

## INTRODUCTION

- The Ecuadorian coastline (Tropical Eastern Pacific) is influenced by the seasonal fluctuations of the equatorial front, to which interannual oscillations known as El Niño and La Niña are superimposed.
- The Pacific coast of South America has been the focus of extensive recent inventories of its sponge biodiversity from the cold waters of Chile until Peru (1–7). The Peruvian inventory is still largely unpublished, and there is also a strong gap in knowledge about the distribution and abundance of sponges along the coast of Ecuador.
- A recent project was funded at the national level to assess for the first time the biological and chemical diversity of marine invertebrates along the coast of Ecuador. Indeed it became urgent to start the description of the marine biodiversity but also ecological interactions and their possible applications in several fields of research..

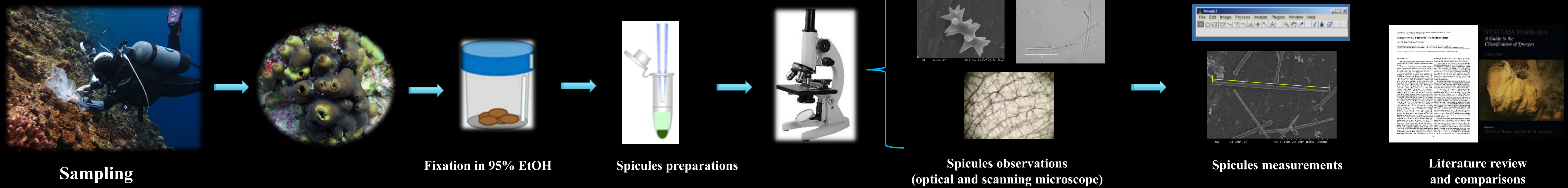
## OBJECTIVES

- Characterize the diversity of sponges present at El Pelado Marine Protected Area by using first morphological data.
- Select sponge targets at El Pelado MPA on the basis of their abundance and distribution for chemical diversity studies.

## STUDY AREA



## METHODS



## RESULTS

### El Pelado Marine Protected Area - Ecuador diversity of sponges

- In El Pelado MPA, sponges are an important component of the benthic fauna.
- The most abundant species are *Aplysina* spp., *Callyspongia* cf. *californica*, and *Mycale* cf. *magnirhaphidifera*.
- The less abundant species were *Dysidea* sp. and *Chondrosia* cf. *reniformis*, only found in small caves and crevices.
- The sponge-coral interaction was observed in all shallow water sites where colonies of the coral *Pocillopora* sp. occur.

### Sponge – Coral interaction

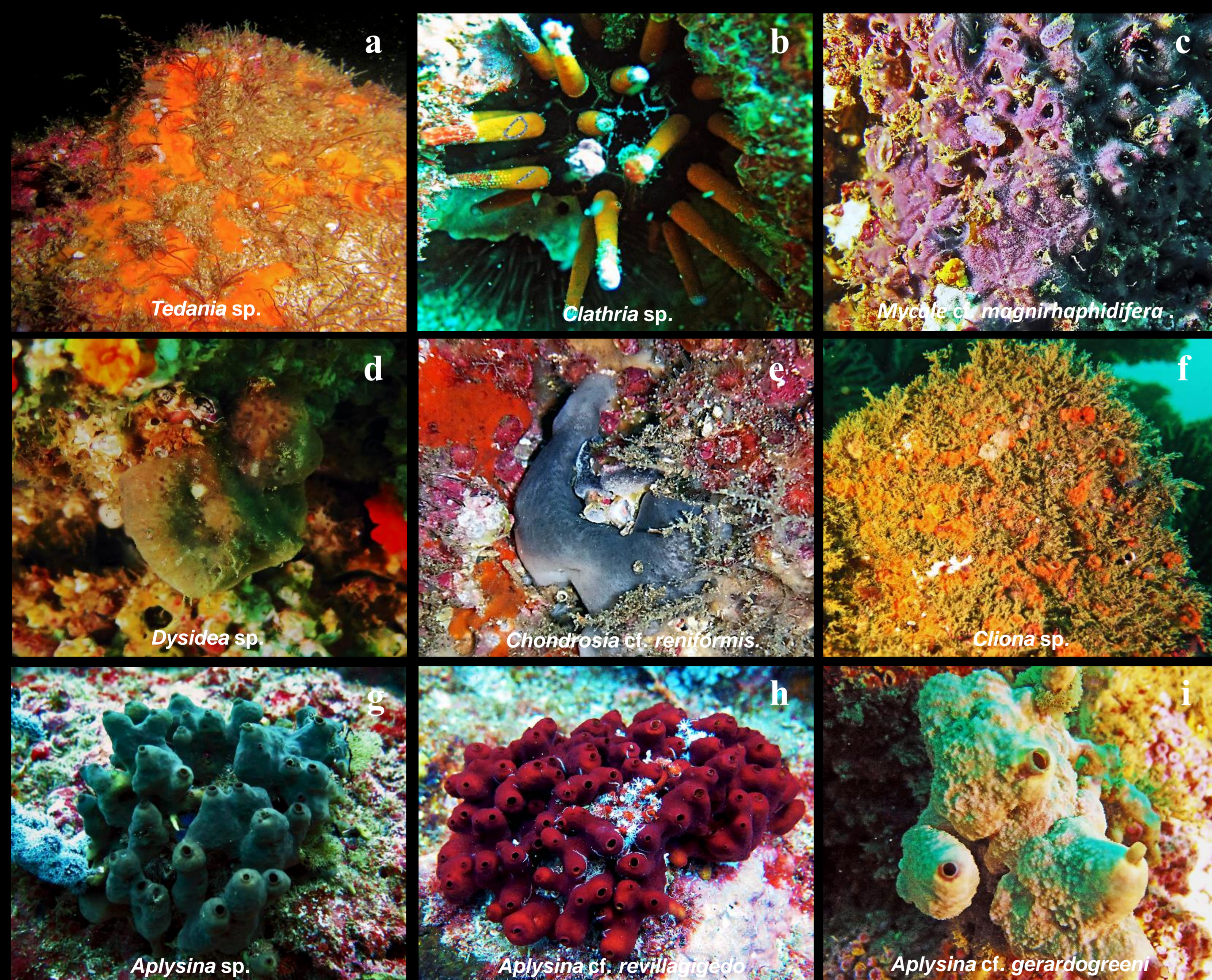


Fig. 4. In situ photographs of the nine species found at El Pelado Marine Protected Area (Ecuador).



Fig. 5. Ecological interaction observed in the shallow waters of El Pelado MPA (Ecuador) between the coral *Pocillopora* sp. and *Callyspongia* cf. *californica*



Fig. 6. In situ photograph of *Callyspongia* cf. *californica*, the sponge most commonly found in direct interaction with the coral *Pocillopora* sp. at El Pelado Marine Protected Area (Ecuador).

## DISCUSSION

- These first insights into the sponge biodiversity of the coast of mainland Ecuador revealed a significant sponge diversity in a very small area that clearly deserves more detailed examination. Encrusting sponges were mostly not studied yet.
- This work will give access to key data for the understanding of sponge distribution between the Southern and the Northern coasts of South America.
- The interaction between the coral *Pocillopora* sp. and *Callyspongia* cf. *californica*, also reported from Mexico, merits deeper studies to disclose its dynamics.

## PERSPECTIVES

- Expand our investigations on sponges along the mainland coast of Ecuador.
- Assess the chemical diversity of some of these species to search bioactive compounds.
- Perform molecular systematics for these species.
- Use metabolomics to evaluate the ecological interaction between the sponge *Callyspongia* cf. *californica* and the *Pocillopora* sp. coral.

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**References:** (1) Azevedo et al. 2009 — *Zootaxa* 2072, 1–30; (2) 2015 — *Zoological Journal of the Linnean Society* 173(4), 787–817; (3) Willenz et al. 2009, — pp. 93–170 in *Marine Benthic Fauna of Chilean Patagonia*. Nature in Focus; (4) Aguirre et al. 2011 — *Zootaxa* 3085, 41–54; (5) Lopes et al. 2012 — *Invertebrate Systematics* 25(5): 407–443; (6) Hajdu et al. 2013 — *Zootaxa* 3744, 1–64; (7) 2015 — *Zootaxa* 3926, 87–099.