



Fyans Creek. Courtesy Alison Pouliot

Wimmera Region

The Wimmera region is characterised by the undulating landscape of the Pyrenees and the imposing Grampians in the south, to the flat, extensive plains of the Little Desert in the north.

Two river basins form the region – Wimmera (basin 15) and Millicent Coast (basin 39).

The region includes the 'closed catchment' Wimmera basin (basin 15) and the Millicent Coast basin (basin 39), which contains a small number of creeks flowing into local wetlands in Victoria and South Australia.

With no outlet to the sea or the River Murray, streams in the Wimmera basin flow to a series of terminal lakes, some only filling in exceptionally wet years, such as Lake Hindmarsh and Lake Albacutya. The region includes more than 2,600 (or 25%) of the State's wetlands. Associated with the region's rivers, creeks, floodplains and wetlands are more than 2,000 sites of Indigenous archaeological significance and almost 2,000 species of native plants and animals.

Most of the stream length in the Wimmera basin was in moderate condition (63%), with a further 3% in excellent condition and 5% in good condition. In contrast, 18% was in poor condition and 3% was in very poor condition. Five reaches had insufficient data to allow their condition to be determined.

The Millicent Coast basin has no perennial streams. With small catchments in a relatively flat landscape, the creeks only flow in very wet conditions. All five reaches in the Millicent Coast basin had insufficient data to allow their condition to be determined.

Water Quality

Twenty reaches across the Wimmera region were assessed for water quality. Water quality in the Wimmera basin ranged from good to very poor - reach 19 on the Mackenzie River and reach 35 on Barney Creek were in good condition. Data was collected for only one reach in the Millicent Coast basin (reach 4), where water quality was found to be poor.

All reaches with water quality results had elevated levels of turbidity and generally high levels of phosphorus. The reaches of the lower Wimmera River (reaches 2-4), as well as reach 11 (upper Wimmera River) and reach 49 (Concongella Creek) had very high levels of salinity.

Hydrology

Flow stress scores varied widely across the Wimmera region, ranging from streams with highly modified flow regimes to those with natural flow regimes. No flow data was available for reaches in the Millicent Coast basin.

Drought had major impact on flow regimes in the Wimmera basin. Lower reaches of the Wimmera River (particularly reaches 2-10), reach 18 on Burnt Creek, reach 30 on Mount William Creek and reach 65 on Six Mile Creek were most impacted.

Lake Lonsdale, Lake Wartook and Taylors Lake provided 14,138 ML of environmental water to the Wimmera basin in 2011-12. Seven reaches on the Wimmera River (reaches 2-8) had a 40% compliance (2 out of 5 priority watering actions fully met) and reaches 14-16 on Mackenzie River had a 60% compliance (3 out of 5 priority watering actions fully met). Three priority watering actions were not met for the Wimmera River: the river flowed all year, so did not meet the number and duration of cease to flow events; four summer freshes and five spring freshes were not met. Two priority watering actions were not met for the Mackenzie River, as high flows meant that the cease to flow events were not met and there were flow fluctuations outside the recommended flow rates for the three spring freshes.

Flow stress was assessed at 85 reaches in the Wimmera basin. Of these, four reaches had extremely modified flows. These included Burnt Creek (reaches 18 and 19), Fyans Creek (reach 33) and Sheepwash Creek (reach 45). The highly altered flow regime on many of these reaches was due to extended periods of low summer flow, zero flow and summer stress, which is attributed to diversions for irrigation and domestic use.

In contrast, five reaches in the basin had near natural flow regimes. The most notable examples were Mackenzie River (reaches 15), Boggy Creek (reach 17) and Barney Creek (reach 35) flowing out of the Grampians in the south of the basin, with a near natural flow regime.



Wimmera River. Courtesy David Fletcher

Vegetation

Almost half (43% or 36 reaches) of the reaches assessed for streamside vegetation in the Wimmera region were in moderate condition. A further 27 reaches (32%) were in good condition with the remainder in either poor condition (15% or 13 reaches) or excellent condition (10% or 8 reaches).

Of the 84 reaches assessed for streamside vegetation across the region, five reaches were located in the Millicent Coast basin. Reach 5 (Mosquito Creek) was in the best condition, with good results for vegetation width and structure. Reaches 1-4 scored poorly, predominantly attributed to the lack of large trees and fragmented vegetation.

In the Wimmera basin, eight reaches (10%) were in near reference condition (reaches 15-17, 27, 29, 32, 34 and 35). All are located in a southern small pocket of vegetation surrounding Lake Bellfield and Wartook Reservoir.

The majority of reaches in the Wimmera basin were in either moderate (41%) or good (32%) condition. Scores reflected virtually no willows and moderate vegetation width, overhang and structure.

Streamside vegetation along reaches 62, 66-67 and 69 (Heifer Station Creek, Astons Scour and Shays Creeks respectively) was in the poorest condition in the basin, and found to be highly fragmented, narrow and lacking diversity. Reaches rated poor represented 14% of the Wimmera basin.

Physical Form

Eighty-four reaches were assessed for physical form in the Wimmera region and, of these, 79 are located in the Wimmera basin and five in the Millicent Coast basin. Assessment of fish barriers was discounted for all reaches in the Wimmera region on the basis that the addition of fish ladders would not improve physical condition scores as the fish species native to the region are not migratory. Furthermore, fish ladders would increase the spread of exotic species.

Results in the Wimmera basin were predominantly good (62% or 49 reaches), with the remainder in either excellent condition (27% or 21 reaches) or moderate condition (11% or nine reaches).

Moderate conditions were predominantly attributed to low levels of instream woody habitat. The poorest reaches in the region were reaches 30 and 69 on Mount William and Shays Creeks respectively, both of which scored poorly for levels of instream woody habitat and bank condition.

Three of the 21 reaches rated as excellent were in reference condition - reaches 27, 34 and 37, all located in the southern vegetated pocket of the basin surrounding Wartook Reservoir and Lake Bellfield.

All of the five reaches assessed in the Millicent Coast basin were rated in good condition, the scores attributed to varying but low levels of instream woody habitat and stable banks.

Burnt Creek. Courtesy WCMA



Aquatic Life

Approximately half of the reaches in the Wimmera basin were assessed for aquatic life. No reaches in the Millicent Coast basin were tested.

The majority of reaches were in moderate condition (51%), followed by 26% in poor condition and 5% in very poor condition. The remainder (18%), were in good condition, and predominantly located in the forested area in the south of the basin.

Notably, in 2004 a number of sites were assessed as in excellent condition, particularly reaches located along the length of the Wimmera River. Five years later, the results were quite different with the same reaches found to be in moderate condition. The difference was due to the severe drought conditions that prevailed at the time with much of the Wimmera River not experiencing any flow from early 2005 until late 2009.

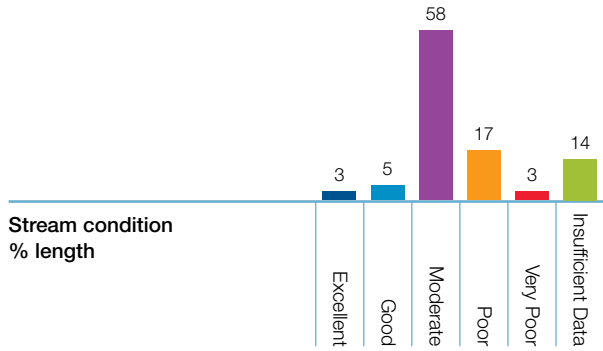


Wimmera River at Dimboola. Courtesy David Fletcher

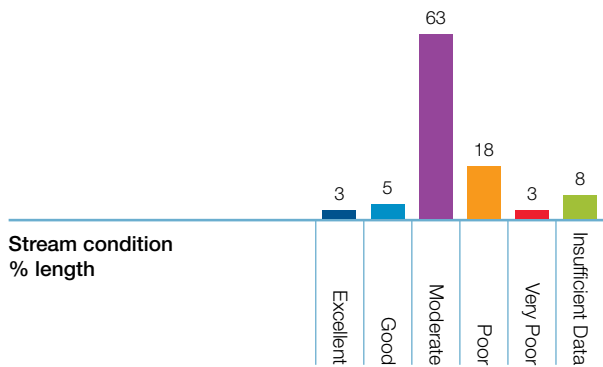


Mosquito Creek. Courtesy WCMA

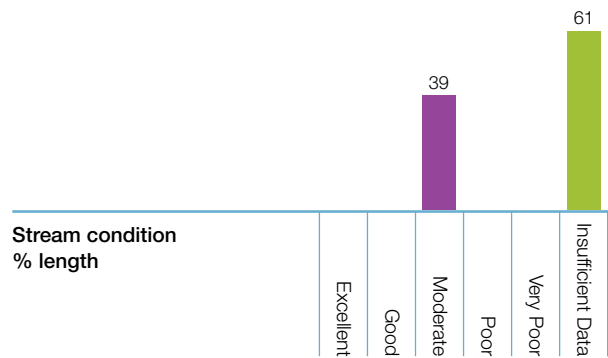
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Environmental Condition





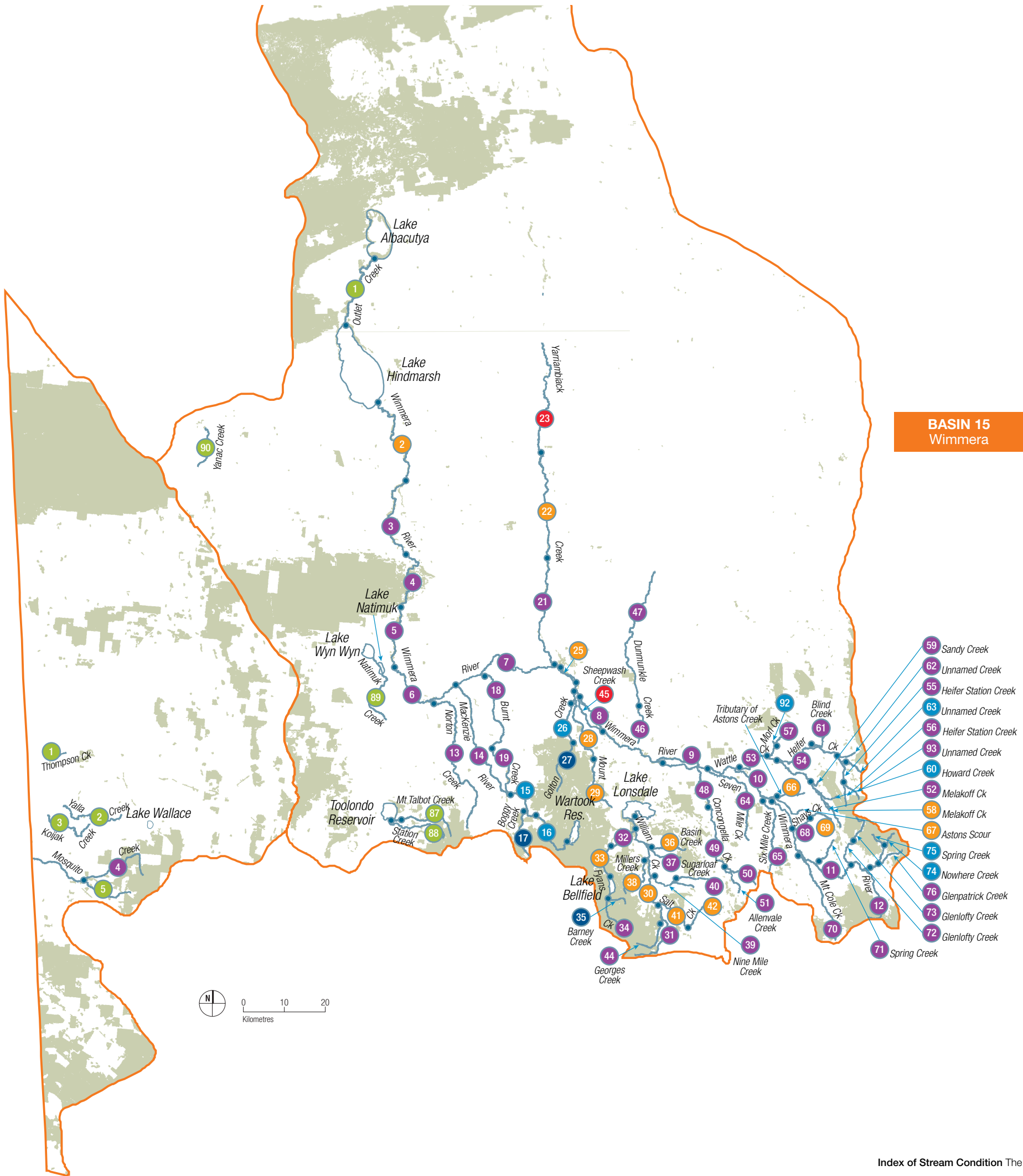
Wimmera

/ Wimmera – basin 15

/ Millicent Coast – basin 39

BASIN 39
Millicent

BASIN 15
Wimmera



- 59 Sandy Creek
- 62 Unnamed Creek
- 55 Heifer Station Creek
- 63 Unnamed Creek
- 56 Heifer Station Creek
- 93 Unnamed Creek
- 60 Howard Creek
- 52 Melakoff Ck
- 58 Melakoff Ck
- 67 Astons Scour
- 75 Spring Creek
- 74 Nowhere Creek
- 76 Glenpatrick Creek
- 73 Glenlofty Creek
- 72 Glenlofty Creek
- 71 Spring Creek

Index of Stream Condition

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Basin	Reach	Reach Length (Km)	River	Hydrology	Physical Form	Streamside Zone	Water Quality	Aquatic Life	ISC Score	Condition
15	1	36.6	Outlet Creek		8	6				Insufficient Data
15	2	35.9	Wimmera River ^{2,3}	7	9	6	4	2	22	Poor
15	3	28.4	Wimmera River ^{2,3}	7	9	7	4	4	27	Moderate
15	4	24.7	Wimmera River ^{2,3}	7	9	7	2	6	26	Moderate
15	5	20.9	Wimmera River ²	7	9	6		5	31	Moderate
15	6	29.5	Wimmera River ^{2,3}	7	9	7	3	6	28	Moderate
15	7	39.8	Wimmera River ²	7	8	6	5	5	28	Moderate
15	8	27.8	Wimmera River ²	7	7	7		6	33	Moderate
15	9	44.2	Wimmera River	6	6	8	6	7	31	Moderate
15	10	38.6	Wimmera River ³	6	8	6	4	7	28	Moderate
15	11	32.4	Wimmera River	7	7	5	3	5	24	Moderate
15	12	24.1	Wimmera River	7	7	7		6	33	Moderate
15	13	61	Norton Creek	10	10	7		4	31	Moderate
15	14	47	Mackenzie River ²	8	8	8	3		30	Moderate
15	15	14.8	Mackenzie River ^{2,3}	8	9	9	7	5	35	Good
15	16	21.1	Mackenzie River ^{2,3}	8	9	9	6	7	36	Good
15	17	18.3	Boggy Creek	10	9	9			45	Excellent
15	18	33.7	Burnt Creek ³		8	7	7	7	24	Moderate
15	19	20.6	Burnt Creek ³		8	7	8	7	24	Moderate
15	21	34.8	Yarriambiack Creek	3	8	6			26	Moderate
15	22	36.4	Yarriambiack Creek ³	3	7	6	5		23	Poor
15	23	40.8	Yarriambiack Creek	3	7	6			18	VPoor
15	25	7.6	Wimmera River	1	9	7			23	Poor
15	26	15.8	Golton Creek	9	9	5			36	Good
15	27	20.2	Golton Creek	9	10	9			45	Excellent
15	28	27.1	Mount William Creek	1	7	7		6	21	Poor
15	29	18.7	Mount William Creek ³	1	7	9	5	6	22	Poor
15	30	31.6	Mount William Creek ³	3	5	7	4	5	21	Poor

² Hydrology score based on 2011 environmental watering objectives ³ Only 1 year water quality data available

Basin	Reach	Reach Length (Km)	River	Hydrology	Physical Form	Streamside Zone	Water Quality	Aquatic Life	ISC Score	Condition
15	31	24.2	Mount William Creek	3	9	8		5	26	Moderate
15	32	8.3	Fyans Creek	3	7	9		5	25	Moderate
15	33	10.2	Fyans Creek ³		8	8	5	5	20	Poor
15	34	15.6	Fyans Creek ^{1,3}	2	10	9	7	7	29	Moderate
15	35	6.4	Barney Creek ³	10	9	9	8		44	Excellent
15	36	13.9	Basin Creek	3	7	6			23	Poor
15	37	12.2	Unnamed Creek	3	10	6			26	Moderate
15	38	15.7	Millers Creek	3	7	6			23	Poor
15	39	15.1	Nine Mile Creek	3	9	5			25	Moderate
15	40	12.9	Sugarloaf Creek	6	9	6			33	Moderate
15	41	11.8	Salt Creek	3	8	5			23	Poor
15	42	14.1	Salt Creek	3	8	5		3	20	Poor
15	44	15.7	Georges Creek ³	3	8	8	6	5	26	Moderate
15	45	14.2	Sheepwash Creek		8	7			19	VPoor
15	46	11.7	Dunmunkle Creek	6	7	6			30	Moderate
15	47	44.4	Dunmunkle Creek	6	7	4			27	Moderate
15	48	29.7	Concongella Creek	7	7	6		5	29	Moderate
15	49	21.1	Concongella Creek	7	9	7		4	31	Moderate
15	50	11.6	Allenvale Creek	7	8	6			34	Moderate
15	51	10.9	Concongella Creek	7	9	6			34	Moderate
15	52	2.8	Malakoff Creek	7	8	4			28	Moderate
15	53	15.2	Wattle Creek	7	8	5		3	25	Moderate
15	54	28.2	Heifer Station Creek	8	6	6		6	31	Moderate
15	55	8.4	Heifer Station Creek	8	7	6		5	31	Moderate
15	56	8	Heifer Station Creek	8	8	7		4	31	Moderate
15	57	12	Morl Creek	7	7	4		4	25	Moderate
15	58	35.2	Melakoff Creek	7	7	6		1	21	Poor
15	59	4.1	Sandy Creek	7	6	6			30	Moderate

¹ Used hydrology result from 2004 ISC ³ Only 1 year water quality data available

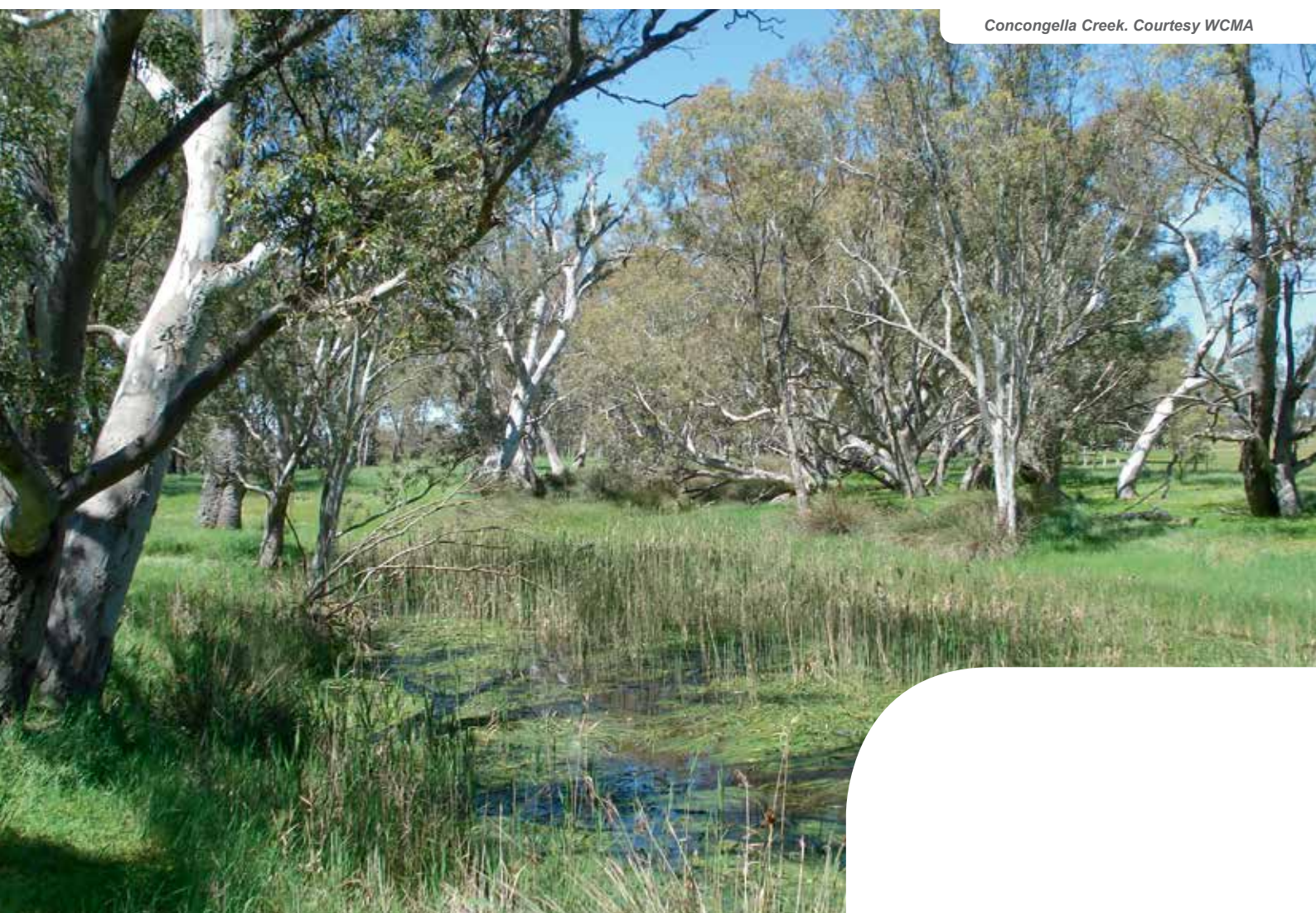
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Basin	Reach	Reach Length (Km)	River	Hydrology	Physical Form	Streamside Zone	Water Quality	Aquatic Life	ISC Score	Condition
15	60	7.9	Howard Creek	7	7	7			35	Good
15	61	8.1	Blind Creek	8	7	4			28	Moderate
15	62	5.3	Unnamed Creek	8	7	3			26	Moderate
15	63	9	Unnamed Creek	8	7	7			35	Good
15	64	36	Seven Mile Creek	6	7	6		5	29	Moderate
15	65	32.3	Six Mile Creek	7	6	5		4	26	Moderate
15	66	10	Tributary Of Astons Creek	6	7	3			23	Poor
15	67	10.1	Astons Scour	6	6	3			23	Poor
15	68	7.1	Shays Creek	6	6	4			24	Moderate
15	69	8.8	Shays Creek	6	5	3			22	Poor
15	70	32.5	Mount Cole Creek	5	7	6		6	29	Moderate
15	71	10.6	Spring Creek	7	6	4			27	Moderate
15	72	12	Glenlofty Creek	5	9	4		7	27	Moderate
15	73	11	Glenlofty Creek	5	9	7		4	27	Moderate
15	74	12.4	Nowhere Creek	8	7	7			35	Good
15	75	5	Spring Creek	8	7	8			38	Good
15	76	16	Glenpatrick Creek	8	7	6			34	Moderate
15	87	22.1	Mt Talbot Creek		7	7				Insufficient Data
15	88	22.3	Station Creek		7	6				Insufficient Data
15	89	26	Natimuk Creek		8	5				Insufficient Data
15	90	15	Yanac Creek		7	4				Insufficient Data
15	92	1.1	Morl Creek	7	7	7			35	Good
15	93	7.7	Unnamed Creek	8	8	5			33	Moderate

/ Millicent Coast Basin

Basin	Reach	Reach Length (Km)	River	Hydrology	Physical Form	Streamside Zone	Water Quality	Aquatic Life	ISC Score	Condition
39	1	4.3	Thompson Creek ⁴		7	5				Insufficient Data
39	2	28.9	Yalla Creek ⁴		7	5				Insufficient Data
39	3	23.2	Koijak Creek ⁴		8	4				Insufficient Data
39	4	47.8	Mosquito Creek ^{3,4}		8	6	3		26	Moderate
39	5	17.3	Mosquito Creek ⁴		7	8				Insufficient Data

³ Only 1 year water quality data available ⁴ No instream woody habitat score available



Concongella Creek. Courtesy WCMA