



Pre-Permitting Environmental / Socio-Economic Data Report Series

Report Series G- Trace Elements (Vegetation, Fish, Mammal & Mussel Tissue)

Report G-5 Iliamna Lake Study Mussel Tissue Sample Results 2005-2007

Submitted to the Alaska Department of Natural Resources February 2009

Preliminary data. Do not cite or quote.

The Pebble Partnership is providing environmental and socio-economic baseline data collected to inform the development of the Pebble Project to state and federal agencies, project stakeholders and the general public prior to project permitting as part of its commitment to full and open disclosure.

A comprehensive Environmental Baseline Document (EBD) will subsequently be prepared and appended to future project permit applications. The EBD will also be made publicly available when complete.

Collected for the Pebble Partnership by:



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2005-2007 Iliamna Lake Study Mussel Tissue Sample Results

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	Parameters	Total Solids	Total Lipids	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Zinc
	Basis	Wet	Wet	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Units	percent	percent	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Bucket Lake, Mussel																	
	Sample Date																
	06/16/05	3.58	0.25	0.004	2.91	0.013	1.06	0.90	6.4	0.85	0.192	0.36	1.22	0.8	0.052	0.011	165
	09/28/05	4.57	0.22	0.010	3.13	0.017	0.69	1.90	9.0	0.73	0.191	0.33	2.68	1.6	0.042	0.012	158
	09/12/06	4.08		0.009	3.02	0.010	0.67	1.00	8.1	0.88	0.282	0.33	2.83	1.7	0.052	0.011	216
	Mean	4.08	0.24	0.008	3.02	0.013	0.81	1.27	7.8	0.82	0.222	0.34	2.24	1.4	0.049	0.011	180
	Median	4.08	0.24	0.009	3.02	0.013	0.69	1.00	8.1	0.85	0.192	0.33	2.68	1.6	0.052	0.011	165
	St. Deviation	0.50	0.02	0.003	0.11	0.004	0.22	0.55	1.3	0.08	0.052	0.02	0.89	0.5	0.006	0.001	32
	# of values	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	Minimum	3.58	0.22	0.004	2.91	0.01	0.67	0.9	6.37	0.73	0.191	0.33	1.22	0.8	0.042	0.011	158
	Maximum	4.57	0.25	0.01	3.13	0.017	1.06	1.9	8.97	0.876	0.282	0.36	2.83	1.7	0.052	0.012	216
	% of values undetected			33%		33%											
	# of values between MDL and MRL			2		2								1		3	
Finn Bay, Mussel																	
	Sample Date																
	06/14/05	4.45	0.30	0.014	2.83	0.015	0.46	0.70	8.3	0.26	0.123	0.83	1.40	2.4	0.043	0.009	145
	10/14/05	4.88	0.28	0.004	2.04	0.005	0.32	2.40	15.5	0.13	0.098	0.43	7.81	2.8	0.039	0.007	115
	09/11/06	5.05		0.007	2.61	0.010	0.58	0.40	7.5	0.07	0.125	0.45	3.80	3.4	0.041	0.007	190
	Mean	4.79	0.29	0.008	2.49	0.010	0.45	1.17	10.5	0.15	0.115	0.57	4.34	2.9	0.041	0.008	150
	Median	4.88	0.29	0.007	2.61	0.010	0.46	0.70	8.3	0.13	0.123	0.45	3.80	2.8	0.041	0.007	145
	St. Deviation	0.31	0.01	0.005	0.41	0.005	0.13	1.08	4.4	0.10	0.015	0.23	3.24	0.5	0.002	0.001	38
	# of values	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	Minimum	4.45	0.28	0.004	2.04	0.005	0.321	0.4	7.54	0.073	0.0984	0.43	1.4	2.4	0.039	0.007	115
	Maximum	5.05	0.3	0.014	2.83	0.015	0.578	2.4	15.5	0.26	0.125	0.83	7.81	3.4	0.043	0.009	190
	% of values undetected			33%		33%											
	# of values between MDL and MRL			2		2		1								3	
Flat Island, Mussel																	
	Sample Date																
	06/14/05	4.23	0.39	0.012	2.86	0.012	0.64	0.15	9.1	0.11	0.071	0.63	1.13	2.9	0.052	0.009	130
	09/29/05	6.43	0.46	0.004	2.09	0.007	0.43	0.50	7.2	0.05	0.053	0.34	3.27	3.2	0.055	0.007	106
	09/11/06	6.00		0.009	2.60	0.010	0.85	0.20	10.6	0.11	0.085	0.46	2.25	4.0	0.052	0.006	145
	Mean	5.55	0.43	0.008	2.52	0.010	0.64	0.28	9.0	0.09	0.070	0.48	2.22	3.4	0.053	0.007	127
	Median	6.00	0.43	0.009	2.60	0.010	0.64	0.20	9.1	0.11	0.071	0.46	2.25	3.2	0.052	0.007	130
	St. Deviation	1.17	0.05	0.004	0.39	0.003	0.21	0.19	1.7	0.03	0.016	0.15	1.07	0.6	0.002	0.002	20
	# of values	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	Minimum	4.23	0.39	0.004	2.09	0.007	0.429	0.15	7.15	0.05	0.0533	0.34	1.13	2.9	0.052	0.006	106
	Maximum	6.43	0.46	0.012	2.86	0.012	0.849	0.5	10.6	0.11	0.0847	0.63	3.27	4	0.055	0.009	145
	% of values undetected			33%		33%		67%									
	# of values between MDL and MRL			2		2										3	

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	Parameters	Total Solids	Total Lipids	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Zinc
	Basis	Wet	Wet	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Units	percent	percent	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Whistlewing Bay, Mussel																	
	Sample Date																
	06/16/05	4.39	0.20	0.019	4.95	0.018	1.05	1.40	7.3	0.14	0.110	0.64	1.87	2.5	0.040	0.010	165
	09/11/06	5.84		0.015	3.86	0.010	0.87	0.20	9.3	0.10	0.146	0.54	3.08	3.0	0.051	0.007	170
	Mean	5.12	0.20	0.017	4.41	0.014	0.96	0.80	8.3	0.12	0.128	0.59	2.48	2.8	0.046	0.009	168
	Median	5.12	0.20	0.017	4.41	0.014	0.96	0.80	8.3	0.12	0.128	0.59	2.48	2.8	0.046	0.009	168
	St. Deviation	1.03	NA	0.003	0.77	0.006	0.13	0.85	1.4	0.03	0.025	0.07	0.86	0.4	0.008	0.002	4
	# of values	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Minimum	4.39	0.2	0.015	3.86	0.01	0.865	0.2	7.29	0.095	0.11	0.538	1.87	2.5	0.04	0.007	165
	Maximum	5.84	0.2	0.019	4.95	0.018	1.05	1.4	9.28	0.14	0.146	0.64	3.08	3	0.051	0.01	170
	% of values undetected					50%		50%									
	# of values between MDL and MRL			2		1										2	
		Key: Bold Results = Parameter undetected by test, value shown is 1/2 MDL or 1/2 MRL.															
		If result was not detected at the lab MDL, the value shown is 1/2 MDL.															
		If result was validation flagged U or UJ, the value shown is 1/2 MRL.															
		Green Results = Estimate result reported by laboratory below method reporting limit (MRL).															
		MDL = Method Detection Limit.															
		MRL = Method Reporting Limit.															
		NA = Not Applicable.															
		Note: All results reported on dry weight basis, except total solids and total lipids reported on wet weight basis.															