

Report card for the Macleay Valley Water Source

Water source context		River flows	
Area	81,798 hectares (49% forested)	Low flow index* (for November)	80th%ile = 203 ML/day (Source. Macleay River gauge @ Turners Flat)
Average annual rainfall	1,352 mm	Flow records	67 years of data (1945 to 2012) from Macleay River gauge @ Turners Flat. 35 years of data from Macleay River gauge @ downstream of Georges River Junction.
Inflowing water source	Georges River, Mungay Creek, Hickeys Creek, Null Nulla Creek, Five Day Creek, Dyke River, Macleay Gorges, Stockyard Creek, Warbro Creek, Toorumbec Creek, Dungay Creek	Stream type	Gaining
Receiving water source	Coastal Macleay	* 80 per cent of the time average daily flow exceeds 203 ML/day and this represents low flows.	
Background information			
Water Source Attributes	Rating	Justification	
Relative Instream Value (within catchment)	MEDIUM	<ul style="list-style-type: none"> - 7 threatened frog species. - 4 threatened bird species. - significant area of National Park. 	
Hydrologic Stress	HIGH	<ul style="list-style-type: none"> - within water source = low. - cumulative stress = high. - peak extraction demand exceeds available flows in November. 	
Relative Economic Significance of Irrigation (within catchment)	HIGH	<ul style="list-style-type: none"> - high economic dependence of the local community on water extracted for irrigation. - high value of production from irrigation. 	
Risk to Instream Value (from extraction)	LOW	<ul style="list-style-type: none"> - instream values are at low risk of being impacted by extractions within the water source. 	

Upriver alluvial aquifer description	
The upriver alluvial aquifer consists of medium to coarse grained sand, silts and gravel deposits. Groundwater from the aquifer is typically highly connected to the surface water. As a result of this connection, coupled with the coarser sediments, water quality is typically good with high yields potentially obtainable in some areas. Lower reaches of these freshwater systems have proven water resources such as the Kempsey town water supply bore field at Sherwood.	
Groundwater Dependent Ecosystems	Nil.
Licensed water entitlement	
Total surface water entitlement	3,481 ML/year*.
Licensed purpose	97% used for irrigation, 1% used for farming, 2% other.
Proportion of extraction management unit	15% of total Extraction Management Unit entitlement.
Total groundwater entitlement	10, 262 ML/year**.
Licensed purpose	98% used for town water supply, 2% used for commercial activities.
Estimated in October 2012* and November 2013**.	
Existing access arrangements during dry conditions	
Pumping restrictions	12, 10, 8 and 6 hours/day between the 89th and 96th %iles.
Cease to pump	8 ML/day (98th %ile).
Reference point	Macleay River Gauge @ Turners Flat.
Water user association	Macleay River WUA.

Recommendations

Draft access rules for surface waters*	
* Surface water is sometimes extracted from the Macleay River to recharge the aquifer used for town water supply purposes. Refer to the Draft access rules for upriver alluvial aquifers - TWS extraction below for the draft rules.	
Cease to pump	<ul style="list-style-type: none"> - Years 1-3: 13ML/day (approximately the 98th%ile). - Years 4-6: 19ML/day (approximately the 97th%ile). - Years 7-10: 30ML/day (approximately the 96th%ile). <p>Note: This rule applies to all extraction from rivers and creeks in this water source including natural in-river pools within the channels of rivers and creeks.</p>
Daily pumping restrictions	<p>Daily pumping restrictions similar to existing access arrangements as follows:</p> <ul style="list-style-type: none"> - 10 hours per day @ 60 ML/day (down to 40ML) at the reference point. - 6 hours per day @ 40 ML/day (down to the cease to pump) at the reference point.
Reference point	Macleay River Gauge @ Turners Flat (206011).

Draft access rules for natural off-river pools	
Cease to pump	<p>Pumping is not permitted when the water level in that natural off-river pool is lower than its full capacity.</p> <p>Note: 'Full capacity' can be approximated by the pool water level at the point where there is no visible flow into and out of that pool.</p> <p>Note: Natural off-river pools include those pools located on flood runners, floodplains and effluents e.g. lakes, lagoons and billabongs.</p>
Reference point	Individual natural off-river pool.
<p>Note: Existing <i>Water Act 1912</i> licence conditions that are more stringent than these access rules will be carried forward.</p> <p>Note: These access rules do not apply to:</p> <ul style="list-style-type: none"> - Local water utility access licences - Town water supply access licences - Stock and domestic licences for the first three years of the plan (provided that extraction for stock purposes does not exceed 14 litres per hectare of grazeable area per day) - Water taken from existing dams. Any existing licence conditions associated with a dam will be carried over when the licence is converted under the <i>Water Management Act 2000</i>. 	
Draft access rules for upriver alluvial aquifers – Non TWS extraction	
Cease to pump	<p>Nil.</p> <p>Note: A restriction on the establishment of new works in close proximity to the water course applies (refer to Rules for the granting of new water supply work approvals in the upriver alluvials below).</p>
Reference point	Not required.

Draft access rules for upriver alluvial aquifers – TWS extraction	
Cease to pump	<p>When the water level in Steuart McIntyre dam is greater than 60% capacity:</p> <ul style="list-style-type: none"> • If the flow at the Turners Flat Gauge (206011) is equal to or greater than 235ML/day (approximately the 77th%ile flow) then a maximum extraction of 32ML/day is permitted. • If the flow at Turners Flat Gauge (206011) is less than 235 ML/day then a maximum extraction is 8.5ML/day is permitted. • Pumping from the river to the bore field recharge channel is not permitted when flows are less than or equal to 235ML/day. <p>When the water level in Steuart McIntyre dam is at or less than 60% capacity:</p> <ul style="list-style-type: none"> • If the flow at Turners Flat Gauge (206011) is greater than 235ML/day then a maximum extraction of 32ML/day is permitted. • If the flow at Turners Flat Gauge (206011) is less than 235ML/day and greater than 62ML/day (approximately the 93rd%ile flow) then a maximum extraction of 20ML/day is permitted. • If the flow at Turners Flat Gauge (206011) is less than 62ML/day then a maximum extraction of 8.5ML/day is permitted. • Pumping from the river to the bore field recharge channel is not permitted when flows are less than or equal to 62ML/day. <p>Note. When Steuart McIntyre dam is at or less than 60% a minimum of level 3 water restrictions must be in place in Kempsey Shire for extractions of more than 8.5ML/day to occur.</p> <p>Note. The NOW intends to conduct a dam reliability assessment with a view to reviewing the access rules. Accordingly, the plan will include an amending provision to provide for such an adjustment to be made if required.</p>
Reference point	Macleay River Gauge @ Turners Flat (206011).
Distance Rules	
Distance Rules	<p>Standard suite of rules (with the exception of the proposal below).</p> <p>Note. The standard set of distance rules that are designed to minimise the impact of extractions on other groundwater works, groundwater dependent ecosystems and groundwater dependent culturally significant sites apply. Exemptions to these rules (e.g. for replacement works) apply in specific circumstances.</p>
Rules for the granting of new water supply work approvals	<p>A new water supply work (groundwater work) approval:</p> <ul style="list-style-type: none"> • may not be granted, or amended, to authorise the construction of a new work to take water within 40m of the high bank of any third order or greater stream, • may be granted or amended to authorise the construction of a new work to take water beyond 40m of the high bank of any third order or greater stream (new works would be subject to standard groundwater distance rules). <p>Note. The restriction on new works does not apply to water supply works being used for basic landholder right purposes.</p>

Draft trading rules for surface and alluvial ground waters	
INTO water source	Permitted, only if the total licensed entitlement in the water source does not increase (no net gain) from Christmas Creek, Coastal Macleay, Collombatti Creek, Dungay Creek, Euroka Creek, Gills Bridge Creek, Apsley Gorge, Apsley River, Bakers Creek, Blue Mountain Creek, Chandler Gorge, Chandler River, Commissioners Waters, Gara River, Green Gully, Kunderang Creek, Malpas Dam, Macleay Gorges, Oaky River, Salisbury Waters, Styx River, Tia River, Yarrowitch River.
WITHIN water source	Permitted, subject to assessment.
Draft rules for granting access licences	
In-river dams	Permitted, subject to assessment. Note: Dams require a licence if they are located on a permanent (spring fed) first or second order stream, a third order (or greater) stream, or if they exceed the maximum harvestable right dam capacity for the property.
Aboriginal community development	Permitted up to a total volume of 500 ML (commence to pump of 1 014 ML/day at the Macleay River gauge @ Turners Flat
Conversion to high flows	Permitted, up to 5 000ML/yr with the conversion rate of 1:5 for conversions from unregulated river to unregulated river high flow access licences.
Conversion to alluvial aquifer access licence	Permitted, subject to assessment.

Key factors for decisions

- Medium instream value, high hydrologic stress, low risk to instream value and high economic dependence.
- The existing cease to pump was deemed too low given the high volume of inflow to the water source and recommended that over the life of the water sharing plan a cease to pump of 30ML/day should be achieved.
- It was noted that the existing pumping restrictions were designed to facilitate the sharing of water between competing interests including irrigators and the environment and such interests remained an issue. The Panel recommended a suite of pumping restrictions to alleviate competition.
- The Panel recommended that a cease to pump rule not apply to bores in the upriver alluvial after noting the small level of entitlement (for irrigation purposes), the continued and expanded restriction on the establishment of new works in close proximity to streams, and the negligible risk to the water source from extraction.
- Two groundwater dependent culturally significant sites were identified in the water source. Access and trading rules recommended for the water source provide the necessary protection for the sites.

Public exhibition

Feedback is particularly sought on the suitability of the proposed access and trading rules.

© State of New South Wales through the Department of Trade and Investment, Regional Infrastructure and Services 2014. You may copy, distribute and otherwise freely deal with this publication for any purpose, provided that you attribute the NSW Department of Primary Industries as the owner.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (October 2014). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the Department of Primary Industries or the user's independent adviser.

Published by the Department of Primary Industries, a division of NSW Department of Trade and Investment, Regional Infrastructure and Services.

Jobtrack 13078_RC22

Document prepared October 2014