



Alaska Department of Environmental Conservation

Office of the State Veterinarian Fish Monitoring Program

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Nickel in Fish and Shellfish Caught in Alaskan Waters

Fish Samples collected: 2001-2024

Concentration in mg/Kg wet weight

ND = Non-detect in greater than 50% of fish samples

Visit the Fish Monitoring Program webpage for more information:

<http://www.dec.alaska.gov/eh/vet/fish-monitoring-program>

For State of Alaska fish consumption recommendations visit:

<https://health.alaska.gov/dph/Epi/eph/Pages/fish/default.aspx>

Table 1: Nickel in Marine Fish

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Arctic Flounder	Whole Body	4	1	0.438	0.227	0.114	0.53	0.1	0.59
Arctic Sculpin	Whole Body	1	0	0.64	NA	NA	0.64	0.64	0.64
Atka Mackerel	Fillet	4	3	ND	NA	NA	ND	0.09	0.21
Atka Mackerel	Whole Body	5	1	0.279	0.107	0.048	0.32	0.125	0.4
Black Rockfish	Fillet	59	50	ND	NA	NA	ND	0.01	0.22
Black Rockfish	Whole Body	7	3	0.281	0.166	0.063	0.29	0.105	0.54
Blue Shark	Fillet	1	1	ND	NA	NA	ND	0.025	0.025
Butter Sole	Whole Body	1	0	0.24	NA	NA	0.24	0.24	0.24
Dusky Rockfish	Fillet	20	14	ND	NA	NA	ND	0.01	2.2
Dusky Rockfish	Whole Body	20	5	0.384	0.223	0.05	0.38	0.105	0.99
Fourhorn Sculpin	Whole Body	4	0	0.71	0.154	0.077	0.68	0.57	0.91
Great Sculpin	Whole Body	2	0	0.51	0.014	0.01	0.51	0.5	0.52
Kelp Greenling	Fillet	1	1	ND	NA	NA	ND	0.09	0.09
Kelp Greenling	Whole Body	18	6	0.361	0.261	0.061	0.285	0.1	0.89
Lingcod	Fillet	129	124	ND	NA	NA	ND	0.01	0.07
Northernrock Sole	Whole Body	18	3	0.419	0.257	0.06	0.39	0.08	1
Pacific Cod	Fillet	131	103	ND	NA	NA	ND	0.01	0.277
Pacific Halibut	Fillet	944	905	ND	NA	NA	ND	0.01	0.279
Pacific Ocean Perch	Fillet	78	58	ND	NA	NA	ND	0.01	0.196
Quillback Rockfish	Fillet	3	3	ND	NA	NA	ND	0.01	0.025
Red Irish Lord	Whole Body	11	0	0.502	0.143	0.043	0.47	0.21	0.71
Rock Greenling	Whole Body	16	4	0.321	0.183	0.046	0.285	0.085	0.68
Rougheye Rockfish	Fillet	21	20	ND	NA	NA	ND	0.01	0.06
Sablefish	Fillet	191	184	ND	NA	NA	ND	0.01	0.249
Salmon Shark	Fillet	43	38	ND	NA	NA	ND	0.01	0.237
Silvergray Rockfish	Fillet	4	4	ND	NA	NA	ND	0.025	0.025
Southernrock Sole	Whole Body	1	0	0.23	NA	NA	0.23	0.23	0.23
Spiny Dogfish	Fillet	52	44	ND	NA	NA	ND	0.01	0.11
Starry Flounder	Whole Body	1	1	ND	NA	NA	ND	0.1	0.1
Tiger Rockfish	Fillet	1	1	ND	NA	NA	ND	0.01	0.01
Walleye Pollock	Fillet	167	137	ND	NA	NA	ND	0.01	0.37
Yellow Irish Lord	Fillet	2	2	ND	NA	NA	ND	0.095	0.1
Yellow Irish Lord	Whole Body	10	0	0.393	0.148	0.047	0.34	0.28	0.75
Yelloweye Rockfish	Fillet	66	57	ND	NA	NA	ND	0.01	0.123
Yellowtail Rockfish	Fillet	2	1	ND	NA	NA	ND	0.025	0.073

Table 1: Nickel in Marine Fish (*continued*)

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max

Note:

n= sample size

ND = non-detect

Mean = arithmetic mean

SD = standard deviation

SEM = standard error

C = Composite of multiple individuals

Reporting limits: As, Cd, Cu, Pb = 0.05 mg/Kg; Se = 0.25 mg/Kg; Hg = 0.01 mg/Kg

Table 2: Nickel in Salmonids (Salmon, Whitefish, Grayling, Char)

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Arctic Char	Whole Body	1	0	0.35	NA	NA	0.35	0.35	0.35
Arctic Cisco	Fillet	7	6	ND	NA	NA	ND	0.025	0.092
Arctic Cisco	Whole Body	1	0	0.39	NA	NA	0.39	0.39	0.39
Arctic Grayling	Fillet	5	5	ND	NA	NA	ND	0.025	0.025
Arctic Grayling	Whole Body	1	0	0.64	NA	NA	0.64	0.64	0.64
Arctic Grayling	C-Whole Body	5	3	ND	NA	NA	ND	0.025	0.51
Chum Salmon	Fillet	202	197	ND	NA	NA	ND	0.01	0.161
Chum Salmon	Whole Body	2	0	0.335	0.054	0.038	0.335	0.297	0.373
Coho Salmon	Fillet	225	217	ND	NA	NA	ND	0.01	0.181
Coho Salmon	Whole Body	5	0	0.258	0.068	0.03	0.259	0.174	0.36
Dolly Varden	Fillet	7	4	ND	NA	NA	ND	0.025	0.059
Dolly Varden	Whole Body	3	0	0.527	0.294	0.17	0.61	0.2	0.77
Humpback Whitefish	Fillet	3	2	ND	NA	NA	ND	0.025	0.088
Lake Trout	Fillet	9	9	ND	NA	NA	ND	0.025	0.025
Lake Trout	Whole Body	2	0	0.85	0.212	0.15	0.85	0.7	1
Least Cisco	Fillet	19	10	ND	NA	NA	ND	0.025	0.142
Least Cisco	Whole Body	1	0	0.26	NA	NA	0.26	0.26	0.26
Pink Salmon	Fillet	159	155	ND	NA	NA	ND	0.01	0.15
Pygmy Whitefish	Whole Body	1	1	ND	NA	NA	ND	0.1	0.1
Rainbow Trout	Fillet	20	19	ND	NA	NA	ND	0.01	0.1
Rainbow Trout	Whole Body	10	1	0.298	0.132	0.042	0.245	0.1	0.5
Sheefish	Fillet	33	31	ND	NA	NA	ND	0.01	0.1
Sheefish	Whole Body	5	0	0.358	0.152	0.068	0.32	0.2	0.6
Sheefish	Eggs	1	1	ND	NA	NA	ND	0.1	0.1
Sockeye Salmon	Fillet	194	183	ND	NA	NA	ND	0.01	0.285
Sockeye Salmon	Whole Body	4	0	0.218	0.064	0.032	0.233	0.13	0.275

Note:

n= sample size

ND = non-detect

Mean = arithmetic mean

SD = standard deviation

SEM = standard error

C = Composite of multiple individuals

Reporting limits: As, Cd, Cu, Pb = 0.05 mg/Kg; Se = 0.25 mg/Kg; Hg = 0.01 mg/Kg

Table 3: Nickel in Marine Forage Fish

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Saffron Cod	Whole Body	2	0	0.69	0.17	0.12	0.69	0.57	0.81

Note:

n= sample size

ND = non-detect

Mean = arithmetic mean

SD = standard deviation

SEM = standard error

C = Composite of multiple individuals

Reporting limits: As, Cd, Cu, Pb = 0.05 mg/Kg; Se = 0.25 mg/Kg; Hg = 0.01 mg/Kg

Table 4: Nickel in Marine Invertebrates

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Blue Mussel	Invert Whole Tissue	2	0	0.296	0.026	0.018	0.296	0.277	0.314
Little Neck Clam	Invert Whole Tissue	4	0	0.375	0.014	0.007	0.376	0.361	0.388
Oysters	Invert Whole Tissue	16	0	0.119	0.045	0.011	0.112	0.06	0.207
Razor Clam	Invert Muscle	2	0	0.494	0.073	0.052	0.494	0.442	0.545
Softshell Clam	Invert Whole Tissue	4	0	0.637	0.159	0.079	0.666	0.417	0.797

Note:

n= sample size

ND = non-detect

Mean = arithmetic mean

SD = standard deviation

SEM = standard error

C = Composite of multiple individuals

Reporting limits: As, Cd, Cu, Pb = 0.05 mg/Kg; Se = 0.25 mg/Kg; Hg = 0.01 mg/Kg

Table 5: Nickel in Freshwater Fishes

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Burbot	Fillet	10	9	ND	NA	NA	ND	0.01	0.052
Northern Pike	Fillet	105	93	ND	NA	NA	ND	0.01	0.1
NS Stickleback	C-Whole Body	1	1	ND	NA	NA	ND	0.1	0.1
Slimy Sculpin	C-Whole Body	10	9	ND	NA	NA	ND	0.1	0.47
TS Stickleback	C-Whole Body	1	0	0.75	NA	NA	0.75	0.75	0.75

Note:

n= sample size

ND = non-detect

Mean = arithmetic mean

SD = standard deviation

SEM = standard error

C = Composite of multiple individuals

Reporting limits: As, Cd, Cu, Pb = 0.05 mg/Kg; Se = 0.25 mg/Kg; Hg = 0.01 mg/Kg