

Measuring dispersal: How well are soft-sediment invertebrate communities connected on the seafloor?

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Different types of disturbances to the seafloor can affect both the invertebrates inhabiting them and the critical ecosystem functions they provide us (e.g. nutrient cycling, oxygenation, food for fish). Sebastian Valanko working at the Marine Research Centre of the Finnish Environment Institute (SYKE) has together with colleagues investigated dispersal of invertebrates, critical in both the recovery process following a disturbance and in maintaining patterns of diversity on the seafloor. Sebastian's PhD thesis will be defended at 12.00 on Wednesday 19.12.2012 at Åbo Akademi University in Finland. The research project has partly been funded by the Academy of Finland.

Measuring dispersal underwater

Valanko's thesis deals with connectivity, by investigating dispersal strategies and mechanisms of benthic invertebrates. Such knowledge on dispersal is scarce, due to the difficulties in actually measuring dispersal directly in nature, and dispersal has not previously been quantified in the [Baltic Sea](#). Different trap-types were used to capture dispersing invertebrates at different sites, while in parallel measuring waves and currents. This required some 1015 dives by Sebastian and his research team in the archipelago close to Tvärminne Zoological Station, in the south of Finland.

Dispersal is essential for recovery of diversity after

disturbance

In one experiment recovery was investigated over a year at several sites. In response to small-scale disturbance, initial recruitment is by nearby-[dominant species](#) after which other species will arrive from successively further away. Species also differ in their dispersal potential. In practice, this implies that if only one locality is protected it may not be sufficient to ensure that diversity is maintained. Equally important are the other source locations from which individuals continuously arrive from, and therefore maintaining overall patterns of diversity.

Importance of PhD thesis findings

Sebastian's thesis complements more theoretical studies in ecology in demonstrating that having an understanding of how and when individuals are dispersing relative to underlying environmental heterogeneity is key to interpreting how patterns of diversity change across different spatial scales. Such information from nature is critical when predicting responses to, for example, different types of disturbances or management actions in conservation.

Provided by Academy of Finland

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