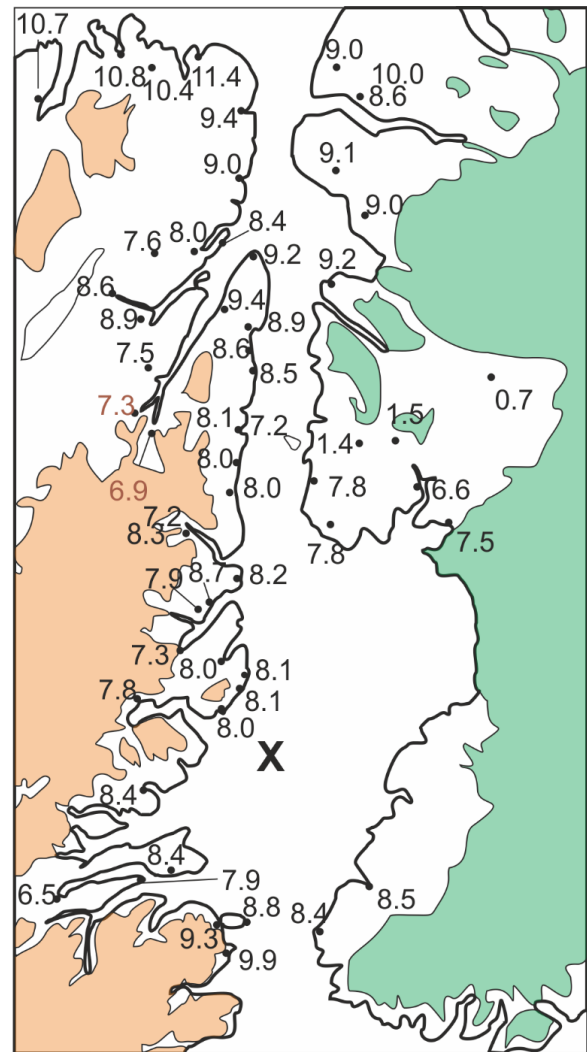
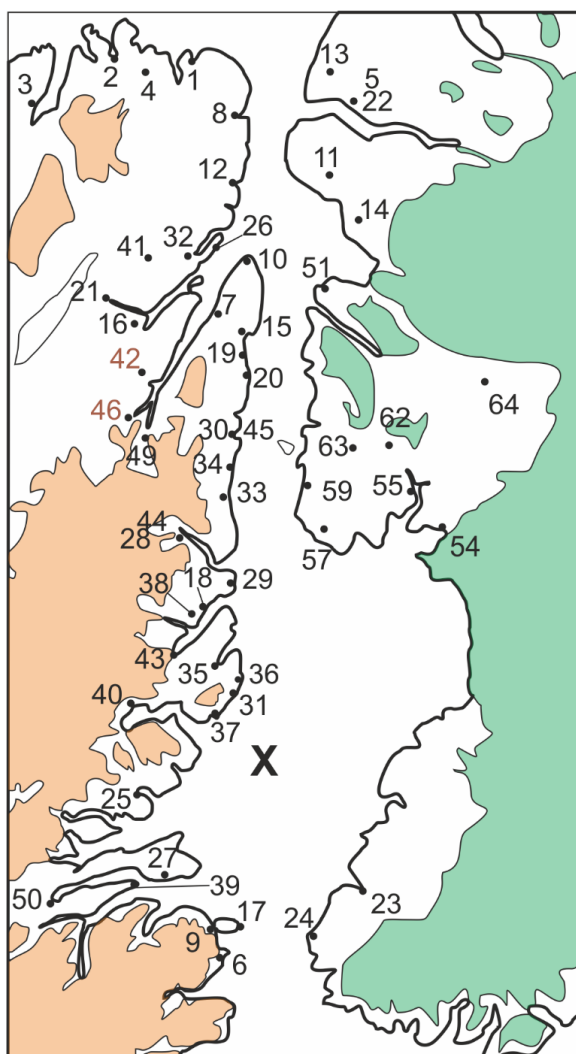


**S.1: XRF data plotted against grain size data. a)  $Ti/K = f(\% \text{ silt})$  shows a correlation factor  $r^2=0.84$  when 9 outlying data points are omitted (shown in orange). b)  $K_{norm} = f(\% \text{ clay})$  shows a correlation factor  $r^2=0.73$  when 9 outlying data points are omitted (shown in orange).**

	Laboratory dating number	age (yr BP)	14C age	err	Lat	Long	Median age $\Delta R=240\pm 51$	sigma1	Original reference
1	GSC-1815	10100	10510	210	82°27	62°40	11386	11070 - 11740	England (1977, 1983)
2	S-1984	9825	10235	460	82°42	64°45	10781	10111 - 11378	England (1983)
3	GSC-3744	9580	9990	140	82°42	68°15	10668	10483 - 10867	England (1985)
4	S-1985	9270	9680	1055	82°30	64°15	10358	8991 - 11706	England (1983)
5	S-2307	9070	9480	150	81°49	58°40	10010	9807 - 10218	England (1985)
6a	TO-226	9010	9420	150	78°36	74°45	9938	9746 - 10159	Blake (1992)
6b	GSC-2516	8940	9350	100	78°36	74°45	9854	9683 - 10028	Blake (1992)
6c	TO-225	8840	9250	50	78°36	74°45	9681	9575 - 9759	Blake (1992)
7	TO-136	8520	8930	80	81°23	66°53	9352	9274 - 9450	England (1999)
8	SI-5551	8600	9010	90	82°08	62°03	9431	9345 - 9521	Retelle (1986)
9	GSC-3314	8470	8880	100	78°43	74°43	9291	9183 - 9427	Blake (1992)
10	DIC-737	8380	8790	105	81°33	64°30	9187	9036 - 9307	England (1985)
11a	SI-5855	8280	8690	90	81°35	60°55	9068	8963 - 9210	England (1985)
11b	S-2313	8295	8705	120	81°35	60°54	9082	8943 - 9270	England (1985)
12a	S-1990	8255	8665	215	81°53	63°20	9006	8723 - 9289	England (1985)
12b	GSC-3041	8050	8460	120	81°53	63°20	8746	8587 - 8918	England (1985)
13a	SI-5856	8230	8640	85	82°01	58°55	8994	8858 - 9124	England (1985)
13b	S-2309	8205	8615	135	82°01	58°55	8946	8730 - 9132	England (1985)
14	SI-5857	8225	8635	95	81°18	61°21	8984	8840 - 9128	England (1985)
15	DIC-549	8200	8610	260	81°15	65°45	8936	8604 - 9252	England (1983)
16	GSC-1775	8130	8540	200	81°32	68°58	8850	8573 - 9091	England (1983)
17	GSC-3286	8060	8470	70	78°41	74°07	8756	8626 - 8866	Blake (1992)
18	TO-3450	8050	8460	90	80°10	71°11	8744	8598 - 8870	England (1996)
19	GSC-2843	7960	8370	150	81°04	66°19	8643	8425 - 8803	England et al. (1981)
20	TO-434	7870	8280	90	81°03	66°38	8505	8394 - 8588	England (1996)
21	GSC-3179	7860	8270	270	81°41	69°08	8549	8233 - 8882	England (1983)
22a	S-2408	7825	8235	130	81°46	59°08	8472	8318 - 8604	England (1985)
22b	GSC-3693	7740	8150	90	81°46	59°08	8373	8283 - 8474	England (1985)
22c	S-2301	7965	8375	115	81°46	59°08	8638	8451 - 8775	England (1985)
23	L-1091E	7800	8210	200	~78°38	~71°00	8461	8194 - 8672	Nichols (1969)
24	TO-923	7780	8190	70	~78°39	71°01	8413	8342 - 8484	Blake et al. (1992)

25	TO-4192	7770	8180	70	79°30	74°59	8403	8332 - 8474	England (1996)
26	S-2109	7755	8165	125	81°40	65°20	8391	8266 - 8535	England (1983)
27	GSC-3710	7730	8140	120	79°04	75°30	8363	8233 - 8492	Blake (1987)
28a	TO-3778	7650	8060	60	80°30	70°43	8284	8218 - 8348	England (1996)
28b	TO-3464	7630	8040	60	80°30	70°43	8266	8199 - 8328	England (1996)
29	TO-3766	7540	7950	70	80°13	70°08	8176	8100 - 8278	England (1996)
30	TO-2919	7490	7900	60	80°47	67°55	8116	8032 - 8177	England (1996)
31	TO-4210	7480	7890	60	79°45	71°22	8106	8028 - 8168	Gualtieri and England 1977
32	S-2139	7385	7795	375	81°41	66°21	8042	7636 - 8389	England (1983)
33	TO-3765	7400	7810	70	80°37	69°15	8035	7955 - 8107	England (1996)
34a	TO-2922	7340	7750	70	80°42	68°29	7971	7892 - 8046	England (1996)
34b	TO-2925	7620	8030	600	80°42	68°29	8337	7664 - 8977	England (1996)
35a	TO-4200	7370	7780	70	79°53	71°34	8001	7925 - 8078	England (1996)
35b	GSC-5668	7320	7730	80	79°54	71°30	7950	7855 - 8025	England (1996)
36	TO-4214	7430	7840	70	79°49	71°07	8061	7987 - 8138	Gualtieri and England 1977
37	TO-4211	7390	7800	70	79°41	72°17	8022	7946 - 8098	Gualtieri and England 1977
38	TO-4198	7310	7720	70	80°10	71°28	7939	7859 - 8005	England (1996)
39	GSC-3700	7300	7710	140	79°06	76°05	7931	7782 - 8079	Blake (1988)
40	TO-4191	7190	7600	70	79°53	74°15	7822	7755 - 7909	England (1996)
41	S-2110	6995	7405	130	81°47	67°37	7643	7517 - 7764	England (1983)
42	SI-3300	6860	7270	70	81°17	69°25	7518	7454 - 7573	England (1983)
43	GSC-5670	6650	7060	190	80°04	72°19	7322	7151 - 7517	England (1996)
44	TO-3467	6500	6910	70	80°32	70°43	7199	7132 - 7284	England (1996)
45	TO-2918	6490	6900	90	80°55	67°54	7184	7082 - 7291	England (1996)
46	GSC-1614	6430		150	81°11	70°17		Driftwood	England (1977, 1983)
47	GSC-2370	6400	6810	100	79°54	63°58	7079	6966 - 7202	Blake (1987)
48	GSC-2334	5980	6390	70	81°04	63°35	6582	6490 - 6661	Blake (1987)
49	GSC-1755	6000		150	81°04	70°00		Driftwood	England (1977, 1983)
50a	Beta-91863	5920	6330	60	79°09	78°13	6517	6442 - 6594	England (1999)
50b	GSC-6088	5940	6350	90	79°09	78°13	6350	6433 - 6640	England (1999)
51	AAR-5768	8820	75	25	81°10.6	63°20.5	9225	9409 - 9539	Bennike 2002
52	AAR-5769	8010	75	25	81°10.1	63°04.9	8237	8389 - 8539	Bennike 2002
53	AAR-5766	6870	50	24	79°55.5	64°04.3	7162	7328 - 7427	Bennike 2002

54	AAR-5762	7240	65	23	79°56.5	64°17.1	7495	7636 - 7775	Bennike 2002
55	AAR-5755	6410	55	22	80°05.8	64°39.4	6605	6810 - 6961	Bennike 2002
56	AAR-5758	7090	80	21	80°24.0	66°58.2	7364	7496 - 7640	Bennike 2002
57	AAR-5757	7570	65	20	80°12.6	67°11.9	7793	7957 - 8102	Bennike 2002
58	AAR-5761	6890	60	19	80°21.5	67°18.7	7181	7338 - 7458	Bennike 2002
59	AAR-5760	7580	55	18	80°18.7	67°23.6	7803	7972 - 8103	Bennike 2002
60	AAR-5755	5165	55	19	80°08.8'	64°20.2'	5255	5470 - 5578	Bennike 2002
64	AAR-5772	1400	60	6	80°33.1'	67°11.1'	712	892 - 1027	Bennike 2002
61	K-7142	1310	35	15	80°09.4'	63°39.6'	638	609 - 672	Bennike 2002
62	K-7138	2170	55	38	80°23.9'	65°18.1'	1477	1693 - 1834	Bennike 2002
63	AAR-5531	2070	55	39	80°24.9'	64°20.0'	1376	1563 - 1706	Bennike 2002



S.2: radiocarbon ages as reported in England (1999) and Bennike (2002) and calibrated with  $\Delta R=240 \pm 51$  years and their location in Nares Strait.

S.3: radiocarbon ages from Jennings et al. (2011) calibrated with  $\Delta R=240$

Depth in core (cm)	Laboratory number	14C age	Material dated	Median age ( $\Delta R=240$ )	$1\sigma \Delta R=240$
0-2	AA-81309	530 $\pm$ 53	<i>Bathyrca glacialis</i>	~290	

8-10	NOS -71686	3100 ±35	NPS	2636	2595 - 2709
28-30	NOS -71687	5040 ±40	NPS	5087	5010 - 5140
58-60	NOS -71688	6870 ±45	NPS	7164	7120 - 7234
68-70	AA-81310	7302 ±61	NPS	7543	7484 - 7596
69-98	NOS -72574	8290 ±50	NPS	8502	8439 - 8558
345-349	NOS -71689	9320 ±45	NPS and <i>C. neoteretis</i>	9794	9702 - 9882