

Increased sea ice cover alters food web structure in East Antarctica – Supplementary information

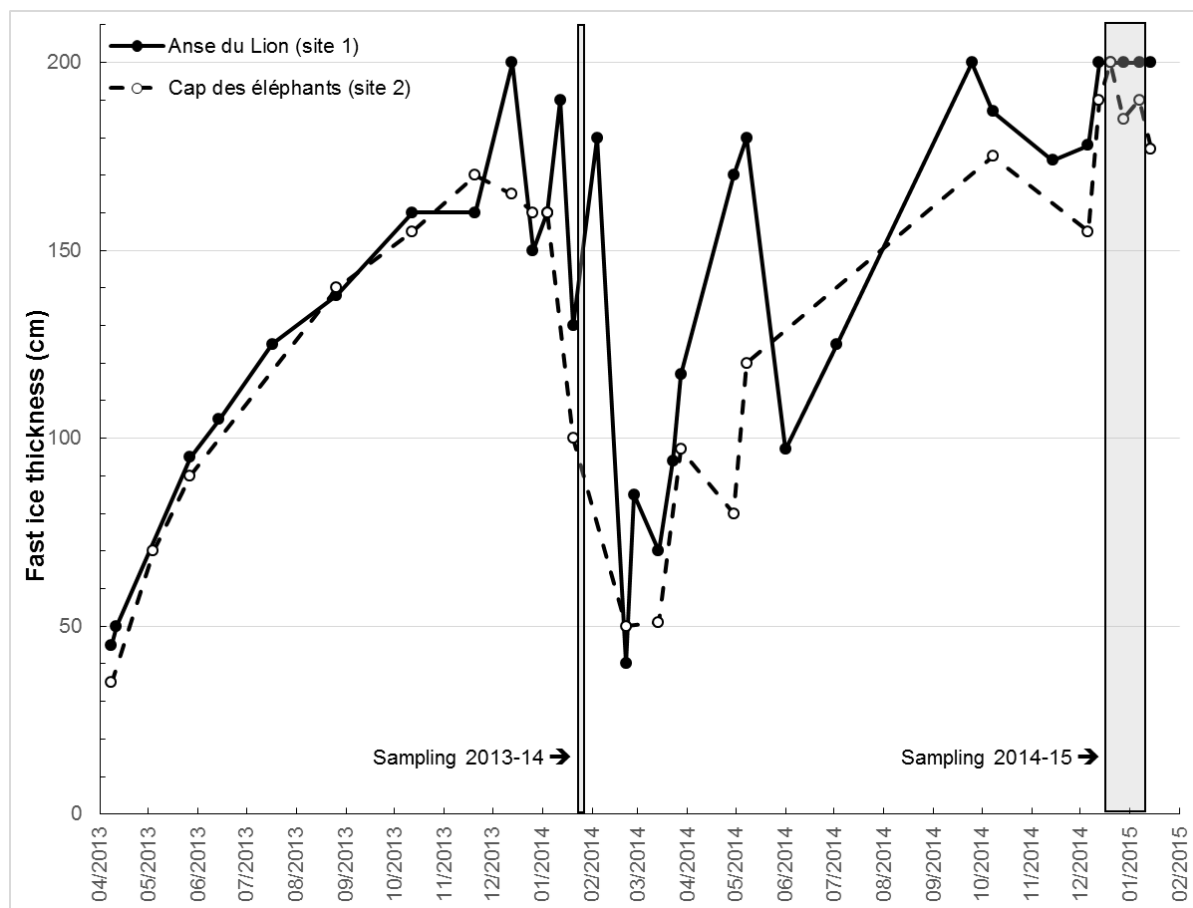
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Supplementary information S1 – Video footage of sampling conditions

Underwater footage taken during sampling campaign of 2014-15 at site 2 (Cap des Eléphants) and showing the extremely abundant biofilm covering rocks and macroalgae, as well as benthic animals and sympagic algae filaments. In addition to being appended to the manuscript as supplementary material the video can also be seen at <https://www.youtube.com/watch?v=fTNziVltIYE>.

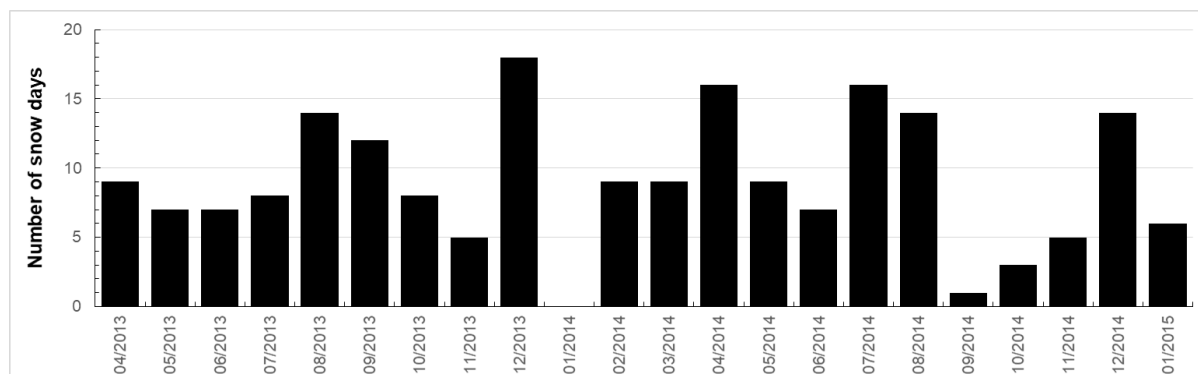
Supplementary information S2 – Environmental parameters

Ice thickness: Weekly routine measurements were realized, whenever possible, by Dumont-d'Urville station personnel (French Polar Institute Paul-Emile Victor - IPEV) using a handheld ice drill and a measuring tape. The length of the drill was 2 meters, and ice thicknesses superior to that length could therefore not be recorded.



Evolution of fast ice thickness at the two sampling sites from April 2013 to January 2015.

Snowfall: Snowfall occurrence was recorded daily at the Dumont-d'Urville weather station (Météo France / French Polar Institute Paul-Emile Victor - IPEV). Throughout the sampling period, all snowfall events were associated with immediate dispersion of the snow by strong winds, leading to a negligible (i.e. too small to be measured) deposited snow cover.



Monthly sums of days with snowfall at Dumont-d'Urville station from April 2013 to January 2015.

Supplementary information S3 – Inter-site comparisons

Summary of inter-site differences in stable isotope ratios of consumers and food items sampled in 2014-2015. For each comparison, the table gives the p-value of the Mann-Whitney test. Green: no difference ($p > 0.05$), red: significant difference ($p < 0.05$). Overall, 80 of 87 comparisons (92%) were non-significant. Only one species showed an inter-site difference in two isotopic ratios, and none showed differences for all three ratios.

	$\delta^{13}\text{C}$	$\delta^{15}\text{N}$	$\delta^{34}\text{S}$
<i>Himantothallus grandifolius</i> - holdfasts	0.6536	0.4732	0.9778
<i>Himantothallus grandifolius</i> - stipes	0.5798	0.4261	0.5777
<i>Himantothallus grandifolius</i> - blades	0.6159	0.8991	0.3734
<i>Phyllophora antarctica</i>	0.7313	0.6745	0.9444
Sympagic algae	0.5409	0.5895	0.8391
Biofilm	0.5134	0.4697	0.0405
Demospongiae Indet.	0.1434	0.4540	0.8322
<i>Hemigellius</i> sp.	0.2326	0.0717	0.0056
<i>Homaxinella balfourensis</i>	0.5279	0.0075	0.1824
<i>Mycale acerata</i>	0.9038	0.1740	0.7251
<i>Parborlasia corrugatus</i>	0.0983	0.1042	0.2189
<i>Deontostoma</i> sp.	0.6848	0.8939	0.9030
<i>Flabegroviera mundata</i>	0.4654	0.0007	0.0055
<i>Harmothoe</i> sp.	0.0260	0.2812	0.0613
<i>Perkinsiana</i> sp.	0.2661	0.1174	0.4266
<i>Polycirrus</i> sp.	0.1741	0.5494	0.1480
<i>Decolopoda australis</i>	0.9093	0.7084	0.2851
<i>Charcotia obesa</i>	0.6106	0.1582	0.6900
<i>Adamussium colbecki</i>	0.9342	0.5857	0.6081
<i>Laternula elliptica</i>	0.5181	0.4803	0.1701
<i>Margarella</i> sp.	0.6169	0.2316	0.8290
<i>Acodontaster</i> sp.	0.6182	0.7606	0.6727
<i>Diplasterias brucei</i>	0.9578	0.2172	0.0993
<i>Odontaster validus</i>	0.9155	0.0812	0.1943
<i>Saliasterias brachiata</i>	0.6783	0.4364	0.7329
<i>Sterechinus neumayeri</i>	0.1977	0.3675	0.9246
<i>Ophiura</i> sp.	0.4955	0.9379	0.3005
<i>Heterocucumis</i> sp.	0.6207	0.5046	0.0012
<i>Staurocucumis</i> sp.	0.5212	0.0615	0.1856