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TITLE: Biometric assessment of deep-sea vent megabenthic communities using multi-resolution 3D image reconstructions

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ABSTRACT:

This paper describes a method to survey the distribution of megabenthos over multi-hectare regions of the seafloor. Quantitative biomass estimates are made by combining high-resolution 3D image reconstructions, used to model spatial relationships between representative taxa, with lower-resolution reconstructions taken over a wider area in which the distribution of larger predatory animals can be observed. The method is applied to a region of the Iheya North field that was the target of scientific drilling during the IODP Expedition 331 in 2010. An area of 2.5 ha was surveyed 3 years and 4 months after the site was drilled. More than 100,000 organisms from 6 taxa were identified. The visible effects of drilling on the distribution of megabenthos were confined to a 20 m radius of the artificially created hydrothermal discharges, with the associated densities of biomass lower than observed in nearby naturally discharging areas.

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