INFLUENCE OF ALIEN MACRO-CRUSTACEA (MALACOSTRACA) ON MACROINVERTEBRATE ASSEMBLAGES IN BELGIAN COASTAL HARBOURS

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Harbours, which are often situated in estuaries and are characterised by intensive international ship traffic, tend to be very susceptible to aquatic invasions (Wolff, 1999; Nehring, 2006). Since alien macrocrustaceans are known to be very successful across many European waters (Bernauer and Jansen, 2006), a study was performed on their distribution and impact in the four Belgian coastal harbours (Nieuwpoort, Ostend, Blankenberge and Zeebrugge). Biological and physical-chemical data were gathered at 43 sampling sites distributed along a salinity gradient in the four harbours. One third of all crustacean species recorded were alien and these represented on average 30% of the macrocrustacean abundance and 65% of the macrocrustacean biomass. The large share of alien crustaceans in the biomass was mainly due to several large alien crab species. Most alien species were found in the oligohaline zone, whereas the number of indigenous species slightly increased with increasing salinity. The low number of indigenous species observed at low salinities was probably not only caused by salinity, but also by the lower water quality in this salinity range. The site-specific biocontamination index (SBCI) was used to assess the impact of alien species. The harbour of Nieuwpoort and Ostend scored best and were classified as good, indicating a limited abundance and a low species-richness of alien macrocrustaceans. Zeebrugge and Blankenberge were characterised by a severe biocontamination, which is for the harbour of Zeebrugge probably related to the intensive international ship traffic. Due to its nearby location, it is likely that alien species dispersing from Zeebrugge colonised the harbour of Blankenberge rapidly. Sampling locations situated more inland generally had a higher SBCI, mostly due to the dominance of one or two alien species, reaching high abundances. Consistent monitoring of estuarine regions and harbours, which are seen as hotspots for introductions, could help in understanding and predicting the impact of alien species on native biota.

References

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