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TITLE: Benthic Assemblages of the Anton Dohrn Seamount (NE Atlantic): Defining Deep-Sea Biotopes to Support Habitat Mapping and Management Efforts with a Focus on Vulnerable Marine Ecosystems

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ABSTRACT:

In 2009 the NW and SE flanks of Anton Dohrn Seamount were surveyed using multibeam echosounder and video ground-truthing to characterise megabenthic biological assemblages (biotopes) and assess those which clearly adhere to the definition of Vulnerable Marine Ecosystems, for use in habitat mapping. A combination of multivariate analysis of still imagery and video ground-truthing defined 13 comprehensive descriptions of biotopes that function as mapping units in an applied context. The data reveals that the NW and SE sides of Anton Dohrn Seamount (ADS) are topographically complex and harbour diverse biological assemblages, some of which agree with current definitions of 'listed' habitats of conservation concern. Ten of these biotopes could easily be considered Vulnerable Marine Ecosystems; three coral gardens, four cold-water coral reefs, two xenophyophore communities and one sponge dominated community, with remaining biotopes requiring more detailed assessment. Coral gardens were only found on positive geomorphic features, namely parasitic cones and radial ridges, found both sides of the seamount over a depth of 1311-1740 m. Two cold-water coral reefs (equivalent to summit reef) were mapped on the NW side of the seamount; Lophelia pertusa reef associated with the cliff top mounds at a depth of 747-791 m and Solenosmilia variabilis reef on a radial ridge at a depth of 1318-1351 m. Xenophyophore communities were mapped from both sides of the seamount at a depth of 1099-1770 m and were either associated with geomorphic features or were in close proximity (< 100 m) to them. The sponge dominated community was found on the steep escarpment either side of the seamount over at a depth of 854-1345 m. Multivariate diversity revealed the xenophyophore biotopes to be the least diverse, and a hard substratum biotope characterised by serpulids and the sessile holothurian, Psolus squamatus, as the most diverse.

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