



Bathyal bivalve assemblages of the eastern Mediterranean record the Early-Middle Pleistocene transition

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Molluscs, and among them bivalves, are organisms known for their ability to precisely record paleoenvironmental changes, both in shallow and deep marine settings. When looking into the recent geological past, bivalve assemblages offer information on the climatic changes that have impacted their taxonomic compositions. In the eastern Mediterranean, assemblages of bathyal bivalves are scarce. In order to investigate the impact of climatic changes on deep-water bivalve communities during the Early-Middle Pleistocene Transition, we focus here on two well-dated sections on Rhodes Island (Greece) corresponding to the Lindos Bay Formation. The sections of Lindos and Lardos present a continuous sedimentation of fine, marly sediments, and cover the Marine Isotopic Stages (MIS) 32 to 18. A total of 15 samples were analysed, resulting in the recovery of 31 species of bathyal bivalves. The depositional depths of these samples are estimated to be between 150 and 500 m. All samples are dominated by Protobranch bivalves, with the larger diversity found in families Nuculanidae and Yoldiidae. Three species, found only in cool intervals, are now extinct: *Ledella nicotrae*, *Katadesmia confusa*, and *Pseudoneilonella pusio*. Differences in sample composition are thought to be due mainly to climatic rather than bathymetric conditions. Although the associations in most MIS are similar to those found in the Italian Pleistocene deposits, those of the MIS 21 interglacial (*Nucula nucleus* – *Saccella commutata* – *Cyclopecten hoskynsi* – *Limea crassa*) and the MIS 20 glacial (*Saccella commutata* – *Bathyspinula excisa* – *Yoldiella curta* – *Bathyarca* spp.) are new for the Mediterranean region. These results imply that there were significant changes in bathyal bivalve associations during the climatic transitions of the Early-Middle Pleistocene and that modern bathyal associations of bivalves have been stabilized after the Middle Pleistocene.