

*Dumaresq-Barwon  
Border Rivers Commission*



*Annual Statistics  
2002-03*



## Dumaresq-Barwon Border Rivers Commission 2002-03 Annual Statistics

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The Border Rivers Commissioners would like to record their sincere thanks to the staff from SunWater, the Queensland Department of Natural Resources and Mines, the New South Wales Department of Infrastructure, Planning and Natural Resources and the New South Wales Department's water service provider group, State Water, who provided the information and statistics for this report.

Please note that as from 1 July 2003 the Commission's reporting period for statistics will be 1 July to 30 June rather than the former reporting period of 1 October to 30 September.

# Water infrastructure

**Table 1 - Key features of Border Rivers Commission works**

Name	Stream	AMTD (km)	Nearest town/s	Description	F.S.L above bed (EL)	Storage capacity (ML)	Date completed
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## DAMS

Glenlyon Dam	Pike Creek	6.4	Stanthorpe Tenterfield Texas	Earth & rockfill	47.4	254,000	1976
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## WEIRS

Boggabilla Weir	Macintyre River	283.5	Boggabilla Goondiwindi	Reinforced concrete and earthfill	8.5	5,850	1991
Boomi Weir	Macintyre River	147.0	Boomi	Steel sheetpiling	4.1	354	1960
Bonshaw Weir	Dumaresq River	126.7	Texas	Steel sheetpiling	2.9	617	1953/58
Coomonga Weir	Coomonga Creek		Toobeah	Steel sheetpiling			1986
Cunningham Weir	Dumaresq River	67.9	Texas	Timber piled (written-off)	4.6	543	1954
Glenarbo Weir	Dumaresq River	5.7	Yelarbo	Steel sheetpiling	2.7	353	1959
Goondiwindi Weir	Macintyre River	268.8	Goondiwindi	Timber crib (fish ladder added)	2.8	1,800	1942
Mungindi Weir	Barwon River	4.8	Mungindi	Steel sheetpiling	3.6	730	1936/65

## REGULATORS

Boomi Regulator	Boomi River		Boomi	Steel sheetpiling with hardwood dropboards			1960
Newinga Regulator	Barwon to Weir River flood channel		Talwood	Reinforced concrete with aluminium dropboards			1993
Regulator No 1	Balonne Minor	163.5	Dirranbandi	Steel sheetpiling with rock protection			1974
	Culgoa River	162.6	Dirranbandi	Steel sheetpiling with rock protection			1974
Regulator No 2	Balonne Minor	128.9	Dirranbandi	Steel sheetpiling with rock protection			1974
	Donnegri River	14.9	Dirranbandi	Steel sheetpiling with rock protection			1974
Regulator No 3	Ballandool River	91.4	Dirranbandi	Steel sheetpiling with rock protection			1974
	Bokhara River	79.8	Dirranbandi	Steel sheetpiling with rock protection			1974
Regulator No 4	Birrie River	274.7	Goodooga	Steel sheetpiling with rock protection			1974
	Bokhara River	276.2	Goodooga	Steel sheetpiling with rock protection			1974

## OTHER

Little Weir River Diversion	Barwon River		Mungindi	Excavated channel and box culverts			1986
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**Table 2 - Glenlyon Dam monthly storage volumes (megalitres)**

End of month	2001-02	2002-03
September	136,734	118,088
October	136,102	111,846
November	148,019	101,128
December	147,665	76,844
January	136,820	35,822
February	121,454	29,287
March	128,165	29,043
April	128,338	28,956
May	126,982	28,648
June	126,020	28,383
July	124,727	
August	122,140	
September	118,058	

<sup>1</sup> Storage volumes in this table are at 24:00 hrs on the last day of each month as recorded by GS 416315A

**Table 3 - Glenlyon Dam monthly releases / spillway flows (megalitres)**

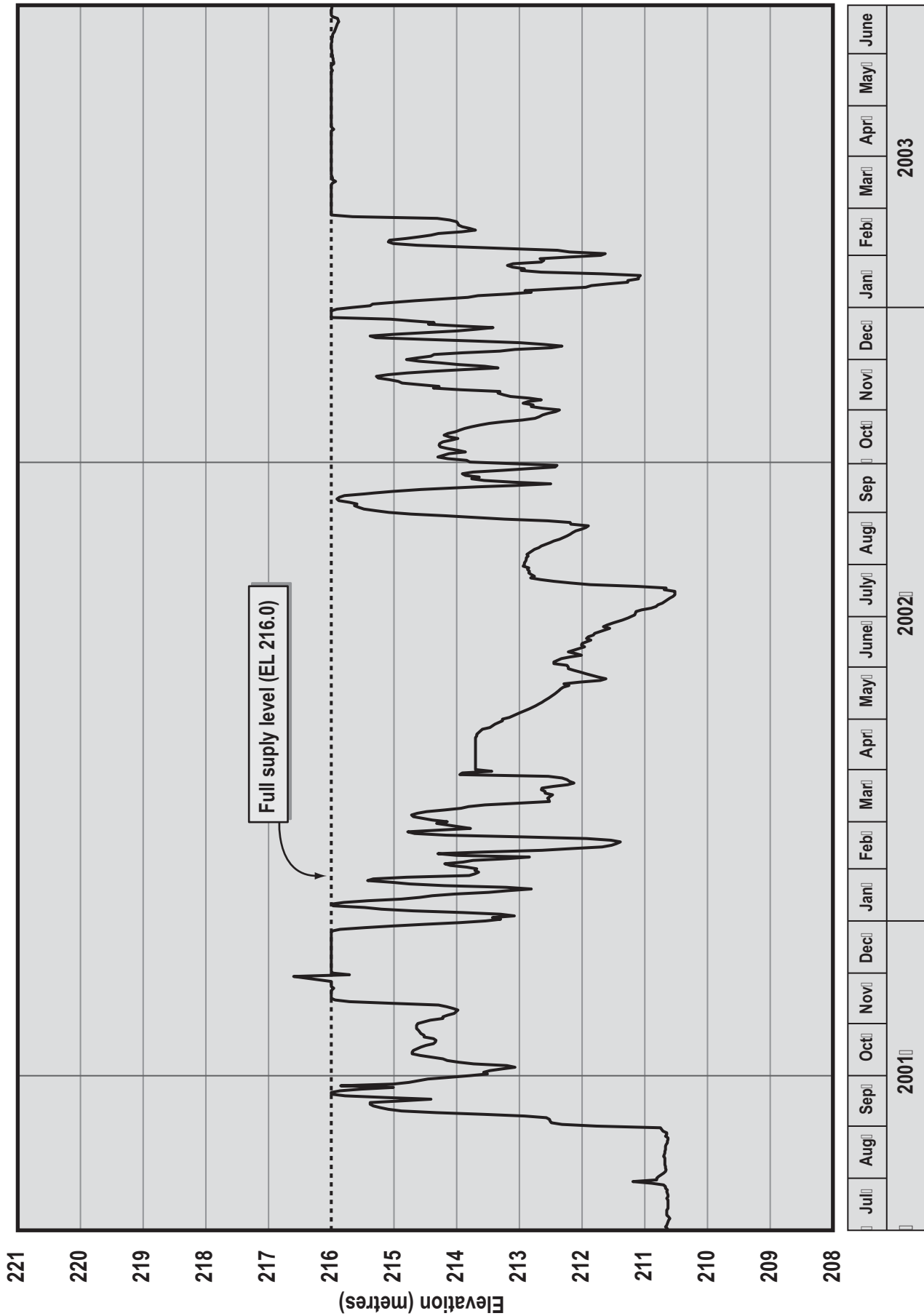
Month	2001-02		2002-3	
	Release	Spillway flows	Release	Spillway flows
October	551	0	6,405	0
November	515	0	9,783	0
December	155	0	22,415	0
January	9,214	0	42,901	0
February	14,334	0	7,536	0
March	7612	0	109	0
April	180	0	114	0
May	341	0	106	0
June	386	0	114	0
July	474	0		
August	2,177	0		
September	3,618	0		

**Table 4 - Glenlyon Dam recreation statistics**

1 October 01 - 30 Sept 02		1 October 02 - 30 June 03	
Visitors	Camp sites occupied	Visitors	Camp sites occupied
27,706	5,809	60,622	4,296

<sup>1</sup> The difference in the 2001-02 and 2002-03 visitor numbers is due to a change in the method used to interpret the vehicle counter statistics.

Figure 1 - Boggabilla Weir storage levels 2001-03



# Resource allocation, sharing and use

**Table 5 - Irrigation licences - Border Rivers catchment upstream of Mingoola**

	Number of licences		
	New South Wales	Queensland	Total
Dumaresq River and Tributaries above Mingoola (excluding licences on Glenlyon Dam or Pike Creek downstream of Glenlyon Dam)	107	344	451

**Table 6 - Irrigation, off-allocation, waterharvesting, industrial & town water licences and offstream storages - Border Rivers regulated section**

	Number of licences		Allocations (Megalitres)		Off-stream Storages (Megalitres) (Number of storages)	
	NSW	QLD	NSW	QLD	NSW	QLD
Pike Creek and Dumaresq River from Glenlyon Dam to Bonshaw Weir	25	32	7,144	6,628	0	0
Dumaresq River from Bonshaw Weir to Cunningham Weir (excluding Texas town)	19	26	5,723	5,896	0	0
Texas Town		1		270		
Dumaresq River from Cunningham Weir to Macintyre River junction (excluding Yelarbon town)	15	36	4,939	6,486	400 (1)	6,300 (5)
Yelarbon Town		1		106		
Macintyre River from Dumaresq River junction to Goondiwindi Weir (excluding Goondiwindi & Boggabilla towns)	11	48	58,060	32,776	25,700 (5)	125,850 (51)
Boggabilla Town	1		320			
Goondiwindi Town		1		1,800		
Macintyre River from Goondiwindi Weir to Boomi Weir	16	21	105,191	9,240	77,560 (16)	25,210 (15)
Macintyre River and Barwon River from Boomi Weir to Mungindi Weir (excluding Mungindi town)	19	41	61,590	21,570	48,100 (8)	119,370 (53)
Mungindi Town	1		320			
<b>Totals</b>	<b>107</b>	<b>207</b>	<b>243,287</b>	<b>84,772</b>	<b>151,760</b>	<b>276,730</b>

**Table 7 - Water use from the Border Rivers 1 October 01 - 30 September 02 (megalitres)**

	On-allocation			Off-allocation		
	NSW	QLD	Total	NSW	QLD	Total
Pike Creek and Dumaresq River from Glenlyon Dam to Bonshaw Weir	1,819	1,534	3,353	636	550	1,186
Dumaresq River from Bonshaw Weir to Cunningham Weir (excluding Texas town)	2,409	3,551	5,960	1,226	230	1,456
Texas Town	-	277	277	-	-	-
Dumaresq River from Cunningham Weir to Macintyre River junction (excluding Yelarbon town)	522	2,713	3,235	215	2,326	2,541
Yelarbon Town	-	83	83	-	-	-
Macintyre River from Dumaresq River junction to Goondiwindi Weir (excluding Goondiwindi & Boggabilla towns)	35,430	14,088	49,518	9,466	14,931	24,397
Boggabilla Town	176	-	176	-	-	-
Goondiwindi Town	-	2,038	2,038	-	-	0
Macintyre River from Goondiwindi Weir to Boomi Weir	59,605	4,674	64,279	14,862	6,585	21,447
Macintyre River and Barwon River from Boomi Weir to Mungindi Weir (excluding Mungindi town)	33,817	10,723	44,540	15,750	26,788	42,538
Mungindi Town	333	-	333	-	-	-
<b>Totals</b>	<b>134,111</b>	<b>37,283</b>	<b>171,394</b>	<b>42,155</b>	<b>51,410</b>	<b>93,565</b>

1 The above water use statistics include the use of water released into the Border Rivers from Pindari Dam which is owned and operated by New South Wales and Coolmunda Dam which is owned and operated by SunWater. Water temporarily transferred from one state to the other is reported as being use in the state of origin not the state of destination.

**Table 8 - Water use from the Border Rivers 1 October 02 - 30 June 03 (megalitres)**

	On-allocation			Off-allocation		
	NSW	QLD	Total	NSW	QLD	Total
Pike Creek and Dumaresq River from Glenlyon Dam to Bonshaw Weir	2,461	975	3,433	208	418	626
Dumaresq River from Bonshaw Weir to Cunningham Weir (excluding Texas town)	3,645	558	4,203	236	140	376
Texas Town	-	197	197	-	-	-
Dumaresq River from Cunningham Weir to Macintyre River junction (excluding Yelarbon town)	428	1,972	2,426	27	790	817
Yelarbon Town	-	60	60	-	-	0
Macintyre River from Dumaresq River junction to Goondiwindi Weir (excluding Goondiwindi & Boggabilla towns)	33,468	10,856	44,604	230	3,031	3,261
Boggabilla Town	135	-	135	-	-	-
Goondiwindi Town	-	1,496	1,496	-	-	-
Macintyre River from Goondiwindi Weir to Boomi Weir	60,500	5,921	67,171	792	1,988	2,780
Macintyre River and Barwon River from Boomi Weir to Mungindi Weir (excluding Mungindi town)	15,482	8,901	30,242	1,317	4,717	6,034
Mungindi Town	269	-	269	-	-	-
<b>Totals</b>	<b>116,388</b>	<b>30,936</b>	<b>154,236</b>	<b>2,810</b>	<b>11,084</b>	<b>13,894</b>

1 The above water use statistics include the use of water released into the Border Rivers from Pindari Dam which is owned and operated by New South Wales and Coolmunda Dam which is owned and operated by SunWater. Water temporarily transferred from one state to the other is reported as being use in the state of origin not the state of destination.

**Table 9 – Resource assessments for the Border Rivers 1 October 01 - 30 September 02 (gigalitres)**

Date of assessment	Queensland Accounts					New South Wales Accounts					
	Storage loss	Essential supplies	General use	Delivery loss	Total	Storage loss (Glenlyon Dam)	Storage loss (Pindari Dam)	Essential supplies	General use	Delivery loss	Total
1 October	6.42	10.96	44.85	13.46	75.69	5.00	17.28	62.20	201.97	60.60	347.05
1 November	5.98	10.81	44.65	13.40	74.84	5.03	17.45	61.67	200.82	60.26	345.23
1 December	6.56	10.96	47.56	14.28	79.35	5.54	17.93	62.20	225.25	67.58	378.50
1 February	5.54	10.96	37.56	11.28	65.34	5.88	14.73	62.20	163.43	49.04	295.29
1 March	5.46	10.96	35.01	10.52	61.95	5.18	13.69	62.20	136.03	40.82	257.91
1 April	5.52	10.96	36.29	10.91	63.68	5.44	13.62	62.20	137.42	41.23	259.91
1 May	5.52	10.80	36.29	10.91	63.52	5.47	13.44	62.20	138.28	41.49	260.88
1 June	5.07	10.53	36.25	10.90	62.75	5.03	13.03	61.3	138.28	41.49	259.13
1 July	4.88	10.40	36.08	10.85	62.21	4.96	12.95	60.81	138.28	41.49	258.49
1 August	4.32	10.25	36.06	10.84	61.47	4.43	12.42	58.90	138.28	41.49	255.52
1 September	3.69	10.11	35.90	10.79	60.49	3.73	11.58	58.86	133.01	38.56	245.74
1 October	5.07	10.96	31.23	9.23	56.49	5.18	11.74	58.55	117.38	33.87	226.72

1 Resource assessments based on a system of continuous accounting commenced in the Border Rivers on 1 October 2001.

2 The resource assessments take into account the water stored in Glenlyon Dam as well as the water stored in Pindari Dam. The water stored in Pindari Dam is available only to NSW. The water stored in Glenlyon Dam is shared between NSW and Qld in the ratio 57:43.

**Table 10 – Resource assessments for the Border Rivers 1 October 02 - 30 June 03 (gigalitres)**

Date of assessment	Queensland accounts						New South Wales accounts						
	Storage loss	Essential supplies	Essential supplies delivery loss	General use	General use delivery loss	Total	Storage loss (Glenlyon Dam)	Storage loss (Pindari Dam)	Essential supplies	Essential supplies delivery loss	General use	General use delivery loss	Total
1 October	5.10	10.96	N/A	31.37	9.41	56.84	5.02	11.55	58.55	N/A	117.38	33.87	226.37
1 November	4.02	10.59	N/A	30.08	8.13	52.82	3.90	10.48	53.81	N/A	113.40	30.74	212.33
1 December	3.14	10.21	N/A	28.40	7.48	49.23	2.95	9.01	53.71	N/A	88.15	22.15	175.97
1 January	4.33	10.00	N/A	22.34	5.66	42.33	3.59	8.82	54.72	N/A	52.20	11.36	130.69
1 February	2.10	9.28	N/A	5.45	-1.37	15.46	2.38	7.48	53.28	N/A	21.83	0.64	85.61
1 March	1.60	8.98	N/A	3.93	-3.20	11.31	2.21	7.86	62.20	N/A	15.15	4.54	91.96
1 April	1.57	8.71	N/A	3.92	-3.12	11.08	2.20	7.88	62.20	N/A	15.45	4.63	92.36
1 May	2.71	10.96	N/A	4.29	1.29	19.25	1.04	8.34	62.2	N/A	17.15	5.15	93.88
1 June	2.54	8.20	2.76	3.41	1.03	17.94	1.16	8.50	46.60	15.60	18.23	5.48	95.57
1 July	2.44	8.08	2.72	3.41	1.03	17.69	1.17	8.51	46.60	15.60	18.31	5.51	95.70

1 The resource assessments take into account the water stored in Glenlyon Dam as well as the water stored in Pindari Dam. The water stored in Pindari Dam is available only to NSW. The water stored in Glenlyon Dam is shared between NSW and Qld in the ratio 57:43.

2 The resource assessment process was amended as from the 1 June 2003 to account separately for the essential supplies and the essential supplies delivery loss.



**Table 11 - Access opportunities to unregulated flows from the Border Rivers**

Month	Number of days			
	1 October 01 – 30 September 02		1 October 02 – 30 June 03	
	Glenlyon to Goondiwindi	Goondiwindi to Mungindi	Glenlyon to Goondiwindi	Goondiwindi to Mungindi
October	-	-		
November	0.3	-		
December	16	17	Limited access permitted (both states)	Limited access permitted (both states)
January	-	-		
February	-	-	1 (Qld only)	1 (Qld only)
March	1	-		
April	1	7		
May	-	-		0.5 (d/s of Boomi only)
June	-	-		
July	-	-		
August	-	-		
September	-	-		

1 1 day waterharvesting in Queensland is generally equivalent to 3 percent off-allocation pumping in New South Wales.

**Table 12 – Irrigated production in the Border Rivers (hectares)**

Crop	2001-02			2002-03		
	NSW	Qld	TOTAL	NSW	Qld	TOTAL
Cotton	36,350	29,670	66,020	26,420	13,648	40,068
Lucerne	400	430	830	380	469	849
Cereals	1,480	4,480	5,960	880	3,480	4,360
Peanuts	210	570	780	200	0	200
Fodder crops	500	130	630	400	971	1,371
Horticultural crops	240	30	270	225	151	376
Other	560	760	1,320	100	227	327
<b>Total</b>	<b>39,740</b>	<b>36,070</b>	<b>75,810</b>	<b>28,605</b>	<b>18,946</b>	<b>47,551</b>

1 The statistics for each year include the winter crop areas planted during the year.

**Table 13 - Groundwater licences in the Border Rivers Groundwater Area**

	NSW	Qld <sup>(2)</sup>
Issued allocation	20,871 <sup>(1)</sup>	14,729
Issued allocation (100% surface water allocation)	13,977	-
Issued allocation (0% surface water allocation)	20,871	-
Allocation issued, bores constructed	20,871	14,421
Allocation issued, bores not constructed	4	308
Number of licences	65	38
Number of bores constructed	61	37
Number of applications outstanding	0	9

(1) This amount does not include 2 unrestricted perpetual licences for which a volumetric entitlement has not yet been determined.

(2) The Queensland figures do not include the allocation issued in the shallow aquifer, which is about 3,500 ML.

**Table 14 - Groundwater use in the Border Rivers Groundwater Area (megalitres)**

1 Oct 01 – 30 Sept 02		1 Oct 02 – 30 June 03	
NSW	Qld	NSW	Qld
5,522 <sup>(1)</sup>	4,209	5,530	6,967

(1) Figure validated and amended following compilation of the 2001-02 Annual Statistics.

# Resource management

**Table 15 - Beardmore Dam compensation inflow, storage and releases**

Month	2001-02			2002-03		
	Inflow (ML)	Release (ML)	Storage at end of month (ML)	Inflow (ML)	Release (ML)	Storage at end of month (ML)
June	0	0	564	0	0	0
July	1,670	0	2,230	187	0	180
August	0	0	2,000	1,404	0	1,575
September	0	500	1,500	3,995	0	945 <sup>(2)</sup>
October	0	1,200	300	0	0	0 <sup>(2)</sup>
November	3,650	464	3,180	0	0	0
December	14,200	15,600	2,120	0	0	0
January	6,500	7,840	781	0	0	0
February	6,860	3,690	3,950	0	0	0
March	6,260	10,200	0	1,680	0	1,654
April	10,600	15,100 <sup>(1)</sup>	0	12,882	8,875	897 <sup>(2)</sup>
May	0	774	0	7,389	12,793 <sup>(3)</sup>	0
June	0	0	0	3714		3705
<b>Totals</b>	<b>49,740</b>	<b>55,368</b>		<b>31,251</b>	<b>21,668</b>	

(1) Includes 5,172 megalitres contributed by St George allocation holders.

(2) In Sept-02, Oct-02 & Apr-03 the amounts of 4,516 ML, 931 ML & 2,836 ML, respectively, were deducted from the compensation storage to repay the allocation holders who contributed water to the 2001-02 compensation release.

(3) The compensation release for the month of May-03 includes 4,532 ML of water contributed by St George allocation holders.

**Table 16 - Guidelines for physical and chemical stressors - ANZECC (2000)**

Water quality indicator		Default trigger value <sup>(1)</sup>	Notes
Salinity ( $\mu\text{Scm}^{-1}$ )	Upland rivers <sup>(2)</sup>	350	Conductivity may be higher during low flow periods.
	Lowland rivers	300	
	Lakes and reservoirs	20 - 30	Conductivity in lakes and reservoirs is generally low but will vary depending on catchment geology.
Turbidity (NTU)	Upland rivers <sup>(2)</sup>	25	High turbidities may be observed during high flow events.
	Lowland rivers	50	
	Lakes and reservoirs	1 - 20	Deep reservoirs will generally have a lower turbidity than shallow reservoirs.
Total Nitrogen ( $\text{mgL}^{-1}$ )	Upland rivers <sup>(2)</sup>	0.20	
	Lowland rivers	0.60	
	Lakes and reservoirs	0.35	
Total Phosphorus ( $\text{mgL}^{-1}$ )	Upland rivers <sup>(2)</sup>	0.02	Above these levels excessive algal growth may occur.
	Lowland rivers	0.05	
	Lakes and reservoirs	0.01	

(1) The default trigger values provide a guide to the value or range of values of the specific water quality indicator, which, if exceeded, may indicate conditions detrimental to the health of the ecosystem which may require management action.

(2) Upland rivers are those above 150m altitude.

**Table 17 - Summary of water quality 2001-02**

Basin	Site no	Location	Electrical Conductivity $\mu\text{S/cm}$				Total Phosphorus (mg/L)				Total Nitrogen (mg/L)				Turbidity (NTU)			
			N	10th %ile	Med	90th %ile	N	10th %ile	Med	90th %ile	N	10th %ile	Med	90th %ile	N	10th %ile	Med	90th %ile
Dumaresq Tributaries	416003	Tenterfield Creek, Clifton	8	379	498	528	8	0.013	0.044	0.081	8	0.368	0.545	0.873	8	1.3	3.3	8.1
	416310	Severn River at Farnbro	0				0				0				0			
	416303	Pike Creek U/S Glenlyon Dam	2	245	266	287	2	0.024	0.029	0.034	2	0.398	0.430	0.462	2	5.9	6.5	7.1
	416309	Pike Creek at Glenlyon Dam Tailwater	12	188	195	208	12	0.014	0.032	0.117	12	0.551	0.620	0.981	12	1.7	3.4	5.6
	416032	Mole River, Doldson	10	157	223	256	10	0.023	0.033	0.052	10	0.286	0.385	0.544	10	6.7	13.2	20.4
	416008	Beardy River, Haystack No. 4	11	180	218	283	11	0.040	0.046	0.075	110	0.360	0.500	0.670	11	6.4	9.8	60.0
	416312	Oaky Creek at Texas	12	564	746	850	12	0.031	0.106	0.135	12	0.524	0.790	1.690	12	13.3	21.0	49.5
	416415	Macintyre Brook, Booba Sands	12	314	477	735	12	0.042	0.066	0.119	12	0.603	0.855	1.080	12	9.2	14.5	50.0
Dumaresq	416007	Bonshaw Weir	12	194	250	288	12	0.026	0.038	0.059	12	0.370	0.430	0.520	12	7.0	11.5	19.9
	416049	Mauro	12	185	238	320	12	0.026	0.044	0.067	12	0.401	0.440	0.535	12	7.1	13	23.9
Macintyre	416012	Holdfast	12	217	281	424	12	0.068	0.105	0.158	12	0.395	0.555	0.818	12	8.5	15.5	65.8
	416201	Goondiwindi	12	223	277	372	12	0.067	0.094	0.125	12	0.421	0.495	0.711	12	6.5	18.5	38.8
	416043	Boomi Weir	12	196	268	338	12	0.067	0.091	0.129	12	0.480	0.530	0.737	12	35.1	45.0	85.0
Weir	416202	Talwood	10	99	131	155	10	0.128	0.164	0.303	10	0.939	1.050	1.950	10	213	405	630
Intersecting Streams	424002	Willara Crossing on Paroo	13	80.6	106	115	13	0.15	0.19	0.26	13	0.87	1.00	1.28	13	268	400	115
	423002	Fords Bridge Bywash on Warrego	6	136	144	148	5	0.18	0.24	0.42	5	0.71	0.89	2.08	6	156	380	148
	422015	Culgoa River at Brenda	8	186	207	267	8	0.11	0.15	0.20	8	0.70	0.89	1.02	8	267	370	267
	422014	Bokhara River at Goodooga	10	182	330	498	10	0.13	0.22	0.39	10	0.94	1.45	1.70	10	219	420	498
	422013	Birrie River near Goodooga	4	175	233	306	4	0.18	0.28	0.35	4	0.81	1.09	1.30	4	311	405	485
	422012	Narran River at New Angledool	10	172	190	296	10	0.06	0.10	0.19	10	0.56	0.77	0.98	10	11	65	500
Storages	416315	Glenlyon 1: Top	11	183	191	205	11	0.015	0.024	0.029	11	0.720	0.750	0.860	11	2.5	2.5	5.0
		Glenlyon 1: Middle	12	184	189	204	12	0.011	0.022	0.025	12	0.721	0.770	0.870	12	1.72	2.2	6.9
		Glenlyon 1: Bottom	12	183	192	205	12	0.017	0.027	0.172	12	0.740	0.875	1.380	12	2.71	3.95	6.0

1 The table provides information on the median value (middle value), the 10<sup>th</sup> percentile (10% of the samples are below this value) and the 90<sup>th</sup> percentile (90% of the samples are below this value; v.v. 10% of the samples are greater than this value)

2 Statistics are for the period 1 July – 30 June

3 No samples were taken from the Severn River at Farnbro 416310 due to lack of water

**Table 18 - Summary of water quality 2002-03**

Basin	Site no	Location	Electrical Conductivity $\mu\text{S/cm}$				Total Phosphorus (mg/L)				Total Nitrogen (mg/L)				Turbidity (NTU)			
			N	10th %ile	Med	90th %ile	N	10th %ile	Med	90th %ile	N	10th %ile	Med	90th %ile	N	10th %ile	Med	90th %ile
Dumaresq Tributaries	416003	Tenterfield Creek, Clifton	12	511	556	847	12	0.02	0.07	0.14	12	0.65	1.15	2.96	12	1.4	2.4	8.8
	416310	Severn River at Farnbro	0				0				0				0			
	416303	Pike Creek U/S Glenlyon Dam	5	279	310	322	5	0.03	0.03	0.04	5	0.23	0.40	0.51	5	0.6	0.8	3.6
	416309	Pike Creek at Glenlyon Dam Tailwater	12	192	204	257	12	0.02	0.03	0.04	12	0.63	0.70	0.88	12	1.6	2.4	3.7
	416032	Mole River, Donaldson	12	173	352	480	12	0.02	0.04	0.09	12	0.28	0.56	1.27	12	1.7	5.7	10.9
	416008	Beardy River, Haystack No. 4	12	142	170	246	12	0.03	0.04	0.06	12	0.30	0.45	0.75	12	5.3	12.5	18.7
	416312	Oaky Creek at Texas	5	641	720	1066	5	0.08	0.13	0.22	5	0.85	1.30	3.14	5	18.8	33.0	53.0
	416415	Macintyre Brook, Booba Sands	12	270	417	583	12	0.05	0.07	0.10	12	0.65	0.79	1.09	12	10.1	19.5	44.5
Dumaresq	416007	Bonshaw Weir	12	178	213	237	12	0.02	0.03	0.04	12	0.41	0.47	0.65	12	3.8	6.3	10.8
	416049	Mauro	12	188	232	330	12	0.03	0.04	0.04	12	0.47	0.51	0.61	12	4.4	7.6	19.4
Macintyre	416012	Holdfast	12	212	0307	425	12	0.06	0.08	0.15	12	0.41	0.49	0.86	12	7.9	15.0	69.5
	41610044	Salisbury Bridge (Boggabilla)	12	219	296	392	12	0.06	0.07	0.13	12	0.45	0.49	0.73	12	11.1	17.0	74.1
	416048	Kanowna	12	219	280	355	12	0.05	0.07	0.09	12	0.40	0.49	0.63	12	27.6	37.5	64.5
Weir	416202	Talwood	11	135	159	198	11	0.15	0.18	0.28	11	1.00	1.30	1.60	11	500	600	800
Intersecting Streams	424002	Willara Crossing on Paroo	134	119.4	194.0	214.0	4	0.74	0.89	1.05	4	0.09	0.18	0.22	4	154	543	676
	423002	Fords Bridge Bywash on Warrego	3	110.4	118.8	120.7	2	0.88	0.90	0.91	2	0.21	0.21	0.21	3	414	447	469
	422015	Culgoa River at Brenda	3	115.0	119.2	140.0	3	0.89	0.95	0.96	3	0.21	0.22	0.23	3	450	465	509
	422014	Bokhara River at Goodooga	134	123.1	193.9	209.5	5	0.98	1.00	1.20	5	0.20	0.22	0.26	2	593	619	645
	422013	Birrie River near Goodooga	135	117.8	169.1	222.1	7	0.62	0.64	1.08	7	0.15	0.19	0.35	7	185	191	328
	422012	Narran River at New Angledool	7	85.3	136.4	174.6	7	0.72	0.82	0.89	7	0.12	0.13	0.15	7	170	221	442
Storages	416315	Glenlyon 1: Top	12	201	213	252	12	0.02	0.04	0.04	12	0.66	0.88	1.00	12	1.3	4.2	5.1
		Glenlyon 1: Middle	12	201	214	247	12	0.01	0.03	0.04	12	0.74	0.91	1.09	12	1.9	3.5	5.5
		Glenlyon 1: Bottom	12	199	214	263	12	0.03	0.03	0.14	12	0.89	0.98	1.88	12	1.9	3.1	5.6

1 The table provides information on the median value (middle value), the 10<sup>th</sup> percentile (10% of the samples are below this value) and the 90<sup>th</sup> percentile (90% of the samples are below this value; v.v. 10% of the samples are greater than this value)

2 Statistics are for the period 1 July – 30 June

3 No samples were taken from the Severn River at Farnbro 416310 due to lack of water

**Table 19 - Stream gauging stations (Border Rivers)**

AWRC no	Stream	Station	Equipment (eee note)	Telemetry	Established date	Maintained by	2001-02 Total flow (MLx10 <sup>3</sup> )	2002-03 Total flow (MLx10 <sup>3</sup> )	Historical annual totals & (year) (MLx10 <sup>3</sup> )		
									Min	Max	Median
416001	Barwon River	Mungindi	AR	Yes	1889	DLWC	42	65	21 (1994-95)	3,288 (1955-56)	424
416002	Macintyre River	Boggabilla	AR	Yes	1895	DLWC	465	239	59 (1901-02)	5,393 (1989-90)	736
416003	Tenterfield Creek	Clifton	AR	Yes	1921	DLWC	5	1	4 (1994-95)	305 (1949-50)	35
416006	Severn River	Ashford	AR	Yes	1970	DLWC	247	127	14 (1939-40)	1483 (1949-50)	190
416007	Dumaresq River	Bonshaw Weir	AR	Yes	1934	DLWC	119	121	49 (1993-94)	1,200 (1975-76)	281
416008	Beardy River	Haystack	AR	Yes	1970	DLWC	21	13	7 (1971-72)	183 (1974-75)	31
416010	Macintyre River	Wallangra	AR	Yes	1973	DLWC	115	39	9 (1994-95)	371 (1983-84)	78
416011	Dumaresq River	Roseneath	AR	Yes	1972	DLWC	99	109	35 (1993-94)	1,798 (1955-56)	295
416012	Macintyre River	Holdfast	AR	Yes	1951	DLWC	361	174	53 (1960-61)	1,865 (1955-56)	317
416020	Otteleys Creek	Coolatai	AR	Yes	1967	DLWC	9	3	1 (1992-93)	69 (2000-01)	8
416032	Mole River	Donaldson	AR	Yes	1969	DLWC	30	17	12 (1993-94)	442 (1975-76)	75
416037	Boomi River	Offlake	AR	Yes	1973	DLWC	18	11	3 (1994-95)	125 (1983-84)	37
416040	Dumaresq River	Glenarbon Weir	AR	Yes	1996	DLWC	115	106	115 (2001-02)	819 (1997-98)	289
416043	Macintyre River	Boomi Weir	AR	Yes	1976	DLWC	140	111	20 (1994-95)	390 (1995-96)	164
416047	Macintyre River	Terrewah	AR	Yes	1985	DLWC	233	164	30 (1994-95)	1,278 (1987-88)	335
416048	Macintyre River	Kanowna	AR	Yes	1988	DLWC	105	85	24 (1994-95)	560 (1995-96)	196
416060	Macintyre River	Boggabilla Weir Downstream	AR	Yes	1997	DLWC					
416201A	Macintyre River	Goondiwindi	AR	Yes	1917	NRM	412	246	61 (1994-95)	4,488 (1955-56)	850
416201B	Macintyre River	Goondiwindi Weir	AR	Yes	1997	NRM	413	239	454 (1999-00)	1,625 (1997-98)	420
416202A	Weir River	Talwood	AR	Yes	1949	NRM	18	2.4	1 (1979-80)	688 (1995-96)	61
416305B	Brush Creek	Beebo	AR	Yes	1950	NRM	4	1.5	0 (Several)	55 (1995-96)	3
416309B	Pike Creek	Glenlyon Dam Tailwater	AR	Yes	1973	NRM	40	95	3 (1976-77)	173 (1990-91)	75
416310A	Dumaresq River	Farnbro	AR	Yes	1962	NRM	15	0.9	2 (1993-94)	407 (1975-76)	62
416312A	Oakey Creek	Texas	AR	Yes	1969	NRM	7	0.05	0 (1973-74)	100 (1995-96)	7
416315A	Pike Creek	Glenlyon Dam Headwater	AR	Yes	1977	NRM	0	0	0 (Several)	178 (1983-84)	0
416402C	Macintyre Brook	Inglewood	AR	Yes	1953	NRM	31	29	8 (1994-95)	549 (1995-96)	43
416415A	Macintyre Brook	Booba Sands	AR	Yes	1987	NRM	30	24	4 (1994-95)	637 (1995-96)	45

1 AR = automatic recorder; SG = staff gauge, Established date = HYDSYS period of record (from which all long term calculations are made).

2 2001-02 statistics are for the period 1 October 01 to 30 September 02

3 2002-03 statistics are for the period 1 October 02 to 30 June 03

**Table 20 - Stream gauging stations (Intersecting Streams)**

AWRC no	Stream	Station	Equipment (see note)	Telemetry	Established date	Maintained by	2001-02 Total flow (MLx10 <sup>3</sup> )	2002-03 Total flow (MLx10 <sup>3</sup> )	Historical annual totals & (year) (MLx10 <sup>3</sup> )		
									Min.	Max.	Median
417001	Moonie River	Gundablouie	AR	Yes	1945	DLWC	8	6	0 (Several)	628 (1982-83)	68
417204A	Moonie River	Fenton	AR	Yes	1971	NRM	6		0 (1979-80)	669 (1975-76)	71
422005	Bokhara River	Goodwin's	AR	Yes	1944	DLWC	1	3	0 (Several)	771 (1955-56)	24
422006	Culgoa River	Downstream Collerina (Kenebree)	SG	No	1944	DLWC	8	15	5 (1979-80)	2,404 (1989-90)	286
422010	Birrie River	Talawanta	SG	No	1964	DLWC	1	1	0 (Several)	380 (1975-76)	27
422011	Culgoa River	Upstream Collerina (Mundiwa)	AR	Yes	1964	DLWC	7	12	7 (2001-02)	1,009 (1970-71)	201
422012	Narran River	Angledool	SG	No	1959	DLWC	4	3	0 (Several)	609 (1982-83)	106
422013	Birrie River	Near Goodooga	SG	No	1964	DLWC	3	2	0 (1992-93)	659 (1982-83)	32
422014	Bokhara River	Goodooga	SG	No	1915	DLWC	3	2	0 (Several)	465 (1982-83)	18
422015	Culgoa River	Brenda	AR	Yes	1960	DLWC	2	14	0 (1992-93)	2,409 (1982-83)	264
422016	Narran River	Wilby Wilby	SG	No	1964	DLWC	1	1	0 (1979-80)	558 (1982-83)	105
422017	Culgoa River	Weilmoringle	SG	No	1964	DLWC	0.3	12	0 (1992-93)	946 (1983-84)	218
422204A	Culgoa River	Whyenbah	AR	Yes	1965	NRM	23	32	2 (1992-93)	1,822 (1982-83)	358
422206A	Narran River	Dirranbandi-Hebel Road	AR	Yes	1965	NRM	7	8	0 (1992-93)	1,063 (1982-83)	129
422207A	Ballandool River	Hebel-Bollon Road	AR	Yes	1965	NRM	3	3	0 (1992-93)	532 (1982-83)	17
422209A	Bokhara River	Hebel	AR	Yes	1967	NRM	8	6	1 (1992-93)	367 (1982-83)	28
422211A	Briarie Creek	Woolerbilla-Hebel Road	AR	Yes	1992	NRM	0	0	0	701 (1982-83)	8
423001	Warrego River	Fords Bridge	AR	No	1921	DLWC	2	2	1 (1997-98)	328 (1989-90)	9
423002	Warrego River	Fords Bridge (Bywash)	AR	No	1921	DLWC	18	12	0 (1957-58)	315 (1955-56)	35
423202C	Warrego River	Cunnamulla Weir	AR	Yes	1992	NRM	293	310	33 (1999-00)	1,587 (1996-97)	219
424002	Paroo River	Willara Crossing	AR	No	1975	DLWC	68	28	16 (1984-85)	2,071 (1975-76)	189
424201A	Paroo River	Caiwarro	AR	Yes	1967	NRM	143	52	26 (1984-85)	2,026 (1989-90)	324
011202	Bulloo River	Autumnvale	AR	Yes	1967	NRM	300	58	48 (1979-80)	3,211 (1973-74)	410

1 AR = automatic recorder; SG = staff gauge, Established date = HYDSYS period of record (from which all long term calculations are made).

2 2001-02 statistics are for the period 1 October 01 to 30 September 02

3 2002-03 statistics are for the period 1 October 02 to 30 June 03

**Table 21 - Groundwater monitoring network**

Bore number	Location	State	Piezometer	Depth (m)	Automatic WL recorder (Yes/No)	Year Installed	Depth to WL 2001-02		Depth to WL 2002-03	
							Max (m)	Min (m)	Max (m)	Min (m)
41640001	Keetah Crossing	Q	A	87.3	No	1985	-18.72	-3.24	-3.90	-3.56
41640001	Keetah Crossing	Q	B	46.8	No	1985	-5.39	-5.21	-5.62	-5.43
41640002	Keetah Crossing	Q	A	17.8	No	1985	-8.45	-8.34	-8.63	-8.60
41640003	Yelarbon Desert	Q	A	92.4	No	1985	-3.05	-2.66	-3.40	-3.20
41640003	Yelarbon Desert	Q	B	47.9	No	1985	-4.68	-4.35	-5.00	-4.70
41630009	Glenarbon	Q	A	93	No	1996	-25.18	-19.28	-35.71	-27.76
41630042	David Muggleton	Q	A	13.3	No	1959	-7.00	-6.89	-7.120	-7.06
41630039	'Eldorado' - Harley Girle	Q	A	16.7	No	1959	-6.33	-5.26	-6.49	-6.09
41630072	Cunningham Weir	Q	A	90.4	Yes	1985	-35.77	-25.47	-43.37	-31.91
41630072	Cunningham Weir	Q	B	41.4	Yes	1985	-32.46	-23.07	-40.40	-37.23
41630072	Cunningham Weir	Q	C	10.4	Yes	1985	-5.88	-5.66	-5.95	-5.77
41630064	Texas	Q	A	52.5	No	1985	-19.36	-13.76	-21.78	-20.20
41630064	Texas	Q	B	28.5	No	1985	-16.02	-11.24	-17.60	
41630066	Bill & Tater	Q	A	90.4	Yes	1985	-22.70	-10.15	-27.16	-18.03
41630066	Bill & Tater	Q	B	45.9	Yes	1985	-20.74	-9.40	-24.60	-19.60
41630067	Bill & Tater	Q	A	12.2	Yes	1985	-4.58	-4.01	-5.14	-4.91
41630063	Finlay's	Q	A	100.6	No	1983	-14.11	-6.2	-21.14	-9.47
41630063	Finlay's	Q	B	64.6	No	1983	-14.6	-6.1	-21.84	-9.25
41630062	Finlay's	Q	A	17.4	No	1985	-4.96	-4.38	-6.14	-5.25
41630071	Finlay's	Q	A	48.2	No	1985	-7.39	-4.54	-11.46	-7.00
41630071	Finlay's	Q	B	41.2	No	1985	7.08	-4.53	-10.94	-6.89
41630059	John Moore	Q	A	101.7	No	1985	-6.59	-6.29	-7.90	-6.73
41630069	John Moore	Q	A	92	No	1985	-15.68	-7.81	-21.18	-8.45
41630069	John Moore	Q	B	35.9	No	1985	-15.26	-8.99	-20.07	-6.63
41630069	John Moore	Q	C	15.4	No	1985	-6.76	-6.35	-9.17	-7.37
41630060	John Moore	Q	A	12.1	No	1985	-8.35	-8.03	-8.54	-8.42
41630058	John Moore	Q	A	10.6	No	1985	-7.29	-6.99	-7.46	-7.40
41630070	Phillip Harpham	Q	A	9.2	No	1985	-4.91	-4.61	-7.31	-4.67
41630004	V and E Sattolo	Q	A	11.8	No	1960	-9.94	-8.93	-11.80	-10.29
41630003	V and E Sattolo	Q	A	27.1	No	1961	-16.11	-9.89	-17.61	-11.72
41630002	V and E Sattolo	Q	A	29.9	No	1961	-15.21	-8.38	-13.83	-10.09
GW036697	Keetah Bridge	NSW	1	20	No	1987	-8.64	-8.61	-8.61	-8.67
GW036697	Keetah Bridge	NSW	2	64	No	1987	-6.05	-5.97	-6.15	-6.03
GW036697	Keetah Bridge	NSW	3	83.5	No	1987	-3.97	-3.5	-4.46	-3.93
GW040635	Smithfield Section	NSW	1	15.9	No	1960	-8.62	-8.15	-8.63	-8.28
GW040636	Smithfield Section	NSW	1	11.3	No	1960	-7.74	-7.24	-8.09	-7.97
GW040637	Smithfield Section	NSW	1	7.9	No	1960	-6.2	-5.69	-7.87	-6.67
GW040638	Smithfield Section	NSW	1	11.9	No	1960	-10.59	-9.23	-11.69	-11.65
GW40771	Smithfield Section	NSW	1	30	Yes	1994	-23.19	-19.4	-24.88	-23.93
GW40771	Smithfield Section	NSW	2	37	Yes	1994	-24.96	-21.06	-27.13	-26.4
GW40771	Smithfield Section	NSW	3	50	No	1994	-27.51	-23.09	-30.7	-28.61
GW040641	Riverstone Section	NSW	1	35	No	1960	-15.81	-7.28	-14.05	-8.62
GW040644	Riverstone Section	NSW	1	9.5	No	1960	-8.11	-7.71	-8.41	-8.34
GW040646	Riverstone Section	NSW	1	7.7	No	1960	-6.56	-5.76	-7.03	-6.92
GW040647	Hopwood Section	NSW	1	12.8	No	1959	-9.64	-9.38	-9.74	-9.60
GW040649	Hopwood Section	NSW	1	28.9	No	1959	-7.81	-7.44	-8.12	-7.94
GW040652	Hopwood Section	NSW	1	12.2	No	1959	-8.06	-7.65	-8.44	-8.3
GW40829	Lochiel Section	NSW	1	12	No	1996	-9.17	-8.82	-9.44	-9.23
GW40829	Lochiel Section	NSW	2	42	Yes	1996	-9.17	-8.82	-9.46	-9.09
GW40830	Lochiel Section	NSW	1	27	No	1996	-8.9	-8.57	-9.38	-9.18
GW40831	Lochiel Section	NSW	1	44	No	1996	-34.22	-22.81	-36.76	-32.03
GW40831	Lochiel Section	NSW	2	96	Yes	1996	-35.16	-28.28	-39.16	-32.05

1 2001-02 statistics are for the period 1 October 01 to 30 September 02

2 2002-03 statistics are for the period 1 October 02 to 30 June 03