

Inishbofin, Inishturk, Inishshark GWB: Summary of Initial Characterisation.

Hydrometric Area Local Authority	Associated surface water features	Associated terrestrial ecosystem(s)	Area (km ²)
32 Galway, Mayo Co Co's	Lakes: Loughnabraud, Church Lough, Bofin, Bawna, Gowlansgower, Loughnagrooaun, Namucka, Coolnaknick. Several unnamed streams.	Coastal lagoons on Inishshark and Inishbofin (O'Riain, 2004).	~ 17
Topography	The land surface of the islands is characterised by several hills mixed with low-lying flat areas. The islands are bordered by a rocky coastline interspersed with rare sandy beaches. Elevations range from 10-170 mAOD. There are a number of streams and lakes on each of the islands. The islands are grouped together under one GWB, as they have similar geology, geomorphology, hydrogeology and lie close to each other.		
Geology and Aquifers	Aquifer categories	The main aquifer category is: PI: Poor aquifer which is generally unproductive except for local zones.	
	Main aquifer lithologies	Inishbofin and Inishshark are composed of Precambrian Quartzites, Gneisses & Schists. Inishturk is composed of Ordovician Metasediments.	
	Key structures	The rocks in the GWB have undergone several episodes of deformation, comprising intense folding and faulting. The main structural trend is E-W. The Renvyle-Bofin Slide is a major E-W trending structural feature. Bedrock strata dip northwards 30-70 ⁰ .	
	Key properties	There are no data available. The aquifer lithologies and structure are similar to the nearby Clifden-Castlebar GWB. Data for that GWB indicate low transmissivities – in the range of 0.7-20 m ² /d. In the vicinity of faults, transmissivity may be higher. Storativity is expected to be low (<0.5%). The data are inadequate to calculate groundwater gradients, however, these are expected to be greater than 0.01.	
	Thickness	Most groundwater flux will be in the uppermost part of the aquifer.	
Overlying Strata	Lithologies	No data available.	
	Thickness	No data available.	
	% area aquifer near surface	[Further Information to be added at a later date]	
	Vulnerability	[Further Information to be added at a later date]	
Recharge	Main recharge mechanisms	Diffuse recharge is expected to occur via rainfall percolating through the subsoil and rock outcrops. The steep slopes in the mountainous areas promote surface runoff.	
	Est. recharge rates	[Information to be added to and checked]	
Discharge	Large springs and large known abstractions (m³/d)	There are no known large springs or large abstractions in the GWB.	
	Main discharge mechanisms	Shallow groundwater is likely to discharge to streams and lakes, but the limited bedrock transmissivity means that the baseflow component of the total streamflow will be low. Small springs and seeps are likely to issue at the stream heads and along their course. Seepages will develop on the coastal cliff faces.	
	Hydrochemical Signature	No data available, however, the signature in the Clifden-Castlebar GWB is predominantly Ca-Mg-HCO ₃ .	
Groundwater Flow Paths	Groundwater flow is expected to be concentrated in fractured and weathered zones and in the vicinity of fault zones. Flow paths are likely to be short (30-300 m) with groundwater discharging rapidly to nearby streams and small springs. Groundwater flow directions are expected to follow topography.		
Groundwater & Surface water interactions	Groundwater will discharge locally to streams and to small springs and seeps. Owing to the poor productivity of the aquifers in this body it is unlikely that any major groundwater - surface water interactions occur. Baseflow to rivers and streams is likely to be relatively low.		

Conceptual model	<ul style="list-style-type: none"> • The land surface is characterised by a relatively hilly terrain. • The GWB is composed primarily of low transmissivity rocks. • Groundwater flow is expected to be concentrated in fractured and weathered zones and in the vicinity of fault zones. • Diffuse recharge is expected to occur via rainfall percolating through the subsoil and rock outcrops. • Flow paths are likely to be short (30-300 m) with groundwater discharging rapidly to nearby streams and small springs. • Flow directions are expected to follow topography. • The rock units are generally of low permeability, thus baseflow to rivers and streams is likely to be relatively low.
Attachments	Figure 1.
Instrumentation	Stream gauges: None EPA Water Level Monitoring boreholes: None EPA Representative Monitoring points: None
Information Sources	Morris, J.H., Long, B., McConnell, J.B. Archer (1995). <i>Geology of Connemara. An introduction to the physical structure, ancient environments and modern landscapes of parts of northwest Galway and southwest Mayo, to accompany the bedrock geology 1:100,000 scale map series, sheet 10, Connemara.</i> Geological Survey of Ireland Map Series Report. O' Riain, G., (2004). <i>Water Dependent Ecosystems and Subtypes Draft Report.</i> WFD Support Projects. Compass Informatics in association with National Wildlife and Parks Service (DEHLG).
Disclaimer	Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae.

Figure 1. Location and boundaries of GWB

