



Modelling Biota-Sediment Interactions in Estuarine Environments

Francesco Cozzoli (1), Tjeerd Bouma (1), Tom Yseabert (1,2), and Peter Herman (1)

(1) Netherlands Institute of Sea Research (NIOZ) Yerseke, The Netherlands, (2) Wageningen University, Institute for Marine Resources and Ecosystem Studies (IMARES), Yerseke, The Netherlands

Future choices about the realization of hydrodynamic infrastructures in estuaries should be based on solid forecast about the changes they will generate in the environment. While complex numerical models are available for simulating sediment transport on physical basis, biologic elements are still hard to predict. This research project is aimed towards the integration of physical and biological insights in sediment transport models. As first step, we modeled the macrozoobenthic species spatial distribution in estuarine environments as function of those environmental variables that are relevant for sediment transport. As second step, we measured in laboratory conditions the effect of several macrozoobenthic species on sediment erodability. These observations describe ecological processes but are based on physical parameters. They can be used to parametrize semi-empirical models of biotic-mediated sediment dynamics, thus accounting for the biotic-induced deviations of sedimentary processes from purely physical expectations. This project is part of the innovative program Building with Nature (www.ecoshape.nl).