Trends in the distribution of the Chinese mitten crab in the Scheldt estuary

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Introduction

The Chinese mitten crab (Eriocheir sinensis) is a catadromous species that spends most of its life in freshwater. E. sinensis is native to rivers and estuaries of central Asia, from North Korea to China. Since its arrival in Germany in the beginning of the 20th century, the Chinese mitten crab has rapidly invaded coastal and inland waters throughout Europe. The species was first observed in Belgium in 1933 in the Sea Scheldt near Antwerp and is found nowadays in the main rivers and canals of the Scheldt basin.

Results and discussion

Macrocrustaceans were caught as bycatch during fish surveys using fyke nets in the Sea Scheldt in 1995, 1997 and 2008. During the surveys in the nineties, only a few mitten crabs were found. Ten years later, however, E. sinensis had spread throughout the estuary and more than 50 crabs can now be caught per fyke net per day. The expansion of the distribution and the increase of the population size of the Chinese mitten crab coincided with the improvement of the water quality in the estuary during the last decade. It is suggested that pollution may decrease mitten crab densities, by reducing the abundance of prey (Gollasch 1999).

The abundance of mitten crabs in the estuary shows two distinct seasonal peeks (Figure 1). The first peek in spring coincides with the upstream migration of juveniles towards the freshwater reaches of rivers, where they burrow in the banks (Figure 2). The second peek in autumn coincides with the seaward spawning migration of adults. The highest densities are observed in the oligohaline and freshwater zone of the estuary. Their distribution is probably related to habitat availability and their ability to burrow (soft sediment banks).

High population densities of this crab may have a significant adverse impact on the natural balance of the Scheldt ecosystem. Because of the crab’s flexible, omnivorous feeding habits, it may have a competitive edge over other bottom dwelling species. Their burrowing nature may also accelerate bank erosion and instability (Rudnick et al., 2005).

References

Figure 1. Seasonal abundance of the Chinese mitten crab in the Scheldt estuary.

Figure 2. Burrows of the Chinese mitten crab in the left side bank of a freshwater marsh creek in the Scheldt estuary. Inset: mitten crab in the opening of its burrow.