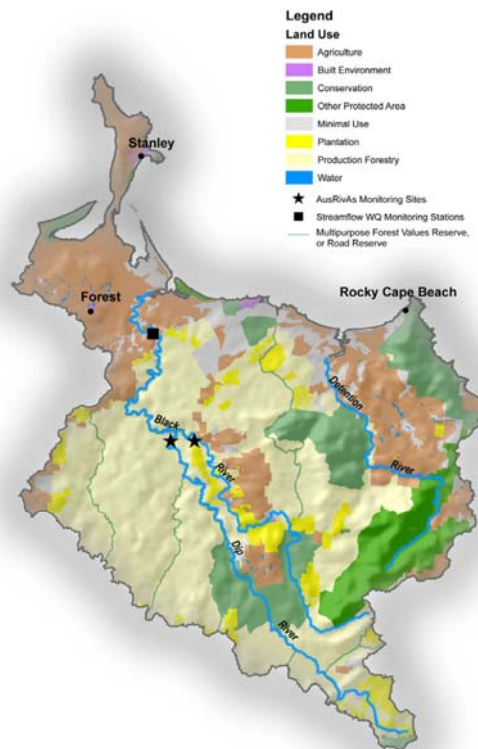


Black - Detention Catchment

Contents

1. About the catchment
2. Streamflow and Water Allocation
3. Water Quality
4. River Health



1. About the catchment

The Black – Detention catchment is about 645 km² in area and is drained by three main rivers; the Black River (55 km), the Dip River (35 km), and the Detention River (23 km) which drains the eastern side of the catchment and flows into Bass Strait at Hellyer. The catchment also contains a number of small creeks and streams that discharge directly into the sea, most notably Wilsons Creek, Crayfish Creek and Grays Creek near Stanley.

The catchment is bounded on the eastern side by the Dip Range (elevation ~500m) but is otherwise a low-relief catchment with most of its area below 250m. Annual rainfall is about 935 mm at the coast and increases to about 1600 mm in the headwater area (as recorded at Preolenna).

There are a variety of land-uses in the catchment, with forest harvesting and plantation forestry occurring inland and agricultural activities (mostly grazing) largely centred on the coastal region.

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2. Streamflow & Water Allocation

A single streamflow monitoring station is maintained in this catchment as part of the DPIWE State-wide monitoring network, and this is located on the Black River at South Forest (station 14213).

Total Water Allocation

The following table shows the breakdown of water allocations in the catchment.

	Total Allocation
Irrigation	9,257 ML
Stock & Domestic	325 ML
Water Supply	0 ML
Other	71 ML

Of the total licensed water allocation within this catchment, 8,225 ML is stored within constructed storages and 1,428 ML is extracted directly from rivers and streams.

Water Use Restrictions

There are a number of sites in the catchment where water restriction triggers have been developed. These are presented below, and indicate flows when water restrictions are normally considered.

Location	Trigger
Black River at Mawbanna Rd	2.6 ML/day
Detention River at Coopers Rd	2.2 ML/day

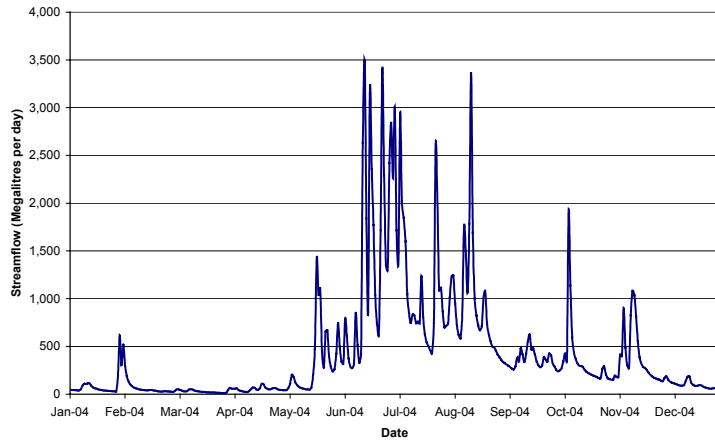


Fig: Time series of streamflow in the Black River at South Forest (station 14213) during 2004.

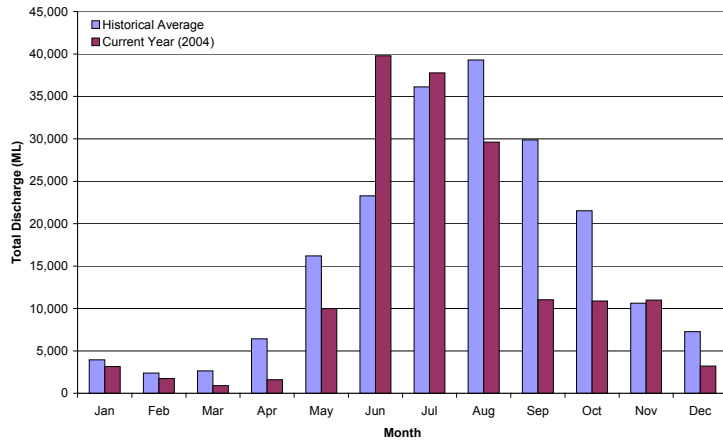


Fig: Comparison of the total monthly discharge with historical average monthly discharge for the the Black River at South Forest (station 14213).

3. Water Quality

Water quality monitoring under the DPIWE Statewide monitoring strategy consists of periodic sampling at four to six-weekly intervals at a single location within the catchment:

- Black River at South Forest (station 14213).

Sampling consists of spot measurements of selected water quality parameters on-site (water temperature, turbidity, conductivity, pH and dissolved oxygen), as well as the collection of bottled samples for nutrient analysis later in the Analytical Services Tasmania laboratory.



Fig: Black River at South Forest.

Links

1. Surface water quality DPIWE website
www.dpiwe.tas.gov.au/waterquality

2. ANZECC 2000 guidelines
www.deh.gov.au/water/quality/nwqms/volume1.html

Black River at South Forest	Minimum	Median	Maximum	Number of samples
Temperature (deg C)	6.3	11.9	18.6	14
Turbidity (NTU)	3.03	5.12	42.4	14
Electrical Conductivity (μS/cm)	105	115	145	14
Field pH	4.46	6.08	7.37	12
Dissolved Oxygen (mg/L)	7.88	9.15	12.16	12
Dissolved Oxygen (percent saturation)	81.7	88.5	103.4	12
Total Nitrogen (mg/L)	0.43	0.545	1.29	14
Total Phosphorus (mg/L)	0.012	0.017	0.053	14
Dissolved Reactive Phosphorus (mg/L)	< 0.002	0.003	0.005	14
Nitrate-N (mg/L)	0.009	0.043	0.176	14
Nitrite-N (mg/L)	0.004	0.004	0.007	14
Ammonia-N (mg/L)	0.009	0.019	0.044	14

All statistics derived from periodic spot samples.

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

AUSRIVAS assessments are carried out at two locations in the Black River catchment;

- Dip River at Gibsons Creek Rd; and
- Black River at Black River Picnic Grounds



Fig: Dip River at Gibsons Creek Rd.

Dip River at Gibsons Creek Road

This site is located 700 metres above the confluence of the Dip and Black rivers. This reference site is surrounded by dense native vegetation with little intrusion by exotic species. The river consists of a shallow run flowing over predominantly bedrock substrate. Submerged macrophytes have been estimated to cover 10 to 30% of the stream reach. Water quality variables were mostly within the ranges for this type of river.

The macroinvertebrate fauna is diverse with an average of 26 families found in the riffle habitat and 19 families in the edgewater. The threatened giant freshwater lobster *Astacopsis gouldii* has also been recorded at this site on a number of occasions. This site has been continuously sampled since Spring 1994 and single and combined season AUSRIVAS assessments have consistently classified this site as equivalent to reference (Band A) or above (Band X) for both riffle and edgewater habitats.

Season	O/E Taxa	Band	O/E Taxa	Band
	Riffle		Edgewater	
Spr94/ Au95	1.16	X	1.01	A
Spr95/ Au96	1.06	A	0.94	A
Au97/ Spr97	1.05	A	1.07	A
Au98/ Spr98	1.06	A	0.95	A
Au99/ Spr99	1.05	A	1.07	A
Au00/ Spr00	1.02	A	1.19	X
Au01/ Spr01	1.07	A	1.09	A
Au02/ Spr02	1.1	A	1.03	A
Au03/ Spr03	1.04	A	1.14	A
Spr03/ Au04	1.09	A	1.15	X

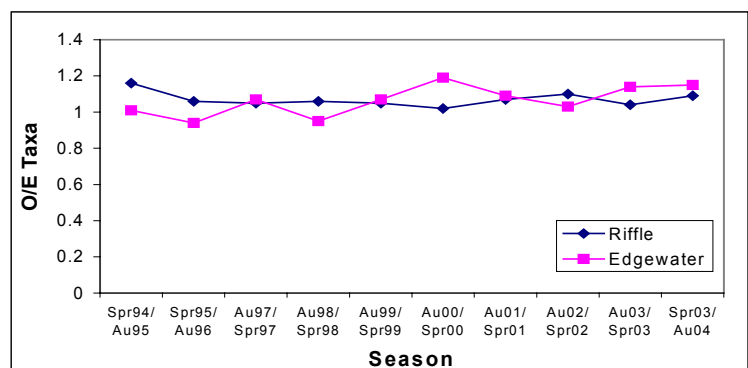


Fig: Combined season AUSRIVAS O/E Taxa scores for the Dip River at Gibsons Creek Road.

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Black River at Black River picnic ground

This site, located in the lower reaches of the Black River, is surrounded by thick native riparian vegetation and is in an undisturbed state with the exception of a small picnic area immediately adjacent to the site.

The river is approximately 23 metres wide and consists of a shallow riffle / run over pebble cobble substrate. A ford above the sampling site alters the hydraulics of the river but only under low flow conditions. A large number of trees and branches have been relocated to the edges of the river and these provide good edgewater habitat. Water quality at the site was consistently good.

Fifty-two single and combined season AUSRIVAS assessments indicate that the site has always been in very good condition with only the combined 1999 riffle assessment falling below the 'equivalent to reference' (Band A) condition. The threatened giant freshwater lobster *Astacopsis gouldii* has been recorded at this site.

An electrofishing survey carried out in autumn 2001 found short finned eels (*Anguilla australis*), blackfish (*Gadopsis marmoratus*), brown trout (*Salmo trutta*), freshwater flathead (*Pseudaphritis urvillii*), jollytails (*Galaxias maculatus*) and the spotted galaxias (*Galaxias truttaceus*).



Fig: Black River at Black River picnic area.

Season	O/E Taxa	Band	O/E Taxa	Band
	Riffle		Edgewater	
Spr94/ Au95	1.04	A	1.02	A
Spr95/ Au96	1.09	A	1.15	X
Au97/ Spr97	0.97	A	1.09	A
Au98/ Spr98		NS		NS
Au99/ Spr99	0.79	B	1.06	A
Au00/ Spr00	1.03	A	1.2	X
Au01/ Spr01	1	A	1.01	A
Au02/ Spr02	1.06	A	1.01	A
Au03/ Spr03	0.92	A	1.14	A
Spr03/ Au04	0.94	A	1.15	X

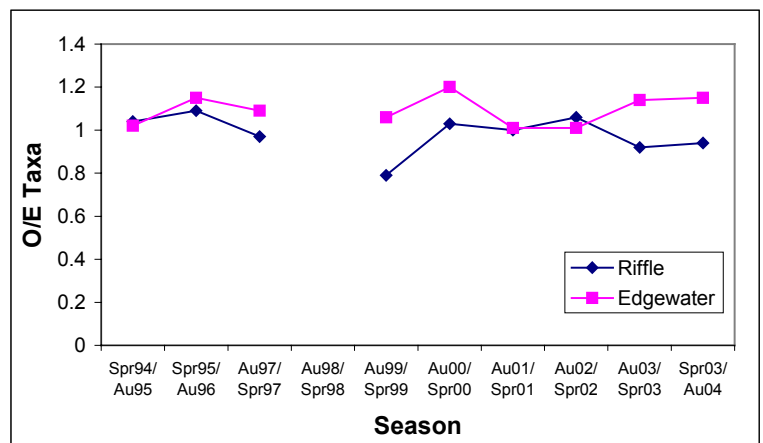


Fig: Combined season AUSRIVAS O/E Taxa scores for the Black River at Black River Picnic Area.