

Introduction

The majority of the oceans still remain unexplored. For this reason, the MARECO project of the Census of Marine Life explored biodiversity along the **Charlie-Gibbs Fracture Zone (CGFZ)**: the region of the Mid-Atlantic Ridge running from Iceland to the Azores.

Cephalopods play an integral part in marine environments, where they take on both predator and prey roles. Cephalopods are also important within the fishing industry. The distribution and diversity of cephalopods was quantified in order to learn more about the ecosystems surrounding the CGFZ.



Muusoctopus johnsonianus

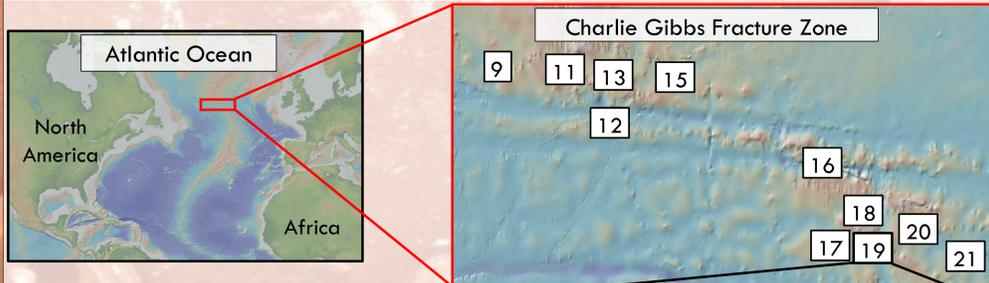


Gonatus steenstrupi

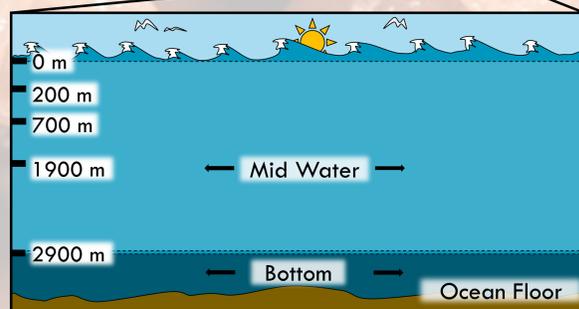


Mastigoteuthis agassizii

Sampling Sites



Eleven sites along the CGFZ were sampled. Each site consisted of two major trawling zones: **Mid water** and **bottom**. The mid water zone is further broken up into four discrete depth ranges: 0 – 200 meters, 200 – 700 meters, 700 – 1900 meters, and 1900 – 2900 meters.¹ Roughly **20 species** of cephalopod were collected across all sites.



Methods

Submarine Dive Video

50 hours of video across 11 dives were viewed. Sightings of the most common species, *Gonatus steenstrupi*, were recorded alongside the time of day and depth. Dive data is separate from trawl data.

Site Diversity

The total number of species recorded at each site via trawling was mapped using GeoMapApp. Each site was divided between mid water and bottom trawling zones.

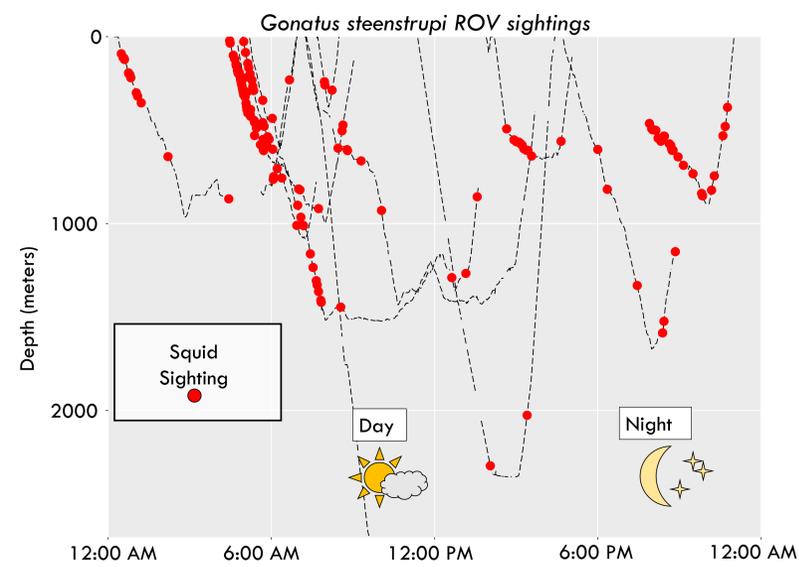
Squid Abundances

The total number of *Gonatus steenstrupi* caught at all sites via discrete depth trawling was standardized by the total water filtered at each depth. Trawls were divided temporally (e.g. Day and Night). Only mid water depth ranges were used for these calculations.

Site Similarity

The **species composition** (number of individuals of each species) at each site was compared to other sites with Bray-Curtis Similarity.⁶ These similarity values were used to produce tree diagrams.⁵ Each site was categorized as north or south and divided between mid water and bottom.

Submarine Dive Video

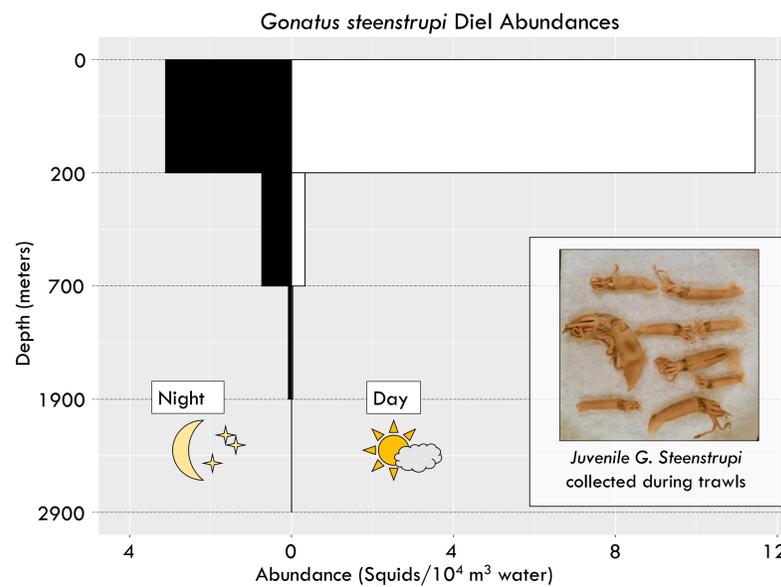


Graph depicting 11 separate dives and their distinct paths; red points signify the sighting of a *Gonatus steenstrupi*. Blue represents day and purple represents night.

Conclusion:

Gonatus steenstrupi are most common closer to the ocean surface; the majority live above depths of 1000 meters.

Squid Abundances

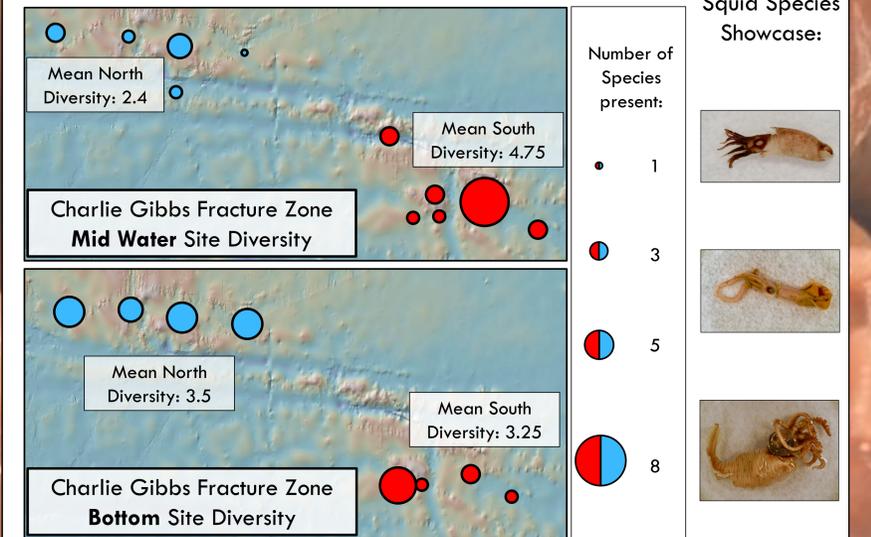


Day vs. Night (i.e. Diel) graph depicting *G. steenstrupi* abundances at various depths.

Conclusion:

Gonatus steenstrupi display the highest abundances during the day and at shallower depths.

Site Diversity

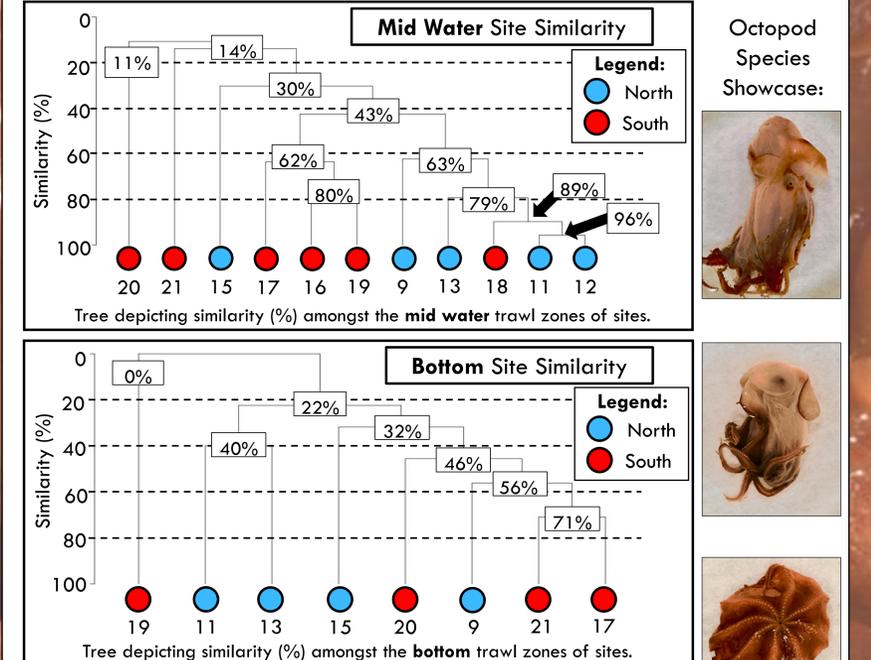


Maps depicting the number of species present at each site. Each site is divided into two zones: mid water and bottom. Blue signifies a northern site and red signifies a southern site.

Conclusion:

Mid waters in southern sites have the highest diversity and mid waters in northern sites have the lowest diversity.

Site Similarity



Mid water sites are more similar than bottom sites.

Acknowledgements

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