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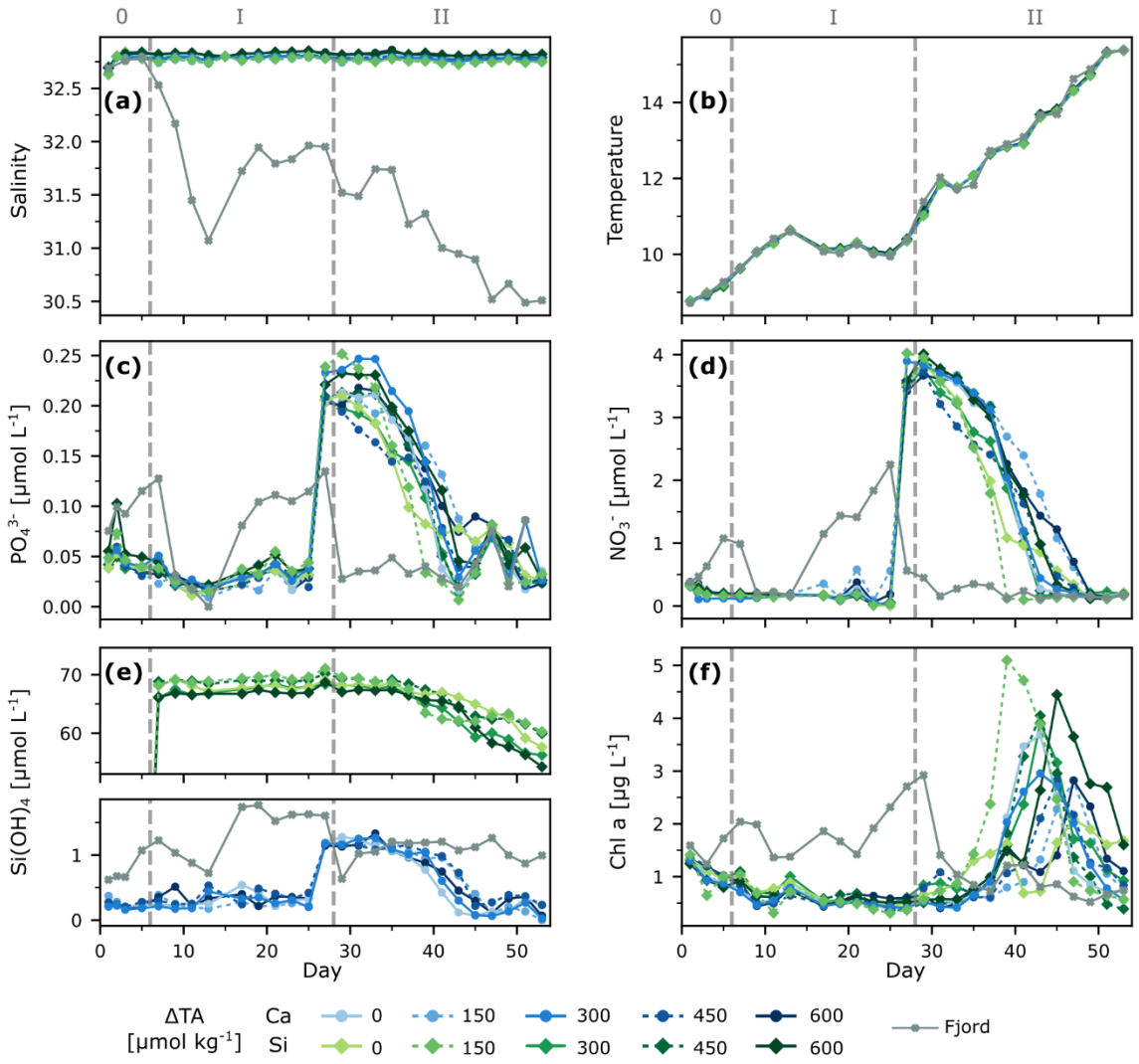

Figure S1: Temporal development of environmental conditions of the enclosed water masses and the Fjord at the mooring site. Water column averaged salinity (**a**) and temperature (**b**) over time obtained from CTD casts, and **(c, d, e, f)** laboratory nutrient and Chl *a* measurements of depth integrated water samples. Dashed lines and roman numbers denote the pre-treatment (0) phase and phases before (I) and after (II) nutrient addition**.**

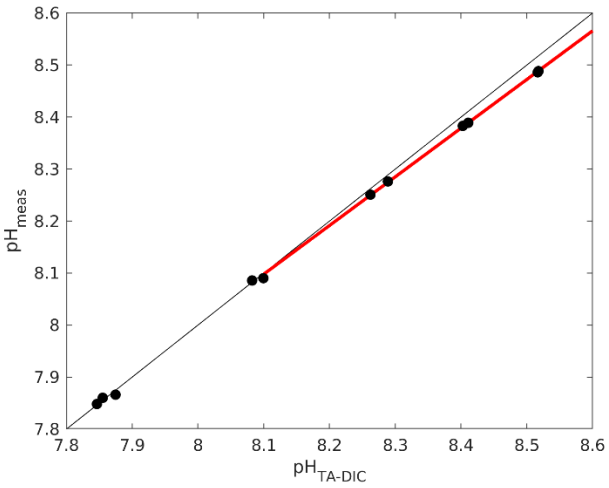

Figure S2: Measured pH vs pH derived from measurements of TA and DIC. The obtained linearity was used to recalibrate measurements.

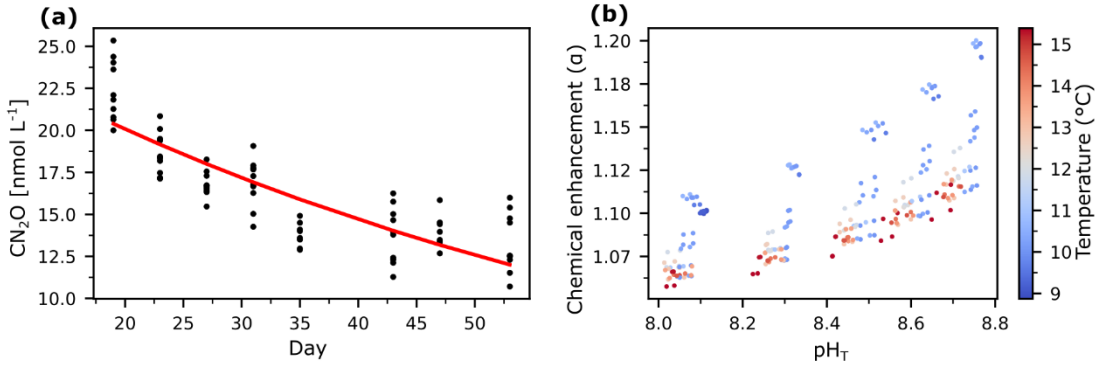

Figure S3: Measured N_2O concentrations during the experiment **(a),** and chemical enhancement according to Hover and Berkshire (1969) calculated for measured k, S, T and pH_T **(b).**

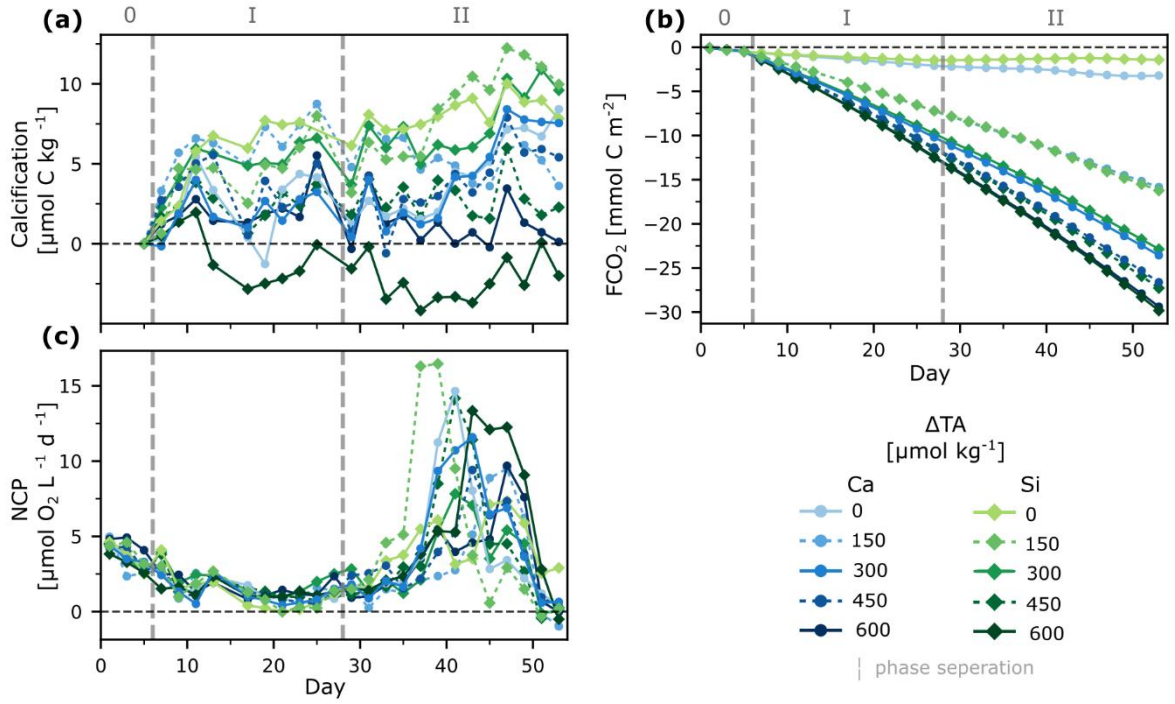

Figure S4: Cumulative calcification (**a**), cumulative FCO_2 (**b**), and net community production (NCP) obtained from O_2 measurements – re-fitted from Marín-Samper et al., 2024 (**c**) over time.

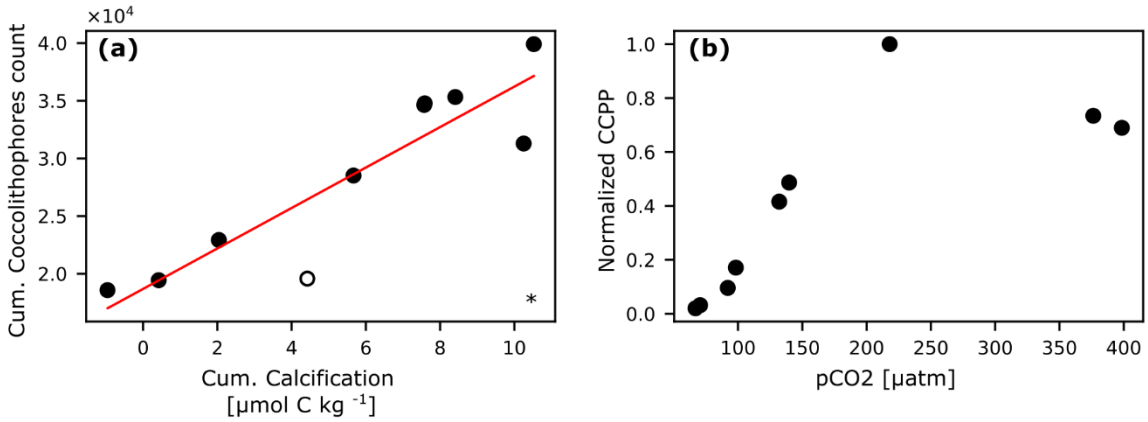

Figure S5: Calculations supporting calcification estimates. Cumulative coccolithophore counts (cells mL^{-1}) from flow cytometry measurements (Cytosense, Cytobuoy, Netherlands) vs estimated cumulative calcification (**a**), and normalized cumulative $CaCO_3$ production potential (CCPP) vs pCO_2 (**b**). The hollow circle has been excluded from analysis. * $p<0.05$.