Sea	1993	2	10	102-517		PHEN, 2-METHNAPH, 1-METHNAPH, PERY	Valette-Silver <i>et al.</i> 1997

Table 10-A15. Polynuclear aromatic hydrocarbons in terrestrial mammals.

Location	Year	Species	Tissue	n	Total PAHs, ng/g wet weight	No. PAH com- pounds in total	Most abundant PAH compounds	Reference
Russia								
Yugorsky Peninsula	1995	<i>Rangifer tarandus</i> (reindeer)	Muscle	2	5, 7	23	PHEN	RCMA 1995
Yugorsky Peninsula	1995	<i>Rangifer tarandus</i> (reindeer)	Liver	2	11, 33	23	PHEN, NAPH	RCMA 1995
Yugorsky Peninsula	1995	<i>Rangifer tarandus</i> (reindeer)	Kidney	1	7	23	NAPH	RCMA 1995
Yugorsky Peninsula	1995	<i>Rangifer tarandus</i> (reindeer)	Heart	1	22	23	NAPH	RCMA 1995
Taimyr Peninsula	1995	<i>Rangifer tarandus</i> (reindeer)	Muscle	1	7	23	PHEN	RCMA 1995
Taimyr Peninsula	1995	<i>Rangifer tarandus</i> (reindeer)	Liver	1	13	23	PHEN	RCMA 1995
Taimyr Peninsula	1995	<i>Rangifer tarandus</i> (reindeer)	Kidney	1	6	23	PYR	RCMA 1995
Taimyr Peninsula	1995	<i>Rangifer tarandus</i> (reindeer)	Fat	1	10	23	PHEN	RCMA 1995
Kotetny Island	1995	<i>Rangifer tarandus</i> (reindeer)	Muscle	1	1.4	23	PYR	RCMA 1995
Kotetny Island	1995	<i>Rangifer tarandus</i> (reindeer)	Liver	1	3.6	23	PHEN	RCMA 1995
Yenisey River	1995	<i>Rangifer tarandus</i> (reindeer)	Muscle	1	0.5	23	PYR	RCMA 1995
Yenisey River	1995	<i>Rangifer tarandus</i> (reindeer)	Liver	1	10	23	PHEN	RCMA 1995
Yenisey River	1995	<i>Rangifer tarandus</i> (reindeer)	Kidney	2	13, 9	23	NAPH, C1NAPH	RCMA 1995
Yamal Peninsula	1994	<i>Rangifer tarandus</i> (reindeer)	Liver	2	38, 26	23	PYR	RCMA 1995
Taimyr Peninsula	1994	<i>Rangifer tarandus</i> (reindeer)	Liver	2	47, 68	23	PHEN	RCMA 1995
Kakin Peninsula	1994	<i>Rangifer tarandus</i> (reindeer)	Liver	1	58	23	FLRT	RCMA 1995

Table 10-A16. Polynuclear aromatic hydrocarbons in plants and mushrooms.

Location	Year	Species	n	Total PAHs, ng/g wet weight	No. PAH com- pounds in total	Most abundant PAH compounds	Reference
Russia							
Yugorsky Peninsula	1995	Various	10	36-431	23	NAPH, C1NAPH	RCMA 1995
Yamal Peninsula	1995	Various	5	12-391	23	NAPH, PHEN	RCMA 1995
Taimyr Peninsula	1995	Various	10	43-168	23	PHEN	RCMA 1995
East Siberia	1995	Various	5	65-329	23	NAPH, PHEN	RCMA 1995
Vrangel Island	1995	Various	3	128-289	23	NAPH, PHEN	RCMA 1995
Chukotka Peninsula	1995	<i>Salix</i> sp.	1	88	23	NAPH	RCMA 1995
Ust-Lena Reserve	1995	Various	7	n.d.-0.14	1	B[a]P	Rovinsky <i>et al.</i> 1995
USA							
Ponds/lakes (Alaska)	1988	Freshwater plants	24	110	14	PHEN	Snyder-Conn and Lubinsky 1993

Table 10-A17. Polynuclear aromatic hydrocarbons in freshwater fishes.

Location	Year	Species	Tissue	n	Total PAHs, ng/g wet weight	No. PAH com- pounds in total	Most abundant PAH compounds	Reference
Canada								
Mackenzie River, NWT		<i>Lota lota</i> (Burbot)	Muscle	26	n.d.-33	15	NAPH	Lockhart <i>et al.</i> 1987
Mackenzie River, NWT		<i>Lota lota</i> (Burbot)	Liver	32	n.d.-360	15	FLR	Lockhart <i>et al.</i> 1987
Mackenzie River, Norman Wells, NWT		<i>Lota lota</i> (Burbot)	Liver		1289-2423			Morgan <i>et al.</i> 1987
Mackenzie River, Norman Wells, NWT		Grayling	Muscle		514-1114			Morgan <i>et al.</i> 1987
Finland								
Lake Pahtajarvi		<i>Salvelinus alpinus</i> (Arctic char)	Muscle	10		15	FLRT	Mannio 1996
Lake Pahtajarvi		<i>Salvelinus alpinus</i> (Arctic char)	Muscle	4		15	FLRT	Mannio 1996
Lake Pahtajarvi		<i>Lota lota</i> (Burbot)	Liver	4		15	FLRT	Mannio 1996
Lake 222		<i>Salmo trutta</i> (Trout)	Muscle	1		15	FLRT	Mannio 1996
Finish Archipelago		<i>Lota lota</i> (Burbot)	Muscle		26			Rainio <i>et al.</i> 1986
Finish Archipelago		<i>Lota lota</i> (Burbot)	Liver		445			Rainio <i>et al.</i> 1986
Norway								
		<i>Coregonus</i> sp. (Whitefish)		30	7.4 (average)	13	NAPH	Skotvold <i>et al.</i> 1996
		<i>Perca</i> sp. (Perch)		20	6.6 (average)	14	NAPH	Skotvold <i>et al.</i> 1996
		<i>Salvelinus alpinus</i> (Arctic char)		1		13	NAPH	Skotvold <i>et al.</i> 1996
Russia								
Pechora River	1995	<i>Coregonus autumnalis</i> (Arctic cisco)	Muscle	1		23	NAPH	RCMA 1995
Pechora River	1995	<i>Pleuronectes</i> sp.	Muscle	1		23	B[b]F	RCMA 1995
Pechora River	1995	Gobiidae sp.	Muscle	1		23	PHEN	RCMA 1995
Yenisey River	1995	<i>Coregonus nasus</i> (Broad whitefish)	Muscle	2	2.9, 26	23	B[b]F, NAPH	RCMA 1995
Yenisey River	1995	<i>Coregonus nasus</i> (Broad whitefish)	Liver	2	5.5, 4.9	23	C1NAPH, PYR	RCMA 1995
Yenisey River	1995	<i>Stenodus leucichthys</i> (In connu)	Muscle	1		23	PHEN	RCMA 1995
Yenisey River	1995	<i>Stenodus leucichthys</i> (In connu)	Liver	1		23	PHEN	RCMA 1995
Yenisey River	1995	<i>Lota lota</i> (Burbot)	Muscle	1		23	NAPH	RCMA 1995
Yenisey River	1995	<i>Lota lota</i> (Burbot)	Liver	1		23	NAPH	RCMA 1995
Khatanga River	1995	<i>Coregonus</i> sp. (Whitefish)	Muscle	3	9-26	23	PHEN, NAPH	RCMA 1995
Khatanga River	1995	<i>Coregonus</i> sp. (Whitefish)	Liver	3	5-109	23	NAPH, PHEN	RCMA 1995
Ob River	1995	<i>Coregonus</i> sp. (Whitefish)	Muscle	3	8-13	23	NAPH, B[b]F	RCMA 1995
Ob River	1995	<i>Coregonus</i> sp. (Whitefish)	Liver	3	17-19	23	NAPH, B[b]F	RCMA 1995
Ob River	1995	<i>Salvelinus alpinus</i> (Arctic char)	Muscle	1	19	23	NAPH	RCMA 1995
Ob River	1995	<i>Salvelinus alpinus</i> (Arctic char)	Liver	1	46	23	NAPH	RCMA 1995
Indigirka River	1995	<i>Coregonus</i> sp. (Whitefish)	Muscle	3	3.9-22	23	NAPH	RCMA 1995
Indigirka River	1995	<i>Coregonus</i> sp. (Whitefish)	Liver	2	6-15	23	NAPH	RCMA 1995
Ob River	1995	<i>Coregonus</i> sp. (Whitefish)	Liver	5	170-287	16	FLRT, CHRY	RCMA 1995
Pechora River	1995	<i>Coregonus</i> sp. (Whitefish)	Liver	5	103-305	16	ACEN, FLRT, CHRY	Dahl-Hansen and Evensen 1995
Pechora River	1994	<i>Coregonus</i> sp. (Whitefish)	Muscle	2	76, 8	20	FLRT, NAPH	Dahl-Hansen and Evensen 1995
Kaplyty Lake	1994	<i>Coregonus</i> sp. (Whitefish)	Muscle	1	3.8	13	NAPH	Dahl-Hansen and Evensen 1995

Table 10-A18. Polynuclear aromatic hydrocarbons in birds.

Location	Year	Species	Tissue	n	Total PAHs, ng/g wet weight	No. PAH com- pounds in total	Most abundant PAH compounds	Reference
Russia								
Yamal Peninsula	1995	<i>Branta bernicla</i> (Brant)	Muscle	1	25	23	NAPH	RCMA 1995
Yamal Peninsula	1995	<i>Branta bernicla</i> (Brant)	Liver	1	32	23	PHEN	RCMA 1995
Yamal Peninsula	1995	<i>Branta bernicla</i> (Brant)	Fat	1	24	23	NAPH	RCMA 1995
Yamal Peninsula	1995	<i>Calidris alpina</i> (Dunlin)	Liver	2	9, 391	23	NAPH	RCMA 1995
Taimyr Peninsula	1995	<i>Larus hyperboreus</i> (Glaucous gull)	Muscle	1	29	23	NAPH	RCMA 1995
Taimyr Peninsula	1995	<i>Larus hyperboreus</i> (Glaucous gull)	Liver	1	444	23	NAPH	RCMA 1995
Taimyr Peninsula	1995	<i>Larus argentatus</i> (Herring gull)	Muscle	1	19	23	NAPH	RCMA 1995
Taimyr Peninsula	1995	<i>Larus argentatus</i> (Herring gull)	Liver	1	4	23	NAPH	RCMA 1995
Taimyr Peninsula	1995	<i>Stercorarius longicaudus</i>	Muscle	1	19	23	C1NAPH	RCMA 1995
Taimyr Peninsula	1995	<i>Lagopus mutus</i> (Rock ptarmigan)	Muscle	1	21	23	NAPH	RCMA 1995
Taimyr Peninsula	1995	<i>Lagopus mutus</i> (Rock ptarmigan)	Liver	1	25	23	NAPH	RCMA 1995
Taimyr Peninsula	1995	<i>Polysticta stelleri</i> (Steller's eider)	Muscle	1	n.d.	23		RCMA 1995
Taimyr Peninsula	1995	<i>Polysticta stelleri</i> (Steller's eider)	Liver	1	21	23	DB[ah]A	RCMA 1995
Kara Sea	1995	<i>Branta bernicla</i> (Brant)	Muscle	1	30	23	NAPH	RCMA 1995
Kara Sea	1995	<i>Branta bernicla</i> (Brant)	Liver	1	47	23	NAPH	RCMA 1995

Kara Sea	1995	<i>Fulmaris glacialis</i> (Northern fulmar)	Muscle	1	5.4	23	NAPH	RCMA 1995
Laptev Sea	1995	<i>Uria lomvia</i> (Thick-billed murre)	Muscle	1	1.6	23	B[b]F	RCMA 1995
Laptev Sea	1995	<i>Uria lomvia</i> (Thick-billed murre)	Liver	1	42	23	NAPH	RCMA, 1995
Laptev Sea	1995	<i>Somateria spectabilis</i> (King eider)	Liver	1	n.d.	23		RCMA 1995
East Siberian Sea	1995	<i>Clangula hyemalis</i> (Oldsquaw)	Muscle	2	4.8, 27	23	C1NAPH, NAPH	RCMA 1995
East Siberian Sea	1995	<i>Clangula hyemalis</i> (Oldsquaw)	Liver	2	8.8, 45	23	PHEN, NAPH	RCMA 1995
East Siberian Sea	1995	<i>Philomaeus pugnax</i>	Muscle	1	12	23	NAPH	RCMA 1995
East Siberian Sea	1995	<i>Philomaeus pugnax</i>	Liver	1	125	23	NAPH	RCMA 1995
East Siberian Sea	1995	<i>Stercorarius pomarinus</i>	Muscle	1	n.d.	23		RCMA 1995
East Siberian Sea	1995	<i>Lagopus lagopus</i> (Willow ptarmigan)	Muscle	1	0.8	23	PYR	RCMA 1995
East Siberian Sea	1995	<i>Lagopus lagopus</i> (Willow ptarmigan)	Liver	1	13	23	PHEN	RCMA 1995
East Siberian Sea	1995	<i>Squatarola squatarola</i>	Muscle	1	27	23	NAPH	RCMA 1995
Taimyr Peninsula	1994	<i>Larus argentatus</i> (Herring gull)	Liver	3	54-148	23	B[a]P, PYR	RCMA 1995
Belkovsky Island	1994	<i>Uria lomvia</i> (Thick-billed murre)	Liver	4	43-75	23	PHEN	RCMA 1995
Belkovsky Island	1994	<i>Rissa tridactyla</i>	Liver	1	252	23	NAPH	RCMA 1995
Yamal Peninsula	1994	<i>Squatarola squatarola</i>	Liver	1	98	23	PYR	RCMA 1995
Cape Russky Zavarot	1994	<i>Larus argentatus</i> (Herring gull)	Liver	1	105	23	PYR	RCMA 1995
Cape Russky Zavarot	1994	<i>Philomaeus pugnax</i>	Liver	1	62	23	PHEN	RCMA 1995
Cape Russky Zavarot	1994	<i>Eudromia morinellus</i>	Liver	1	78	23	PHEN	RCMA 1995
Cape Russky Zavarot	1994	<i>Anser fabalis</i>	Liver	1	58	23	PHEN	RCMA 1995
Cape Russky Zavarot	1994	<i>Somateria spectabilis</i> (King eider)	Liver	1	208	23	PYR	RCMA 1995
USA								
Camden Bay, Alaska	1988	<i>Clangula hyemalis</i> (Oldsquaw)	Carcass	7	< 10	23	PYR	Snyder-Conn and Lubinsky 1993
Camden Bay, Alaska	1988	<i>Phalaropus lobatus</i> (Red-necked phalarope)	Carcass	1	90	23	NAPH	Snyder-Conn and Lubinsky 1993
Ponds and lakes	1988	<i>Calidris melanotos</i> (Pectoral sandpiper)	Eggs	23	< 10-10	14	NAPH	Snyder-Conn and Lubinsky 1993
	1988	<i>Calidris melanotos</i> (Pectoral sandpiper)	Carcass	46	< 10-120	14	PHEN	Snyder-Conn and Lubinsky 1993
	1988	<i>Lagopus mutus</i> (Rock ptarmigan)	Carcass	18	< 10-260	14	1,2,5,6 DBA	Snyder-Conn and Lubinsky 1993

Table 10-A19. Polynuclear aromatic hydrocarbons in marine fishes.

Location	Year	Species	Tissue	n	Total PAHs, ng/g wet weight	No. PAH com- pounds in total	Most abundant PAH compounds	Reference
Canada								
Arctic Bay, NWT	1984	<i>Boreogadus saida</i> (Arctic cod)	Muscle	38	105-164	6	PYR, FLRT	Wong 1985
Arctic Bay, NWT	1984		Whole	1	235	6	FLR	Wong 1985
Resolute, NWT	1984	<i>Boreogadus saida</i> (Arctic cod)	Muscle	14	287 (average)	6	PHEN	Wong 1985
Pangnirtung, NWT	1984	<i>Boreogadus saida</i> (Arctic cod)	Muscle	10	173 (average)	6	B[a]A	Wong 1985
Kugmallit Bay, NWT	1984	<i>Boreogadus saida</i> (Arctic cod)	Muscle	16	148 (average)	6	PHEN	Wong 1985
Tuktoyaktuk Harbour, NWT	1984	Whitefish	Muscle	2	71 (average)	6	PHEN	Wong 1985
Tuktoyaktuk Harbour, NWT	1984	Sculpin	Muscle	3	155 (average)	6	PYR	Wong 1985
Tuktoyaktuk Harbour, NWT	1984	Herring	Muscle	2	113 (average)	6	B[a]A	Wong 1985
Tuktoyaktuk Harbour, NWT	1984	Flounder	Muscle	5	62 (average)	6	B[a]A	Wong 1985
Tuktoyaktuk Harbour, NWT	1987	Flounder	Muscle	20	31 (average)	13	NAPH	Thomas 1988
Tuktoyaktuk Harbour, NWT	1987	Flounder	Liver	19	290 (average)	13	NAPH	Thomas 1988
Tuktoyaktuk Harbour, NWT	1986	Flounder	Muscle	10	31 (average)	13	NAPH	Thomas 1988
Tuktoyaktuk Harbour, NWT	1986	Flounder	Liver	10	70 (average)	13	NAPH	Thomas 1988
Beaufort Sea	1974	<i>Coregonus sardinella</i> (Least cisco)			19-26			Wong <i>et al.</i> 1976
Beaufort Sea	1974	<i>Coregonus autumnalis</i> (Arctic cisco)			14-31			Wong <i>et al.</i> 1976
Beaufort Sea	1974	Pomfret			9			Wong <i>et al.</i> 1976
Norway								
Barents Sea	1993	<i>Gadus morhua</i>	Liver	5	61-121(d.wt)	26	NAPH, 2-METHNAPH	Klungsoyr and Johnsen 1997, unpubl. data
Norwegian Sea	1993	<i>Gadus morhua</i>	Liver	5	< 13-143 (d.wt)	26	NAPH, 2-METHNAPH	Klungsoyr and Johnsen 1997, unpubl. data
Norwegian Sea	1993	<i>Melanogrammus aeglefinus</i>	Liver	5	14- 38 (d.wt)	26	NAPH, 2-METHNAPH	Klungsoyr and Johnsen 1997, unpubl. data
Russia								
Kara Sea (Baydaratskaya Gulf)	1995	Gobiidae sp.	Muscle	1	n.d.	23		RCMA 1995
Kara Sea (Baydaratskaya Gulf)	1995	<i>Gadus morhua</i> (Cod)	Muscle	1	3.5	23	NAPH	RCMA 1995
Kara Sea (Baydaratskaya Gulf)	1995	<i>Gadus morhua</i> (Cod)	Liver	1	34	23	PHEN	RCMA 1995
USA								
Simpson Cove/Camden Bay, Alaska	1989	<i>Myoxocephalus quadricornus</i> (Four-horn sculpin)		5	1-18	23	NAPH, FLR	Snyder-Conn and Lubinsky 1993
	1989	<i>Liopsella glacialis</i> (Arctic flounder)		5	11-19	23	NAPH	Snyder-Conn and Lubinsky 1993
Coastal Lagoons	1988	<i>Liopsella glacialis</i> (Arctic flounder)		31	< 10-210	23	C1NAPH	Snyder-Conn and Lubinsky 1993
	1988	<i>Myoxocephalus quadricornus</i> (Four-horn sculpin)		37	< 10-90	23	NAPH, CHRY	Snyder-Conn and Lubinsky 1993
Beaufort Sea (70°54.1'N, 160°10.7'W)	1993	Sculpin		1			NAPH, 2-METHNAP	Valette-Silver <i>et al.</i> 1997

Table 10-A20. Polynuclear aromatic hydrocarbons in marine invertebrates.

Location	Year	Species	Tissue	n	Total PAHs, ng/g wet weight	No. PAH com- pounds in total	Most abundant PAH compounds	Reference
Canada								
Cape Hat, Coastal Baffin Island	1980	Misc. benthos			1-41			Cretney <i>et al.</i> 1987c
Norway								
Tromsø	1995	<i>Mytilus edulis</i>		3	62-76		CIPHEN	Killie and Dahl 1995
Coastal areas	1992	<i>Mytilus edulis</i>		4	18-38		FLRT, NAPH	Akvaplan-niva 1996 unpubl. data
Russia								
Kara Sea	1995	Misc. Molluscs	Soft	3	4.7-12.9	23	PHEN, FLR	RCMA 1995
Kara Sea	1995	Molluscs	Whole	1	3.8	23	FLR	RCMA 1995
Kara Sea	1995	Crustacean	Whole	1	2.1	23	PYR	RCMA 1995
Kara Sea (Baydaratskaya Gulf)	1995	Misc. Molluscs	Soft	2	2.8, 4.0	23	PHEN	RCMA 1995
Kara Sea (Baydaratskaya Gulf)	1995	Misc. Crustacea	Whole	3	2.0-2.9	23	PHEN, FLR	RCMA 1995
Kara Sea (Ob Gulf)	1995	Misc. Molluscs	Whole	4	2.4-8.2	23	PHEN	RCMA 1995
Kara Sea (Ob Gulf)	1995	Misc. Crustacea	Whole	2	1.8-3.3	23	PYR, PHEN	RCMA 1995
Kara Sea (Ob Gulf)	1995	Polychaetes	Whole	2	2.9, 4.9	23	PERY	RCMA 1995
Kara Sea (Ob Gulf)	1995	Anthozoa	Whole	1	4.1	23	PHEN	RCMA 1995
Kara Sea (Yenisey Gulf)	1995	Misc. Molluscs	Whole	4	3.9-9.5	23	PHEN	RCMA 1995
Kara Sea (Yenisey Gulf)	1995	Molluscs	Soft	1	3.8	23	PYR	RCMA 1995
Bering/Chukchi Seas	1988	Plankton		16	0.02-1.2	1	B[a]P	Volodkovich and Belyaeva 1992
Bering/Chukchi Seas	1988	Plankton		11	0.6-10	1	B[a]P	Volodkovich and Belyaeva 1992
Bering/Chukchi Seas	1988	Plankton		31	0.01-91 ng.L ⁻¹	1	B[a]P	Irha <i>et al.</i> 1992
Bering/Chukchi Seas	1988	Plankton		9	0.5-8.4 ng.L ⁻¹	1	B[a]P	Irha <i>et al.</i> 1992
Bering/Chukchi Seas	1988	Plankton		22	n.d.-16.5 ng.L ⁻¹	1	B[a]P	Irha <i>et al.</i> 1992
Bering/Chukchi Seas	1988	Plankton		14	1-189 ng.L ⁻¹	1	B[a]A	Irha <i>et al.</i> 1992
Bering/Chukchi Seas	1988	Plankton		1	71 ng.L ⁻¹	1	B[ghi]P	Irha <i>et al.</i> 1992
Bering/Chukchi Seas	1988	Plankton		1	49	1	B[ghi]P	Irha <i>et al.</i> 1992
Bering/Chukchi Seas	1988	Plankton		4	0.6-2.4	1	B[k]F	Irha <i>et al.</i> 1992
Bering/Chukchi Seas	1988	Plankton		6	0.01-3.7	1	B[k]F	Irha <i>et al.</i> 1992
Bering/Chukchi Seas	1988	Plankton		10	1.7-136	1	B[b]F	Irha <i>et al.</i> 1992
Bering/Chukchi Seas	1988	Plankton		6	2.9-36	1	B[b]F	Irha <i>et al.</i> 1992
Bering/Chukchi Seas	1988	Plankton		2	27, 272	1	B[e]P	Irha <i>et al.</i> 1992
Bering/Chukchi Seas	1988	Plankton		2	27, 65	1	B[e]P	Irha <i>et al.</i> 1992
Bering/Chukchi Seas	1988	Plankton		2	3, 80	1	I[1,2,3-cd]P	Irha <i>et al.</i> 1992
Kara Sea (Baydaratskaya Gulf)	1994	Misc. Molluscs		7	13-274	16	PYR, PHEN	RCMA 1994
Kara Sea (Baydaratskaya Gulf)	1994	Crustacea		1	363	16	PYR	RCMA 1994
Kara Sea (Baydaratskaya Gulf)	1994	Ophiuroids		1	297	16	PHEN	RCMA 1994
Kara Sea (Baydaratskaya Gulf)	1994	Polychaete		1	394	16	FLRT	RCMA 1994
Kara Sea	1994	Misc. Molluscs		2	21, 52	16	PHEN, B[ghi]P	RCMA 1994
Kara Sea	1994	Crustacea		1	37	16	FLR	RCMA 1994
Kara Sea	1994	Ophiuroids		2	37, 1538	16	PHEN	RCMA 1994
Kara Sea	1994	Polychaete		2	104, 27	16	FLR, PYR	RCMA 1994
USA								
Beaufort Sea	1989	Amphipods		8	3-133 (average)	1-6		Steinhauer and Boehm 1992
Beaufort Sea	1989	Clams (<i>Astarte</i>)		7	3-326 (average)	1-9		Steinhauer and Boehm 1992
Beaufort Sea	1989	Clams (<i>Cyrtodaria</i>)		6	2-128 (average)	1-4		Steinhauer and Boehm 1992
Beaufort Sea	1989	Clams (<i>Macoma</i>)		3	43-171 (average)	6-15		Steinhauer and Boehm 1992
Beaufort Sea (73°05.8'N, 166°59.8'W)	1993	Small clams		1			BIPHEN, NAPH	Valette-Silver <i>et al.</i> 1997
Beaufort Sea (70°54.1'N, 160°10.7'W)	1993	Gastropods		1			NAPH, 1-METHNAPH	Valette-Silver <i>et al.</i> 1997
Beaufort Sea (70°54.1'N, 160°10.7'W)	1993	Sea urchin		1			BIPHEN, FLR	Valette-Silver <i>et al.</i> 1997
Beaufort Sea (70°54.1'N, 160°10.7'W)	1993	Nudibranch		1			PERY	Valette-Silver <i>et al.</i> 1997
Beaufort Sea (73°05.8'N, 166°59.8'W)	1993	Clam (<i>Macoma calcareae</i>)		1			BIPHEN, NAPH	Valette-Silver <i>et al.</i> 1997
Beaufort Sea (70°54.1'N, 160°10.7'W)	1993	Clams		1			NAPH	Valette-Silver <i>et al.</i> 1997
Beaufort Sea (70°54.1'N, 160°10.7'W)	1993	Hermit crabs		1			NAPH, PERY	Valette-Silver <i>et al.</i> 1997
Beaufort Sea (70°54.1'N, 160°10.7'W)	1993	Small shrimp		1			NAPH	Valette-Silver <i>et al.</i> 1997
Beaufort Sea (70°54.1'N, 160°10.7'W)	1993	Carid shrimp		1			NAPH, 2-METHNAPH, 1-METHNAPH	Valette-Silver <i>et al.</i> 1997