EGU21-15750
https://doi.org/10.5194/egusphere-egu21-15750
EGU General Assembly 2021

Climate change influence on calcification of the bivalve *Chamelea gallina* in the Adriatic Sea: exploring a temporal gradient from the Holocene to modern days

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The Mediterranean striped venus (*Chamelea gallina*) is a valuable economic species in the Mediterranean Sea. In the last decades the over-exploitation of this fishing resource and the occurrence of several mass mortality events, lead to a strong quantitative decline in clam population density in the Adriatic Sea. Studying the effects of climate-driven changes of environmental factors on *C. gallina*, therefore, is of increasing interest both from an academic and economic point of view.

Previous studies have mainly focused on population dynamics, shell growth and structure of this species in the present-day Mediterranean Sea. In contrast, there is no information about shell variations in relation to climate-driven environmental change along temporal gradients.

This ongoing study investigates and contrasts variations in shell microstructure and shell growth parameters of *C. gallina* assemblages from Holocene sedimentary archives of the Northern Adriatic (Italy). Four shoreface-related *C. gallina* horizons are being evaluated: two from the present-day Adriatic setting and two from the Middle Holocene sedimentary succession of the Adriatic-Po system, when regional sea surface temperatures were higher than today, thus representing a possible analogue for the near-future global warming. Specifically we aim to: 1) determine the life span of selected specimen using three independent ageing methods (shell surface growth rings, shell internal bands and stable isotope composition); 2) determine shell growth parameters and functions concerning linear extension and net calcification rates for each assemblage investigated.

This approach should give access to an archive of ecological responses to past climate transitions and enabling reconstruction of the *C. gallina* natural range of variability on time-scale well beyond the ecological monitoring or small-scale experiments. Additionally, the young (sub)fossil record should offer insights on the adaptive capacities of *C. gallina* facing near-future anthropogenic warming and may allow implementation of a more effective management of this economically important bivalve species in the near-future.