

Photogrammetric techniques applied to morphometric studies in soft-bodied invertebrates.

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Abstract

Biomass assessment in soft body invertebrates lacking solid durable structures (i.e. shell in some molluscs or external skeleton in arthropods) has been habitually undertaken measuring mass, principally in terms of dry or organic weight. These methods imply sacrificing the organism precluding long-term individual studies as well as implying destruction of fauna very often from protected areas. Development of non-destructive sampling techniques particularly as regards to surveys in the field of conservation status of species has been a major concern and photographic inspection has been widely used over the last thirty years. Nowadays, progress in image and software equipment has provided simple and economical tools for quantitative studies of biomass evolution and growth rates using photogrammetric methods. Nevertheless such studies in invertebrate species exhibiting high degrees of shape variability and/or hydration level should involve previous studies designed to standardize conditions in which measures derived from images can be reliably related to mass. The aim of this work has been to analyse constraints associated to this method selecting four invertebrate species according to criteria of geometry of body shape and environmental –terrestrial or aquatic- origin. So, tubular and terrestrial worm *Eisenia andrei*, semi-tubular and terrestrial slug *Arion ater* and round and aquatic anemones *Actinia tenebrosa* and *A. equina* in different developmental stages have been studied using simultaneously body weight determinations and imaging techniques.

Keywords: Photogrammetric methods, morphometry, invertebrates.