

# BMBF-Project NAWAK: Development of sustainable Adaption Strategies for Infrastructure and Water Resource Management under climatological and demographical Changes

**Client:** Oldenburgisch Ostfriesischer Wasserverband

**Location:** Area of Wittmund, Jever, Schortens, East Frisia, Germany

**Scope of Work:** Measurements of conductivity, discharge, tidal water levels and deviation of total discharges, calculation of the water balance for the Waterworks (WW) Sandeler Möns

**Methodology:** Field measurements, evaluation of hydrological data

## INTRODUCTION

Due to climate change, summer dry periods will increase. This in connection with the already stretched water supply in the summer months in coastal freshwater aquifers in Northern Germany will allow further saltwater intrusion. We developed adaption strategies for such a scenario.

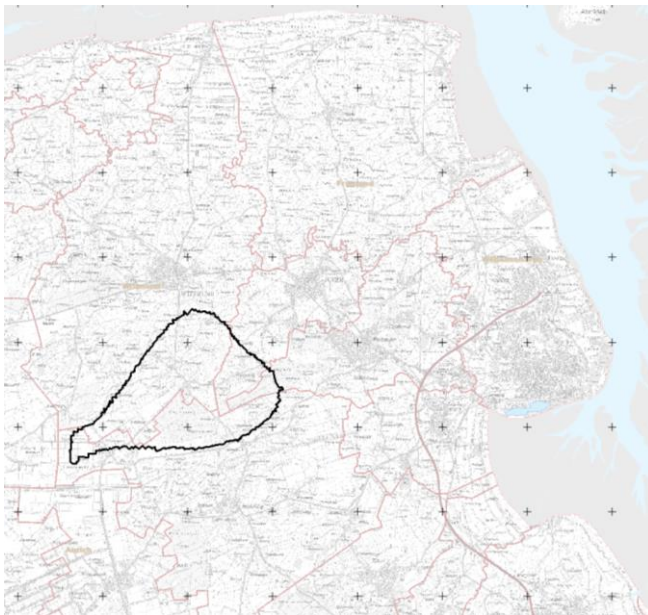


Figure 1: Research area of the BMBF-Project NAWAK and the catchment of the WW Sandeler Möns

## METHODOLOGY

For the assessment of water balance components, we developed a hydrological database. Besides the existing four water level and one salinity gauges, we developed a conceptual framework for salinity measurements (Fig. 2) integrating already existing data.

We considered the water bodies „Wittmunder Tief – Harle“, „Rispeler Tief – Mühlentief – Crildumer Tief – Hohenstief“ and „Reepsholter Tief – Friedeburger Tief – Dangaster Tief“.

The conductivity measurements were taken along a longitudinal section in all above listed catchments. They cover the whole area up to the tidal outlets.

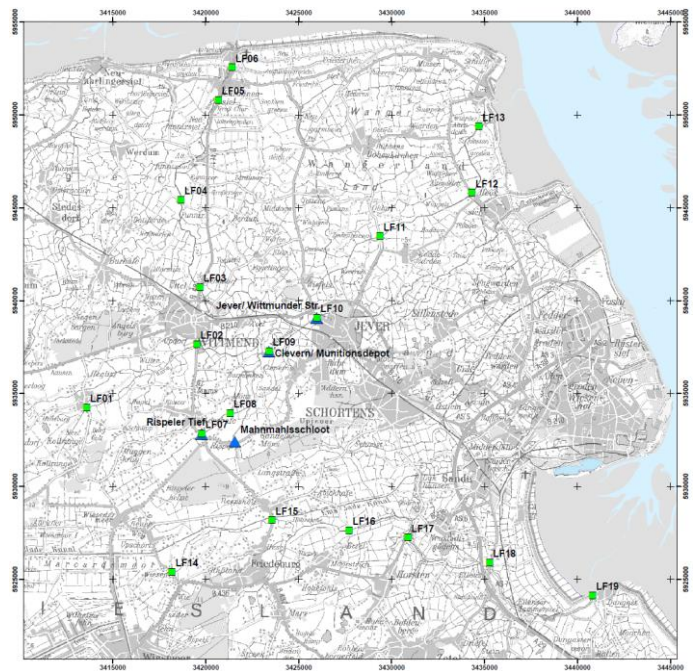


Figure 2: Conceptual framework for water level and salinity measurements



Figure 3: Conductivity measurements in Harlesiel

## RESULTS & CONCLUSION

In addition to the development of a new database for the deduction of water balance components, we recorded the seasonal development of discharge and salinity from the coastal moorlands to the tidal outlets.