WATER QUALITY IN THE COASTAL AREA OF THE NORTHERN GERMAN WADDEN SEA

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This paper summarises results of an investigation of water quality carried out in the Northern German Wadden Sea area known as the Meldorf Bight. The area is characterised as an hypernutrified system which is subjected to an additional anthropogenic nutrient input derived mainly from the freshwater discharge of the Elbe river and the local influences due to human activities .

Seasonal nutrient dynamics were investigated through intensive small scale spatial measurements. Highest nutrient concentrations were found in winter especially for nitrate and ammonia. On the other hand, phosphate concentration was found to be highest in summer due to high remineralisation of phosphate in the sediment. The remineralisation was clearly observed in the summer measurements when high phosphate and high ammonia concentrations were found without any sign of freshwater influence. This evidence was further supported by the study of nutrient transport in the German Bight by Dick et al, 1999 who found that the amount of the phosphate exported from the Wadden Sea in Summer was related to the elevated phosphate concentrations in the Wadden Sea itself. Measured data obtained in this study also revealed the importance of high anthropogenic nutrients contained in the local freshwater sources which received water from the agricultural drainage and sewage treatment plants. Results from salinity analysis showed that this freshwater input has a significant impact on the nutrient conditions at several sites near the coast especially in spring.