

# Potential groundwater dependent ecosystem aquifer mapping data dictionary

Version 1.5

Potential groundwater dependent ecosystem aquifer mapping is stored as one feature classes in a single file geodatabase:

- Potential groundwater dependent ecosystem aquifer (area features)

The following sections define the attribute fields for the mapping. Attribute fields with a specific set of allowed values are shown numbered with explanatory text provided in italics. Attributes consistent with the National Atlas of Groundwater Dependent Ecosystems are identified with an asterisk after the attribute field name (short).

## Potential groundwater dependent ecosystem aquifer mapping (area features)

| Field name (short) | Field description                        | Field values explained   |
|--------------------|--|--|
| AQ_NAME*           | Name of the source aquifer               | <i>Name of the source aquifer or aquifers</i>  |
| AQ_GEOL*           | Broad geology type of the source aquifer | <ol style="list-style-type: none"> <li>1. Fractured rock – <i>a network of cracks, joints, faults or other breaks in the rock that cut through the rock matrix.</i></li> <li>2. Cavernous (includes karstic) – <i>caverns, cells or coarse pore spaces.</i></li> <li>3. Unconsolidated sedimentary – <i>loosely arranged or unstratified sediments, where particles are not cemented together.</i></li> <li>4. Consolidated sedimentary</li> <li>5. Fractured &amp; cavernous</li> <li>6. Fractured and consolidated sedimentary</li> <li>7. Cavernous &amp; consolidated sedimentary</li> <li>8. Unknown</li> <li>9. No data</li> </ol> |

| Field name (short) | Field description  | Field values explained  |
|--------------------|--|---|
| AQ_POROSTY*        | Porosity of the source aquifer. Porosity is the percentage of rock or soil that is void of material. Porosity determines available habitat and affects the rate of water flow. | <ol style="list-style-type: none"> <li>1. Primary – <i>the spaces between grains in consolidated or unconsolidated aquifers.</i></li> <li>2. Secondary – <i>the void caused by fractures.</i></li> <li>3. Tertiary – <i>fractures may be enlarged by solution or other processes, creating large voids or conduits.</i></li> <li>4. Primary &amp; Secondary</li> <li>5. Primary &amp; Tertiary</li> <li>6. Secondary &amp; Tertiary</li> <li>7. All</li> <li>8. Unknown</li> <li>9. No data</li> </ol>  |
| AQ_CONFIN*         | Confinement of the source aquifer  | <ol style="list-style-type: none"> <li>1. Unconfined – <i>water table aquifer, receives recharge from the land surface.</i></li> <li>2. Confined &amp; semi-confined aquifers – <i>overlain by a low permeability layer, so it does not receive direct vertical recharge and is less responsive to surface conditions. Water in a confined aquifer is typically under pressure.</i></li> <li>3. Unknown</li> <li>4. No data</li> </ol>  |
| AQ_GFS*            | Groundwater flow system of the source aquifer.   | <ol style="list-style-type: none"> <li>1. Shallow alluvial, Local – <i>less than 5 kilometres.</i></li> <li>2. Shallow alluvial, Intermediate – <i>between 5 and 50 kilometres.</i></li> <li>3. Shallow alluvial, Regional – <i>greater than 50 kilometres.</i></li> <li>4. Basin, Local – <i>less than 5 kilometres.</i></li> <li>5. Basin, Intermediate – <i>between 5 and 50 kilometres.</i></li> <li>6. Basin, Regional – <i>greater than 50 kilometres.</i></li> <li>7. Bedrock, Local – <i>less than 5 kilometres.</i></li> <li>8. Bedrock, Intermediate – <i>between 5 and 50 kilometres.</i></li> <li>9. Bedrock, Regional – <i>greater than 50 kilometres.</i></li> <li>10. Perched</li> </ol> |

| Field name (short) | Field description                                | Field values explained  |
|--------------------|--|---|
| GW_SALINTY*        | Salinity of groundwater in the source aquifer.   | <ol style="list-style-type: none"> <li>1. &lt; 1500 mg/L TDS – <i>Fresh</i></li> <li>2. 1,500 - 3,000 mg/L TDS – <i>Brackish</i></li> <li>3. 3,000 - 35,000 mg/L TDS – <i>Saline</i></li> <li>4. &gt; 35,000 mg/L TDS – <i>Hypersaline</i></li> <li>5. Fluctuating</li> <li>6. Stratified</li> <li>7. Unknown</li> <li>8. No data</li> </ol>  |
| GW_PH*             | pH of groundwater in the source aquifer.         | <ol style="list-style-type: none"> <li>1. &lt; 6 – <i>acidic</i></li> <li>2. 6 – 8 – <i>neutral</i></li> <li>3. &gt; 8 – <i>alkaline</i></li> <li>4. Fluctuating</li> <li>5. Unknown</li> <li>6. No data</li> </ol>   |
| GW_RECHARG*        | Dominant recharge process of the source aquifer. | <ol style="list-style-type: none"> <li>1. Infiltration (local) – <i>flow of rainfall from less than 5 kilometres into a solid substance through pores or small openings.</i></li> <li>2. Infiltration (distant) – <i>flow of rainfall from greater than 5 kilometres into a solid substance through pores or small openings.</i></li> <li>3. Inundation (local) – <i>flow of floodwater from less than 5 kilometres into a solid substance through pores or small openings.</i></li> <li>4. Inundation (distant) – <i>flow of floodwater from greater than 5 kilometres into a solid substance through pores or small openings.</i></li> <li>5. Marine through-flow – <i>flow of marine water into a solid substance through pores or small openings.</i></li> <li>6. Combination</li> <li>7. Palaeo – <i>old or ancient, no current recharge sources.</i></li> <li>8. Unknown</li> </ol> |

| Field name (short) | Field description   | Field values explained   |
|--------------------|---|--|
| GW_CONN_TM*        | Temporal nature of the connectivity between groundwater and ecosystems.         | <ol style="list-style-type: none"> <li>1. Ephemeral – <i>only has groundwater connection after unpredictable and rare (i.e. extreme) rainfall and runoff events.</i></li> <li>2. Intermittent – <i>has groundwater connection during alternating wet and dry periods, but less frequently and/or less regularly than seasonal connectivity.</i></li> <li>3. Seasonal – <i>has groundwater connection during alternating wet and dry periods on a regular basis according to season.</i></li> <li>4. Permanent, near permanent – <i>has groundwater connection that may be static or flowing, with varying levels. However is predictably connected to groundwater.</i></li> <li>5. Unknown</li> <li>6. No data</li> </ol>  |
| GW_CON_T_D         | Detailed temporal nature of the connectivity between groundwater and ecosystems | <ol style="list-style-type: none"> <li>1. Ephemeral – <i>only has groundwater connection after unpredictable and rare (i.e. extreme) rainfall and runoff events.</i></li> <li>2. Episodic – <i>only has groundwater connection after unpredictable rainfall and runoff events</i></li> <li>3. Intermittent – <i>has groundwater connection during alternating wet and dry periods, but less frequently and/or less regularly than seasonal connectivity.</i></li> <li>4. Seasonal – <i>has groundwater connection during alternating wet and dry periods on a regular basis according to season.</i></li> <li>5. Near-permanent – <i>has groundwater connection that may be static or flowing, with varying levels. However there is a possibility that the flow could cease during long or extreme conditions (e.g. rare or non-cyclic conditions).</i></li> <li>6. Permanent – <i>has groundwater connection that may be static or flowing, with varying levels. However is predictably connected to groundwater.</i></li> <li>7. Unknown</li> <li>8. No data</li> </ol> |
| RULE_ID            | Mapping rule-set identifier   | <i>For example, 'EMDB_RS_03'</i>   |

| Field name (short)                                       | Field description   | Field values explained   |
|--|---|--|
| RULE_NAME  | Mapping rule-set name                                     | <i>For example, 'Alluvia – eMDB'</i>   |
| URL_RULE   | Mapping rule-set documentation URL                        | <i>For example, 'http://www.example.pdf'</i>   |
| CONFIDENCE   | Confidence in the presence and characteristics of aquifer | <ol style="list-style-type: none"> <li>1. Known aquifer</li> <li>2. High confidence</li> <li>3. Moderate confidence</li> <li>4. Low confidence</li> <li>5. Unknown confidence</li> </ol>         |
| C_MODEL  | Conceptual model name                                     | <i>For example, 'Alluvia'</i>  |
| C_MODEL_R  | Regional conceptual model name                            | <i>For example, 'Sedimentary rocks (Great Artesian Basin)'</i>   |
| C_MODEL_L  | Local conceptual model name                               | <i>For example, 'Lower Balonne alluvial floodplain'</i>  |
| C_MODEL_S  | Site conceptual model name                                | <i>For example, 'Goondoola Basin'</i>  |
| URL_CMODEL1<br>URL_CMODEL2<br>URL_CMODEL3<br>URL_CMODEL4 | Conceptual model(s) documentation URL(s)                  | <i>For example, 'http://www.example.pdf'</i>   |
| EVIDENCE   | Evidence supporting aquifer identification                | <ol style="list-style-type: none"> <li>1. Field survey</li> <li>2. Expert opinion</li> <li>3. Report</li> <li>4. Journal article</li> <li>5. Stream gauge</li> <li>6. Monitoring bore</li> </ol> |

| Field name (short) | Field description                  | Field values explained   |
|--------------------|------------------------------------|--|
| LEGEND             | Combination of AQ_NAME and AQ_GEOL | <ol style="list-style-type: none"><li>1. Unconsolidated sedimentary aquifers</li><li>2. Consolidated sedimentary rock aquifers</li><li>3. Igneous rock aquifers</li><li>4. Metamorphic rock aquifers</li><li>5. No identified aquifers</li></ol> |

## Citation

Queensland Government (2017) *Potential groundwater dependent ecosystem aquifer mapping data dictionary: version 1.5*, Queensland Government, Brisbane.