A preliminary study on the ecology and genetic characteristics of Mediterranean box jellyfish (*Carybdea marsupialis*) populations from Maltese waters (Central Mediterranean)

JBS-07 / Oral Presentation_02

Kristian Pulis¹, Alan Deidun², Marion Zammit-Mangion¹, Laura Prieto³, Veronica Fuentes⁴, Melissa J. Acevedo⁴, Mohamed Nejib Daly Yahia⁵, Stefano Piraino⁶

¹ Department of Physiology and Biochemistry, University of Malta, Faculty of Medicine on Campus, Biomedical Science Building, Msida, Malta
² Department of Geosciences, University of Malta, Chemistry Building 3rd Floor, Msida, Malta
³ Department of Coastal Ecology and Management, ICMAN-CSIC, Puerto Real, Cádiz, Spain
⁴ Institut de Ciències del Mar, CSIC, Barcelona, Spain
⁵ Laboratory BFSA, Faculty of Sciences of Bizerte, University of Carthage (UR Biologie Marine Univ. El Mannar), Tunisia
⁶ University of Salento, Lecce, Italy

Recently, new genetic and morphological data has suggested that *Carybdea marsupialis* is an endemic species of the Mediterranean Sea. The main aim of this project was to identify the factors associated with the recent increase in numbers of *C. marsupialis* in Maltese waters. Bi-monthly monitoring of the abiotic/biotic factors and individual abundance of this species was carried out within two Maltese embayments between July 2014 and July 2015. Individuals were collected through the deployment of a hand net and local samples were genetically compared to samples obtained from the Mediterranean coast of Spain and Tunisia (Hammamet Beach), and to Atlantic samples from Cádiz. Genetic characterisation was carried out through the analysis of the mitochondrial 16S rDNA region and of the region between the 18S and 28S of the rDNA.

Over the study period, population numbers showed strong seasonality. The appearance of juveniles (5-15mm DBW) was recorded at the end of May 2015, with the abundance of non-mature adult stages (>15mm DBW, no gonads) reaching the highest densities between June and July 2015. Populations from both sites were strongly and positively correlated with sea water temperature and negatively correlated with phytoplankton and chlorophyll levels.

Whilst a high degree of uniformity between the three Mediterranean populations (>98.0% similarity) was demonstrated, sharp differences were recorded between the genetic sequences of the analyzed Mediterranean populations and the Atlantic (Cádiz) one (~81.0% homology). The result for the Cádiz population further suggests the hypothesis that the Mediterranean supports a different *Carybdea* species than the Atlantic.

Alan Deidun
Department of Geosciences, University of Malta, Chemistry Building 3rd Floor
Malta
alan.deidun@um.edu.mt