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FECUNDITY ASSESSMENT OF DEEP-SEA CORALS IN SOUTHEASTERN BRAZIL

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Deep-sea corals are difficult to be evaluated due to logistical restrictions and high costs involved. However, in the last 30 years the oil and gas industry has started activity in deeper waters and scientific studies has become possible in these ecosystems. In the present study, we are evaluating the reproductive effort estimated by fecundity rate in different depth ranges by calculating the number of oocytes related per polyp area through multiple consecutive cuts sections of the polyps. The main deep-water coral-building species *Madrepora oculata* (Moc), *Solenosmilia variabilis* (Sva), *Lophelia pertusa* (Lpe) and *Enallopsammia rostrata* (Ero) were approached in three sedimentary basins of the Brazilian coast during 2016 and 2017. As preliminary data, a total of 92 samples from 2016 were analyzed and 67,5% of the samples showed to be fertile and 32,7% with female gametes. One sample of Sva demonstrated to be hermaphrodite and it was the species that had the highest average fecundity rate with 11 oocytes per mm³. In contrast Ero presented lower rate of infertile polyps and presented more than half of the samples with female gametes although it presented low fertility rate (0.65 oocyte/cm³) together with Lpe (0.39 oocyte/mm³). On the other hand, Moc showed in Santos basin area a considerably higher fecundity rate (9.91 oocyte/mm³) than in the other basins. In Moc, the stage III oocytes reached a maximum diameter of 370 µm in a 17 mm³ polyp. A 650 µm oocyte III was found in Ero in a polyp with 34 cm³, the species presented the largest oocyte as it was also observed by previous study. Sva presented the maximum oocyte III of 150 µm in a polyp of 70 cm³. Lpe presented oocyte III of maximum 100 µm and is the species that has larger polyps, fertile polyps reached up to 2.800 mm³. We are still analyzing the 2017 samples to make a future comparison between the years. In general, studies of coral fecundity have great relevance for a better understanding about how deep-sea corals are being affected by the possible impacts in these ecosystems.

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