



# Comparing the ecological effects of casitas to natural reef structures on benthic flora and fauna in the Florida Keys



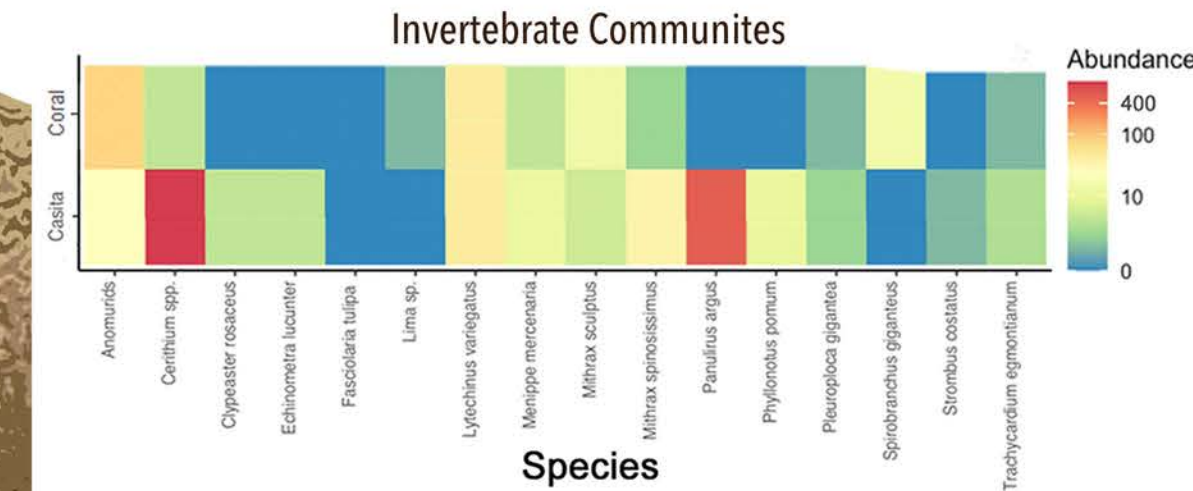
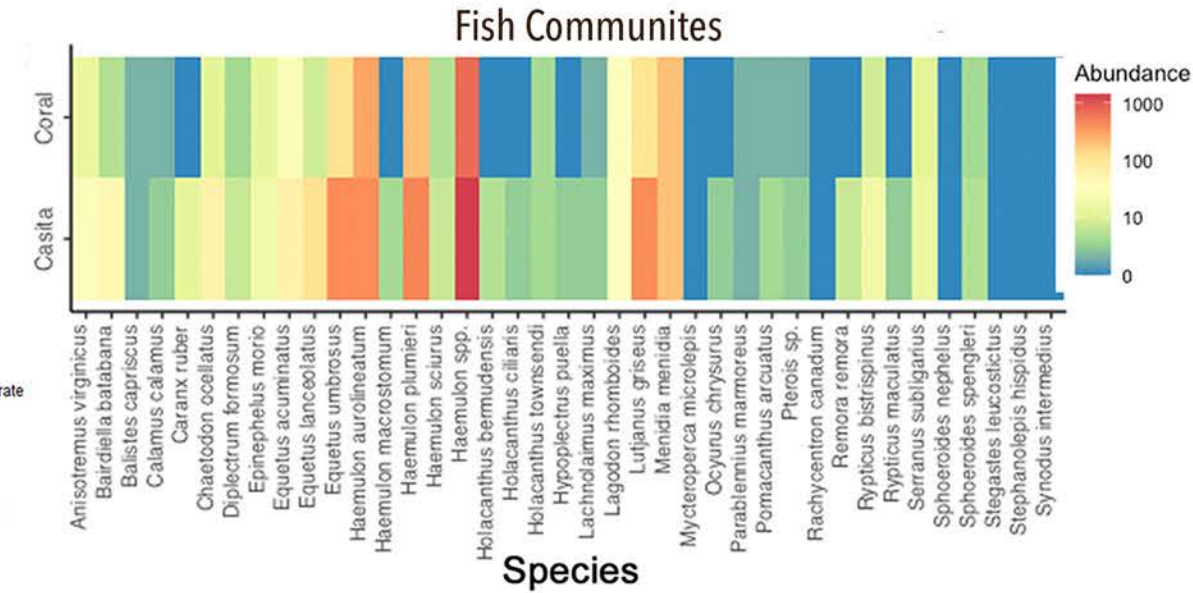
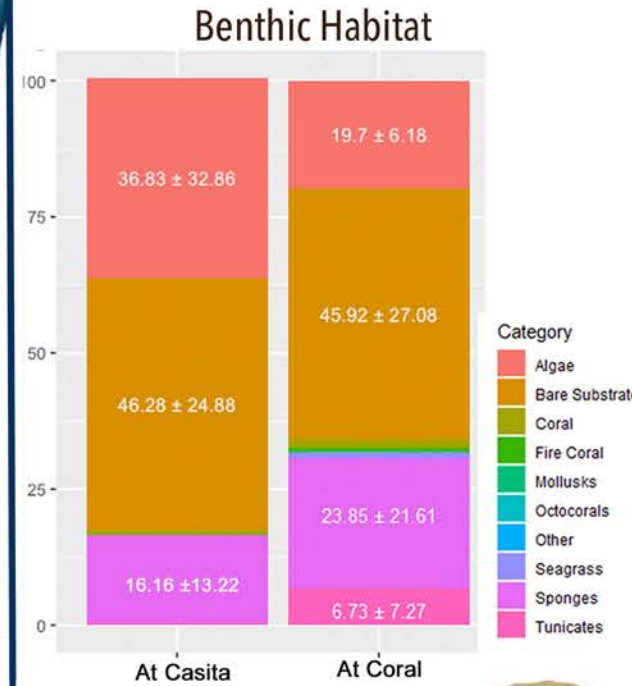
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## Introduction

Artificial shelters, called casitas, are used widely in the Caribbean to facilitate the harvest of spiny lobsters by divers. However, their ecological function remains largely unknown. Therefore, we examined benthic habitat distribution, and fish and motile invertebrate abundance and diversity at casitas, and large boulder corals.

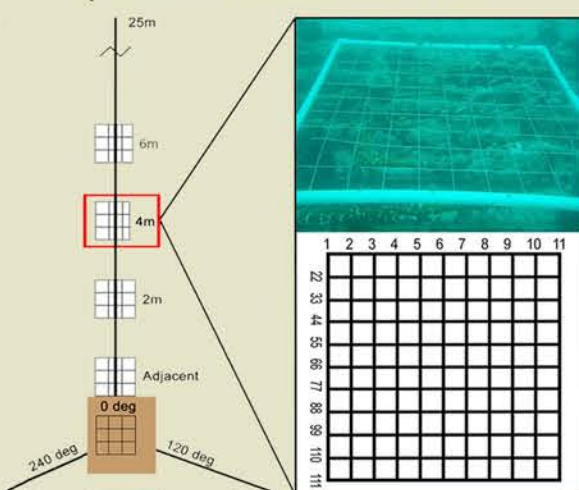


## Results



## Methods

### 1) Benthic Habitat Transects



### 2) Fish and Invertebrate Visual Surveys



Benthic habitat communities were not significantly different between casita and coral head plots. Casita and coral heads also had similar invertebrate and fish communities. The only statistical difference found between casitas and coral heads were the presence of lobsters. Lobsters were significantly more abundant at casitas.

### 3) Lobster Surveys



## Conclusion

Our study suggests that casitas function in an ecologically similar way to natural coral structure. Casitas in our study mirrored the benthic algae reduction seen in natural habitats and they diversified the benthic habitat by providing settlement substrate for sessile invertebrates. Casitas and coral heads appear to function as oases in shelter limited habitats, as they enhanced both fish and invertebrate communities. Although coral heads in our study were largely dead, these results demonstrate the importance of structure to the nearshore ecological communities of the Florida Keys. This is likely especially pronounced in our study area, North of the lower Florida Keys, where natural shelters are few and far between. Ecologically, casitas appear to function similarly to corals heads within shelter limited regions, and may be efficient dual-purpose devices; that is, they function not only as lobster fishing gear, but also as habitat and fauna restoration tools.