

Skeletal mineralogy of geniculate corallines: providing context for climate change and ocean acidification research

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Supplement. Herbarium collections utilised (Table S1) and average/min/max mol % Mg/Ca values recorded, during the present study (Table S2)

Table S1. Herbarium *Corallina officinalis* samples of the Natural History Museum (NHM) (British Museum) analysed for the present study. Where the same NHM barcodes are provided for >1 sample, multiple samples were present under the same barcode in the herbarium. (–) indicates samples were not barcoded in the NHM (BM) system. Numbers in brackets in the ‘County’ column refer to the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) Stn ID from which sea surface temperatures were acquired for regression analysis

Year of Sampling	Month of Sampling	Collection Site	County	NHM (BM) Sample Barcode
1837	11	Hastings	Sussex	BM000840093
1855	9	Scarborough	Yorkshire	BM000840148
1856	9	Ventnor Cove, Isle of Wight	Hampshire	BM000840063
1867	4	Hastings	Sussex	BM000840097
1867	4	Kemp Town, Brighton	Sussex	BM000774522
1867	4	Kemp Town, Brighton	Sussex	BM000774521
1883	3	Torbay	Devon	BM000804587
1887	1	Berwick	Northumberland	BM000840104
1887	1	Berwick	Northumberland	BM000840103
1887	1	Berwick	Northumberland	BM000840102
1887	1	Berwick	Northumberland	BM000840101
1889	1	Clacton on sea	Essex	BM000840110
1889	8	Illfracombe	Devon	BM000804586
1889	8	Illfracombe	Devon	BM000804591
1890	6	Sidmouth	Devon	BM000804592
1892	8	Swanage	Dorset	BM000840084
1894	8	Swanage	Dorset	BM000840085

Year of Sampling	Month of Sampling	Collection Site	County	NHM (BM) Sample Barcode
1897	7	Clacton on sea	Essex	BM000840113
1900	8	Portland	Dorset	BM000840083
1903	7	Scarborough	Yorkshire	BM000840114
1903	7	Scarborough	Yorkshire	BM000840114
1903	7	Scarborough	Yorkshire	BM000840114
1904	4	Scarborough	Yorkshire	BM000840100
1904	4	Dover	Kent	BM000840123
1907	3	Sandgate	Kent	BM000840125
1914	3	Cullercoats	Northumberland	BM000840098
1930	9	Plymouth	Devon	BM000804598
1934	8	Robin Hood's Bay	Yorkshire	BM000840115
1934	8	Robin Hood's Bay	Yorkshire	BM000840115
1934	8	Robin Hood's Bay	Yorkshire	BM000840115
1934	8	Robin Hood's Bay	Yorkshire	BM000840115
1934	8	Robin Hood's Bay	Yorkshire	BM000840112
1934	8	Robin Hood's Bay	Yorkshire	BM000840112
1934	8	Robin Hood's Bay	Yorkshire	BM000840112
1937	8	Filey Brigg, Filey	Yorkshire	BM000840151
1937	8	Filey Brigg, Filey	Yorkshire	BM000840150
1937	8	Filey Brigg, Filey	Yorkshire	BM000840150
1937	8	Filey Brigg, Filey	Yorkshire	BM000840150
1937	8	Filey Brigg, Filey	Yorkshire	BM000840150
1938	1	Hastings	Sussex (20)	BM000840096
1938	1	Hastings	Sussex (20)	BM000840095
1940	11	Port Mellyn	Cornwall	-
1947	7	Culver Cliff, Isle of Wight	Hampshire	BM000774533
1947	7	Culver Cliff, Isle of Wight	Hampshire	BM000774532
1948	4	Shanklin, Isle of Wight	Hampshire	BM000840092
1948	4	Shanklin, Isle of Wight	Hampshire	BM000774534
1948	4	Shanklin, Isle of Wight	Hampshire	BM000774520
1948	4	Culver Cliff, Isle of Wight	Hampshire	BM000840061
1948	4	Culver Cliff, Isle of Wight	Hampshire	BM000840058
1953	4	Wembury	Devon	BM000804595
1956	11	Combe Martin	Devon	BM000804593
1966	3	Margate	Kent (18)	BM000840118
1967	7	Rottingdean	Sussex (21)	BM000769308
1967	11	Isle of Thanet	Kent (18)	BM000840129
1968	3	Sidmouth	Devon (24)	BM000804594
1968	3	Folkstone	Kent (18)	BM000806429
1968	3	Folkstone	Kent (18)	BM000806429

Year of Sampling	Month of Sampling	Collection Site	County	NHM (BM) Sample Barcode
1968	7	Dover	Kent (18)	BM000840137
1968	9	Whitstable	Kent (17)	BM000840140
1968	11	Isle of Thanet	Kent (18)	BM000840134
1969	4	Dover	Kent	BM000840124
1969	8	Hastings	Sussex (20)	BM000774526
1969	8	Lundy	Devon (27)	BM000804576
1969	10	St Margrets Bay	Kent (18)	BM000840117
1970	5	Newhaven	Sussex (20)	BM000774524
1970	6	Folkstone	Kent (18)	BM000840138
1970	7	Lundy	Devon (27)	BM000862026
1970	11	Isle of Thanet	Kent (18)	BM000840146
1971	5	Durham	Northumberland (2)	BM000840149
1971	9	St Margrets Bay	Kent (18)	BM000840147
1972	1	Portreath	Cornwall	-
1972	3	Kingsdown	Kent (18)	BM000840126
1972	8	Berwick	Northumberland (1)	BM000840105
1973	4	Duckpool	Cornwall	-
1988	6	Needles lighthouse, Isle of Wight	Hampshire (22)	BM000840091
1988	7	Alum Bay, Isle of Wight	Hampshire (22)	BM000774531
1998	7	Filey Brigg, Filey	Yorkshire (3)	BM000639019
1998	7	Filey Brigg, Filey	Yorkshire (3)	BM000639019
1998	7	Filey Brigg, Filey	Yorkshire (3)	BM000639019
1998	7	Flamborough Head, Yorkshire	Yorkshire (3)	BM000639033
2003	8	Harwich	Essex	BM000642503
2003	8	St Osyth	Essex	BM000642571
2003	8	East Mersea	Essex	BM000642587
2004	8	Black Water Estuary	Essex	BM000768688
2004	8	Black Water Estuary	Essex	BM000768688
2004	8	Black Water Estuary	Essex	BM000768688
2005	4	Combe Martin	Devon (27)	BM000899294
2005	4	Combe Martin	Devon (27)	BM000899294
2005	4	Combe Martin	Devon (27)	BM000899294
2007	2	Sheerness	Kent (17)	BM000804755
2007	3	Filey Brigg, Filey	Yorkshire (3)	BM001023963
2007	3	Filey Brigg, Filey	Yorkshire (3)	BM001023952
2007	3	Filey Brigg, Filey	Yorkshire (3)	BM001023962
2007	3	Filey Brigg, Filey	Yorkshire (3)	BM001023960
2007	8	Filey Brigg, Filey	Yorkshire (3)	BM001023955

Year of Sampling	Month of Sampling	Collection Site	County	NHM (BM) Sample Barcode
2007	8	Filey Brigg, Filey	Yorkshire (3)	BM001023965
2007	8	Filey Brigg, Filey	Yorkshire (3)	BM001023954
2007	8	Filey Brigg, Filey	Yorkshire (3)	BM001023956
2007	8	Filey Brigg, Filey	Yorkshire (3)	BM001023966
2008	1	Hamton	Kent (17)	BM000779428
2008	1	Hamton	Kent (17)	BM000779428
2008	1	Hamton	Kent (17)	BM000779428
2008	8	Combe Martin	Devon (27)	BM000899494
2010	2	Hannafore Point	Cornwall	-
2010	2	Hannafore Point	Cornwall	-
2010	2	Hannafore Point	Cornwall	-
2010	2	Hannafore Point	Cornwall	-
2010	2	Hannafore Point	Cornwall	-
2010	2	Hannafore Point	Cornwall	-
2010	5	Fistral Bay	Cornwall	BM001023968
2010	5	Fistral Bay	Cornwall	BM001023978
2010	5	Caerthillian Cove	Cornwall	BM001023976

Table S2. Upper table: Mol % Mg/Ca of Combe Martin *Corallina officinalis* (CO) and *C. caespitosa* (CC) from upper (Up), lower (Low) and middle (Mid) shore, respectively. Average (n = 12) ± SE, minimum (Min) and maximum (Max) values are provided in relation to sampling month. Lower table: Mol % Mg/Ca of *C. officinalis* determined from Natural History Museum (NHM) herbarium samples (showing overall average across all years and months), and *C. officinalis* and *Ellisolandia elongata* (EE) collected from Wembury Point, Iceland, and northern Spain, respectively; average ± SE and minimum and maximum values are provided

Month		CO Up	CO Low	CC Up	CC Mid
Dec. 2011	Avg. ± SE	0.124 ± 0.001	0.119 ± 0.001	0.139 ± 0.000	0.128 ± 0.002
	Min	0.118	0.112	0.135	0.117
	Max	0.132	0.129	0.143	0.142
Mar. 2012	Avg. ± SE	0.126 ± 0.002	0.113 ± 0.002	0.118 ± 0.001	0.112 ± 0.001
	Min	0.113	0.103	0.110	0.105
	Max	0.144	0.126	0.126	0.125
Jun. 2012	Avg. ± SE	0.129 ± 0.002	0.132 ± 0.002	0.137 ± 0.002	0.155 ± 0.002
	Min	0.115	0.124	0.128	0.140
	Max	0.139	0.148	0.150	0.166
Sep. 2012	Avg. ± SE	0.156 ± 0.003	0.143 ± 0.001	0.142 ± 0.001	0.147 ± 0.001
	Min	0.140	0.133	0.134	0.135
	Max	0.170	0.152	0.148	0.157
Dec. 2012	Avg. ± SE	0.120 ± 0.001	0.116 ± 0.001	0.120 ± 0.001	0.121 ± 0.001
	Min	0.110	0.107	0.108	0.113
	Max	0.135	0.122	0.128	0.127

	Month	Species	Shore	Avg. mol % Mg/Ca	Min	Max	n
NHM Herbarium	Jan.-Nov.	CO		0.128 ± 0.001	0.097	0.170	112
		CO	Up	0.140 ± 0.001	0.133	0.147	12
Wembury Point	June 2012		Low	0.142 ± 0.001	0.133	0.150	12
		EE	Low	0.134 ± 0.003	0.119	0.161	12
Iceland	July 2012	CO	Low	0.134 ± 0.002	0.114	0.134	12
N. Spain	October 2012	CO	Low	0.149 ± 0.002	0.136	0.159	12
		EE	Low	0.144 ± 0.001	0.133	0.149	12