

Ballany GWB: Summary of Initial Characterisation (*This GWB deleted from list 7/9/04*)

Hydrometric Area Local Authority		Associated surface water bodies	Associated terrestrial ecosystems	Area (km ²)
Meath Co. Co. Hydrometric Area 07		White Lough, Ben Lough and Lough Doo	Lough Naneagh (1814), White Lough, Ben Lough and Lough Doo (SAC - 1810), Lough Bane (SAC 2120)	4
Topography		This GWB is located about 7 km northeast of Castlepollard, Co. Westmeath. The GWB is located in a low-lying area between the E RBD boundary and a number of elongate hills, which surround the area. Elevations within the body are highest (140 m OD) in the north and east, with the land sloping to 110 m OD in the west and south. The area appears quite hummocky towards the southwest.		
Geology and Aquifers	Aquifer type(s)	Lg: Locally important sand and gravel aquifer.		
	Main aquifer lithologies	Sand and Gravel. Clean, coarse esker & fan gravels		
	Key structures.	N/A		
	Key properties	Though permeability testing data are limited, productivity, borehole logging and quarry data tend to indicate that coarse material predominates and that permeability and storativity in the aquifer are high. During investigation at the lake intake on Lough Bane a pumping test of the gravels indicated a very high transmissivity (Cullen 1984). Three quarries are located in this gravel deposit but outside the area of the ERBD around the area of Oldcastle.		
Thickness	By definition (DELG/EPA/GSI, 1999) this gravel deposit must be at least 10 m thick. Drilling in this area suggests the thickness of the gravel deposits is 10 m.			
Overlying Strata	Lithology	None		
	Thickness	N/A		
	% Area aquifer near surface	High		
	Vulnerability	High		
Recharge	Main recharge mechanisms	This GWB is recharged by rainwater percolating through the topsoil and unsaturated sand and gravel deposits. Surface runoff is probably less than 20% of effective rainfall. The presence of less permeable layers in the deposit, even if thin, can create perched water tables and prevent recharge of the true water table. Where the water table lies below the local river network it is likely that some stream water may pass into the aquifer. This will be most likely in the higher elevations where a river flows onto the aquifer from where it has previously been flowing over impermeable subsoil or bedrock.		
	Est. recharge rates	<i>[Information to be added at a later date]</i>		
Discharge	Springs and large known abstractions	None		
	Main discharge mechanisms	There are no surface water features within the area of this aquifer. It is therefore likely that there is groundwater seepage from the extremities of the gravel body at the lower elevations, which may appear as springs/seeps. Water may also come to the surface where there is a boundary to groundwater flow i.e. an impermeable layer of till within the gravel deposit. There are a number of small lakes connected by a stream located at the lower boundary of the aquifer in the southwest and east. This may imply that groundwater is discharging in this area and feeding the lake which then overflow via the stream from one to the other.		
	Hydrochemical Signature	There is no information on the hydrochemical nature of the groundwater.		
Groundwater Flow Paths		Although the aquifer is permeable, groundwater velocity is slow, because storativity in the aquifer is high and water table elevations are generally subdued. The direction of groundwater flow appears to be from northeast to southwest.		
Groundwater & surface water interactions		<p>There are no surface water features located within this aquifer, implying that the interactions between surface water and groundwater are most significant at the aquifer boundaries. Where the gravel deposits extend up the slopes of the bounding hills surface water runoff will percolate into the gravel aquifer. At the lower elevations in the south and west groundwater discharges to surface water lakes and streams.</p> <p>On the northern boundary of the aquifer there is a series of wetlands which lie in poorly drained hollows between drumlins and morainic hummocks. On the drumlins or hummocks, the grasslands tend to be species rich and contain a range of species typical of calcareous grasslands. These wetlands are considered to be an important ecosystem and require further consideration</p> <p>The series of lakes located on the southwestern boundary of the aquifer are hard water lakes, a habitat listed on Annex I of the EU Habitats Directive. The White-clawed Crayfish, a species listed on Annex II of the EU Habitats Directive and protected under the 1976 Wildlife Act, has been recorded from these lakes. A curious feature of the site is the contrast between Lough Doo and the other loughs. Although they are in close proximity and are connected by a ditch, Lough Doo has a very limited aquatic and marginal flora while all the rest are colonised by a wide, dense fringe of Great Fen-sedge swamp.</p>		

Conceptual model	This GWB is located to the northeast of Castlepollard, Co. Westmeath. The GWB is composed of permeable sand and gravel deposits, with a high storativity. Recharge occurs diffusely through the overlying topsoil. The aquifer is generally unconfined, but may become locally confined where lower permeability deposits overlie the gravels. The water table within gravel aquifers is usually flat and therefore the depth to water will depend on the topography of the area. The flow paths within the aquifer are constrained by the extent of the deposit and therefore will not develop to a regional scale. Groundwater discharge will occur via springs and seeps along the lowest boundary of the body and also along river courses. There may also be discharge to rivers as baseflow where the water table lies above the river stage.
Attachments	
Instrumentation	Stream gauge: None Borehole Hydrograph: None EPA Representative Monitoring boreholes: None
Information Sources	Cullen KT (1984) <i>Report on the occurrence of groundwater at a lake intake structure on Lough Bane, Co. Meath.</i> Report to Meath Co. Co. DELG/EPA/GSI (1999) <i>Groundwater Protection Schemes.</i> Department of Environment & Local Government, Environmental Protection Agency and Geological Survey of Ireland, joint publication. Woods L, Meehan R, Wright GR (1998) <i>County Meath Groundwater Protection Scheme.</i> Report to Meath County Council. Geological Survey of Ireland. 54 p.
Disclaimer	Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae

