

## Regular talk

## LIVING IN THE CROWD: LUCINOMA BEDS IN THE PLIOCENE TO PRESENT MEDITERRANEAN SEA

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Thiotrophic bivalves in the family Lucinidae have inhabited deep water cold seeps and other reducing habitats in the Mediterranean from the Oligocene onwards. The hydrocarbon-seep imprinted carbonates “Calcare a *Lucina*”, widely distributed in the Miocene of Italy, got their name just because of the abundance of lucinids. This Miocene fauna colonized fine-grained sediments at depths between ca. 400–800 m or more, and included large-size chemosymbiotic taxa and species belonging to the widespread genus *Lucinoma*, which eventually became extinct at the end of the Epoch. Although depauperate with respect to the Miocene fauna and still poorly known in its details, the Mediterranean Pliocene deep-water cold seep fauna still contains lucinids in its ranks, showing a distinct dominance of *Lucinoma* above other chemosymbiotic bivalves. This situation is best seen in the Stirone River section which hosts seep assemblages of early Piacenzian age with the occurrence of densely-packed monospecific assemblages dominated by articulated and disarticulated *Lucinoma* shells (in all likelihood an undescribed species). Based upon paleontological and sedimentological arguments, it has been established that the Stirone lucinid communities settled at epibathyal-bathyal depths, as did their Miocene counterparts. The modern Mediterranean cold seep habitat is still home to chemosymbiotic bivalves in the deep sea. One of the largest and most abundant representative is *Lucinoma kazani* Salas and Woodside, 2002, whose shell does not differ greatly from other living *Lucinoma* in the eastern Atlantic and also resembles the Pliocene species. *L. kazani*, originally described from the eastern Mediterranean mud volcanoes, has been recognized at various other sites in the basin, including subfossil early Holocene occurrences in the Strait of Sicily. Underwater ROV exploration of the Levantine basin has documented crowding of disarticulated *L. kazani* shells at ca. 950 m, with an estimated density of ~40shells/m<sup>2</sup>, a situation reminiscent of the Pliocene Stirone River assemblages. Whilst most records of *L. kazani* therefore pertain to bathyal situations, we have identified fresh and subfossil shells at two sensibly shallower cold seep sites in the central Adriatic basin, namely in the Jabuka/Pomo area (-200 m) and offshore Ancona (-80/90 m), respectively. In terms of assisting environmental reconstruction of past situations, these records somehow redefine the bathymetric potential of such *Lucinoma*.

