



ENGLISH HERITAGE

English Heritage has supported enhancement of the earlier Isle of Wight Coastal Audit, principally by means of a radiocarbon dating programme. The full reports will be up-loaded to this website when available. Meanwhile, the following letter from the English Heritage Scientific Dating Team provides information on ¹⁴C dates from some significant sites.

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Dear Rebecca

Isle of Wight Coastal Assessment Enhancement Project: Radiocarbon Dating

The results of radiocarbon dating have arrived, and are shown in the table below and on the enclosed certificates. Where there are two radiocarbon results for the same sample, a weighted mean has been taken before calibration (following Ward and Wilson 1978):

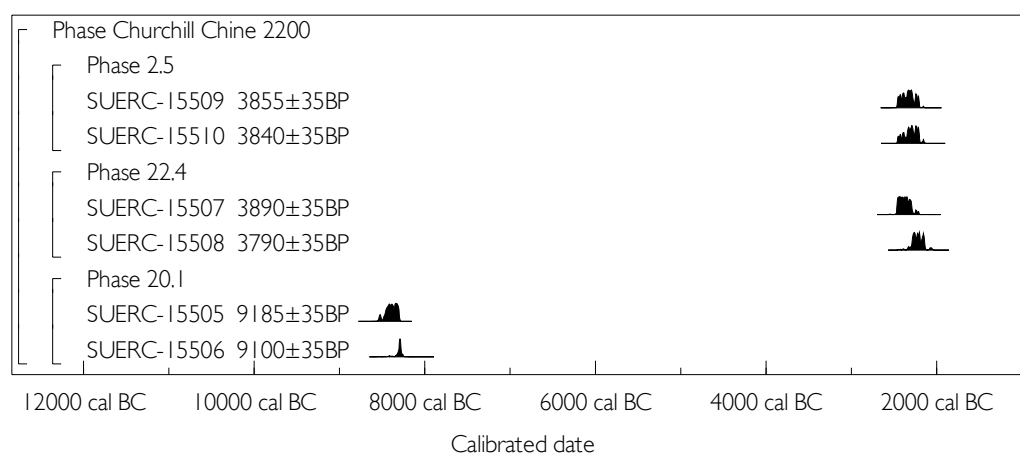
Laboratory code	Sample	Identification	$\delta^{13}\text{C}$ (‰)	Radiocarbon age (BP)	Calibrated date (95% confidence)
Churchill Chine 2200					
SUERC-15505	20.1(A)	hazelnut shell	-26.4	9185 ±35	8540–8290 cal BC
SUERC-15506	20.1(B)	hazelnut shell	-23.7	9100 ±35	8330–8250 cal BC
SUERC-15507	22.4(A)	charcoal (<i>Corylus</i> sp.)	-26.4	3890 ±35	2480–2210 cal BC
SUERC-15508	22.4(B)	charcoal (<i>Ilex</i> sp.)	-24.6	3790 ±35	2340–2060 cal BC
SUERC-15509	2.5(A)	charcoal (<i>Corylus</i> sp.)	-28.5	3855 ±35	2470–2200 cal BC
SUERC-15510	2.5(B)	charcoal (Pomoideae)	-27.1	3840 ±35	2470–2150 cal BC
Newton East Spit W-E post alignment 5394					
GrN-31050	1003604	<i>Quercus</i> sp. roundwood 11 growth rings	-27.8	1930 ±25	cal AD 10–130
GrN-31051	1003605	Pomoideae roundwood 10 growth rings	-28.2	2050 ±15	110 cal BC – cal AD 1
Newton East Spit Rectilinear post setting 5395					
GrA-37194	1003598	<i>Acer</i> sp. outer sapwood	-29.9	2220 ±35	390–190 cal BC
GrN-31052	1003599	Pomoideae roundwood c 18 growth rings	-29.6	2185 ±20	360–175 cal BC
Newton East Spit Longshore post alignment 5398					
GrN-31053	1003601	<i>Fraxinus</i> sp. roundwood 10 growth rings	-27.6	3700 ±35	2200–1970 cal BC
GrN-31054	1003600	<i>Fraxinus</i> sp. roundwood c 6 growth rings	-27.6	3740 ±40	2290–2020 cal BC
Newton East Spit NW-SE post alignment 5390					
GrN-31049	1003602	<i>Fraxinus</i> sp. roundwood 7 growth rings	-27.1	3870 ±25	2470–2210 cal BC
SUERC-15818	1003603(A)	Salicaceae roundwood	-27.0	3770 ±40	
GrA-37196	1003603(B)	replicate	-25.9	3820 ±35	
	1003603 mean	T' = 0.9, T'(5%) = 3.8, v = 1		3798 ±26	2300–2130 cal BC
Springvale Post alignment 1789					
GrN-31047	1003597	<i>Quercus</i> sp. roundwood 11 growth rings	-26.3	1235 ±15	cal AD 690–865
SUERC-15516	1003569	<i>Fraxinus</i> sp. wood outer 9 growth rings	-26.0	1240 ±35	cal AD 670–890

Springvale V-shaped fish weir 3576					
GrN-31048	1003596	<i>Cornus/Viburnum</i> roundwood 15 rings	-26.7	900 ±20	cal AD 1040–1210
SUERC-15817	1003588	<i>Alnus</i> sp. roundwood 8 growth rings	-30.3	870 ±40	cal AD 1040–1260
Springvale Longshore post alignment 3571					
SUERC-15517	1003591	Salicaceae wood outer 8 growth rings	-27.6	435 ±35	cal AD 1420–1610
Thorness Bay Rectilinear post setting 6141					
SUERC-15820	1003590	<i>Quercus</i> sp. sapwood	-26.8	1735 ±40	cal AD 210–410
SUERC-15971	1003593(A)	<i>Quercus</i> sp. outer sapwood	-26.8	1730 ±35	
GrA-37195	1003593(B)	replicate	-25.8	1720 ±35	
	1003593 mean	T' = 0.0, T'(5%) = 3.8, v = 1		1725 ±25	cal AD 240–400
Thorness Bay Hurdle 5811					
GrN-31055	1003595	<i>Quercus</i> sp. roundwood 7 growth rings	-25.8	2250 ±25	400–200 cal BC
SUERC-15819	1003589	<i>Quercus</i> sp. roundwood 9 growth rings	-27.1	2220 ±40	400–170 cal BC
Thorness Bay Longshore post alignment associated with hurdle 6192					
SUERC-15821	1003592	Salicaceae wood	-26.9	2805 ±40	1060–840 cal BC

Samples with the laboratory code SUERC were dated by Accelerator Mass Spectrometry (AMS) radiocarbon dating at the Scottish Universities Environmental Research Centre in East Kilbride. They were pre-treated following standard procedures, graphitised following Slota *et al* (1987), and measured according to Xu *et al* (2004). Samples with the laboratory code GrA were dated by AMS at the Centre for Isotope Research, Groningen University, The Netherlands, following procedures described in Aerts-Bijma *et al* (1997; 2001) and van der Plicht *et al* (2000). Samples with the laboratory code GrN were dated at Groningen using Gas Proportional Counting, following Mook and Streurman (1983). These laboratories maintain continual programmes of quality assurance procedures, in addition to participation in international inter-comparisons (Scott 2003). These tests indicate no laboratory offsets and demonstrate the validity of the measurements quoted.

The results reported are conventional radiocarbon ages (Stuiver and Polach 1977), quoted according to the format known as the Trondheim convention (Stuiver and Kra 1986). The calibrated date ranges have been calculated by the maximum intercept method (Stuiver and Reimer 1986), using the program OxCal v3.10 (Bronk Ramsey 1995; 1998; 2001) and the IntCal04 data set (Reimer *et al* 2004), and are quoted in the form recommended by Mook (1986).

The figure below shows the calibration by the probability method (Stuiver and Reimer 1993) of the radiocarbon results from Churchill Chine:

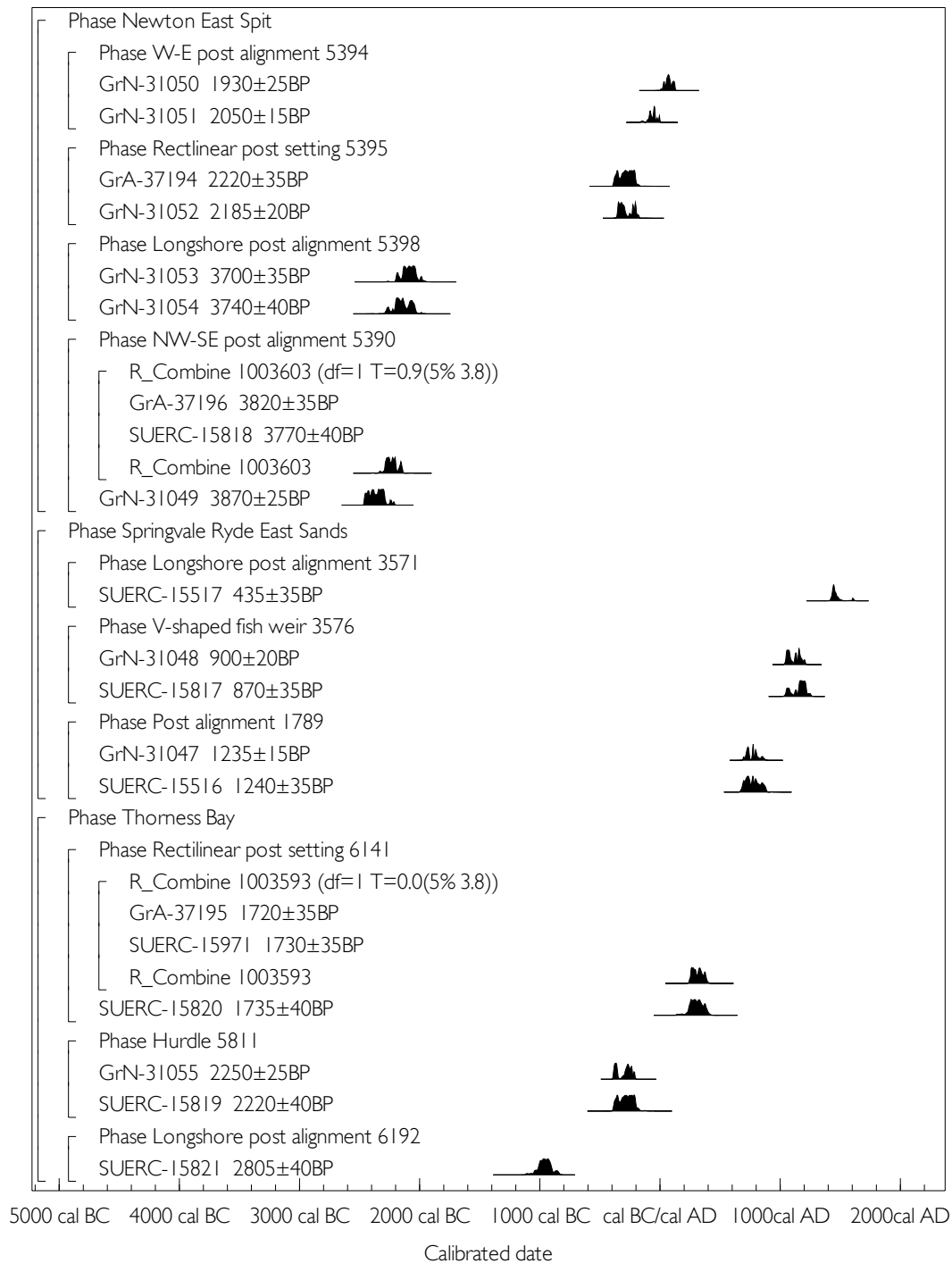


The second table shows the results of statistical tests for consistency (following Ward and Wilson 1978) between samples from the same context at Churchill Chine.

Context	Laboratory codes	test value (T')	critical value (T'(5%))	degrees of freedom (v)	pass/fail
2200.20.1	SUERC-15505, SUERC-15506	2.9	3.8	1	pass
2200.22.4	SUERC-15507, SUERC-15508	4.1	3.8	1	fail (passes at 99%)
2200.2.5	SUERC-15509, SUERC-15510	0.1	3.8	1	pass

Normally, we would expect paired samples from the same context to pass this test, if both samples are short-lived and neither is intrusive or residual. Although there appears to be a slight discrepancy between the two results from context 22.4, the four results from contexts 22.4 and 2.5 are in fact statistically consistent ($T' = 4.2$, $T'(5\%) = 7.8$, $v = 3$; Ward and Wilson 1978), and could in theory represent a single season of wood-collecting.

The next figure shows the calibration by the probability method of all the waterlogged wood samples. Where there are two radiocarbon results for the same sample, their weighted mean has been calibrated.



The next table shows the results of statistical tests for consistency (Ward and Wilson 1978) between samples from the same structure at Springvale, Newton East Spit, and Thorness Bay:

Context	Laboratory codes	test value (T)	critical value (T'(5%))	degrees of freedom (v)	pass/fail
Newton East Spit					
W-E post alignment 5394	GrN-31050, GrN-31051	16.8	3.8	1	fail
Rectilinear post setting 5395	GrA-37194, GrN-31052	0.8	3.8	1	pass
Longshore post alignment 5398	GrN-31053, GrN-31054	0.6	3.8	1	pass
NW-SE post alignment 5390	GrN-31049 and 3798 ±26 (mean for 1003602)	4.0	3.8	1	fail (pass at 99%)

Springvale Ryde East Sands					
Post alignment 1789	GrN-31047, SUERC-15516	0.0	3.8	1	pass
V-shaped fish weir 3576	GrN-31048, SUERC-15817	0.6	3.8	1	pass
Thorness Bay					
Rectilinear post setting 6141	SUERC-15820 and 1725 ±25 (mean for 1003593)	0.0	3.8	1	pass
Hurdle 5811	GrN-31055, SUERC-15819	0.4	3.8	1	pass

It appears that the results within each structure are generally consistent, which is what we would expect if each structure were made of newly-felled timbers. The two timbers sampled from the NW-SE post alignment at Newton East Spit fail the test of consistency by a narrow margin, and this may not be archaeologically significant, but those from the W-E post alignment, 5394, are clearly of different dates, although no more than a century or two apart. This may be because the older timber was reused in the construction of the post alignment, or because the younger timber represents a repair. It appears that no two structures can be of exactly the same date. For example, the four results from post alignments 5390 and 5390 at Newton East Spit are statistically inconsistent ($T' = 18.2$, $T'(5\%) = 7.8$, $v = 1$; Ward and Wilson 1978).

In general, the results demonstrate the survival of waterlogged timber structures dating from the late Neolithic to the late medieval period, with the oldest structures at Newton East Spit. Here there are two post alignments, 5390 and 5398, apparently built during the late second millennium cal BC, a middle Iron Age rectilinear post setting, 5395, and another post alignment, 5394, which dates to the late Iron Age or early Roman period. The longshore post alignment at Thorness Bay, 6192, appears to date to the late Bronze Age, and to be considerably earlier than the middle Iron Age hurdle, 5811. A rectilinear post setting at the same site, 6141, dates to the later Roman period. The post alignment at Springvale, 1789, is evidently not that described by John Oglander in the seventeenth century, unless this structure remained in use for almost a millennium. A fish weir at this site, 3576, was built in the eleventh or twelfth century AD, and the longshore post alignment at Springvale, 3571, apparently dates to the fifteenth or sixteenth century.

The Churchill Chine results are also intriguing, suggesting that there is early Mesolithic activity in this area, as predicted by antiquarians, but that the archaeological features sampled date to the end of the Neolithic period. We don't have enough samples from this phase to provide meaningful estimates of how long the site was in use for.

If you have any questions, please don't hesitate to contact me.

Yours sincerely,

John Meadows
Assistant Scientific Dating Co-ordinator

cc: D E Robinson

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