

Electronic Supplement

Figure S1. Photographs of the sampling sites. White Sea: (a) W1, (b) W3, (c) W4, (d) W5, (e) W8; Barents Sea: (f) B1, (g) B2, (h) B3, (i) B4, (j) B5.

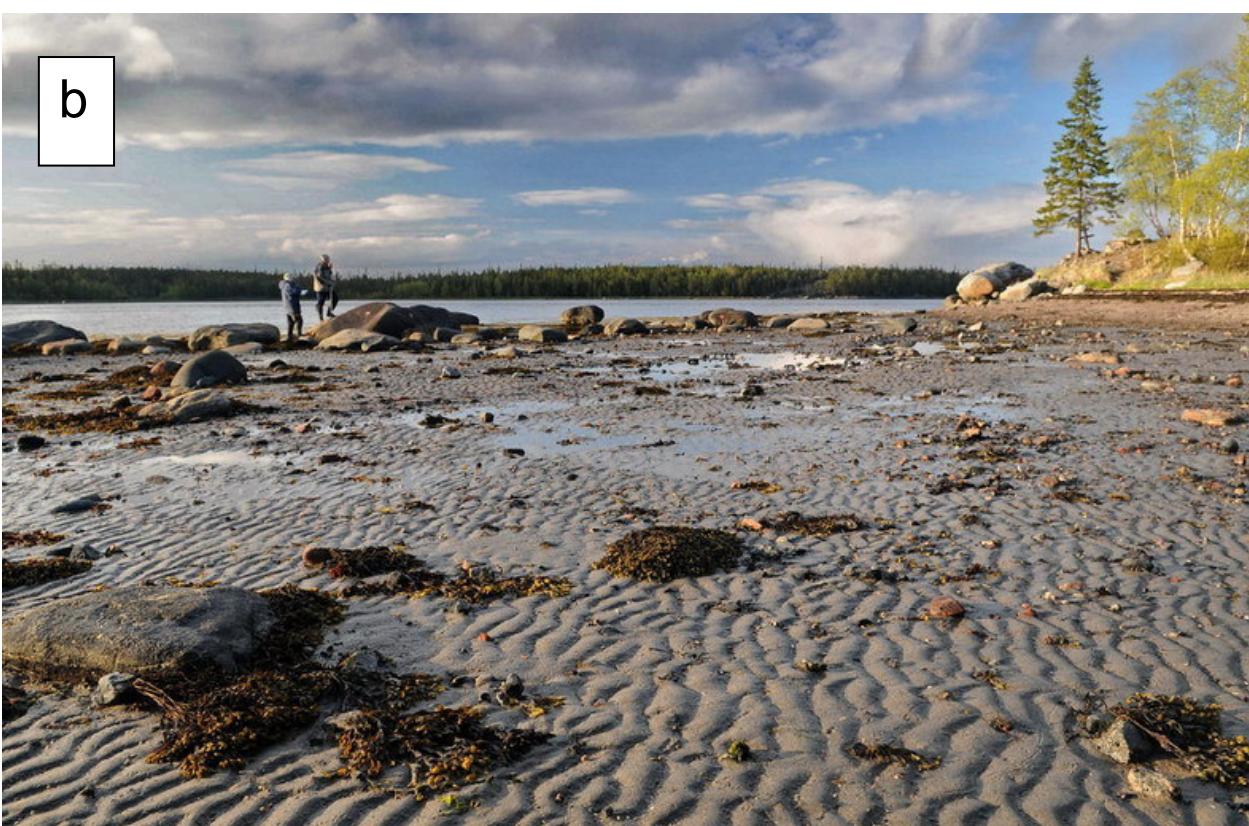












Table S1. Diversity and composition characteristics of diatom algae assemblages.

Beach	White Sea									Barents Sea		
	W1	W1	W2	W3	W4	W5	W6	W7	W8	B1	B2	B4
Year of sampling	1997	2009	1997	2009	2009	1997	1995	1995	2009	2003	2003	2003
Total # of species	89	136	128	121	139	139	98	110	139	61	89	64
# of species per sample	48.0	114.0	83.3	102.0	107.3	107.3	59.2	68.4	105.0	39.5	36.3	55.8
Expected full # of species (Chao-corr.)	91.5	146.9	128.5	138.1	152.6	129.0	101.0	120.3	166.1	121.0	102.0	73.3
Expected # of species per 1000 cells	73.65	89.3	103.7	86.6	79.8	97.5	84.1	100.4	61.4	61.0	80.8	60.5
Beta-diversity (β_{SAC})	0.564	0.255	0.394	0.246	0.236	0.460	0.222	0.210	0.255	0.396	0.647	0.199
Epipelic diatoms abundance (%)	35.8	39.1	68.1	51.8	55.0	71.1	75.5	75.6	57.3	70.9	67.9	46.1
Epipsammic diatoms abundance (%)	64.2	50.9	31.0	41.2	33.5	27.9	24.4	23.9	32.4	15.9	31.1	53.2
Number of epipelic species (%)	66.3	50.0	69.5	50.4	54.7	68.2	82.7	84.5	54.7	67.2	61.8	56.1
Number of epipsammic species (%)	33.7	39.7	28.1	35.5	31.7	29.5	16.3	14.5	31.7	27.9	33.7	37.9
Diversity of epipelic species (d -index)	14.24	18.79	22.04	17.83	19.89	20.63	22.26	28.01	20.82	13.84	16.18	11.35
Diversity of epipsammic species (d -index)	7.32	14.86	8.77	12.48	11.40	8.78	3.85	4.22	11.94	5.54	8.69	7.57
Cell length, μm (mean \pm SD)	n/a	31.5 ± 15.2	n/a	33.3 ± 16.8	36.9 ± 17.6	n/a	32.2 ± 19.2	33.7 ± 18.6	35.0 ± 17.5	33.3 ± 19.3	21.9 ± 15.1	24.5 ± 17.5

Table S2. Diversity and composition characteristics of ciliate assemblages.

Beach	White Sea										Barents Sea				
	W1	W1	W1	W2	W3	W4	W4	W5	W5	W8	B1	B2	B3	B4	B5
Year of sampling	1997	2001	2012	1997	2012	1996	2008	1991	1995	2009	2003	2003	2003	2003	2003
Abundance, ind cm ⁻²	319.5	217.2	244.2	677.3	29.4	672.6	1479.7	531.8	617.8	822.7	218.2	466.7	39.4	169.2	443.6
Biomass, µg cm ⁻²	4.7	3.9	2.5	8.2	0.72	15.9	39.5	11.9	24.0	22.3	4.3	6.4	0.40	2.0	2.0
Total # of species	24	33	24	28	35	61	82	61	73	102	43	47	19	21	42
# of species per sample	20.5	19.1	13.3	21.5	11.4	25.8	33.7	34.3	33.5	50.0	26.7	23.7	12.5	8.0	42.0
Expected full # of species (Chao-corr.)	24.0	33.5	26.0	27.3	63.1	61.3	82.1	61.1	75.0	104.5	50.3	62.1	20.7	26.6	44.2
Expected # of species per 100 cells	17.0	18.1	12.1	14.9	26.7	28.7	24.9	32.0	28.5	34.9	27.9	21.6	19.0	13.7	11.5
Expected # of species per 1 cm ²	21.4	21.8	15.9	25.6	15.7	48.0	52.5	51.1	43.8	75.0	37.2	43.4	14.8	17.4	26.8
Beta-diversity (β_{SAC})	0.138	0.309	0.326	0.343	0.697	0.225	0.353	0.291	0.366	0.366	0.438	0.629	0.604	0.882	n/a
Mean individual weight, ng	14.59	17.93	10.07	12.15	24.54	23.57	26.69	22.37	38.89	27.10	19.90	13.70	10.10	11.80	4.40
Karyorelictida biomass, % of total	0.0	1.5	1.0	8.5	9.8	34.2	73.7	46.3	20.0	37.9	15.4	20.5	10.4	0.0	5.6
Microporal taxa biomass, µg cm ⁻²	1.51	1.58	0.63	6.16	0.84	130.57	359.40	84.97	85.85	154.12	30.96	24.58	1.24	0.02	8.82
Mesoporal taxa biomass, µg cm ⁻²	29.18	22.71	20.70	46.46	4.67	8.11	8.38	8.41	9.15	21.29	13.00	27.01	1.68	0.81	35.62
Euryporal taxa biomass, µg cm ⁻²	2.06	2.35	1.89	12.73	0.40	2.82	11.46	2.24	7.54	9.66	6.06	0.41	0.56	2.20	0.14