DEVELOPMENT OF A MECHANISTIC MIGRATION MODEL FOR DOWNSTREAM MIGRATING EUROPEAN EEL (*ANGUILLA ANGUILLA* L.) IN A DYNAMIC ESTUARY

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BACKGROUND

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Background

Animal movement is an ubiquitous process throughout the entire animal kingdom with the most extensive movements related to migration, a persistent and unidirectional movement, characterized by the temporary inhibition of station keeping responses such as foraging, territorial behaviour and commuting. During the last century, many migrating animals have disappeared or declined substantially due to habitat destruction, migration barriers, exotic species, pollution, overexploitation and climate change.

One such species of particular interest, is the critically endangered European eel (*Anguilla anguilla* L.). Eels need a continuum between freshwater and marine environments to complete their lifecycle. Ecological models can aid in predicting spatio-temporal windows of eel migration, accompanied by various global change pressures such as migration barriers and changing environmental conditions. However, such models, which are funded and calibrated by ecological and behavioural data on migrating eels, are still lacking.

Scope of the thesis

The goal of the thesis is to develop a spatially explicit model of downstream migrating eels in the dynamic Scheldt Estuary. This model will be developed by performing in silico experiments combining both data (i.e. migration tracks obtained via telemetry) and expert knowledge (e.g. in literature described links with the environment). This model will be the basis for future modeling in which additional data will be included such as data-driven effects of environmental variables and migration barriers.