

### Fethard GWB: Summary of Initial Characterisation.

Hydrometric Area Local Authority	Associated surface water bodies	Associated terrestrial ecosystems	Area (km <sup>2</sup> )
13 – Coastal Area Wexford Co Co	Bridgetown, Cleristown Stream, Duncormick, Mulmontry, Corock, Owenduff, Tintern Abbey Stream, Battlestown Stream,	Bannow Bay, Boley Fen, Ballyteige Burrow,	341
<b>Topography</b>	This is a mostly undulating land surface. There are higher elevations along the northern boundary at the contact with the Duncannon Group but even these are not very significant. Elevations are mostly below 100m OD. The highest elevation is in the east of the body at Forth Mountain, which is at 237m OD. The surface drainage is generally to the south.		
<b>Geology and Aquifers</b>	Aquifer type(s)	<b>LI</b> : Moderately productive only in local zones <b>PI</b> : Generally unproductive except for local zones. There are some small areas of volcanic deposits, which might represent a fractured aquifer but their size is so small they are not classified as such.	
	Main aquifer lithologies	Cambrian Metasediments Devonian Old Red Sandstones Dinantian Dolomitised Limestones Dinantian Lower Impure Limestones Dinantian Sandstones, Shales & Limestones Granites & other Igneous Intrusive rocks Ordovician Metasediments Ordovician Volcanics	
	Key structures.	There is a moderate amount of faulting in a mostly N-S direction. There is also a thrust fault running in a SW-NE direction, which lies between the Ordovician and the Cambrian rocks.	
	Key properties	There is no information available on the hydrogeological properties of these rocks. 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	The Clogga Till overlies the majority of the bedrock in this groundwater body. The Clogga Till, is deposited in the west and is a stony clay sand-based till containing large angular cobbles and boulders chiefly of shale and granite. To the east of Taghmon the bedrock strata are overlain by the Macamore Marl/Irish Sea Till. To the east there is the Macamore Irish Sea Till, which is a clay based, lime rich till containing small pebbles and shells. Occasional local lenses of sand and gravel are reported.	
	Thickness	There is a varied subsoil thickness through out the area although on average it is around 5m.	
	% 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 is likely to occur over the sandier parts of the Clogga Till west of Taghamon where the subsoil is thin or there are areas of outcrop.	
	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)	Templetown, Fethard(William Dillon), Fethard on Sea (Connagh), Taghmon WS, Ballyhine(25),	
	Main discharge mechanisms	Discharge in this groundwater body is to the surface water bodies and also to the sea. Discharge is not expected to be large as much of the area is considered to be a poor aquifer. There are three main surface water discharge locations, to the southwest at Waterford Harbour, South at Bannow Bay and southeast at Ballyteige Bay.	
	Hydrochemical Signature	The EPA sampling at Taghmon shows ‘Moderately Soft’ waters with an average electrical conductivity of 239 µs/cm, which is considered low, and typical Nitrate (as NO <sub>3</sub> ) values of 35mg/l and pH of 6. On the eastern border at Ballyhine the water is ‘Moderately Hard’, the electrical conductivity is 530 µs/cm and the nitrate values are much lower at 3.5mg/l. These two localities are 6km apart. These contrasting results underline the absence of a regional flow system here. The bedrock strata of this groundwater body are <b>Siliceous</b> except at Hook Head where there are some limestones which are Calcareous.	
<b>Groundwater Flow Paths</b>	Groundwater flowpaths through this groundwater body are short. The travel time of any recharging waters will be small and therefore the age of these groundwaters is young. The distance travelled will be short and will most likely be the distance to the closest surface water body. The majority of groundwater flow will take place in the top 15 to 30 metres.		
<b>Groundwater &amp; surface water interactions</b>	There is like to be an important groundwater connection to Boley Fen, which lies on a geological contact between two groundwater bodies of differing aquifer classification. The relevance of this requires further investigation.		

<b>Conceptual model</b>	This groundwater body is located in southwest Co. Wexford; the coast defines the southern and western boundaries. The eastern boundary is defined by the extent of Hydrometric Area 13. The northern boundary is defined by the contact between the volcanic rocks of the Campile Formation and the slates to the south. Groundwater recharge may occur at the elevated areas in the north and east of the groundwater body and also in isolated areas of outcrop, groundwater flowpaths will be short and restricted to the upper part of the bedrock. There may be some local zones where there is greater flow, perhaps in areas where more intense structural deformation has caused more fracturing.
<b>Attachments</b>	
<b>Instrumentation</b>	Stream gauge: 13001, 13002, 13003, Borehole Hydrograph: none EPA Representative Monitoring boreholes: Taghmon WS (#48 – S915201), Ballyhine (#2 = S977221)
<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

<b>Formation Name</b>	<b>Code</b>	<b>Description</b>	<b>Rock Unit Group</b>	<b>Aquifer Category</b>
Ardenagh Formation	AD	Green-grey slates with thin siltstones	Cambrian Metasediments	PI
Arthurstown Member	CAat	Red, purple & green slates & siltstones	Ordovician Metasediments	PI
Ballyhack Member	CAbk	Grey slates with thin siltstones	Ordovician Metasediments	PI
Ballyhoge Formation	BH	Dark grey slates with siltstone laminae	Ordovician Metasediments	PI
Ballymartin Formation	BT	Limestones & dark grey calcareous shales	Dinantian Lower Impure Limestones	??
Ballysteen Formation	BA	Fossiliferous dark-grey muddy limestone	Dinantian Lower Impure Limestones	??
Dolomitised Ballysteen Formation	doBA	Fossiliferous dark-grey muddy limestone	Dinantian Dolomitised Limestones	Rkd
Booley Bay Formation	BB	Grey to black mudstones with siltstones	Cambrian Metasediments	PI
Brownstown Head Member	TTbh	Red conglomerates, sandstones, mudstones	Devonian Old Red Sandstones	LI
Dolomitised Bullockpark Bay Member	doBAbb	Oolitic limestones, locally dolomitised	Dinantian Dolomitised Limestones	Rkd
Cross Lake Formation	CL	White quartzites with red & green slates	Cambrian Metasediments	PI
Cullenstown Formation	CN	Grey-green metagreywacke & slate	Cambrian Metasediments	PI
Cullentra Formation	CU	Grey-green metagreywackes & slates	Cambrian Metasediments	PI
Dolerite	D		Granites & other Igneous Intrusive rocks	PI
Duncormick Formation	DC	Red, grey conglomerates & sandstones	Devonian Old Red Sandstones	LI
Harrylock Formation	HL	Red conglomerate, sandstone & siltstone	Devonian Old Red Sandstones	LI
Kiln Bay Formation	KB	Green-grey or buff slates & greywackes	Cambrian Metasediments	PI
Knockavellish Member	TTkv	Coarse polymict conglomerates	Devonian Old Red Sandstones	LI
Loftusacre Member	CAle	Dark grey slates & siltstones	Ordovician Metasediments	PI
Newtown Formation	NN	Grey-green greywackes & slates	Cambrian Metasediments	PI
Newtown Head Member	CAnh	Dacitic & andesitic volcanics, mudstones	Ordovician Volcanics	PI
Oldtown Bay Formation	OB	Sandstones with siltstones & mudstones	Devonian Old Red Sandstones	LI
Poldarrig Formation	PD	Dark grey mudstones with thin quartzites	Cambrian Metasediments	PI
Porters Gate Formation	PG	Sandstones, shales & thin limestones	Dinantian Sandstones, Shales & Limestones	LI
Shelmaliere Formation	SH	White, purple quartzites with slates	Cambrian Metasediments	PI
Templetown Formation	TT	Red conglomerates with sandstones	Devonian Old Red Sandstones	LI
Tramore Shale Formation	TM	Dark grey shales & siltstones	Ordovician Metasediments	PI