

Hydrogeology of Wales: Permo-Triassic and Jurassic aquifers - Cheshire Basin - Dee catchment

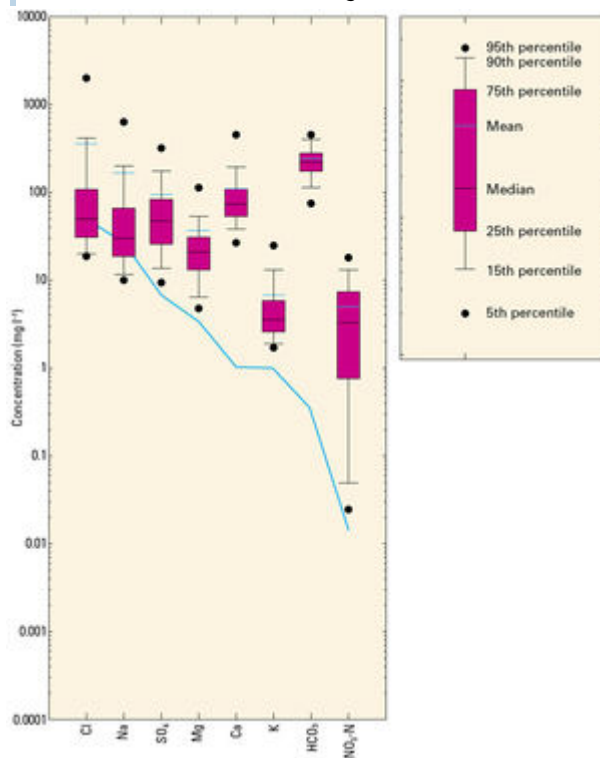
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This page is part of a category of pages that provides an updated review of the occurrence of groundwater throughout Wales.

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Range of major ion concentrations in Permo-Triassic groundwaters in West Cheshire and Dee catchment (after Griffiths et al., 2002). P859279.

The feather edge of the Cheshire Basin crosses the Dee into Clwyd from near Chester to a point to the south of Wrexham. The Triassic Kinnerton Sandstone Formation is present overlain by the Chester Pebble Beds Formation and together they form a single hydraulic unit. There are numerous silty horizons which impede vertical flow but otherwise the porosity in the sandstone usually lies within the range 20-30 per cent, and in the pebble beds between 11 and 29 per cent. Hydraulic conductivity in the sandstone is typically in the range 4×10^{-5} to 10 m d^{-1} and for the pebble beds 2.5×10^{-4} to 15 m d^{-1} . In the Chester area saline groundwater is present at depth. For the most part the aquifer is concealed by thick glacial deposits but significant yields are abstracted from the aquifer.

Groundwater flow is essentially longitudinal towards Chester, but local flow in the glacial deposits may be lateral towards the River Dee. Available monitoring data for the aquifer indicate a Ca-HCO₃ type groundwater indicative of an actively recharged system (**Figure P859279**). The mean specific electrical conductance for 109 analyses in the aquifer is $768 \mu\text{S cm}^{-1}$ and the mean HCO₃ concentration is 258 mg l^{-1} (**Griffiths et al., 2002**).

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