

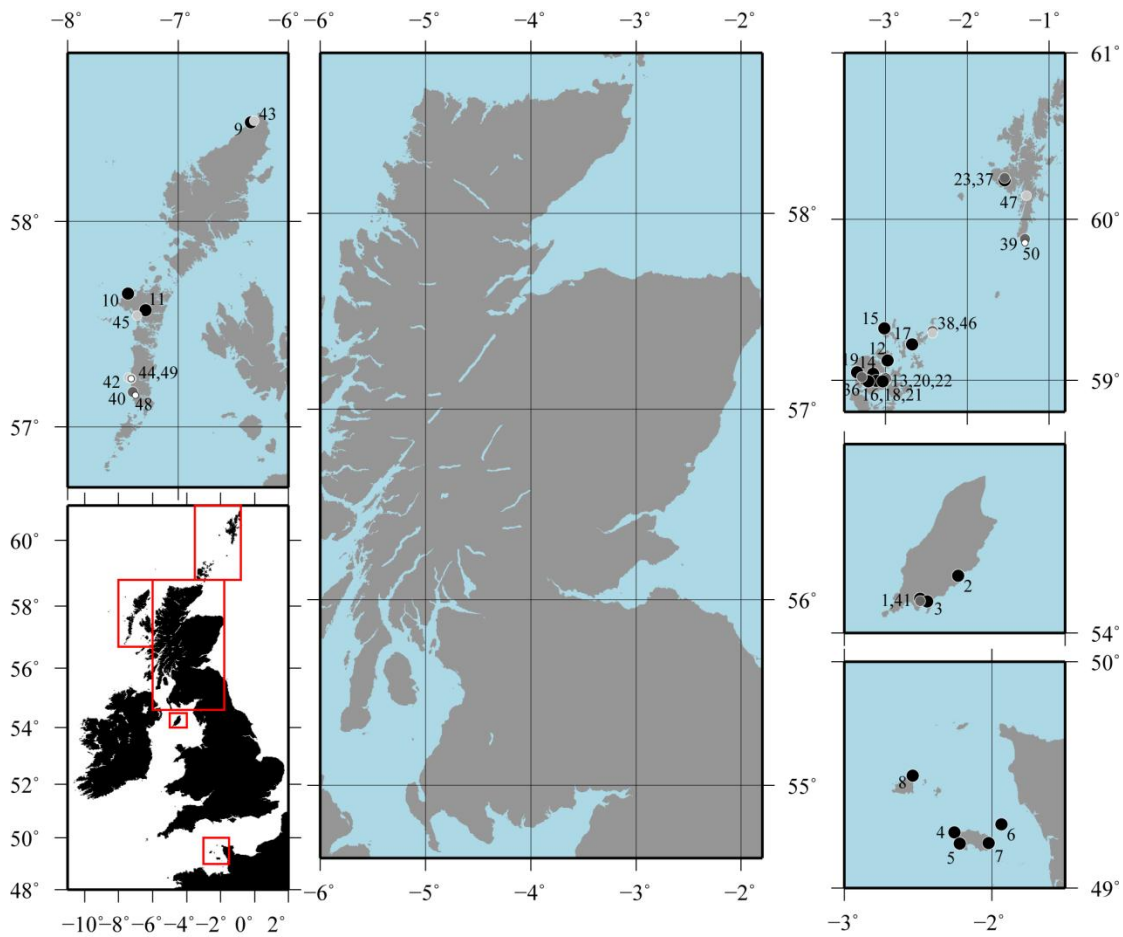
**Supplementary materials to:**

**Immediate replacement of fishing with dairying by the earliest farmers of the NE**

**Atlantic archipelagos**

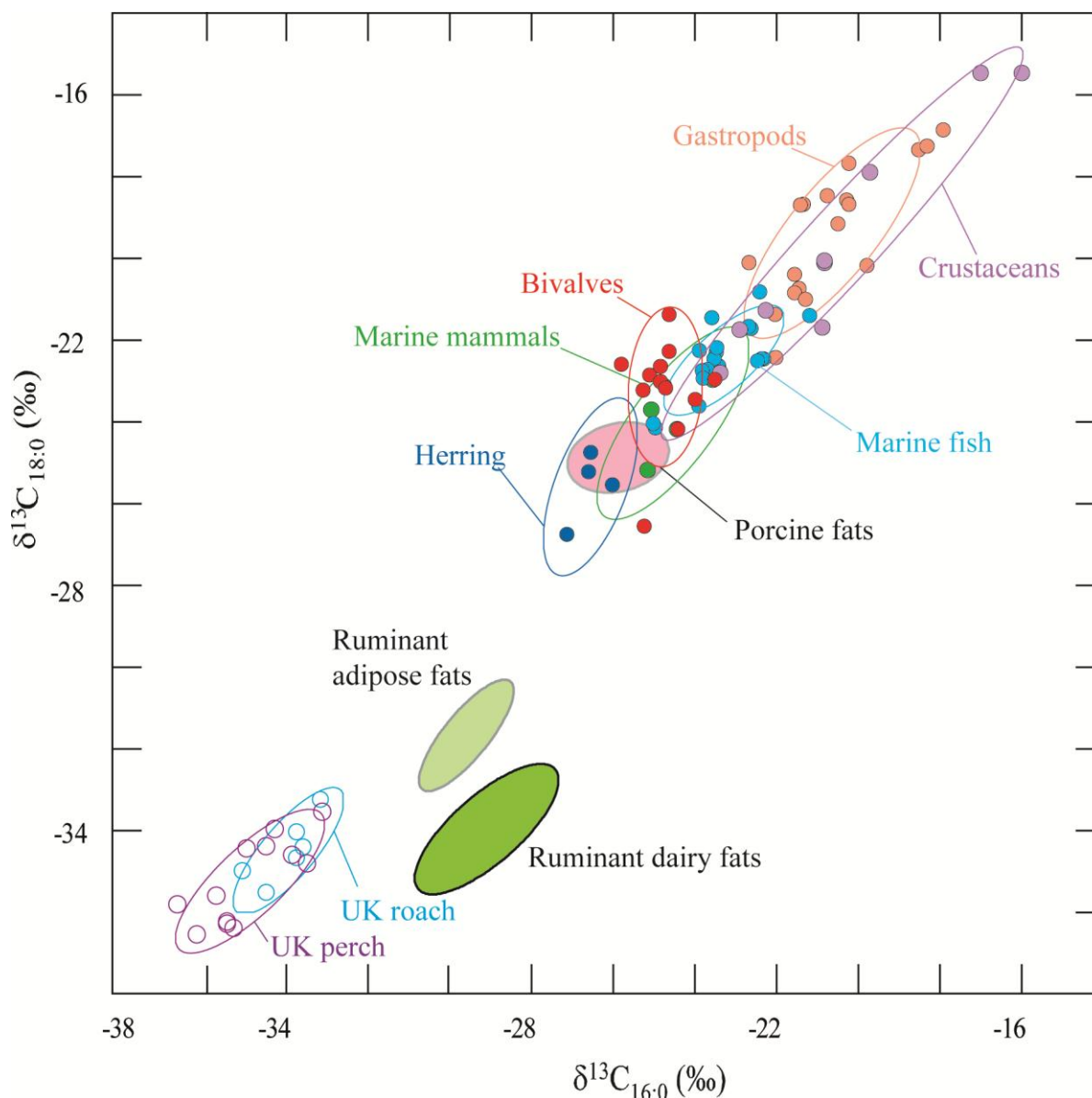
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Mulville, Niall Sharples & Richard P Evershed



Key					
Neolithic	10 Loch Olabhat	20 Stonehall	30 Maybole	38 Toft's Ness	46 Toft's Ness
1 Billown	11 Bharpa Langais	21 Stones of Stennes	31 Mountcastle Quarry	39 Sumburgh	47 Scalloway
2 Glencrutchery	12 Braes o' Habreck	22 Wideford Hill	32 Powmyre Quarry	40 Cladh Hallan	
3 Ronaldsway	13 Crossiecrown	23 Scord of Brouster	33 The Hirsell	41 Billown	Viking/Norse
4 Le Pinacle	14 Knowes of Trotty	24 Culduthel	34 Upper Forth Crossing	42 Dun Vulcan	48 Cille Pheadair
5 Les Blanchés Banques	15 Links of Noltland	25 Doon Hill	35 Lanton Quarry	43 Dun Arnistean	49 Bornais
6 Les Ecrehous	16 Ness of Brodgar	26 Girvan Warehouse		44 Bornais	50 Jarlshof
7 Mont Orgueil	17 Pool	27 Knocknab	Bronze Age		
8 Les Fouillages	18 Quanterness	28 Lesmurdie Road, Elgin	36 Linga Field		
9 Dunasbroc	19 Skara Brae	29 Lockerbie	37 Scord of Brouster	45 Baile Sear	

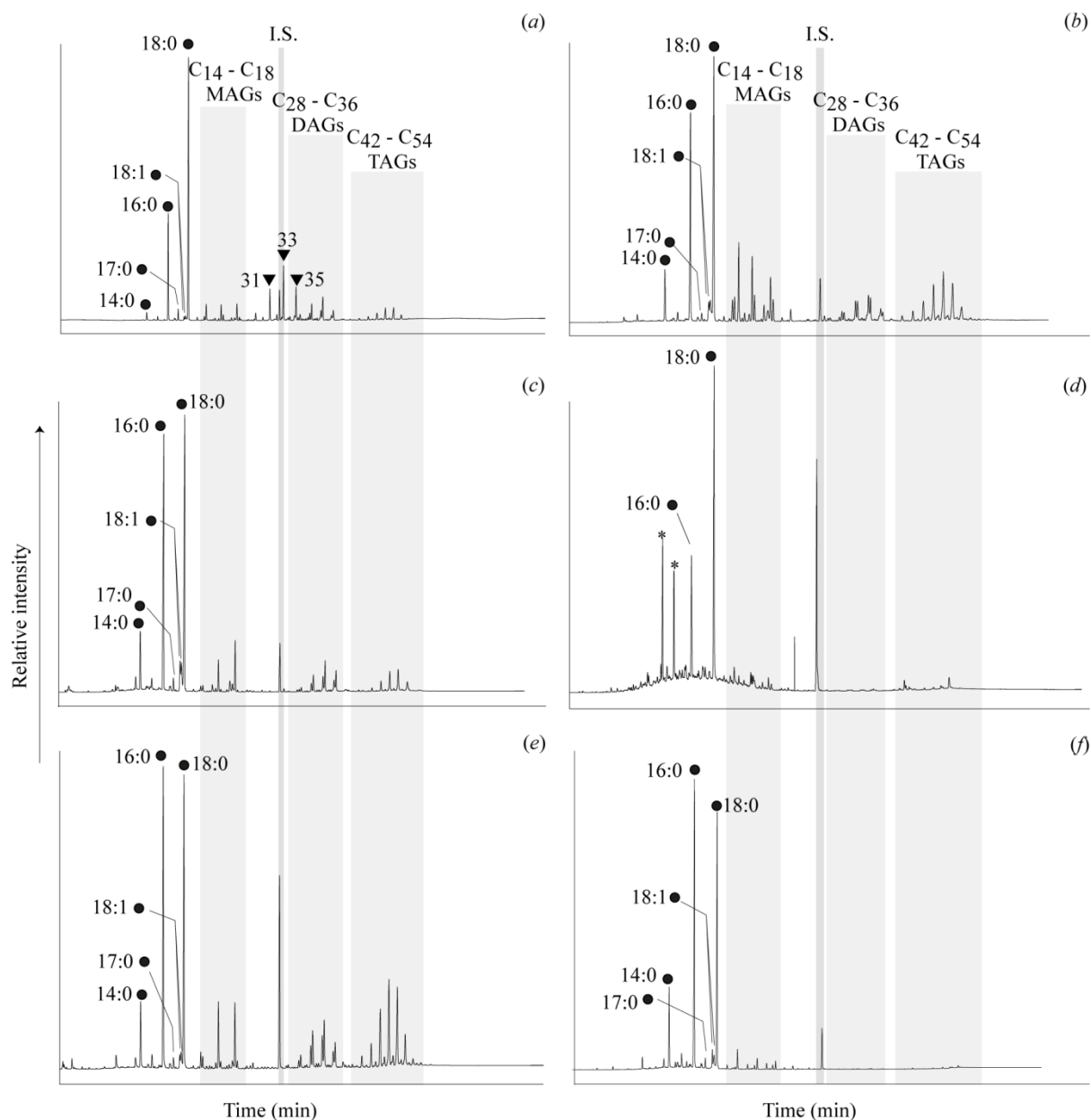
**Supplementary figure S1.** Map showing location of sites in northern Britain, the Channel Isles and the Isle of Man.



**Supplementary figure S2.** Plot of  $\delta^{13}\text{C}$  values of individual *n*-alkanoic acids from various terrestrial and aquatic fauna collected from the UK shown with 1 s.d. confidence ellipses [1]. Reference fats were either hand-collected or sourced *via* fish merchants from a range of unfarmed locations, including the English Channel, the Severn Estuary and the North Sea. Specimens were frozen until required. Samples of tissue were removed and freeze-dried to constant weight prior to lipid extraction using 3 x 10 ml  $\text{CHCl}_3/\text{MeOH}$  (2:1 v/v). Approximately 2 mg lipid was then hydrolysed and methylated prior to analysis using GC, G/MS and GC/C/IRMS as described above. Modern reference fats were corrected for the effects of post-industrial carbon (+ 1.3 ‰; [2]).

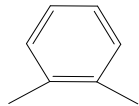
## References

- (1) Cramp LJE, Evershed RP. 2014 Reconstructing Aquatic Resource Exploitation in Human Prehistory using Lipid Biomarkers and Stable Isotopes. In *Treatise on Geochemistry 2<sup>nd</sup> edition, Vol. 14* (eds. HD Holland, KK Turekian), pp. 319 – 339. Oxford: Elsevier.
  
- (2) Friedli H, Lotscher H, Oeschger H, Siegenthaler U, Stauffer B. 1986 Ice Core Record of the C-13/C-12 Ratio of atmospheric CO<sub>2</sub> in the past two centuries. *Nature* **324**, 237-238.

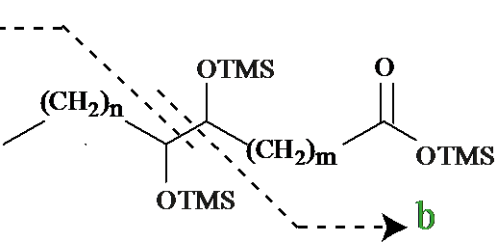


**Supplementary figure S3.** Partial high temperature gas chromatograms from organic residues from Neolithic pot sherds from (a) Culduthel, Invernesshire, (b) Dunasbroc, Isle of Lewis, (c) Billown, Isle of Man, (d) Les Fouaillages, Guernsey, (e) Braes o’Habreck, Wyre and (f) Scord of Brouster, Shetland. Filled circles – free fatty acid with x carbon atoms and y degree of unsaturation, *filled triangles* – mid-chain ketone with x carbon atoms, MAGs – monoacylglycerols, DAGs – diacylglycerols, TAGs – triacylglycerols, I.S. – internal standard ( $C_{34}$  n-alkane). Time retention windows are from 5 - 42 min.

**Supplementary table S1.** Table showing fragment ions selected for GC/MS-SIM for detection of C<sub>16</sub> – C<sub>22</sub> APAAs.

		
<b>Chain length</b>	<b>Base peak (m/z)</b>	<b>M<sup>+</sup> (m/z)</b>
16	105	262
18	105	290
20	105	318
22	105	346

**Supplementary table S2.** Major fragment and  $[M-15]^+$  ions used for GC/MS-SIM of the vicinal diols with carbon chain lengths of 18 to 22. The fragment ions of the major positional isomers are highlighted in grey.

				
Dihydroxy acid	a	b	$[M - 15]^+$	
	<i>m/z</i>			
9,10-C <sub>18</sub>	215	317	517	
11,12-C <sub>18</sub>	187	345	517	
13,14-C <sub>18</sub>	159	373	517	
9,10-C <sub>20</sub>	243	317	545	
11,12-C <sub>20</sub>	215	345	545	
11,12-C <sub>22</sub>	243	345	573	
13,14-C <sub>22</sub>	215	373	573	

**Supplementary table S3.** List of sherds from coastal sites investigated for aquatic biomarkers

Sherd	$\delta^{13}\text{C}_{16:0}$	$\delta^{13}\text{C}_{18:0}$	$\Delta^{13}\text{C}$	Aquatic biomarkers
CHANNEL ISLES/NORMANDY TRADITION NEOLITHIC				
EARLY NEOLITHIC <i>Villeneuve-Saint-Germain, Pinnacle-Fouillages</i>				
<b>Les Fouillages, Guernsey</b>				
LF1	-29.8	-33.4	-3.5	(-)
LF4	-28.3	-33.5	-5.2	(-)
LF5	-27.0	-31.3	-4.3	(-)
EARLY MID NEOLITHIC <i>Cerny- and early Castellic-type</i>				
<b>Les Blanches Banques, Jersey</b>				
LBB1	-26.8	-29.6	-2.8	(-)
LBB2	-27.9	-31.3	-3.4	(-)
<b>Mont Orgueil, Jersey</b>				
MOG1	-27.4	-32.6	-5.2	(-)
MOG3	-27.9	-31.2	-3.3	(-)
MOG4	-27.9	-32.9	-5.1	(-)
NEOLITHIC BRITAIN AND ISLE OF MAN				
<i>Carinated Bowl, modified Carinated Bowl, Mull Hill ware</i>				
EARLY NEOLITHIC				
<b>Mainland Northern Britain</b>				
<b>Maybole, Ayrshire</b>				
MB3	-26.9	-30.4	-3.5	(-)
MB4	-28.3	-34.2	-5.9	(-)
MB5	-27.6	-32.7	-5.2	(-)
MB6	-29.2	-33.6	-4.4	(-)
<b>Lockerbie, Dumfries &amp; Galloway</b>				
LK1	-27.8	-33.1	-5.3	(-)
LK3	-28.5	-33.2	-4.7	(-)
<b>Doon Hill East Lothian</b>				
DH1	-27.3	-32.7	-5.4	(-)



DH4	-27.2	-33.3	-6.2	(-)
<b>Lesmurdie Road, Elgin, Moray</b>				
LR1	-27.6	-29.1	-1.6	LC APAAs, LC DHYAs
<b>The Hirsell, Roxburghshire</b>				
HIR1	-28.6	-32.2	-3.6	(-)
HS1	-27.6	-30.9	-3.3	(-)
HS2	-27.0	-32.9	-5.8	(-)
<b>Girvan Warehouse, Ayrshire</b>				
GIR1	-29.0	-32.8	-3.8	(-)
GIR3	-27.7	-32.5	-4.8	(-)
GIR4	-29.7	-34.6	-4.9	(-)
GIR5	-29.3	-35.7	-6.4	(-)
GIR7	-28.4	-34.1	-5.6	(-)
GIR11M	-28.8	-33.0	-4.2	(-)
GIR11R	-31.0	-32.7	-1.7	(-)
<b>Knocknab, Luce Sands</b>				
KN1	-26.4	-32.0	-5.6	(-)
KN3	-24.6	-26.8	-2.2	(-)
<b>Lanton Quarry, Northumberland</b>				
LAN1	-28.7	-34.2	-5.5	(-)
LAN2	-28.1	-32.6	-4.6	(-)
LAN3	-27.2	-30.1	-2.9	(-)
LAN4	-28.1	-30.4	-2.3	(-)
LAN5	-28.0	-34.1	-6.1	(-)
LAN6R	-28.1	-33.2	-5.1	(-)
LAN10V1	-28.1	-33.4	-5.4	(-)
LAN10V2	-29.7	-32.8	-3.1	(-)
LAN15	-28.1	-32.4	-4.3	(-)
LAN16	-27.6	-33.2	-5.6	(-)
LAN20	-28.2	-32.9	-4.8	(-)
LAN22	-27.5	-33.2	-5.7	(-)
LAN23	-27.8	-33.4	-5.6	(-)
LAN25	-27.0	-32.9	-5.9	(-)
LAN28R	-27.4	-31.8	-4.4	(-)
LAN28M	-28.9	-31.6	-2.7	(-)
LAN29	-27.3	-33.2	-5.9	(-)
LAN30	-27.4	-32.7	-5.4	(-)
LAN31	-27.8	-33.5	-5.7	(-)
LAN33	-28.5	-32.7	-4.2	(-)
LAN39	-28.1	-31.8	-3.8	(-)
LAN40M	-27.7	-31.7	-4.0	(-)
LAN42	-28.4	-33.3	-4.9	(-)
LAN43R	-28.0	-33.4	-5.5	(-)

LAN43M	-27.7	-33.1	-5.4	(-)
LAN44	-27.3	-31.2	-3.9	(-)
LAN45	-26.5	-32.8	-6.3	(-)
LAN46	-27.4	-33.0	-5.6	(-)
LAN47	-28.5	-32.7	-4.1	(-)
LAN49	-28.3	-32.8	-4.5	(-)
LAN50	-28.1	-29.9	-1.8	(-)
LAN51	-25.8	-31.9	-6.1	(-)

#### Upper Forth Crossing, East Lothian

UFC4	-27.6	-31.7	-4.2	(-)
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#### Isle of Man

##### Billown

BIL1	-30.2	-35.4	-5.2	(-)
BIL2	-27.8	-34.3	-6.4	(-)
BIL6	-28.1	-32.1	-4.0	(-)
BIL8	-28.0	-31.6	-3.7	(-)
BIL10	-28.9	-34.3	-5.5	(-)
BIL11	-28.6	-33.7	-5.0	(-)
BIL12	-28.3	-31.5	-3.2	(-)
BIL15	-28.8	-31.7	-2.9	(-)
BIL20	-27.1	-28.8	-1.7	(-)
BIL20V	-27.5	-30.9	-3.4	(-)

*Hebridean, 'Unstan', Impressed, Early Grooved Wares*

#### SECONDARY EXPANSION

#### Mainland Northern Britain

##### Culduthel, Invernesshire

CUL1	-27.5	-35.0	-7.5	(-)
CUL4	-28.7	-34.0	-5.3	(-)
CUL4V	-30.9	-37.2	-6.3	(-)

##### Upper Forth Crossing,

##### Clackmannanshire

UFC7	-28.7	-34.7	-5.9	(-)
UFC8	-30.3	-35.4	-5.0	(-)
UFC11	-27.0	-33.7	-6.7	(-)
UFC12	-29.9	-34.8	-4.9	(-)
UFC15	-27.4	-33.7	-6.3	(-)
UFC17	-29.2	-34.5	-5.4	(-)
UFC19	-30.6	-33.3	-2.7	(-)
UFC20V	-30.6	-33.2	-2.7	(-)
UFC21	-28.0	-33.9	-5.9	(-)
UFC22	-29.2	-34.1	-4.8	(-)
UFC22V	-29.3	-33.6	-4.3	(-)

UFC23	-28.9	-34.5	-5.7	(-)
UFC24	-30.0	-35.5	-5.5	(-)
UFC25	-29.6	-33.9	-4.3	(-)
UFC27	-30.2	-35.6	-5.4	(-)

## Outer Hebrides

### Dunasbroc, Isle of Lewis

DB-2	-26.0	-33.2	-7.1	(-)
DB-7	-27.1	-29.4	-2.3	(-)
DB-8	-27.3	-32.6	-5.3	(-)
DB-9	-27.2	-32.4	-5.2	(-)
DB-11	-27.5	-30.8	-3.3	(-)
DB-12	-27.4	-32.3	-4.9	(-)
DB-13	-26.5	-31.8	-5.4	(-)
DB-14	-27.4	-29.8	-2.4	(-)
DB-15	-26.5	-32.8	-6.3	(-)
DB-16	-24.4	-32.8	-8.5	(-)
DB-17	-27.2	-32.9	-5.7	(-)
DB-20	-27.2	-32.6	-5.4	(-)
DB-22	-26.1	-32.9	-6.8	(-)
DB-24	-26.5	-32.8	-6.3	(-)
DB-25	-25.7	-32.5	-6.8	(-)
DB-26	-26.5	-32.1	-5.6	(-)
DB-28	-26.1	-30.4	-4.3	(-)
DB-30	-26.6	-31.7	-5.1	(-)

### Loch Olabhat, North Uist

LOL2	-26.0	-33.2	-7.1	(-)
LOL4	-27.1	-29.4	-2.3	(-)
LOL5	-27.3	-32.6	-5.3	(-)
LOL8	-27.2	-32.4	-5.2	(-)
LOL14	-27.5	-30.8	-3.3	(-)
LOL14V	-27.4	-32.3	-4.9	(-)
LOL23	-26.5	-31.8	-5.4	(-)
LOL25	-27.4	-29.8	-2.4	(-)

### Bharpa Langais, South Uist

BP1	-26.6	-32.1	-5.5	LC APAAs, LC
BP1V	-28.2	-30.5	-2.4	DHYAs
				-

## Orkney

### Pool, Sanday

PL2	-27.6	-31.1	-3.5	(-)
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### Braes o'Habreck, Wyre

HAB6	-28.3	-31.5	-3.1	(-)
HAB7	n.a.	n.a.	n.a.	(-)

HAB9	n.a.	n.a.	n.a.	(-)
HAB15	-27.0	-33.4	-6.4	(-)
HAB17	-27.8	-30.7	-3.0	(-)
<b>Knowes of Trotty, Mainland</b>				
KOT2	-28.4	-31.6	-3.2	(-)
KOT4	-27.6	-30.7	-3.2	(-)
KOT5	-27.1	-31.0	-3.9	(-)
KOT6	-26.3	-26.6	-0.3	(-)
KOT7	-27.0	-32.6	-5.6	(-)
KOT8	-28.3	-33.1	-4.8	(-)
KOT10	-26.6	-31.4	-4.7	(-)
<b>Stonehall, Mainland<sup>†</sup></b>				
SHU29	-28.5	-33.6	-5.1	(-)
SHU168	-27.4	-31.1	-3.7	(-)
SHR168	-27.5	-31.1	-3.6	(-)
SHU1230	-28.0	-31.9	-3.9	(-)
SHU7118	-27.5	-32.8	-5.3	(-)
SHU7119	-27.5	-31.8	-4.3	(-)
SHU7055	-28.3	-33.3	-5.0	(-)
SHR7055	-28.5	-33.5	-5.0	(-)
SHU7064	-27.7	-32.6	-4.9	n.a.
SHU7094	-27.5	-32.0	-4.5	(-)
SHU7145	-28.7	-32.1	-3.4	n.a.
SH1800	-24.6	-31.1	-6.5	n.a.
SH2300	-27.8	-30.3	-2.5	n.a.
SH2430	-27.5	-29.9	-2.4	(-)
SH2499	-28.4	-32.6	-4.2	(-)
<b>Widford Hill, Mainland<sup>†</sup></b>				
WHU6	-26.8	-32.8	-6.0	(-)
WHU13	-26.4	-32.9	-6.5	(-)
WHU286	-27.4	-32.9	-5.5	(-)
WHU290	-27.9	-33.3	-5.4	(-)
WHU399	-26.6	-31.0	-4.4	(-)
WHU567	-28.4	-33.8	-5.4	(-)
WHU636	-26.9	-32.9	-6.0	(-)
WHR636	-28.3	-33.1	-4.8	(-)
WHU912	-26.8	-32.6	-5.8	n.a.
WHU915	-27.2	-33.0	-5.8	n.a.
WHU995	-26.9	-30.7	-3.8	(-)
<b>Quanterness, Mainland</b>				
QAN2	-28.9	-33.5	-4.6	(-)
QAN3	-28.3	-31.9	-3.6	(-)
QAN4	-28.9	-32.8	-3.9	(-)
QAN5	-27.1	-33.1	-5.9	(-)
<b>Shetland</b>				

**Scord of Brouster**

SOB6	n.a.	n.a.	n.a.	(-)
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LATE NEOLITHIC

*Grooved Ware, Ronaldsway Ware***Mainland Northern Britain****Mountcastle Quarry**

MQLF2	-27.7	-29.8	-2.0	(-)
MQLF3	-28.9	-29.8	-0.9	(-)

**Orkney****Pool, Sanday**

PL1	n.a.	n.a.	n.a.	(-)
PL3	-25.8	-29.7	-3.8	(-)
PL5	-28.7	-32.0	-3.4	(-)
PL7	-27.8	-33.2	-5.4	(-)

**Ness of Brodgar, Mainland**

NEB1	-26.8	-29.1	-2.3	(-)
NEB2	-26.7	-30.4	-3.6	(-)
NEB3	n.a.	n.a.	n.a.	(-)
NEB4	-27.4	-30.1	-2.7	(-)
NEB6	-27.5	-29.4	-1.9	(-)
NEB7	-27.3	-31.7	-4.5	(-)
NEB8	-27.6	-31.3	-3.7	(-)
NEB10	-27.2	-32.0	-4.8	(-)
NEB13	-28.1	-30.7	-2.6	(-)
NEB15	-27.0	-30.8	-3.8	(-)
NEB16	-26.5	-30.5	-4.0	(-)
NEB17	-27.4	-32.3	-4.8	(-)
NEB18	-26.7	-31.0	-4.3	(-)
NEB19	-26.7	-30.0	-3.3	(-)
NEB21	-26.6	-29.0	-2.5	(-)
NEB22	n.a.	n.a.	n.a.	(-)
NEB23	-27.6	-30.9	-3.3	(-)
NEB25	-30.0	-29.1	0.8	(-)
NEB26	-26.6	-29.4	-2.8	(-)
NEB27	-26.4	-31.0	-4.6	(-)
NEB28	-28.1	-31.4	-3.4	(-)
NEB30	-27.3	-30.3	-3.0	(-)

**Skara Brae, Mainland<sup>†</sup>**

SBG27	-27.2	-29.2	-2.0	(-)
SBG40	-25.0	-29.9	-4.9	n.a.
SBG84	-27.4	-30.4	-3.0	n.a.
SBG97	-28.0	-30.8	-2.8	(-)
SBG104	-26.8	-30.0	-3.2	(-)

SBG234	-27.7	-31.1	-3.4	(-)
SBR234	-27.0	-31.5	-4.5	n.a.
SBG240	-27.1	-27.1	0.0	n.a.
SBG317	-27.8	-30.5	-2.7	(-)
SBG332	-27.0	-29.8	-2.8	n.a.
SBG338	-27.4	-30.5	-3.1	(-)
SBG340	-27.0	-30.9	-3.9	(-)
SBG349	-26.3	-32.9	-6.6	(-)
SBG385	-27.8	-31.5	-3.7	(-)
SBG507	-25.6	-30.1	-4.5	(-)
SBG761	-27.6	-31.1	-3.5	(-)
SBG801	-27.3	-32.2	-4.9	n.a.
SBG1000	-27.9	-32.5	-4.6	(-)
SBG1051	-26.8	-30.4	-3.6	(-)
SBG1054	-26.5	-30.9	-4.4	(-)
SBG1055	-27.1	-30.9	-3.8	(-)
SBG1057	-25.9	-32.2	-6.3	(-)
SBG1542	-26.4	-31.5	-5.1	(-)
SBG1602	-27.8	-30.7	-2.9	(-)
SBG1639	-27.5	-31.8	-4.3	(-)
SBG1754	-27.4	-30.8	-3.4	(-)
SBG3010	-26.0	-29.7	-3.7	(-)
SBG3026	-31.8	-30.2	1.6	(-)
SBG3111	-26.4	-29.4	-3.0	(-)
SBG3137	-27.8	-30.8	-3.0	n.a.
SBG3142	-27.1	-30.7	-3.6	(-)
SBG3191	-27.3	-30.6	-3.3	(-)
SBG3193	-27.5	-30.4	-2.9	n.a.
SBG3198	-27.1	-29.9	-2.8	(-)
SBG3241	-27.8	-30.7	-2.9	(-)
SBG5149	-27.4	-30.6	-3.2	(-)
<b>Stonehall, Mainland<sup>†</sup></b>				
SHG393	-27.6	-31.6	-4.0	n.a.
SHG2106	-26.8	-32.0	-5.2	
SHG2107	-28.2	-31.6	-3.4	
SHG2134	-27.9	-28.6	-0.7	(-)
SHG2150	-27.4	-30.0	-2.6	(-)
SHG2625	-27.9	-32.1	-4.2	n.a.
SHG3606	-28.4	-31.6	-3.2	(-)
SHG4124	-27.7	-30.7	-3.0	(-)
SHG6077	-27.2	-31.8	-4.6	n.a.
SHG6260	-26.8	-33.6	-6.8	n.a.
SHG6261	-27.2	-30.0	-2.8	(-)
SHG6306	-27.1	-30.4	-3.3	(-)
SHR6306	-27.0	-30.3	-3.3	(-)
SHR6305	-27.1	-32.0	-4.9	(-)
<b>Crossiecrown, Mainland<sup>†</sup></b>				
CCG19	-28.1	-33.7	-5.6	(-)

CCG150	-26.6	-32.4	-5.8	(-)
CCG738	-29.6	-31.9	-2.3	(-)
CCG899	-28.0	-31.7	-3.7	(-)
CCG937	-28.1	-30.2	-2.1	n.a.

**Links of Noltland, Westray<sup>†</sup>**

LON1	-26.4	-30.2	-3.8	(-)
LON2	-25.3	-32.0	-6.8	(-)
LON3	-24.9	-27.8	-2.9	(-)
LON4	-26.2	-32.3	-6.1	(-)
LON5	-26.0	-30.5	-4.5	(-)
LON7	-27.0	-29.7	-2.7	(-)
LON10	-26.4	-32.5	-6.1	(-)
LON11	-27.4	-29.9	-2.6	(-)
LON12	-26.1	-31.2	-5.0	(-)
LON13	-25.5	-29.5	-4.0	(-)
LON14	-25.8	-32.1	-6.3	(-)
LON16	-25.1	-28.5	-3.3	(-)
LON18	-25.5	-31.1	-5.6	(-)
LON19	-26.1	-29.3	-3.2	(-)
LON23	-26.7	-28.8	-2.1	(-)
LON24	-25.8	-31.7	-5.9	(-)
LON30	-27.6	-30.5	-2.9	(-)
LON31	-24.2	-30.7	-6.5	(-)
LON32	-27.3	-32.0	-4.7	(-)
LON33	-25.8	-32.4	-6.6	(-)
LON34	-26.0	-32.0	-6.0	(-)
LON35	-27.9	-30.0	-2.1	(-)
LON36	-28.5	-30.0	-1.5	(-)
LON38	-28.7	-30.5	-1.8	(-)
LON39	-27.4	-29.4	-2.0	(-)
LON40	-26.7	-30.2	-3.5	(-)
LON40V	-26.1	-29.4	-3.3	(-)
LON41	-26.4	-29.3	-2.9	(-)
LON42	-26.9	-29.7	-2.8	(-)
LON43	-28.6	-33.7	-5.1	(-)
LON44V	-26.6	-28.8	-2.3	(-)
LON46	-26.1	-29.6	-3.5	(-)
LON46V	-27.3	-30.5	-3.3	(-)
LON50	-26.8	-29.6	-2.7	(-)
LON52	-27.7	-30.6	-2.9	(-)
LON52V	-26.6	-29.6	-3.1	(-)
LNG1	-26.4	-29.0	-2.6	n.a.
LNG2	-25.7	-31.5	-5.8	n.a.
LNG3	-27.1	-30.3	-3.2	n.a.
LNG4	-26.7	-33.4	-6.7	n.a.
LNG6	-27.2	-30.1	-2.9	n.a.
LNG7	-26.5	-28.9	-2.4	n.a.
LNG8	-25.3	-27.0	-1.7	n.a.
LNG9	-26.5	-29.0	-2.5	n.a.

LNG10	-26.6	-30.7	-4.1	n.a.
LNG11	-27.0	-31.1	-4.1	n.a.
LNG12	-27.1	-31.9	-4.8	n.a.
LNG14	-26.3	-32.3	-6.0	n.a.
LNG15	-26.0	-31.8	-5.8	n.a.

## Shetland

### Scord of Brouster, Mainland

SOB1	-27.0	-33.6	-6.6	(-)
SOB3	-27.6	-32.9	-5.3	(-)
SOB4	-27.7	-33.7	-6.1	(-)
SOB9	-27.5	-31.6	-5.9	(-)
SOB10	-27.2	-31.5	-4.2	(-)
SOB11	-27.0	-30.4	-4.4	(-)
SOB14	-27.6	-32.6	-3.4	(-)
SOB15	-28.4	-32.6	-5.0	(-)
SOB16	-28.3	-33.1	-4.1	(-)
SOB17	-27.4	-31.8	-4.8	(-)
SOB18	-27.8	-32.2	-4.4	(-)
SOB19	-27.8	-32.8	-4.4	(-)
SOB20	-27.7	-32.4	-5.1	(-)
SOB21	-28.0	-30.4	-4.7	(-)
SOB22	-27.7	-32.5	-2.4	(-)

## Isle of Man

### Billown

BIL21	-28.4	-33.3	-4.8	(-)
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### Ronaldsway

RW1	-26.1	-31.8	-5.6	(-)
RW2	-27.1	-33.1	-6.0	(-)
RW3	-27.4	-33.1	-5.7	(-)
RW4	n.a.	n.a.	n.a.	(-)
RW7	-25.8	-27.1	-1.3	(-)
RW8	-27.4	-32.8	-5.5	(-)
RW10	-27.7	-33.9	-6.2	(-)
RW14	-28.5	-33.9	-5.4	(-)
RW17	-26.7	-32.1	-5.4	(-)
RW18	-27.3	-32.9	-5.6	(-)
RW20	-30.3	-34.8	-4.5	(-)
RW21	-28.5	-33.8	-5.3	(-)
RW24	-27.2	-32.7	-5.5	(-)
RW25	n.a.	n.a.	n.a.	(-)
RW30	-25.5	-31.9	-6.5	(-)
RW30V	-26.6	-33.1	-6.5	(-)

## Glencrutchery



GC5	-31.4	-35.0	-3.5	(-)
GC14	-31.4	-34.3	-2.9	(-)
GC23	-29.1	-31.9	-2.8	(-)
GC28	-29.7	-34.2	-4.5	(-)

## BRONZE AGE

### Outer Hebrides

#### Cladh Hallan, South Uist

CH2	-26.2	-28.5	-2.3	(-)
CH3	-27.7	-29.0	-1.4	(-)
CH4	-27.6	-32.6	-4.9	(-)
CH5	-27.7	-33.0	-5.3	(-)
CH6	-26.8	-32.5	-5.7	(-)
CH8	-25.9	-28.7	-2.7	(-)
CH12	-27.2	-31.8	-4.6	(-)
CH16	-27.3	-30.9	-3.6	(-)
CH17	-28.2	-31.3	-3.0	(-)

### Orkney

#### Toft's Ness, Sanday

TN1	-27.2	-31.0	-3.9	(-)
TN4	-29.7	-32.4	-2.7	(-)
TN6	-27.9	-31.4	-3.6	(-)
TN8	-29.6	-30.8	-1.2	(-)
TN10	-29.4	-33.8	-4.4	(-)
TN11	-28.3	-32.9	-4.7	(-)
TN12	-28.2	-32.0	-3.9	(-)
TN16	-28.7	-30.1	-1.4	(-)

#### Linga Fiold, Mainland

LIN1	-28.2	-31.1	-2.9	(-)
LIN2	-27.8	-33.2	-5.3	(-)
LIN3	-29.0	-33.5	-4.6	(-)
LIN5	-28.3	-31.4	-3.1	(-)
LIN6	-28.0	-32.3	-4.3	(-)

### Shetland

#### Scord of Brouster, Mainland

SOB7	-26.8	-32.7	-5.9	(-)
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#### Sumburgh

SUM1	-26.7	-29.1	-2.4	(-)
SUM3	-25.8	-29.7	-3.9	(-)
SUM5	-26.1	-29.7	-3.6	(-)
SUM6	-26.5	-30.1	-3.6	(-)
SUM7	-27.0	-32.1	-5.1	(-)

SUM8	-26.4	-29.8	-3.4	(-)
SUM9	-27.2	-29.6	-2.4	(-)
SUM10	-26.6	-30.5	-4.0	(-)
SUM13	-26.6	-31.3	-4.6	(-)
SUM14	-26.6	-31.6	-5.0	(-)
SUM15	-26.7	-30.3	-3.5	(-)
SUM16	-26.9	-30.5	-3.5	(-)
SUM17	-26.6	-31.5	-4.8	(-)
SUM19	-26.4	-31.0	-4.6	(-)
SUM20m	-26.6	-29.5	-2.8	(-)
SUM20b	-26.0	-31.2	-5.2	(-)
SUM21	-26.5	-30.5	-4.0	(-)

## Iron Age

### Outer Hebrides

#### Dun Vulcan, South Uist

DUV1	-27.5	-32.8	-5.3	(-)
DUV2	-27.5	-30.8	-3.3	(-)
DUV3	-26.0	-32.1	-6.1	(-)
DUV6	-26.3	-29.6	-3.3	(-)
DUV8	-26.6	-30.4	-3.8	(-)
DUV9	-26.3	-29.9	-3.6	(-)
DUV14	-27.8	-32.6	-4.8	(-)
DUV15	-27.5	-32.0	-4.5	(-)
DUV16	-26.8	-29.2	-2.4	(-)
DUV19	-26.6	-30.5	-3.9	(-)
DUV21	-25.7	-29.9	-4.2	(-)
DUV22	-26.5	-32.1	-5.6	(-)
DUV24	-25.6	-30.8	-5.2	(-)
DUV27	-27.5	-32.5	-4.9	(-)
DUV28	-25.5	-30.8	-5.3	(-)

#### Baile Sear, North Uist

BS1	-26.9	-30.5	-3.6	(-)
BS2	-27.2	-31.7	-4.5	(-)
BS4	-27.2	-29.0	-1.9	(-)
BS5	-26.6	-29.7	-3.2	(-)
BS6	n.a.	n.a.	n.a.	(-)
BS7	-27.0	-31.9	-4.9	(-)
BS8	-26.5	-29.5	-3.0	(-)
BS9	n.a.	n.a.	n.a.	(-)
BS10	n.a.	n.a.	n.a.	(-)
BS11	-27.1	-31.9	-4.8	(-)
BS12	n.a.	n.a.	n.a.	(-)
BS14	-26.7	-31.0	-4.4	(-)
BS15	-27.7	-30.2	-2.5	(-)
BS18	-25.8	-31.3	-5.5	(-)

BS19	-26.3	-29.1	-2.8	(-)
BS20	-27.0	-32.7	-5.7	(-)
BS21	-28.0	-32.4	-4.4	(-)
BS23	-26.4	-29.3	-2.9	(-)
BS24	-26.1	-32.5	-6.4	(-)
BS8V	-27.0	-29.6	-2.6	(-)
<b>Dun Arnistean, Isle of Lewis</b>				
DAR1	-26.7	-29.7	-3.0	(-)
DAR3	n.a.	n.a.	n.a.	(-)
DAR7	-27.3	-30.8	-3.5	(-)
DAR8	-27.7	-31.4	-3.7	(-)
DAR9	n.a.	n.a.	n.a.	(-)
<b>Bornais, South Uist</b>				
BN19	-27.0	-30.2	-3.2	(-)
BN17	-26.9	-30.8	-3.9	(-)
BN20	-27.1	-31.0	-3.9	(-)
BN25	-27.6	-32.5	-4.8	(-)
BN-26	n.a.	n.a.	n.a.	(-)
BN58	-28.3	-32.0	-3.7	(-)
BN59	n.a.	n.a.	n.a.	(-)
BN62	-27.6	-32.5	-4.8	(-)
BN66	-27.4	-30.3	-2.9	(-)
BN66v	-27.4	-30.3	-2.9	(-)
BN68	-26.8	-28.5	-1.6	(-)
BN69	-26.9	-31.0	-4.1	(-)
BN70	-26.8	-29.9	-3.1	LC APAAs
BN70V	-26.8	-29.3	-2.5	(-)
BN71	-27.4	-31.7	-4.3	(-)
BN71V	-26.9	-30.8	-3.8	(-)
BN72	-28.1	-33.8	-5.8	(-)
BN74	-26.6	-29.4	-2.8	LC APAAs
BN74V	-26.9	-29.8	-2.9	(-)
BN76	-26.8	-29.3	-2.5	(-)
BN77	-26.9	-29.9	-3.1	(-)
BN78V	-27.0	-29.7	-2.7	(-)
BN79	-26.8	-30.0	-3.2	(-)
BN80	-28.3	-32.5	-4.3	(-)
BN82	-26.8	-29.0	-2.2	(-)
BN83	-27.4	-30.6	-3.3	LC DHYAs
BN84	-28.0	-30.4	-2.4	(-)
BN86	-26.8	-29.4	-2.5	(-)
BN87	-26.8	-30.4	-3.6	LC APAAs
BN87V	-27.5	-30.7	-3.2	(-)
				LC APAAs, LC
BN88	-24.2	-25.5	-1.3	DHYAs
BN88V	-25.1	-28.5	-3.4	(-)
BN89	-26.8	-29.4	-2.5	(-)

## Orkney

### Toft's Ness, Sanday

TN19	-25.7	-29.4	-3.7	LC DHYAs
TN22	-26.5	-30.4	-3.9	(-)
TN25	-26.0	-28.5	-2.5	(-)
TN27	-25.8	-29.4	-3.6	(-)
TN34	-26.6	-31.0	-4.4	LC APAAs

## Shetland

### Scalloway, Mainland

SCA4v	-27.6	-27.7	-0.1	LC APAAs, LC DHYAs
SCA1	-27.6	-32.7	-5.1	(-)
SCA2	-27.8	-29.4	-1.6	LC APAAs, LC DHYAs
SCA3	-27.6	-27.7	-0.1	(-)
SCA4	-27.6	-32.7	-5.1	LC DHYAs
SCA5	-27.8	-29.4	-1.6	(-)
SCA6	-27.2	-31.1	-3.9	(-)
SCA8	-28.1	-28.1	-0.0	(-)
SCA10	-27.4	-31.6	-4.2	(-)
SCA12	-27.4	-31.3	-3.9	(-)
SCA13	-27.7	-31.9	-4.2	(-)
SCA14	-27.5	-31.3	-3.8	(-)
SCA15	-27.0	-30.8	-3.8	(-)
SCA17	n.a.	n.a.	n.a.	(-)
SCA18	n.a.	n.a.	n.a.	(-)
SCA19	-27.5	-32.1	-4.6	(-)
SCA20	-27.2	-31.9	-4.7	(-)
SCA23	n.a.	n.a.	na	(-)
SCA25	-27.3	-32.2	-4.8	(-)

## Viking/Norse

### Outer Hebrides

#### Cille Pheadair, South Uist

KP1	-24.3	-27.2	-3.0	LC APAAs
KP2	-27.0	-29.6	-2.5	(-)
KP3	-26.9	-29.7	-2.8	(-)
KP4	-26.5	-31.3	-4.8	(-)
KP5M	-27.7	-30.4	-2.7	LC APAAs, LC DHYAs
KP5U	-27.3	-29.3	-1.9	LC APAAs
KP6	-27.2	-31.8	-4.7	LC APAAs
KP7	-27.0	-31.5	-4.5	(-)
KP8	-25.8	-30.4	-4.6	LC APAAs, LC DHYAs

KP9	-27.7	-30.9	-3.2	(-)
KP10	-26.2	-31.7	-5.5	LC APAAs
KP11	-24.8	-29.6	-4.8	(-)
KP12	-26.6	-28.9	-2.3	(-)
KP14	-27.6	-31.0	-3.4	(-)
KP19	-27.3	-31.2	-3.9	(-)
	n.a.	n.a.	n.a.	LC APAAs, LC
KP20				DHYAs
KP7vi	n.a.	n.a.	n.a.	(-)
KP 2v	n.a.	n.a.	n.a.	LC APAAs
<b>Bornais, South Uist</b>				
BN8	-27.6	-33.4	-5.8	(-)
BN8V	n.a.	n.a.	n.a.	(-)
BN28V	n.a.	n.a.	n.a.	LC APAAs
BN29	-27.0	-31.3	-4.3	(-)
BN33	-27.6	-33.6	-6.0	(-)
BN34	-26.3	-30.5	-4.2	(-)
BN34V	-25.0	-28.7	-3.6	LC APAAs
				LC APAAs, LC
BN35	-25.4	-31.4	-6.0	DHYAs
BN-35V	n.a.	n.a.	n.a.	LC APAAs
				LC APAAs, LC
BN36	-27.3	-31.8	-4.5	DHYAs
BN38	-25.7	-29.4	-3.7	LC APAAs
BN39	-27.6	-31.8	-4.2	LC APAAs
BN39V	n.a.	n.a.	n.a.	(-)
BN44	-26.9	-30.1	-3.2	(-)
BN45	n.a.	n.a.	n.a.	(-)
BN46	-26.1	-31.2	-5.1	(-)
BN46V	n.a.	n.a.	n.a.	(-)
BN47	-28.4	-33.6	-5.2	(-)
BN48	n.a.	n.a.	n.a.	(-)
BN49	-27.2	-31.6	-4.5	(-)
BN51	-26.5	-28.9	-2.5	(-)
BN52	-26.5	-29.1	-2.6	LC APAAs
BN52V	n.a.	n.a.	n.a.	(-)
BN53	-26.4	-29.4	-3.	LC APAAs
BN54	-26.5	-28.4	-2.0	(-)
				LC APAAs, LC
BN55	-24.7	-28.2	-3.5	DHYAs
BN90	-26.4	-29.9	-3.6	(-)
				LC APAAs, LC
BN91	-24.3	-27.9	-3.6	DHYAs
BN92	-27.6	-30.9	-3.4	(-)
BN93	-26.4	-30.9	-4.6	LC APAAs
BN94	-26.5	-28.7	-2.3	(-)
BN95	-26.6	-29.3	-2.7	(-)
BN96V	-26.9	-31.2	-4.3	(-)
BN97	-27.4	-30.3	-2.9	(-)

BN99	-29.0	-30.5	-1.5	(-)
BN100	-28.9	-30.5	-1.6	(-)
BN101	-28.1	-32.2	-4.2	(-)
BN103	-28.1	-30.1	-2.1	(-)
BN104	-27.3	-30.9	-3.7	(-)
				LC APAAs, LC
BN105	-26.3	-31.7	-5.4	DHYAs
BN107	-25.9	-32.3	-6.4	(-)
BN108	-27.5	-32.7	-5.2	(-)
BN110	-25.4	-25.9	-0.5	LC APAAs
BN111V	-26.8	-32.4	-5.6	(-)
BN115	-27.2	-31.0	-3.8	(-)
BN115V	-27.8	-30.6	-2.8	(-)
BN117	-27.3	-30.1	-2.8	(-)
BN118	-26.7	-30.1	-3.4	(-)
BN121	-26.8	-32.0	-5.2	(-)
BN122	-28.0	-30.8	-2.8	(-)
BN123	-26.5	-31.8	-5.4	(-)
BN123V	-26.9	-31.4	-4.5	(-)
BN124	-27.2	-29.8	-2.6	(-)
BN124V	-27.3	-29.7	-2.4	(-)
BN125	-28.2	-30.7	-2.5	(-)
BN126	-28.2	-32.5	-4.4	(-)
BN126V	-27.1	-32.4	-5.3	n.a.
BN130	-28.3	-33.1	-4.8	(-)
BN131	-26.8	-30.8	-4.0	(-)

## Shetland

### Jarlshof, Mainland

JAR1	-22.2	-21.8	0.4	LC APAAs
JAR2	-22.3	-22.5	-0.2	LC APAAs
JAR3	-22.5	-25.6	-3.1	LC APAAs
JAR5	-27.5	-30.5	-3.0	(-)
				LC APAAs, LC
JAR6	-23.2	-25.3	-2.1	DHYAs
				LC APAAs, LC
JAR7	-23.6	-24.7	-1.1	DHYAs
				LC APAAs, LC
JAR8	-22.7	-22.4	0.3	DHYAs
JAR12	-26.3	-28.1	-1.9	(-)
				LC APAAs, LC
JAR13	-22.6	-24.3	-1.7	DHYAs
				LC APAAs, LC
JAR14	-26.1	-32.8	-6.6	DHYAs
JAR14V	-24.7	-31.7	-7.0	LC APAAs
JAR15V	-22.2	-21.2	1.0	LC APAAs
JAR16	-27.4	-30.1	-2.7	LC APAAs
JAR17	-25.2	-29.0	-3.9	(-)
JAR18	-21.6	-23.6	-2.0	LC APAAs

JAR19	-23.8	-24.0	-0.2	LC APAAs, LC DHYAs
JAR21	-21.7	-21.4	0.3	(-)
JAR22	-24.1	-27.0	-2.9	LC APAAs, LC DHYAs
JAR22V	-25.6	-29.2	-3.6	LC APAAs

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