The foreshore: an ecological valuable ecosystem in danger

Colson Liesbet[1], Gert Van Hoey[2], Jan Vanaverbeke[1], and Magda Vincx[1]

[1] Marine Biology Research group, Ghent University - Krijgslaan 281-S8, 9000 Gent
Email: Liesbet.colson@ugent.be

[2] Instituut voor Landbouw- en Visserij Onderzoek (ILVO), Eenheid Dier, Ankerstraat 1, 8400 Oostende

The sandy beaches and foreshore harbour a relative diverse marine ecosystem. This ecosystem is very important as nursery ground for early life history stages of fish, shrimp and other marine organisms. Key components in the foreshore food web are phytoplankton, macrobenthos, hyperbenthos, epibenthos and demersal fish species. The well-functioning of the foreshore ecosystem is of vital importance for the health of the marine coastal ecosystem. Coastal areas are strongly threatened by climate change. Therefore, many strategies have been developed to protect weak spots. Hard substrates as coastal defence technique is known to hamper ecosystem functioning, therefore soft defence approaches such as beach nourishment, are applied worldwide. To optimize the maintenance of these nourishments (techniques, longevity, costs and management), foreshore nourishment is proposed as alternative technique. In Belgium, a pilot study on the effectiveness of such foreshore nourishment, and its effect on the local environment is running in Mariakerke. Although beach and foreshore nourishment are generally considered as less harmful than hard substrates, it might put severe pressure on the local biota. Here, we assess the community structure of intertidal and shallow subtidal macro-, hyper- and epibenthos and demersal fish before the start of the nourishment activity and the possible impact on these communities (except hyperbenthos) shortly after the nourishment. There will be a follow-up for the next two years and possible effects of foreshore nourishment can be assessed by possible changes in the ecological value and the recovery capacity of the present fauna and their ecosystem functioning.