

1 **Biodiversity associated to the sponges and algae of the sculptures of the**  
2 **Underwater Museum of Art (“MUSA”), Cancún, Mexico.**  
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1 The famous Underwater Museum of Art or MUSA (>520 sculptures, 4-8m depth) located  
2 between Isla Mujeres and Cancún, Mexico, in a National Marine Park, helps in relieving tourist  
3 pressure on the worldwide-known reefs of the area, since many divers visit it annually (around  
4 400 000). The hard substrate created by the sculptures enhances the area biodiversity by at least  
5 16-20-fold (Rugosity measures). We compared the macrofauna associated to the dominant algae  
6 (*Lobophora variegata* and *Dictyota bartraryresii*) and sponge (*Amphimedon compressa*) growing  
7 on the sculptures and their variations with time. The two algae also have annual cycles and  
8 dominate at different times of the year, affecting their associated fauna. Samplings (quadrats  
9 20X20cm) with SCUBA diving were made from March 2014 to February 2015. For this study,  
10 we identified 2064 marine invertebrates of the four main groups: Crustaceans dominated with  
11 1098 (53%), followed by Polychaetes: 401 (19%), Echinoderms: 325 (16%) and Mollusks: 240  
12 (12%). Among the latter, the gastropod *Cerithium litteratum* dominated overwhelmingly  
13 accounting for 75% of all the Mollusks. *Ophiactis* sp. (158 orgs, 49%) and *Ophiactis savignyi* (64  
14 orgs, 20%) dominated among Echinoderms, amphipods among Crustaceans (705 organisms,  
15 64.2%), syllids (110 orgs, 27%) and sabellids (104 orgs, 26%) among Polychaetes. Other groups  
16 such as Sipunculans, Ascidians, Corals or Hydroids accounted for less than 1% and were not  
17 found in the sponge. Inside the sponge, Echinoderms, all juveniles, dominate overwhelmingly  
18 (93% of all Echinoderms were found there), Crustaceans follow. Polychaetes and Mollusks were  
19 almost as abundant in algae and sponge. The sponge constitutes a better shelter and probably also  
20 good feeding grounds for some macrofauna, especially Ophiuroids. *C. litteratum*, and the  
21 echinoids, being herbivorous, thrive preferably in the algal environment, especially *L.*  
22 *variegata*, and were never found in sponges, also the case for all large invertebrates.