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Reconstruction of water mass properties of the Western Mediterranean using stable isotope ratios (δ^{18}O and δ^{13}C) from *Pinna nobilis* shells

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We analysed the stable isotope ratios (δ^{18}O and δ^{13}C) from the calcite of the outer prismatic layer of 8 *Pinna nobilis* shells at a rate of c. 12-16 samples/year for years between 1997 and 2013. These produced 8 time series between 4 and 16 years long. The empty shells had been collected in two Spanish marine protected areas, Tabarca Island in Alicante and Columbretes Islands in Castellón (4 specimens each). For all shells we constrained the time of death within at least a halve year window. The present study completes previous calibrations by using recorded seawater temperature data during at least two years for each site, coinciding with part of the analysed periods in the shells. Our preliminary results clearly reflect the seasonality of the signal in δ^{18}O values for the entire ontogeny of the individuals studied. However, one specimen from Tabarca Island sampled between years 4 and 11 (corresponding to real age) shows a clear ontogenetic change, with an abrupt reduction in the amplitude of the signal from age 6 to 11 for both δ^{18}O and δ^{13}C values. We hypothesize this pattern relates to the onset of first gonad maturation. Values of δ^{13}C track δ^{18}O values in most individuals, but 3 specimens show low amplitude. For all time series, δ^{13}C values show a decreasing slope with ontogeny similar to previous observations in *P. nobilis* and other bivalves. Estimated seawater temperature from our δ^{18}O time series reveals the potential of *P. nobilis* shells as valuable archives of Mediterranean temperature reconstructions in the context of climate change.