



Alaska Department of Environmental Conservation
Office of the State Veterinarian Fish Monitoring Program
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Lead in Fish and Shellfish Caught in Alaskan Waters

Fish Samples collected: 2001-2021

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:

<http://www.dhss.alaska.gov/dph/Epi/eph/Pages/fish/default.aspx>

Table 1: Lead in Marine Fish

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Alaska Plaice	Fillet	31	31	ND	NA	NA	ND	0.025	0.025
Arctic Flounder	Whole Body	4	4	ND	NA	NA	ND	0.025	0.025
Arctic Sculpin	Whole Body	1	1	ND	NA	NA	ND	0.025	0.025
Arrowtooth Flounder	Fillet	14	14	ND	NA	NA	ND	0.025	0.025
Atka Mackerel	Fillet	4	4	ND	NA	NA	ND	0.022	0.034
Atka Mackerel	Whole Body	5	5	ND	NA	NA	ND	0.017	0.032
Big Skate	Fillet	112	109	ND	NA	NA	ND	0.025	0.12
Big Skate	Liver	20	20	ND	NA	NA	ND	0.025	0.025
Black Rockfish	Fillet	85	76	ND	NA	NA	ND	0.01	0.04
Black Rockfish	Whole Body	7	7	ND	NA	NA	ND	0.022	0.035
Blue Shark	Fillet	1	1	ND	NA	NA	ND	0.015	0.015
Butter Sole	Whole Body	1	1	ND	NA	NA	ND	0.028	0.028
China Rockfish	Fillet	1	1	ND	NA	NA	ND	0.025	0.025
Copper Rockfish	Fillet	4	4	ND	NA	NA	ND	0.025	0.025
Dusky Rockfish	Fillet	64	63	ND	NA	NA	ND	0.01	0.088
Dusky Rockfish	Whole Body	20	17	ND	NA	NA	ND	0.02	0.71
Flathead Sole	Fillet	15	12	ND	NA	NA	ND	0.008	0.025
Fourhorn Sculpin	Whole Body	6	4	ND	NA	NA	ND	0.007	0.025
Fourhorn Sculpin	C-Whole Body	1	0	0.023	NA	NA	0.023	0.023	0.023
Great Sculpin	Whole Body	2	2	ND	NA	NA	ND	0.032	0.037
Kelp Greenling	Fillet	1	1	ND	NA	NA	ND	0.022	0.022
Kelp Greenling	Whole Body	18	17	ND	NA	NA	ND	0.025	0.057
Lamprey	Whole Body	10	10	ND	NA	NA	ND	0.015	0.015
Lingcod	Fillet	301	283	ND	NA	NA	ND	0.01	0.053
Longnose Skate	Fillet	114	112	ND	NA	NA	ND	0.025	0.14
Longnose Skate	Liver	20	20	ND	NA	NA	ND	0.025	0.025
Northernrock Sole	Fillet	20	17	ND	NA	NA	ND	0.008	0.025
Northernrock Sole	Whole Body	18	13	ND	NA	NA	ND	0.018	0.15
Pacific Cod	Fillet	195	150	ND	NA	NA	ND	0.01	0.05
Pacific Halibut	Fillet	3602	3177	ND	NA	NA	ND	0.006	1.42
Pacific Halibut	Comp	1	1	ND	NA	NA	ND	0.025	0.025
Pacific Ocean Pearch	Fillet	78	76	ND	NA	NA	ND	0.01	0.03
Quillback Rockfish	Fillet	22	21	ND	NA	NA	ND	0.015	0.04
Red Irish Lord	Whole Body	11	10	ND	NA	NA	ND	0.02	0.055
Rock Greenling	Whole Body	16	14	ND	NA	NA	ND	0.018	0.065
Rougheye Rockfish	Fillet	72	47	ND	NA	NA	ND	0.007	0.06
Sablefish	Fillet	342	309	ND	NA	NA	ND	0.006	0.065
Sablefish	Whole Body	3	3	ND	NA	NA	ND	0.025	0.025
Salmon Shark	Fillet	110	105	ND	NA	NA	ND	0.01	0.061
Shortraker Rockfish	Fillet	8	8	ND	NA	NA	ND	0.025	0.025
Silvergray Rockfish	Fillet	10	10	ND	NA	NA	ND	0.015	0.025

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

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Sleeper Shark	Fillet	1	1	ND	NA	NA	ND	0.025	0.025
Southernrock Sole	Whole Body	1	1	ND	NA	NA	ND	0.025	0.025
Spiny Dogfish	Fillet	69	65	ND	NA	NA	ND	0.01	0.154
Starry Flounder	Fillet	1	1	ND	NA	NA	ND	0.025	0.025
Starry Flounder	Whole Body	1	1	ND	NA	NA	ND	0.025	0.025
Starry Flounder	C-Whole Body	3	1	0.016	0.008	0.004	0.014	0.01	0.025
Tiger Rockfish	Fillet	1	1	ND	NA	NA	ND	0.01	0.01
Walleye Pollock	Fillet	259	221	ND	NA	NA	ND	0.01	0.052
Walleye Pollock	Comp	5	5	ND	NA	NA	ND	0.025	0.025
Yellow Irish Lord	Fillet	2	2	ND	NA	NA	ND	0.024	0.025
Yellow Irish Lord	Whole Body	10	10	ND	NA	NA	ND	0.018	0.032
Yelloweye Rockfish	Fillet	131	118	ND	NA	NA	ND	0.01	0.247
Yellowfin Sole	Fillet	45	43	ND	NA	NA	ND	0.007	0.025
Yellowtail Rockfish	Fillet	7	6	ND	NA	NA	ND	0.015	0.051

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: Lead in Salmonids (Salmon, Whitefish, Grayling, Char)

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Arctic Char	Fillet	30	30	ND	NA	NA	ND	0.025	0.025
Arctic Char	Whole Body	10	10	ND	NA	NA	ND	0.025	0.025
Arctic Cisco	Fillet	21	21	ND	NA	NA	ND	0.015	0.015
Arctic Cisco	Whole Body	1	1	ND	NA	NA	ND	0.025	0.025
Arctic Grayling	Fillet	120	119	ND	NA	NA	ND	0.007	0.025
Arctic Grayling	Whole Body	4	1	0.02	0.009	0.004	0.024	0.007	0.026
Arctic Grayling	C-Whole Body	11	6	ND	NA	NA	ND	0.008	0.025
Bering Cisco	Fillet	5	5	ND	NA	NA	ND	0.025	0.025
Broad Whitefish	Fillet	48	48	ND	NA	NA	ND	0.025	0.025
Chum Salmon	Fillet	304	260	ND	NA	NA	ND	0.01	0.067
Chum Salmon	Whole Body	2	2	ND	NA	NA	ND	0.015	0.015
Coho Salmon	Fillet	321	303	ND	NA	NA	ND	0.01	0.04
Coho Salmon	Whole Body	62	57	ND	NA	NA	ND	0.015	0.2
Coho Salmon	Eggs	20	20	ND	NA	NA	ND	0.025	0.025
Cutthroat Trout	Whole Body	7	0	0.014	0.008	0.003	0.013	0.006	0.03
Dolly Varden	Fillet	65	53	ND	NA	NA	ND	0.006	0.05
Dolly Varden	Whole Body	49	36	ND	NA	NA	ND	0.006	0.075
Humpback Whitefish	Fillet	110	108	ND	NA	NA	ND	0.015	0.13
Humpback Whitefish	Whole Body	24	23	ND	NA	NA	ND	0.025	0.041
King Salmon	Fillet	252	225	ND	NA	NA	ND	0.01	0.06
King Salmon	Whole Body	20	18	ND	NA	NA	ND	0.011	0.025
Lake Trout	Fillet	55	54	ND	NA	NA	ND	0.015	0.084
Lake Trout	Whole Body	33	33	ND	NA	NA	ND	0.025	0.025
Least Cisco	Fillet	42	40	ND	NA	NA	ND	0.01	0.035
Least Cisco	Whole Body	1	1	ND	NA	NA	ND	0.025	0.025
Pink Salmon	Fillet	206	172	ND	NA	NA	ND	0.01	0.05
Pygmy Whitefish	Whole Body	1	1	ND	NA	NA	ND	0.025	0.025
Rainbow Trout	Fillet	137	128	ND	NA	NA	ND	0.006	0.025
Rainbow Trout	Whole Body	11	10	ND	NA	NA	ND	0.025	0.044
Round Whitefish	Fillet	14	14	ND	NA	NA	ND	0.025	0.025
Round Whitefish	Whole Body	1	0	0.015	NA	NA	0.015	0.015	0.015
Sheefish	Fillet	44	38	ND	NA	NA	ND	0.01	0.11
Sheefish	Whole Body	5	5	ND	NA	NA	ND	0.025	0.025
Sheefish	Eggs	1	1	ND	NA	NA	ND	0.025	0.025
Sockeye Salmon	Fillet	341	298	ND	NA	NA	ND	0.009	0.05
Sockeye Salmon	Whole Body	56	50	ND	NA	NA	ND	0.006	0.05
Sockeye Salmon	Eggs	2	2	ND	NA	NA	ND	0.025	0.025
Sockeye Salmon	C-Whole Body	1	1	ND	NA	NA	ND	0.025	0.025

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

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C = Composite of multiple individuals

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Table 3: Lead in Marine Forage Fish

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Capelin	C-Whole Body	1	1	ND	NA	NA	ND	0.025	0.025
Eulachon	C-Whole Body	7	7	ND	NA	NA	ND	0.025	0.025
Pacific Herring	Fillet	30	18	ND	NA	NA	ND	0.023	0.163
Pacific Herring	Eggs	1	1	ND	NA	NA	ND	0.025	0.025
Pacific Herring	C-Whole Body	16	14	ND	NA	NA	ND	0.022	0.027
Rainbow Smelt	Whole Body	10	10	ND	NA	NA	ND	0.025	0.025
Saffron Cod	Whole Body	22	13	ND	NA	NA	ND	0.007	0.045
Sand Lance	C-Whole Body	1	1	ND	NA	NA	ND	0.025	0.025

Note:

n= sample size

ND = non-detect

Mean = arithmetic mean

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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: Lead in Marine Invertebrates

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Bairdi Crab	Comp	1	1	ND	NA	NA	ND	0.025	0.025
Blue Mussel	Invert Whole Tissue	4	1	0.122	0.078	0.039	0.125	0.025	0.215
Blue Mussel	C-Invert Whole	38	4	0.306	0.333	0.054	0.145	0.025	1.2
Butter Clam	Invert Whole Tissue	5	1	0.065	0.035	0.016	0.056	0.025	0.12
Butter Clam	C-Invert Whole	4	0	0.062	0.034	0.017	0.052	0.031	0.11
Chiton	Invert Whole Tissue	2	0	0.66	0	0	0.66	0.66	0.66
Cockle	Invert Whole Tissue	5	0	0.129	0.038	0.017	0.15	0.066	0.16
Cockle	C-Invert Whole	16	1	0.196	0.512	0.128	0.048	0.025	2.11
Coonstriped Shrimp	C-Invert Whole	2	0	0.017	0.002	0.002	0.017	0.015	0.018
Decorator Crab	Invert Whole Tissue	1	0	0.64	NA	NA	0.64	0.64	0.64
Dungeness Crab	Invert Whole Tissue	2	0	0.773	1.027	0.727	0.773	0.047	1.5
Golden King Crab	Invert Muscle	2	2	ND	NA	NA	ND	0.025	0.025
Hairytriton Snail	Invert Whole Tissue	1	1	ND	NA	NA	ND	0.025	0.025
Hermit Crab	Invert Whole Tissue	1	1	ND	NA	NA	ND	0.025	0.025
Horse Clam	C-Invert Whole	1	0	0.061	NA	NA	0.061	0.061	0.061
Little Neck Clam	Invert Whole Tissue	4	3	ND	NA	NA	ND	0.015	0.036
Little Neck Clam	C-Invert Whole	2	0	0.139	0.016	0.011	0.139	0.128	0.15
Neptunea hero	Invert Whole Tissue	3	0	0.09	0.048	0.028	0.065	0.058	0.145
Opilio Crab	Comp	1	1	ND	NA	NA	ND	0.025	0.025
Opilio Crab	Invert Muscle	27	27	ND	NA	NA	ND	0.025	0.025
Oysters	Invert Whole Tissue	16	5	0.039	0.022	0.006	0.034	0.015	0.077
Razor Clam	Invert Muscle	2	0	0.11	0.011	0.008	0.11	0.102	0.118
Ribbon Worm	Invert Whole Tissue	2	0	0.665	0.431	0.305	0.665	0.36	0.97
Scallop	Invert Whole Tissue	20	0	0.239	0.131	0.029	0.22	0.065	0.58
Sea Cucumber	Invert Whole Tissue	3	0	0.967	0.751	0.433	1.4	0.1	1.4
Softshell Clam	Invert Whole Tissue	4	0	0.233	0.118	0.059	0.24	0.096	0.358
Softshell Clam	C-Invert Whole	10	0	1.054	1.695	0.536	0.281	0.095	4.75
Squid	C-Invert Whole	5	1	0.515	0.648	0.29	0.22	0.025	1.6

Note:

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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: Lead in Freshwater Fishes

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Alaska Blackfish	Whole Body	3	0	0.025	0.013	0.008	0.027	0.01	0.036
Alaska Blackfish	C-Whole Body	3	0	0.026	0.019	0.011	0.016	0.015	0.048
Burbot	Fillet	58	52	ND	NA	NA	ND	0.006	0.025
Burbot	Liver	5	1	0.01	0.008	0.004	0.006	0.006	0.025
Longnose Sucker	Fillet	3	3	ND	NA	NA	ND	0.025	0.025
Longnose Sucker	Whole Body	2	0	0.021	0.015	0.011	0.021	0.01	0.032
Northern Pike	Fillet	538	503	ND	NA	NA	ND	0.005	0.235
Northern Pike	Whole Body	40	39	ND	NA	NA	ND	0.025	0.11
NS Stickleback	C-Whole Body	13	2	0.041	0.047	0.013	0.025	0.009	0.17
Slimy Sculpin	Whole Body	66	46	ND	NA	NA	ND	0.011	0.31
Slimy Sculpin	C-Whole Body	15	10	ND	NA	NA	ND	0.018	0.103
TS Stickleback	Whole Body	3	0	0.015	0.001	0.001	0.015	0.013	0.016
TS Stickleback	C-Whole Body	8	1	0.057	0.06	0.021	0.025	0.007	0.17

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



Figure 1: Lead in Marine Fish



Figure 2: Lead in Salmonids

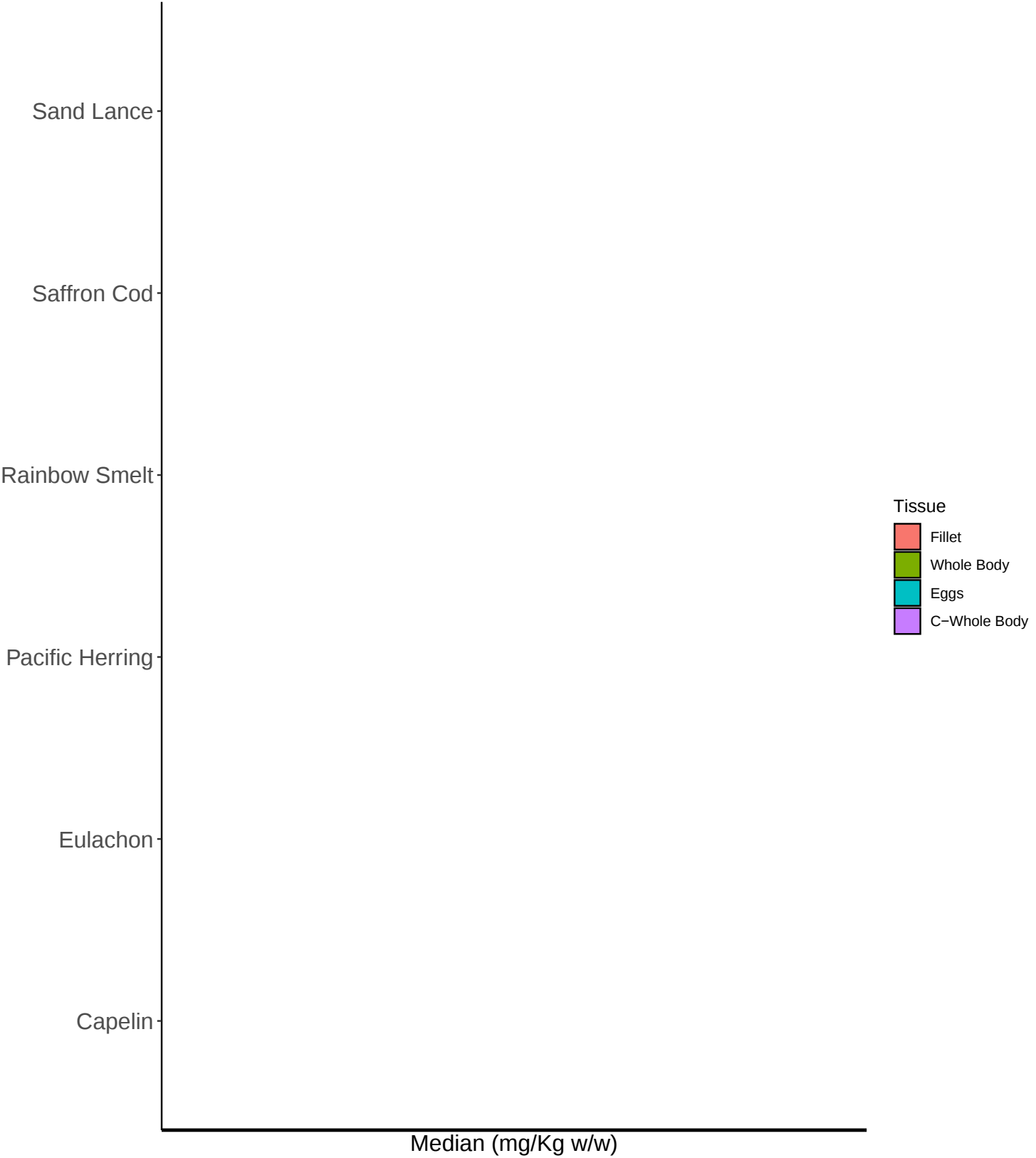


Figure 3: Lead in Forage Fish

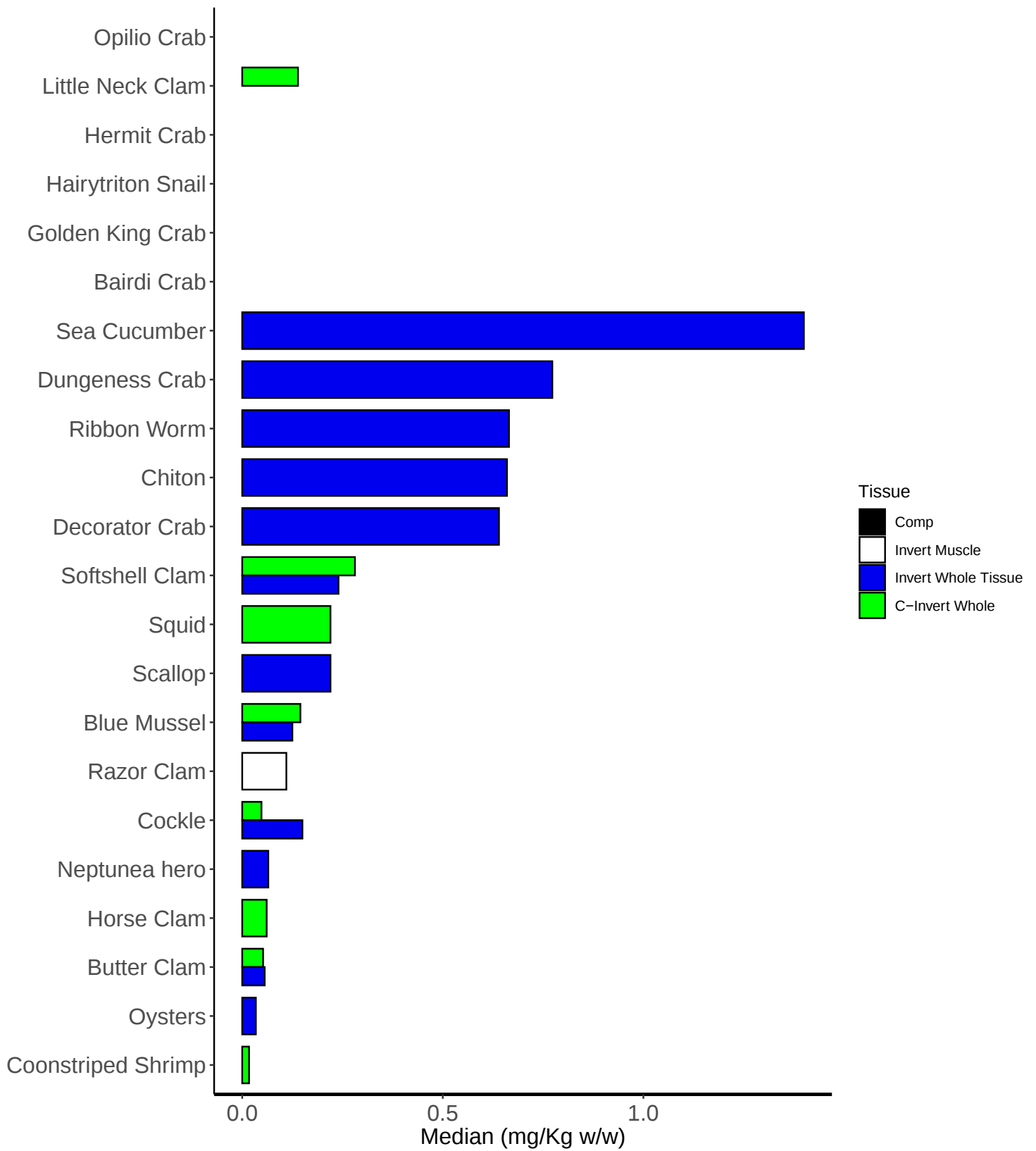


Figure 4: Lead in Marine Invertebrates

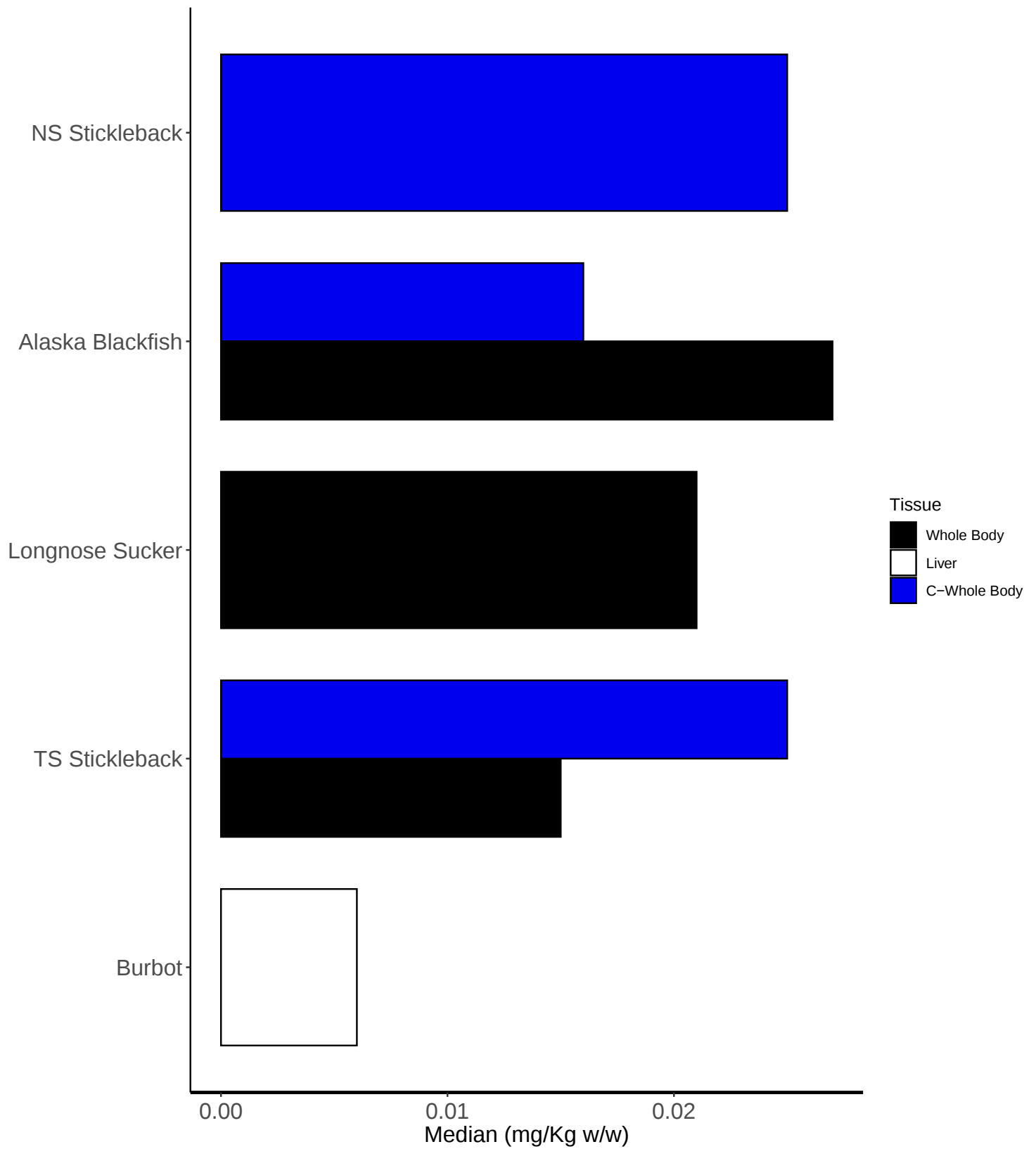


Figure 5: Lead in Freshwater Fish