

## **TRANSLATION OF BIOLOGICAL AND SEDIMENTOLOGICAL POINT DATA TOWARDS HABITAT SUITABILITY MAPS OF BIOLOGICAL COMMUNITIES AND EUNIS LEVEL 5 MAPS. PART 1: FROM POINT DATA TOWARDS FULL COVERAGE HABITAT SUITABILITY MAPS OF MACROBENTHIC COMMUNITIES**

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If full coverage maps of the physical habitat are available and if the relationships between the physical and the biological habitat are known, it is possible to create a full coverage map of the biological habitat. Predictive modelling or the prediction of physical and biological information in areas with gaps, is a hot topic in the framework of habitat mapping and nature protection.

The study area is the Belgian Continental Shelf where full coverage maps were produced for both the physical and biological habitat.

Sedimentological point data of median grain size and silt-clay percentage were interpolated towards full coverage maps. For the map of the median grain size, a multivariate geostatistical technique was used (Kriging with an external drift), taking into account the bathymetry to assist into the interpolation (Verfaillie *et al.*, 2006). The silt-clay percentage was interpolated using Ordinary Kriging with directional variograms for the anisotropy of the data.

A predictive model based on discriminant function analysis (Degraer *et al.*, in prep.) was used for 1) detecting the environmental variables that are discriminating between different macrobenthic communities (based on the biological point data) and 2) deriving classification functions for assigning samples, for which only physical information is available (from the sedimentological point data) to a certain macrobenthic community. The output of the model is a set of four classification functions (for each macrobenthic community) consisting of three discriminant functions: median grain size, silt-clay percentage and an interaction term between both (median grain size x silt-clay percentage). The discriminant functions have community specific weights.

With the classification functions, the full coverage maps of median grain size and silt-clay percentage were translated towards four full coverage habitat suitability maps of the macrobenthic communities.

(for Part 2, see p. 55, Schelfaut *et al.*)