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Temporal dynamics of surface ocean carbonate chemistry in response to natural and simulated upwelling events during the 2017 coastal El Niño near Callao, Peru

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Table S1: The drawdown of surface DIC, DIN and PO_4^{3-} (µmol L^{-1}) in the mesocosms from t13 to t24 following OMZ water addition and the molar ratio of DIC: DIN and DIN: PO_4^{3-} (mol: mol) drawdown. The DIC concentration in µmol L^{-1} was estimated by applying an approximate seawater density of 1.025 kg L^{-1} (T = 20 °C, S = 35 psu, P = 5 dbar). M3 and M4 were excluded from the calculations for each treatment ("Low DIN" and "Very Low DIN", n = 3) due to their unique carbonate chemistry responses (in bold).

	M1	M2	M3	M4	M5	M6	M7	M8	Low DIN	Very Low DIN
ΔDIC	134.8	169.9	**44.3**	**9.1**	127.2	162.6	148.3	92.7	160.3 ± 11.0	118.2 ± 22.5
ΔDIN	1.7	3.5	6.2	1.1	1.6	4.6	3.9	0.9	4.0 ± 0.6	1.4 ± 0.4
ΔPO_4^{3-}	0.1	0.4	0.4	0.1	0.2	0.4	0.4	0.2	0.4 ± 0.0	0.2 ± 0.1
ΔDIC: DIN	80.1	49.2	**7.1**	**8.3**	77.4	35.0	37.9	101.9	40.7 ± 7.5	86.5 ± 13.5
ΔDIN: PO_4^{3-}	16.8	8.6	15.5	11.0	8.2	11.6	9.8	4.5	10.0 ± 1.5	9.9 ± 6.3

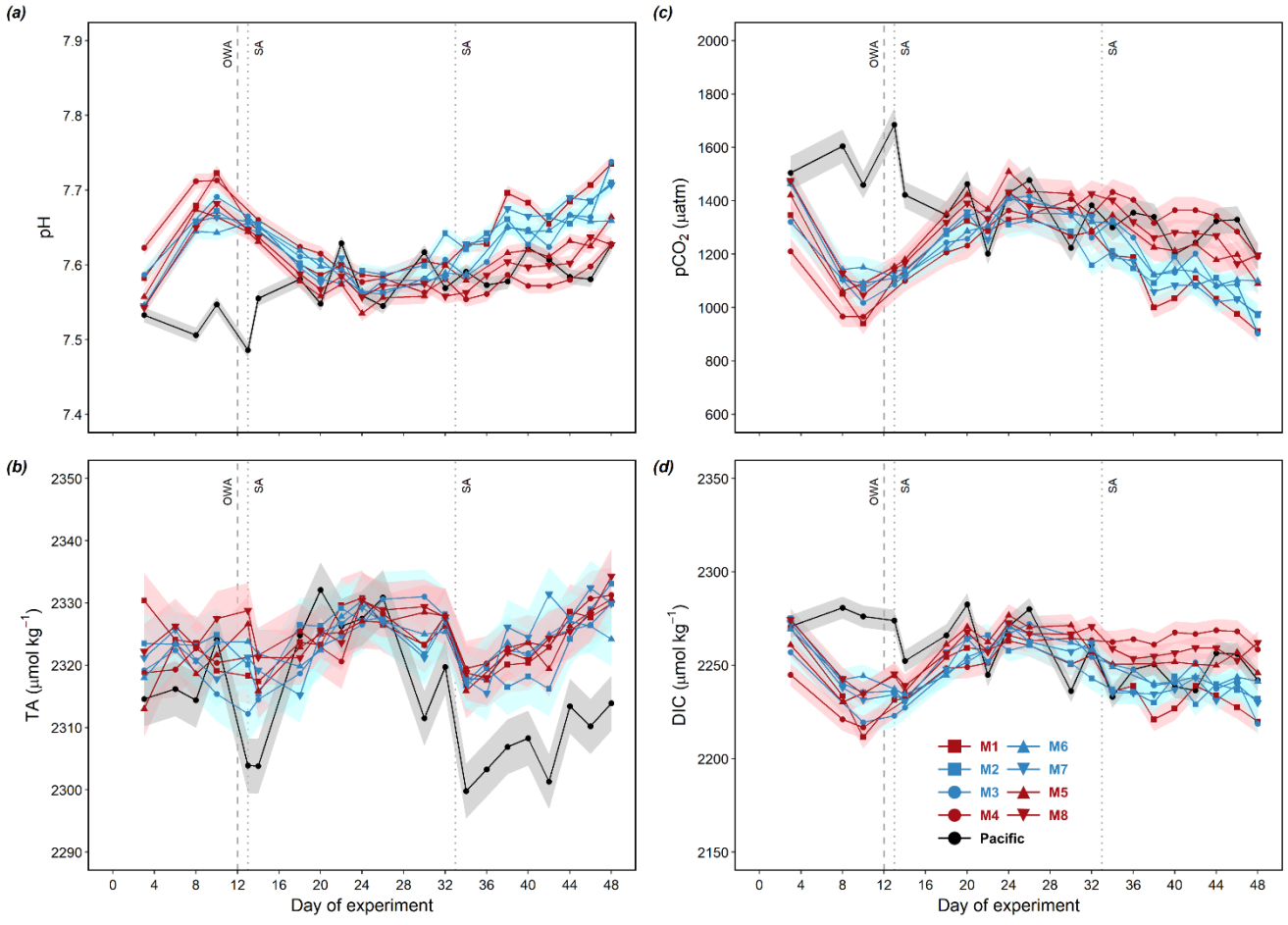

Figure S1: Temporal dynamics of depth-integrated bottom pH_T (a), TA (b), pCO_2 (c) and DIC (d). The error ribbons present the propagated standard uncertainties of the calculations. Color codes and symbols denote the respective mesocosm. Abbreviation: OWA, OMZ water addition. SA, salt addition.

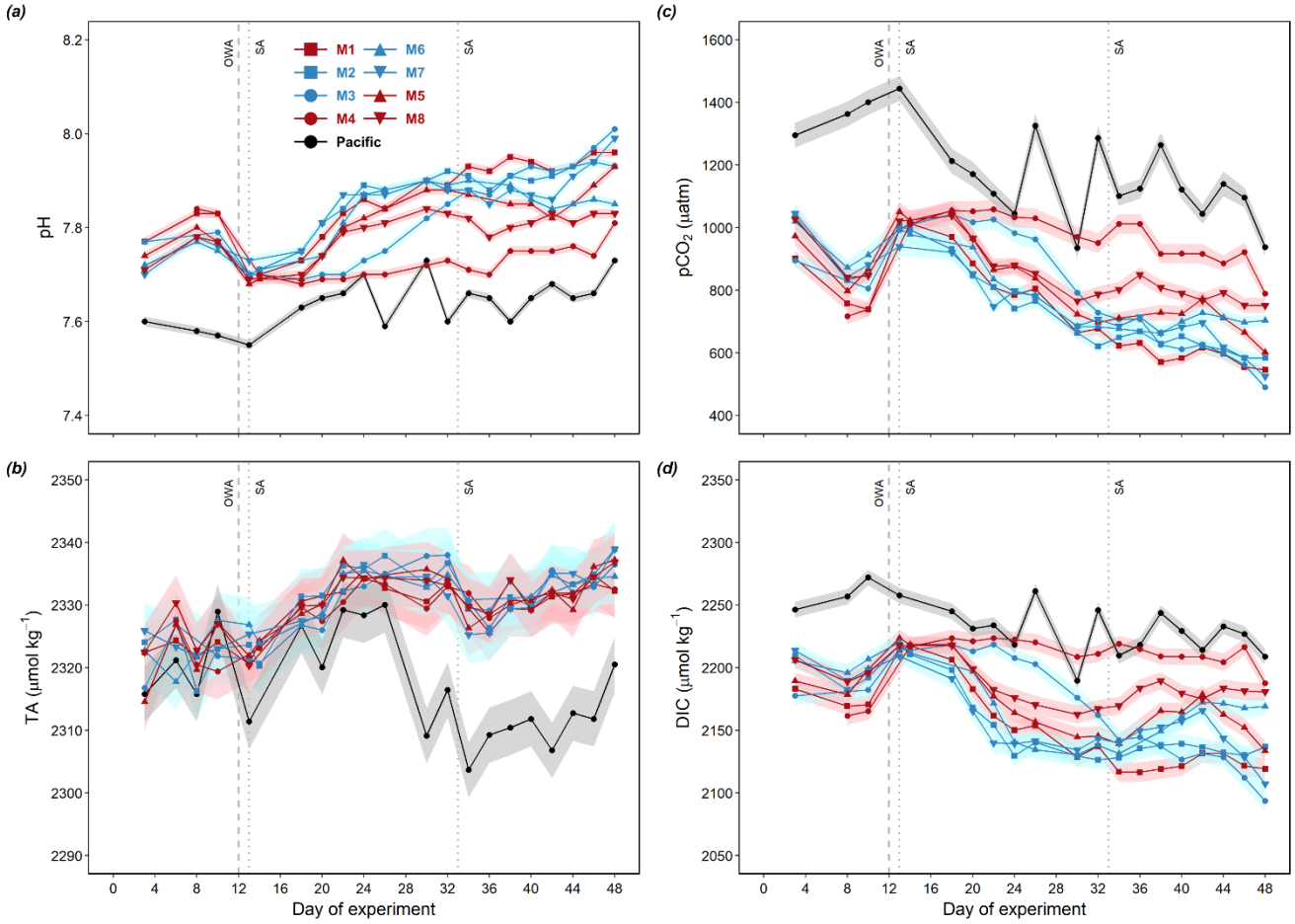

Figure S2: Temporal dynamics of depth-integrated pH_T (a), TA (b), pCO_2 (c) and DIC (d) averaged over the entire water column (0-17 m). The error ribbons present the propagated standard uncertainties of the calculations. Color codes and symbols denote the respective mesocosm. Abbreviation: OWA, OMZ water addition. SA, salt addition.