

Effects of microbial processes and CaCO₃ dynamics on inorganic carbon cycling in snow-covered Arctic winter sea ice

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Table S1. Measurements of bulk salinity (by refractometer) and bacterial abundance in snow over sea ice at ICE I and POLY I.

Snow section (cm) ^a		Bulk salinity		Bacterial abundance (cells kg ⁻¹) ^b	
ICE I	POLY I	ICE I	POLY I	ICE I	POLY I
0–2	0–2	32.0	35.5	2.5 x 10 ⁸	2.4 x 10 ⁸
2–4	2–4	19.5	2.0	2.6 x 10 ⁸	1.0 x 10 ⁸
4–6	4–6	14.0	0.5	7.6 x 10 ⁸	5.0 x 10 ⁶
6–10	6–10	2.5	0.0	6.4 x 10 ⁵	5.8 x 10 ⁵
10–20	10–16	2.0	0.0	4.7 x 10 ⁵	2.6 x 10 ⁵
20–35	16–22	1.5	0.0	2.4 x 10 ⁴	4.4 x 10 ⁵
35–50	–	0.5	–	1.6 x 10 ⁴	–
50–63	–	0.0	–	5.2 x 10 ³	–

^a Thickness of snow section melted for measurements, where 0 cm = snow-ice interface and 63 (ICE I) and 22 cm (POLY I) = top of snowpack.

^b Determined by epifluorescence microscopy (Ewert et al. 2013) on melted snow, scaled to kilogram assuming snow density of 0.30 g cm⁻³ (Kern et al. 2015).

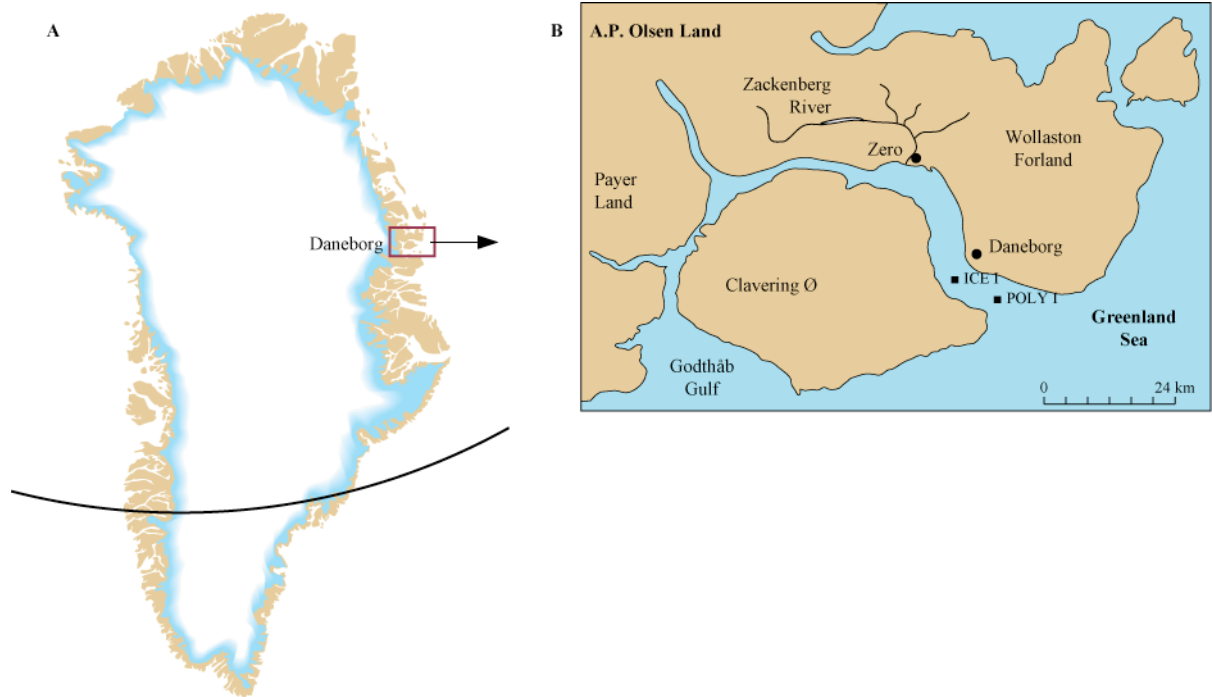


Fig. S1. Study site in (A) Greenland, showing (B) Daneborg and the study area in Young Sound fjord with the sea ice coring sites for the older thick land-fast ice (ICE I) and the newly formed thin polynya ice (POLY I) locations.

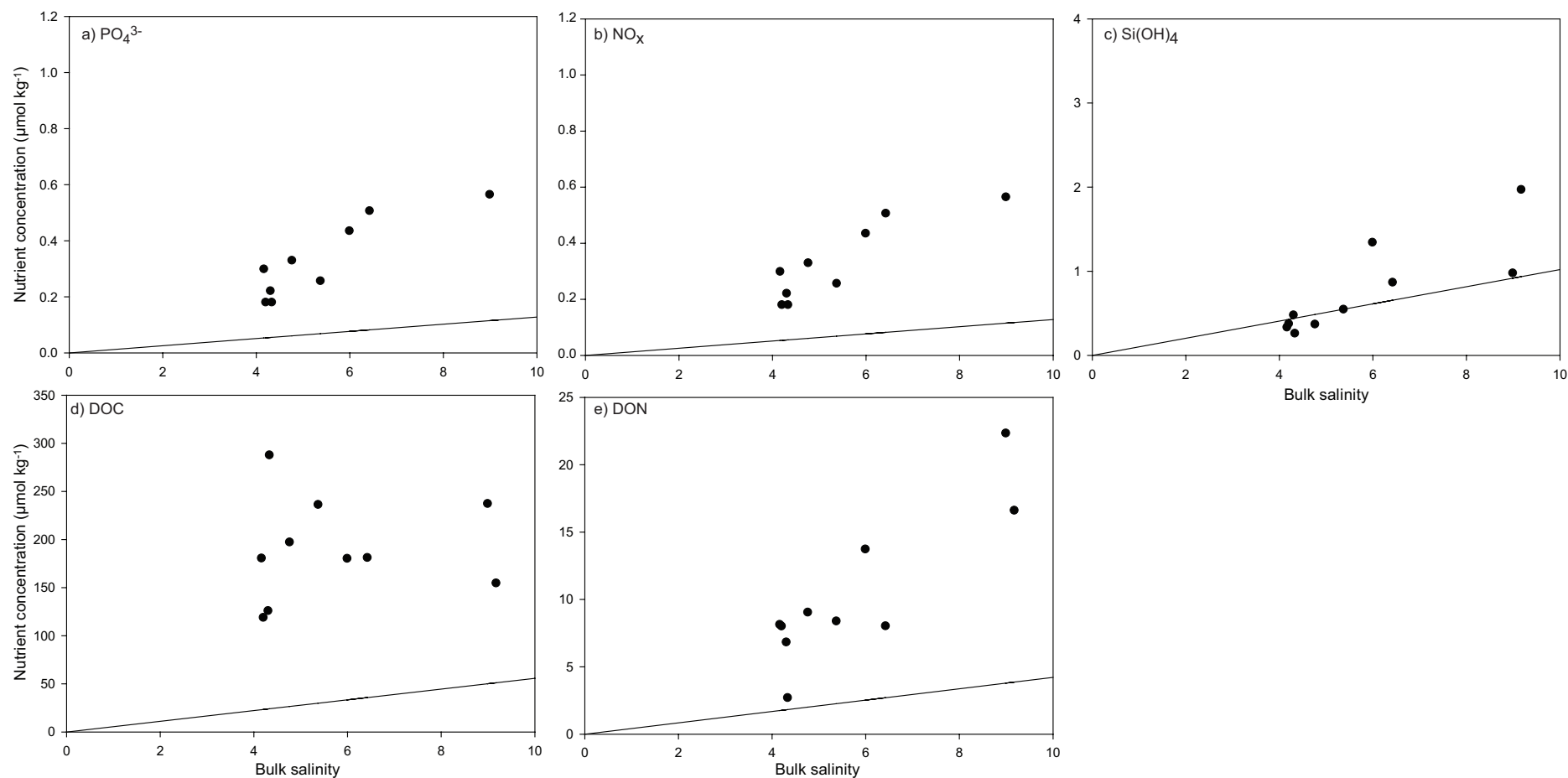


Fig. S2. Concentrations of (a) PO_4^{3-} , (b) NO_x , (c) Si(OH)_4 , (d) DOC and (e) DON versus bulk salinity for the sea ice profile at ICE I. The solid line indicates the expected dilution line predicted from nutrient concentrations and salinity (average 33) in the underlying seawater (0–10 m depth).

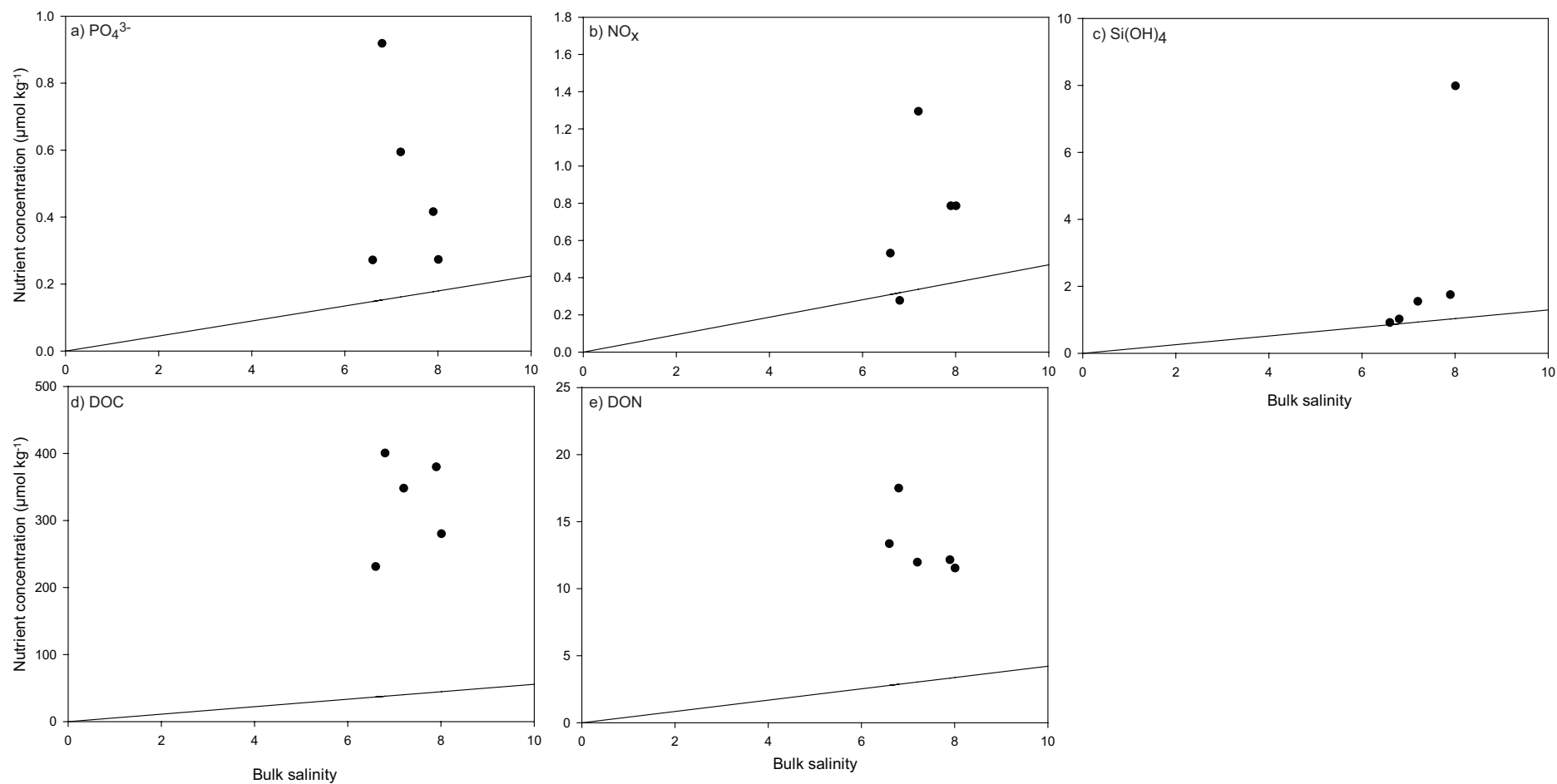


Fig. S3. Concentrations of (a) PO₄³⁻, (b) NO_x, (c) Si(OH)₄, (d) DOC and (e) DON versus bulk salinity for the sea ice profile at POLY I. The solid line indicates the expected dilution line predicted from nutrient concentrations and salinity (average 33) in the underlying seawater (0–10 m depth).