

Accumulation of pollutants in the Flemish Chinese mitten crab

Broeren Regi, Lotte Oosterlee and Patrick Meire

Ecosystem management research group (ECOBE), University of Antwerp, Campus Drie Eiken,
Department of Biology, D-Block, Universiteitsplein 1, 2610 Antwerp (Wilrijk), Belgium

The Chinese mitten crab (*Eriocheir sinensis*) is a successful invasive, marine species, mainly living in estuaries. This species might cause damage in the nearby future in Belgium and other invaded European and American countries, e.g. raising economic costs due to weakening of the dikes as a result of burrowing activities or raising the costs in the fisheries sector by damaging fishing equipment. Exclusion of this species from its habitat is virtually impossible, therefore counteracting the species is the only potentiality as a control function / supervisory role and additionally to master the amount of damage, and so costs. One way of accomplishing this is by capturing the crabs abundantly throughout their invaded range. Nonetheless, this will not be executable without any supplementary economic benefits.

Taking into consideration that parts of the Chinese mitten crab are a delicatessen in China could entail a new applicable method for counteracting the negative side effects of this species. By creating a new marketing opportunity through tagging this species as a new consumption product could work as an encouragement for catching and thus for management control. However, the high degree of pollution of the Scheldt Estuary and more specifically of the sediments, with trace metals and organic contamination could work against the authorization of this species as a secure food source, due to the accumulation of these trace metals in the edible parts.

The focus of this study is to determine concentrations of trace metals and organic pollutants in the different tissues of the crabs, originating from several locations along the Scheldt and tributaries, caught within a period of 6 months. Firstly these results will be placed in the context of biomagnification within the estuarine ecosystem; Trace metals may accumulate within the food web and might have toxic effects on higher levels. The concentrations will be compared to metal concentrations in the indigenous crab species *Carcinus maenas*. Secondly the concentrations of Cd, As, Pb and Hg and organic pollutants in the edible parts of this crab will be compared to the Tolerable Daily Intake (TDI) concentrations, determined by the EU.