

## Katherine Water Allocation Plans - comparison

The following table provides a comparison of the current water management arrangements under the declared 2016-2019 Water Allocation Plan Tindall Limestone Aquifer, Katherine, and the proposed water management arrangements drafted in the Katherine Tindall Limestone Aquifer Water Allocation Plan 2019-2029.

|   | Existing Plan (2016-2019)   | Draft Plan (2019-2029)   |
|---|---|--|
| <p><b>Plan area:</b><br/><i>Includes consideration of surface water where discharging from Tindall Limestone Aquifer.</i></p> | <p><u>Scope of this Plan (pg. 2):</u><br/>The part of the Tindall Limestone Aquifer bounded by the Katherine River Catchment (pg.2)<br/>Does not apply directly to the management of surface water extractions from the Katherine River, but does have provisions which aim to achieve environmental and cultural outcomes which depend on groundwater discharge to the river (pg. 2).</p>  | <p><u>Water resources (pg. 13):</u><br/>Groundwater discharge to surface water from the Tindall Limestone Aquifer within the catchment of the Katherine River, between the Ironwood gauging station and Wilden gauging station on the Katherine River.<br/>Groundwater in the Tindall Limestone Aquifer within the catchment of the Katherine River.</p> |
| <p><b>Water resource:</b><br/><i>Updated to account for 2009-2018 data and improved approach to statistical analysis</i></p>  | <p><u>Annual recharge within Plan area (pg. 4, 8):</u><br/>Average annual recharge <b>74GL ML/yr.</b><br/>Supporting documentation states 74,000 ML includes 10,000 ML from the Mirrawul Plateau (however reference to this not included in the plan itself).<br/><i>Note: details regarding length of dataset and statistical analyses used is not provided in the Plan itself. Supporting data indicates the figure is based on average annual recharge from 1960-2004.</i></p> | <p><u>Groundwater modelling (pg. 39-40):</u><br/>Mean annual recharge <b>71 GL/yr</b>; median annual recharge <b>53 GL/yr</b> (pg. 35), based on dataset 1960/61 – 2017/18, with the water year defined as 1 October to 30 September.</p>  |

|  | Existing Plan (2016-2019)  | Draft Plan (2019-2029)  |
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| <p><b>Water requirements:</b><br/> <i>Recognises there is uncertainty in establishing non-consumptive water requirements for the Katherine system itself.</i><br/> <i>Recognises there are existing commitments in the form of WELs and use exempt from licensing.</i></p> | <p><u>Water for environmental, indigenous cultural and other instream public benefit outcomes (pg. 12).</u><br/>                     No long term volumetric figure identified. Uses the annual announced allocation process to protect flows under various scenarios (based on target flows in the Daly River).<br/> <u>Limits to licences (pg.15), extraction limits (pg. 19):</u><br/>                     Licence limit defined as the maximum volume of water that may be extracted. Commencement of the plan – 34,503 ML/yr, increased to 37,091 ML/yr (excl) S&amp;D to reflect 6 additional licences and capacity for additional licensing.<br/>                     Inclusion of S&amp;D resulted in maximum extraction limit of <b>38,391 ML/yr.</b></p> | <p><u>Non-consumptive water requirements (pg. 36):</u><br/>                     Lack of information available to set long volumetric figure for non-consumptive water requirements identified as a significant gap in knowledge. Needs to be addressed during plan implementation.<br/>                     Annual announced allocations used to reserve water for non-consumptive uses under various scenarios (based on flows measured at Katherine River at Wilden).<br/> <u>Consumptive water requirements (pg. 38):</u><br/>                     Existing GWELs, SWELs and use exempt from licensing is <b>42,163 ML/yr.</b> This is the water extraction limit, recognising that AAAs determine how much of this water is actually available in any given year.</p> |
| <p><b>Estimated sustainable yield:</b><br/> <i>Draft Plan defines estimated sustainable yield explicitly. The interpretation of ESY has changed and in the absence of a ESY definition in the Water Act, a definition is proposed in the Draft Plan.</i></p>               | <p><u>Extraction Limits (pg 19):</u><br/>                     Extraction limits referred to in the Plan are an estimation of Sustainable Yield (no specific definition of estimated sustainable yield provided):</p> <ul style="list-style-type: none"> <li>• Maximum extraction limit is <b>38,391 ML/yr</b></li> <li>• Long-term average annual extraction limit is <b>22,200 ML/yr</b> (equating to 30% of average annual recharge 74,000 ML/yr).</li> <li>• The extraction limit is dynamic and will vary from year to year in response to variable discharge from the water source to the Katherine River.</li> </ul>   | <p><u>Estimated sustainable yield (pg. 64-66):</u><br/>                     In absence of non-consumptive water requirements and inability to set a specific ESY, adopts an ESY based on the interpretation of ESY from current plan:<br/> <b>ESY = 38,391 ML/yr</b><br/>                     Critical to review and update ESY prior to any additional water extraction licences issued.</p>   |
| <p><b>Water availability:</b><br/> <i>Explicit statement of whether there is water available for new or increased licences to assist with licensing decisions.</i></p>   | <p>Not included explicitly in current Plan. Can interpret extraction limits as a measure of water availability. Licences equalled extraction limits therefore system was at maximum allocation (<u>note</u>: this was not explicitly stated in the plan and therefore more clarity is proposed in the new plan).</p>   | <p><u>Water availability (pg. 49):</u><br/>                     ESY: 38,391 ML/yr<br/>                     Water extraction limit: 42,163 ML/yr<br/>                     38,391 – 42,163 = -3,772 ML/yr<br/>                     Therefore the system is over allocated.</p>  |

|  | Existing Plan (2016-2019)   | Draft Plan (2019-2029)   |
|--|---|--|
| <p><b>Beneficial uses:</b><br/>Mining activity, petroleum activity and Strategic Aboriginal Water Reserve need to be included.</p>   | <p><u>Allocates water to the following beneficial uses (pg. 8):</u></p> <ul style="list-style-type: none"> <li>• Environment and Cultural</li> <li>• Public Water Supply (4,076 ML/yr) (pg. 15)</li> <li>• Agriculture, Aquaculture and Industry (33,015 ML/yr note: only GWELS considered) (pg. 15)</li> <li>• Rural Stock and Domestic (1,300 ML/yr pg. 13)</li> </ul>  | <p><u>Allocates water to the following beneficial uses within the consumptive pool (pg. 52):</u></p> <ul style="list-style-type: none"> <li>• Public Water Supply (4,076 ML/yr)</li> <li>• Rural Stock and Domestic (1,964 ML/yr)</li> <li>• 'All other consumptive beneficial use classes' (note, these need to include: Agriculture, Aquaculture, Environment, Cultural, Industry, Mining Activity, Petroleum Activity (32,351 ML/yr)</li> <li>• Strategic Aboriginal Water Reserve (treated as a sub-class of other beneficial uses until the Water Act is amended) – 3,235 ML identified as a notional allocation.</li> <li>• Surface and groundwater extraction required to be considered.</li> </ul>   |
| <p><b>Annual announced allocations:</b><br/>Updated to reflect move to Wilden as monitoring location and preferred gauging site.<br/>Proportion of river flow to be protected based on modelling of natural scenario (i.e. no extraction).</p> | <p><u>Water for Environmental, Indigenous Cultural and other Instream Public Benefit Outcomes (pg.12):</u><br/>Note: measurement of flows set at Katherine Railway Bridge / Low-Level Bridge</p> <p><u>Very dry years:</u></p> <ul style="list-style-type: none"> <li>• When 1 November modelled natural flow equals 0.6 cumecs, 87% of discharge protected (<b>29,043 ML/yr</b>)</li> </ul> <p><u>Dry years:</u></p> <ul style="list-style-type: none"> <li>• When 1 November modelled natural flow equals 0.7 cumecs, 80% of discharge protected (<b>31,088 ML/yr</b>).</li> </ul> <p><u>Normal and wet years:</u></p> <ul style="list-style-type: none"> <li>• When 1 November modelled natural flow equals 1.1 cumecs, 70% of discharge protected (<b>42,842 ML/yr</b>).</li> </ul> | <p><u>Annual announced allocations (pg. 53):</u><br/>Note: measurement of flows set at Wilden.</p> <ul style="list-style-type: none"> <li>• <u>Very dry:</u> modelled natural flow on 1 November is less than 1.8 cumecs (155 ML/day). 87% of flow protected.</li> <li>• <u>Dry:</u> modelled natural flow on 1 November is between 1.8 and 2.1 cumecs (155 ML/day to 181 ML/day). 80% of flow protected.</li> <li>• <u>Average:</u> modelled natural flow on 1 November is between 2.1 and 2.9 cumecs (181 ML/day to 250 ML/day). 70% of flow protected.</li> <li>• <u>Wet:</u> modelled natural flow on 1 November is between 2.9 and 3.6 cumecs (250 ML/day to 311 ML/day). 70% of flow protected.</li> <li>• <u>Very wet:</u> modelled natural flow on 1 November is greater than 3.6 cumecs (311 ML/day). 70% of flow protected.</li> </ul> |

|  | Existing Plan (2016-2019)   | Draft Plan (2019-2029)  |
|--|---|---|
| <p><b>Licence security and reliability:</b><br/><i>Updated datasets and classifications of climatic scenarios result in changes to the reliabilities identified.</i></p> | <p><u>Licences to take groundwater (pg. 14-15)</u><br/>Four licence security categories: Total, High, Medium and Low<br/>Licence reliabilities (the percentage of years that stated extraction limits would have been equalled or exceeded, calculated using the lowest annual daily recorded flow for the Katherine Railway Bridge and an average annual recharge of 74,000ML:</p> <ul style="list-style-type: none"> <li>• Total security: not subject to Announced Allocations therefore reliabilities 100%</li> <li>• High security: 72% reliability (1961 - 2007)</li> <li>• Medium security: 28% reliability (1961 - 2007)</li> <li>• Low security: 14% reliability (1961 - 2007).</li> </ul> | <p><u>Water extraction licence security levels and reliabilities (pg. 58):</u><br/>Re-run modelling based on licences and Wilden as measuring point.<br/>Four licence security categories: Total, High, Medium and Low<br/>Licence reliabilities (the percentage of years that stated extraction limits would have been equalled or exceeded, calculated by determining the climatic scenario and the proportion of water required to be reserved for non-consumptive water uses:</p> <ul style="list-style-type: none"> <li>• Public water supply : not subject to AAAs</li> <li>• High security: 75% reliability (1960/61 - 2017/18)</li> <li>• Medium security: 55% reliability (1960/61 - 2017/18)</li> <li>• Low security: 25% reliability (1960/61 - 2017/18).</li> </ul> |
| <p><b>Groundwater discharge protection areas:</b><br/><i>No change in area, renaming only</i></p>  | <p><u>Water trading – water management zones (pg. 23)</u><br/>Zones 1 and 2 established. Extraction of water from Zone 1 expected to impact on river flows within 1 year. Impact of extraction from zone 2 expected to occur more than one year later.</p>  | <p><u>Groundwater discharge protection areas (pg. 58)</u><br/>Zone 1 from current plan renamed groundwater discharge protection are – consistent with naming convention of other plans.</p>   |
| <p><b>Water trading:</b><br/><i>No major changes to GWELS. Including surface water extraction in considerations</i></p>  | <p><u>Water trading (pg. 23)</u><br/>Complex trading rules established.</p>   | <p><u>Water trading (pg. 61)</u><br/>Simplified trading arrangements taking into consideration surface and groundwater extraction. Trading subject to NTG trading policies.</p>   |
| <p><b>Management of unused water</b></p>   | <p>The plan refers to a minimum limit to extraction of 75% in Schedule 8 referring to licence conditions (pg. 36).</p>  | <p><u>Management of unused water (pg. 63)</u><br/>No reference to minimum limit of extraction, given maturity of licensing in plan area. Relies on standard licence conditions and gives effect to established Policy.</p>  |

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|---|--|---|
| <b>Bore work permits</b>  | <u>Bore construction permit conditions (pg. 39)</u><br>(called bore work permits in the current Water Act 1992).   | <u>Bore work permit (pg. 63)</u><br>Provides guidance on bore location and construction |
| <b>Water extraction licensing, recharge licensing, interference with a waterway, water quality guidelines</b> | These weren't included explicitly in the current plan. They have been included in the draft plan, giving effect to government policy and other strategies etc. |   |