Trace Metal Concentrations in Alaskan Fishes

Update November 2009

Species	Metal	N	Metals Concentration (ppm, wet weight) Min.	Median	Max.	Mean ± Std. Dev.
Pacific Cod (*Gadus macrocephalus*)	Arsenic	144	1.21	7.08	31.6	9.13 ± 5.91
	Cadmium	144	<DL	<DL	0.030	<DL
	Chromium	126	<DL	<DL	0.457	0.052 ± 0.072
	Copper	13	<DL	<DL	<DL	<DL
	Lead	144	<DL	<DL	0.050	<DL
	Nickel	126	<DL	<DL	0.277	<DL
	Selenium	124	0.100	0.218	0.490	0.222 ± 0.061
	Weight (lb)	106	1.77	5.56	23.3	7.01 ± 4.44
Pacific Halibut (*Hippoglossus stenolepis*)	Arsenic	1502	<DL	1.311	17.5	1.62 ± 1.21
	Cadmium	1502	<DL	<DL	0.136	<DL
	Chromium	945	<DL	<DL	3.72	0.087 ± 0.223
	Copper	232	<DL	<DL	5.80	0.191 ± 0.593
	Lead	1502	<DL	<DL	0.260	<DL
	Nickel	944	<DL	<DL	0.279	<DL
	Selenium	1493	0.070	0.353	1.32	0.385 ± 0.145
	Weight (lb)	1494	5.53	33.6	338	41.2 ± 30.1
Walleye Pollock (*Theragra chalcogramma*)	Arsenic	189	0.417	1.43	37.6	3.06 ± 4.71
	Cadmium	189	<DL	<DL	0.011	<DL
	Chromium	168	<DL	<DL	2.30	<DL
	Copper	21	0.100	0.390	0.650	0.390 ± 0.131
	Lead	189	<DL	<DL	0.050	<DL
	Nickel	168	<DL	<DL	0.370	<DL
	Selenium	186	<DL	0.206	0.393	0.199 ± 0.064
	Weight (lb)	185	0.66	1.77	7.29	2.26 ± 1.27

Detection Limits: Arsenic = 0.2 ppm, Cadmium = 0.01 ppm, Chromium = 0.051 ppm, Copper = 0.2 ppm, Lead = 0.05 ppm, Nickel = 0.05 ppm, Selenium = 0.05 ppm

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Sablefish (*Anoplopoma fimbria*)	Arsenic	227	<DL	0.902	78.0	1.29 ± 5.13
	Cadmium	227	<DL	<DL	1.70	0.013 ± 0.113
	Chromium	191	<DL	<DL	0.723	<DL
	Copper	36	<DL	<DL	0.300	0.109 ± 0.039
	Lead	227	<DL	<DL	0.025	<DL
	Nickel	191	<DL	<DL	0.249	<DL
	Selenium	227	<DL	0.203	0.488	0.215 ± 0.067
	Weight (lb)	227	1.77	5.26	16.8	5.50 ± 2.30
Lingcod (*Ophiodon elongatus*)	Arsenic	137	0.120	0.535	2.55	0.660 ± 0.450
	Cadmium	137	<DL	<DL	0.020	<DL
	Chromium	129	<DL	<DL	0.406	<DL
	Copper	2	<DL	<DL	<DL	NA
	Lead	137	<DL	<DL	0.053	<DL
	Nickel	129	<DL	<DL	0.070	<DL
	Selenium	133	0.170	0.374	0.880	0.381 ± 0.099
	Weight (lb)	95	2.65	28.7	59.7	28.1 ± 13.7
Black Rockfish (*Sebastes melanops*)	Arsenic	66	0.159	0.345	2.10	0.384 ± 0.245
	Cadmium	66	<DL	<DL	0.023	<DL
	Chromium	56	<DL	<DL	0.201	<DL
	Copper	0	NA	NA	NA	NA
	Lead	66	<DL	<DL	<DL	<DL
	Nickel	56	<DL	<DL	0.089	<DL
	Selenium	65	0.190	0.485	0.766	0.504 ± 0.133
	Weight (lb)	43	3.09	5.53	8.18	5.66 ± 1.49

Detection Limits: Arsenic = 0.2 ppm, Cadmium = 0.01 ppm, Chromium = 0.051 ppm, Copper = 0.2 ppm, Lead = 0.05 ppm, Nickel = 0.05 ppm, Selenium = 0.05 ppm

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Species	Metal	N	Metals Concentration (ppm, wet weight) Min.	Median	Max.	Mean ± Std. Dev.
Dusky Rockfish (*Sebastes ciliatus*)	Arsenic	22	0.140	0.363	1.20	0.437 ± 0.266
	Cadmium	22	<DL	<DL	0.011	<DL
	Chromium	8	<DL	<DL	0.068	<DL
	Copper	1	<DL	<DL	<DL	NA
	Lead	22	<DL	<DL	0.088	<DL
	Nickel	8	<DL	<DL	0.073	<DL
	Selenium	22	0.279	0.437	0.790	0.439 ± 0.110
	Weight (lb)	17	1.77	2.28	5.53	2.69 ± 1.09
Pacific Ocean Perch (*Sebastes alutus*)	Arsenic	78	0.184	1.26	2.36	1.22 ± 0.456
	Cadmium	78	<DL	<DL	0.010	<DL
	Chromium	78	<DL	<DL	1.38	0.135 ± 0.238
	Copper	0	NA	NA	NA	NA
	Lead	78	<DL	<DL	<DL	<DL
	Nickel	78	<DL	<DL	0.196	<DL
	Selenium	78	0.252	0.466	1.03	0.505 ± 0.184
	Weight (lb)	78	0.46	1.50	2.48	1.43 ± 0.41
Quillback Rockfish (*Sebastes maliger*)	Arsenic	3	0.270	1.05	2.48	1.26 ± 1.12
	Cadmium	3	<DL	<DL	<DL	<DL
	Chromium	3	<DL	<DL	0.060	<DL
	Copper	0	NA	NA	NA	NA
	Lead	3	<DL	<DL	<DL	<DL
	Nickel	3	<DL	<DL	<DL	<DL
	Selenium	3	0.433	0.507	0.550	0.497 ± 0.059
	Weight (lb)	1	3.09	3.09	3.09	NA

Detection Limits: Arsenic = 0.2 ppm, Cadmium = 0.01 ppm, Chromium = 0.051 ppm, Copper = 0.2 ppm, Lead = 0.05 ppm, Nickel = 0.05 ppm, Selenium = 0.05 ppm

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Species	Metal	N	Metals Concentration (ppm, wet weight) Min.	Median	Max.	Mean ± Std. Dev.
Rougheye Rockfish (*Sebastes aleutianus*)	Arsenic	31	0.294	1.94	4.60	2.07 ± 1.21
	Cadmium	31	<DL	<DL	0.056	<DL
	Chromium	21	<DL	<DL	0.065	<DL
	Copper	8	<DL	<DL	<DL	<DL
	Lead	31	<DL	<DL	0.060	<DL
	Nickel	21	<DL	<DL	0.060	<DL
	Selenium	31	0.220	0.350	0.492	0.357 ± 0.081
	Weight (lb)	21	1.33	2.21	4.64	2.78 ± 1.03
Silvergrey Rockfish (*Sebastes brevespinus*)	Arsenic	4	<DL	0.303	0.362	0.267 ± 0.115
	Cadmium	4	<DL	<DL	<DL	<DL
	Chromium	4	<DL	<DL	0.052	<DL
	Copper	0	NA	NA	NA	NA
	Lead	4	<DL	<DL	<DL	<DL
	Nickel	4	<DL	<DL	<DL	<DL
	Selenium	4	0.399	0.444	0.473	0.440 ± 0.032
	Weight (lb)	3	2.87	7.07	7.07	5.67 ± 2.42
Yelloweye Rockfish (*Sebastes ruberrimus*)	Arsenic	72	0.157	0.705	7.14	0.994 ± 1.05
	Cadmium	72	<DL	<DL	<DL	<DL
	Chromium	66	<DL	<DL	0.337	<DL
	Copper	0	NA	NA	NA	NA
	Lead	72	<DL	<DL	0.247	<DL
	Nickel	66	<DL	<DL	0.123	<DL
	Selenium	67	0.328	0.557	1.12	0.565 ± 0.135
	Weight (lb)	44	1.77	10.5	20.6	10.9 ± 4.35

Detection Limits: Arsenic = 0.2 ppm, Cadmium = 0.01 ppm, Chromium = 0.051 ppm, Copper = 0.2 ppm, Lead = 0.05 ppm, Nickel = 0.05 ppm, Selenium = 0.05 ppm

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Species	Metal	N	Metals Concentration (ppm, wet weight) Min.	Median	Max.	Mean ± Std. Dev.
Yellowtail Rockfish (*Sebastes flavidus*)	Arsenic	2	0.471	0.502	0.532	NA
	Cadmium	2	<DL	<DL	<DL	NA
	Chromium	2	<DL	<DL	0.078	NA
	Copper	0	NA	NA	NA	NA
	Lead	2	<DL	0.038	0.051	NA
	Nickel	2	<DL	0.049	0.073	NA
	Selenium	2	0.537	0.569	0.600	NA
	Weight (lb)	2	1.99	2.21	2.43	NA
Arctic Lamprey (*Lampetra camtschatica*)	Arsenic	10	0.660	0.927	1.25	0.948 ± 0.185
	Cadmium	10	<DL	0.017	0.055	0.022 ± 0.016
	Chromium	0	NA	NA	NA	NA
	Copper	0	NA	NA	NA	NA
	Lead	10	<DL	<DL	<DL	<DL
	Nickel	0	NA	NA	NA	NA
	Selenium	10	0.311	0.394	0.431	0.385 ± 0.041
	Weight (lb)	10	0.15	0.23	0.34	0.23 ± 0.06
Salmon Shark (*Lamna ditropis*)	Arsenic	98	0.350	1.25	2.43	1.29 ± 0.436
	Cadmium	98	<DL	0.012	0.093	0.016 ± 0.016
	Chromium	43	<DL	<DL	0.263	0.051 ± 0.046
	Copper	0	NA	NA	NA	NA
	Lead	98	<DL	<DL	0.061	<DL
	Nickel	43	<DL	<DL	0.237	<DL
	Selenium	97	0.150	0.304	0.519	0.310 ± 0.061
	Length (Ft)	75	6' 5.6"	7' 5.0"	8' 6.4"	7' 4.6" ± 5.5"

Detection Limits: Arsenic = 0.2 ppm, Cadmium = 0.01 ppm, Chromium = 0.051 ppm, Copper = 0.2 ppm, Lead = 0.05 ppm, Nickel = 0.05 ppm, Selenium = 0.05 ppm

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Species	Metal	N	Metals Concentration (ppm, wet weight) Min.	Median	Max.	Mean ± Std. Dev.
Blue Shark (*Prionace glauca*)	Arsenic	1	1.84	1.84	1.84	NA
	Cadmium	1	0.018	0.018	0.018	NA
	Chromium	1	<DL	<DL	<DL	<DL
	Copper	0	NA	NA	NA	NA
	Lead	1	<DL	<DL	<DL	NA
	Nickel	1	<DL	<DL	<DL	NA
	Selenium	1	0.229	0.229	0.229	0.229 ± NA
	Weight (lb)	1	44.2	44.2	44.2	NA
Spiny Dogfish (*Squalus acanthias*)	Arsenic	52	1.51	2.73	4.54	2.87 ± 0.713
	Cadmium	52	<DL	<DL	<DL	<DL
	Chromium	52	<DL	0.041	0.273	0.059 ± 0.052
	Copper	0	NA	NA	NA	NA
	Lead	52	<DL	<DL	0.154	<DL
	Nickel	52	<DL	<DL	0.110	<DL
	Selenium	51	0.146	0.185	0.260	0.186 ± 0.024
	Weight (lb)	7	4.20	5.75	8.40	6.06 ± 1.77
All Salmon (*Oncorhynchus spp.*)	Arsenic	1004	<DL	0.299	1.65	0.338 ± 0.192
	Cadmium	1004	<DL	<DL	0.070	<DL
	Chromium	938	<DL	<DL	2.31	0.051 ± 0.120
	Copper	25	<DL	0.550	<DL	0.517 ± 0.243
	Lead	1004	<DL	<DL	0.240	<DL
	Nickel	938	<DL	<DL	3.32	<DL
	Selenium	1004	<DL	0.230	0.590	0.226 ± 0.065
	Weight (lb)	979	<0.01	6.41	32.2	7.35 ± 4.10

Detection Limits: Arsenic = 0.2 ppm, Cadmium = 0.01 ppm, Chromium = 0.051 ppm, Copper = 0.2 ppm, Lead = 0.05 ppm, Nickel = 0.05 ppm, Selenium = 0.05 ppm

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Species	Metal	N	Metals Concentration (ppm, wet weight) Min.	Median	Max.	Mean ± Std. Dev.
Chinook salmon (*Oncorhynchus tschawytscha*)	Arsenic	147	<DL	0.503	1.65	0.578 ± 0.284
	Cadmium	147	<DL	<DL	0.011	<DL
	Chromium	141	<DL	<DL	1.37	0.059 ± 0.153
	Copper	5	0.640	0.670	1.00	0.790 ± 0.179
	Lead	147	<DL	<DL	0.060	<DL
	Nickel	141	<DL	<DL	0.120	<DL
	Selenium	147	0.070	0.216	0.590	0.227 ± 0.088
	Weight (lb)	147	1.33	12.8	32.2	13.5 ± 5.75
Coho Salmon (*Oncorhynchus kisutch*)	Arsenic	243	<DL	0.357	0.830	0.361 ± 0.131
	Cadmium	243	<DL	<DL	0.019	<DL
	Chromium	232	<DL	<DL	2.31	0.061 ± 0.166
	Copper	10	0.470	0.570	0.780	0.596 ± 0.099
	Lead	243	<DL	<DL	0.240	<DL
	Nickel	232	<DL	<DL	3.32	<DL
	Selenium	243	<DL	0.220	0.420	0.214 ± 0.065
	Weight (lb)	231	0.00	7.43	15.5	7.71 ± 2.71
Sockeye Salmon (*Oncorhynchus nerka*)	Arsenic	212	<DL	0.277	0.950	0.288 ± 0.118
	Cadmium	212	<DL	<DL	0.070	<DL
	Chromium	198	<DL	<DL	0.162	<DL
	Copper	0	NA	NA	NA	NA
	Lead	212	<DL	<DL	<DL	<DL
	Nickel	198	<DL	<DL	0.285	<DL
	Selenium	212	0.090	0.231	0.334	0.220 ± 0.057
	Weight (lb)	209	0.88	4.91	9.86	5.25 ± 1.70

Detection Limits: Arsenic = 0.2 ppm, Cadmium = 0.01 ppm, Chromium = 0.051 ppm, Copper = 0.2 ppm, Lead = 0.05 ppm, Nickel = 0.05 ppm, Selenium = 0.05 ppm

Trace Metal Concentrations in Alaskan Fishes

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Species	Metal	N	Metals Concentration (ppm, wet weight) Min.	Median	Max.	Mean ± Std. Dev.
Chum Salmon (*Oncorhynchus keta*)	Arsenic	236	<DL	0.218	1.10	0.245 ± 0.124
	Cadmium	236	<DL	<DL	0.019	<DL
	Chromium	207	<DL	<DL	0.675	<DL
	Copper	10	<DL	0.360	0.550	0.302 ± 0.183
	Lead	236	<DL	<DL	0.067	<DL
	Nickel	207	<DL	<DL	0.161	<DL
	Selenium	236	0.090	0.251	0.369	0.250 ± 0.050
	Weight (lb)	229	2.87	7.07	13.9	7.31 ± 1.83
Pink Salmon (*Oncorhynchus gorbuscha*)	Arsenic	166	<DL	0.262	0.845	0.289 ± 0.132
	Cadmium	166	<DL	<DL	0.012	<DL
	Chromium	160	<DL	<DL	0.843	0.066 ± 0.126
	Copper	0	NA	NA	NA	NA
	Lead	166	<DL	<DL	0.050	<DL
	Nickel	160	<DL	<DL	0.150	<DL
	Selenium	166	0.060	0.220	0.342	0.214 ± 0.057
	Weight (lb)	163	1.33	3.82	7.09	4.00 ± 1.01
Rainbow Trout (*Oncorhynchus mykiss*)	Arsenic	34	<DL	<DL	0.941	0.181 ± 0.221
	Cadmium	34	<DL	<DL	<DL	<DL
	Chromium	10	<DL	<DL	<DL	<DL
	Copper	24	<DL	<DL	0.530	0.240 ± 0.162
	Lead	34	<DL	<DL	<DL	<DL
	Nickel	10	<DL	<DL	<DL	<DL
	Selenium	34	<DL	0.161	0.950	0.225 ± 0.184
	Weight (lb)	34	0.24	0.82	3.27	1.00 ± 0.72

Detection Limits: Arsenic = 0.2 ppm, Cadmium = 0.01 ppm, Chromium = 0.051 ppm, Copper = 0.2 ppm, Lead = 0.05 ppm, Nickel = 0.05 ppm, Selenium = 0.05 ppm

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Species	Metal	N	Metals Concentration (ppm, wet weight) Min.	Median	Max.	Mean ± Std. Dev.
Grayling (*Thymallus arcticus*)	Arsenic	33	<DL	<DL	<DL	<DL
	Cadmium	33	<DL	<DL	<DL	<DL
	Chromium	7	<DL	<DL	<DL	<DL
	Copper	26	<DL	0.400	0.510	0.377 ± 0.113
	Lead	33	<DL	<DL	0.025	<DL
	Nickel	7	<DL	<DL	0.025	<DL
	Selenium	33	<DL	0.240	1.45	0.384 ± 0.371
	Weight (lb)	31	0.02	0.44	1.76	0.61 ± 0.44
Dolly Varden (*Salvelinus malma*)	Arsenic	15	<DL	0.113	0.500	0.172 ± 0.111
	Cadmium	15	<DL	<DL	<DL	<DL
	Chromium	7	<DL	<DL	0.136	<DL
	Copper	8	0.300	0.390	0.710	0.435 ± 0.130
	Lead	15	<DL	<DL	<DL	<DL
	Nickel	7	<DL	<DL	0.059	<DL
	Selenium	15	0.150	0.445	0.800	0.432 ± 0.198
	Weight (lb)	15	0.04	0.14	4.69	0.59 ± 1.20
Lake Trout (*Salvelinus namaycush*)	Arsenic	16	<DL	0.105	0.236	0.127 ± 0.046
	Cadmium	16	<DL	<DL	<DL	<DL
	Chromium	9	<DL	<DL	0.056	<DL
	Copper	3	<DL	0.330	0.330	0.253 ± 0.133
	Lead	16	<DL	<DL	<DL	<DL
	Nickel	9	<DL	<DL	<DL	<DL
	Selenium	16	0.100	0.263	0.540	0.273 ± 0.124
	Weight (lb)	16	1.56	2.34	10.6	3.65 ± 2.42

Detection Limits: Arsenic = 0.2 ppm, Cadmium = 0.01 ppm, Chromium = 0.051 ppm, Copper = 0.2 ppm, Lead = 0.05 ppm, Nickel = 0.05 ppm, Selenium = 0.05 ppm

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Species	Metal	N	Metals Concentration (ppm, wet weight) Min.	Median	Max.	Mean ± Std. Dev.
Arctic Cisco (*Coregonus autumnalis*)	Arsenic	21	0.569	0.744	1.16	0.778 ± 0.153
	Cadmium	21	<DL	<DL	<DL	<DL
	Chromium	7	<DL	<DL	<DL	<DL
	Copper	0	NA	NA	NA	NA
	Lead	21	<DL	<DL	<DL	<DL
	Nickel	7	<DL	<DL	0.092	<DL
	Selenium	21	0.305	0.367	0.478	0.361 ± 0.045
	Weight (lb)	21	0.51	0.80	1.37	0.82 ± 0.19
Least Cisco (*Coregonus sardinella*)	Arsenic	20	0.593	0.853	1.82	0.887 ± 0.291
	Cadmium	20	<DL	<DL	<DL	<DL
	Chromium	19	<DL	<DL	<DL	<DL
	Copper	0	NA	NA	NA	NA
	Lead	20	<DL	<DL	<DL	<DL
	Nickel	19	<DL	<DL	0.142	0.050 ± 0.034
	Selenium	20	0.301	0.353	0.509	0.362 ± 0.052
	Weight (lb)	20	0.50	0.63	0.84	0.63 ± 0.07
Humpback Whitefish (*Coregonus pidschian*)	Arsenic	9	0.479	0.663	1.09	0.705 ± 0.219
	Cadmium	9	<DL	<DL	<DL	<DL
	Chromium	3	<DL	<DL	<DL	<DL
	Copper	0	NA	NA	NA	NA
	Lead	9	<DL	<DL	<DL	<DL
	Nickel	3	<DL	<DL	0.088	<DL
	Selenium	9	0.388	0.455	0.738	0.489 ± 0.107
	Weight (lb)	9	0.66	0.97	1.39	0.97 ± 0.21

Detection Limits: Arsenic = 0.2 ppm, Cadmium = 0.01 ppm, Chromium = 0.051 ppm, Copper = 0.2 ppm, Lead = 0.05 ppm, Nickel = 0.05 ppm, Selenium = 0.05 ppm

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Species	Metal	N	Metals Concentration (ppm, wet weight) Min.	Median	Max.	Mean ± Std. Dev.
Round Whitefish (*Prosopium cylindraceum*)	Arsenic	6	<DL	<DL	<DL	<DL
	Cadmium	6	<DL	<DL	<DL	<DL
	Chromium	0	NA	NA	NA	NA
	Copper	6	<DL	0.270	0.480	0.257 ± 0.144
	Lead	6	<DL	<DL	<DL	<DL
	Nickel	0	NA	NA	NA	NA
	Selenium	6	0.390	1.20	2.10	1.20 ± 0.717
	Weight (lb)	6	0.33	0.50	0.69	0.52 ± 0.13
Sheefish (*Stenodus leucichthys*)	Arsenic	8	3.100	9.64	12.1	8.51 ± 3.16
	Cadmium	8	<DL	<DL	<DL	<DL
	Chromium	8	<DL	<DL	<DL	<DL
	Copper	0	NA	NA	NA	NA
	Lead	8	<DL	<DL	0.050	<DL
	Nickel	8	<DL	<DL	0.050	<DL
	Selenium	8	0.140	0.202	0.300	0.209 ± 0.050
	Weight (lb)	8	5.97	8.40	17.2	9.50 ± 3.99
Northern Pike (*Esox lucius*)	Arsenic	247	<DL	<DL	3.32	0.185 ± 0.246
	Cadmium	247	<DL	<DL	<DL	<DL
	Chromium	104	<DL	<DL	2.56	0.147 ± 0.417
	Copper	8	<DL	<DL	<DL	<DL
	Lead	247	<DL	<DL	0.072	<DL
	Nickel	104	<DL	<DL	0.066	<DL
	Selenium	247	<DL	0.240	0.480	0.237 ± 0.107
	Weight (lb)	229	0.22	2.41	18.0	2.95 ± 2.42

Detection Limits: Arsenic = 0.2 ppm, Cadmium = 0.01 ppm, Chromium = 0.051 ppm, Copper = 0.2 ppm, Lead = 0.05 ppm, Nickel = 0.05 ppm, Selenium = 0.05 ppm

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Species	Metal	N	Metals Concentration (ppm, wet weight) Min.	Median	Max.	Mean ± Std. Dev.
Burbot (*Lota lota*)	Arsenic	21	<DL	0.160	8.84	0.826 ± 2.11
	Cadmium	21	<DL	<DL	<DL	<DL
	Chromium	10	<DL	<DL	0.063	<DL
	Copper	1	<DL	<DL	<DL	NA
	Lead	21	<DL	<DL	<DL	<DL
	Nickel	10	<DL	<DL	0.052	<DL
	Selenium	21	0.140	0.270	0.610	0.309 ± 0.118
	Weight (lb)	21	0.26	2.98	6.85	3.27 ± 1.77
Pacific Oyster (*Crassostrea gigas*)	Arsenic	16	1.30	1.68	3.06	1.82 ± 0.484
	Cadmium	16	1.08	2.09	4.89	2.46 ± 1.11
	Chromium	16	<DL	0.058	0.144	0.059 ± 0.035
	Copper	0	NA	NA	NA	NA
	Lead	16	<DL	<DL	0.077	<DL
	Nickel	16	0.060	0.112	0.207	0.119 ± 0.045
	Selenium	16	0.444	0.517	0.804	0.552 ± 0.103
	Weight (lb)	0	NA	NA	NA	NA
Pacific Littleneck Clam (*Protothaca staminea*)	Arsenic	4	2.93	3.72	4.09	3.61 ± 0.490
	Cadmium	4	0.346	0.408	0.444	0.401 ± 0.047
	Chromium	4	0.097	0.253	0.357	0.240 ± 0.112
	Copper	0	NA	NA	NA	NA
	Lead	4	<DL	<DL	<DL	<DL
	Nickel	4	0.361	0.376	0.388	0.375 ± 0.014
	Selenium	4	0.511	0.591	0.769	0.616 ± 0.125
	Weight (lb)	0	NA	NA	NA	NA

Detection Limits: Arsenic = 0.2 ppm, Cadmium = 0.01 ppm, Chromium = 0.051 ppm, Copper = 0.2 ppm, Lead = 0.05 ppm, Nickel = 0.05 ppm, Selenium = 0.05 ppm

Trace Metal Concentrations in Alaskan Fishes

Update November 2009

Species	Metal	N	Metals Concentration (ppm, wet weight) Min.	Median	Max.	Mean ± Std. Dev.
Pacific Razor Clam (*Siliqua patula*)	Arsenic	2	1.28	1.33	1.38	1.33 ± 0.071
	Cadmium	2	0.059	0.074	0.089	0.074 ± 0.021
	Chromium	2	0.494	0.611	0.728	0.611 ± 0.165
	Copper	0	NA	NA	NA	NA
	Lead	2	0.102	0.110	0.118	0.110 ± 0.011
	Nickel	2	0.442	0.494	0.545	0.494 ± 0.073
	Selenium	2	0.487	0.525	0.563	0.525 ± 0.054
	Weight (lb)	0	NA	NA	NA	NA
Geoduck Clam (*Panopea abrupta*)	Arsenic	7	3.34	4.45	6.03	4.53 ± 0.875
	Cadmium	7	0.878	1.12	1.48	1.18 ± 0.240
	Chromium	7	0.384	0.620	0.897	0.619 ± 0.169
	Copper	0	NA	NA	NA	NA
	Lead	7	<DL	<DL	0.053	<DL
	Nickel	7	0.157	0.194	0.323	0.227 ± 0.070
	Selenium	7	1.46	1.62	2.64	1.79 ± 0.413
	Weight (lb)	0	NA	NA	NA	NA

Detection Limits: Arsenic = 0.2 ppm, Cadmium = 0.01 ppm, Chromium = 0.051 ppm, Copper = 0.2 ppm, Lead = 0.05 ppm, Nickel = 0.05 ppm, Selenium = 0.05 ppm

Concentrations expressed in parts per million (ppm, ug/g)

Concentrations below the detection limit were treated as one-half the detection limit for analytical purposes

NA : not available

not calculated if < 3 samples

not calculated if sample mean < DL

Weights for Pacific Halibut calculated from length, based on algorithm provided by the International Pacific Halibut Commission

Lengths (feet and inches) used for Salmon Sharks, as weights were not provided