

### Ballyglass GWB: Summary of Initial Characterisation.

Hydrometric Area Local Authority		Associated surface water bodies	Associated terrestrial ecosystems	Area (km <sup>2</sup> )
Wicklow Co Co Carlow Co Co Wexford Co Co		Carrigower, Brown's Beck Brook, Knickeen, Slaney, Little Slaney, Derreen, Douglas (Kiltegan), Derry, Rosnastraw Stream, Coolboy Stream, Mine, Bann, Blackwater Stream (Bann), Lask, Blacklion Stream, Douglas (Ballon), Clody, Borris Stream, Ballingale Stream, Ballycarney Stream, Glasha, Camolin Stream, Urrin, Askinvillar Stream, Kileen Stream, Boro.	Slaney River Valley, Killoughrum Forest, Blackstairs Mountains, John's Hills, Tomnafinnoge Wood, Derreen River, Baggot's Wood, Holdenstown Bog	1397
<b>Topography</b>		This groundwater body is the largest groundwater body in the SERBD. The highest elevations are at the source of the River Slaney on Lugnaquilla Mountain at 925m OD, which is in the northeast of the body. Elevations reduce to the west and the River Slaney's course changes from west to south near Grangecon. The Slaney flows close to the western catchment boundary, with major tributaries e.g. Derreen, Derry & Bann, joining it from the east. The Urrin flows east from the Blackstairs Mountains to join the Slaney just south of the groundwater body boundary. The River Slaney catchment is bound to the northeast by the Wicklow Mountains and to the southwest by the Blackstairs Mountains. There are more low lying areas to the northwest and southeast		
<b>Geology and Aquifers</b>	Aquifer type(s)	<b>LI</b> : Moderately productive only in local zones <b>PL</b> : Generally unproductive except for local zones.		
	Main aquifer lithologies	OA : Oaklands Formation - Green, red-purple, buff slate & siltstone BY : Ballylane Formation - Green and Grey slate with thin siltstone MN: Maulin Formation - Dark blue grey slate, phyllite & schist MNbb : Ballybeg Member - Dark grey schist <u>Tullow Pluton</u> Tw2e : Equigranular granite - Pale, fine to coarse grained granite Tw2m : Microcline porphyritic granite – Granite with microcline phenocrysts (large crystals) Tw2I : Granite - Fine grained granodiorite to granite <u>Lugnaquilla Pluton</u> LqCw : Carrawaystick Aplite - Pink biotite granite with xenoliths (fragments of surrounding rocks) LqPt : Percy's Table Granodiorite – granodiorite LqGi : Glen of Imaal Quartz-diorite – Dark quartz diorite		
	Key structures.	There are three distinct areas of structural deformation over this groundwater body. The highest concentration of faulting is found in the southeast in the Ordovician and Silurian slates and schists. Here faults run NW to SE. The granites have few structural features; to the north where the Ordovician and Silurian rocks reappear they are less faulted than in the south.		
	Key properties	There is no information available on the hydrogeological properties of this groundwater body. Estimated transmissivities can be considered to range 1 – 10m <sup>2</sup> /d.		
	Thickness	The effective thickness of this aquifer may only be about 15 to 30m.		
<b>Overlying Strata</b>	Lithologies	Rock close to surface has been mapped at the higher elevations of the Wicklow Mountain and the Blackstairs Mountains. Lower down the mountains there are deposits of till derived from granite, which cover a significant area of the catchment to the northeast and southwest. Elsewhere there are deposits of till derived from limestone stretching from the north down the western side of the catchment to Myshall. These are overlain by some large gravel deposits along the River Slaney and in the northwest of the catchment.		
	Thickness	The thickness of the subsoils is least over the mountain areas and increasing on the valley floor. There are some areas where depth to bedrock is over 5m around the River Slaney although the majority of this groundwater body appears to have a thin covering of subsoil.		
	% area aquifer near surface	<i>[Information will be added at a later date]</i>		
	Vulnerability	<i>[Information will be added at a later date]</i>		
<b>Recharge</b>	Main recharge mechanisms	Most recharge to this body is likely to take place in the elevated areas where there is a thin subsoil cover or rock outcrop. In this body it is likely that the mountainous areas provide ample opportunity for groundwater to recharge although the permeability of the rock is considered to be low and therefore most water will flow overland to rivers. It is most likely that the subsoils in these areas are saturated.		
	Est. recharge rates	<i>[Information will be added at a later date]</i>		

<b>Discharge</b>	Springs and large known abstractions (m <sup>3</sup> /d)	Carlow : Cranns/Newstown GWS (35), Clonmore Hsng (10), Tiknock WISS (5), Wexford : Clonroche WS (130), Marshalstown Hs, Ballindaggan, Castledockrell, Ferns WS(204), Camolin, Kilmyshal H.S., Killealy(91), Clohamon (454), Bunclody WS, Askamore GWS, Coolboy/Coolfancy WS (90), Wicklow: Ballyellis NS, Carnew WS (150), Kerry Foods (Shillelagh) (600), Shillelagh WS (150), Rathdrum Co-op (45), St Patricks College (Highpark 45), Knockananna WS (70), Kiltegan (90), Baltinglass (Parkmore) WS (Tinoran), Baltinglass WSS (Lathaleere - 450), Stratford/Coolmoney (#29 –spring/gallery– 135?), Glenstock Services (Raheen- 30).
	Main discharge mechanisms	The discharge of groundwater will be focused to the surface water bodies as baseflow. Discharge may be higher in granite areas where baseflow analysis has shown a higher contribution of groundwater to river flow.
	Hydrochemical Signature	The bedrock strata of this aquifer are <b>Siliceous</b> . EPA sampling shows the groundwater to be soft and have a low electrical conductivity: 94 – 266 (µs/cm).
<b>Groundwater Flow Paths</b>	The granites of the Tullow Pluton are extremely weathered and broken-down, which has led the granites to become more permeable. In general over the whole of the groundwater body flow paths are considered to be short and probably only extend to the closest surface water body. South of the granites groundwater flow may be concentrated in the areas where there is a high degree of structural deformation.	
<b>Groundwater &amp; surface water interactions</b>	Baseflow analysis of this area shows that there is a higher baseflow from the granites than from the Ordovician slates. This may be influenced by gravel deposits along the course of the Slaney between Rathvilly and Tullow.	
<b>Conceptual model</b>	The groundwater body is defined to the north and northeast by the SERBD boundary, to the south by the geological contact with the volcanic aquifers of the Duncannon Group, to the west by the Barrow catchment and to the east by Hydrometric Area 11. This is a large area but a regional flow system is not expected to exist because there are only poor or locally important aquifers. Very little work has been done in this area because it is considered to be a poor groundwater resource. Most recharge is likely to occur in the mountain areas although groundwater flow will be small and discharge is expected to the closest rivers. There may be more developed groundwater flow in extremely weathered areas of the Tullow Pluton.	
<b>Attachments</b>		
<b>Instrumentation</b>	Stream gauge: 12030, 12028, 12037, 12013, 12003, 12021, 12023, 12019, 12014, 12031, 12022, 12024, 12012, 12034, 12004, 12017, 12018, 12033, 12022, 12029, 12032. Borehole Hydrograph: none EPA Representative Monitoring boreholes: Wexford : Bradys Hill/Gurteen (Bunclody WS) (#42 – S923572) Killealy WS (spring) (#26 – S841450), Clonroche WS (#12 – S854320) Wicklow : Baltinglass WSS(Lathaleer - #43 – S878877), Kerry Foods (Shillelagh) (#47 – S995677)	
<b>Information Sources</b>		
<b>Disclaimer</b>	Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae	