

Monnagh GWB: Summary of Initial Characterisation.

Hydrometric Area Local Authority		Associated surface water bodies	Associated terrestrial ecosystems	Area (km ²)
15 – Nore Laois Co Co		Killeen, Delour, Tonet, Nore, Mountrath,	Delour River Near Lacca Manor, Coolrain Bog, Knockacoller Bog, and Forest House Bog.	42
Topography		This groundwater body lies on the southeastern slopes of Slieve Bloom. The elevation does not rise above 200m and reduces from northwest to southeast. The topography is comprised of many undulating hummocky hills. The presence of sand and gravel is often reflected in the topography as ridges (eskers), hummocks and hollows (kames and kettle holes) or in large fan shaped deposits (outwash, deltas).		
Geology and Aquifers	Aquifer type(s)	Rg: Regionally Important Sand & Gravel Aquifer		
	Main aquifer lithologies	Sand & Gravel.		
	Key structures.			
	Key properties	There is no specific information on the sand and gravel aquifer in this area, but values of 200-2,000 m ² /d with an unconfined storage of 0.05 to 0.10 are given by Daly (1983) as representative of sand and gravel aquifers in Co. Laois. The borehole hydrograph LAO058 shows water level has an annual fluctuation of less than 2m. This indicates the aquifer has a high storage capacity. The hydrograph has a more subdued profile when compared to borehole LAO059 that is located in sandstone rock outside the area of the gravel aquifer.		
Thickness	The thickness of these deposits is mostly over 10m.			
Overlying Strata	Lithologies	None		
	Thickness	0		
	% area aquifer near surface	High		
	Vulnerability	High		
Recharge	Main recharge mechanisms	Recharge to this aquifer is direct from precipitation falling on the area. Since there are no overlying impermeable subsoils and the gravel aquifer is permeable it is expected that a high proportion of effective rainfall percolates down to the water table and recharges the aquifer.		
	Est. recharge rates	[Information to be added at a later date]		
Discharge	Springs and large known abstractions	Camross		
	Main discharge mechanisms	This aquifer discharges as baseflow to the overlying surface water streams. There is no evidence of large springs in the area although there may be discharge from the gravel aquifer via seepages at its extremities.		
	Hydrochemical Signature	The sediments within this sand and gravel aquifer are expected to be Calcareous . The underlying bedrock is both limestone and sandstone but the upper layers of the sandstone are considered to have calcareous cement. Although no data exist for this groundwater body the water is expected to be hard and to have high EC values.		
Groundwater Flow Paths		The groundwater movement through this aquifer is diffuse intergranular flow. The direction of groundwater flow is to the south.		
Groundwater & surface water interactions		Dry weather flow value at gauging station 15021 on the river Delour is 2.4 l/s/km ² . This is considered to be representative of a significant baseflow contribution from an aquifer and hence a permeable aquifer.		
Conceptual model	This aquifer consists of the gravel deposits on the southern slopes of the Slieve Bloom Mountains. A high proportion of rainfall occurring on the area of this aquifer will percolate to recharge the aquifer. As a result and in conjunction with the fact that there are no overlying impermeable subsoils, the total area of the aquifer is considered extremely vulnerable to pollution. Groundwater flow will be diffuse as the aquifer has primary permeability allow flow between the sand and gravel particles. Groundwater flow will be towards the overlying rivers where the groundwater will discharge as baseflow.			
Attachments	LAO058 Borehole Hydrograph			
Instrumentation	Stream gauge: 15020, 15045, 15021 Borehole Hydrograph: LAO058 EPA Representative Monitoring boreholes:			
Information Sources	Daly EP (1983) Water in the Landscape: Groundwater Resources in Laois. In: "Laois, an environmental history". Ed. Feehan J. Ballykilcavan Press. Deakin J, Fitzsimons V, Gately C, Wright G (2002) <i>County Laois Groundwater Protection Scheme</i> . Geological Survey of Ireland.			
Disclaimer	Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae			

Boregole Hydrograph at EPA station LA0058

