

LIFE PINNARCA

LIFE NAT/ES/001265



DELIVERABLE D2.3

REPORT THE STATUS OF THE FOLLOWED INDIVIDUALS III

MD2.1 Tagging the adults

MD2.2 Control field surveys and sample collection

(Within the action D2: FOLLOW UP OF RESISTANT *Pinna nobilis*
INDIVIDUALS)



CSIC-IEO

IOPR

UNINA

IRTA

UAEGEAN

PARTICIPANTS :

CSIC-IEO:

Maite Vázquez Luis, Raúl González

Instituto Español de Oceanografía (IEO, CSIC), Centro Oceanográfico de Baleares. Muelle de poniente s/n, 07015. Palma de Mallorca, Spain. Contact: maite.vazquez@ieo.csic.es

IOPR

Robert Bunet, Mathieu Foulquié

Institut océanographique Paul Ricard, Ile des Embiez, 83140 Six-Fours-les-plages, France; University of Toulon, CNRS/INSU, IRD, MIO UM 110, Mediterranean Institute of Oceanography, France

Nardo Vicente

Institut Méditerranéen de Biodiversité et d'Ecologie marine et continentale (IMBE), Aix-Marseille University, Avignon, CNRS, IRD, France

UNINA

Francesca Carella

University of Naples Federico II Department of Biology, Complesso Universitario di MSA, 80123, Naples Italy.

IRTA:

Alejandro Muñoz, Alba Garriga Costa, Carles Alcaraz

Institut de Recerca i Tecnologia Agroalimentàries, Ctra. De Poble Nou Km. 5.5, E-43540 Sant Carles de la Ràpita.

UAEGEAN

Orestis Papadakis, Maria Zotou, Stelios Katsanevakis

Department of Marine Sciences, University of the Aegean. University hill, 81100, Mytilene, Lesvos, Greece.

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INDEX

1. Background	5
2. Follow up of resistant <i>Pinna nobilis</i> individuals.....	7
2.1. BALEARIC ISLANDS	7
2.1.1. Background	7
2.1.2. Current activities.....	7
2.1.3. Overview	11
2.2. EBRO DELTA	13
2.2.1. Contextualization	13
2.2.2. Follow up of the resistant individuals	14
2.2.3. Environmental monitoring of the area	16
2.2.4. Conclusion.....	17
2.3. FRANCE.....	18
2.3.1. Open sea	18
2.3.1.1. Tamaris Bay (Toulon).....	18
2.3.2. Scandola Natural Reserve (Corsica)	20
2.3.2.1. <i>Pinna nobilis</i>	21
2.3.2.2. <i>Pinna rudis</i>	22
2.3.2.3. <i>P. nobilis</i> x <i>P. rudis</i> Hybrid.....	25
2.3.3. Port Ambonne (côte agathoise MPA)	25
2.3.4. Sanctuary areas.....	27
2.3.4.1. Thau lagoon	27
2.3.4.2. Urbinu lagoon	44
2.3.4.3. Diana lagoon	45
2.3.5. Overview	53
2.4. ITALY.....	54
2.4.1. Measuring immunocompetence of the natural population and captive individuals of the penshell <i>Pinna nobilis</i> ..	54
2.4.2. Materials and Methods.....	54
2.4.2.1. Animals included in the study	54
2.4.2.2. Hemolymph collection in the field and in captivity	55
2.4.2.3. Cytology and Total Hemocyte Counts (THCs).....	56
2.4.2.4. pHrodo system phagocytosis assays	56
2.4.2.5. Transmission Electron Microscopy	57
2.4.2.6. Data and Statistical Analysis	57
2.4.3. Results.....	57
2.4.3.1. THC, cytology and ultrastructure.....	57
2.4.3.2. Flow cytometry and Phagocytosis assay	61
2.4.3.3. Monitoring immune state in Venice lagoon animal population	65
2.4.4. Discussion	66
2.4.5. Conclusions	69
2.5. GREECE	69
3. Mediterranean overview.....	73
4. References	74

1. Background

The fan mussel *Pinna nobilis* (Linnaeus, 1758), an endemic and protected bivalve of the Mediterranean Sea, is affected by a Mass Mortality Event (MME) started in 2016. The populations of *Pinna nobilis* in the open sea have almost completely disappeared from the Mediterranean coasts (Katsanevakis et al. 2021), although some surviving individuals in the open sea have been located and have been monitored. During these years, an active search for *P. nobilis* survivors has been carried out in some countries, in most cases integrated into the different monitoring programs for the marine environment. Regarding the Deliverable DD2.1 (Vázquez-Luis et al., 2022), information and dissemination campaigns, volunteer programs and citizen science have been carried out.

The situation in the Spanish coastal areas after the 2016 MME (Vázquez-Luis et al., 2017) remained mainly restricted to the two partially unaffected sites: Ebro's Delta (Alfacs Bay and Fangar Bay) and the coastal lagoon Mar Menor (Cabanelas-Reboredo et al., 2019; García-March et al., 2020). However, resistant *P. nobilis* individuals have been found in different locations along the coasts of Catalonia and the Balearic Islands. Thanks to citizen science and dissemination channels, these individuals continue to be found every year and can be evaluated through periodical monitored.

Mortality reached the coasts of France the following year (autumn 2017), where it devastated the Natural Reserve of Scandola and National Park of Port-Cros populations during 2018. The remaining alive *P. nobilis* populations are in coastal laggons located in Occitania (Leucate, Thau, Fos: Rhône's delta) and Corsica (Diana) where they are subject to periodic monitoring to assess their status (Foulquié et al., 2020).

Although the first description of MME in the Italian coast was in 2019 (Carella et al., 2019), a scattered mortality situation was recorded during 2017 and 2018 in Sorrento, Positano, Vico Equense and Cilento. During the following years, mortality was reported in other regions of Italy like Sardinia and Tuscany (Carella et al., 2020; Scarpa et al., 2020).

An evidence of *P. nobilis* mortality (40% of individuals) was first recorded in the western Ionian Sea (Italy) in 2017, followed by very high mortalities (up to 100% mortality in 3 months) in the summer 2018. Mortality rates exceeded 80% in the eastern Ionean Sea (Greece) by august 2019, and kept increasing at that time. Even the National Marine Park of Zakynthos (NMPZ) was affected in 2020, where no high mortality rates (40%) were recorded the previous year (Zotou et al., 2020).

In a broader context, the mortality has reached practically all the Mediterranean basin in the open sea, and some sanctuary areas host *P. nobilis* population in particular conditions. Survivors/resistant individuals are few and far between but the monitoring and protection of those individuals is extremely important for the conservation of the species.

In this document, the status of the resistant *P. nobilis* individuals monitored until the **DD2.2 Report of the status of the followed individuals II (González et al., 2023)** have been evaluated. This is an update of their actual status and new information about the resistant *P. nobilis* individuals along the Mediterranean coast.