

Marine Sponges Biodiversity

Project EMBARC: Diving and wading in southern South America



To monitor possible future changes in sponge distributions influenced by climate change it is essential to have accurate current faunistic inventories. The discovery of new records of marine sponges from the continental shelf and slope off the S-SE Brazilian coastline, such as *Myxilla tenuissima* and *Raspailia phakellina*, drew attention to the urgent need for an expanded faunistic inventory of Patagonian, Magallanic and Chileno-Peruvian marine sponge faunas. However the human resources in southern South America to improve the situation were scarce.

Following two years of pilot studies in Chile, supported by grants from Professor Dr. Chris M. Ireland (University of Utah, U.S.A.) and Fondation A. & E. Claraz (Switzerland), a cooperative project named EMBARC ("Esponjas Marinhas do Brasil, Argentina e Chile") was agreed in 2005, under the coordination of Museu Nacional (Rio de Janeiro). This project took advantage of money provided by CNPq (Brazilian Research Council) for Latin American networking, which permitted the implementation of two exploratory expeditions in Chile and one in Argentina.

The Chile 2005 Summer Expedition went to latitudes -42 to

-44°, and comprised roughly a week at the Huinay Scientific Field Station (with support from Fundacion Huinay), a week between Puerto Montt, Calbuco, the Chacao strait and Quellon, and another such period spent crossing the Gulf of Corcovado with the 'Don Este' (Litoral Austral), and exploring a bit of the Guaitecas Archipelago.

With currents reaching 7 knots twice a day, the Chacao Strait is playground for sea lions, but a tricky choice for scientific diving. We did our dry suit SCUBA dive at a protected corner of Chiloé island, on one side of the boat. On the other, the crew of the 'Ana Maria', a team of local 'marisqueros' (shellfish collectors) used a low pressure air breathing compressor and an amazingly thick wetsuit to do theirs. This spot was worth all the trouble to reach – the biodiversity was amazing.

The same was true for the Guaitecas Archipelago, a trip done a little after the clearance of Quellon harbour after a couple of days of bad weather. Those awake on the 'Don Este' during the night crossing of the gulf felt like the boat was looping in a roller-coaster. But, arrival at Melinka, on Isla Ascension (Yes! Isla Ascension, Chile) was the start of a memorable short visit to paradise. Clear waters, dolphins everywhere, and sponges. Each dive yielded unique

Most of our dives were done with the assistance of local fishermen. Here the crew of the "Anna-Maria" waiting the return of scuba divers. Chacao Canal, Chile. Photo Philippe Willenz





Clathrina sp. Argentina. January 2006. 15 m Photo Eduardo Hajdu

specimens.

The Chile 2005 Autumn Expedition to latitudes -23 to -33° started with a week of presentations in the XIth Colacmar (Latin American Marine Sciences Congress) at Viña del Mar, and a couple dives at Valparaíso, where sponges were not such a prominent feature within the seascape. The second half of this trip was split between Punta Choros (close to La Serena) and Antofagasta. Both locations permitted excellent diving on rich sponge grounds, which made us very thankful to Ramon Bajbuj and Carlos Torres. After diving underneath waterfalls coming right into the fjords a couple of months before, it was quite awesome to cross the desert in order to reach our diving grounds.

The Argentina 2006 Summer Expedition to latitudes -42 to -51° was the last in a series made possible through the grant by CNPq. It was our first, and so far only expedition to Argentina, and needs to be seen as a pilot excursion to Rio Gallegos, Puerto Deseado and Puerto Madryn. The tidal range in Rio Gallegos can reach 13 m (43 feet). With a 10 m (33 feet) tidal range diving was absolutely impossible. Wading at low tide was all that could be accomplished, and the sponge yield turned out to be suggestive of a moderate diversity within these turbid waters. Puerto Deseado is a promising location for further exploration. Diving in the 'Ria' is tricky, again due to the tidal currents. Abundance of tunicates was far greater than that of sponges as far as the 50 cm visibility allowed us to judge. From Puerto Deseado one can reach Cabo Blanco, so did we. Our single short dive there amidst the sea lions and kelp vigorously shaking back and forth was not too profitable in terms of sponges, but we got the feeling that a bit deeper, just a little around the corner, there must be plenty of sponges. It is a superb spot. Puerto Madryn was the base selected for exploring Peninsula Valdez. Our chosen dive spot was Punta Pardellas, and this proved to be the right choice, thanks to

Francisco Fernández. The trip across the peninsula to reach Punta Pardellas was memorable, due to the many guanacos, rheas and other not so large animals spotted, but it proved to be a bit too long once we found the amount of sponges collected on the rich, shallow grounds explored. Sorting, subsampling for bioprospection, labelling, fixing, matching with the digital pictures taken, ... These tasks took us beyond 3 a.m. in the hotel corridor, and probably did not contribute much to our neighbour's judgement of our normality.

Our preliminary results can be summarized as follows. In total, almost 600 Chilean and 200 Argentinean sponges were gathered from existing local collections or from new collections with extensive use of SCUBA diving and *in situ* photography of specimens. It is a requirement of Project EMBARC to have type material and, whenever possible, additional reference specimens deposited at local institutions such as the Zoology Institute of Chile's Austral University in Valdivia, and Argentina's Bernardino Rivadavia Natural Sciences Museum in Buenos Aires. Four new family level records were already made for the SE Pacific sponge fauna – Cladorhizidae, Clathrinidae, Crambeidae and Dictyonellidae; and several new species are ready for description and publication. Further partnerships are being sought in Argentina and Chile, which will hopefully include students willing to learn about sponge taxonomy.

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Tedania sp. Isla Ascension (Melinka), Chile, March 2005. 15-19m.

Photo Philippe Willenz



Cabo Blanco, Argentina. January 2006. Photo Philippe Willenz

