

Attachment X.VI. Macrophytes

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Table X.VI-1 Macrophyte Chemistry (Roots of <i>Carex</i> spp.) for Lakes in the Kiggavik Area, Fall 2009																	
Parameter	Unit	Detection Limit	Willow Lake Sub-Basin												Judge Sissons Lake Sub-Basin		
			Pointer Lake			Sik Sik Lake			Rock Lake			Willow Lake			Judge Sissons Lake		
			PRL-MA001R-F09	PRL-MA002R-F09	PRL-MA003R-F09	SSL-MA001R-F09	SSL-MA002R-F09	SSL-MA003R-F09	ROL-MA001R-F09	ROL-MA002R-F09	ROL-MA003R-F09	WIL-MA001R-F09	WIL-MA002R-F09	WIL-MA003R-F09	JSL-MA001R-F09	JSL-MA002R-F09	JSL-MA003R-F09
			22-Aug-09	22-Aug-09	23-Aug-09	18-Aug-09	18-Aug-09	21-Aug-09	19-Aug-09	19-Aug-09	19-Aug-09	20-Aug-09	20-Aug-09	20-Aug-09	24-Aug-09	25-Aug-09	25-Aug-09
Physical Properties																	
Moisture	%	0.01	84.67	84.98	84.11	79.50	79.97	76.75	79.36	81.47	78.56	79.60	78.82	82.11	78.97	82.04	80.96
Metals																	
Aluminum	µg/g dw	5	200	420	1,100	160	2,900	740	110	450	87	180	520	180	2,000	1,700	310
Antimony	µg/g dw	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
Arsenic	µg/g dw	0.05-5	17	17	31	16	15	1.7	4.8	1.1	0.64	3.8	5.9	3.8	6.6	5.0	9.4
Barium	µg/g dw	5	130	110	180	120	110	68	64	72	63	87	71	88	130	230	50
Beryllium	µg/g dw	0.01	0.09	0.09	0.14	0.04	0.25	0.07	0.04	0.06	0.02	0.03	0.10	0.05	0.19	0.22	0.06
Boron	µg/g dw	1	2	2	3	2	2	3	2	3	2	4	2	2	4	8	3
Cadmium	µg/g dw	0.01	0.21	0.47	0.71	0.17	0.16	0.06	0.12	0.45	0.08	0.08	0.17	0.24	0.10	0.17	0.29
Chromium	µg/g dw	0.5	<0.5	1.1	3.8	<0.5	5.3	1.5	<0.5	1.0	<0.5	<0.5	1.4	<0.5	5.3	4.2	0.8
Cobalt	µg/g dw	0.01	2.7	3.2	5.0	1.7	2.2	0.38	0.79	0.87	0.83	0.98	1.5	0.73	0.84	0.98	2.2
Copper	µg/g dw	0.05-5	3.8	5.7	27	2.2	5.7	6.8	8.1	11	3.9	5.7	9.8	4.8	8.1	20	5.1
Iron	µg/g dw	10	15,700	17,300	16,400	9,700	13,600	4,000	5,300	3,600	3,200	3,300	9,100	6,200	11,400	10,900	5,100
Lead	µg/g dw	0.01	1.4	4.5	7.2	1.7	1.3	0.90	2.5	1.4	0.44	0.59	2.3	1.3	1.1	2.3	0.99
Manganese	µg/g dw	10	250	280	240	290	130	70	110	150	130	340	110	170	80	160	120
Molybdenum	µg/g dw	0.1	0.5	0.4	1.0	0.5	0.1	0.2	0.3	0.3	0.3	0.3	1.5	0.2	0.6	0.3	0.2
Nickel	µg/g dw	0.05	3.3	2.4	5.7	1.2	4.9	1.5	0.95	1.7	0.93	1.2	2.2	1.1	4.3	5.2	0.95
Selenium	µg/g dw	0.05	<0.05	0.07	0.18	<0.05	0.07	0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	0.14	0.19	0.07
Silver	µg/g dw	0.01	<0.01	0.01	0.03	<0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.02	<0.01
Strontium	µg/g dw	0.05-5	6.4	7.7	22	7.5	5.9	10	7.5	8.9	6.6	8.6	6.8	7.4	9.9	15	6.6
Thallium	µg/g dw	0.05	0.19	0.09	0.06	0.18	0.05	<0.05	0.07	0.06	0.08	<0.05	0.08	0.10	<0.05	<0.05	<0.05
Tin	µg/g dw	0.05	<0.05	0.06	0.10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/g dw	0.05-5	4.4	9.8	44	3.0	97	19	3.7	13	2.2	4.0	21	4.6	45	40	6.2
Uranium	µg/g dw	0.01	0.21	0.35	0.61	0.09	0.02	0.28	0.14	0.17	0.06	0.08	0.23	0.13	0.37	0.86	0.24
Vanadium	µg/g dw	0.1	2.1	3.4	8.8	1.9	6.8	1.8	1.9	2.6	0.5	0.9	5.4	1.9	7.0	5.9	3.0
Zinc	µg/g dw	0.5	36	24	27	44	27	13	25	28	26	22	30	30	19	27	19
Radionuclides																	
Lead-210	Bq/g dw	0.004	0.16	0.12	0.063	0.30	0.18	0.11	0.088	0.038	0.063	0.083	0.052	0.042	0.068	0.12	0.17
Polonium-210	Bq/g dw	0.001	0.084	0.079	0.084	0.15	0.16	0.077	0.10	0.049	0.054	0.056	0.038	0.028	0.052	0.083	0.097
Radium-226	Bq/g dw	0.0003-0.003	0.013	0.010	0.017	0.007	0.013	0.006	0.0059	0.006	0.004	0.0050	0.008	0.004	0.047	0.006	0.007
Thorium-228	Bq/g dw	0.0006-0.006	0.015	0.018	0.041	0.021	0.02	0.010	0.011	0.008	0.007	0.005	0.021	0.011	0.02	0.024	0.022
Thorium-230	Bq/g dw	0.0006-0.006	0.002	0.005	0.008	0.004	0.007	0.003	0.002	<0.001	0.002	0.001	0.002	0.002	<0.006	0.006	0.003
Thorium-232	Bq/g dw	0.0006-0.006	0.004	0.003	0.009	0.006	0.01	0.004	0.003	0.002	0.002	0.001	0.002	0.002	<0.006	0.002	0.002

Notes: Station codes are composed of lake code-sample type and number (R = roots) season and year code. Date is composed of day-month-year.

Moisture = moisture content by percent weight; µg/g dw = micrograms per gram dry weight; Bq/g dw = Becquerels per gram dry weight; % = percent; Aug = August.

Table X.VI-2
Macrophyte Chemistry (Shoots of Carex spp.) for Lakes in the Kiggavik Project Area, Fall 2009

Parameter	Unit	Detection Limit	Willow Lake Sub-Basin												Judge Sissons Lake Sub-Basin		
			Pointer Lake			Sik Sik Lake			Rock Lake			Willow Lake			Judge Sissons Lake		
			PRL-MA001S-F09	PRL-MA002S-F09	PRL-MA003S-F09	SSL-MA001S-F09	SSL-MA002S-F09	SSL-MA003S-F09	ROL-MA001S-F09	ROL-MA002S-F09	ROL-MA003S-F09	WIL-MA001S-F09	WIL-MA002S-F09	WIL-MA003S-F09	JSL-MA001S-F09	JSL-MA002S-F09	JSL-MA003S-F09
			22-Aug-09	22-Aug-09	23-Aug-09	18-Aug-09	18-Aug-09	21-Aug-09	19-Aug-09	19-Aug-09	19-Aug-09	20-Aug-09	20-Aug-09	20-Aug-09	24-Aug-09	25-Aug-09	25-Aug-09
Physical Properties																	
Moisture	%	0.01	66.90	66.80	68.57	74.14	73.27	68.45	74.14	75.87	75.15	72.98	68.60	70.60	65.79	77.24	70.28
Metals																	
Aluminum	µg/g dw	0.05-5	3.8	4.5	27	30	21	45	34	12	160	14	33	20	5.0	31	28
Antimony	µg/g dw	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/g dw	0.05	0.09	0.06	0.07	0.07	0.05	0.23	0.16	0.06	0.24	<0.05	0.10	0.08	<0.05	0.07	0.11
Barium	µg/g dw	0.05-5	110	68	79	52	45	66	69	72	78	67	66	110	63	80	79
Beryllium	µg/g dw	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
Boron	µg/g dw	1	4	4	4	4	3	3	4	4	4	3	4	5	4	5	4
Cadmium	µg/g dw	0.01	0.02	0.01	0.02	<0.01	<0.01	0.01	0.02	0.02	0.03	0.03	0.01	0.03	0.05	0.03	0.02
Chromium	µg/g dw	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt	µg/g dw	0.01	0.08	0.03	0.04	0.09	0.04	0.06	0.11	0.06	0.17	<0.01	0.04	0.06	0.10	0.21	0.23
Copper	µg/g dw	0.05	4.9	2.5	3.8	2.2	2.4	4.1	2.8	4.0	4.1	3.4	2.7	3.4	5.9	5.1	3.3
Iron	µg/g dw	0.1-10	80	70	130	180	130	880	150	130	900	110	190	90	150	250	250
Lead	µg/g dw	0.01	0.07	0.04	0.09	0.04	0.04	0.13	0.09	0.05	0.25	0.03	0.08	0.04	0.01	0.03	0.04
Manganese	µg/g dw	0.1-10	320	160	280	110	90	110	340	240	170	245	100	350	511	650	390
Molybdenum	µg/g dw	0.1	1.2	0.5	0.9	0.2	0.6	1.1	1.0	1.2	1.0	0.7	1.7	1.6	2.3	1.0	0.7
Nickel	µg/g dw	0.05	1.8	0.24	0.63	0.28	0.38	0.49	0.60	1.2	0.96	0.33	0.23	0.20	2.1	1.6	1.0
Selenium	µg/g dw	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	µg/g dw	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium	µg/g dw	0.05-5	22	19	18	15	13	21	13	14	14	13	19	27	19	15	17
Thallium	µg/g dw	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tin	µg/g dw	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.07	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/g dw	0.05	0.13	0.08	0.29	0.58	0.42	1.0	0.96	0.34	4.9	0.55	1.3	0.39	0.16	0.57	0.50
Uranium	µg/g dw	0.01	<0.01	<0.01	0.01	0.01	<0.01	0.04	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	µg/g dw	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	µg/g dw	0.5-50	26	19	20	17	35	34	19	16	31	18	23	11	39	50	37
Radionuclides																	
Lead-210	Bq/g dw	0.002	0.019	0.027	0.033	0.031	0.024	0.031	0.018	0.018	0.059	0.023	0.036	0.041	0.013	0.028	0.034
Polonium-210	Bq/g dw	0.0005	0.013	0.014	0.019	0.021	0.018	0.022	0.015	0.014	0.035	0.012	0.020	0.024	0.012	0.023	0.027
Radium-226	Bq/g dw	0.0004-0.0005	0.003	0.0023	0.002	0.0025	0.0014	0.0014	0.0014	0.001	0.004	0.003	0.002	0.004	0.002	0.003	0.004
Thorium-228	Bq/g dw	0.0009-0.001	0.002	0.003	0.002	0.001	0.002	0.002	0.001	0.002	0.005	0.002	0.003	0.003	<0.001	0.002	<0.001
Thorium-230	Bq/g dw	0.0009-0.001	<0.0009	<0.0009	<0.001	<0.0009	<0.0009	<0.0009	<0.0009	<0.001	0.001	<0.001	0.001	<0.001	0.002	<0.001	0.001
Thorium-232	Bq/g dw	0.0009-0.001	<0.0009	<0.0009	<0.001	<0.0009	<0.0009	<0.0009	<0.0009	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Notes: Station codes are composed of lake code-sample type and number (S = shoots) season and year code. Date is composed of day-month-year.
Moisture = moisture content by percent weight; µg/g dw = micrograms per gram dry weight; Bq/g dw = Becquerels per gram dry weight; % = percent; Aug = August.