

# GENERAL AIMS OF THE NOURTEC-PROJECT

## - Effectiveness and Execution of Beach and Shoreface Nourishments-

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### Introduction

Beach nourishments are a tool for combatting coastal erosion which is applied in increasing numbers in recent years. More and more the scale of these measures increases also. For both reasons requirements for economical improvement and technical optimization have become as well more urgent as more worthwhile to deal with. In respect of that a joint project was started by the Dutch National Institute for Coastal and Marine Management, the Danish Coast Authority and the German Coastal Research Station being sponsored as well from national sources as from the Commission of the European Union in the framework of the MAST-Programme. Object of this project on Innovative Nourishment Technologies (NOURTEC) are beach and shoreface nourishments in Denmark, Germany and in the Netherlands which have been carried out in 1992 and 1993 (Fig. 1) and have been monitored since then. Moreover the results of a comparative analysis will be used in order to derive common design parameters for future measures considering effectiveness, design optimization and necessity of repeating in respect of the objectives.

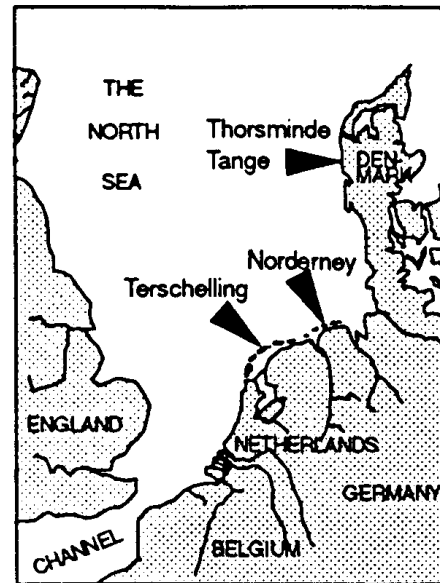


Figure 1 Location of the three NOURTEC test sites

### Objectives and design parameters of beach and shoreface nourishments

Relative to beach and foreshore nourishments three objectives are distinguished:

- Widening of beaches: creation of additional recreational area
- Coastline stabilization: preservation of hinterland areas
- Coastal protection against storm surges: prevention of flooding of hinterland areas

Corresponding design parameters which should be established and particularly defined

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transparently in the framework of the project will be:

- Widening of beaches: The distance between mean low water line and dune foot is a suitable measure for the width of beaches and it appears as a simple problem to determine it. Nevertheless the definition of the dune foot varies from country to country and is mostly empirically defined with reference to a geodetic horizon being therefore incompatible to each other. Furthermore adaption of the dune foot to changing tidal water levels is neglected. A promising approach might be its definition with reference to an exceedance level of a certain return period which is partly used in Germany.
  
- Stabilization of the coast line: Recently a control volume has been defined in the Netherlands in the framework of the coastal defence study of 1990. This BKL-volume is determined by a vertical line at the dune foot and by a horizontal line which crosses the beach profile in a distance twice of that between dune foot and mean low water level. This definition faces basically the same problems as the first common design parameter though the control volume is less sensitive to this particular differences than the distance between low water line and dune foot. Alternatively a control volume could be defined by a dynamical active zone ranging from a dune foot position being established as an exceedance level of tides with a certain return period and a seaward position at the line of negligible offshore sediment transport. In this case the control volume would include coastal parts further offshore.
  
- Coastal protection: The currently mostly applied method is the determination of the erosion of dunes due to water level and wave parameters of the design storm surges which additionally needs the definition of an acceptable erosion in respect of coastal safety. The application of different methods to different sites have made evident that there is currently no generally acceptable method available.