



## AGENT BASED MODELLING



DHI offers state-of-the-art agent based modelling (ABM) in combination with classical hydrodynamic and water quality modelling.

This unique integration of different modelling approaches is specifically designed to address advanced simulations of aquatic ecosystems and ecosystem components.



The ABM is a new feature of DHI's generic ecological modelling module, ECO Lab, which runs on top of DHI's most advanced 3D hydrodynamic modelling software, MIKE 3 FM.

ECO Lab offers full access to model algorithms for editing existing ABM model description or for building new ABM models from scratch.



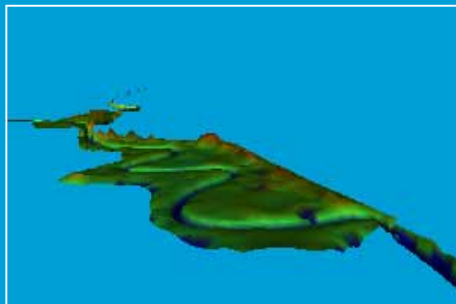
MIKE 3 FM utilises flexible mesh for defining the computational grid allowing ABM to be applied for both freshwater and marine ecosystems.





### The houting project

Modelling the migration of salmonide fish larvae (Houting ~ *Coregonus oxyrhynchus*) through two wetland construction designs to evaluate which of the two designs have the most positive effect on larvae retention in the wetland.



### Bull shark migration patterns

Linking movement behaviour modelling of Bull sharks *Carcharhinus leucas* with observation data from acoustic tagging of juvenile sharks in a semi-enclosed ecosystem, Australia (research project in collaboration with Dr Jonathan Werry and Professor Joe S Y Lee).



### Eelgrass succession patterns

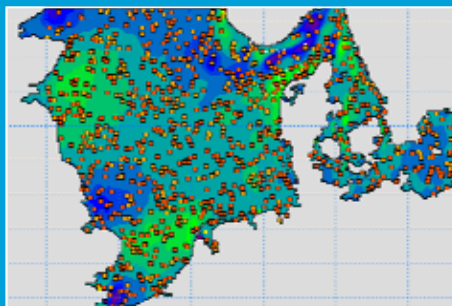
Reproduction and succession mechanisms determining the recolonisation of eelgrass (*Zostera marina*) in Danish marine waters.



Photo: NATURFOCUS, Christian B. Hvidt

### Ecological connectivity mapping

Mapping the connectivity of marine habitats in the North sea, Skagerak, Kattegat and the western Baltic Sea (an EU INTEREG project).



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