

Supplementary Table 1. Study characteristics

Scores: -1 = decrease, 0 = no change, $+1$ = increase in abundance/growth of that group (not a value judgment on ecosystem outcome). "n.d." = not determined / not reported by source.

Study	Region	Design	Alkalinity source	Magnitude (Δ TA)	Equilibration	Diatom	Dino	Coccolito	Cyanobacteria	Chl-A
de Castro et al., 2025a	Portugal	Microcosm	CaO (liming)	250 $\mu\text{mol kg}^{-1}$	n.d.	0	0	0	n.d.	0
de Castro et al., 2025b	Portugal	Microcosm	CaO	250 $\mu\text{mol kg}^{-1}$	n.d.	0	0	0	n.d.	n.d.
Delacroix et al., 2024	Norway	Culture	Mg(OH) ₂	1–100 mg L ⁻¹	Unequilibrated	-1	n.d.	n.d.	n.d.	n.d.
Faucher et al., 2025	Germany	Culture	NaOH	0–1200 $\mu\text{mol kg}^{-1}$	Unequilibrated	n.d.	n.d.	-1	n.d.	n.d.
Ferderer et al., 2022	Tasmania	Microcosm	NaOH + NaHCO ₃	500 $\mu\text{mol kg}^{-1}$	Equilibrated	0	0	0	-1	0
Ferderer et al., 2022	Tasmania	Microcosm	NaOH	500 $\mu\text{mol kg}^{-1}$	Unequilibrated	0	0	0	-1	0
Ferderer et al., 2024	Norway	Mesocosm	Silicate- vs. Ca-based	Si: 75 $\mu\text{mol kg}^{-1}$; Ca: 0–600 $\mu\text{mol kg}^{-1}$	n.d.	0	n.d.	n.d.	n.d.	n.d.
Ferderer et al., 2025	Tasmania	Culture	Na ₂ CO ₃	300 $\mu\text{mol kg}^{-1}$	Equilibrated	0	n.d.	n.d.	n.d.	0
Gately et al., 2023	USA (CA)	Culture	Ca-OAE	Mod. ~700 / high ~2700	Equilibrated	0	n.d.	0	n.d.	n.d.
Gill et al., 2025	UK	Culture	Na-, Ca-OAE	0–1500 $\mu\text{mol kg}^{-1}$	Equilibrated	n.d.	n.d.	1	n.d.	n.d.
González-Santana et al., 2024	Gran Canaria	Mesocosm	Na ₂ CO ₃ / NaHCO ₃	0–2400 $\mu\text{mol kg}^{-1}$	Equilibrated	0	0	0	n.d.	0
Groppelli et al., 2026	Italy	Mesocosm	Ca(OH) ₂	0–2100 $\mu\text{mol kg}^{-1}$	Equilibrated	0	0	n.d.	n.d.	n.d.
Guo et al., 2024	Tasmania	Microcosm (53L)	Olivine / steel slag	n.d.	n.d.	1	0	0	n.d.	1
Guo et al., 2025	Equat. Pacific	Microcosm	NaOH / olivine / slag	16–29 $\mu\text{mol kg}^{-1}$	Not confirmed	n.d.	n.d.	n.d.	-1	1
Hutchins et al., 2023	USA (CA)	Culture	Olivine	n.d.	Unequilibrated	1	0	0	n.d.	0
Kousoulas et al., 2025	Tasmania	Microcosm	NaOH + NaHCO ₃	~500 $\mu\text{mol kg}^{-1}$	Equilibrated	0	0	0	n.d.	0
Kousoulas et al., 2025	Tasmania	Microcosm	NaOH	~500 $\mu\text{mol kg}^{-1}$	Unequilibrated	-1	-1	0	1	0
Li et al., 2024	China	Culture	Olivine	0.1 g/L olivine (dynamic TA)	n.d.	1	0	1	n.d.	0
Marín-Samper et al., 2024	Gran Canaria	Mesocosm	Na ₂ CO ₃ / NaHCO ₃	0–2400 $\mu\text{mol kg}^{-1}$	Equilibrated	0	n.d.	0	n.d.	0
Oberlander et al., 2025	Canada	Culture	n.d.	n.d.	n.d.	0	n.d.	n.d.	n.d.	n.d.
Paul et al., 2025	Gran Canaria	Mesocosm	Na ₂ CO ₃ / NaHCO ₃	0–2400 $\mu\text{mol kg}^{-1}$	Equilibrated	n.d.	n.d.	n.d.	n.d.	0
Ramírez et al., 2025	Gran Canaria	Mesocosm	Na ₂ CO ₃ / NaHCO ₃	0–2400 $\mu\text{mol kg}^{-1}$	Equilibrated	0	0	0	n.d.	0
Schneider et al., 2026	Norway	Mesocosm	Ca-, Si-OAE	0–600 $\mu\text{mol kg}^{-1}$	Unequilibrated	n.d.	n.d.	n.d.	n.d.	0
Suessle et al., 2025	Gran Canaria	Mesocosm	Na ₂ CO ₃ / NaHCO ₃	0–2400 $\mu\text{mol kg}^{-1}$	Equilibrated	0	0	0	n.d.	0
Traboni et al., 2025	Greece	Mesocosm	Ca(OH) ₂ (liming)	0–200 $\mu\text{mol kg}^{-1}$	Unequilibrated	0	0	0	1	0
Xin et al., 2024a	Gran Canaria	Mesocosm	Na ₂ CO ₃ / NaHCO ₃	0–2400 $\mu\text{mol kg}^{-1}$	Equilibrated	0	0	0	0	0