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Evaluation of a semi-automatic zooplankton sampler for use in multidisciplinary monitoring programmes

Sophie Pitois, Paul Bouch, Jeroen van der Kooij, Veronique Creach

The Centre for Environment, Fisheries and Aquaculture Science (Cefas)

Europe's Marine Framework Strategy Directive (MSFD) requires Member States to implement the necessary management measures to achieve Good Environmental Status (GES) in their marine waters by 2020, and establish monitoring programmes to measure progress towards GES. For GES, zooplankton must 'occur at levels that are within acceptable ranges that will secure their long-term viability and functioning of ecosystems'. It is however recognized that gaps exist in data availability and monitoring. Given the decrease in budgets for monitoring, there is a need to develop cost-efficient methodologies for the collection of zooplankton data, integrated into existing monitoring programmes.

The Cefas Automatic Litter and Plankton Sampler (CALPS) is a custom-made semi-automatic sampler which pumps water from a fixed depth along a predetermined transect as the ship sails. We evaluated the performance of the CALPS by comparing its samples with those collected using a traditional sampling method of vertical haul using a ring net of same mesh size. All samples were collected at night in the Celtic Sea in October 2014. The CALPS significantly underestimated species abundance, but both methods yielded a similar species composition, community size structure, and good agreement in the scale of spatial fluctuations.

We conclude that the CALPS is less suitable for investigations that require accurate measures of absolute abundance. The results do suggest however, that CALPS could be an effective tool to identify, monitor and quantify indicators of change in zooplankton communities, and is therefore suitable for the purpose of a monitoring program in support of the MSFD.

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Contact author: Sophie Pitois, Cefas, Pakefield Road, Lowestoft NR33 0RP, UK
sophie.pitois@cefas.co.uk