



Life Pinna

LIFE20 NAT/IT/001122

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*Conservation and re-stocking of the Pinna nobilis
in the western Mediterranean and Adriatic sea*

REPORT ON CITIZEN SCIENCE CAMPAIGNS

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Conservation and re-stocking of the *Pinna nobilis* in the western Mediterranean and
Adriatic sea

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Introduction

The survival of *Pinna nobilis* may depend on genetic variability that render some animals particularly resistant to pathogens and could trigger mechanisms to adapt to new environmental conditions. Identifying potentially resistant specimens is therefore crucial for understanding these mechanisms, studying them, and facilitating their reproduction. For this reason, a citizen science approach could be extremely important for this species (Vázquez-Luis et al. 2017; Grech et al. 2020a; Cabanellas-Reboredo et al. 2019; Garrabou et al. 2022), given the growing social interest in actively participating in knowledge production and decision-making processes.

On this basis, a citizen science project titled "*Pinna nobilis* – Ricerca per la sopravvivenza" (Grech et al. 2020b) was launched in Sardinia in 2019. In fact, Sardinia has a vast array of marine ecosystems and coastal areas with salinity and temperature gradients and different habitat types that could be crucial for *P. nobilis* survival and adaptation: extending scientific monitoring to larger areas through citizen science activities can help to increase the likelihood of identifying environmental characteristics (e.g. habitat type, temperature and salinity ranges, depth) that could contribute to the survival of the species. Therefore, identifying living specimens and areas where these specimens survive can help environmental managers in the conservation of the species.

Citizen science activities in the framework of the Life Pinna project started from these previous experiences with the aim to enlarge the body of data with information from Life PINNA initiatives in particular those obtained through the Citizen Science portal of the project web site (<https://www.lifepinna.eu/citizen-science>). Obviously, the study area has been enlarged and reports from areas external to the project have been also verified (e.g. two reports in the Adriatic Sea Fano and Gabicce Mare). In addition, participation to media and social media initiatives by producing and sharing multimedia material (photos and videos) and proofreading communication posts about *P. nobilis* contributed to promote Life PINNA pages and the Citizen Science data collection page.

Field activities

The first fieldwork was focused on revisiting the most promising sites along the Sardinian coast to verify and update the status of the pinna populations. The reports collected were analysed based on available information to determine their accuracy and the ease/feasibility of revisiting. The parameters considered were: availability of photos of good quality and reliability of the observer (marine biologist/sea expert/diving centre).

A first balance on the evolution of *P. nobilis* populations in Sardinia (study area) was concluded at the end of summer 2023 (fig. 1).

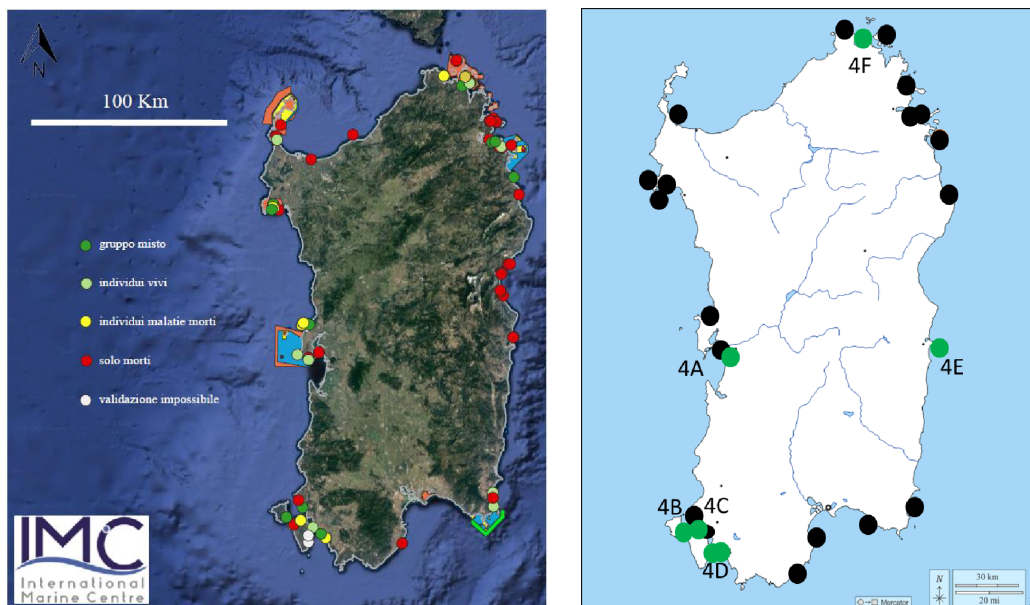


Figure 1. Evolution of *P. nobilis* reports in 2019 and 2023.

During all the project, citizen reports received through the Life PINNA Citizen Science portal (<https://www.lifepinna.eu/citizen-science/>) were validated. Engagement efforts continued, particularly with established networks and citizens who had "adopted" the fins over time, revisiting them periodically and monitoring them over the years or even months. This was particularly true for the specimens or populations present in Gabicce, Fano, who conducted periodic monitoring with the help of other citizens, fishermen from Sant'Antioco, Porto Botte, the Gulf of Oristano and Su Pallosu (Oristano). Based on these observations, it was possible to detect the presence of still-living individuals and new recruits, but also a mortality rate of over 60% in some cases. The mortality in Fano is presumably attributable to a massive recruitment of mussels among the majority of the specimens starting in May 2024 (perhaps following pathogens or heat waves).

All received reports were validated by photographs (if possible) or by direct observation of trained personnel from the project. Globally, at the end of August 2025, a total of 73 reports had been received on the "Segnala la pinna" portal; 29 of them (about 40%) included photographs and led to the identification of one or more specimens of *P. nobilis* in at least 8 cases (11%) (in some cases, even small populations in Gabicce, Fano, and Sant'Antioco). On the other hand, even in the absence of photographs, in some more plausible and promising cases, field observations were conducted to verify their presence: in five of these cases (7%), the surveys also confirmed living specimens of *P. nobilis*, for a total of 13 (18%) reports.

In most of the cases of misidentification, the reported species was the congeneric *Pinna rudis*, less sensitive to the multifactorial disease that attacks *P. nobilis* and listed in the project's identification sheet as a potential source of confusion. In some cases, as already observed in the literature (Grech & Caracciolo, 2023), some specimens of the alien species *Pinctada radiata* were confused with juvenile *P. nobilis*. In Sardinia in particular, based on recent reports without photographs (small-scale fisheries operators reluctant to use cell phone technology), there are still at least two or three locations with populations or isolated individuals that are certainly alive: in the southwest,



in the Sant'Antioco-Carloforte and Saline-Porto Botte areas, and in the center-west near the Gulf of Oristano.

The Life PINNA project, thanks to the partnership's efforts, has received such widespread attention that some reports of Pinnidae have also arrived from countries outside the Mediterranean basin. In fact, a very recent report of a Pinnidae from the Red Sea (Egypt); this report is probably attributable to the species *Pinna bicolor*.

Dissemination events

Main events for disseminating Life PINNA and, in particular, Citizen Science activities were:

- First public event of the LIFE PINNA project, December 2, 2022 (approximately 40 people online and 60 in person)
- Online event "Rimettiamoci le pinne!", May 10 (hosted by PADI): approximately 60 people [<https://www.lifepinna.eu/2023/04/20/rimettiamoci-le-pinne/>]
- S. Antioco "Immaginari possibili" event, Spiaggia di Maladroxia", August 26-27, 2023: approximately 50 people
- Fin search with group support from the Cagliari Carabinieri Underwater Unit and the Divers for Science group: approximately 15 people
- REGINA-MSP Conference on Regional Ocean Literacy Strategy for MSP, Cagliari, May 10, 2023 (Presentation with a generic title, which also discussed Life PINNA): approximately 50 people
- "Successione ecologica" congress 18-19 September (Presentation with a generic title where LIFE PINNA was also discussed): approximately 50 people
- Dozens of people reached on social media by tagging the Life PINNA page and "Ricerca la pinna" in the comments
- Posidonia Green Festival, July 11-13, 2025: approximately 200 people at the stand, approximately 20 people during the snorkeling trip.

Bibliography

Cabanellas-Reboredo M., Vázquez-M., Mourre B. et al. Tracking a mass mortality outbreak of pen shell *Pinna nobilis* populations: A collaborative effort of scientists and citizens Scientific Reports 9, 13355 (2019) doi:10.1038/s41598-019-49808-4

Cabanellas Reboredo M., Vázquez M., Mourre B. et al. Tracking a mass mortality outbreak of pen shell *Pinna nobilis* populations: A collaborative effort of scientists and citizens. Scientific Reports 9, 13355 (2019) doi:10.1038/s41598-019-49808-4

Garrabou, J., Gómez-Gras, D., Medrano, A., Cerrano, C., Ponti, M., Schlegel, R., ... & Harmelin, J. G. (2022). Marine heatwaves drive recurrent mass mortalities in the Mediterranean Sea. *Global Change Biology*, 28(19), 5708-5725.

Grech D., Pinna S., Cabana D., Guala I., Farina S., (2020a). *Pinna nobilis* – ricerca per la sopravvivenza: un'iniziativa Citizen Science per tracciare la mortalità di massa di *Pinna nobilis* in Sardegna - Relazione finale. Rapporto Tecnico Fondazione IMC - Centro Marino Internazionale ONLUS, 1: 2020, 13 pp.





Grech, D., van de Poll, B., Bertolino, M. et al. (2020b) Massive stranding event revealed the occurrence of an overlooked and ecosystem engineer sponge. *Marine Biodiversity* 50, 82. <https://doi.org/10.1007/s12526-020-01105-4>

Grech, D., Caracciolo, D., (2023). First record of an established population of *Pinctada radiata* (Leach, 1814) in Sardinian waters with possible ecological implications. p. 190. In: New records of introduced species in the Mediterranean Sea (April 2023), Fortič, A., Reem Al-Sheikh Rasheed, Zouhair Almajid, Ali Badreddine, José Carlos Báez, Angel Belmonte-Gallegos, et al., *Mediterranean Marine Science*, 24(1).

Vázquez-Luis, M., Álvarez, E., Barraón, A., García-March, J. R., Grau, A., Hendriks, I. E., & Deudero, S. (2017). SOS *Pinna nobilis*: a mass mortality event in western Mediterranean Sea. *Frontiers in Marine Science*, 4, 220. (Catanese et al. 2018, Panarese et al. 2019).