ACTA PALAEONTOLOGICA POLONICA

Oyster life positions and shell beds from the Upper Jurassic of Poland

Marcin Machalski
Acta Palaeontologica Polonica 43 (4), 1998: 609-634

Life positions of three oyster species, *Actinostreon gregareum* (J. Sowerby, 1816), *Deltoideum delta* (Smith, 1817), and *Nanogyra virgula* (Defrance, 1820) from the Polish Upper Jurassic (Kimmeridgian and Volgian) sequences, mainly from the parautochthonous shell beds, are reconstructed. The oysters reveal variation in morphology and/or settling behaviour, which is interpreted in terms of ecophenotypic response to the fluctuations in sedimentation rate and the softness of substrate. Both A. gregareum and *D. delta* could `choose' between a mud-sticking and reclining mode of life. The latter strategy is manifested e.g., by a cup-shaped, *Gryphaea*-like morphotype documented for the first time in *D. delta*. *N. virgula* was previously regarded as a cup-shaped recliner, but the collected material suggests that many specimens could live in a lateral position or form clusters composed of mutually attached specimens. Sedimentation rates during the oyster life cycles can be inferred from the reconstructed oyster life positions and ranged from approximately 7-13 cm in the case of largest mud-sticking specimens to nil in flat, fan-shaped recliners. The oyster life habits can thus provide valuable insights into sedimentary and ecologic dynamics of oyster shell beds. The *Actinostreon* beds originated under dynamic bypassing conditions, whereas *Deltoideum* beds in a regime of starvation or total bypassing of sediment. In the case of the *Nanogyra virgula* beds, the evidence is ambiguous due to difficulties in reconstructing the life attitude of many specimens of this species.

Key words: Oysters, life positions, mud-stickers, recliners, ecophenotypy, shell beds, palaeoecology, sedimentology, Upper Jurassic, Poland.

Marcin Machalski [mach@twarda.pan.pl], Instytut Paleobiologii PAN, ul. Twarda 51/55, PL-00-818 Warszawa, Poland.

Full text (3,933.9 kB)