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Biostratigraphy of a suite of samples from the region around Marlborough

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Biostratigraphy of a suite of samples from the region around Marlborough

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Summary

This report summarises the palaeontological results obtained from Kimmeridgian to late Cretaceous deposits of the region around Marlborough. Biostratigraphical conclusions are based principally on the foraminifera recorded.

1 Introduction

A suite of 19 samples from the Kimmeridge Clay through to the Chalk was examined for calcareous microfaunas in order to place them into a biostratigraphical context. Conclusions given below are based predominantly on the foraminiferal content.

2 Faunal list and conclusions

MPA54258 PMH4013 ST95366 62147

Epistomina parastelligera

Frondicularia franconica

Epistomina reticulata

Dentalina pseudocommunis

Citharina cf serratocostata (Frag)

Epistomina reticulata is a good marker in the Oxfordian its range coinciding with the Tenuiserratum-Serratatum macrofaunal zones.

MPA54262 PMH4017 ST 95917 62979

Citharina flabellata/serratocostata

Frondicularia franconica

Lenticulina cf majori (Jason-athleta)

Lenticulina munsteri

Frondicularia franconica (which becomes extinct in the Cymodoce macrofaunal zone) and single very questionable specimen of *L. majori*- a species that becomes extinct in the athleta Zone suggests a nupper Jurassic age, no younger than the Cymodoce Zone (lower Kimmeridgian).

MPA54263 PMH4018 ST 96444 62402

Epistomina parastelligera

Lenticulina subalata (=infravolgaensis in Russia)

Lenticulina munsteri

Oyster chips

Epistomina parastelligera goes into extinction in the Mutabilis Zone and *L. subalata* has a longer range, through into the Rotunda macrofaunal Zone. This places the fauna no higher than the lower Kimmeridgian, Mutabilis Zone

MPA54265 PMH4020 ST 96703 62495

Frondicularia nikitini

Epistomina parastelligera

Fron dicularia franconica (extinct at top Cymodoce)

Lenticulina subalata

Lenticulina munsteri

Oyster chips, echinoid spine, crinoid ossicle

Long ranging species were encountered, including *Fron dicularia nikitini* (Oxfordian-Kimmeridgian), *Epistomina parastelligera* (common up to Mutabilis Zone but rare in basal Eudoxus Zone) and *Fron dicularia franconica* (which becomes extinct at top the Cymodoce Zone). The fauna is Late Jurassic in age, no higher than the early Kimmeridgian Cymodoce Zone.

MPA54266 PMH4021 ST 96651 62537

Arenobulimina chapmani

Arenobulimina obliqua

Arenobulimina cf barnardi (=truncata of some authors)

Tritaxia pyramidata

The foraminiferal fauna is exclusively agglutinated and comprises mid to late Albian taxa.

MPA54268 PMH4023 ST 96137 62811

Foraminifera:

Epistomina parastelligera

Lenticulina munsteri

Radiolaria:

Praeconocaryomma cf hexagona

Orbiculiforma sp

Cenosphaera sp

Taxa are long ranging, but on the basis of the presence of *Epistomina parastelligera*, the fauna is no higher than Lower Kimmeridgian (early Eudoxus Zone).

MPA54270 PMH4025 ST 96024 63212

Barren.

MPA54271 PMH4026 ST 96083 63217

Fron dicularia franconica (Callovian- Cymodoce Zone)

Citharina inconstans

Planularia beierana (mid-upper Jurassic)

Haplophragmoides canui (up to autissiodorensis)

Citharinella serratocostata (Oxfordian-Maraie-to Low Portlandian)

Lenticulina munsteri

Oyster-rich

The fauna is generally long-ranging, but the concurrent range is Oxfordian (Mariae Zone) to Lower Kimmeridgian (Cymodoce Zone).

MPA54273 PMH4028 ST 96931 63230

Haplophragmium sp

Virtually barren, age unknown.

MPA54276 PMH4031 ST97055 62698

Epistomina sp cf. *E bireticulata*

Citherinella inconstans

Lenticulina munsteri

Haplophragmoides canui

Oyster-rich

The reticulate/punctate specimen of *Epistomina* sp resembles the Russian species *E bireticulata*. The fauna comprises mainly long-ranging species. The Oxfordian to early Kimmeridgian is indicated.

MPA54277 PMH4032 ST97411 63011

Fronicularia franconica

Lenticulina subalata

Citharina inconstans

Lenticulina munsteri

Planularia 'protracta'

Shell chips

Only long ranging species were found, but no higher than Lower Kimmeridgian.

MPA54277 PMH4040 ST98086 63409

Tritaxia singularis/pyramidata

Arenobulimina sp cf *obliqua*

Arenobulimina sp

An assemblage of agglutinated taxa of Albian age.

MPA54168 WMD11064 SU 19475 68380

Reussella kelleri

Dicarinella canaliculata

Gavelinella tourainensis

Stensioeina is absent. The upper part of BGS12 is suggested and the LewesChalk inferred.

MPA54173 WMD11069 SU 02784 63782

*Arenobulimina anglica?**Frondicularia mariae**Pseudotexulariella cretosa*

Pseudotexulariella cretosa ranges no higher than BGS5, whereas *F. mariae* is indicative of BGS4-BGS6, although its acme is within BGS5 (it occurs in moderate numbers in the present sample). The fauna is considered to be from the lower part of the Zigzag Chalk (and no higher than Jukesbrownei macrofaunal Zone)

MPA54174 WMD11070 SU 20129 664135

*Whiteinella archaeocretacea**Gavelinella tourainensis*

Almost barren. Although very impoverished, the fauna suggests a position no higher than BGS12. As *G. tourainensis* is a Lazarus species and generally absent in BGS10, BGS11 and lower BGS12, a position within upper BGS12 is tentatively suggested.

MPA54175 WMD11071 SU16819 64127

Gavelinella sp cf tourainensis (frag)*Praeglobotruncana helvetica*

Forams very rare and poorly preserved. *Praeglobotruncana helvetica* is indicative of BGS9 to lower BGS 12 and *G. tourainensis* ranges into top of BGS12 (but probably not BGS10, 11 or lower 12 where it is generally absent in Britain). This poor fauna is used to suggest either BGS9 (*Mytiloides* zone) or 'mid' BGS12- the *lata/planus* boundary interval.

MPA54177 WMD11074 SU 22567 63961

*Rotalipora cushmani**Plectina mariae**Lingulogavelinella globosa**Gavelinella tourainensis*

Gavelinella tourainensis and *Lingulogavelinella globosa* occur in BGS6 and upwards, whereas *Rotalipora cushmani* ranges from BGS4iii to BGS7. The concurrent range of BGS6 to BGS7 places the assemblage within the upper Zigzag Chalk or a position no higher than the top of Bed 3 of the Plenus Marl.

MPA54178 WMD11075 SU22567 63961

*Praehelvetica stephani**Rotalipora cushmani**Lingulogavelinella globosa**Gavelinella tourainensis**Globigerinelloides bentonensis*

The assemblage is placed within foraminiferal zones BGS6 to BGS7. *Gavelinella tourainensis* and *Lingulogavelinella globosa* occur in BGS6 and upwards, whereas *Rotalipora cushmani* ranges from BGS4iii to BGS7. A position no higher than the top of Bed 3 of the Plenus Marl is suggested.

MPA54179 WMD11076 SU 22567 63961

Barren