



## Marisla

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The Marisla seamount—known also in oceanography literature by its acronym in Spanish, “EBES” (meaning “El Bajo de Espiritu Santo”), and known by fishermen simply as “El Bajo”—is located some ten nautical miles northeast of Los Islotes, the northern tip of Espiritu Santo island. The shallowest part is 15 m deep. This seamount is part of a bathymetrically complex region and a pronounced submarine relief west of the Farallón deep basin, where depth surpasses one thousand meters. Two submarine seamounts rise to near the surface around 150 km north of the mouth of the Gulf: the Marisla seamount, subject of our submarine exploration, and the El Charro seamount,

12 kilometers east, which does not appear in navigation charts but is well known among local fishermen because of its richness of fish.

The upper part of the seamount ends in two peaks that reach very near the surface, both less than 20 m deep and at a distance of ca. 100 m from each other and linked by a submarine valley some 100 m deep. With steep slopes, the Marisla seamount descends abruptly in its northern side over 400 m deep along a sheer wall of basalt rock.

The Marisla seamount is recognized by both fishermen and scientists alike as a place where different pelagic fish species congregate in large densities, including

tuna, marlin, giant mantas, whale shark, and large aggregations of hammerhead sharks. During summer and fall, thermal conditions prevail that are typical of tropical seas, with surface temperatures between 25° and 29°C. During the rest of the year oceanographic conditions are subtropical, with water temperatures between 19° and 24°C.

Of all the seamounts we visited, Marisla offered by far the greatest diversity in types of habitats and fish species of the entire expedition. The upper part of the seamount consists of rocky reefs whose volcanic rock walls dive abruptly to depths of 300 m or more. The larger near-surface reefs are formed by immense basalt boulders with extremely steep lateral slopes. These large reef rocks are separated by deep underwater canyons with bottoms of accumulated sand and rubble.

### **Shallow zone**

In the different SCUBA diving explorations

that we did over this seamount we observed dense gardens of corals, crustose red algae, and foliose green and brown algae, growing in association with a large number of anemones. Two species of moray eels were seen frequently, clustered in cavities and crannies, and many different species of fish were seen swimming around the reef in great numbers. On the 29<sup>th</sup> a whale shark joined us and playfully swam around the boat for almost the entire day, and on the 30<sup>th</sup> a very large and rather sociable sea lion approached us while we were diving.

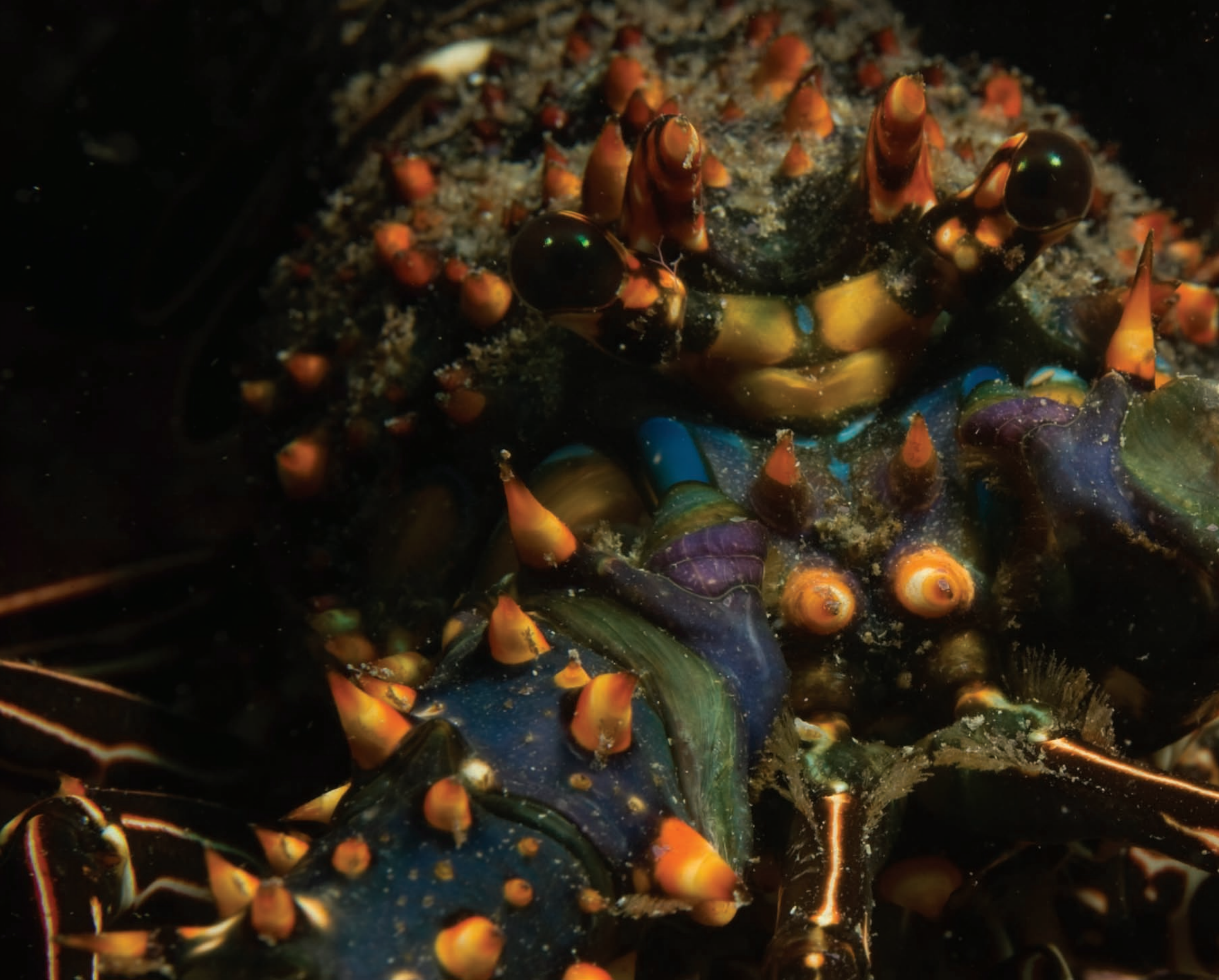
At this seamount we saw an *Acanthaster* starfish and we could observe in detail a very interesting form of commensalism between a polychaete and an echinoderm. The guest, a polynoid probably belonging to the genus *Malmgreniella*, was a much smaller than its host, an ophiuran (*Ophionereis perplexa*). The polychaete's dorsal colors and texture were strikingly similar to the ophiuran's arm, around

Imitating the colors of its host, the ophiuran *Ophionereis annulata*, a polynoid polychaete finds refuge and food in the arms of this delicate brittle-star.  
Photo © Octavio Aburto-Oropeza.













Blue lobster *Panulirus inflatus*,  
a species of great commercial value.  
Photo © Octavio Aburto-Oropeza.

which the small worm wraps itself apparently finding refuge against possible predators.

We also observed a polychaete attached to the inferior part of the arm of a large red-and-white starfish (*Tethyaster canaliculatus*). Although we could not confirm the exact nature of this novel interaction, it could have been a form of external parasitism, commensalism, or even mutualism. Research on this interesting interaction process is still under way through the specimens collected.

### **Deep zone**

We explored the rocky zone along a steep slope at a depth of 190 m where, in an area dominated by sessile fauna like glass sponges and soft corals, we found some scattered specimens of two species of white starfish *Henricia clarkii* and *Henricia nana*. The most common echinoderms in this area were two species of ophiurans, *Ophiothrix galapagensis* and *Ophiacantha*

cf. *diplasia*, which almost completely cover some deep areas of the Marisla seamount with dense populations of hundreds of individuals. In this deep rocky zone where we also found a new species of echinoderm: a small pale yellow starfish belonging to the family Echinasteridae that is being currently studied by specialists.

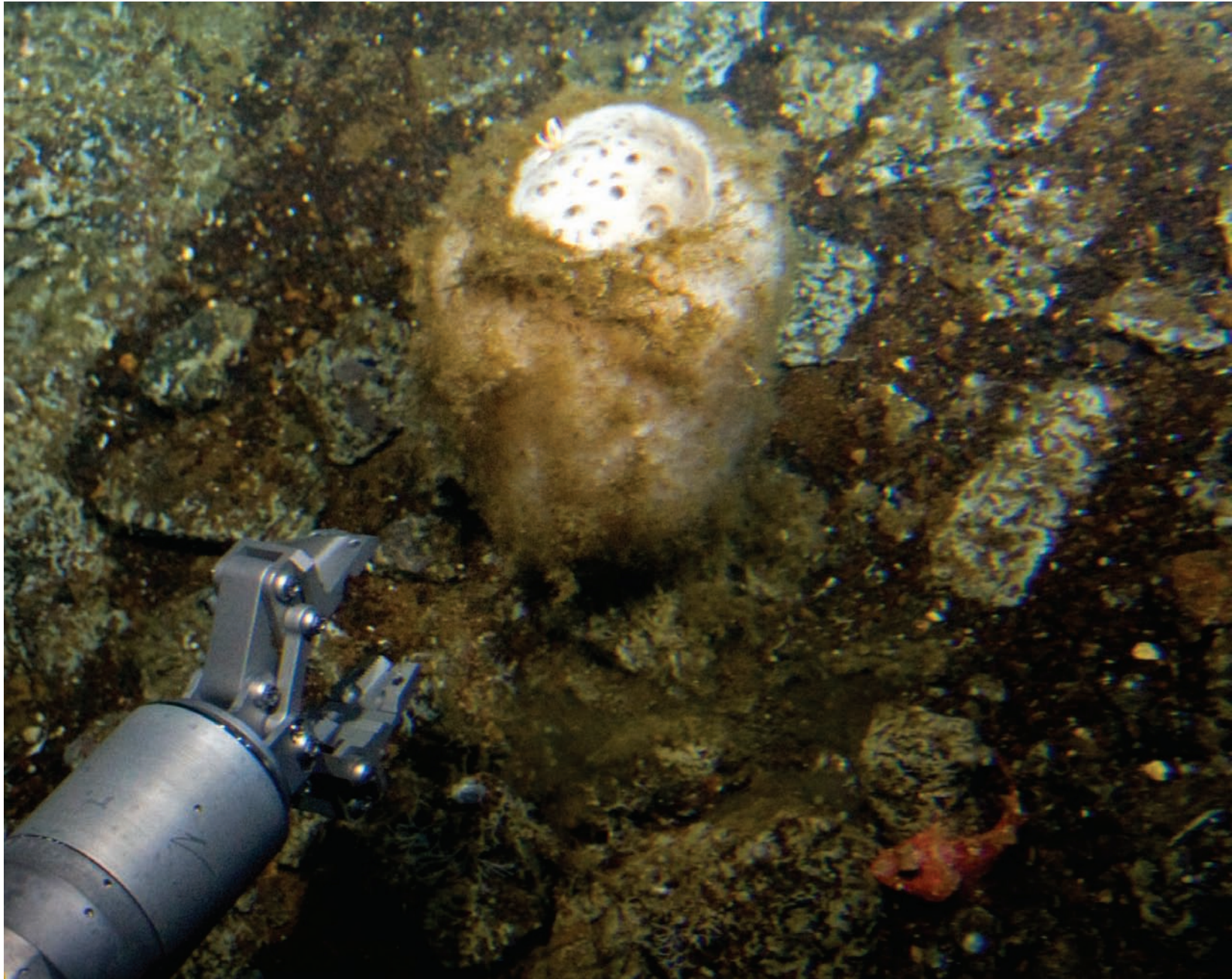
We collected black coral with associated polychaetes living in the branches. Among them we found a nereidid living in a transparent chitinous tube attached along one of the coral's branches, a very unusual trait in these polychaetes that usually wander and are active hunters. Other polychaete species included a polinoid worm, a few terebellids, and a second species of the family Nereididae, in this case without a chitin tube, as is the norm for the group. There was also a very small crystal-like ophiuran —possibly belonging to a new and yet undescribed species currently under study for its taxonomic description— and two very small red planarians.

A deepwater ophiuran, or brittle-star,  
*Ophiothrix galapagensis*.  
Photo © Carlos Sánchez-Ortiz.









The next day (August 29<sup>th</sup>) we collected a very large glass sponge, a smaller sponge, a dead coral that harbored a myriad of minute ophiurans, so small that you could hardly see them, as well as a live black coral with polychaetes attached to its branches. Among them there was a phyllodocid inside a tube made of grains of sand, which is very unusual in this family, and a spawning terebellid female, as well as a polinoid. On August 30<sup>th</sup> we ran into another very large glass sponge, around 70 cm tall. It grew surrounded by a horizontal accumulation of volcanic rock, and in its interior we could see (although we were not able to collect) a large starfish and a crab, as well as a small black urchin, possibly of the genus *Diadema*. Its exterior was covered by dark green hydroids that had nematocysts with powerful stinging capabilities, which we witnessed back in the boat when we dipped our hands into the container that held the sponge.

A glass-sponge in the class Hexactinellida, collected at a depth of 320 meters in Bajo Marisla. Photo © Carlos Sánchez-Ortiz.

We also found a high diversity of fish taking shelter between the cracks and crevices of the rocks, including species from the families Antennariidae, Lophiidae, Labridae, Muraenidae, Ophichthidae, and Scorpaenidae. The catalufas (*Pristigenys serrula*) were dominant in this landscape. However, the most remarkable species of all was a black cusk eel (Ophidiidae) that we were able to capture on film. We have covered all the field guides available and talked to the best specialists in the Marine Vertebrate Collection at Scripps, but so far no one has been able to identify this species beyond the family level.

In the sand and rubble slopes we observed fish communities similar to the ones we saw in San Marcial, with searobins, scorpionfish, and lizardfish, and particular species like the swell sharks (*Cephaloscyllium ventriosum*). Other species in the families the Moridae, Callionymidae, Rajidae, and Dasyatidae were also observed.



At a depth of 200 m we were able to spot a mobula ray (*Mobula thurstoni*) swimming around the reef. This deep swimming behavior in a planktivorous, shallow-water species has also been observed in Cocos Island, in the Pacific coast of Costa Rica, but the reasons for this conduct are not known. It is possible that the amount of suspended nutrients in the water surrounding the seamount are high even at those depths, and that the deep immersion of these rays is the result of a search for food.

Another important event was our encounter with a star-studded grouper (*Epinephelus niphobles*) in the Marisla seamount. During our ten day expedition, we failed to observe it anywhere else but here. This species is incredibly important for the commercial fisheries in the Gulf of California, and its low density, as well as its decrease in capture volumes, suggests that it is being devastated by overfishing. This is the first documentation of this

species in the Gulf of California, observed alive in its natural habitat.

Finally, as we descended towards the reef in the evening, we saw an immense reproductive aggregation of pacific dog snapper, *Lutjanus novemfasciatus* (some 300 fish, 30–50 m deep), together with another group of yellow snapper (*L. argentiventris*) roaming the nearby rocks. Despite being affected by overfishing, the richness and diversity of Marisla is still exceptional in this region.

Deepwater sea-anemone (possibly belonging in the genus *Antiparactis*), found living in association with the sea-fan *Leptogorgia chilensis* at Bajo Las Ánimas. Photo © Carlos Sánchez-Ortiz.

