

{rokbox title=|Observations of *P. nobilis* health conducted by citizens (yellow circles) vs. scientists (blue circles), with zoomed in areas where most observations were done :: Image: Authors| thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-mass-mortality-pinna-nobilis-collaboration-scientist-citizens-cabanellas-et-al-2019-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-mass-mortality-pinna-nobilis-collaboration-scientist-citizens-cabanellas-et-al-2019.jpg{/rokbox}

Miguel Cabanellas-Reboredo, **Maite Vázquez-Luis**, Baptiste Mourre, **Elvira Álvarez**, **Salud Deudero**

, Ángel Amores, Piero Addis, Enric Ballesteros, Agustín Barraón, Stefania Coppa, José Rafael García-March, Salvatore Giacobbe, Francisca Giménez Casalduero, Louis Hadjioannou, Santiago V. Jiménez-Gutiérrez, Stelios Katsanevakis, Diego Kersting, Vesna Mačić, Borut Mavrič, Francesco Paolo Patti, Serge Planes, Patricia Prado, Jordi Sánchez, José Tena-Medialdea, Jean de Vaugelas, Nardo Vicente, Fatima Zohra Belkhamssa, Ivan Zupan and Iris E. Hendriks, 2019.

[Tracking a mass mortality outbreak of pen shell](#)

[*Pinna nobilis*](#)

[populations: A collaborative effort of scientists and citizens.](#)

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Abstract: A mass mortality event is devastating the populations of the endemic bivalve *Pinna nobilis* in

the Mediterranean Sea from early autumn 2016. A newly described Haplosporidian endoparasite (

Haplosporidium pinnae

) is the most probable cause of this ecological catastrophe placing one of the largest bivalves of the world on the brink of extinction. As a pivotal step towards

Pinna nobilis

conservation, this contribution combines scientists and citizens' data to address the fast- and vast dispersion and prevalence outbreaks of the pathogen. Therefore, the potential role of currents on parasite expansion was addressed by means of drift simulations of virtual particles in a high-resolution regional currents model. A generalized additive model was implemented to test if environmental factors could modulate the infection of *Pinna nobilis* populations. The results strongly suggest that the parasite has probably dispersed regionally by surface currents, and that the disease expression seems to be closely related to temperatures above 13.5 °C and to a salinity range between 36.5–39.7 psu. The most likely spread of the disease along the Mediterranean basin associated with scattered survival spots and very few survivors (potentially resistant individuals), point to a challenging scenario for conservation of the emblematic

Pinna nobilis

, which will require fast and strategic management measures and should make use of the essential role citizen science projects can play.

Keywords: