



## How diverse is sponge fauna in the Adriatic Sea?

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### Abstract

The Adriatic Sea can be considered as a large, mostly shallow embayment of the Mediterranean Sea. The latitudinal SE-NW extension of the Adriatic results in considerable climate differences along its coast. In this work we compiled the list of sponges from classes Demospongiae and Homoscleromorpha recorded in the Adriatic up to now: we performed a thorough literature check and we added the results of our decade long research with a special emphasis on sponge fauna in marine caves. All the records were assigned to the North, Middle or South Adriatic according to their geographic location, and the analysis showed a very high similarity among the sponge fauna of the 3 areas. The likeness between the N. and the M. Adriatic is over 83 %, between the M. and the S. Adriatic over 76 % and between the N. and the S. Adriatic over 66 %. Altogether 283 species of sponges from these two classes (our field data and literature survey) have been recorded in the whole Adriatic up to now, which is a considerably higher number than in previous reviews. Among the 125 species that we found so far in our research along the Croatian coast, 77 were found in marine caves. We are still discovering species not previously found in the Adriatic Sea (especially from cryptic habitats) and here we report 15 new records for the Adriatic Sea, 9 of which were noted only in caves.

**Key words:** Demospongiae, Homoscleromorpha, Porifera, biodiversity, marine caves, Croatia, Mediterranean Sea

### Introduction

The Adriatic Sea is characterised by specific ecological properties and a specific distribution of species due to its genesis, geomorphology and geographic position within the Mediterranean (Gamulin-Brida 1967). The latitudinal SE-NW extension of the Adriatic results in considerable climate differences along its coast. Generally three ecologically distinct areas can be distinguished: the North, Middle and South Adriatic (Fig. 1). The North Adriatic is the northernmost part of the Mediterranean, it is the shallowest part of the Adriatic and it is under the strong influence of the river Po outflow. The South Adriatic is the deepest part of the Adriatic and it is under the strong influence of the incoming warm current from the south. The Middle Adriatic can be considered as a transition zone between these two extremes. Most of the Adriatic shelf was submerged after the last glaciation, during the last 18.000 years when the Adriatic Sea level rose for approximately a hundred meters. According to these historical reasons, most of the Middle Adriatic and the whole North Adriatic were colonized quite recently by the extant marine life.

Since some of the first and important sponge studies were performed in the Adriatic Sea, it could be stated that the Mediterranean sponge science was born in this sea (Pansini & Longo 2003). However, new sponge species are still being described for the Mediterranean: from 1995 until 2003 23 new species of Demospongiae were discovered, 14 of them from marine caves (Pansini & Longo 2003).

Along the Croatian coast of Adriatic there are numerous marine caves and submarine passages due to the geomorphologic characteristics of the eastern coast and the Holocene sea transgression. Sponges are an important group of organisms which inhabits and characterises these sciaphilic submarine habitats. During the last decade we investigated the sponge fauna of these and other marine habitats along the eastern coast of the Adriatic. The aim of this work was to compare our data on the sponge fauna (classes Demospongiae and Homoscleromorpha) in the Adriatic Sea with the available literature records for the same area.