

{rokbox title=|A, B Inner record of *Pinna rudis* shells, C, D. inner record of *Pinna nobilis*.

Abbreviations: nt, nacre tongue; m, miostracum layer; mi, miostracum intrusion; n1, nacreous layer 1 :: Image: Authors (COB-IEO)|

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E. Nebot-Colomer, M. Vázquez-Luis, J. R. García-March, S. Deudero, 2016. [Population Structure and Growth of the Threatened Pen Shell, *Pinna rudis*](#)

[\(Linnaeus, 1758\) in a Western Mediterranean Marine Protected Area](#)

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Abstract: Coastal ecosystems are being extensively degraded by human activities. Benthic, slow-growing and long-lived species are highly vulnerable to these impacts. Marine protected areas might avoid biodiversity losses through habitat protection. The pen shell *Pinna rudis* is a protected species, but scarce data are available on its ecology and biology. The present study is a comprehensive ecological study encompassing several unknown aspects of the growth and inner record in relation to habitat types, density and size distribution. A total of 418 strip transects were conducted by scuba diving in the Marine Protected Area of Cabrera National Park (39.14° N, 2.96° E), during the summers of 2011, 2012 and 2013. Sampling was conducted across different habitats and depths exploring 152,146.35 m² in total. Densities varied spatially within the park (from 0 to 6.89 ind./100 m²) corresponding to a wide range of sizes and ages. Most pen shells were patchily distributed and mainly concentrated in caves. Two hotspots with high densities represent the highest densities ever recorded worldwide, showing a possible link to high larval accumulation and settlement. The population size structure showed a unimodal distribution with shell width ranging from 6.2 to 25.0 cm, with an average shell width of 16.0 ± 3.4 cm. The absolute growth was asymptotic, with a maximum age and length of 28-31 years and 45 cm, respectively. This study on the biology and ecology of a well-established population of

Pinna rudis

in the Western Mediterranean could set a baseline for the conservation of this species in other areas.

Keywords: Bivalves, sclerochronology, age, caves, Cabrera.