

Annual Waterways Report

Montagu Catchment

Water Assessment Branch

2009

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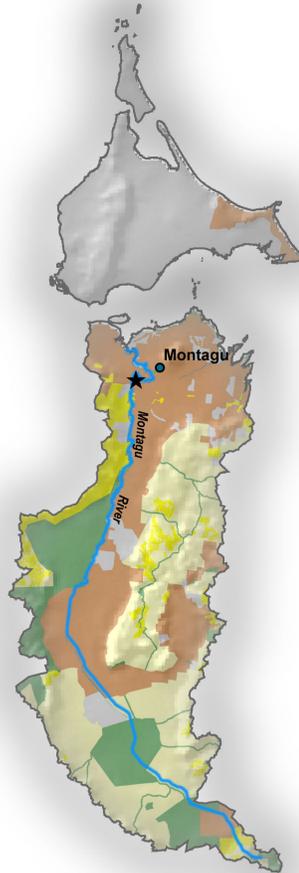
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Montagu Catchment

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1. About the catchment

The Montagu catchment is a small catchment (~370 km²) located in north-west Tasmania and is drained by only one major river, the Montagu River, which flows northward into Robbins Passage to the west of Smithton.

It lies within a relatively wet area, with average annual rainfall between 900 and 1,300 mm. The catchment topographically flat, and is used primarily for timber harvesting and dairy farming. The Montagu River has a long history of drainage improvement aimed at increasing access to what was originally low-lying Blackwood swamp-land for the purposes of dairy farming. As a result, much of the main river and its tributaries have been highly modified or straightened, and water quality in the catchment is poor.

At the catchment outlet there are also a number of oyster farming enterprises.

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2. Streamflow & Water Allocation

Streamflow

There is one streamflow monitoring station maintained in the Montagu River catchment as part of the DPIW state-wide monitoring network. This station is:

- Montagu River at Montagu Road (14200).

This station was closed between 1990 and 1999.

Streamflow during 2008 in the Montagu River at Montagu Road was very low early in the year (mid-summer to autumn) then peaked in winter and spring. The minimum flow recorded during the year was 6 ML/day (Mar), and the maximum 1,234 ML/day (Sep).

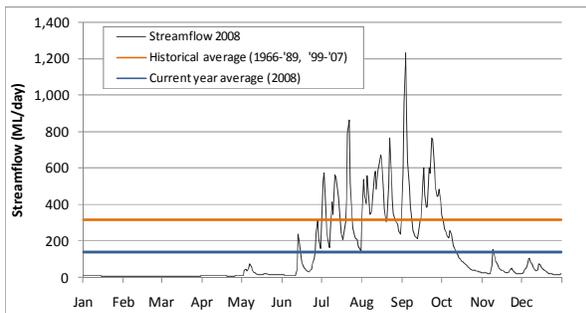


Fig: Time series of 2008 streamflow in the Montagu River at Montagu Rd (station 14200), plus a comparison of current year average flow with the historical.

Monthly discharge amounts were generally well below the historical averages. While historically the highest discharges have been in July and August, in 2008 discharge was highest in September.

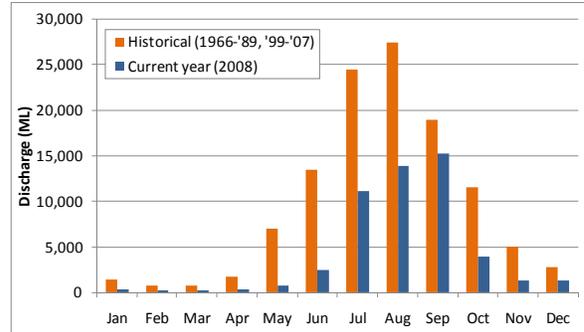


Fig: Comparison of total monthly discharge with historical average for the Montagu River at Montagu Road (station 14200).

Water Allocation

The Montagu catchment had a total of 1,245 ML in licensed allocations for 2008. The following table shows the breakdown of the allocations.

	Total Allocation (ML)
Irrigation	1,039
Stock & Domestic	97
Water supply	109
Other	-

Of the total licensed water allocation within this catchment, 1,103 ML is held within constructed storages and 142 ML is taken directly from rivers and streams.

Water Use Restrictions

Water restriction triggers have been developed for the Montagu River catchment at Montagu. These triggers are given in the table below, together with how long the restriction was applied during 2008.

River	ML/d	%	Restriction	In effect 2008
Montagu River at Montagu	12	100	Ban on direct takes	60 days (Jan-Mar)

3. Water Quality

Under the DPIW Statewide baseline monitoring network, instream sensors were maintained throughout 2008 at one location in the catchment:

- Montagu River at Stuarts Road (station 14200).

Water temperature, electrical conductivity, turbidity and dissolved oxygen are continuously monitored at this station. Missing data is due to inconsistencies in data quality or instrument malfunction.

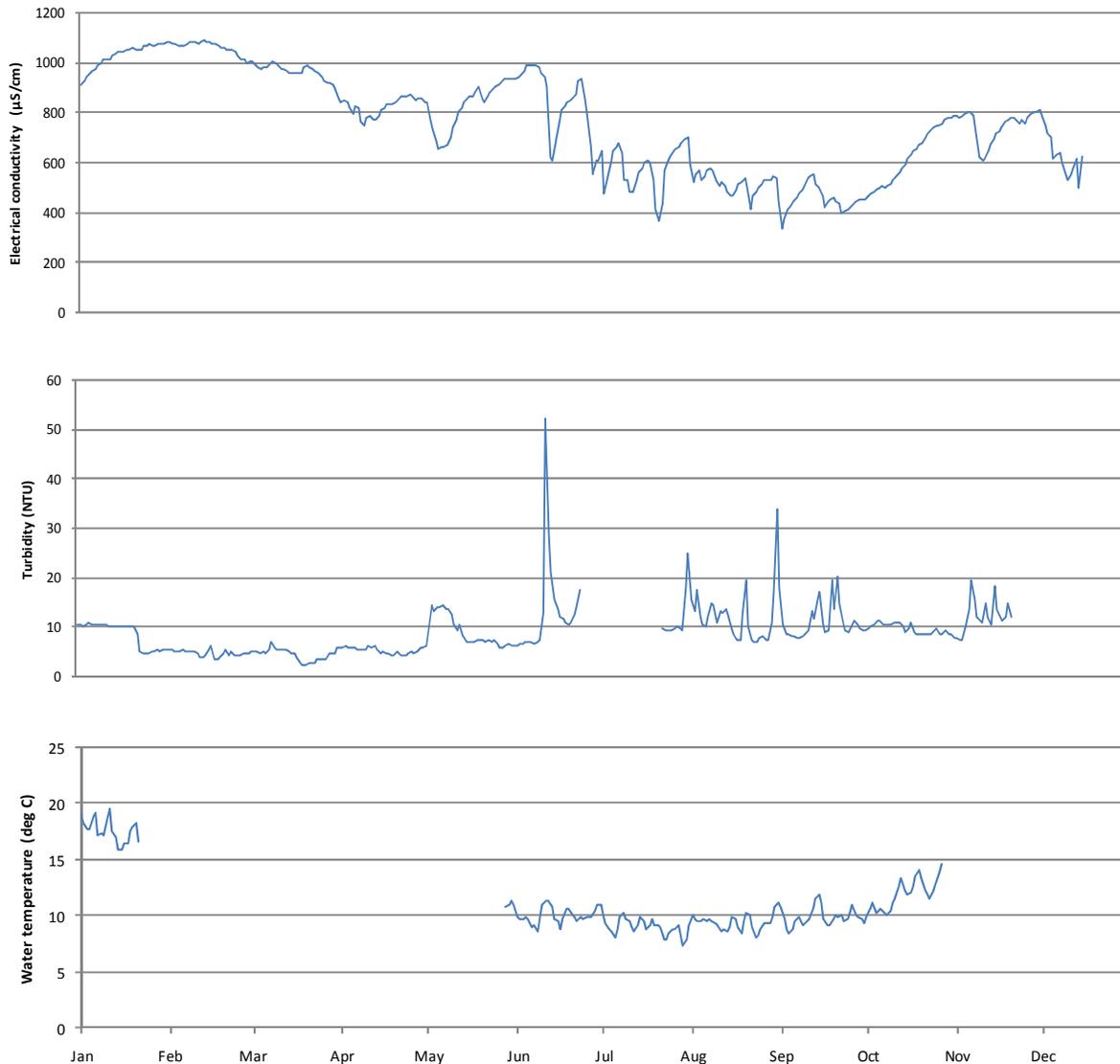


Fig: Continuous instream water quality for Montagu River at Stuarts Road (station 14200) during 2008.

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Monthly water sampling is also conducted at:

- Montagu River at Stuarts Road (station 14200).

Sampling consists of spot measurements of selected water quality parameters on-site (water temperature, turbidity, conductivity, pH and dissolved oxygen). Bottled samples of water are also collected for analyses of nutrients (collected monthly) and pesticides (collected quarterly) at the Analytical Services Tasmania laboratory.

DPIW has developed site-specific trigger values for this site. The site-specific trigger values are based on monthly monitoring data collected between 2003 and 2006, and enable an assessment of *potential change* at a site since that time. The site-specific trigger values provide a target for the maintenance of existing ambient water quality, recognising that existing water quality at a site may already be influenced by varying degrees of impact. These trigger values indicate an expected range during daytime, base-flow conditions and should not be applied to high-flow periods.

A report containing further information about the interpretation of the DPIW site-specific trigger values is available through the DPIW website.

The table below provides summary statistics for monthly monitoring during 2008, as well as the relevant site-specific trigger values. Where the 2008 annual median exceeds a trigger value, this has been shaded to flag a potential change in water quality related to this parameter.

Links

1. Water Information System of Tasmania
www.water.dpiw.tas.gov.au/wist/
2. Pesticide monitoring in Tasmania
www.dpiw.tas.gov.au/pesticidemonitoring
3. DPIW surface water quality monitoring
www.dpiw.tas.gov.au/waterquality
4. National water quality guidelines
www.environment.gov.au/water/quality/nwqms/

Montagu River at Stuarts Road	Minimum	Median	Maximum	No. samples	Site-specific trigger value	
					lower	upper
Temperature (° C)	7.6	12.8	17.2	12	10	16
Turbidity (NTU)	3.1	7.1	19.4	12		16
Electrical Conductivity (µS/cm)	500	795	936	12	385	731
Field pH	6.58	7.84	8.11	11	7.0	8.0
Dissolved Oxygen (mg/L)	6.9	9.4	11.4	12	7.4	9.2
Dissolved Oxygen (percent saturation)	67.2	89.5	100.4	12	74	85
Total Nitrogen (mg/L)	0.280	1.450	5.500	12		2.028
Total Phosphorus (mg/L)	0.054	0.124	0.561	12		0.295
Dissolved Reactive Phosphorus-P (mg/L)	0.010	0.023	0.264	12		0.136
Nitrate-N (mg/L)	0.005	0.549	2.750	12		0.458
Nitrite-N (mg/L)	<0.002	0.007	0.097	12		0.024
Ammonia-N (mg/L)	0.004	0.015	0.454	12		0.082

4. River Health

The Australian River Assessment System (AUSRIVAS) is a standardised national system for assessment of river condition that uses benthic macroinvertebrates.

The AUSRIVAS models predict the aquatic macroinvertebrate fauna that would be expected to occur at a site in the absence of environmental stress such as pollution, habitat degradation or flow regulation. A comparison of the macroinvertebrates expected to occur at the test site with those actually collected (O/E ratio) provides a site specific measure of the biological impairment of the test site. Further details about AUSRIVAS can be found at:

www.ausrivas.canberra.edu.au/ausrivas



Fig: Montagu River at Stuarts Road.

Montagu River at Stuarts Road

This site is located in the lowest reaches of the Montagu River at the DPIW streamflow monitoring station (14200). The river at this point is approximately 8 metres wide displaying a natural sequence of riffle, run, and pool habitats. Bedrock is the dominant substrate within pools and runs, whilst riffles tend to flow over pebble and cobble substrate. Although the riparian zone on both banks is in good condition, the width has been reduced. Clearing of the right bank (facing downstream) has been for pasture development and has left a 5 to 10 metre buffer, whilst on the left bank clearing of the understorey has occurred to within 10 metres of the river.

Combined season AUSRIVAS assessments of the riffle and edgewater habitats indicate that the macroinvertebrate fauna is similar to that expected under reference conditions (Band A). Combined season riffle habitat outputs are not available for Spring 2004/Autumn 2005 due to high flows during the Spring 2004 sampling round.

For the edgewater habitat, single season data indicates that habitat availability rather than water quality is likely to impact on macroinvertebrate fauna diversity. Juvenile specimens of the giant freshwater lobster (*Astacopsis gouldii*) have been recorded at this site.

Name	Season	Riffle		Edgewater	
		O/E Taxa	Band	O/E Taxa	Band
Montagu River at Stuarts Rd	Spr03/ Au04	1	A	0.95	A
	Spr04/ Au05		NS	1.09	A
	Spr05/ Au06	0.95	A	1	A
	Spr06/ Au07	0.9	A	1.09	A
	Spr07/ Au08	0.95	A		NS
	Au08/ Spr08	1.05	A		NS

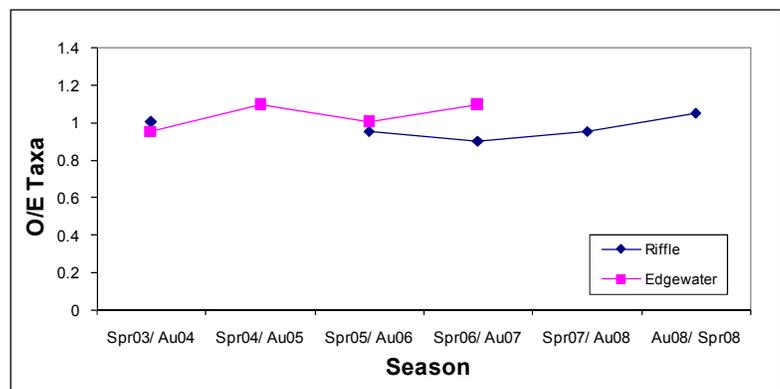


Fig: Combined season AUSRIVAS O/E Taxa scores for the Montagu River at Stuarts Road.