

## Adjusted barrier management to improve glass eel migration at an estuarine barrier

Mouton Ans M., David Buysse, Maarten Stevens, Tom Van den Neucker and Johan Coeck

Research Institute for Nature and Forest (INBO), Kliniekstraat 25, 1070 Brussels, Belgium

E-mail: [Ans.Mouton@INBO.be](mailto:Ans.Mouton@INBO.be)

European eel populations (*Anguilla anguilla* L.) have declined dramatically during the last decades and are now some of the most critically endangered fish populations in Europe. The limitation of upstream migration of glass eels is considered to be one of the key factors reducing eel populations. This paper presents the results of a study on the migration of glass eels and options to improve eel passage at a tidal barrier complex at the mouth of the River Yser, Flanders, Belgium. Glass eels were sampled during tidal rise with stow nets and lift nets to analyse their distribution over the study area, while a fyke net was used to evaluate the impact of limited barrier opening on glass eel migration. Support-vector machine-based analysis of the lift net data indicated that migrating glass eels are attracted by the freshwater flow leaking from the barriers, whereas other variables such as the sampling location only had a weak impact on the glass eel density. Limited barrier opening during tidal rise appeared to be a cost-efficient and effective mitigation option to improve upstream glass eel migration, without significant intrusion of sea water. Adjusted barrier management could often be implemented and applied on numerous tidal barriers. Therefore the results of this paper are of interest to a wide range of river managers and stakeholders and may contribute to the conservation of many eel populations. Further research could maximise the number of migrating glass eel and reveal the impact of this approach on the upstream eel population.