**Clare Island GWB: Summary of Initial Characterisation.**

<table>
<thead>
<tr>
<th>Hydrometric Area Local Authority</th>
<th>Associated surface water features</th>
<th>Associated terrestrial ecosystem(s)</th>
<th>Area (km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 Mayo Co Co</td>
<td>Lakes: Leinapolibruty, Creggan. Several unnamed streams.</td>
<td>none (O’Riaín, 2004).</td>
<td>~ 16</td>
</tr>
</tbody>
</table>

### Topography
- The land surface of the island is characterised by several hills mixed with low-lying flat areas. The island is bordered by a rocky coastline interspersed with rare sandy beaches. Elevations range from 10-460 m AOD. There are several streams and lakes.

### Geology and Aquifers
- **Aquifer categories**
  - **Pi**: Poor aquifer which is generally unproductive except for local zones.
  - **Ll**: Locally important aquifer which is moderately productive only in local zones, and
  - **Lm**: Locally important aquifer which is generally moderately productive.

- **Main aquifer lithologies**
  - The rocks are composed of Silurian Metasediments and Volcanics and Dinantian Sandstones.

- **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. Bedrock strata dip moderately steeply (30-70°) both northwards and southwards. An E-W trending syncline is present on the southern end of the island.

- **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 m²/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. The eastern parts of the island that are classed as Lm and Ll may have better aquifer properties but the area occupied is small (approximately 2 km²).

### Geology and Aquifers
- **Lithologies**
  - No data available.

- **Thickness**
  - Most groundwater flux will be in the uppermost part of the aquifer.

### Overlying Strata
- **% area aquifer near surface**
  - No data available.

- **Vulnerability**
  - No data available.

### 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**
  - No data available. [Further Information to be added at a later date]

### 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-HCO₃.

### 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
- 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
| None |

### Instrumentation
- **Stream gauges:** None
- **EPA Water Level Monitoring boreholes:** None
- **EPA Representative Monitoring points:** None

### Information Sources

### Disclaimer
- Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae.