



OAE2 and the Platycopid Signal

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More than 20 years ago the first detailed multi-proxy investigation of the Cenomanian–Turonian Boundary Event (CTBE) in SE England revealed a distinctive pattern of changes in ostracod assemblages. Coincident with a major global positive carbon stable-isotope excursion during Oceanic Anoxic Event 2 (OAE 2), a marked reduction in floral and faunal diversity was attributed to decreasing levels of dissolved oxygen, consequent on an intensification and expansion of the oceanic Oxygen Minimum Zone into shelf seas. As podocopid ostracod taxa became locally extinct, platycopid ostracods became dominant; from this observation was developed the “Platycopid Signal” hypothesis which claimed that dominance of platycopids in ostracod assemblages signalled dysaerobic conditions on the sea floor. Subsequently this interpretation was widely accepted and applied to the recognition of other dysaerobic intervals in the geological record. However, the modern biological and ecological support claimed for the Platycopid Signal has been challenged and found wanting. In the case of the much-studied CTBE sections in SE England this effectively removes the only remaining pillar of support for the notion of bottom-water dysaerobia in the Anglo-Paris Basin during OAE2, which has already been contradicted by macrofossil, trace fossil and geochemical evidence. A new interpretation of the Platycopid Signal as indicative of oligotrophy is supported by other palaeontological proxy evidence in the CTBE and by observations that living platycopids appear to be adapted to filter-feed on nano- and picoplankton phytodetritus which predominates in oligotrophic conditions.

Brandão, S.N. & Horne, D.J., 2009. The Platycopid Signal of oxygen depletion in the ocean: a critical evaluation of the evidence from modern ostracod biology, ecology and depth distribution. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 286, 126-133.

Horne, D.J., Brandão, S.N. & Slipper, I.J. The Platycopid Signal deciphered: responses of ostracod taxa to environmental change during the Cenomanian-Turonian Boundary Event (Late Cretaceous) in SE England. Submitted to *Cretaceous Research*...