Supplementary Section S1. Tables

- Environmental parameters and *E. huxleyi* morphotypes abundances and biovolume (Table S1);
- Plankton abundances (Tables S2 and S3);
- Biovolume calculations for main micro-plankton species (Table S4);
- Indicator value (IndVal) analysis based on coccolithophore and diatoms species for the southern Patagonia fjords-channels system and nearby coastal/oceanic areas (Table S5);
- Niche parameters yielded by *E. huxleyi* morphotypes in the southern Patagonia fjords-channels system (Table S6) more nearby coastal and oceanic areas (Tables S8);
- Envfit results of five environmental variables fitted on the OMI spaces (Tables S7, S9).

Table S1. Physical and chemical parameters and associated abundance and biovolume of *E. huxleyi* morphotypes recorded in southern Patagonia during the austral late-spring 2015 and early-spring 2017. Asteriscs indicate samples included in statistical analysis (chosen to be representative of the upper 5 m). When more than one sample was available in the upper 5 m, the sample closest to 5 m was chosen. na = no available data. LC = *E. huxleyi* lightly-calcified A-morphotype, MC = *E. huxleyi* moderate-calcified A-morphotype, A-CC = *E. huxleyi* A-CC morphotype, R/h = *E. huxleyi* R/hypercalcified morphotype.

Station	Date/hour dd.mm.yy/hh:mm	Depth (m)	Latitude S deg.	Longitude W deg.	Temp. (°C)	Sal. (psu)	pCO_2 (μatm)	Ωcal	pH	NO_3^- (μM)	DSi (μM)	PO_4^{3-} (μM)	Opal (μM)	*E. huxleyi* morphotypes (%)				Volume (μm^3)
														LC	MC	A-CC	R/h	
1*	26.11.15/10:15	1	50.3280	75.3516	9.31	30.42	343	2.67	8.066	na	na	na	na	2.50	75.0	17.50	5.00	106.7
2*	26.11.15/12:09	1	50.3794	75.4093	9.13	30.63	343	2.69	8.067	na	na	na	na	2.56	66.7	10.26	20.51	121.5
3	26.11.15/16:00	1	50.3467	75.3633	9.97	29.98	386	2.53	8.027	6.12	6.13	na	0.51	0.00	83.3	13.89	2.78	115.9
3*	26.11.15/16:00	4	50.3467	75.3633	9.42	30.68	364	2.60	8.045	4.16	na	na	0.51	0.00	92.3	5.13	2.56	123.4
3	26.11.15/16:00	8	50.3467	75.3633	9.20	30.96	359	2.70	8.056	na	na	na	0.50	4.29	70.0	15.71	10.00	138.2
3	26.11.15/16:00	14	50.3467	75.3633	9.32	31.09	354	2.70	8.058	na	na	na	0.78	0.00	64.1	30.77	5.13	98.1
3	26.11.15/16:00	36	50.3467	75.3633	9.03	31.20	365	2.66	8.050	4.36	4.20	na	0.53	7.50	70.0	2.50	20.00	85.5
4	27.11.15/11:02	1	50.3688	75.3656	9.54	30.95	241	3.64	8.205	1.06	na	na	1.75	na	na	na	na	na
4*	27.11.15/11:02	4	50.3688	75.3656	9.33	31.28	266	3.42	8.170	2.94	na	na	1.80	0.00	87.5	5.00	7.50	113.0
4	27.11.15/11:02	9	50.3688	75.3656	9.09	31.56	347	2.86	8.073	4.75	na	na	1.08	0.00	90.0	7.50	2.50	89.1
4	27.11.15/11:02	19	50.3688	75.3656	9.12	31.67	347	2.84	8.072	7.92	na	na	1.04	10.53	78.9	7.89	2.63	75.1
4	27.11.15/11:02	30	50.3688	75.3656	8.91	31.68	375	2.68	8.044	5.02	na	na	0.55	2.56	87.2	7.69	2.56	85.3
5*	28.11.15/21:30	1	50.4252	74.9988	9.75	30.89	322	3.03	8.101	2.43	1.30	na	0.75	0.00	85.0	12.50	2.50	120.9
5	28.11.15/21:30	8	50.4252	74.9988	9.26	31.66	350	2.81	8.066	3.27	2.65	na	1.07	5.26	92.1	2.63	0.00	99.3
5	28.11.15/21:30	15	50.4252	74.9988	9.18	31.75	386	2.61	8.029	4.20	2.56	na	1.38	5.26	78.9	7.89	7.89	94.9
5	28.11.15/21:30	25	50.4252	74.9988	8.99	31.88	425	2.44	7.994	5.53	4.49	na	1.80	7.89	86.8	2.63	2.63	94.6
6*	29.11.15/02:10	2	50.7649	74.4343	9.70	29.5	341	2.56	8.060	na	na	na	na	2.56	97.4	0.00	0.00	101.4
7*	29.11.15/06:00	2	51.2884	74.1223	8.94	29.0	329	2.47	8.068	na	na	na	na	2.78	97.2	0.00	0.00	102.4
8*	29.11.15/10:10	2	51.8275	73.7327	8.79	28.2	346	2.23	8.041	na	na	na	na	4.65	95.3	0.00	0.00	91.5
9*	29.11.15/14:00	2	52.3000	73.6567	8.68	26.6	339	1.98	8.030	2.94	0.34	na	na	0.00	100.0	0.00	0.00	148.2
10*	29.11.15/18:10	2	52.7672	73.8111	8.69	29.5	323	2.57	8.080	na	na	na	na	2.56	97.4	0.00	0.00	146.8
11*	29.11.15/22:20	2	53.2203	73.2871	8.11	30.3	362	2.43	8.042	na	na	na	na	0.00	100.0	0.00	0.00	159.6
12*	30.11.15/02:05	2	53.5578	72.4752	7.97	29.7	330	2.49	8.073	na	na	na	na	0.00	100.0	0.00	0.00	131.2
13*	30.11.15/06:30	2	53.1332	72.0012	7.86	28.7	360	2.16	8.029	na	na	na	na	0.00	100.0	0.00	0.00	107.9
14*	30.11.15/10:10	2	53.0217	71.8995	8.74	28.5	308	2.49	8.089	na	na	na	na	0.00	100.0	0.00	0.00	93.3
15*	01.12.15/10:06	2	52.5610	72.3209	7.79	16.92	542	0.54	7.725	0.32	1.53	na	2.07	absent	absent	absent	absent	absent
16*	02.12.15/14:10	2	53.5844	72.3092	8.23	31.1	352	2.63	8.061	na	na	na	na	10.81	89.2	0.00	0.00	116.2
17*	02.12.15/15:52	2	53.8024	72.1398	7.92	31.0	355	2.56	8.056	na	na	na	na	0.00	100.0	0.00	0.00	122.7
18*	02.12.15/22:10	2	53.8447	72.1946	7.12	30.8	376	2.35	8.031	na	na	na	na	3.13	96.9	0.00	0.00	124.2
19*	03.12.15/02:34	2	53.8929	71.2269	7.69	30.4	330	2.58	8.079	na	na	na	na	0.00	100.0	0.00	0.00	111.1
20*	03.12.15/04:10	2	53.7483	70.9321	7.20	30.3	345	2.43	8.060	na	na	na	na	2.63	97.4	0.00	0.00	87.5
21*	03.12.15/05:44	2	53.5924	70.9326	7.35	31.2	347	2.59	8.066	na	na	na	na	2.63	97.4	0.00	0.00	80.0
22*	22.09.17/10:20	2	53.5925	72.3000	7.1	29.8	396	2.19	8.011	11.39	4.83	1.00	1.04	5.13	94.9	0.00	0.00	90.5
23*	22.09.17/14:05	2	53.3833	72.9328	6.7	28.0	364	2.02	8.025	9.93	3.80	0.89	1.92	10.26	89.7	0.00	0.00	110.7
24*	22.09.17/17:00	2	53.1424	73.3807	6.7	28.3	383	2.01	8.011	8.21	2.59	0.75	2.57	5.00	95.0	0.00	0.00	108.5
25*	23.09.17/00:02	2	52.5913	73.6485	6.3	26.5	396	1.67	7.978	8.17	2.16	0.26	0.78	0.00	100.0	0.00	0.00	123.6
26*	23.09.17/04:05	2	52.1247	73.6899	6.4	25.1	412	1.48	7.952	9.52	6.90	0.84	1.34	0.00	100.0	0.00	0.00	114.1
27*	23.09.17/08:22	2	51.6840	73.9500	6.8	26.9	365	1.85	8.012	8.31	5.09	0.72	1.79	5.13	94.9	0.00	0.00	112.8
28*	23.09.17/10:08	2	51.4631	74.0435	7.3	27.6	342	2.09	8.044	8.14	3.11	0.66	1.83	0.00	100.0	0.00	0.00	111.0
29*	23.09.17/16:45	2	50.7479	74.4892	8.1	27.6	327	2.21	8.060	5.97	2.76	0.47	2.13	2.50	95.0	2.50	0.00	117.4
30	24.09.17/23:00	2	50.3368	75.3630	7.23	28.32	384	2.09	8.014	11.38	10.17	0.89	0.64	0.00	82.1	10.26	7.69	93.9
30*	24.09.17/23:00	5	50.3368	75.3630	7.74	28.95	365	2.27	8.037	12.83	12.41	0.91	0.84	0.00	80.0	20.00	0.00	100.6
30	24.09.17/23:00	10	50.3368	75.3630	7.77	29.27	381	2.23	8.021	12.09	10.94	0.90	0.84	0.00	78.6	19.05	2.38	90.7
30	24.09.17/23:00	20	50.3368	75.3630	7.82	29.59	377	2.27	8.025	13.25	13.35	0.92	0.86	5.13	76.9	17.95	0.00	97.5
30	24.09.17/23:00	50	50.3368	75.3630	8.40	30.79	449	2.16	7.965	14.76	15.16	1.18	0.33	5.71	62.9	28.57	2.86	67.5
30	24.09.17/23:00	75	50.3368	75.3630	9.18	31.34	712	1.62	7.794	16.22	18.52	1.62	0.46	scarce	scarce	scarce	scarce	scarce
31*	26.09.17/14:45	2	50.4243	75.0016	7.70	28.30	320	2.38	8.080	6.69	4.57	0.55	2.81	0.00	94.9	5.13	0.00	110.9
32*	26.09.17/14:50	5	50.4777	74.9857	7.67	29.06	363	2.21	8.032	7.71	5.43	0.66	2.34	2.50	90.0	7.50	0.00	103.2
32	26.09.17/14:50	10	50.4777	74.9857	7.80	29.77	369	2.29	8.031	10.45	8.96	0.92	2.63	2.50	82.5	12.50	2.50	104.7
32	26.09.17/14:5	20	50.4777	74.9857	8.02	30.41	380	2.34	8.024	12.73	9.13	1.02	1.68	0.00	85.0	12.50	2.50	92.2
32	26.09.17/14:5	50	50.4777	74.9857	8.55	31.61	402	2.43	8.010	12.72	9.13	1.09	1.60	16.67	62.5	12.50	8.33	94.9
32	26.09.17/14:5	75	50.4777	74.9857	8.64	32.06	399	2.53	8.017	12.97	9.82	1.16	1.45	scarce	scarce	scarce	scarce	scarce

Table S2. Abundances of planktonic items (cells L^{-1}) found in southern Patagonia during the austral late-spring 2015.

	St.1 (1 m)	St.2 (1 m)	St.3 (1 m)	st.3 (4 m)	St.3 (14 m)	St.3 (36 m)	St.4 (4 m)	St.4 (9 m)	St.4 (19 m)	St.4 (30 m)	St.5 (1 m)	St.5 (15 m)	St.5 (25 m)	St.6 (2 m)	St.7 (2 m)	St.8 (2 m)	St.9 (2 m)	St.10 (2 m)	St.11 (2 m)	St.12 (2 m)	St.13 (2 m)	St.14 (2 m)	St.15 (2 m)	St.16 (2 m)	St.17 (2 m)	St.18 (2 m)	St.19 (2 m)	St.20 (2 m)	St.21 (2 m)
Diatoms																													
Centric small (5-40 µm diameter)	1,130	550	0	770	490	970	740	440	660	1,520	1,360	960	780	1,460	820	340	0	680	780	1,540	380	260	320	800	520	140	280	1,000	1,080
Centric medium (40-100 µm diam.)	0	0	0	0	0	10	0	0	0	0	0	0	0	20	20	0	60	20	40	40	0	0	60	0	20	10	0	120	0
Chaetoceros spp.	1,700	480	1,010	2,860	1,990	2,370	321,809	141,381	14,780	29,960	33,300	56,020	119,110	1,040	920	120	140	2,880	4,020	10,500	1,120	0	101,194	14,680	67,014	63,200	331,825	254,800	154,560
Leptocylindrus spp.	170	100	0	440	230	280	30,460	6,960	2,220	3,740	3,360	2,020	720	580	44,052	1,060	0	9,760	59,352	358,127	1,180	50	0	58,160	2,880	4,520	29,540	0	0
Rhizosolenia spp.	440	240	80	280	150	100	1,420	800	440	440	420	460	100	0	20	120	20	20	60	40	0	0	0	20	60	0	20	0	0
Eucampia spp.	0	0	0	0	0	0	120	40	0	0	40	80	0	80	0	0	0	0	120	0	0	0	0	0	0	0	0	0	0
Asterionellopsis spp.	0	0	40	40	40	0	680	0	0	160	0	0	0	0	0	0	0	0	300	0	0	0	0	4,160	6,200	7,840	26,820	800	1,280
Corethron spp.	20	20	30	50	30	50	20	20	0	40	120	200	140	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0
Cerataulina spp. + *Guinardia* spp.	0	0	0	130	40	0	980	160	30	60	3,580	40	780	0	0	1,480	860	560	500	200	40	0	600	620	540	0	840	640	0
Pennate large (> 100 µm length)	20	10	40	10	20	0	20	80	20	20	10	80	20	0	20	20	0	0	20	0	80	0	20	40	50	20	140	80	20
Pennate medium (50-100 µm length)	60	0	0	0	0	0	0	0	0	20	0	20	20	0	0	20	0	0	0	60	40	30	0	0	0	0	40	0	60
Pennate small (< 50 µm length)	10	130	50	10	0	10	0	60	60	120	120	40	0	0	60	0	0	0	140	0	0	10	0	20	1,140	240	560	0	20
Thalassionema spp.	0	0	0	0	0	0	0	0	0	0	0	0	80	0	0	80	0	0	0	0	0	0	7,220	260	820	180	260	0	40
Licmophora spp.	0	60	10	10	30	0	0	0	0	20	0	20	20	0	0	0	20	0	0	0	0	0	10	0	10	10	20	0	0
Pseudo-nitzschia spp.	1,020	730	810	1,790	1,310	1,820	22,360	30,076	2,540	4,200	7,380	4,460	3,340	580	8,180	0	0	60	60	180	160	0	0	340	540	180	1,260	960	980
Nitzschia spp. (< 40 µm length)	150	40	0	110	0	40	260	60	40	40	200	40	180	20	4,120	20	0	0	40	20	0	0	780	40	1,880	560	2,400	40	0
Stephanopyxis turris	0	0	0	0	0	0	100	280	80	20	220	140	400	160	160	100	0	0	200	240	4,220	2,780	0	2,020	1,120	960	2,060	0	220
Thalassiosira spp.	0	20	90	100	100	50	7,160	3,040	1,960	720	1,840	2,020	210	0	0	1,880	700	840	2,860	4,740	120	20	5,720	13,420	48,772	102,964	166,348	3,320	3,320
Skeletonema spp.	0	80	0	0	70	60	1,840	80	260	1,180	2,500	720	1,260	280	620	0	0	0	0	0	0	0	920	0	680	0	200	0	0
Striatella spp.	560	0	0	160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	280	0	0	0	0	0	0
Ditylum spp.	0	0	0	0	0	0	20	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	20	0	0	0	0
Plagiogrammopsis spp.	100	0	0	0	0	0	0	0	0	0	0	160	0	0	0	0	0	0	0	0	0	0	0	320	0	0	680	0	0
Detonula spp.	0	0	90	0	0	0	0	120	0	0	2,820	3,060	0	20,300	0	3,540	1,840	0	0	0	0	0	600	4,800	0	540	0	24,200	15,560
Dinoflagellates																													
Ceratium pentagonium	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	380	100	40	10	1,320	1,960	700	10	460	0	20	100	40	20
Ceratium lineatum	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	320	60	0	0	10	0	160	0	0
Protoperidinium spp.	0	0	0	30	40	20	120	40	20	0	380	0	20	20	0	0	760	240	180	780	120	70	400	440	20	140	980	880	320
Dinophysis spp.	0	0	0	0	20	0	10	140	0	0	0	0	0	20	0	0	60	0	120	160	240	450	80	200	20	0	80	0	0
Gymnodinium spp. > 60 µm length	20	0	10	20	0	0	140	20	0	0	280	60	0	20	0	200	160	20	0	60	640	390	40	0	60	60	220	0	0
Scrippsiella spp.	0	0	610	0	50	0	0	0	0	0	1,300	20	0	7,280	20	340	80	560	0	80	80	0	0	100	200	60	600	280	200
Pyrophacus spp.	0	0	0	0	10	0	40	80	20	0	80	60	0	30	0	120	60	140	80	540	280	160	40	340	200	100	500	440	40
Naked flagellates																													
Naked flagellates	12,232	54,994	21,229	64,698	12,940	20,218	75,616	20,016	8,593	23,049	65,103	52,163	22,240	140,719	134,249	21,633	151,637	40,032	71,168	36,797	68,338	49,332	40,436	26,890	26,082	13,614	33,764	40,841	22,240
Coccolithophores																													
Emiliania huxleyi	20,089	51,868	15,811	24,056	21,949	32,240	43,154	31,454	21,018	42,410	28,768	19,717	33,234	62,126	161,454	102,676	276,035	146,574	69,567	25,296	48,734	42,410	0	17,298	42,410	11,719	41,293	31,994	25,296
Syracosphaera spp.	0	1,330	0	0	0	0	0	786	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dictyochophyceae																													
Pseudochattonella verruculosa	50	1,180	1,270	640	0	10	0	0	20	0	3,280	460	80	8,440	300	700	3,720	240	0	40	100	10	0	0	240	20	100	80	240
Silicoflagellates																													
Unidentified	20	40	0	10	80	30	60	30	0	20	40	80	20	20	200	100	40	0	60	0	0	0	0	20	10	0	20	0	0
Foraminifera																													
Unidentified	0	0	0	0	20	0	0	40	20	20	100	0	0	0	0	0	0	0	0	40	0	0	20	0	0	0	0	0	0
Ciliates																													
Tintinnids	0	0	0	0	20	50	20	0	20	60	340	140	120	120	20	0	0	280	200	80	80	140	20	160	140	30	50	0	60
Oligotrichida + Cyclotrichiida	220	250	1,330	7,620	280	150	860	2,260	520	180	3,760	3,600	160	780	700	980	2,580	9,100	840	720	1,900	1,490	340	860	460	360	600	3,280	740

Table S3. Abundances of coccolithophores (cells L^{-1}) found in southern Patagonia during the austral early-spring 2017.

	St.22 (2 m)	**St.23 (2 m)**	**St.24 (2 m)**	**St.25 (2 m)**	**St.26 (2 m)**	**St.27 (2 m)**	**St.28 (2 m)**	**St.29 (2 m)**	**St.30 (2 m)**	**St.30 (5 m)**	**St.30 (10 m)**	**St.30 (20 m)**	**St.30 (50 m)**	**St.30 (75 m)**	**St.31 (2 m)**	**St.32 (5 m)**	**St.32 (10 m)**	**St.32 (20 m)**	**St.32 (50 m)**	**St.32 (75 m)**
Emiliania huxleyi	51,257	51,552	62,099	16,948	90,551	82,742	23,407	26,512	38,558	27,924	37,466	17,862	13,747	2,062	27,965	34,797	28,812	21,186	7,406	7,733
Acanthoica quattrospina	0	0	0	0	0	0	0	0	0	0	436	0	0	0	0	1,289	847	1,695	0	0
Coronosphaera mediterranea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	847	436	2,148
Gephyrocapsa muellerae	0	0	0	0	0	0	0	0	0	0	0	0	0	1,031	0	0	0	0	0	859
Helicosphaera carteri	0	0	0	0	0	0	0	0	0	0	0	0	430	0	0	0	0	0	0	0
Calciosolenia murrayi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	436	0
Alisphaera unicornis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	430

Table S4. Biovolume and equivalent spherical diameter (ESD) of main planktonic species found in southern Patagonia during the austral late-spring 2015. *assuming frustule or theca and vacuole volumes representing 50 % and 22 % of the total volume of diatoms and dinoflagellates respectively. [a]group composed of small flagellates and athecated dinoflagellates cells including *Torodinium* spp., *Gimnodinium* spp., *Gyrodinium* spp.

	Geometric shape	Volume formula	Trophy	N	Volume (µm^3)*	ESD (µm)
Diatoms						
Chaetoceros spp.	Elliptic prism	π/4•a•b•h	AU	26	2371.8	16.5
Centric small 5-40 µm diameter	Cylinder	π/4•d^2•h	AU	26	11115.5	27.7
Centric medium 40-100 µm diameter	Cylinder	π/4•d^2•h	AU	13	148346.5	65.7
Leptocylindrus spp.	Cylinder	π/4•d^2•h	AU	28	1848.6	15.2
Rhizosolenia spp.	Cylinder	π/4•d^2•h	AU	31	36804.9	41.3
Asterionellopsis spp.	Prism on triangle-base	1/2•a•b•h	AU	8	319.4	8.5
Corethron spp.	Cylinder + 2 half spheres	π•d^2• (h/4+d/6)	AU	20	11438.9	28.0
Cerataulina spp. + Guinardia spp.	Cylinder	π/4•d^2•h	AU	18	11304.1	27.8
Pennate large > 100 µm length	Prism on parallelogram	1/2•a•b•h	AU	23	25217.9	36.4
Pennate medium 50-100 µm length	Prism on parallelogram	1/2•a•b•h	AU	2	3513.9	18.9
Pennate small < 50 µm length	Prism on parallelogram	1/2•a•b•h	AU	7	1334.0	13.7
Thallassiosena spp.	Rectangular box	a•b•h	AU	15	508.0	9.9
Licmophora spp.	Truncated square pyramid	1/3•(a^2+a•b+b^2)•h	AU	7	18826.1	33.0
Pseudo-nitzschia spp.	Prism on parallelogram	1/2•a•b•h	AU	11	1638.5	14.6
Nitzschia spp. < 40 µm length	Prism on parallelogram	1/2•a•b•h	AU	15	206.7	7.3
Amphiprora spp.	Elliptic prism	π/4•a•b•h	AU	2	50391.5	45.8
Stephanopyxis turris	Cylinder + 2 half spheres	π•d^2•(h/4+d/6)	AU	25	331885.0	85.9
Thalassiosira spp.	Cylinder	π/4•d^2•h	AU	36	15652.8	31.0
Skeletonema spp.	Cylinder + 2 half spheres	π•d^2• (h/4+d/6)	AU	2	685.4	10.9
Striatella spp.	Elliptic prism	π/4•a•b•h	AU	2	1632.1	14.6
Ditylum spp.	Prism on triangle-base	1/2•a•b•h	AU	2	70323.2	51.2
Plagiogrammopsis spp.	Elliptic prism	π/4•a•b•h	AU	3	1120.9	12.9
Detonula spp.	Cylinder	π/4•d^2•h	AU	21	2530.1	16.9
Dinoflagellates						
Ceratium pentagonium	Ellipsoid + cylinder + 2 cones	(π/6•a1•b1•h) + (π/4•b2^2•a2) + (π/12•b3^2•a3) + (π/12•b4^2•a4)	M	15	154344.3	66.6
Ceratium lineatum	Ellipsoid + cylinder + 2 cones	(π/6•a1•b1•h) + (π/4•b2^2•a2) + (π/12•b3^2•a3) + (π/12•b4^2•a4)	M	7	24032.2	35.8
Protoperidinium spp.	2 cones	(π/12•a^2•b1) + (π/12•a^2•b2)	H	40	17705.2	32.3
Dinophysis spp.	Ellipsoid	(π/6•a•b•h)	H	19	17511.3	32.2
Gymnodinium spp. > 60 µm in length	Ellipsoid	(π/6•a•b•h)	H, M	29	55523.5	47.3
Pyrophacus spp.	Ellipsoid	(π/6•a•b•h)	M	20	59512.2	48.4
Scrippsiella-like spp.	2 cones	(π/12•a^2•b1) + (π/12•a^2•b2)	A, H	27	2950.3	17.8
Naked flagellates 10-60 µm in length[a]	Ellipsoid	(π/6•a•b•h)	H, M	17	2527.1	16.9

Table S5. Indicator value analysis (IndVal) of coccolitophores and diatom species representative of Patagonian fjord and nearby coastal/oceanic locations. Only species with indicator values higher than 0.5 are shown.

	Code	IndVal	*p*-value
Patagonia fjords			
Thalassiosira spp.	Thala	0.8292	0.001
Stephanopyxis turris	Ste.tu	0.7778	0.001
Leptocylindrus spp.	Lepto	0.6706	0.001
Chaetoceros spp.	Chae	0.5895	0.008
Emiliania huxleyi moderate-calcified A-morphotype	MC	0.538	0.004
Coastal/oceanic areas			
cf. *Lioloma* spp.	Liol	0.7374	0.001
Pennate < 50 µm length	Pen.sm	0.6789	0.001
Gephyrocapsa ericsonii	Geri	0.6061	0.001
Nitzschia spp. 50-100 µm length	Nit.me	0.6061	0.001
cf. *Pseudo-nitzschia cuspidata*	Pcus	0.6061	0.001
Emiliania huxleyi lighty-calcified A-morphotype	LC	0.5953	0.003
Gephyrocapsa parvula	Gpar	0.5758	0.002
Emiliania huxleyi A-CC morphotype	A-CC	0.5648	0.003
Gephyrocapsa muellerae	Gmue	0.5455	0.001
Nitzschia spp. > 100 µm length	Nit.la	0.5152	0.001
cf. *Asteromphalus sarcophagus*	Asar	0.5152	0.001

Table S6. Niche parameters yielded by the Outlying Mean Index (OMI) analysis for *Emiliania huxleyi* morphotypes found in the Patagonia fjords-channels system during the austral late-spring 2015 and early-spring 2017 (see Fig. 7a). Niche parameters are given in absolute and percentage of variability of each morphotype. Inertia = total variability, OMI = Outlying Mean Index (i.e., marginality), Tol = Tolerance, RTol = Residual Tolerance (i.e., proportion of total variability unexplained by the environmental variables included in the analysis), OMI% = percentage of variability given by OMI, Tol% = percentage of variability given by Tol, RTol% = percentage of variability given by RTol. *p*-values are given by the number of random permutations out of 10,000 that yielded a higher value than the observed marginality. Morphotypes in bold were the ones significant ($p < 0.05$).

	Code	Inertia	Absolute values			Percentage of variability			*p*-value
			OMI	Tol	RTol	OMI%	Tol%	RTol%	
E. huxleyi lightly-calcified A-morphotype	LC	1.96	0.07	0.32	1.57	3.5	16.4	80.1	0.7190
***E. huxleyi* Moderate-calcified A-morphotype**	**MC**	**2.77**	**0.07**	**1.23**	**1.47**	**2.5**	**44.3**	**53.2**	**0.0271**
E. huxleyi A-CC A-morphotype	A-CC	3.59	1.43	1.68	0.49	39.8	46.7	13.5	0.0598
***E. huxleyi* R/hyper-calcified morphotype**	**R/h**	**6.24**	**4.77**	**0.75**	**0.72**	**76.4**	**12.1**	**11.5**	**0.0403**

Table S7. Results of five environmental variables fitted on the OMI space showed in figure 7a (using the envfit function of the vegan package, R software).

	Code	OMI1	OMI2	R^2	*p*-value
Temperature	Temp	-0.57	0.82	1.00	< 0.001
Salinity	Sal	-0.65	-0.76	0.89	< 0.001
pCO_2	pCO_2	0.84	0.54	0.88	< 0.001
Ω calcite	Ωcal	-0.98	-0.21	0.97	< 0.001
pH	pH	-0.76	-0.65	0.98	< 0.001

Table S8. Niche parameters yielded by the Outlying Mean Index (OMI) analysis for *E. huxleyi* morphotypes and other coccolithophore species in the sothern Patagonia fjords-channel system and nearby coastal/oceanic areas (see Fig. 7b). Niche parameters are given in absolute and percentage of variability of each morphotype/species. Inertia = total variability, OMI = Outlying Mean Index (i.e., marginality), Tol = Tolerance, RTol = Residual Tolerance (i.e., proportion of total variability unexplained by the environmental variables included in the analysis), OMI% = percentage of total variability given by OMI, Tol% = percentage of total variability given by Tol, RTol% = percentage of variability given by RTol. *p*-values are given by the number of random permutations out of 10,000 that yielded a higher value than the observed marginality (OMI). All coccolithophores and *E. huxleyi* morphotypes tested were significant ($p < 0.05$).

	Code	**Inertia**	**Absolute values**			**Percentage of variability**			***p*-value**
			OMI	Tol	RTol	OMI%	Tol%	RTol%	
E. huxleyi lightly-calcified A-morphotype	LC	5.76	0.75	2.85	2.15	13.0	49.7	37.3	< 0.001
E. huxleyi Moderate-calcified A-morphotype	MC	3.86	0.25	2.96	2.28	6.4	34.5	59.0	0.003
E. huxleyi A-CC A-morphotype	A-CC	5.24	0.58	2.91	1.70	11.1	56.5	32.4	< 0.001
E. huxleyi R/hyper-calcified morphotype	R/h	8.42	5.25	1.97	0.19	62.3	35.4	2.2	< 0.001
Gephyrocapsa parvula	Gpar	4.24	3.92	0.15	0.17	92.3	3.6	4.1	< 0.001
Gephyrocapsa ericsonii	Geri	4.24	3.89	0.16	0.19	91.7	3.7	4.6	< 0.001
Gephyrocapsa muellerae	Gmue	5.52	2.58	1.03	1.91	46.8	18.6	34.6	0.011
Calcidiscus leptoporus	Clep	5.65	2.33	0.38	2.94	41.2	6.7	52.1	< 0.001

Table S9. Results of five environmental variables fitted on the OMI space showed in figure 7b (using the envfit function of the vegan package, R software).

	Code	**OMI1**	**OMI2**	R^2	***p*-value**
Temperature	Temp	-0.91	0.41	0.94	< 0.001
Salinity	Sal	-0.93	0.38	0.88	< 0.001
pCO_2	pCO_2	-0.66	-0.75	1.00	< 0.001
Ω calcite	Ωcal	-0.57	0.82	0.99	< 0.001
pH	pH	0.44	0.90	0.97	< 0.001

Supplementary Section S2. Figures

- Salinity and Ω calcite surface levels into the Archipelago Madre de Dios during austral spring 2015 (Fig. S1);
- *E. huxleyi* calcification anomalies observed in the southern Patagonia fjords-channels system (Fig. S2);
- Analysis of redundancy of environmental variables (Fig. S3);
- Surface temperature recorded throughout southern Patagonia during the late-spring 2015 and early-spring 2017 (Fig. S4);
- Surface Ω calcite recorded throughout southern Patagonia during late-spring 2015 and early-spring 2017 (Fig. S5);
- Nutrients and planktonic proxies recorded throughout southern Patagonia (Fig. S6);
- Physical, chemical and biological vertical conditions in the Archipelago Madre de Dios during late-spring 2015 (Fig. S7) and early-spring 2017 (Fig. S9);
- SEM image showing the phytoplankton assemblages in southern Patagonian waters during early-spring 2017 (Fig. S8);
- Non-metric multidimensional scaling (nMDS) based on coccolithophore and diatom abundances in the southern Patagonia fjords-channels system and nearby coastal/oceanic areas (Fig. S10a) and heatmap based on nMDs scores (Fig. S10b);
- Correspondence analysis (CA) between *E. huxleyi* and diatom biomasses in relation with environmental conditions recorded in the southern Patagonia fjords-channels system during late-spring 2015 and early-spring 2017 (Fig. S11).

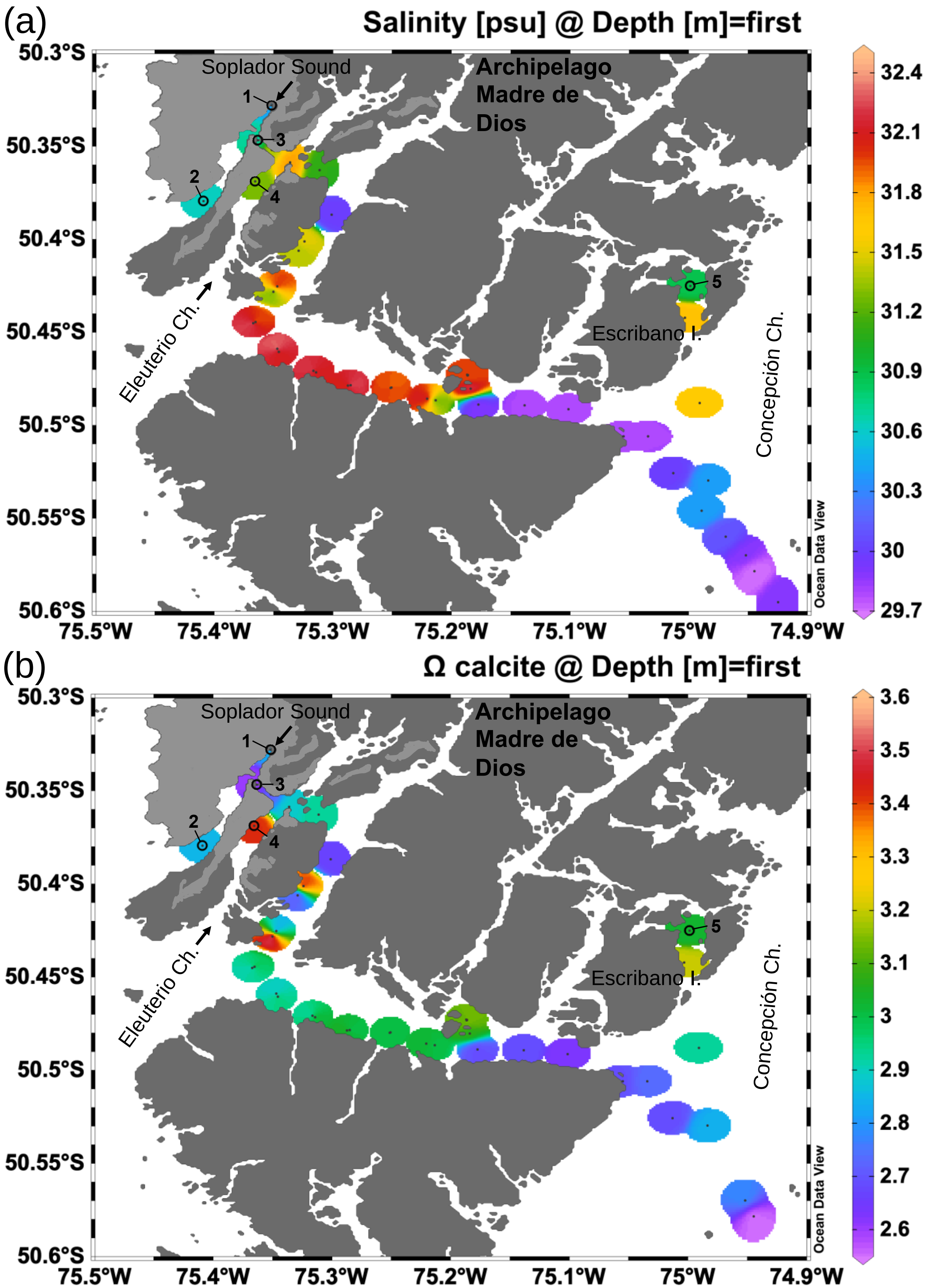

Figure S1. Salinity and Ω calcite levels recorded in the surface waters of the Archipelago Madre de Dios during the austral spring 2015. Sampling stations for plankton analysis are labelled in black (open circles). Light- and dark-gray continental masses depict the "limestone" western and "silicate" eastern basins, respectively. Maps produced by Ocean Data View (Schlitzer, 2018).

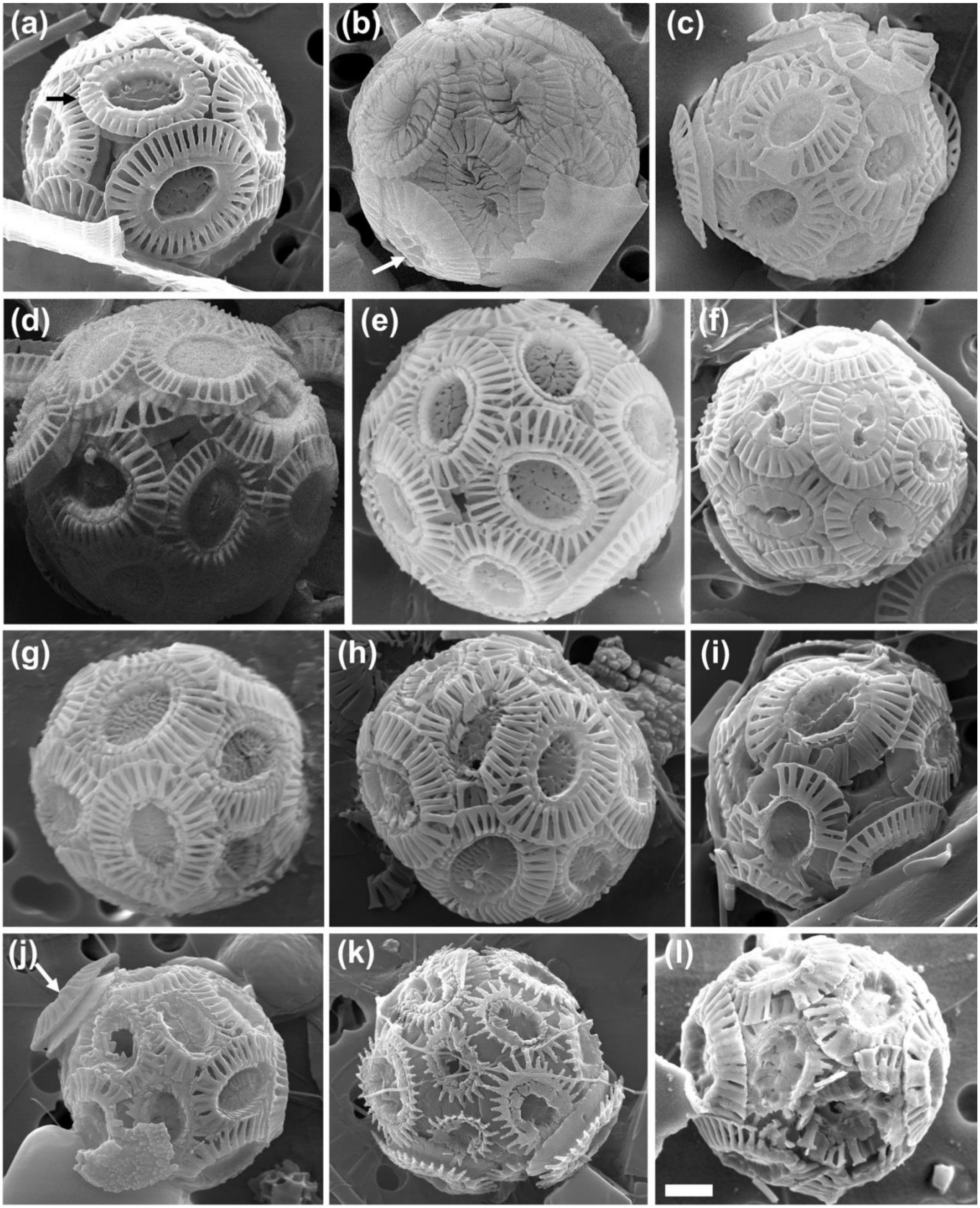

Figure S2. Primary and secondary calcification anomalies in *E. huxleyi* specimens collected in southern Patagonia during the austral late-spring 2015 and early-spring 2017. (a-c) incomplete formation (left, black arrow) and teratological malformations of coccoliths (center and right), (d-f) weak dissolution of the light A, moderate A, and A-CC coccoliths, (g-i) coccoliths exhibiting thinning or missing of tube elements and weakening or loss of T-shaped elements resulting in the distal shield elements rest in part or wholly on the proximal shield, (j-l) severe secondary dissolution. White arrow in images b and j indicate recently extruded "normal" calcified coccoliths. Scale bar = 1 μm.

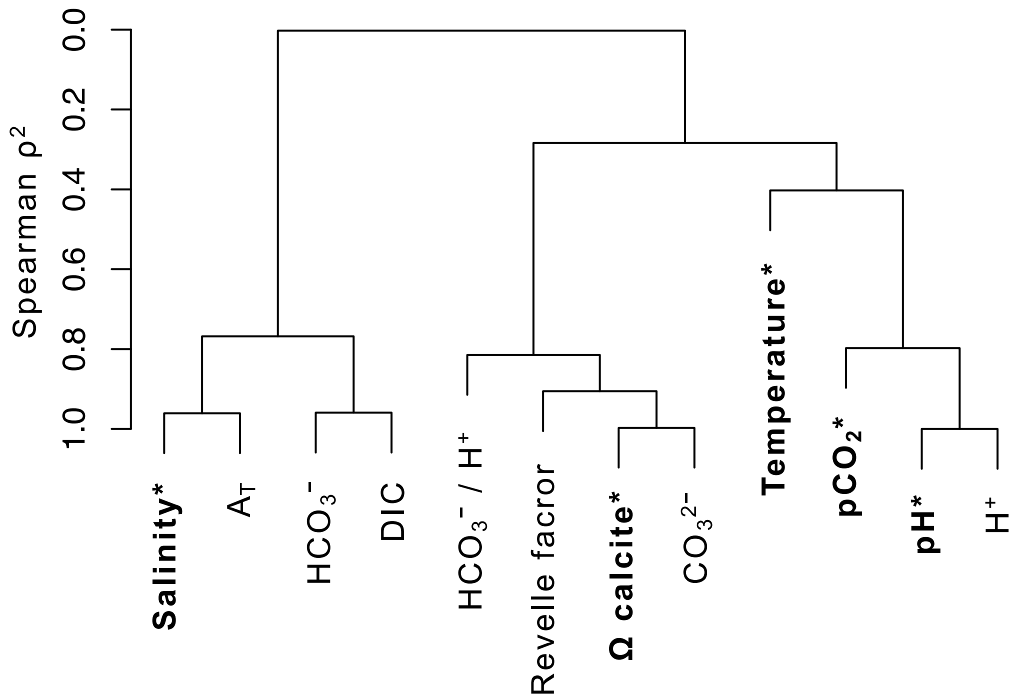

Figure S3. Analysis of redundancy of environmental variables. Spearman correlation was computed on 12 physical and chemical variables on 32 surface samples (< 5 m depth) collected for plankton analysis in late-spring 2015 (N = 21) and early-spring 2017 (N = 11). Variables selected for further statistical analysis are indicated in bold and with asterisk.

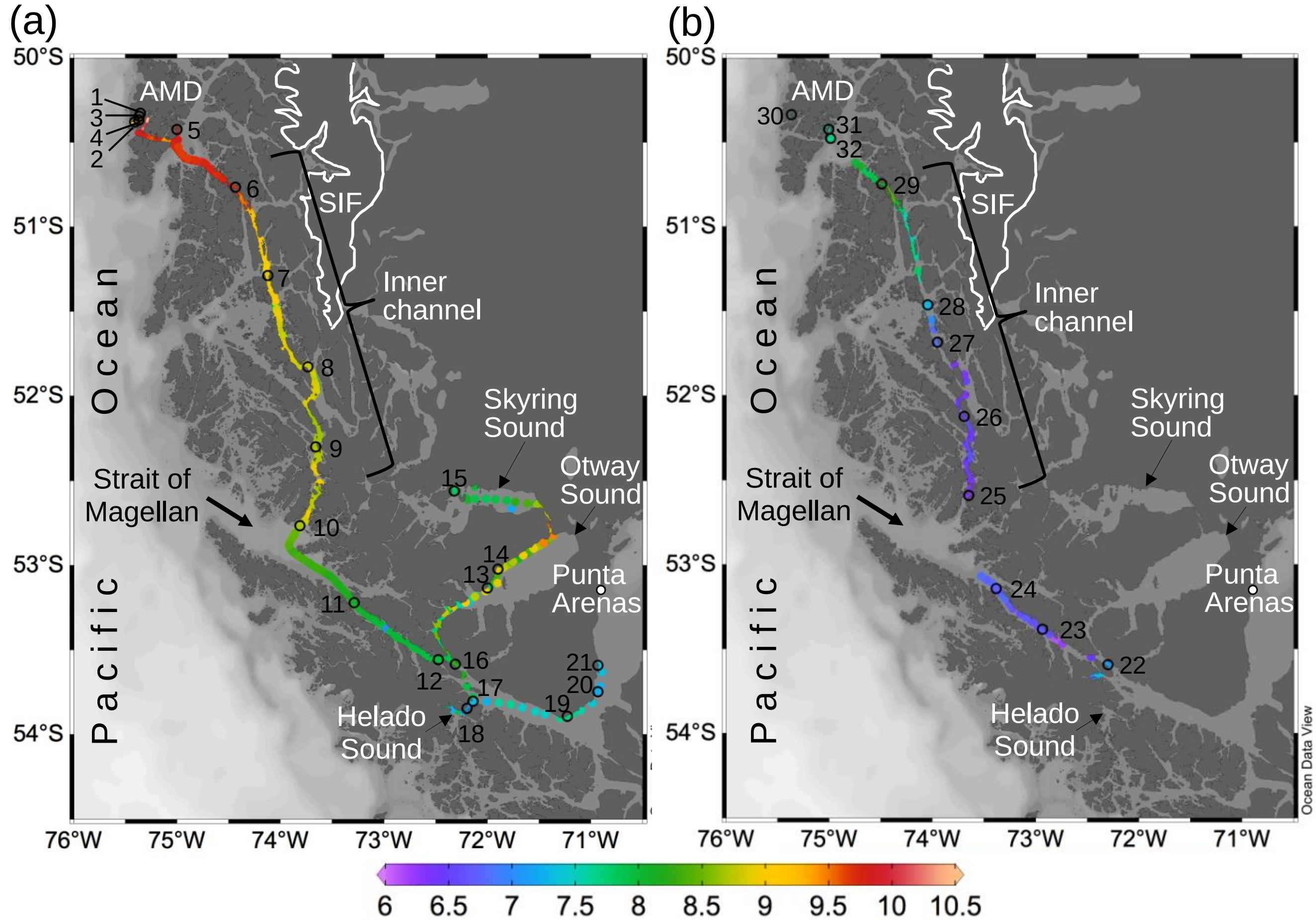

Figure S4. Maps of southern Patagonia showing the study sites and stations sampled during the austral late-spring 2015 (a) and early-spring 2017 (b). Temperature recorded at the surface during the two cruises is plotted. The approximate perimeter of the Southern Ice Fields (SIF) is depicted. Maps produced by Ocean Data View (Schlitzer, 2018).

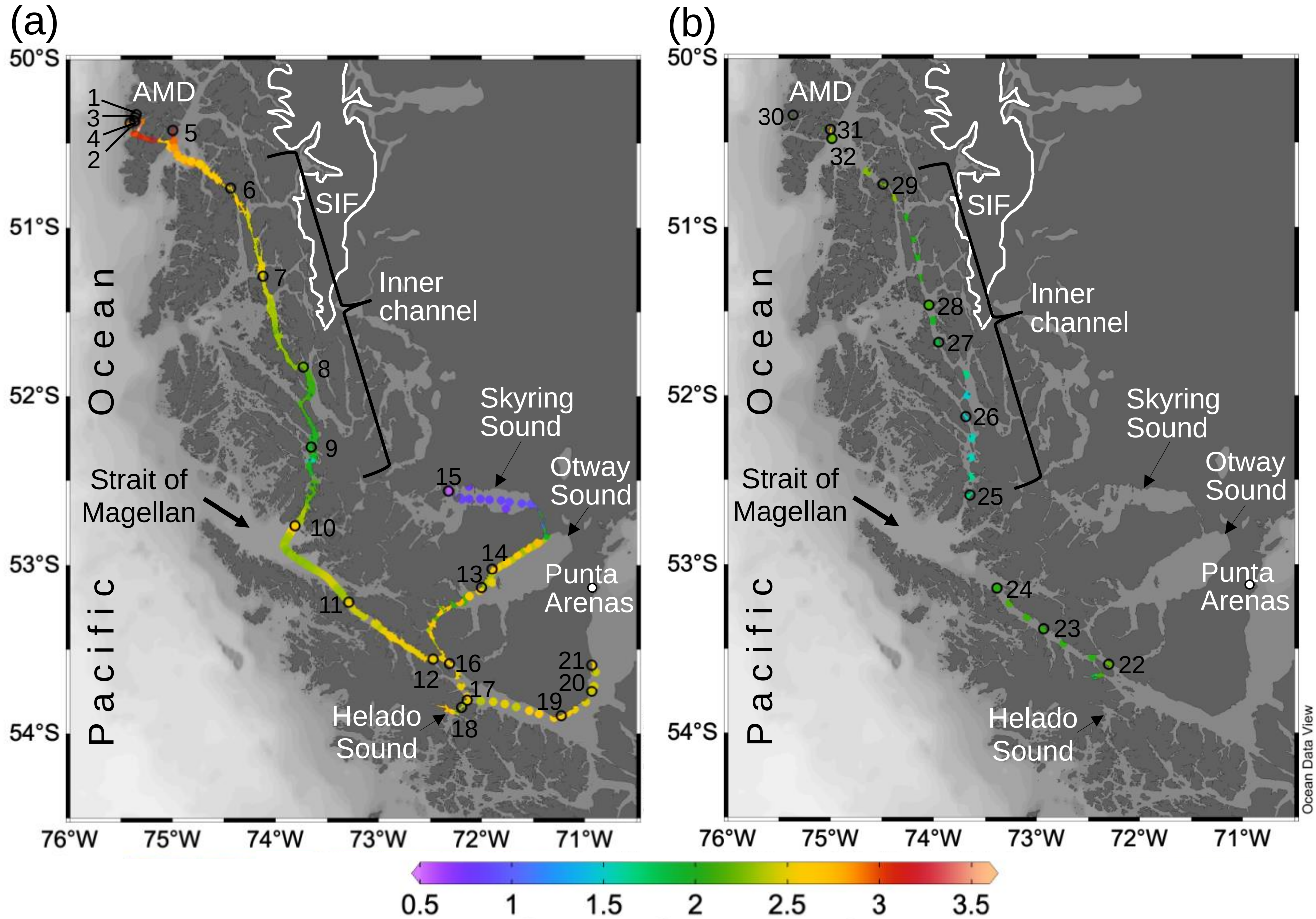

Figure S5. Maps of southern Patagonia showing the study sites and stations sampled during the austral late-spring 2015 (a) and early-spring 2017 (b). Ω calcite recorded at the surface during the two cruises is plotted. The approximate perimeter of the Southern Ice Fields (SIF) is depicted. Maps produced by Ocean Data View (Schlitzer, 2018).

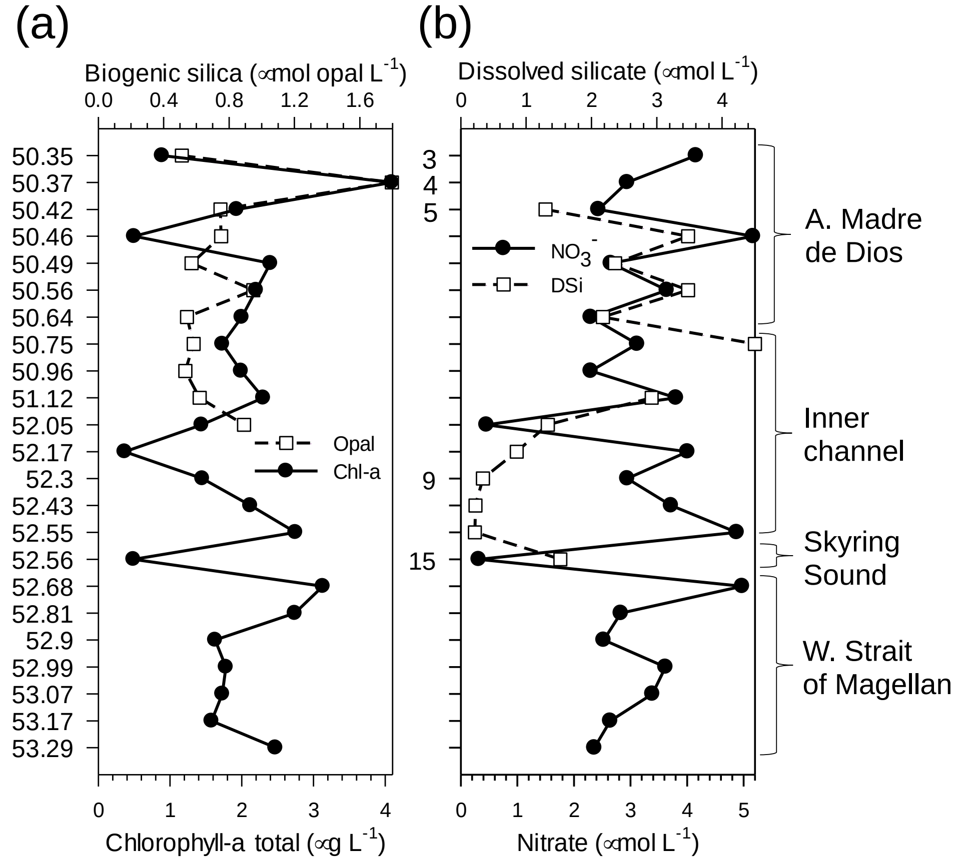

Figure S6. Concentration of nutrients and planktonic proxies recorded in surface waters of southern Patagonia during late-spring 2015. Chlorophyll-*a* and biogenic silica (a), and nitrate and dissolved silicate (b) are shown. Study sites and station ID discussed in the text are given in plot b).

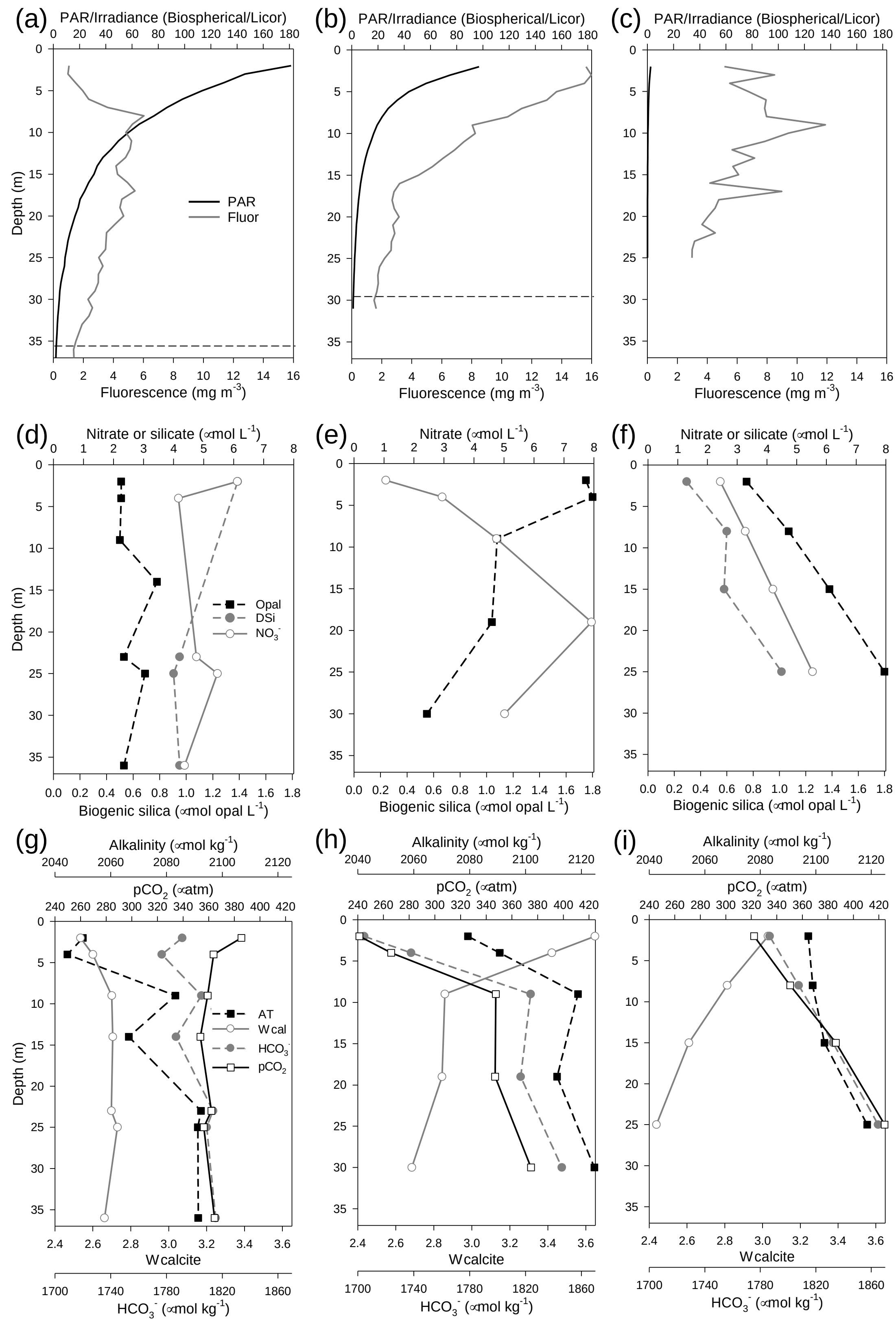

Figure S7. Physical, chemical, and biological vertical profiles recorded in the Archipelago Madre de Dios during the austral late-spring 2015. Photosynthetically Available Radiation (PAR) and fluorescence signals (a-c), biogenic silica, nitrate and dissolved silicate (d-f), and pCO_2, alkalinity, Ω calcite, and HCO_3^- (g-i) in the W-AMD (st. 3 left), between (st. 4 middle), and E-AMD zones (st. 5 right). Dotted lines in panels a-b indicate depths of 1% PAR penetration (st. 5 was conducted at night).

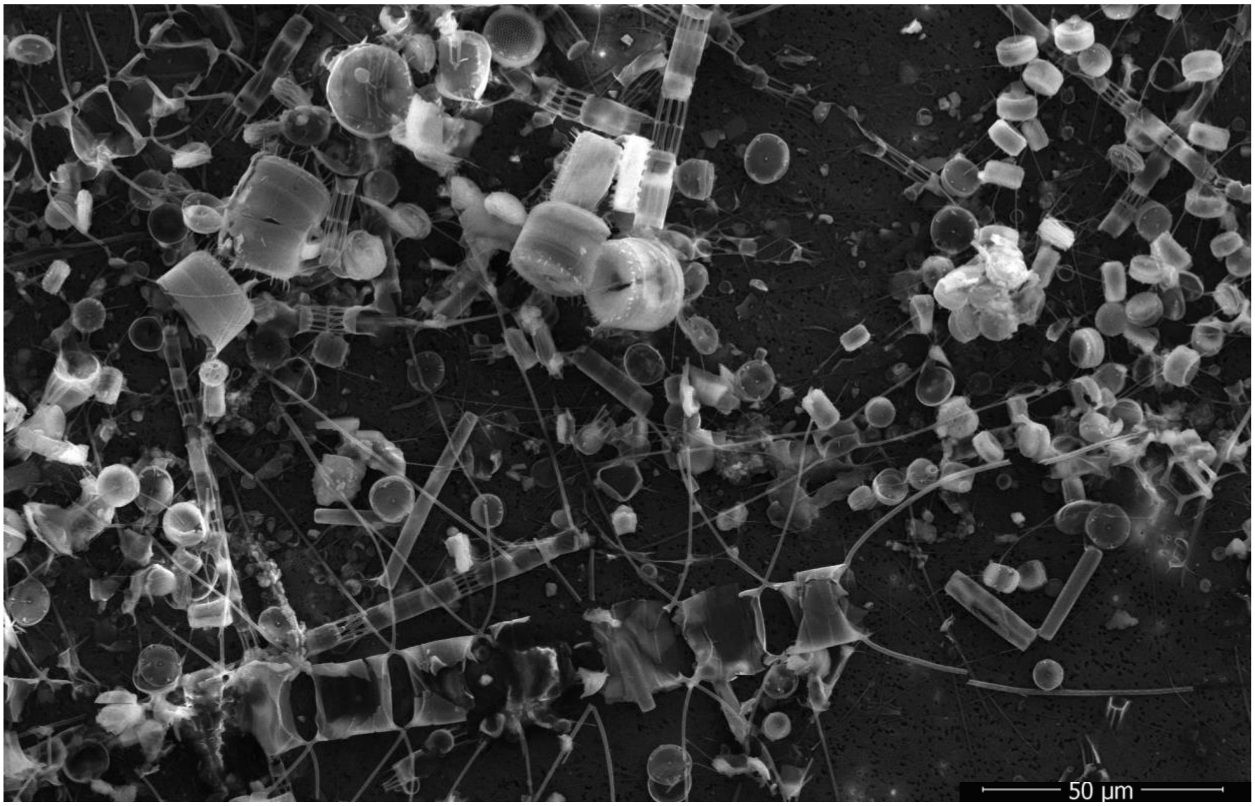

Figure S8. SEM image taken at 1,500× magnification (st. 23) showing the phytoplankton assemblages during the austral early-spring 2017 comprised mostly by chain-forming diatoms.

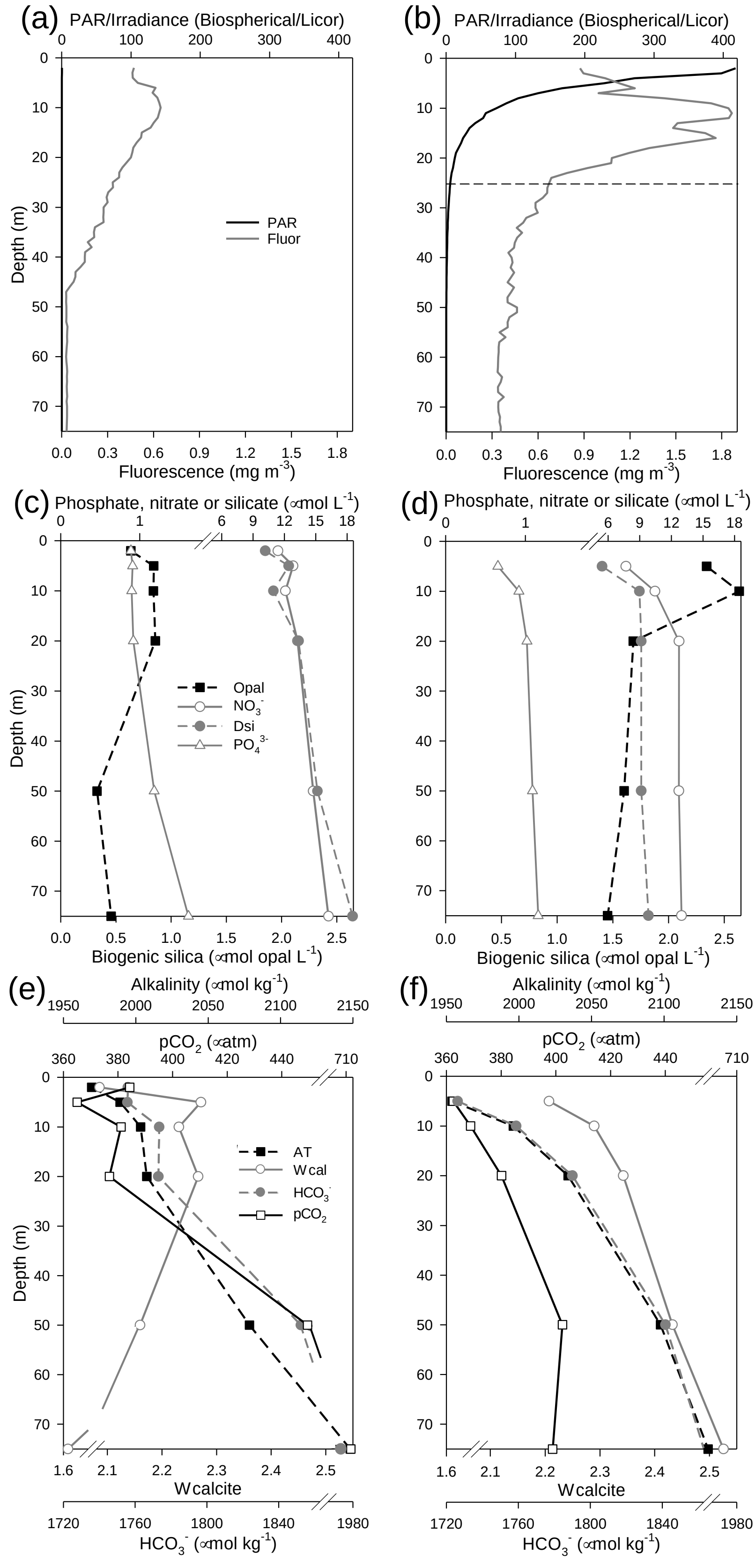

Figure S9. Physical, chemical and biological vertical profiles recorded in the Archipelago Madre de Dios during the austral early-spring 2017. Photosynthetically Available Radiation (PAR) and fluorescence signals (a-b), phosphate, nitrate, dissolved silicate and opal (c-d), and pCO_2, alkalinity, Ω calcite, and HCO_3^- (e-f) in the W-AMD (st. 30 left) and the E-AMD zones (st. 32 right). Dotted line in panel b indicates depth of 1% PAR penetration (st. 30 was conducted at night).

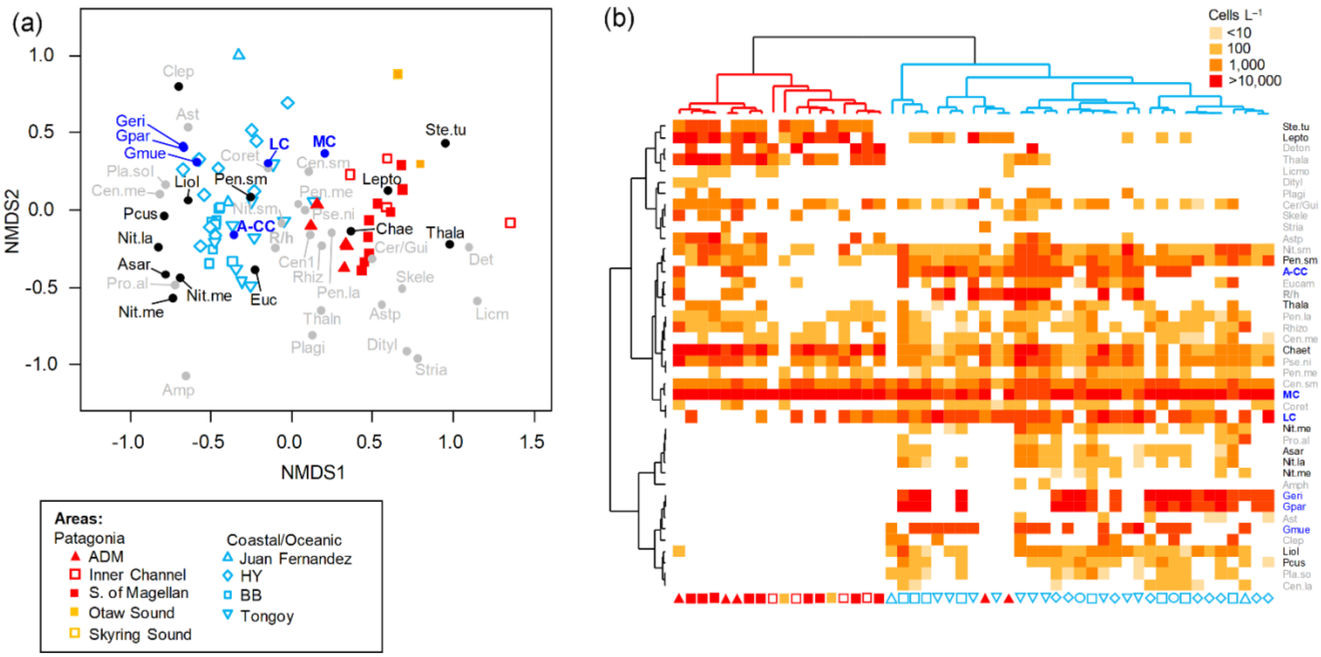

Figure S10. (a) Non-metric multidimensional scaling (nMDS) based on coccolithophore and diatom abundances attained in southern Patagonia fjords during late-spring 2015 (this study) and other coastal/oceanic areas (data from von Dassow et al., 2018). (b) Heatmap showing abundances of coccolithophore and diatom species used in the nMDS. The horizontal dendrogram (based on the nMDS samples scores) shows a clear separation between Patagonia fjords (red cluster) and coastal/oceanic (blue cluster) areas, whereas the vertical dendrogram (based on the nMDS species scores) indicates the separation of species in two main clusters. Black and blue species labels depict species with significant values in the IndVal analysis. A-CC = *Emiliania huxleyi* A-CC morphotype; Amphi = *Amphiprora* spp.; Asar = cf. *Asteromphalus sarcophagus*; Aster = *Asteromphalus* spp.; Astp = *Asterionellopsis* spp.; Cen.la = Centric diatoms > 100 µm diameter; Cen.me = Centric diatoms 40-100 µm diameter; Cen.sm = Centric diatoms < 40 µm diameter; Chae = *Chaetoceros* spp.; Clep = *Calcidiscus leptoporus*; Coret = *Corethron* spp.; Cer/Gui = *Cerataulina* spp. + *Guinardia* spp.; Deton = *Detonula* spp.; Dityl = *Ditylum* spp.; Eucam = *Eucampia* spp.; Geri = *Gephyrocapsa ericsonii*; Gmue = *Gephyrocapsa muellerae*; Gpar = *Gephyrocapsa parvula*; LC = *Emiliania huxleyi* lightly-calcified A-morphotype; Lepto = *Leptocylindrus* spp.; Licmo = *Licmophora* spp.; Liol = cf. *Lioloma* spp.; MC = *Emiliania huxleyi* moderate-calcifield A-morphotype; Nit.la = *Nitzschia* spp. large > 100 um length; Nit.me = *Nitzschia* spp. medium 100-50 um length; Nit.re = *Nitzschia reversa*; Nit.sm = *Nitzschia* spp. < 50 µm length; Pcus = cf. *Pseudo-nitzschia cuspidata*; Pen.la = Pennate diatoms > 100 µm length; Pen.me = Pennate diatoms 50-100 µm length; Pen.sm = Pennate diatoms < 50 µm length; Pla.so = *Planktoniella sol*; Plagi = *Plagiogrammopsis* spp.; Pro.al = *Proboscia alata*; Pse.ni = *Pseudo-nitzschia* spp.; R/h = *Emiliania huxleyi* R/hyper-calcified morphotype; Rhizo = *Rhizosolenia* spp.; Skele = *Skeletonema* spp.; Ste.tu = *Stephanopyxis turris*; Stria = *Striatella* spp.; Thala = *Thalassiosira* spp.; Thala = *Thalassionema* spp.

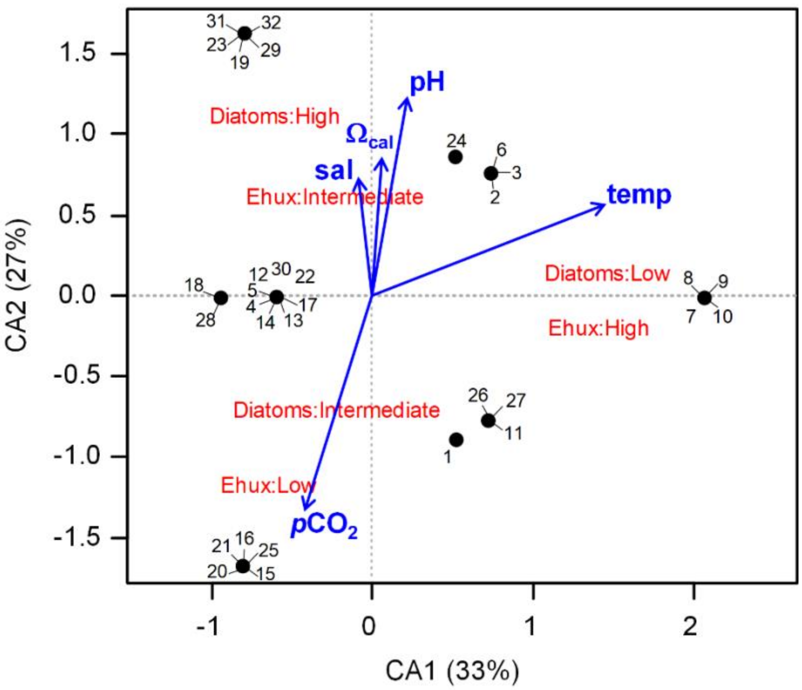

Figure S11. Correspondence analysis (CA) assessing the relationship between *E. huxleyi* and diatom biomasses converted to categoric values (i.e., low, intermediate, and high biomasses) in Patagonia fjords during late-spring 2015 and early-spring 2017. The *envit* function of the 'vegan' package (R software) was used to fit the environmental variables to the CA plot (no variable was significant; $p > 0.05$).