



Dominant molluscan taxa in the northern Adriatic Sea over the last centuries: down-core changes in shell communities and their implications for an ecological history

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The northern Adriatic Sea, with its densely populated shoreline, is among the most degraded marine ecosystems worldwide and therefore particularly suited to study ecosystem modification under human pressure. In particular, the period of the last 500 to 1500 years witnessed major anthropogenic impacts here. The present study reconstructs major ecological shifts over this timespan by identifying down-core changes in molluscan death assemblages that can serve as proxies for changing environmental conditions. Here, we focus on taxonomical down-core fluctuations and changes in abundance of key bivalve and gastropod taxa found at seven sampling stations spread throughout the northern Adriatic basin. At these stations, which were chosen in order to cover different sediment types, nutrient conditions and degrees of exploitation, several cores of 1.5 m length and diameters of 90 and 160 mm were taken and sliced into smaller subsamples of 2 and 5 cm, respectively. The samples were sieved through a 1 mm mesh size and all the shells found counted and identified to species level if possible. In total, 114 bivalve and 112 gastropod species were recorded. At the Po delta and Panzano bay stations, characterized by muddy sediments, *Corbula gibba* and *Kurtiella bidentata* were the dominant bivalve species, *Nassarius pygmaeus* and *Turritella communis* the most abundant gastropods. In the sandy mud from the Brijuni islands, the bivalves *Timoclea ovata* and *Striarca lactea* were very numerous, whereas at the Piran station, characterized by a similar sediment composition, *Gouldia minima* and *Corbula gibba* reached the highest numbers. Overall abundances of bivalve and gastropod species differed markedly between stations. In all cores, the incidence of individual species varied down-core. Opposite trends were recorded for Brijuni and Piran station: at Piran, the abundance peaked in the uppermost sediment layers while at the Brijuni islands the number of most gastropod and bivalve species increased with depth. The down-core changes in species abundance and dominance can be correlated with shifts in the environmental parameters such as sedimentation rates and sediment composition and may also indicate anthropogenic influence. The available data from a radiometric sediment dating performed for all the seven sampling stations help to specify the timing of these past ecological changes.