

# Effects of Environmental Pressures and Physical Characteristics of Tide Pools on Marine Invertebrate Community Ecology

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## Introduction

Intertidal invertebrates are an integral part of tide pool ecosystems, so what is the intertidal invertebrate's ideal habitat? Which tide pools foster the greatest abundance and species diversity?

## Objective

This study was conducted to determine whether five major players in the northern California invertebrate community fair better in the rocky tide pools of a sheltered bay or the sandy tide pools of a beach exposed to the full force of the waves.

## Methods

- 2 study areas in Trinidad, CA were selected: Trinidad Harbor and Trinidad State Beach.
- 30 tide pools were selected as study sites – 15 in the harbor and 15 on the beach.
- During each visit, the number of invertebrates belonging to the following species present in each pool was documented:

### Ochre sea star

(*Pisaster ochraceus*)

### Giant green anemone

(*Anthopleura xanthogrammica*)

### Starburst anemone

(*Anthopleura sola*)

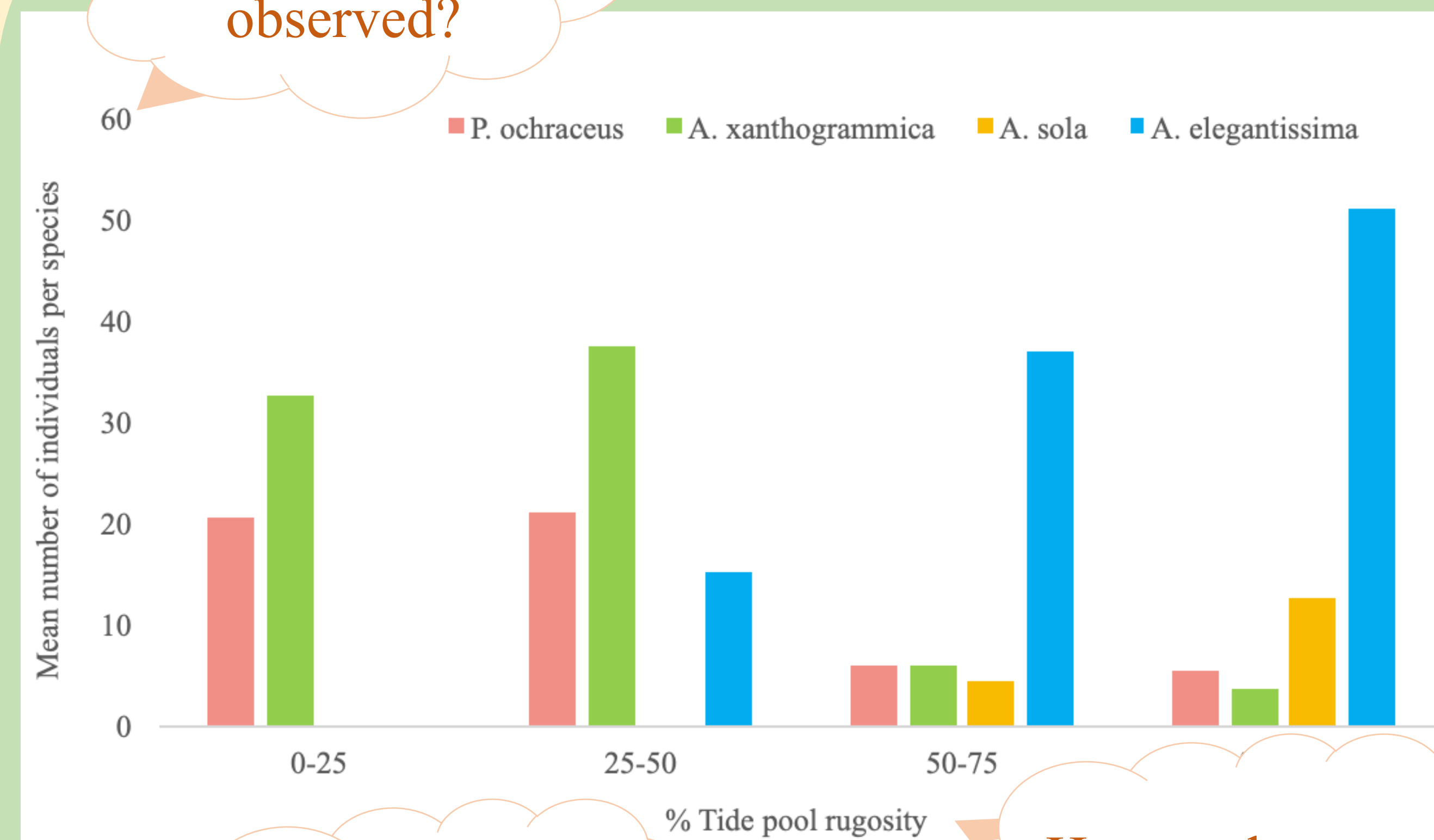
### Aggregating anemone

(*Anthopleura elegantissima*)

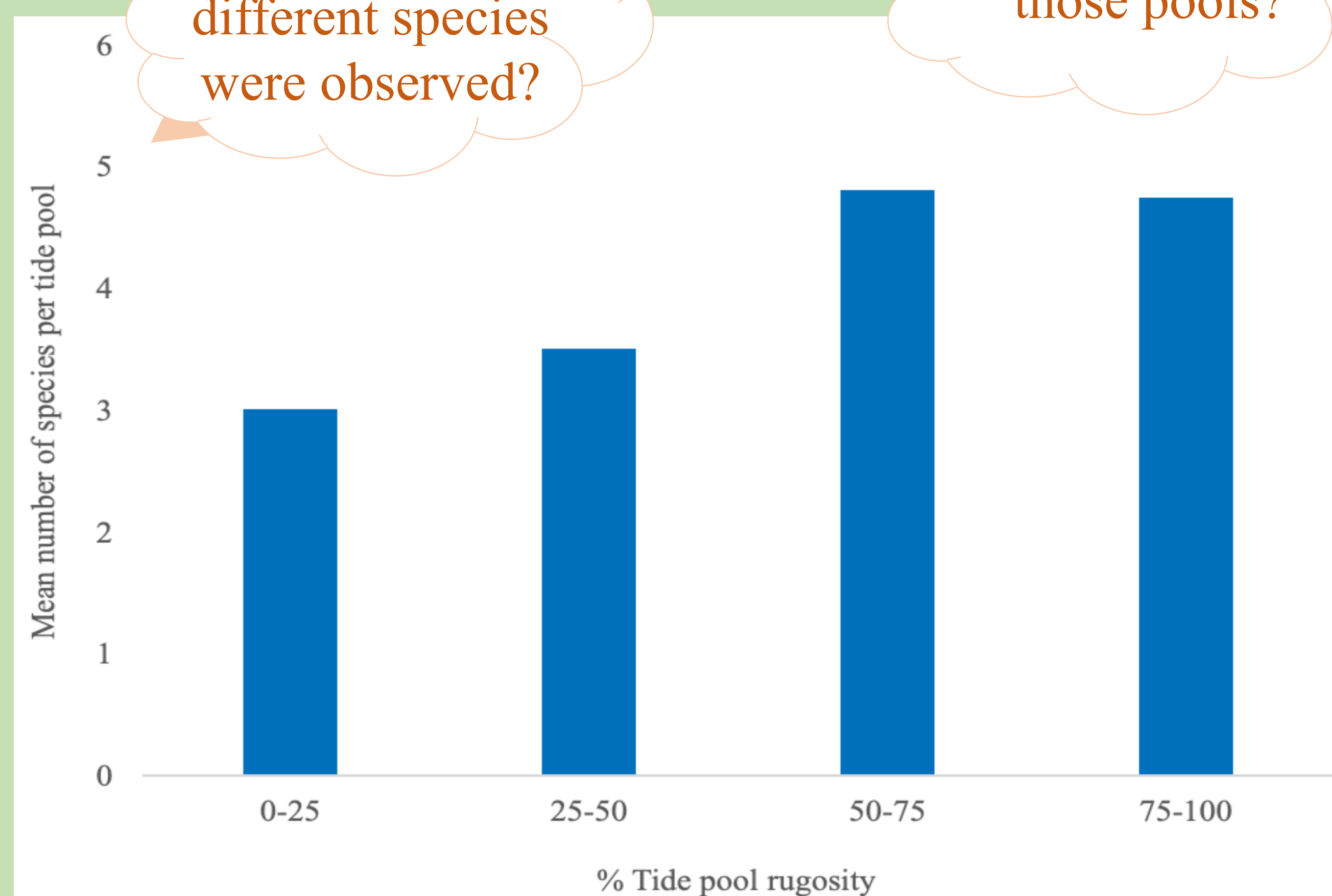
### California mussel

(*Mytilus californianus*)

How many invertebrates were observed?



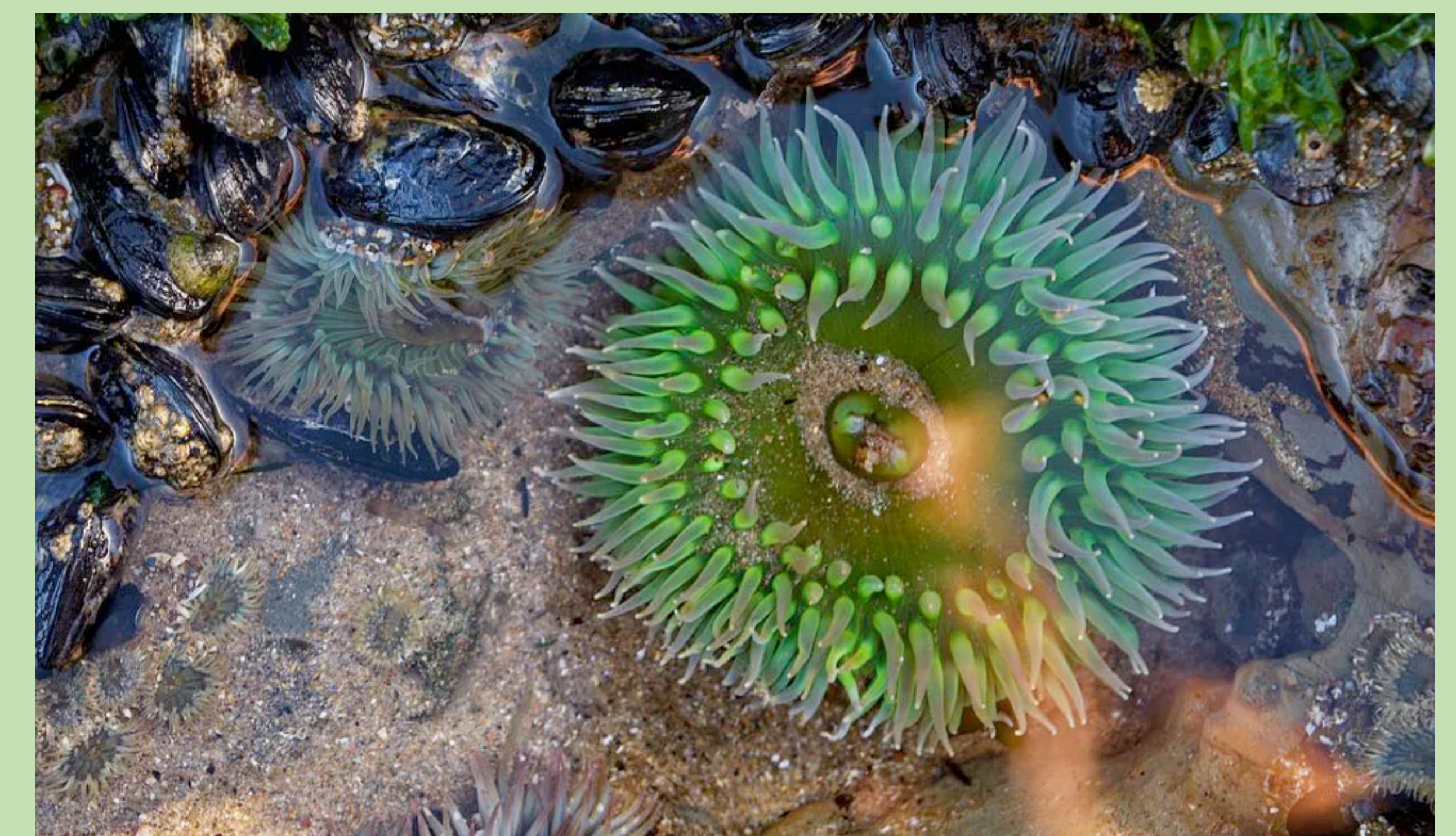
How many different species were observed?



How rocky were those pools?

## Conclusions

- Rocky tide pools sheltered from the harsh surf foster more species diversity, but abundance of many large-bodied invertebrates is low.
- California mussels, giant green anemones, and ochre sea stars thrive in harsh, sandy environments offered by tide pools exposed to the waves, but smaller anemones can't seem to get a foot-hold.
- While abundance is generally low across the species inhabiting sheltered rocky tide pools, diversity is high!



## Results

The rocky sheltered pools yielded:

- A lower abundance of individuals per species.
- A higher species diversity.

The sandy exposed pools yielded:

- A higher abundance of individuals per species.
- A lower species diversity