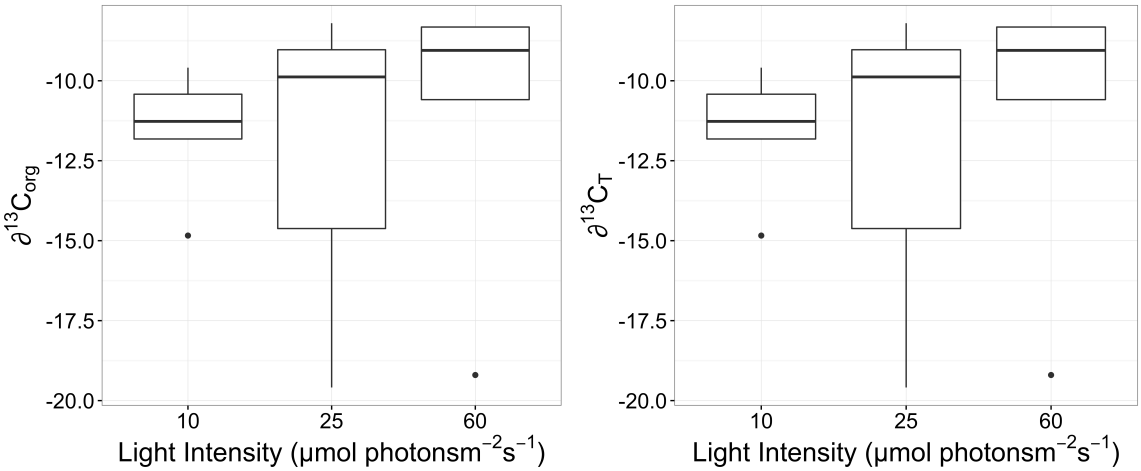
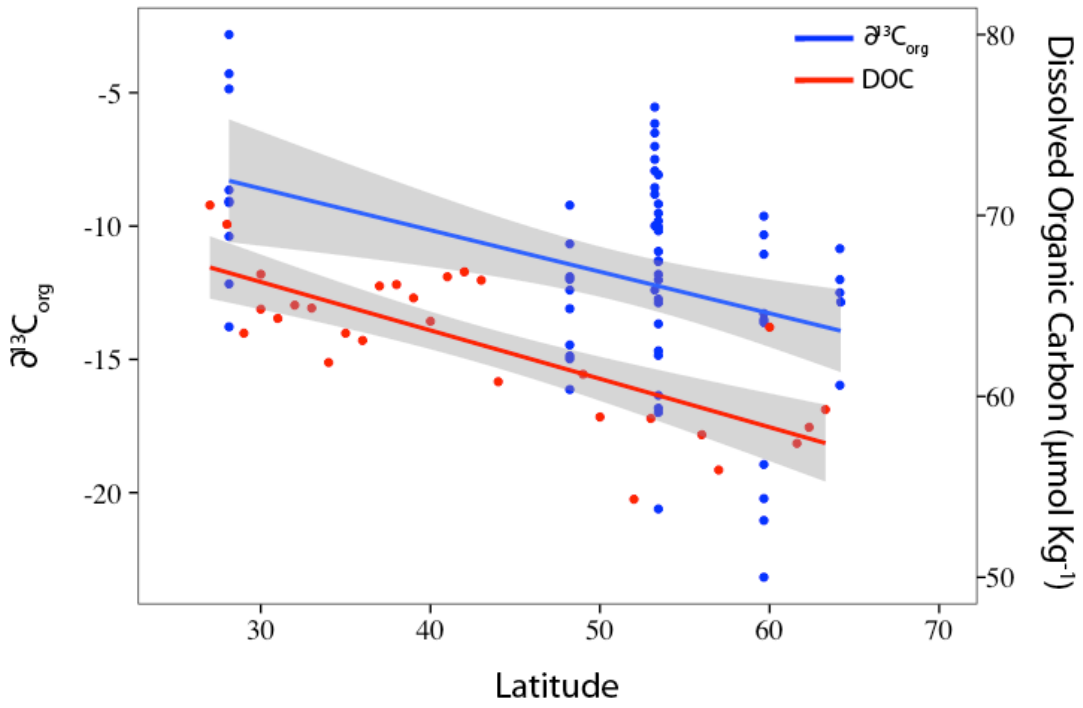
Table 1. Accession numbers of rhodolith samples sequenced for this manuscript and deposited in ENA/GenBank. A question mark indicates that our sequences were not a perfect match to the database, but we listed the most closely related species.

Site	Species name	Accession Number
Mosselbukta	*Lithothamnion glaciale*	
Mosselbukta	*Lithothamnion lemoineae*	
Kobbel Fjord (Greenland)	*Lithothamnion glaciale*	
Kobbel Fjord (Greenland)	*Lithothamnion erinaceum (?)*	
Akia (Greenland)	*Lithothamnion glaciale*	
Oslo Fjord	*Lithothamnion glaciale*	
Oslo Fjord	*Lithothamnion erinaceum (?)*	
Mannin Bay, Ireland	*Phymatolithon purpureum*	
Mannin Bay, Ireland	*Lithophyllum encrustans*	
Carraroe, Ireland	*Phymatolithon calcareum*	
Brest, France	*Lithothamnion corallioides*	
Brest, France	*Lithothamnion* sp.	
Las Palmas, Gran Canaria	*Phymatolithon spp.*	



S1. Organic ($\partial^{13}C_{org}$) and total ($\partial^{13}C_T$) stable isotope signatures of *Phymatolithon calcareum* samples exposed to three light levels for one month.



S2. The $\partial^{13}C_{org}$ signatures from our study and surface dissolved organic carbon (DOC) concentrations compiled by GLODAPv2 as a function of Latitude. Both show a decreasing trend with latitude, suggesting there may be an influence of DOC on $\partial^{13}C_{org}$ signatures in the rhodoliths investigated.