

Freshwater microbial eukaryotic core communities, open-water and under-ice specialists in  
southern Victoria Island lakes (Ekaluktutiak, Nunavut, Canada)

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Supplementary Table S1: Read results of from the pooled libraries of individual lakes sampled on a given day. Lake sample abbreviations as in Figure 1. The order of the in the table follows the Bray-Curtis clustering from Figure 2. Three to ten separate libraries were generated for each date-lake combination using available samples. . Raw reads (reads retrieved from Illumina MiSeq platform), filtered reads (merged reads that passed quality filters and chimera removal), final reads (non-targeted reads removed). Source of nucleic acids (RNA or DNA) followed by size fraction as a subscript (L or S for large or small). In 2015 additional depth samples were collected from Greiner lake and the depth for these samples given as the leading 2 place (0, 4 or 8 m).

Sample	Lake	Date	Raw reads	Filtered reads	Final reads	Libraries
<b>GRL_23AP18</b>	Greiner	2018-04-23	169188	66957	65984	RNA, RNA, DNA, DNA
<b>L05_24AP18</b>	L05	2018-04-24	182232	81205	77094	RNA, RNA, DNA, DNA
<b>1ST_26AP18</b>	1st lake	2018-04-26	195434	83565	83275	RNA, RNA, DNA, DNA
<b>2ND_26AP18</b>	2nd lake	2018-04-26	254103	122450	121962	RNA, RNA RNA <sup>1</sup> , DNA, DNA
<b>GR_10JN15</b>	Greiner	2015-06-10	277626	142865	142338	0mRNA, 0mDNA, 0mDNA, 4mRNA, 4mDNA, 4mDNA, 8mDNA
<b>GR_15JN15</b>	Greiner	2015-06-15	342399	178169	177569	0mRNA, 0mDNA, 0mRNA, 0mDNA, 4mRNA, 4mDNA, 4mDNA, 8mDNA, 8mDNA
<b>GR_12JN15</b>	Greiner	2015-06-12	190787	102167	97777	RNA, DNA, RNA, DNA, DNA
<b>ERA4_24AP18</b>	ERA 4	2018-04-24	181445	79337	69980	RNA, RNA, DNA, DNA
<b>L05_02NO17</b>	L05	2017-11-02	181884	88897	88542	RNA, RNA, DNA, DNA
<b>ERA4_03NO17</b>	ERA 4	2017-11-03	192221	98145	97646	RNA, RNA, DNA, DNA
<b>2ND_01NO17</b>	2nd lake	2017-11-01	204277	101428	100942	RNA, RNA, DNA, DNA
<b>1ST_31OC17</b>	1st lake	2017-10-31	187219	91952	78596	RNA, RNA, DNA, DNA
<b>GR_30OC17</b>	Greiner	2017-10-30	168064	75216	73202	RNA, RNA, DNA, DNA
<b>ERA1_04NO17</b>	ERA 1	2017-11-04	205360	100402	90073	RNA, RNA, DNA, DNA
<b>ERA1_24AP18</b>	ERA 1	2018-04-24	178606	73753	68529	RNA, RNA, DNA, DNA
<b>ERA1_10AU17</b>	ERA 1	2017-08-10	138565	57605	52913	RNA, DNA, DNA
<b>ERA3_10AU17</b>	ERA 3	2017-08-10	243402	123280	110782	RNA, RNA, DNA, DNA
<b>ERA1_12AU18</b>	ERA 1	2018-08-12	162431	80428	77803	RNA, DNA, DNA
<b>ERA4_10AU17</b>	ERA 4	2017-08-10	188516	90045	82175	RNA, RNA, DNA, DNA
<b>ERA4_12AU18</b>	ERA 4	2018-08-12	160603	78529	36839	RNA, DNA, DNA
<b>1ST_09AU18</b>	1st lake	2018-08-09	132918	60932	57974	RNA, DNA, DNA
<b>ERA2_10AU17</b>	ERA 2	2017-08-10	177064	90003	86672	RNA, RNA, DNA, DNA
<b>GR_04SE16</b>	Greiner	2016-09-04	173067	99416	86395	RNA, DNA, RNA
<b>SPA_13AU17</b>	Spawning	2017-08-13	193355	99493	96225	RNA, RNA, DNA, DNA
<b>GR_07AU18</b>	Greiner	2018-08-07	162707	85403	76954	RNA, DNA, DNA
<b>FER_13AU17</b>	Tahiryuaq	2018-08-13	199351	86705	83700	RNA, RNA, DNA, DNA
<b>GR_09SE15</b>	Greiner	2015-09-09	420660	197766	179413	0mRNA, 0mDNA, 0mDNA, 4mRNA, 4mDNA, 4mRNA, 4mDNA, 8mRNA, 8mDNA, 8mDNA
<b>GR_23AU16</b>	Greiner	2016-08-23	178565	86317	83439	RNA, DNA, RNA, DNA
<b>GR_09AU17</b>	Greiner	2017-08-09	440860	190419	172748	RNALrep1, RNASrep1, DNALrep1, DNASrep1, RNALrep2, RNASrep2, DNALrep2, DNASrep2

<sup>1</sup> There were 2 replicate filters collected and processed separately.

<sup>2</sup> An additional non size fractionated sample (total DNA) was collected and processed separately

<sup>3</sup> For some samples, not all extracted DNA could be amplified and only 3 source libraries were available.

Supplementary Table S2: Top 10 contributor OTUs to SIMPER results. Contribution to explanatory value (contr) and standard deviation (sd) and ratio is contribution divided by the standard deviation. The average abundance per group a (ava) and group b (avb). Cumulative sum of the explanatory contribution (cumsum), significance value (*p*). Taxonomy from group (Group Figure 4, the core classifications are from Figure 5: Year-round/Generalist (green), Open-water (orange), Under-ice (blue), no core/not significant indicator (grey). Colors under Group correspond to taxonomic color codes in Figures 5.

Comparison	OTU_ID	contr	sd	ratio	ava	avb	cumsum	p	Taxonomy	Group	100%	CLAM	IndVal
Open water versus Under ice	OTU_76	0.031	0.029	1.08	0.063	0.001	0.036	0.0099	Strobilidiidae A				
	OTU_78	0.028	0.045	0.62	0.059	0.008	0.069	0.0891	Strobilidiidae J				
	OTU_787	0.021	0.041	0.52	0.043	0.001	0.094	0.0693	Apocalathium aciculiferum				
	OTU_642	0.021	0.028	0.74	0.006	0.042	0.118	0.0495	Litostomatea XXX sp.				
	OTU_141	0.019	0.032	0.60	0.018	0.038	0.140	0.2079	Cryptomonas curvata				
	OTU_370	0.016	0.029	0.56	0.032	0.003	0.159	0.2376	Vorticella unclassified				
	OTU_326	0.015	0.012	1.25	0.041	0.029	0.177	0.5545	Pelagioselmis				
	OTU_261	0.014	0.014	0.98	0.028	0.000	0.193	0.0099	Chrysophyceae Clade-F				
	OTU_2	0.011	0.011	0.99	0.001	0.023	0.205	0.0099	Chrysophyceae XXX sp.				
Ice 1 versus Ice 2	OTU_33	0.011	0.012	0.91	0.006	0.024	0.218	0.0198	Gyrodinium helveticum				
	OTU_78	0.045	0.055	0.82	0.016	0.096	0.057	0.0198	Strobilidiidae J				
	OTU_787	0.036	0.050	0.71	0.064	0.025	0.102	0.0495	Apocalathium aciculiferum				
	OTU_76	0.032	0.025	1.27	0.056	0.070	0.142	0.1683	Strobilidiidae A				
	OTU_370	0.027	0.033	0.80	0.018	0.044	0.176	0.0594	Vorticella unclassified				
	OTU_554	0.020	0.017	1.19	0.041	0.000	0.202	0.0099	Isochrysidales unclassified				
	OTU_261	0.019	0.014	1.38	0.008	0.045	0.226	0.0099	Chrysophyceae Clade-F				
	OTU_55	0.015	0.015	1.02	0.032	0.006	0.245	0.0099	Borghiella tenuissima				
	OTU_326	0.015	0.013	1.21	0.041	0.041	0.265	0.4257	Pelagioselmis				
Open 3 Versus Open 4	OTU_4	0.014	0.015	0.93	0.004	0.031	0.283	0.0297	Basal Cryptophyceae-1 X				
	OTU_24	0.014	0.014	0.97	0.001	0.028	0.300	0.0099	Histiobalantium sp.				
	OTU_141	0.031	0.044	0.70	0.067	0.008	0.039	0.0990	Cryptomonas curvata				
	OTU_642	0.029	0.030	0.95	0.045	0.038	0.076	0.1485	Litostomatea XXX sp.				
	OTU_184	0.017	0.026	0.66	0.033	0.006	0.099	0.0891	Chrysophyceae X				
	OTU_326	0.016	0.010	1.59	0.016	0.042	0.119	0.5050	Pelagioselmis				
	OTU_33	0.014	0.012	1.13	0.025	0.022	0.136	0.0792	Gyrodinium helveticum				
	OTU_91	0.013	0.024	0.56	0.029	0.008	0.153	0.1782	Chrysophyceae Clade-C				
	OTU_553	0.013	0.033	0.41	0.000	0.026	0.170	0.0297	Ciliophora unclassified				
	OTU_70	0.013	0.027	0.47	0.026	0.002	0.187	0.0594	Urosolenia eriensis				
	OTU_2	0.012	0.011	1.14	0.020	0.026	0.202	0.1485	Chrysophyceae XXX sp.				
	OTU_68	0.012	0.016	0.74	0.024	0.001	0.217	0.0099	Prorocentrum sp.				