

Spatial patterns of biodiversity on Carter Seamount, Eastern Equatorial Atlantic; scales and drivers

Lissette Victorero^{1,2}, Michelle Taylor³, Laura Robinson⁴, Jon Copley² and Veerle Huvenne¹

1 National Oceanography Centre, Southampton, UK

2 University of Southampton, Southampton, UK

lvq1e12@soton.ac.uk

3 University of Oxford, Oxford, UK

4 University of Bristol, Bristol, UK

Seamounts are prominent, globally distributed seafloor features, which are often considered as “hotspots” hosting diverse benthic communities and abundant fish stocks. Concerns about the effects of human impacts, such as bottom trawling and potential seabed mining, have necessitated the development of appropriate management scenarios. However, those need to be underpinned by a thorough understanding of biodiversity spatial distribution, and the environmental drivers which shape the structure of seamount communities.

Here, we investigate differences in benthic community assemblages in relation to seamount bathymetry & derived parameters (rugosity, BPI etc.) in conjunction with oceanographic variables at Carter Seamount in the Eastern-Equatorial Atlantic (200 -1900 m water depth). The study is based on a comprehensive nested dataset collected during the ‘TROPICS’ cruise on board the *RRS James Cook*, and is linked to the ERC Starting Grant projects CACH and CODEMAP (grant nos 278705 and 258482). Shipboard multibeam and backscatter data is combined with ROV-video records, high-resolution bathymetry and voucher specimen samples, in addition to extensive water column characterisation by CTD and filtration. Carter Seamount exhibits a rich benthic megafauna with particularly diverse coral gardens between 680-1220 m depth. Preliminary results suggest strong assemblage zonation governed primarily by the dominant substrate type and slope angle. Future analysis will reveal the role of water-masses and derived chemical parameters and temperature in affecting the zonation patterns observed.