

Coastal Protection and Sea Level Rise

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Climate change and in particular, its possible effects, have become a central issue in politics and science in the 1990s. To the layman the notion "climate change" has almost become identical with anthropogenically induced increases in the atmospheric concentrations of the so-called greenhouse gases, most notably carbon dioxide. As a result, increasing temperatures, and, consequently increasing water levels are predicted, caused by thermal expansion of the ocean water and the melting of glaciers and polar ice caps. Also changes in wind climate are possible or have, according to some publications, already occurred.

Although climate has always changed, the new feature of the present situation is the expected speed of the change. This acceleration may induce significant changes in the Wadden Sea system. Questions regarding the consequences of accelerated sea level rise and increasing storm levels and frequencies for the Wadden Sea ecosystem also entered the political agenda of the trilateral Wadden Sea cooperation. In 1997, at the 8th Trilateral Wadden Sea Governmental Conference (Stade, Germany), it was decided to investigate the

possible effects of enhanced sea level rise and, on the basis of such an investigation, to develop proposals for future integrated coastal defense and nature protection policies. In 1998, a trilateral expert group, the Coastal Protection and Sea Level rise group (CPSL) was installed with this remit.

In the first phase of the work of the CPSL, an inventory of relevant facts and common knowledge was carried out. As a start, an overview was made of national administrative structures regarding coastal and nature protection. The common knowledge inventory especially focussed on the interrelations between hydrodynamics and morphology, the relevance of biota for sedimentation and erosion processes and the role of salt marshes in coastal protection.

On the basis of the outcome of the first phase of the project proposals for future coastal defense and nature management options under different sea level rise scenarios are currently being developed. IPCC (Intergovernmental Panel on Climate Change) scenarios for sea level rises between 15 and 95 cm will be elaborated, including different wind and wave climates.

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