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PhD Title: Modelling Bivalves in Estuarine and Coastal Systems

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Description: The objective of this doctoral program is to develop an individual-based population/community model of various benthic fauna species (based on the Dynamic Energy Budgets theory), which will subsequently be coupled to a hydrodynamic/biogeochemical model (MOHID, Water Modelling System). The main challenge lies in the design and implementation of a modelling tool able to simulate the main physical, chemical and biological processes occurring in coastal and estuarine systems, where various benthic fauna species can be found. The model aims to represent the systems' behaviour in different environmental scenarios in order to be further used as an effective management tool of the system. In this doctoral program the model will be implemented in the North Sea in order to study the influence of different climate scenarios (temperature, wind/air pressure, fresh water and nutrients input, boundary conditions) in the production of different bivalve species and to study the influence of bivalve activity in the North Sea water column biogeochemical dynamics.