

# A history of heavy metal pollution recorded in the shell of *Mytilus edulis*

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Geochemical analysis of bivalves is becoming a commonly used tool to measure levels of heavy metal pollution in estuarine and marginal marine environments. *Mytilus edulis*, a filter feeding mussel, has been used in many of these studies.

A number of *M. edulis* specimens were analysed in order to establish a measure of anthropogenically induced heavy metal contamination of an estuary on the south coast of New South Wales, Australia. The area is a popular recreational fishing area and is the site of a now disused ship building facility and a number of commercial oyster farms.

LA-ICP-MS was used to determine the heavy metal content of shells from the estuary. A transect along the growth axis was analysed, and from this an average metal concentration of the entire shell was calculated. The metal content of the water and sediment was also analysed. Shells from archaeological midden sites in the area were compared with shells of extant mussels to identify traces of post settlement anthropogenic influence in the area.

Preliminary results show greater concentrations of most of the heavy metals in the modern shells: Pb and Cu concentrations approximately double, and Zn nearly quadruples (Figure 1). Fe also increases, but not as markedly. These increases can almost certainly be attributed to the urbanisation of the area. Conversely, the midden shells show a higher Mn concentration than the modern shells, possibly as the result of a more prolonged exposure to anoxic conditions.

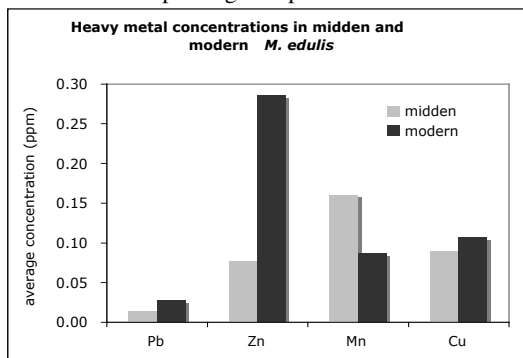


Figure 1. Average concentration of Pb, Zn, Mn and Cu in midden and modern *M. edulis* shells.