<table>
<thead>
<tr>
<th>Hydrometric Area</th>
<th>Associated surface water bodies</th>
<th>Associated terrestrial ecosystems</th>
<th>Area (km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 – Nore</td>
<td>Nore, Arrigle</td>
<td>Inistioge, Murphy’s of the River, Kylecorragh Wood, Barrow River Estuary</td>
<td>264</td>
</tr>
</tbody>
</table>

**Topography**

This groundwater body lies at the southern end of the Nore Valley where the Nore meets the Barrow. The topography of these areas is an upland hilly surface and contains the catchment divides between the Nore, Suir and Barrow. From the southern tip to Glenmore all drainage is cast towards to the Barrow Valley. North of this there is a drainage divide within the groundwater body between the River Nore flowing south and the Arrigle River flowing north. North of the Nore-Barrow confluence there is another drainage divide, which sees the width of the groundwater body increase again to include Brandon Hill. Around Inistioge there is surface drainage to the Nore from the hilly areas to the north and to the Arrigle from the south.

**Geology and Aquifers**

**Aquifer type(s)**

LI – Locally Important Aquifer, moderately productive only in local zones

**Main aquifer lithologies**

CI - Carrigmaclea Formation - Red brown conglomerate & sandstone  
MNbf – Maulin Formation, Brownsford Member - Dark grey schist  
OA - Oaklands Formation - Green, red-purple, buff slate & siltstone  
BY - Ballylane Formation - Green and grey slate with thin siltstone

**Key structures.** The structural geology of the above formations is related. The rocks have been folded into a SW-NE trending syncline. The axis of the syncline and fracturing is likely to be associated with some springs in the area e.g. Glenmore WS.

**Key properties**

The estimated bulk permeability of the aquifer feeding groundwater to the Glenmore source is 0.9 m/day. Bulk porosity is assumed to be in the order of 0.01.

**Thickness**

Effective thickness is thought to be relatively shallow concentrating in the top 10 m to 30 m of the rock profile with deeper flow in areas of higher structural deformation and faulting.

**Overlying Strata**

There is little subsoil with significant thickness to consider a classification of lithology.

**% area aquifer near surface**

90%

**Vulnerability**

EXTREME with small areas of HIGH along river flood plains.

**Main recharge mechanisms**

Given the poor nature of the aquifer, most effective rainfall will divert to surface water and it is assumed that only 20% of the effective rainfall (i.e. 120 mm/year) which falls on the eastern half of the sub-catchment will enter groundwater and flow to the spring.

**Est. recharge rates**

[Information will be added at a later date]

**Springs and large known abstractions**


**Main discharge mechanisms**

In the absence of borehole data, and given the aquifer conditions the water table in the area is assumed to reflect topography.

**Hydrochemical Signature**

The bedrock strata of this groundwater body are Siliceous. Analyses indicate a ‘moderately soft’ to ‘moderately hard’ water (91 to 144 mg/l as CaCO₃). This is considered typical of the non-limestone rocks in the Southern Uplands of Kilkenny particularly in areas where the subsoil cover is thin.

**Groundwater Flow Paths**

Fracture flow is expected to be dominant in these aquifers. Flows are expected to be concentrated in fractured and weathered zones. Given common weathering patterns, most flow is thought to be relatively shallow concentrating in the top 10 m to 30 m of the rock profile.

**Groundwater & surface water interactions**

Groundwater will discharge locally to streams and rivers crossing the aquifer and also 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**

This groundwater body lies at the southern tip of Hydrometric area 15, the Nore Basin. The area comprises a number of rock types, which are considered to be poor or locally important aquifer. The generally poor nature of the aquifers in the sub-catchment suggests that water tables will be generally close to ground levels across most of the area. This is supported by visual evidence of field drainage. Due to the low bulk permeabilities, groundwater gradients in the aquifer are probably similar to topographic gradients, and are estimated to be up to 0.05 (1 in 20).
<table>
<thead>
<tr>
<th>Attachments</th>
<th>Instrumentation</th>
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<td></td>
<td>Stream gauge: 15031, 15006, 15014, 14021, 14064, 14065, 14062, 16021, 14063,</td>
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<td>Borehole Hydrograph: none</td>
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<td>EPA Representative Monitoring boreholes: None</td>
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<td>Disclaimer</td>
<td>Note that all calculation and interpretations presented in this report represent</td>
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