Supplementary material

S1 – Fluorescence
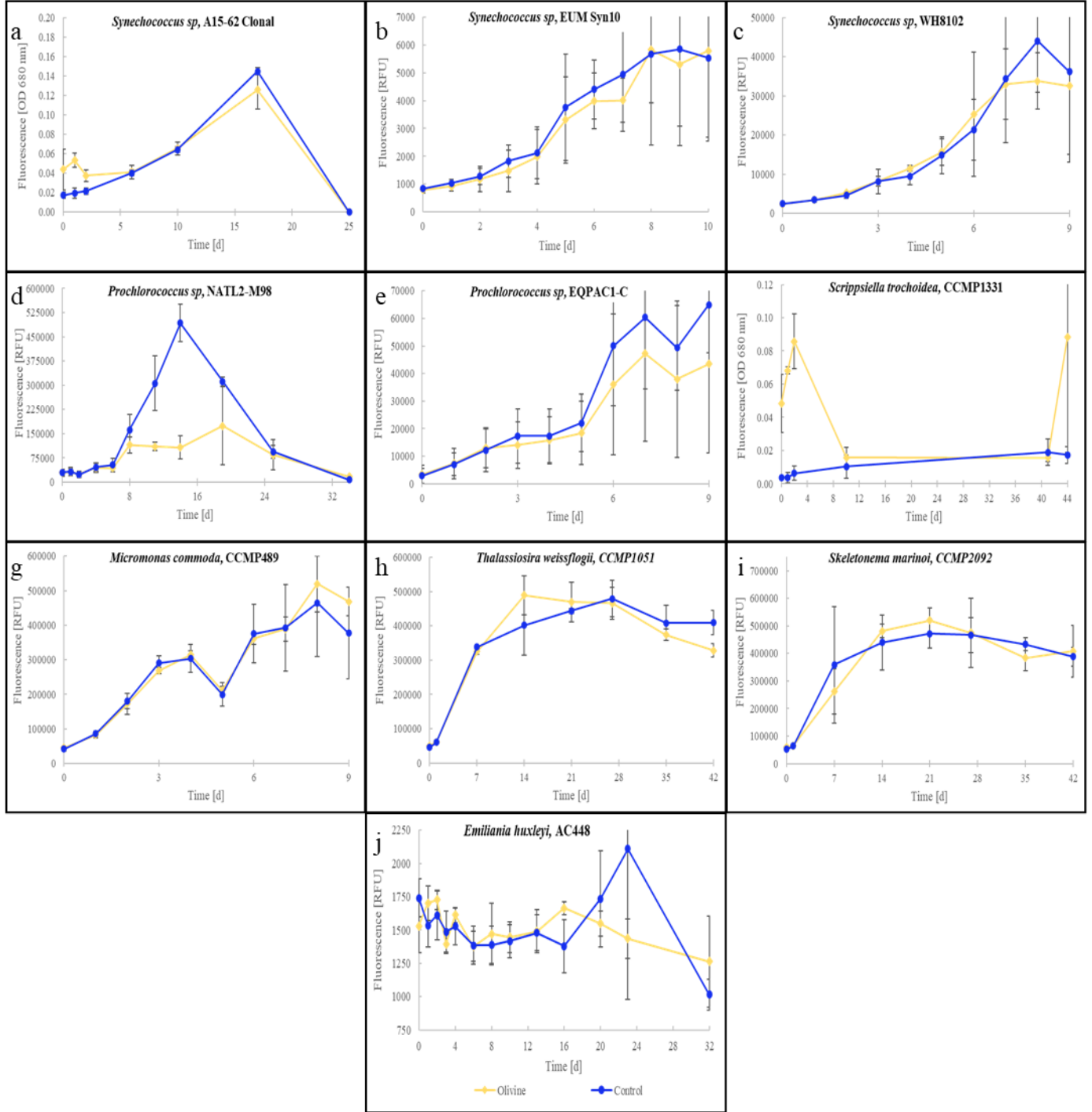
Figure S1. Fluorescence concentrations (RFU or OD 680 nm) in cultures exposed olivine (yellow, diamond) additions, and the control experiments without any olivine supplement (blue, circle). The standard deviation is represented with grey bars.

S2 – studies within OAE

Table S1. Studies within OAE study olivine or artificial olivine components in different amounts and grain sizes and their effect on TA.

Batch reactor (geomar)	Ultra-mafic sand, Grain size between 100-125 µm	20g, 10g and 5 g added to 200 ml artificial seawater.	Fuhr et al. 2022 10.3389/fclim.2022.831587
Natural experiment / beach experiment (New York state, USA)	Olivine, Grain size around 100-300 µm	mixed 5 % olivine to the sand that is added to the beach zones	https://www.nature.com/articles/d41586-023-02032-7
Agitation experiment / beach (Antwerpen, Belgium)	Dunite sand (forsterite, from Norway), Grain size between 1-150 µm	Approx. 150 g dunite sand mixed with 700 mL seawater. To generate a sand layer and a layer with water on top of the sand.	Flipkens et al. 2023 https://doi.org/10.1016/j.gca.2023.09.002
Phytoplankton exposure experiment	$Mg(OH)_2$		Delacroix et al. 2023 https://doi.org/10.5194/bg-2023-138, 2023
Phytoplankton growth experiment	Synthetic olivine leachate		Hutchins et al. 2023 https://doi.org/10.5194/bg-20-4669-2023, 2023