SIMPOSIO INTERNACIONAL DE CIENCIAS DEL MAR

# Assessing fish and invertebrates diversity as a source of pressure of recreational SCUBA diving

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# Introduction

## Coastal world population

2012 → 53 % world popuplation
(United Nations, 2012.)

2025 → 75 % world popuplation
(Estimates of IPCC, 2014.)

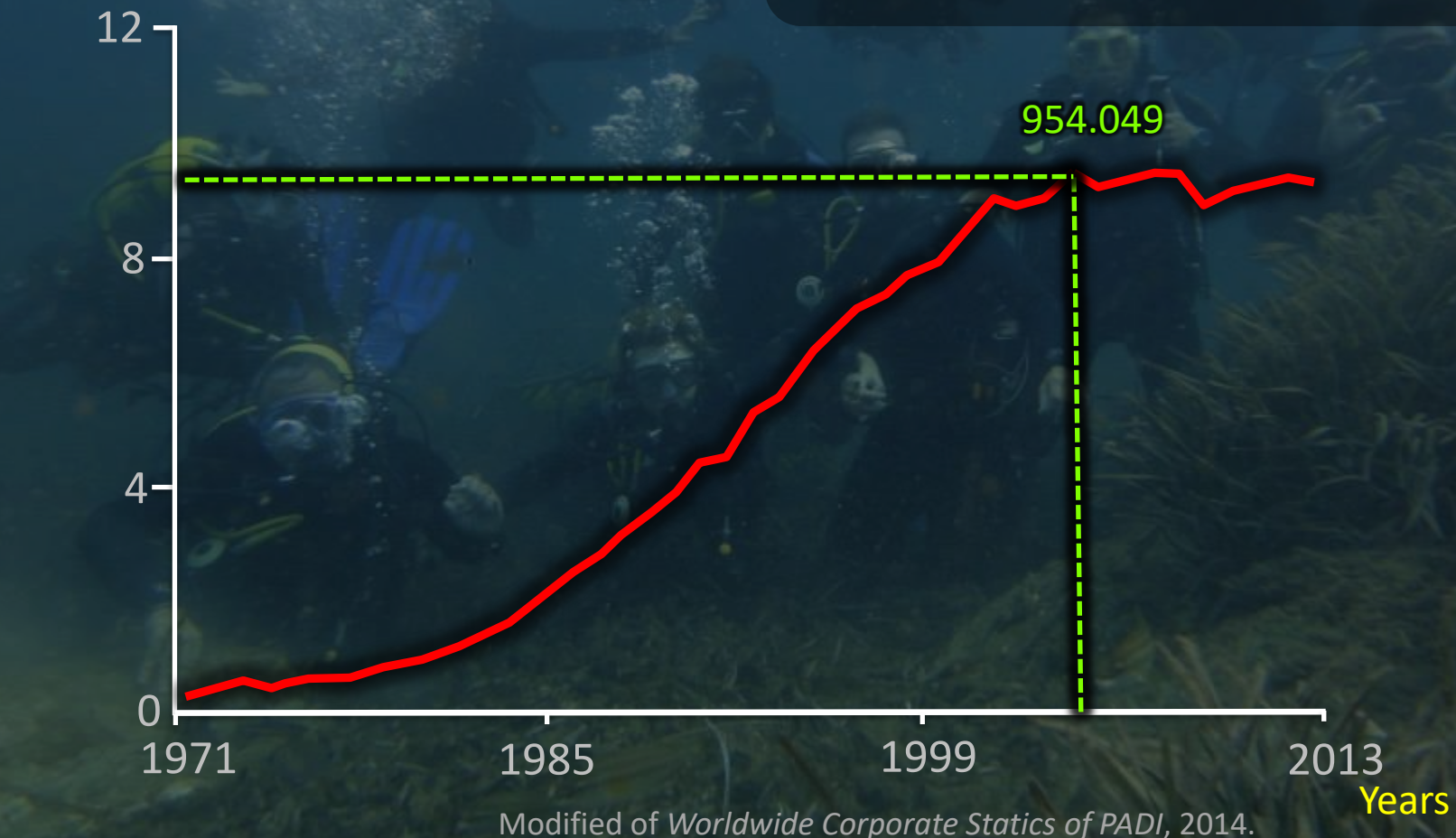
60% of the european population

PRESSURES →

1. Pollution and contamination.
2. Aliens species.
3. Coastal geomorphology.
4. Artificial reefs.
5. Increase activities:
   - Economic: Aquaculture
   - Leisure: SCUBA diving

# Introduction

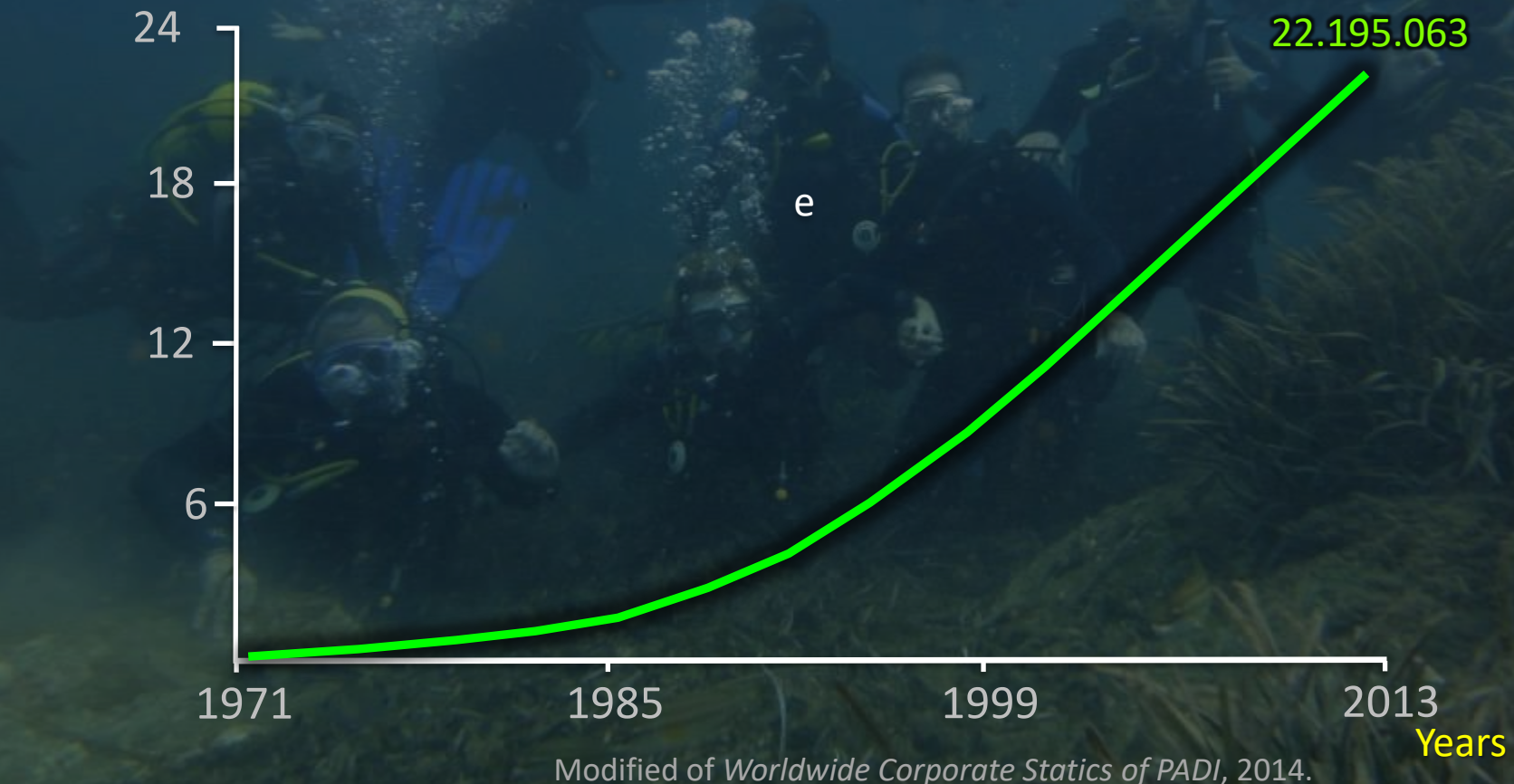
The number of scuba divers has been steadily increasing worldwide in the last decades




Modified of *Worldwide Corporate Statics of PADI*, 2014.

# Introduction

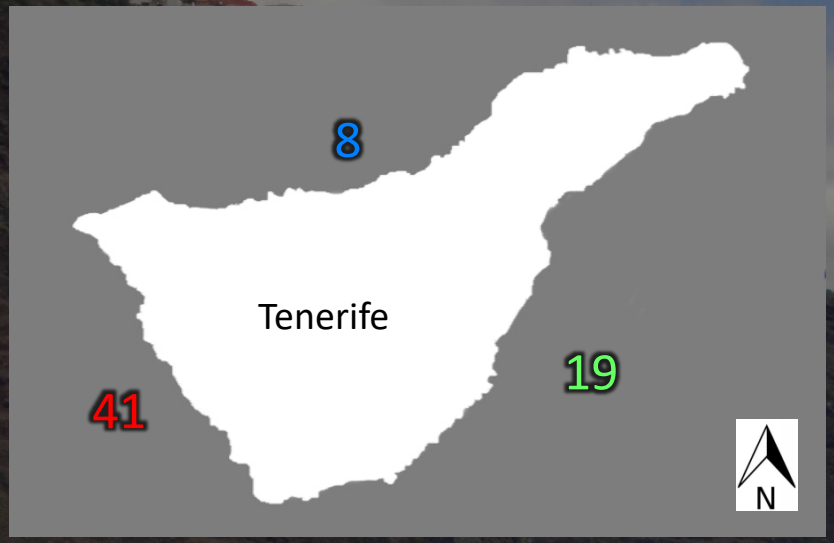
Over 42 years, PADI divers trained over 22 million people



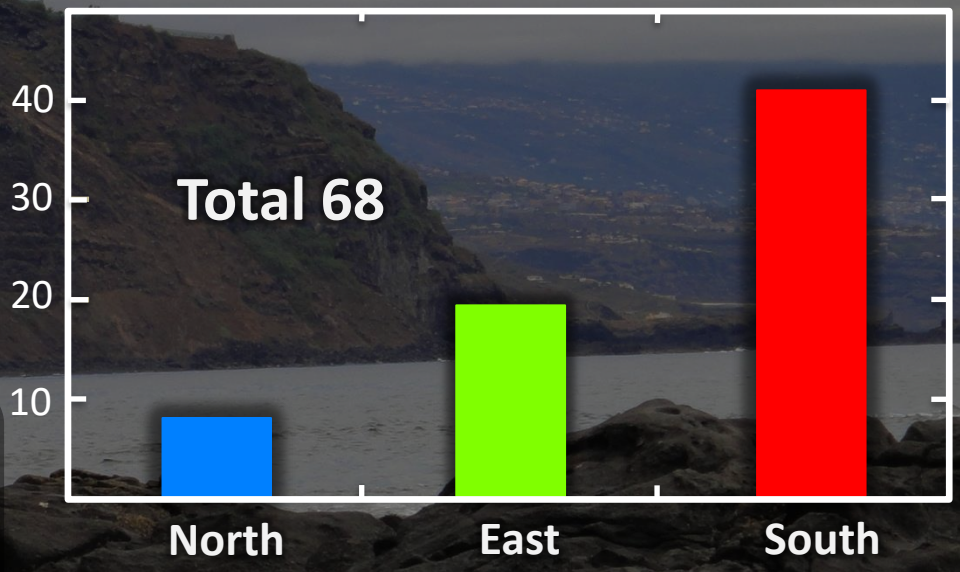

Modified of *Worldwide Corporate Statics of PADI*, 2014.

# Introduction

2013 Tenerife received over 4,6 million tourists




Nº diver centers in Tenerife




The weather, sea conditions and marine biodiversity in the Canaries, make SCUBA diving a popular recreational activity

Orientation

# Objectives

The pressure of SCUBA diving affects marine biodiversity?

Low nº of divers

High nº of divers

# Material & Methods

**Underwater procedures were based on 50 m transects laid by divers at each site**

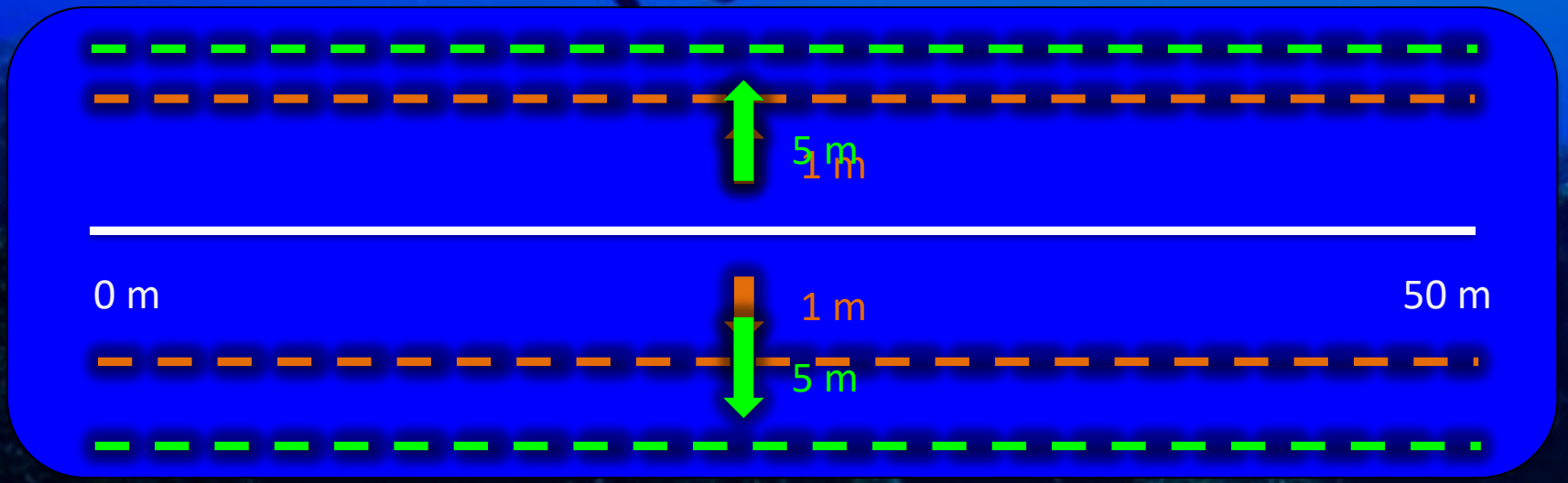
Fishes,
50 x 10 m.

Species
Abundance
Size classes

Nº of sampling sites = 10

Invertebrates + cryptic fishes,
50 x 2 m.

Species
Abundance

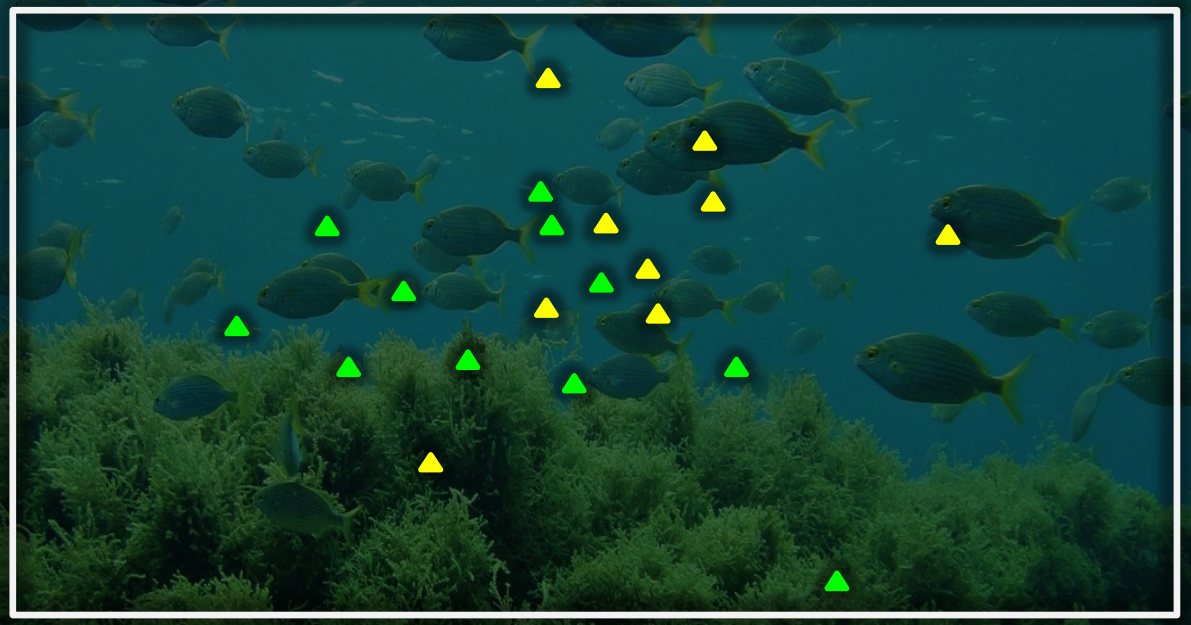



www.reeflifesurvey.com

# Results

**Fishes + Invertebrates**

Permanova/ nMDS

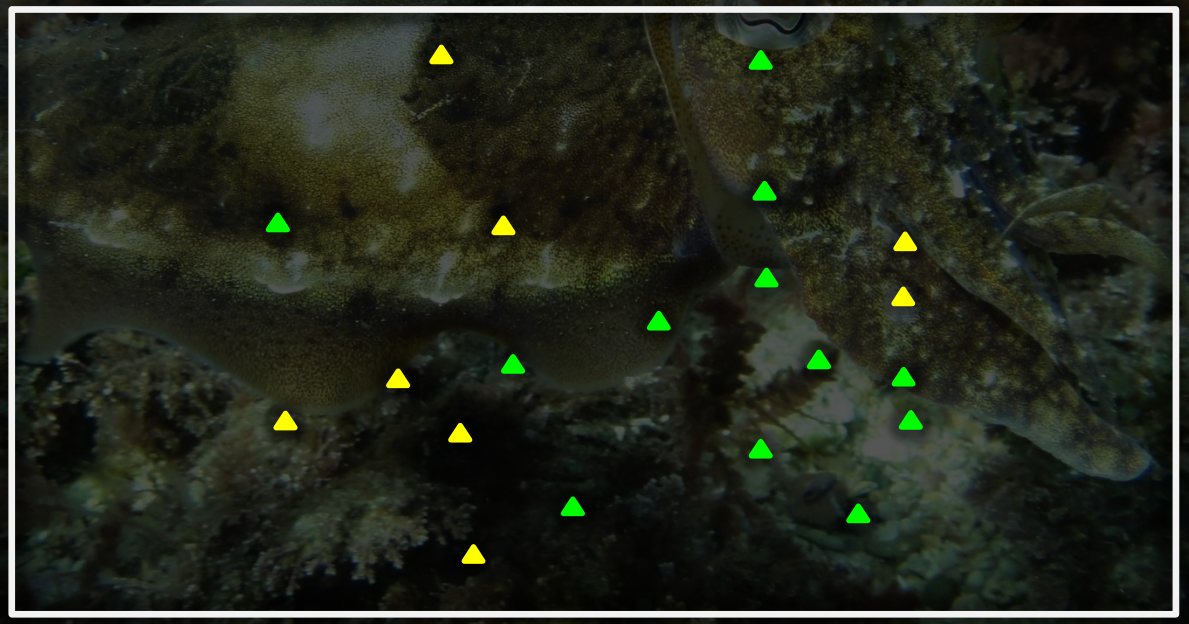



Not significant

# Results

**Invertebrates**

Permanova/ nMDS

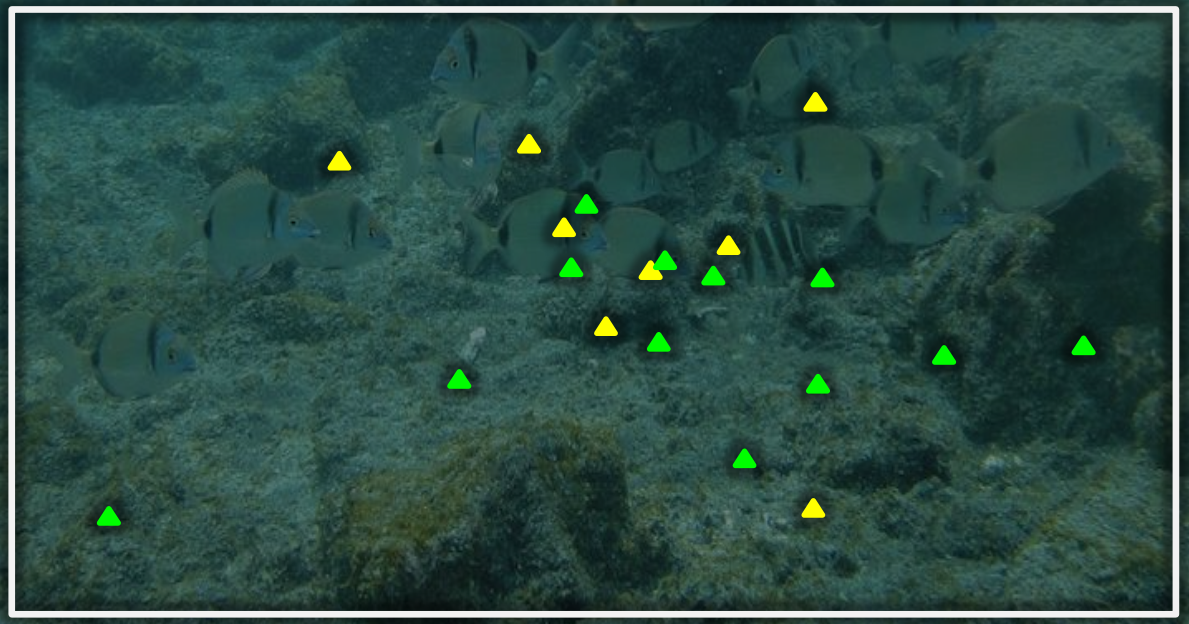



Not significant

# Results

**Fishes**

Permanova/ nMDS

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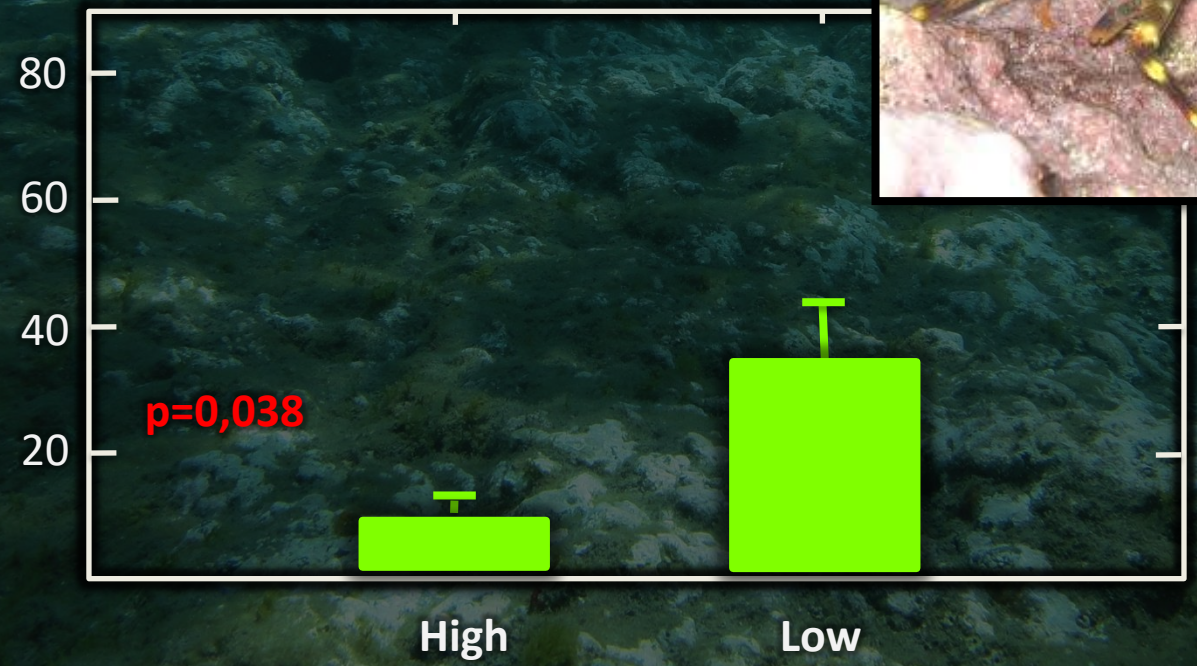
# Results

**Abundance**

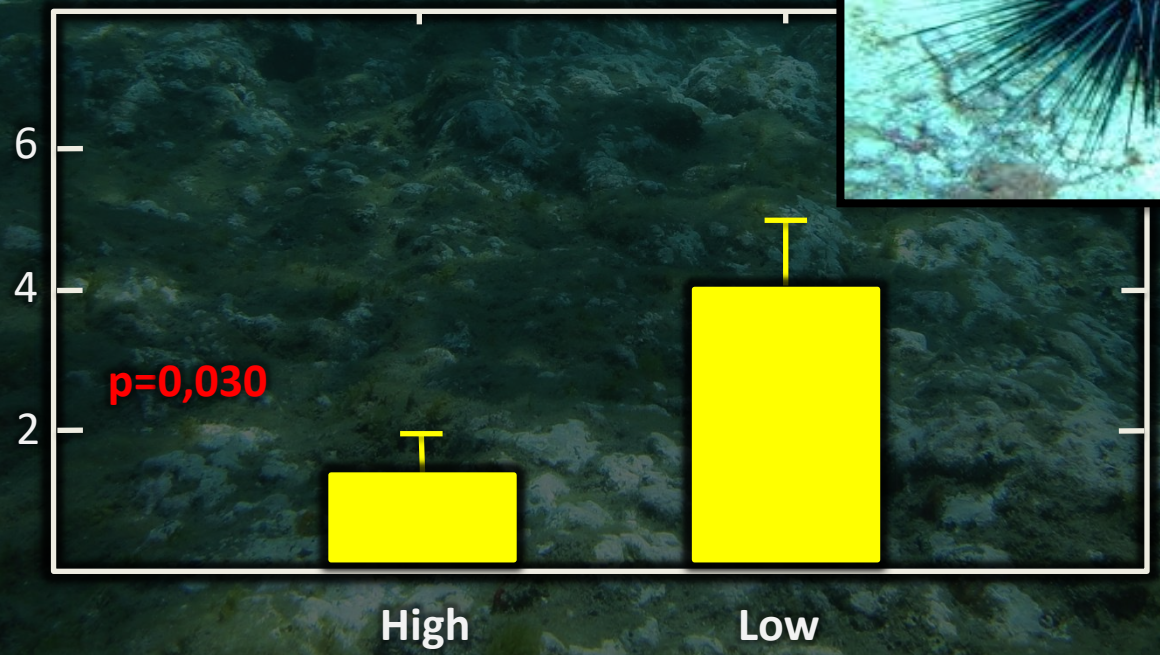



SIMPER method

*Percnon gibbesi*

# Results

## Abundance

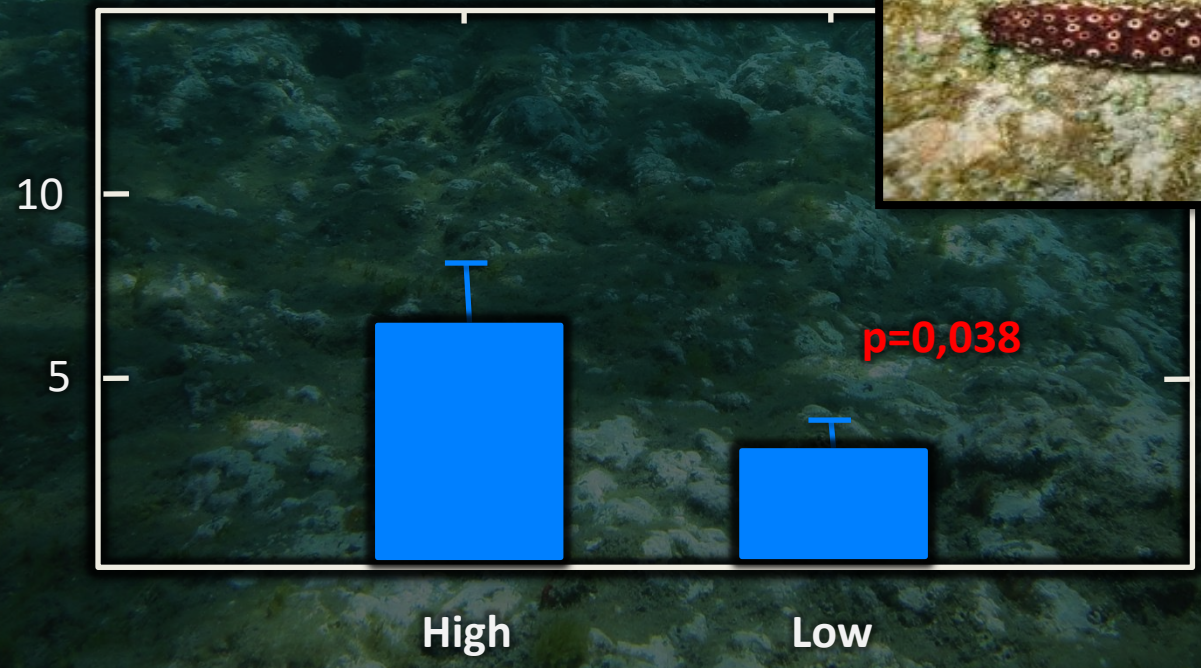



SIMPER method

*Diadema africanum*

# Results

**Abundance**




SIMPER method

*Holothuria sanctori*

# Conclusions

Fishes comunity: no differences between low and high

Invertebrates + criptic fishes: no difference

Species levels: significative difference

1. *Percnon gibbesi*
2. *Diadema africanum*
3. *Holothuria sanctori*

# Acknowledgement

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