Rutland Island GWB Group: Summary of Initial Characterisation.

Hydrometric Area Local Authority	Associated surface water features	Associated terrestrial ecosystem(s)	Area (km^2)
Donegal Co Co	**Lakes**: Inishcoo.	Coastal Lagoons, dune slacks. (O'Riain, 2004).	~ 4

Topography	Rutland Island and the other islands present between Aran Island and the main land comprise locally groundwater dependent terrestrial ecosystems, similar geology and geomorphology. As such the islands are characterised as one GWB group. Elevations range from 0-20 mAOD. The islands are characterised by gentle slopes and low-lying topography.	
Geology and Aquifers	**Aquifer categories**	The main aquifer category is: **Pl:** Poor aquifer which is generally unproductive except for local zones.
	Main aquifer lithologies	The islands are composed of the Thorr Granite.
	Key structures	The rocks in this part of Donegal have been significantly deformed, resulting in a large number of approximately SW-NE faults (e.g. Lough Ea, Gweebarra, Glengash and Errig Faults) and the rock succession dipping predominantly to the SW and S, by between 20-80°. There are also a large number of anticline and syncline folds.
	Key properties	There are no data available. Low transmissivities are expected. 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**	Till, wind blown sand and outcropping rock are present.
	Thickness	1-3m (Donegal Groundwater Protection Scheme).
	% area aquifer near surface	*[Further Information to be added at a later date]*
	Vulnerability	Extreme vulnerability (Donegal Groundwater Protection Scheme).
Recharge	**Main recharge mechanisms**	Diffuse recharge is expected to occur via rainfall percolating through the subsoil and rock outcrops.
	Est. recharge rates	*[Information to be added to and checked]*
Discharge	**Large springs and large known abstractions (m^3/d)**	None known.
	Main discharge mechanisms	Shallow groundwater is likely to discharge mainly to seeps along the coastline.
	Hydrochemical Signature	No data are available within this particular GWB.
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 the lakes, or to seeps along the coastline. Groundwater flow directions are expected to follow topography.
Groundwater & Surface water interactions		Shallow groundwater will discharge locally to seeps. Owing to the poor productivity of the aquifers in this body it is unlikely that any major groundwater - surface water interactions occur. Baseflow is likely to be relatively low.
Conceptual model	• Rutland Island is located 300m from the mainland (Northwest Donegal GWB). • 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 the lakes, or to seeps along the coastline. • Flow directions are expected to follow topography. • It is unlikely that any major groundwater - surface water interactions occur. Baseflow 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	Lee M. and Fitzsimons V. (2004). *County Donegal Groundwater Protection Scheme.* Main Report. Draft Report to Donegal County Council. Geological Survey of Ireland 58pp. Long, C.B. & McConnell B.J. (1997) Geology of North Donegal: *A geological description to accompany bedrock geology 1:100,000 scale map, Sheet 1 and part of Sheet2, North Donegal.* With contributions from P. O'Connor, K. Claringbold, C. Cronin and R. Meehan. Geological Survey of Ireland. 87pp. O' Riain, G., (2004). *Water Dependent Ecosystems and Subtypes Draft Report.* 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.