

Flow measurement and determination of water balances for the „Krickmeere“, the „Wildenkiel“ and the „Grasgehege“

Client: Niedersächsische Landesforsten

Location: „Krickmeere“ in the forest of Upjever near Schortens, „Wildenkiel“ near Neuhaus in the Solling and „Grasgehege“ near Radbruch / Lüneburg

Scope of Work: Construction and operation of water levels, execution of discharge measurements and determinations of water balances for the three compensation areas

Method: Monitoring, determination of water balances

INTRODUCTION

For the three compensation areas "Krickmeere", "Wildenkiel" and "Grasgehege" we collected data and calculated water balances to assess the efficiency of recharge measures.



Fig. 1: Water level in „Wildenkiel“ near Neuhaus - Solling

METHOD

In a first step, all three forest areas were equipped with water levels including internet-enabled data loggers (Fig. 1). Further, discharge measurements were performed for different discharge situations.

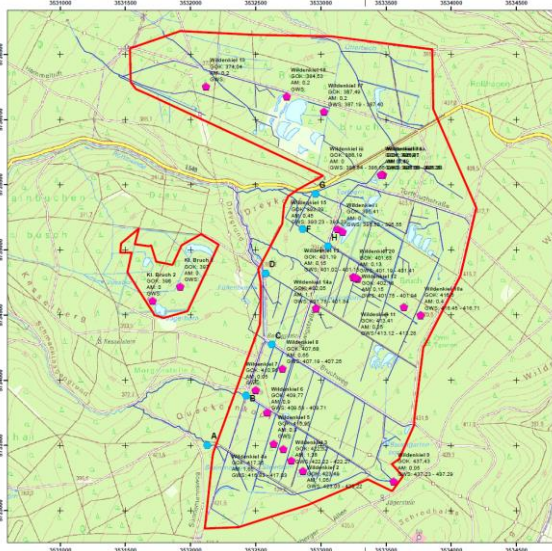


Fig. 2: Project area „Wildenkiel“, river system and locations of the monitoring stations

Obtained data were entered into the WISKI database (Kisters) and evaluated with regard to seasonal dynamics and rating curves. Furthermore, groundwater data were analysed and correlated with the surface water dynamics.



Fig.3: Canal for measurements in „Krickmeeren“

Taking into account precipitation distribution data and information about the catchment characteristics (Fig.4), we evaluated groundwater levels, distances to the topographical surface, evapotranspiration and surface and sub-surface runoff for an overall water balance of the area.

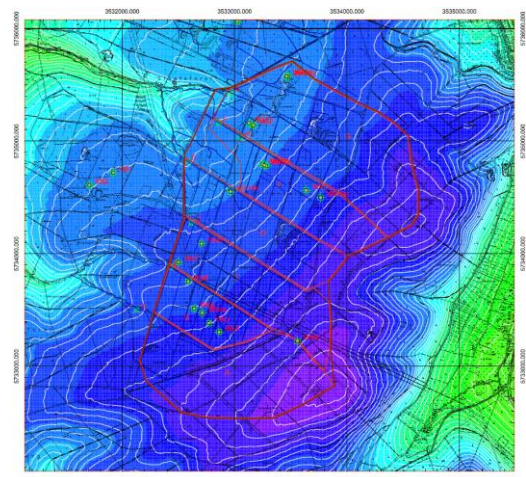


Abb. 4: DGM of „Wildenkiel“,