

# Dynamics and trophic impact of two Lessepsian Scyphozoa species in the Lagoon of Bizerte (South-Western Mediterranean Sea)

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**Sonia KM Gueroun<sup>1</sup>, Nousseiba Salhi<sup>2</sup>, Stefano Piraino<sup>3</sup>, Alan Deidun<sup>4</sup>, Veronica Fuentes<sup>5</sup>,  
Ons Kefi-Daly Yahia<sup>2</sup>, Md Néjib Daly Yahia<sup>1</sup>**

<sup>1</sup> Faculty of Science of Bizerte, (UR Biologie Marine FST), Bizerte, Tunisia

<sup>2</sup> Tunisian National Institute of Agronomy, Tunis, Tunisia

<sup>3</sup> DISTEBA, University of Salento, Lecce, Italy

<sup>4</sup> Physical Oceanography Research Group, University of Malta, Msida, Malta

<sup>5</sup> Institut de Ciències del Mar, CSIC, Barcelona, Spain

Alien Scyphozoa species might be a threat for the zooplankton community and therefore for the entire pelagic trophic web, which can lead to socio-economic repercussions. Here we investigated the population dynamics and predatory impact on mesozooplankton community structure of two Lessepsian immigrant Scyphozoa species, *Aurelia* sp.8 and *Phyllorhiza punctata* in Bizerte Lagoon (Tunisia, SW Mediterranean Sea), over a two-year period, from June 2012 to June 2014. The two species exhibited two different occurrence periods driven by environmental parameters (temperature and salinity mainly). Differences in the abundance of both species were observed between the two years, with a higher abundance in 2012 for *Phyllorhiza punctata* and in 2013 for *Aurelia* sp.8. The predatory impact of *Aurelia* sp.8 was specially investigated through gut contents analyses, and measurements of digestion times, feeding rates and of the predation impact on mesozooplankton daily production. The results suggest a high but temporally-limited predation impact of *Aurelia* sp.8. The combination of different multivariate statistical analysis (PCA, CA and CCA) showed the top-down control imposed by *Aurelia* sp.8 and *Phyllorhiza punctata* on the mesozooplankton community structure in Bizerte Lagoon. We hypothesize that the relatively low abundance and the short life span of each species avoids potential overexploitation of the mesozooplankton community, allowing the establishment of resident jellyfish populations.

**Sonia KM Gueroun**

Faculty of Science of Bizerte, (UR Biologie Marine FST)

Tunisia

soniakhadijamaite.gueroun@fsb.rnu.tn