

early autumn 1996. Additional information on the diatom component of these communities was obtained from a one-year survey of these organisms.

Total autotrophic biomass greatly exceeded heterotrophic biomass in late spring, especially at the more silty stations. However, in autumn, the auto-/heterotrophic biomass ratio was much lower and is < 1 in the most sandy station. Epipellic diatoms generally comprised the bulk of primary producers, whereas epipsammic diatoms and flagellates only significantly contribute to autotrophic biomass in the more sandy sediments. Heterotrophic biomass was dominated by flagellates and ciliates. Sandy sediments had the most diverse ciliate communities and the highest biomass. The increase in ciliate biomass and the greater importance of herbivorous versus bacterivorous ciliates from June to September might be attributed to selective grazing by metazoa on the generally larger herbivorous ciliates in June. Preliminary estimates indicate that apart from episodic blooms of herbivorous taxa, ciliate grazing does not seem to have an important impact on epipellic diatom populations.

In general, silty sediments appear to be characterized by prominent temporal changes in microbenthic biomass and composition, related to predictable seasonal changes in environmental conditions as well as episodic and stochastic events resulting in severe disturbance and resuspension. Sandy sediments may have more complex and resilient microbenthic communities, adapted to a continuous regime of disturbance in the top layers of sediments and with a less pronounced seasonality.

Arthropod populations occurring on the banks of the tidal part of the river Scheldt : distribution patterns and threats

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In contrast to other biota of the river Scheldt the terrestrial arthropod communities occurring on its banks were until recently very poorly

known. After some preliminary work (May-June 1992), an extensive sampling campaign was organised during July and August 1995 and May 1996. In 1992 all kinds of open habitats (non-willow scrubs) were included. In 1995-1996 48 reed belts were investigated. This was done in a standardised manner with half an hour of hand- and 'pooter'-collecting as a sampling unit. Hereafter we summarise the results obtained for the spiders and the terrestrial amphipods.

On the whole we collected more than 80 species. There is a pronounced difference between the assemblages living in the marshes along the freshwater part and those occurring in the brackish marshes north of the city centre of Antwerp. Some very rare spiders, still occurring in these marshes such as *Tmeticus affinis*, *Baryphyma duffeyi*, *Clubiona juvenis* and *Pardosa purbeckensis*, show distribution pattern clearly associated with the salt gradient of the river. The communities along the freshwater part seem to have lost more species in comparison with those of the brackish marshes.

Good indicators for the transition brackish/freshwater are also the talitrid amphipod *Orchestia gammarellus* (brackish marshes) and its sister species *Orchestia cavimana* (freshwater marshes). In contrast to the very high abundance of the former species, *O. cavimana* has a rather patchy distribution and never reaches high densities. To inspect for the effects of habitat fragmentation and of habitat deterioration, the genetic structure of some populations of both species was assessed by means of cellulose acetate electrophoresis. In seven investigated populations six loci of *O. gammarellus* were polymorphic and showed a relatively high degree of heterozygosity. On the other hand, the four sampled populations of the freshwater species *O. cavimana* showed very little genetic variation. Only three out of ten scored loci were polymorphic. Of those four populations, the two occurring along the freshwater part of the Scheldt-estuary clearly showed less variation than the one sampled at Schelderode, situated at the non-estuarine part of the river, and the one sampled along the river Yzer.

As well as from the species distribution patterns as from the genetic diversity assessments it can be concluded that the populations from the littoral habitats along the freshwater part seem to have been much more affected by habitat fragmentation and deterioration than the populations from the brackish marshes.