**Tipperary GWB: Summary of Initial Characterisation.**

| Hydrometric Area<br>Local Authority | | Associated surface water bodies | Associated terrestrial ecosystems | Area ($km^2$) |
|---|---|---|---|---|
| 16 – Suir<br>S. Tipperary Co Co | | Suir, Ara, Fidaghta, Multeen, | Killough Hill, Ardmayle Pond | 80 |
| **Topography** | | This groundwater body spans the width of the Suir valley in a southwest to northeast direction. Therefore the lower elevations are at the centre of the body. The range of elevations is not large, the topography is mostly undulating lowland. | | |
| **Geology and Aquifers** | Aquifer type(s) | Rk – Regionally Important Karstic Aquifer. | | |
| | Main aquifer lithologies | BM – Ballyadams Limestone Formation – Fossiliferous pure limestone<br>SU – Suir Limestone Formation - Pale cross-bedded oolitic limestone | | |
| | Key structures. | There is a significant amount of faulting in a north-south trending direction. There is also a syncline within the Ballyadams whose axis runs from northeast to southwest. | | |
| | Key properties | Although no hydrogeological data are available, transmissivity is expected to be high in the pure limestones but storage will be low. | | |
| | Thickness | The effective thickness of this aquifer may be large. Karstic aquifers are known to have well developed conduit systems at great depths underground. | | |
| **Overlying Strata** | Lithologies | There are a variety of over lying sediment lithologies. The most extensive appears to be glacial till-with-gravel. Within this there are smaller areas of gravel deposits, although not large enough or deep enough to be considered gravel aquifers. There are some isolated areas of peat and also areas of alluvium along the rivers. | | |
| | Thickness | The thickness of these deposits is mostly less than 3 or 5m metres. | | |
| | % area aquifer near surface | 50% | | |
| | Vulnerability | A mix of HIGH and EXTREME | | |
| **Recharge** | Main recharge mechanisms | Most recharge to this aquifer is through the thin gravels and outcrop areas where rainwater can easily percolate down through the epikarst to the water table. There may also be some indirect recharge from the surrounding poor aquifers, via fractures in the bedrock which cross geological boundaries or as overland flow which may sink at the geological contact with the more permeable pure limestones. | | |
| | Est. recharge rates | *[Information will be added at a later date]* | | |
| **Discharge** | Springs and large known abstractions | Boherlahan Co-op (60), Tipperary Co-op Ltd (900) | | |
| | Main discharge mechanisms | The discharge from this aquifer will be to the surface water bodies overlying it as baseflow. There may also be some discharge of water to adjacent limestone groundwater bodies along fractures which cross geological boundaries. | | |
| | Hydrochemical Signature | The bedrock in this groundwater body is considered to be **Calcareous**. Although no data exist the water is expected to be HARD and to have high conductivity. | | |
| **Groundwater Flow Paths** | | Groundwater flow in this aquifer will be through karstic conduits and enlarged fissures close to the surface. Flow in the karstified systems tends to be conduit flow along the fault zones. Where there are poor aquifers offset against the groundwater body due to faulting, this will retard the flow of groundwater to the central area where most discharge is expected to occur, via baseflow to the Suir and the Multeen Rivers. | | |
| **Groundwater & surface water interactions** | | Karstic aquifers are noted to have a very direct interaction between surface water and groundwater. Features like springs, swallowholes and turlough represent areas where there is a direct change from surface water to groundwater. | | |
| **Conceptual model** | | Conditions in the main limestone aquifers are predominantly unconfined, as the water table is generally less than 10m from the surface. The annual water table fluctuation is probably less than 5m. In the upper part of the Ballyadams Formation in the unsaturated zone there is a high degree of karstification, which will enhance the permeability of the formation. The middle part of the Ballyadams contains thin layers of clay (wayboards), and outcrops on sloping ground, which limits the area exposed at surface. This will restrict groundwater circulation, and therefore the vertical development of permeability, to fairly small areas. Secondary permeability within the limestones has developed horizontally due to the presence of the clay wayboards. The extent of this horizontal development varies from 10-30m. The lower part of the formation is quite thick and a wide section of the aquifer is open to the surface and available for recharge. Solution processes are unhindered, and large groundwater circulation systems can develop, resulting in high permeability zones being formed. | | |

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| **Attachments** | |
| **Instrumentation** | Stream gauge: 16006, 16047<br>Borehole Hydrograph: none<br>EPA Representative Monitoring boreholes: None |
| **Information Sources** | Daly, D., Keegan, M., & Wright, G., (2001) Co. Tipperary (South Riding) Groundwater Protection Scheme.<br>Wright, G.R. (1979) Groundwater in the South Munster Synclines. In *Hydrogeology in Ireland*, Irish National Committee of I.H.P. |
| **Disclaimer** | Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae |