



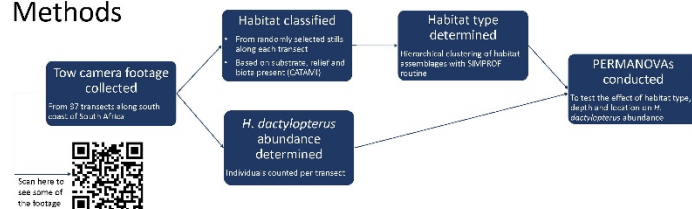
Using tow camera footage it was found that *Helicolenus dactylopterus* abundance differed significantly with habitat type on the Agulhas Bank, South Africa.

Introduction

- Helicolenus dactylopterus* is caught in large quantities in the MSC-certified South African offshore hake trawl fishery.
- Elsewhere in the Atlantic the species has been found to utilise deep water reef habitats.
- Recently, extensive deep-water coral communities have been found off the coast of South Africa.
- It is hypothesised that *H. dactylopterus* utilises these habitats and is associated with them to some extent.
- Understanding the habitat use of *H. dactylopterus* will allow for improved management of the hake fishery and will support marine spatial planning efforts in protecting essential fish habitat.

Aim:
To describe the habitat preference of *H. dactylopterus* off the coast of South Africa.

Methods



Results

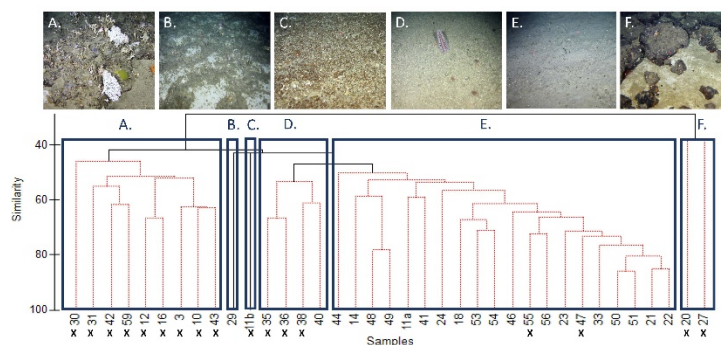


Figure 1: Habitat assemblages (including substrate, relief and biota) clustered into six different habitat types which are shown in the images above. The presence of *H. dactylopterus* is indicated by X.

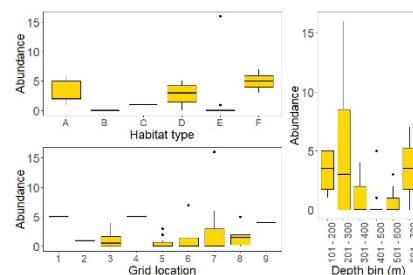


Figure 2: Boxplot of *H. dactylopterus* abundance per habitat type, grid location and depth bin.

- PERMANOVA results indicated that depth bin and grid location did not have a significant effect on *H. dactylopterus* abundance ($p > 0.05$, Figure 2).
- Habitat type was the only factor with a significant effect ($p = 0.0001$) on the abundance of *H. dactylopterus*.
- Habitat type E, characterised by coarse sediment, flat relief, and tube worms hosted significantly lower *H. dactylopterus* abundances than habitats A, D and F ($p = 0.0002$, 0.02 and 0.01 respectively), which were more heterogeneous and were characterised by coarse sand, boulders, flat to medium relief and the occurrence of various bryozoans and octocorals (Figure 1).



Conclusion

- Habitat type is an important factor in determining the distribution of *H. dactylopterus* on the Agulhas Bank off South Africa, where the species is associated with more heterogeneous habitat types, characterised by the presence of bryozoans and octocorals.
- Considering the overlap of *H. dactylopterus* distribution with the hake trawl fishery, these findings would suggest that potentially vulnerable marine habitats are at risk of trawling activities.



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Evaluating habitat use of a deep-sea benthic fish species using towed camera footage from the south coast of South Africa

Authors: Laura Weston, Colin Attwood, Kerry Sink

Abstract

Helicolenus dactylopterus is a widely distributed benthic rockfish species that inhabits continental slopes throughout the Atlantic Ocean. It forms an important part of demersal fish communities offshore South Africa and is caught in large quantities in the ecocertified South African offshore hake trawl fishery. It is a long-lived, slow-growing species which may be vulnerable to over-exploitation, but very little research has been conducted on this species locally. As such, *H. dactylopterus* has been identified as a priority bycatch species within the offshore hake fishery, on which future research is to be focussed to improve resource management.

In developing effective management strategies, understanding the factors that influence the spatial distribution of a species within marine landscapes is essential. Recently, extensive cold-water coral communities have been found to occur on the continental slope off the coast of South Africa. These communities provide important habitat to certain fish species. It is hypothesised that *H. dactylopterus* may show a preference to and associate with these ecosystems found off South Africa. To assess this, previously collected *in situ* video footage will be used to analyse the habitat associations of *H. dactylopterus* in the region, by relating fish abundance to various environmental variables.

Understanding the factors that determine *H. dactylopterus* distribution off South Africa will provide insight into a key bycatch species for which there is little information, improving the management of the fishery. Furthermore, it will also support marine spatial planning in providing a greater understanding of essential fish habitat in deep water ecosystems.

Keywords:

Helicolenus dactylopterus, cold-water corals, habitat association, South Africa, Agulhas ecoregion

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