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Bigger is not always better; How cold-water corals outgrow themselves

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Cold-water coral (CWC) framework acts as a sediment trap and as a result kilometres long and up to 360m high mound structures have formed on the SE Rockall Bank. Earlier observations showed that most of the mounds have their summits around 550 m water depth and summits have been reported as being covered with living coral. Pelagia cruises in 2012 and 2013 revealed completely new insights in mound development. Video transects across mounds with different morphology showed that summits of the highest and largest mounds are presently not covered by living coral as opposed to smaller and lower mounds which are covered with a thriving living coral framework. This is also expressed by the vertical mound growth rate measured in sediment cores showing fourfold higher sedimentation rates during the Holocene on small mounds compared to highest mounds. Measurements in the water column with CTD and near-bottom with benthic landers and thermistor string showed that turbulence is likely the most important factor influencing nutrient and food supply and thus coral growth. It seems that the large mounds have outgrown themselves and that their relatively large size and flat summits are limiting turbulence, thereby limiting coral and mound growth.