

Seasonal trend of the macrofauna inhabiting two Mediterranean species of *Sarcotragus* (Porifera, Demospongiae)

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Sponges are important component of several benthic habitats and represent important “micro-hotel” (Pearse, 1932) where organisms, belonging to different *taxa*, can find refuges, additional sources of feeding, nursery areas and establish also symbiotic relationships (Cerrano et al., 2006). In the recent years, Mediterranean keratose sponges (e.g. *Ircinia variabilis*, *Sarcotragus spinosulus*, *Spongia officinalis*) were subjected to mortality events principally due to anomalies of the water temperature (Cerrano et al., 2000; Di Camillo et al., 2013), likely leading to local extinction or variation also of their associate fauna.

For this study, five samples of two species of the genus *Sarcotragus* (Irciniidae: Demospongiae), living in two different areas, were collected bimonthly by scuba divers along an annual cycle. In particular, we investigated the species *S. spinosulus* (Schimdt, 1864), living on the mussel beds of the Conero Promontory (North Adriatic Sea) at 8 m depth, and *S. foetidus* (Schimdt, 1864), living around 20 m depth on the rocky cliff of the Portofino Promontory (Ligurian Sea). More than one hundred *taxa* were identified and most of them resulted common in the two associated sponge species, as the species *Caratonereis (Composetia) costae* (Annelida: Nereididae). Both the species of sponges supported high values of density and diversity especially of Annelida, Crustacea and Mollusca. Although the size of the sponges and the internal volume of the aquiferous system are the main factors that influence the symbiotic fauna (Gherardi et al., 2001), *S. foetidus*, characterized by greater dimensions of the channels, hosted lower values of the associated zoobenthos compared to *S. spinosulus*. Indeed, *S. spinosulus* can host and sustain a high number of symbionts on its surface and inside its canals. This result suggests that the variation of the water temperature, the higher trophic inputs and productivity of the Adriatic Sea in comparison with the Ligurian Sea, and probably also the neighboring habitat, can be the principal causes that contribute to diversify and modify the macrofaunal communities associated with *Sarcotragus* spp. One again, sponges can be considerate as “habitat-forming species” so with functional role as ecosystem engineers capable to provide habitat for many species.

References

- Cerrano C., Bavestrello G., Bianchi N., Cattaneo-Vietti R., Bava S., Morganti C., Morri C., Picco P., Sara G., Schiaparelli S., Siccardi A., Sponga F., 2000. A catastrophic mass-mortality episode of gorgonians and other organisms in the Ligurian Sea (North-western Mediterranean), summer 1999. *Ecology Letters*, 3: 284-293.
- Cerrano C, Calcinai B, Pinca S, Bavestrello G, 2006. Reef sponges as hosts of biodiversity: cases from North Sulawesi 10th International Coral Reef Symposium Proceedings, Okinawa, p 208-213
- Di Camillo C.G., Bartolucci I., Cerrano C., Bavestrello G., 2013. Sponge disease in the Adriatic Sea. *Marine Ecology*, 34: 62-71.
- Gherardi M., Giangrande G. & Corriero G., 2001. Epibiontic and endobiontic polychaetes of *Geodia cydonium* (Porifera, Demospongiae) from the Mediterranean Sea. *Hydrobiologia* 443: 87-101.
- Pearse A.S., 1932. Inhabitants of certain sponges at Dry Tortugas. *Pap. Tortugas Lab.*, 28: 117-124. Keywords: Macrozoobenthos, Irciniidae, symbioses, Adriatic Sea, Ligurian Sea