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## Introduction

Fishes can successfully invade tropical marine systems if the population is large enough (Planes and Lecaillon, 1998; Semmens *et al.*, 2004). The Lionfish *Pterois volitans*, a native species of the Indo-Pacific, is the first marine invasive fish to become widely established in the Western Atlantic being one of the fastest invasions to be documented in history (Morris *et al.*, 2009; Albins, 2011).

Direct consequences of lionfish, as an invasive species, are determined by its predatory activity and the following competition for space and food with native species (Albins, 2012; Acero *et al.*, 2019). In Colombia, the first report of the species was made in the insular Caribbean, specifically at the end of 2008 on the Providencia island (Schofield, 2009) and later it was recorded for the continental Caribbean in the Tayrona National Natural Park (González *et al.*, 2009).

The main aim of our research was to evaluate the implications of the lionfish invasion on the prey fish assemblages (composition and abundance) of Bolívar and Magdalena between 2015 and 2017



The abundance of lionfish varied between 0.2 and 2.0 ind/50 m<sup>2</sup>, being Magdalena the region with the highest abundance (0.51 ± 0.08 ind/50 m<sup>2</sup>).

The structure of the fish assemblage varies significantly spatially between regions (PERMANOVA, Pseudo-F = 13.91; DF = 1, 78; P = 0.001) and temporally between periods (PERMANOVA, Pseudo-F = 7.99; DF = 1, 78; P = 0.001) and all years (PERMANOVA, Pseudo-F = 2.78; DF = 2, 78; P = 0.001).

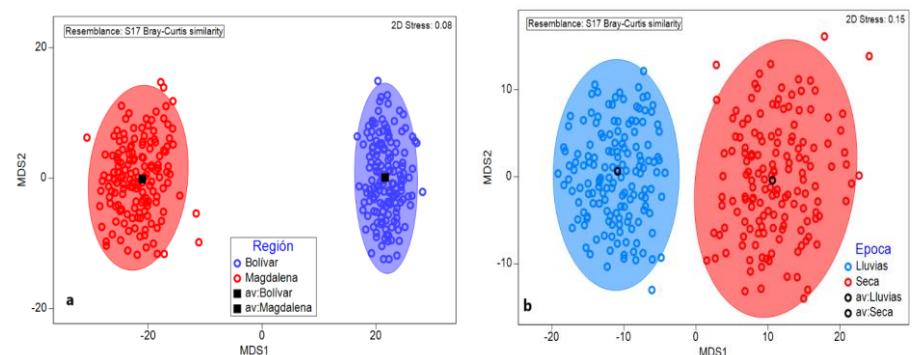


Fig 2. MDS of bootstrap averages for fish assemblage of (a) regions (Bolívar in blue and Magdalena in red) and (b) climatic periods (rainy in blue and dry in red). The symbols' position represent the position of centroids per bootstrap, with dark symbols being averages and shaded areas the 95% confidence intervals.

## Materials and methods

The study was conducted in the departments of Bolívar and Magdalena located in the Colombian Caribbean. Due to the intertropical convergence zone (ITCZ) fluctuations, there are two climatic periods, one dry and one rainy. Contrary to Bolívar, Magdalena region is characterized by the presence of cold sub-surface waters from local upwelling events.

Visual censuses were carried out in the two climatic periods (dry and rainy) and in the two regions (Bolívar and Magdalena). Permanent transects of 25 × 2 m (50 m<sup>2</sup>) were established in nine sites in every region at depths between 10 and 24 m.

## Results

A total of 117 species grouped in 43 families were recorded, 98 species in Bolívar, and 84 in Magdalena. On average, the species with the highest abundances were *Coryphopterus personatus* (41.9 %), *Stegastes partitus* (6.8 %) and *Clepticus parrae* (5.5 %)

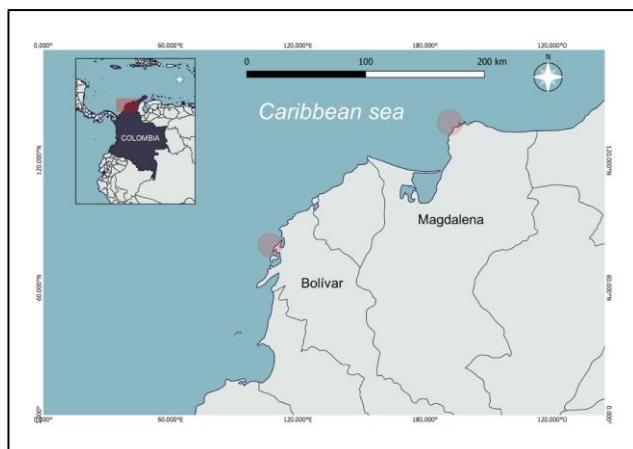


Fig 1. Study area. The circles show sites sampling (Gysseth Herrera Villaraga).

## Conclusions

Although there were negative correlations between the abundance of lionfish and the abundance and richness of prey in Magdalena, there is not enough evidence to conclude that this effect is caused exclusively by lionfish. We suggest to evaluate the lionfish effect on prey fish assemblages using larger temporal and spatial scales.

## References

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