



Alaska Department of Environmental Conservation
Office of the State Veterinarian Fish Monitoring Program
5251 Dr. Martin Luther King Jr. Ave.
Anchorage, AK 99508
(907) 375-8200

Chromium in Fish and Shellfish Caught in Alaskan Waters

Fish Samples collected: 2001-2020

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: Chromium in Marine Fish

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Arctic Flounder	Whole Body	4	0	0.31	0.029	0.015	0.305	0.28	0.35
Arctic Sculpin	Whole Body	1	0	0.3	NA	NA	0.3	0.3	0.3
Atka Mackerel	Fillet	4	0	0.308	0.077	0.038	0.28	0.25	0.42
Atka Mackerel	Whole Body	5	0	0.382	0.128	0.057	0.38	0.2	0.53
Black Rockfish	Fillet	59	43	ND	NA	NA	ND	0.003	0.36
Black Rockfish	Whole Body	7	0	0.303	0.038	0.014	0.29	0.25	0.35
Blue Shark	Fillet	1	1	ND	NA	NA	ND	0.025	0.025
Butter Sole	Whole Body	1	0	0.48	NA	NA	0.48	0.48	0.48
Dusky Rockfish	Fillet	20	5	0.186	0.132	0.029	0.24	0.005	0.37
Dusky Rockfish	Whole Body	20	0	0.306	0.05	0.011	0.325	0.2	0.38
Fourhorn Sculpin	Whole Body	4	0	1.2	0.88	0.44	1.075	0.35	2.3
Great Sculpin	Whole Body	2	0	0.255	0.021	0.015	0.255	0.24	0.27
Kelp Greenling	Fillet	1	0	0.22	NA	NA	0.22	0.22	0.22
Kelp Greenling	Whole Body	18	0	0.4	0.269	0.063	0.305	0.19	1.2
Lingcod	Fillet	129	94	ND	NA	NA	ND	0.003	0.406
Northernrock Sole	Whole Body	18	0	0.421	0.671	0.158	0.27	0.17	3.1
Pacific Cod	Fillet	131	68	ND	NA	NA	ND	0.003	0.457
Pacific Halibut	Fillet	945	636	ND	NA	NA	ND	0.003	3.717
Quillback Rockfish	Fillet	3	2	ND	NA	NA	ND	0.025	0.06
Rock Greenling	Whole Body	16	0	0.252	0.053	0.013	0.235	0.18	0.34
Rougeye Rockfish	Fillet	21	11	ND	NA	NA	ND	0.003	0.065
Sablefish	Fillet	191	163	ND	NA	NA	ND	0.003	0.723
Salmon Shark	Fillet	43	20	0.05	0.048	0.007	0.025	0.005	0.263
Silvergray Rockfish	Fillet	4	3	ND	NA	NA	ND	0.025	0.052
Southernrock Sole	Whole Body	1	0	0.35	NA	NA	0.35	0.35	0.35
Spiny Dogfish	Fillet	52	24	0.058	0.052	0.007	0.041	0.005	0.273
Starry Flounder	Whole Body	1	0	0.44	NA	NA	0.44	0.44	0.44
Tiger Rockfish	Fillet	1	0	0.03	NA	NA	0.03	0.03	0.03
Walleye Pollock	Fillet	167	95	ND	NA	NA	ND	0.003	2.301
Yelloweye Rockfish	Fillet	66	44	ND	NA	NA	ND	0.005	0.337
Yellowtail Rockfish	Fillet	2	1	ND	NA	NA	ND	0.025	0.078

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: Chromium 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	0.99	NA	NA	0.99	0.99	0.99
Arctic Cisco	Fillet	7	7	ND	NA	NA	ND	0.025	0.025
Arctic Cisco	Whole Body	1	0	1.3	NA	NA	1.3	1.3	1.3
Arctic Grayling	Fillet	5	5	ND	NA	NA	ND	0.025	0.025
Arctic Grayling	Whole Body	1	0	0.76	NA	NA	0.76	0.76	0.76
Arctic Grayling	C-Whole Body	5	2	0.38	0.358	0.16	0.37	0.025	0.77
Chum Salmon	Fillet	202	153	ND	NA	NA	ND	0.003	0.675
Chum Salmon	Whole Body	2	0	0.282	0.059	0.042	0.282	0.241	0.324
Coho Salmon	Fillet	227	174	ND	NA	NA	ND	0.003	2.31
Coho Salmon	Whole Body	5	0	0.392	0.515	0.23	0.208	0.074	1.3
Dolly Varden	Fillet	7	6	ND	NA	NA	ND	0.025	0.136
Dolly Varden	Whole Body	3	0	2.683	2.673	1.543	2.1	0.35	5.6
Humpback Whitefish	Fillet	3	3	ND	NA	NA	ND	0.025	0.025
King Salmon	Fillet	138	110	ND	NA	NA	ND	0.003	1.374
Least Cisco	Fillet	19	19	ND	NA	NA	ND	0.025	0.025
Least Cisco	Whole Body	1	0	0.53	NA	NA	0.53	0.53	0.53
Pink Salmon	Fillet	159	103	ND	NA	NA	ND	0.003	0.843
Pygmy Whitefish	Whole Body	1	1	ND	NA	NA	ND	0.05	0.05
Sheefish	Fillet	33	2	0.395	0.413	0.072	0.32	0.003	2
Sheefish	Whole Body	5	0	0.946	0.654	0.292	0.7	0.49	2.1
Sheefish	Eggs	1	0	0.35	NA	NA	0.35	0.35	0.35
Sockeye Salmon	Fillet	194	173	ND	NA	NA	ND	0.003	0.162
Sockeye Salmon	Whole Body	4	0	0.202	0.126	0.063	0.208	0.07	0.321

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: Chromium in Marine Forage Fish

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Saffron Cod	Whole Body	2	0	0.62	0.042	0.03	0.62	0.59	0.65

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: Chromium in Marine Invertebrates

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Oysters	Invert Whole Tissue	16	6	0.059	0.034	0.009	0.058	0.025	0.144
Razor Clam	Invert Muscle	2	0	0.611	0.165	0.117	0.611	0.494	0.728

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: Chromium in Freshwater Fishes

Species	Tissue	n	ND	mg/Kg wet weight					
				Mean	SD	SEM	Median	Min	Max
Arctic Grayling	Fillet	5	5	ND	NA	NA	ND	0.025	0.025
Arctic Grayling	Whole Body	1	0	0.76	NA	NA	0.76	0.76	0.76
Arctic Grayling	C-Whole Body	5	2	0.38	0.358	0.16	0.37	0.025	0.77
Burbot	Fillet	10	9	ND	NA	NA	ND	0.003	0.063
Lake Trout	Fillet	9	8	ND	NA	NA	ND	0.025	0.056
Lake Trout	Whole Body	2	0	1.6	0.424	0.3	1.6	1.3	1.9
Northern Pike	Fillet	105	39	0.141	0.419	0.041	0.02	0.003	2.558
NS Stickleback	C-Whole Body	1	1	ND	NA	NA	ND	0.05	0.05
Rainbow Trout	Fillet	20	6	0.261	0.384	0.086	0.13	0.005	1.4
Rainbow Trout	Whole Body	10	0	0.861	0.577	0.182	0.66	0.39	2.3
Slimy Sculpin	C-Whole Body	10	6	ND	NA	NA	ND	0.05	0.75
TS Stickleback	C-Whole Body	1	0	0.34	NA	NA	0.34	0.34	0.34

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

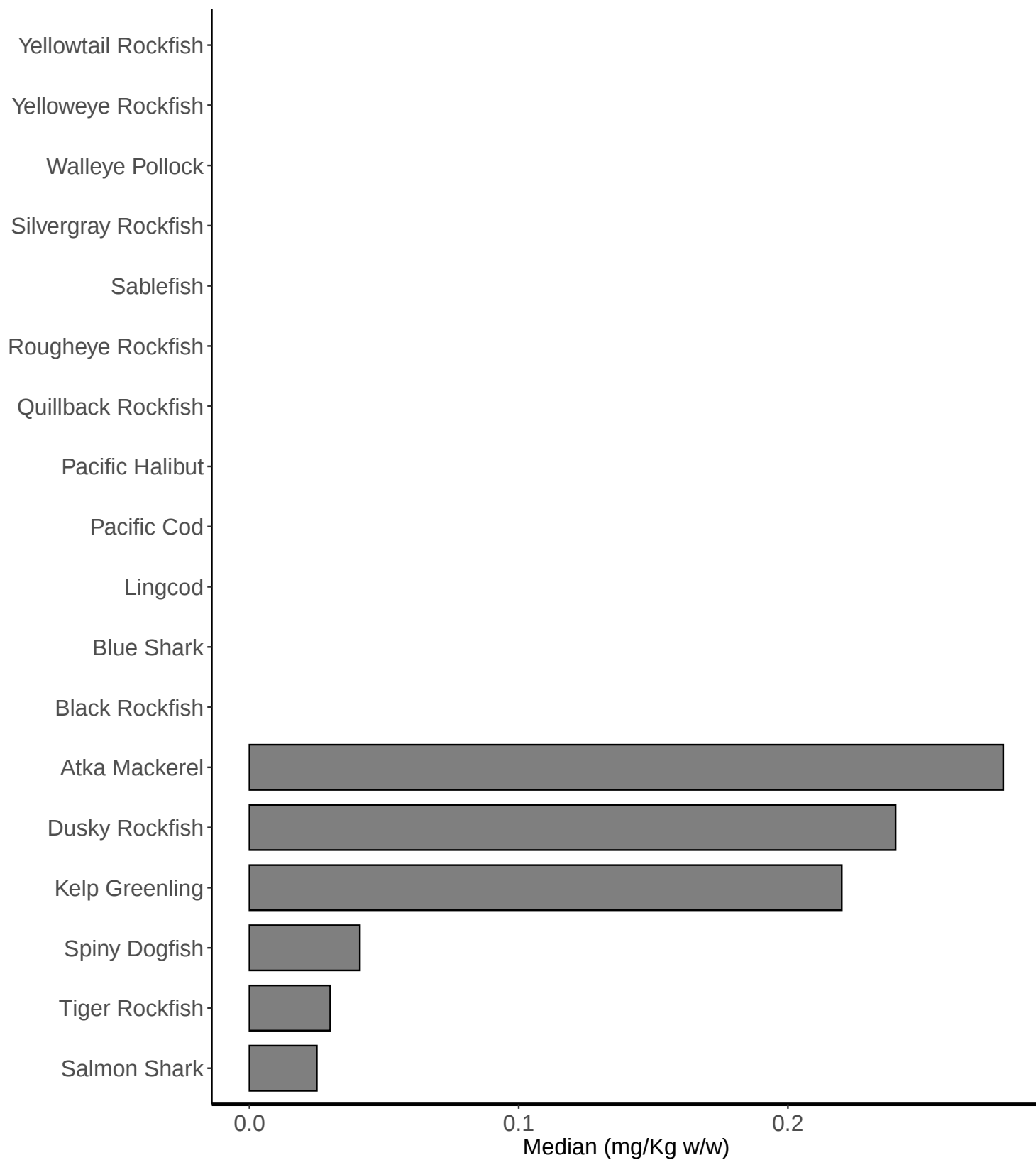


Figure 1: Chromium in Marine Fish

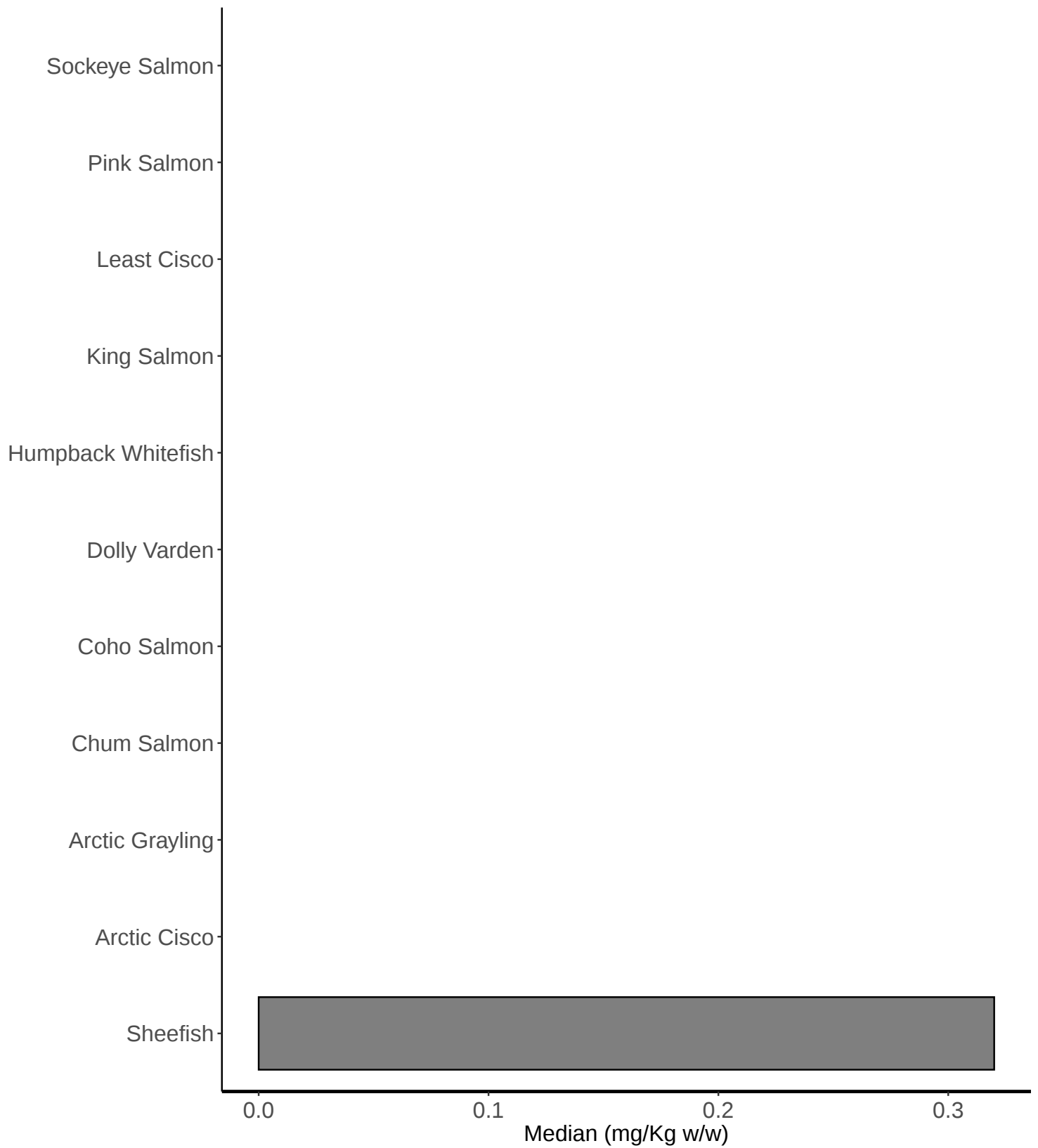


Figure 2: Chromium in Salmonids

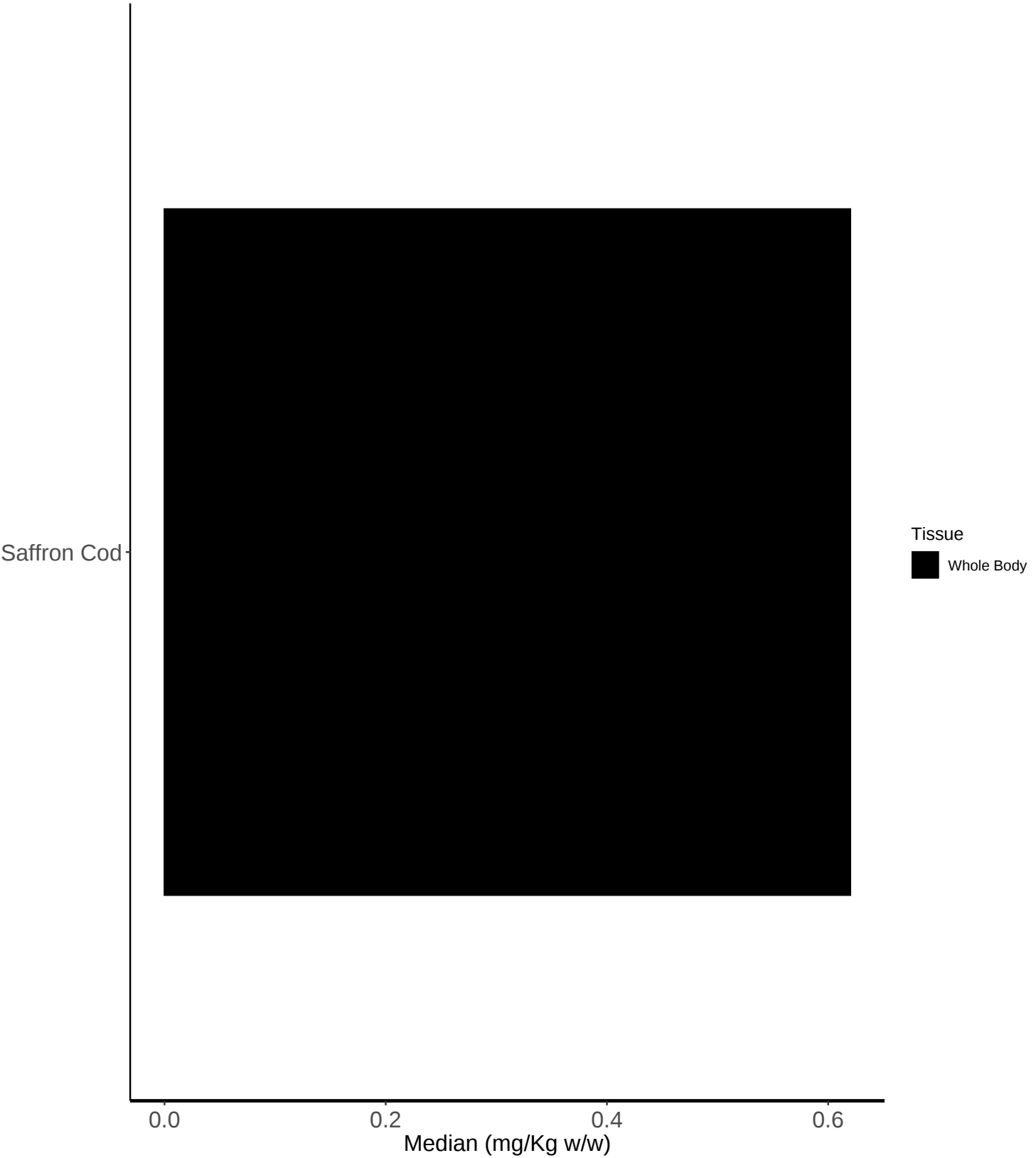


Figure 3: Chromium in Forage Fish

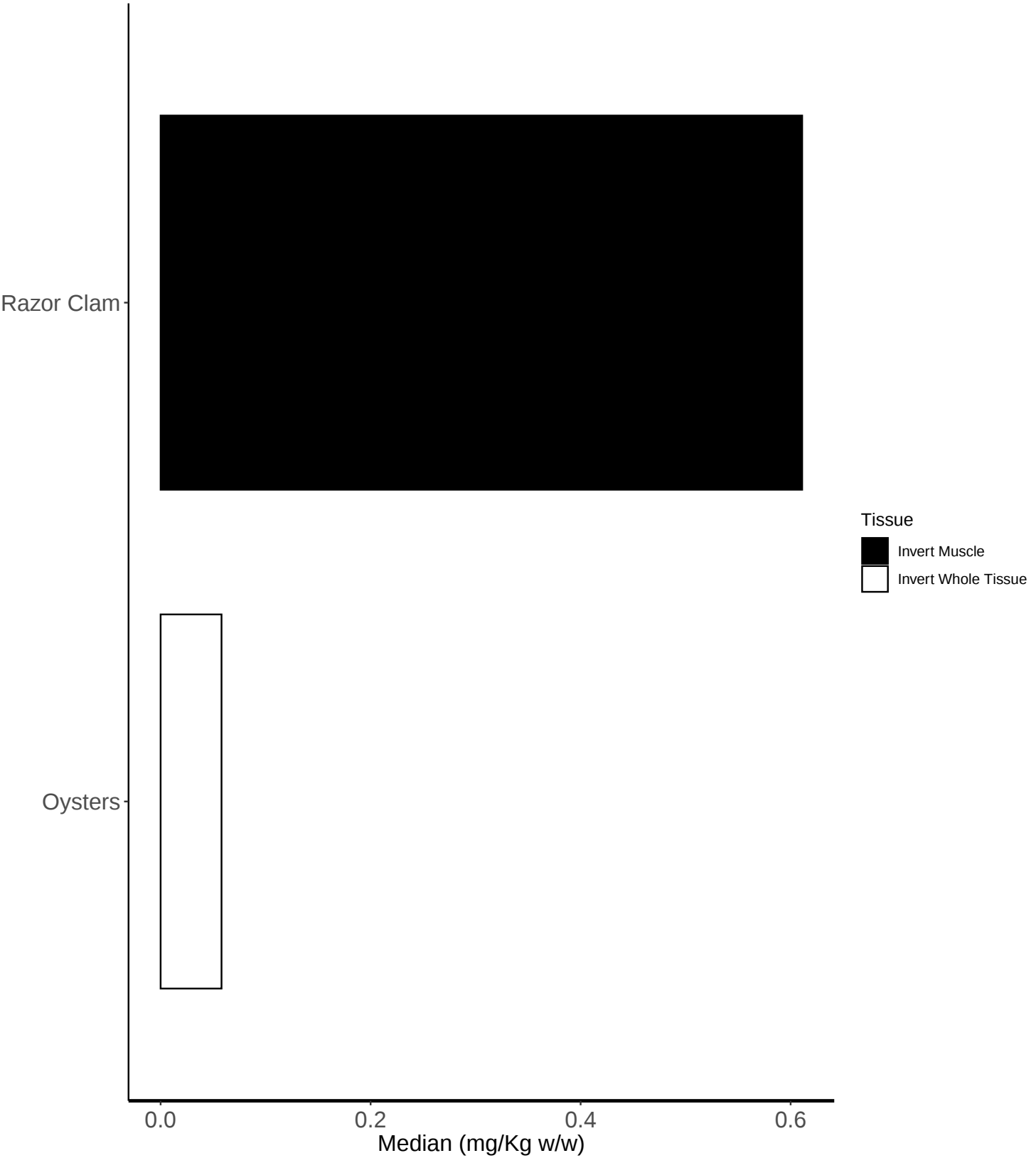


Figure 4: Chromium in Marine Invertebrates

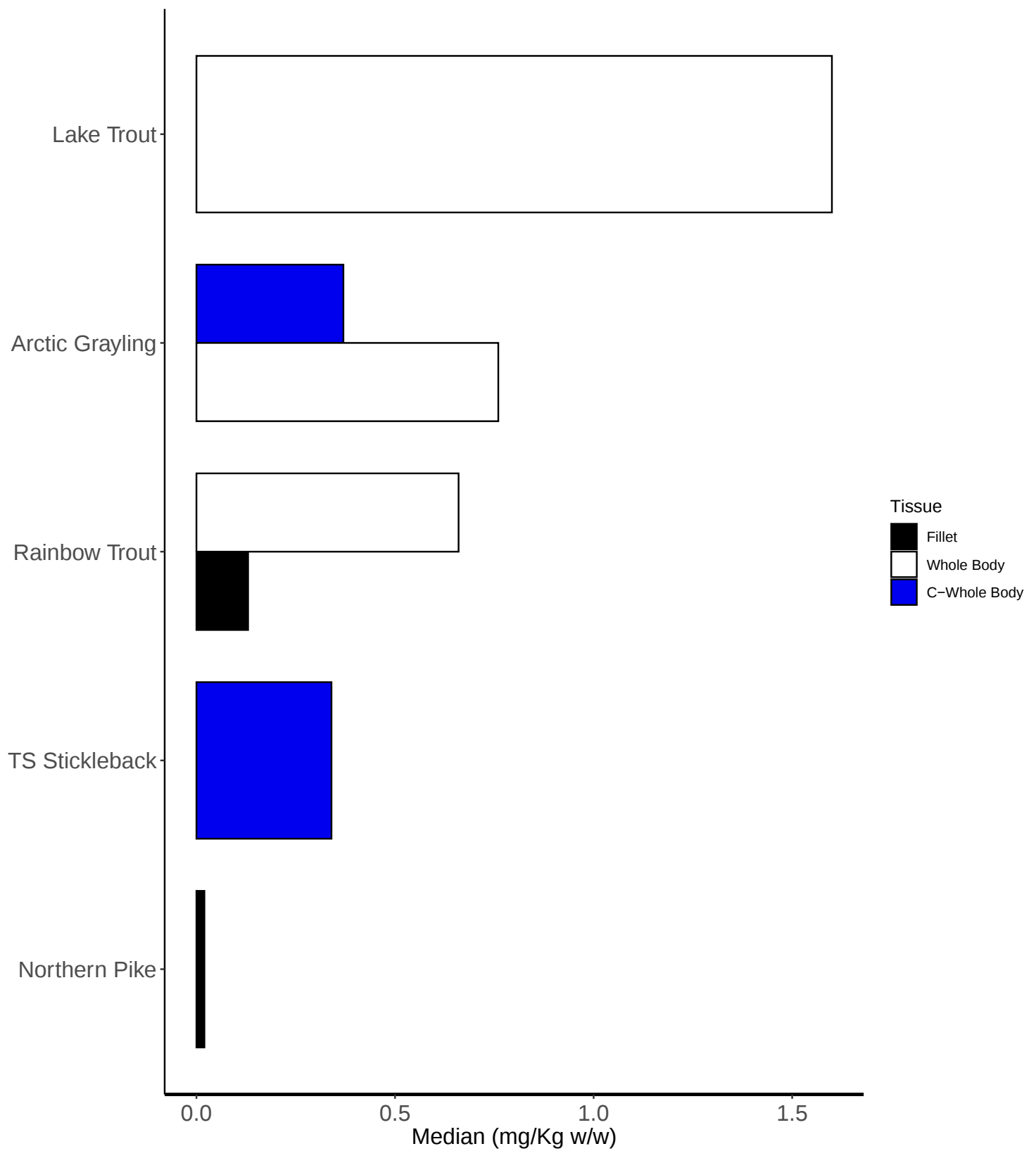


Figure 5: Chromium in Freshwater Fish