

Dock harbour walls as biodiversity hotspots

Derweduwen Jozefien¹, Kris Hostens¹, Annelies De Backer¹, Hans Hillewaert¹, Lies Van Steenbrugge¹, Pieter Van Tieghem¹, Jan Wittoeck¹, Michiel T'Jampens² and André Cattrijsse²

¹ Institute for Agricultural and Fisheries Research (ILVO), Animal Sciences, Aquatic Environment and Quality, Bio-environmental Research, Ankerstraat 1, 8400 Oostende, Belgium
E-mail: Jozefien.Derweduwen@ilvo.vlaanderen.be

² Flanders Marine Institute (VLIZ), InnovOcean site, Wandelaarkaai 7, 8400 Oostende, Belgium

For this study we analysed the soft substrate macrobenthos and the hard substrate epifauna, respectively from a harbour dock and an adjacent harbour wall in Zeebrugge. Both ecosystem components were sampled in winter 2011 and spring 2012.

The macrobenthos from the harbour dock is classified as a *Macoma balthica* community, but with very low densities of only few macrobenthic species, probably related to the very high mud concentrations and highly reduced (poorly oxygenated) sediments. On the other hand, the hard sub epifaunal community of the harbour wall revealed remarkable and unexpected diverse species assemblages in both seasons, both in the upper and lower tidal region.

We made a distinction between sessile and mobile epifauna taxa. Also algae were noted, as they covered large parts of the harbour wall. The most conspicuous sessile taxa were mussels, oysters and barnacles, next to several bryozoan and sponge species. The mobile epifauna species belonged to acarins (mites and ticks), amphipods, decapods, gastropods, hexapods, isopods, ribbon worms and polychaetes.

The relative proportions of the epifauna taxa clearly differed between the two seasons and between the upper and lower tidal regions. In winter 2011, the upper tidal zone was dominated by algae and oysters (*Crassostrea gigas*). Also, the hexapod *Anurida maritima* (springtail) and the polychaete *Polydora* sp. were abundantly present in this zone. Higher densities of the mussel *Mytilus edulis* were noted in the lower tidal zone, and amphipods (especially *Melita palmata*) occurred also more frequently in this zone.

In spring 2012, the predominant position of bivalves in the upper tidal zone was partially taken over by acarins and more specifically by mites from the Halacaridae family. Hexapods (particularly *Anurida maritima*) remained the second most abundant group. The relative proportion of epifauna taxa was largely comparable in spring and winter in the lower tidal zone.

The total number of hard sub epifauna species (some of them only identified to a higher taxonomic level) was rather similar in winter 2011 and spring 2012 but a considerable number of species that occurred in spring was not present in winter and *vice versa*.

What at first sight looked like a species poor harbour wall, turned out to be a real biodiversity hotspot with at least 40 epifauna species or taxa. This number would even increase if all taxa were to be determined to species level.