

Effect of sedimentary processes on deep-water ecosystems in the Whittard canyon

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During this MSc thesis, a study will be performed regarding the physical or sedimentary processes driving the shape of cold-water coral and deep-water oyster habitats on the flanks of the upper reaches of the Whittard canyon. Man-made disturbances of this system will also be mapped in this study. The Whittard canyon is located in the Bay of Biscay on the Irish continental margin, 314.8km - South of Ireland, in water depths between 200 and 2000 m (Van Rooij *et al.*, 2010). It is the northernmost of approximately 35 canyons incised in the Bay of Biscay, it is a dendritic canyon which comprises 4 main branches of more than 100km long (Huvenne *et al.*, 2009).

Canyons are transition zones between highly productive shallow shelves and deep sea environments. This area is subjected to several sedimentary processes like for instance gravity flows, but also internal hydrodynamic processes. Three types of sedimentation exist in these specific environments, first (hemi)-pelagic 'rain', second contourite reworking along slope and third turbidite reworking down slope. Therefore material, including organic matter, is transported from these shelves to the deep sea and even resuspended. The upper reaches of a canyon are always V-shaped with steep flanks, because of the many processes incising the shelf, while the lower reaches are broad and U-shaped. Ecosystems preferentially occur underneath overhanging, exposed rocks, where they are naturally protected from down slope sediment transport and against deep-sea trawling (Huvenne *et al.*, 2011). Man-made disturbances in this area consist of trawl marks on the upper part of canyon flanks and even lost fishing gear (long-lines), due to intensive trawling activity (Huvenne *et al.*, 2011).

This multidisciplinary study includes seismic profiling and bathymetry, CTD (conductivity-temperature-depth) profiling and ROV (Remotely Operated Vehicle) observations.

References

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