

Supplementary Information Table 2. Amino acid composition of *Bithynia troscheli* opercula from Pakefield (laminated silts, lithofacies PaCi and ‘*Unio*-bed’, PaCii), Waverley Wood and the type Cromerian West Runton Freshwater Bed. Each individual operculum was bleached (b), with the Free amino acid fraction signified by “F” and the Hydrolysed fraction by “H*”. The error term for the Waverley Wood and West Runton data represents two standard deviations (95% confidence) about the mean for multiple samples.

Site / NEaar no.	Sample details	Asx D/L	Glx D/L	Ser D/L	Ala D/L	Val D/L	[Ser]/[Ala]
Waverley Wood bF	Bulk 1 (n=5)	0.804 ± 0.003	0.516 ± 0.045	1.016 ± 0.066	0.567 ± 0.008	0.344 ± 0.012	0.207 ± 0.018
Waverley Wood bH*	Bulk 1 (n=5)	0.709 ± 0.016	0.359 ± 0.009	0.825 ± 0.045	0.487 ± 0.011	0.277 ± 0.014	0.208 ± 0.044
West Runton bF	Bed d (n=8)	0.861 ± 0.010	0.519 ± 0.014	1.114 ± 0.066	0.664 ± 0.021	0.399 ± 0.007	0.125 ± 0.010
West Runton bH*	Bed d (n=8)	0.788 ± 0.028	0.399 ± 0.047	0.858 ± 0.104	0.603 ± 0.023	0.330 ± 0.022	0.139 ± 0.020
Pakefield							
1711bF	PaCii	0.856	0.498	1.073	0.624	0.467	0.111
1711bH*	PaCii	0.771	0.469	0.757	0.578	0.363	0.145
1712bF	PaCii	0.835	0.478	1.067	0.640	0.464	0.111
1712bH*	PaCii	0.770	0.436	0.744	0.570	0.348	0.145
1968bF	PaCii	0.837	0.573	1.032	0.651	0.417	0.125
1968bH*	PaCii	0.776	0.487	0.835	0.590	0.329	0.130
2164bF	PaCi	0.857	0.520	1.143	0.663	0.365	0.114
2164bH*	PaCi	0.793	0.396	0.716	0.595	0.313	0.138
2165bF	PaCi	0.855	0.538	1.172	0.648	0.363	0.111
2165bH*	PaCi	0.799	0.399	0.766	0.585	0.302	0.132
2166bF	PaCi	0.841	0.468	1.142	0.634	0.347	0.127
2166bH*	PaCi	0.763	0.330	0.770	0.526	0.277	0.154
2167bF	PaCi	0.852	0.502	1.102	0.656	0.369	0.130
2167bH*	PaCi	0.787	0.414	0.581	0.574	0.302	0.148