

*1<sup>st</sup> Draft Inishkea Islands GWB Description August 2005*

**Inishkea Islands GWB: Summary of Initial Characterisation.**

Hydrometric Area Local Authority		Associated surface water features	Associated terrestrial ecosystem(s)	Area (km <sup>2</sup> )
33 Mayo Co Co		Lakes: Doon. Several unnamed streams.	Machairs (O’Riain, 2004).	~ 4
<b>Topography</b>	Inishkea Islands comprise Inishkea North and South and thirteen small islets. The land surface of the islands is generally gently sloping to flat. The islands are bordered by a rocky coastline interspersed with rare sandy beaches. Elevations range from 10-70 mAOD. There are several small streams and lakes.			
<b>Geology and Aquifers</b>	<b>Aquifer categories</b>	The main aquifer category is: <b>PI:</b> Poor aquifer which is generally unproductive except for local zones.		
	<b>Main aquifer lithologies</b>	The rocks are composed of Precambrian Quartzites, Gneisses & Schists.		
	<b>Key structures</b>	The rocks in the GWB have undergone several episodes of deformation, comprising intense folding and faulting. The main structural trend is E-W.		
	<b>Key properties</b>	There are no data available. The aquifer lithologies and structure are similar to the nearby Belmullet GWB. Data for that GWB indicate low transmissivities – in the range of 1-5 m <sup>2</sup> /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.		
	<b>Thickness</b>	Most groundwater flux will be in the uppermost part of the aquifer.		
<b>Overlying Strata</b>	<b>Lithologies</b>	No data available. Aerial photographs indicate sandy beaches and rock outcrop.		
	<b>Thickness</b>	No data available.		
	<b>% area aquifer near surface</b>	<i>[Further Information to be added at a later date]</i>		
	<b>Vulnerability</b>	<i>[Further Information to be added at a later date]</i>		
<b>Recharge</b>	<b>Main recharge mechanisms</b>	Diffuse recharge is expected to occur via rainfall percolating through the subsoil and rock outcrops.		
	<b>Est. recharge rates</b>	<i>[Information to be added to and checked]</i>		
<b>Discharge</b>	<b>Large springs and large known abstractions (m<sup>3</sup>/d)</b>	There are no known large springs or large abstractions.		
	<b>Main discharge mechanisms</b>	Shallow groundwater is likely to discharge mainly to streams, 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.		
	<b>Hydrochemical Signature</b>	No data available, however, the signature for Belmullet GWB is Ca-Mg HCO <sub>3</sub> signature.		
<b>Groundwater Flow Paths</b>		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.		
<b>Groundwater &amp; Surface water interactions</b>		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 streams is likely to be relatively low.		
<b>Conceptual model</b>	<ul style="list-style-type: none"> <li>• The GWB comprises all the islands that make up the Inishkea Islands. The land surface of the islands is generally gently sloping to flat. Elevations range from 10-70 mAOD. There are several small streams and lakes.</li> <li>• The GWB is composed primarily of low transmissivity rocks.</li> <li>• Groundwater flow is expected to be concentrated in fractured and weathered zones and in the vicinity of fault zones.</li> <li>• Diffuse recharge is expected to occur via rainfall percolating through the subsoil and rock outcrops.</li> <li>• Flow paths are likely to be short (30-300 m) with groundwater discharging rapidly to nearby streams and small springs.</li> <li>• Flow directions are expected to follow topography.</li> <li>• The rock units are generally of low permeability, thus baseflow to rivers and streams is likely to be relatively low.</li> </ul>			

