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Shallow-water ostracods reflect paleo-environmental conditions in the Makassar Basin, Indonesia, during the Late Quaternary

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Shallow-water ostracods (microcrustacea) were unexpectedly found in sediment core samples from deep-water environments at the Sunda Shelf, even though these ostracods typically live in habitats of less than 100 m water depths at the seafloor.
Evidence of the occurrence of these communities comes from a giant piston core (MD-982161) collected from the South Makassar Basin, Indonesia. Our findings are based on the analyses of 390 subsamples at 10cm-depth intervals and from three different grain size fractions of the sediments: 0.063mm, 0.100mm and 0.150mm. Downcore we found two significant peaks and several other smaller peaks that reflect the presence of shallowwater microfauna among the deep-water inhabitants. These unusual layers may be an indication of slumping due to a change in sea level or earthquake activities. Given the setting, it also seems likely that the sediments, including the ostracods, have been displaced as a result of turbidity currents.
The analyses of three different fractions distinguish between adult and juvenile forms of ostracods. The number of juveniles is larger than that of the adult forms in several layers, which suggests a low-energy environment. On the other hand, high-energy environments can be also detected at several layers by the dominance of adult ostracods because the juveniles have been removed because of currents that were not quite strong enough to also remove the adults.
We have based our conclusions on the three types of population age structure of ostracods suggested by Whatley (1988) where Type A in low-energy environments is typified by adults of both sexes and a large number of juveniles, Type B in high-energy environments is typified by adults and some larger juveniles, and Type C reflects smaller juveniles produced by currents of insufficient velocity to transport he larger ontogenetic stages.

Reference

[1] Whatley, R.C. 1988. Population structure of ostracods: some general principles for the recognition of palaeoenvironments. In P. De Deckker, J.P. Colin dan J.P. Peypouquet (eds). *Ostracoda in the Earth Sciences*. Elsevier, Amsterdam: 245-256.