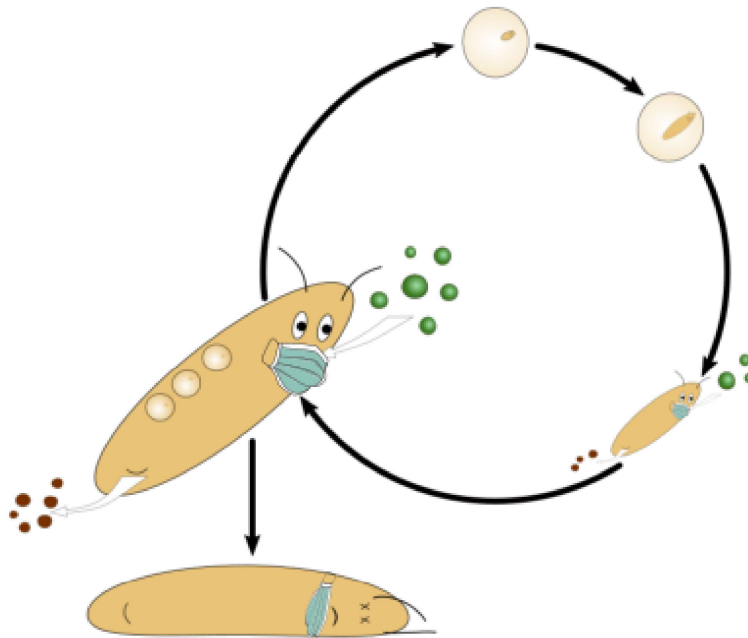


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Book of Abstracts

The DEB theory as a framework to approach the mass mortalities of *Pinna Nobilis* in the Mediterranean sea

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The fan mussel *Pinna nobilis* largest bivalve in Mediterranean, is an endangered IUCN protected species that is currently threatened by mass mortalities due to infections by a range of pathogens. The *Haplosporidium pinnae*, *Mycobacterium spp.*, and *Vibrio spp* were recently identified as infection agents. In order to conserve, regenerate and enhance the limited survived *Pinna* populations, it is important to understand how the environmental factors are triggering the pathogen–host interactions. The Dynamic Energy Budget (DEB) theory is a powerful framework to examine the energy flow during the lifecycle of the endangered bivalve under different infectious agents' attacks.

Data sets from the literature and eco-physiological experiments targeting stress/immune response indicators, environmental factors (emphasis on temperature and salinity that affect the pathogen–host interaction), and physiological history (shell growth bands), are used to link the *Pinna* sub-organismal (physiological) processes under pathogen infections to organismal performance at a population and ecosystem level.

Several environmental scenarios in Maliakos and Thermaikos gulf (Aegean Sea) are carried out as case studies, in order to build blocks for modeling the threatened fan mussel populations. Furthermore, the energy budget of *Pinna nobilis* individuals are examined at the specific environmental conditions of these ecosystems/regions. Potential knowledge gaps will be identified for further research development during the project "Innovative Actions For The Monitoring-Recovering – Enhancement of The Natural Recruitment of The Endangered Species (Fan mussel) *Pinna nobilis*, funded by the Operational Program for Fisheries and Maritime 2014-2020 (Measure 6.1.16) & EMMF, grant number (MIS) 5052394".

Keywords: *Pinna nobilis*, fan mussel, mass mortalities, disease, mediterranean sea, aegean, DEB

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