



Bemm River. Courtesy Alison Pouliot

East Gippsland Region

The vast majority of the East Gippsland region is covered by natural forest. The steep terrain and spectacular Snowy Mountains in the north give way to sloping foothills, broad coastal plains and extensive dune systems in the south.

Four river basins form the region – Far East Gippsland (basin 21), Snowy (basin 22), Tambo (basin 23), and the Mitchell (basin 24).

The region includes four basins and some of Victoria's most environmentally significant and valuable rivers. These river systems flow to the Southern Ocean through extensive estuarine systems including the Gippsland Lakes, the estuaries of the Snowy and Bemm Rivers, and the inlets of Tamboon and Mallacoota.

Pockets of cleared valleys and floodplains throughout the region support agriculture such as dairying, horticulture, wool, cattle and sheep production. The production of hardwood timber is also a significant industry in East Gippsland.

Since European settlement, there has been a history of erosion and sediment transport associated with the region's waterways. This is largely attributed to land clearing, grazing and alluvial gold mining (a major industry of early European settlers in the upper tributaries of the Tambo and Mitchell basins). In addition, the highly variable flow regime of the region's rivers contributes to erosion and sediment transport - very low flows for extended periods to enormous flood flows for short periods are common.

Almost three-quarters (70%) of the region's stream length was in excellent or good condition, 17% in moderate condition, 2% in poor condition and just 0.4% in very poor condition. Notably, within individual catchments, 73% of stream length in the Far East Gippsland basin was in excellent condition and there were no streams in poor or very poor condition in either the Tambo or Far East Gippsland basins.

Water Quality

Water quality was assessed at 18 of the East Gippsland's 138 reaches. Consistent with the heavily forested land across the region, water quality scores were excellent. Results ranged from 17% of reaches in moderate condition, 39% in good condition and 44% in excellent condition.

Three reaches were found to be in reference condition - one on the Errinundra River (reach 11) in the Far East Gippsland basin, reach 5 on the Snowy River in the Snowy basin and reach 2 on the Nicholson River in the Tambo basin. All three reaches are located in densely forested land.

All reaches in the Far East Gippsland basin were rated either good or excellent. Notably, salinity levels were high at reach 31 on the Genoa River and also raised at reach 16 on the Cann River. Furthermore, reach 26 on the Wingan River returned a poor result for pH.

The five reaches tested in the Snowy basin were all found to be in good or excellent condition, although reach 11 on the Buchan River had a very poor salinity result. Reach 11 is located in cleared land used for cattle grazing, most likely impacting water quality results.

Three reaches were tested in the Tambo basin. Swifts Creek (reach 9), and Tambo River (reach 23), showed highly elevated salinity and levels of phosphorus. Reach 2 on the Nicholson River had excellent water quality.

Five reaches were tested in the Mitchell basin. Results were generally good to excellent with slightly elevated results for phosphorus and turbidity. Notably, reach 7, in the lower section of the Mitchell River where forest gives way to cleared land, had an extremely poor result for turbidity.

Hydrology

The hydrological condition of streams varied across the East Gippsland region. Consistent with the high proportion of naturally forested land and the absence of major water storages, many of the region's streams had natural or near natural flow regimes. However, a small proportion of streams, particularly the Snowy River, were under extreme flow stress.

Within the Snowy catchment, flow stress ranged from reaches in reference condition to those that were extremely modified. Reaches 3-10 on the Snowy River had extremely modified flows, with the system under stress caused by year-round upstream extractions of water for the Snowy Mountains Hydro-electric Scheme. As a result, there were extended periods of low flow and fewer periods of high flow.

Whilst flow regimes on the Snowy River were heavily modified, other streams in the Snowy catchment had natural flow regimes, including the Yalmy River (reach 16), Brodribb River (reaches 29-31) and Sardine Creek (reach 32).

Flow regimes were least stressed in the Far East Gippsland basin where flow stress ranged from good to excellent. Flows in 77% of reaches indicated natural or near natural flow regimes. The lowest score was recorded on reach 29 of the Betka River, which supplies domestic water to the coastal town of Mallacoota.

In both the Tambo and Mitchell basins, flow regimes ranged from natural to those streams with moderate modification to hydrology. Haunted Stream (reach 17) in the Tambo basin had a natural flow regime while the Nicholson River (reaches 2-3) and the Timbarra River (reaches 14-16) had near natural regimes. In the Mitchell basin, the Wonnangatta River reaches (8-15), Prospect Creek (reaches 19-20), Wentworth River (reaches 24-25), Wongungarra River (reaches 29-30) and the Dargo River (reaches 26-27) were among those streams with near natural flow regimes.

Drought had a significant impact on streams in the Far East Gippsland and Snowy basins and to a lesser extent in the Tambo and Mitchell basins. Reaches most heavily impacted by drought in the Far East Gippsland basin included the Cann River (reach 23), Yeerung River (reach 201), Thurra River (reach 224) and the Wingan River (reach 226) and in the Snowy basin the Buchan River (reach 11), Yalmy River (reach 16), Little Rivers (reach 17) and Cabbage Tree Creek (reach 233).

Vegetation

Streamside vegetation was found to be in excellent condition for almost half (47%) of the 138 reaches assessed in the heavily forested East Gippsland region. Of the remainder, 22% (31 reaches) were in good condition, 22% (30 reaches) in moderate condition and 9% (13 reaches) were in poor condition. However, the proportion of streams in poor and excellent condition varied significantly at the basin level.

Of the four basins forming the region, streamside vegetation in the Far East Gippsland basin was in the best condition. Of the 44 reaches assessed in the Far East Gippsland basin, two-thirds (66% or 29 reaches) were in excellent condition and of these, ten reaches were in reference condition (reaches 1, 6, 10, 11, 16, 18, 22, 23, 25 and 27). Of the remaining reaches, 12 (27%) were in good condition and three (7%) were in moderate condition.

Of the 39 reaches assessed in the Snowy catchment, 15 (38%) were in excellent condition and of those, eight were in reference condition (reaches 12, 15, 16, 26, 29, 30, 33 and 35). Streamside vegetation at nine reaches (23%) was classified as good, at 12 reaches (31%) as moderate and at three reaches (8%) as poor. Those reaches assessed as poor (reaches 4, 36 and 203) had very poor vegetation width, continuity and overhang.

The Mitchell basin had the greatest proportion of streams in poor condition, consistent with the extent of land cleared for agriculture compared to the other basins in the East Gippsland region.

Of the 29 reaches assessed in the Mitchell basin, six were classified as poor (21%). Of these, Skull Creek (reach 21), was in the poorest condition.

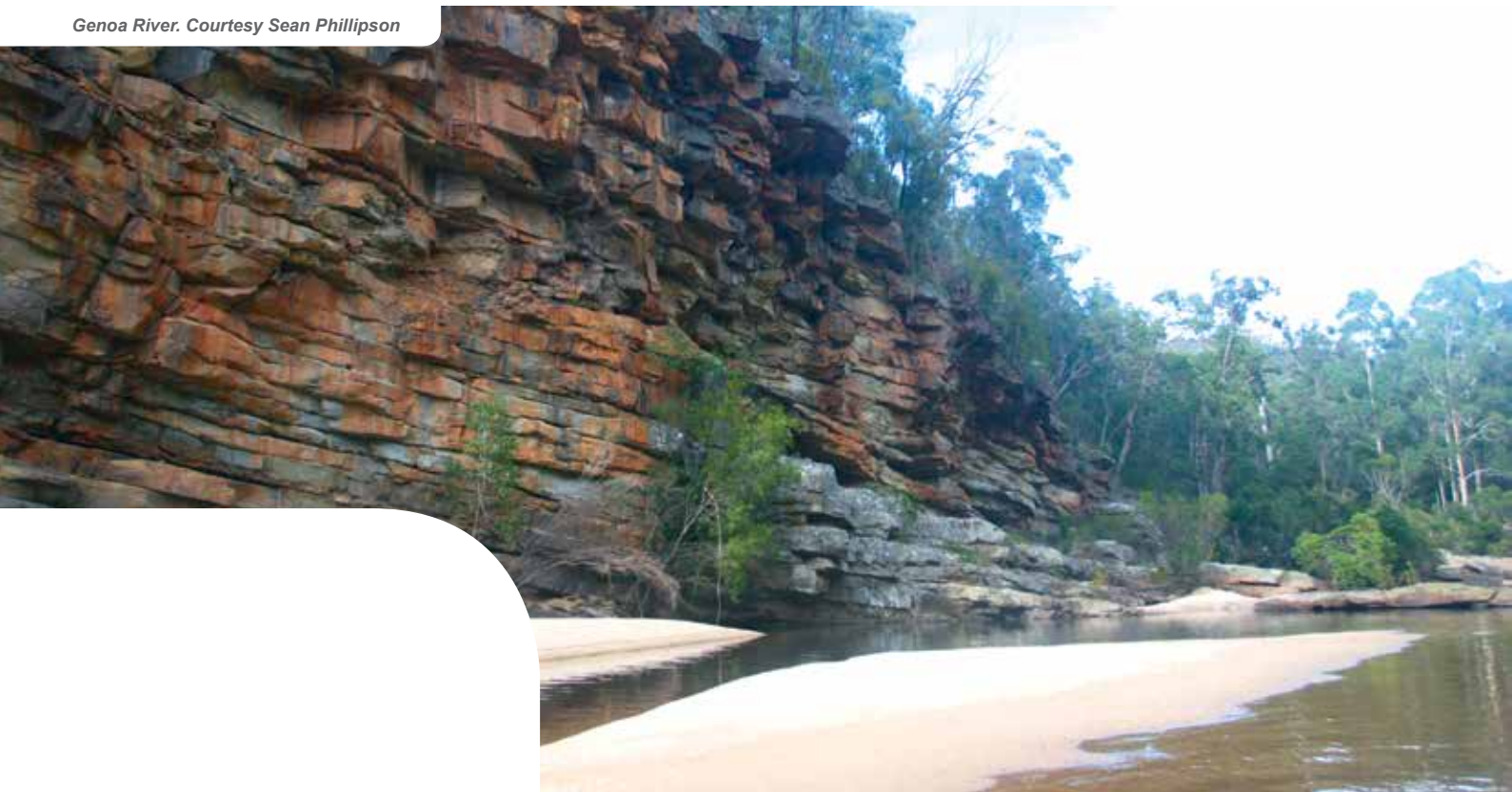
Of the remainder, eight reaches (27%) were in moderate condition, six (21%) were in good condition and nine (31%) were in excellent condition. Wonnangatta River (reaches 14 and 15) and Cobbanah Creek (reach 23) were in reference condition.

Like the Mitchell basin, the condition of streamside vegetation in the Tambo basin ranged from poor to excellent. Of the 26 reaches assessed, four (15%) were in poor condition, seven (27%) in moderate condition, four (15%) in good condition and the remaining 11 (43%) were in excellent condition, including four reaches in reference condition (reaches 16, 17, 20 and 21). Of the four reaches that rated poor (reaches 5, 10, 201 and 204), two were located inland - the lower Tambo River (reach 5) and the upper Tambo River (reach 10) - both situated in areas cleared of natural forest. Both had highly fragmented, narrow streamside vegetation.

Physical Form

The physical condition of the majority of reaches in the East Gippsland region were in reference or near reference condition, a reflection of the heavily vegetated and largely undisturbed environment. Of the 138 reaches assessed, 109 (79%) were in excellent condition, 27 (20%) in good condition and two (1%) were in moderate condition.

Genoa River. Courtesy Sean Phillipson



Thirty-nine reaches were assessed in the Snowy basin, with 95% (37 reaches) found to be in excellent condition and 5% (2 reaches) in good condition. Of the 37 reaches in excellent condition, 31 were in reference condition, attributed to high levels of natural forest cover, the typically rocky, and therefore stable profile of the stream banks, and unrestricted fish passage throughout the whole basin.

Like the Snowy basin, reaches in the Tambo basin were predominantly in excellent physical condition. Of the 26 reaches assessed, 23 (88%) were in reference or near reference condition and three reaches (12%) were in good condition. Of those in excellent condition, 16 reaches were in reference condition, including the Tambo River (reaches 6-9) and the Timbarra River (reaches 13-16).

Forty-four reaches were assessed in the Far East Gippsland basin and the majority (28 reaches or 64%) were in excellent condition, including 16 reaches in reference condition. A third of the reaches assessed (34% or 15 reaches) were in good condition and one reach (2%), reach 33 on the Genoa River, was in moderate condition, with minor downstream barriers to fish passage and poor levels of instream woody habitat. Of the 15 reaches in good condition, most had no major downstream fish barriers, stable banks but low levels of instream woody habitat.

Like the Far East Gippsland basin, physical condition of streams in the Mitchell basin ranged from moderate to excellent. Almost three-quarters of reaches were in excellent condition (73% or 21 of the 29 reaches assessed). Of these, three were in reference condition (reaches 3, 203 and 205).

A further 24% (7 reaches) were in good condition and 3% (1 reach, reach 204) in moderate condition. Notably, within the East Gippsland region, reaches in the Mitchell basin were the most impacted by fish barriers.

Aquatic Life

The majority of reaches (91%) in the East Gippsland region were assessed for aquatic life and results indicated an extremely healthy environment for macroinvertebrates.

Overall, 33% of reaches were in excellent condition, 41% in good condition and only 13% each in moderate or poor condition. No reaches were found to be in very poor condition.

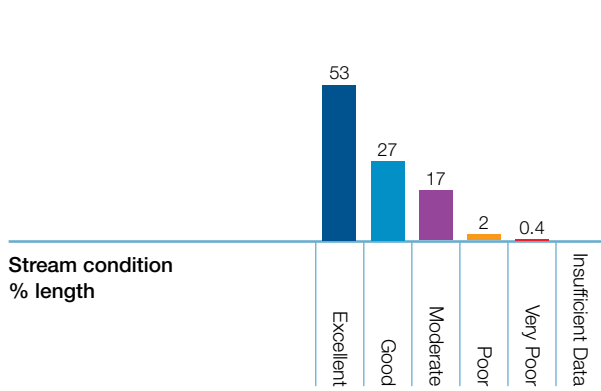
These results were reflected evenly across each of the region's four river basins with the exception of the Mitchell basin where there was a proportionally higher number of reaches in poor condition (28% compared to 5% in the Far East Gippsland basin, 3% in the Snowy basin and 19% in the Tambo basin). Reaches rated in poor condition were predominantly located in the cleared area of the lower Mitchell basin.

Forty-one of the region's 125 tested reaches were considered to be in reference or near reference condition - this is attributed to the relatively untouched, extensively forested environment. The Snowy basin had two reaches in reference condition, one on the Brodribb River (reach 29) and one on Cabbage Tree Creek (reach 34).

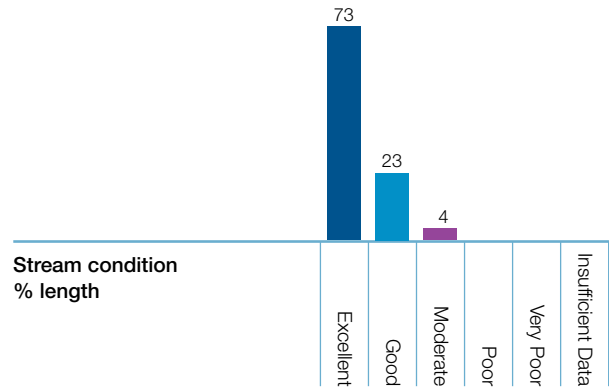
Cann River. Courtesy Alison Pouliot



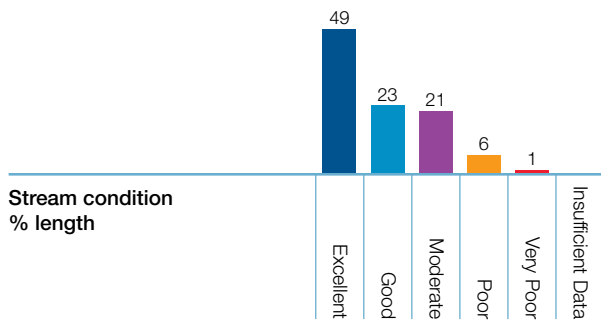
/ East Gippsland Region



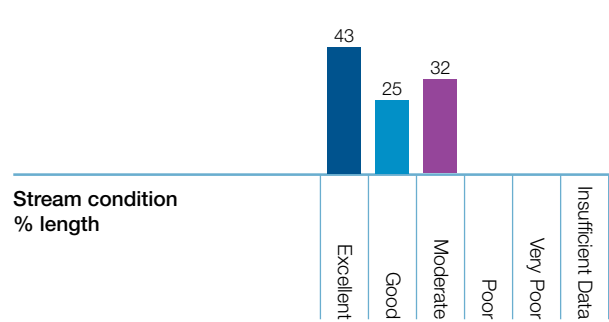
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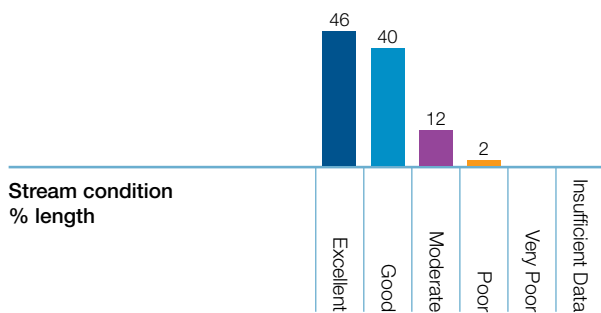
/ Snowy



/ Tambo



/ Mitchell



Environmental Condition

● Excellent

● Good

● Moderate

● Poor

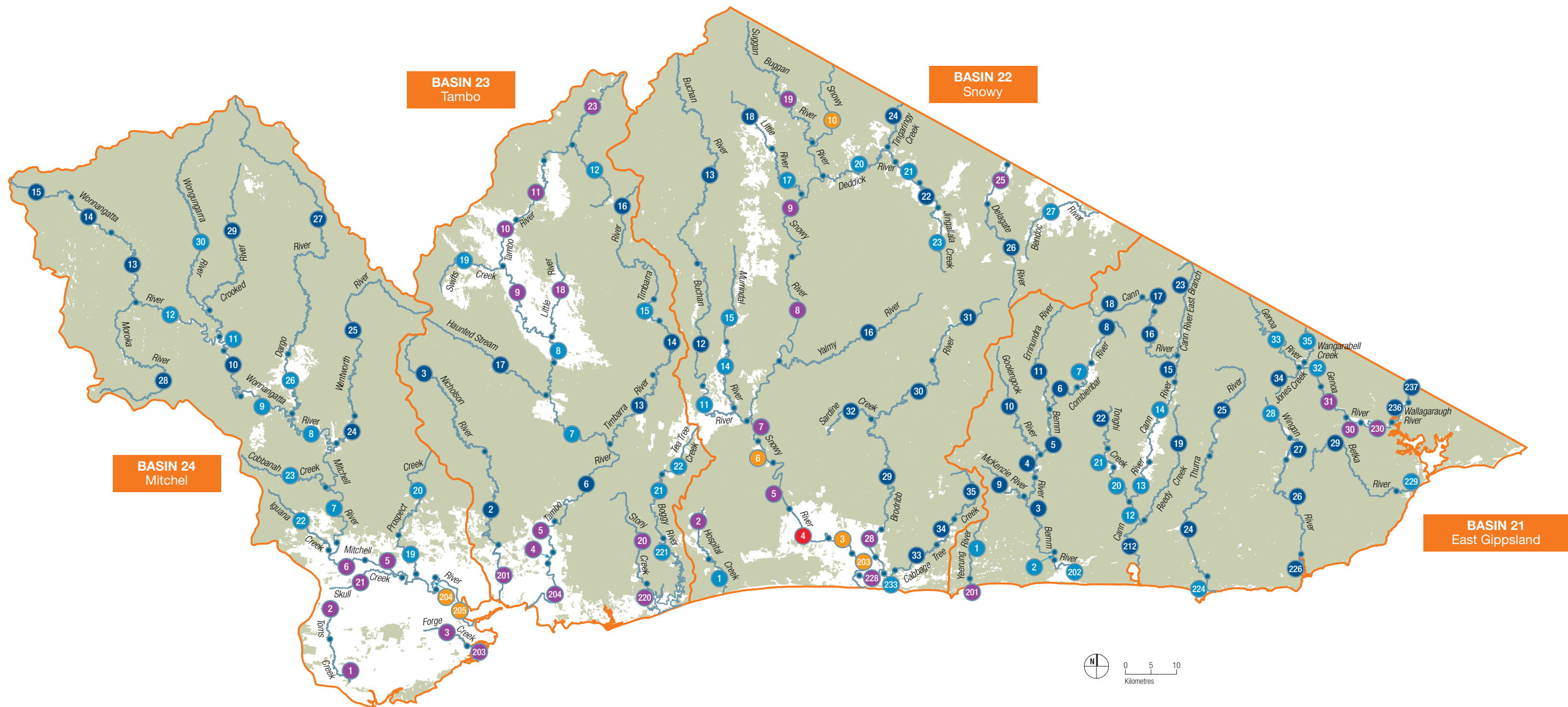
● Very Poor

● Insufficient Data



East Gippsland

- / East Gippsland – basin 21
- / Snowy – basin 22
- / Tambo – basin 23
- / Mitchell – basin 24



- Environmental Condition**
- Excellent
 - Good
 - Moderate
 - Poor
 - Very Poor
 - Insufficient Data
 - Reach Division
 - Forest (uncleared)
 - 10 Reach number

Index of Stream Condition

/ East Gippsland Basin

Basin	Reach	Reach Length (Km)	River	Hydrology	Physical Form	Streamside Zone	Water Quality	Aquatic Life	ISC Score	Condition
21	1	18	Yeerung River	10	10	10		4	39	Good
21	2	1.1	Bemm River	9	7	8		8	39	Good
21	3	31.4	Bemm River	9	10	9	9		45	Excellent
21	4	9.2	Bemm River	9	9	9		9	45	Excellent
21	5	18.5	Bemm River	9	9	9		9	45	Excellent
21	6	15.7	Combienbar River	9	10	10		9	47	Excellent
21	7	11.8	Combienbar River	9	7	6		9	36	Good
21	8	17.9	Combienbar River	9	9	9		9	45	Excellent
21	9	22.9	Mckenzie River	9	10	9		7	42	Excellent
21	10	41.6	Goolengook River	8	10	10			44	Excellent
21	11	32.9	Errinundra River	10	8	10	10	9	45	Excellent
21	12	5.8	Cann River	9	7	9			39	Good
21	13	11	Cann River	9	7	9		8	39	Good
21	14	21.2	Cann River	9	7	7		8	37	Good
21	15	6.7	Cann River	9	7	9		9	42	Excellent
21	16	25.9	Cann River	9	10	10	9	9	46	Excellent
21	17	6.9	Cann River	9	9	9		9	45	Excellent
21	18	20.8	Cann River	9	10	10		9	47	Excellent
21	19	42.9	Reedy Creek	9	10	9			45	Excellent
21	20	16.1	Tonghi Creek	9	7	9		8	39	Good
21	21	9	Tonghi Creek	9	7	8		8	39	Good
21	22	16.7	Tonghi Creek	9	10	10		8	44	Excellent
21	23	27.6	Cann River East Branch	9	9	10		9	45	Excellent
21	24	55.1	Thurra River	10	8	9		8	42	Excellent
21	25	45.3	Thurra River	10	7	10		8	41	Excellent
21	26	41	Wingan River	10	7	9	8	9	41	Excellent
21	27	12.5	Wingan River	10	9	10		6	41	Excellent
21	28	14.2	Wingan River	10	9	9		5	37	Good
21	29	42.5	Betka River	10	9	9		8	44	Excellent

Basin	Reach	Reach Length (Km)	River	Hydrology	Physical Form	Streamside Zone	Water Quality	Aquatic Life	ISC Score	Condition
21	30	3.3	Genoa River	8	7	7		5	32	Moderate
21	31	10.2	Genoa River	8	7	8	8	5	34	Moderate
21	32	7.1	Genoa River	8	7	8		7	37	Good
21	33	30.8	Genoa River	8	6	9		9	38	Good
21	34	13.3	Jones Creek	8	9	9			43	Excellent
21	35	13.8	Wangarabell Creek	8	9	9		5	36	Good
21	201	3.4	Yeerung River ¹	9	9	8		4	34	Moderate
21	202	8.1	Bemm River ¹	9	10	6		8	38	Good
21	212	12.7	Cann River	9	9	8			43	Excellent
21	224	5.5	Thurra River	8	10	7		8	39	Good
21	226	3.3	Wingan River	9	10	8		9	44	Excellent
21	229	7.6	Betka River	7	10	8		8	39	Good
21	230	10.9	Genoa River	8	10	6		5	32	Moderate
21	236	6.3	Wallagaraugh River	9	10	7			42	Excellent
21	237	5	Wallagaraugh River	9	10	9			45	Excellent

/ Snowy Basin

Basin	Reach	Reach Length (Km)	River	Hydrology	Physical Form	Streamside Zone	Water Quality	Aquatic Life	ISC Score	Condition
22	1	15	Hospital Creek		10	9		6	38	Good
22	2	16.4	Hospital Creek		9	6		6	33	Moderate
22	3	6.3	Snowy River		8	5		8	20	Poor
22	4	13.7	Snowy River		9	4		6	17	VPoor
22	5	20.4	Snowy River		8	7	10	9	27	Moderate
22	6	6.4	Snowy River		10	5		8	21	Poor
22	7	24.7	Snowy River		10	7		8	24	Moderate
22	8	28.4	Snowy River		10	7		9	26	Moderate
22	9	26.3	Snowy River		10	6	8	9	25	Moderate
22	10	31.2	Snowy River		10	6		8	23	Poor
22	11	21.8	Buchan River	8	10	5	7	9	35	Good

¹ Used hydrology result from 2004 ISC

/ Snowy Basin

Basin	Reach	Reach Length (Km)	River	Hydrology	Physical Form	Streamside Zone	Water Quality	Aquatic Life	ISC Score	Condition
22	12	37.9	Buchan River	8	9	10		8	42	Excellent
22	13	84.8	Buchan River	8	10	9		9	44	Excellent
22	14	24	Murrindal River	7	10	8		7	38	Good
22	15	31.6	Murrindal River	7	10	10		5	36	Good
22	16	53.8	Yalmy River	10	10	10	8	9	45	Excellent
22	17	19.7	Little River	8	10	8		7	39	Good
22	18	19.5	Little River	8	10	8		8	41	Excellent
22	19	54.1	Suggan Buggan River		10	8		8	26	Moderate
22	20	29.5	Deddick River	9	10	6		9	40	Good
22	21	9.5	Deddick River	9	10	6		9	40	Good
22	22	11.6	Deddick River	9	10	8		9	44	Excellent
22	23	19.7	Jingallala Creek	9	10	9		4	36	Good
22	24	20.1	Tingaringy Creek	9	10	9			45	Excellent
22	25	13.4	Delegate River	8	10	5		7	34	Moderate
22	26	36	Delegate River	8	9	10		7	41	Excellent
22	27	35.9	Bendoc River		10	6		8	37	Good
22	28	7.6	Brodribb River	8	9	5		7	33	Moderate
22	29	44.9	Brodribb River	10	10	10	9	10	48	Excellent
22	30	43.4	Brodribb River	10	10	10		9	48	Excellent
22	31	29.8	Brodribb River	10	10	9		9	47	Excellent
22	32	19.6	Sardine Creek	10	10	9			48	Excellent
22	33	16.8	Cabbage Tree Creek	8	10	10		8	43	Excellent
22	34	12.7	Cabbage Tree Creek	8	9	9		10	44	Excellent
22	35	23.9	Cabbage Tree Creek	8	10	10			44	Excellent
22	203	11.4	Snowy River		10	4		8	20	Poor
22	228	10.3	Brodribb River	8	10	5		7	34	Moderate
22	233	4.6	Cabbage Tree Creek	8	10	7		8	39	Good

/ Tambo Basin

Basin	Reach	Reach Length (Km)	River	Hydrology	Physical Form	Streamside Zone	Water Quality	Aquatic Life	ISC Score	Condition
23	2	37.4	Nicholson River	9	10	9	10	8	44	Excellent
23	3	56.4	Nicholson River	9	7	9		9	42	Excellent
23	4	2.7	Tambo River	7	8	6		4	28	Moderate
23	5	10.6	Tambo River	7	8	4		7	30	Moderate
23	6	30	Tambo River	8	10	9		8	42	Excellent
23	7	35.4	Tambo River	6	10	8		7	36	Good
23	8	7.5	Tambo River	6	10	6		8	35	Good
23	9	29.9	Tambo River	6	10	6	6	8	33	Moderate
23	10	13.7	Tambo River	6	9	4		8	30	Moderate
23	11	21.2	Tambo River	6	9	6		8	33	Moderate
23	12	39.6	Tambo River	6	9	8		7	36	Good
23	13	33	Timbarra River	8	10	9		9	44	Excellent
23	14	22.6	Timbarra River	9	10	9		9	45	Excellent
23	15	8.7	Timbarra River	9	10	6		8	38	Good
23	16	46.1	Timbarra River	9	10	10		9	47	Excellent
23	17	48.1	Haunted Stream	10	10	10		9	48	Excellent
23	18	25.2	Little River	6	10	5		8	32	Moderate
23	19	23.6	Swifts Creek	7	9	9		6	36	Good
23	20	36.5	Stony Creek	8	9	10		3	33	Moderate
23	21	22.8	Boggy Creek	8	10	10		6	40	Good
23	22	16.6	Tea Tree Creek	7	10	7		7	37	Good
23	23	31	Tambo River ⁴	6	9	9	6	5	31	Moderate
23	201	15.9	Nicholson River	8	10	4		3	25	Moderate
23	204	17.2	Tambo River	7	9	4		4	26	Moderate
23	220	1.4	Stony Creek	8	10	5		3	27	Moderate
23	221	1.4	Boggy Creek	7	10	7		6	35	Good

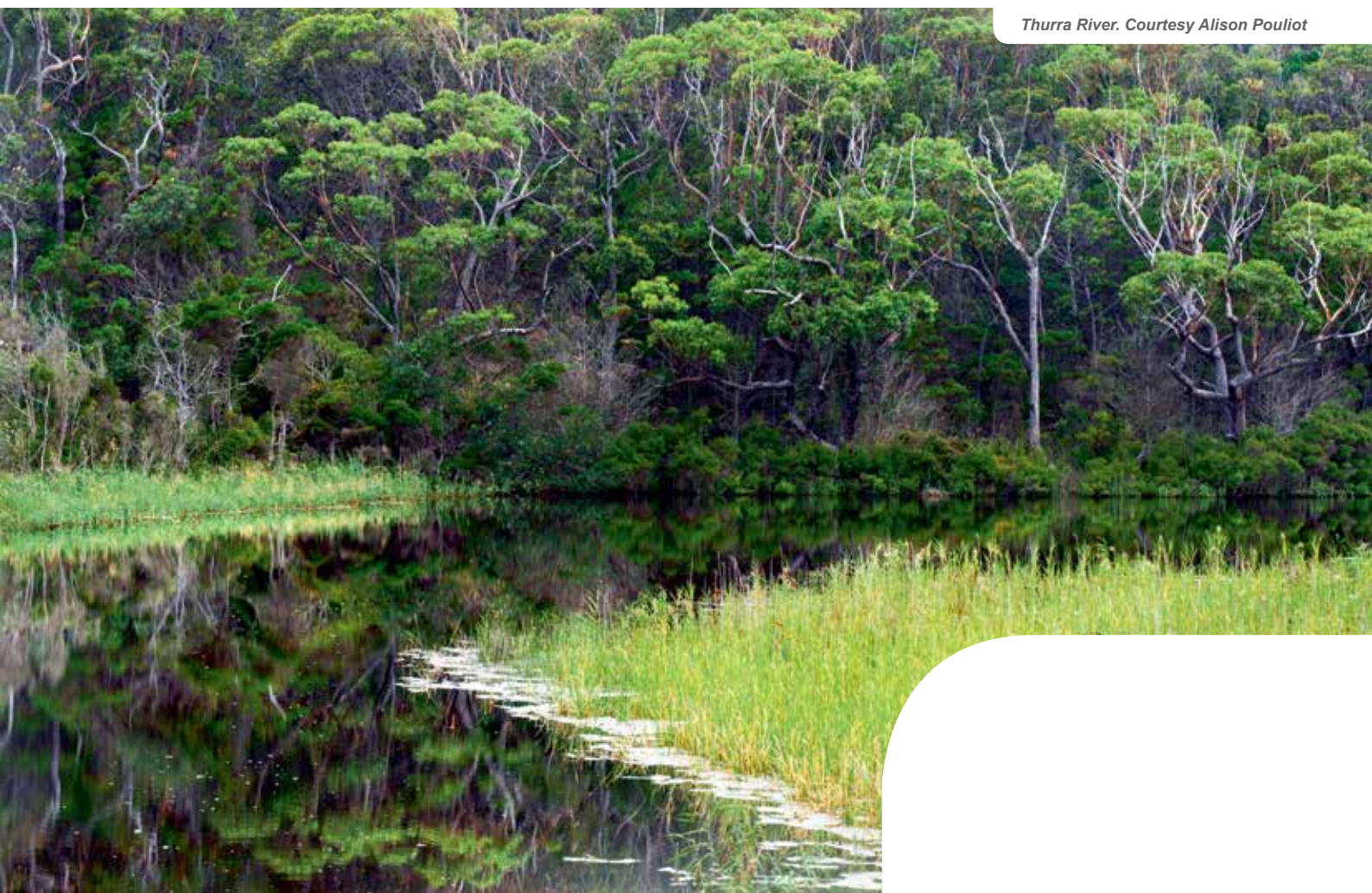
⁴ No instream woody habitat score available

/ Mitchell Basin

Basin	Reach	Reach Length (Km)	River	Hydrology	Physical Form	Streamside Zone	Water Quality	Aquatic Life	ISC Score	Condition
24	1	17.7	Toms Creek	8	9	6		5	32	Moderate
24	2	9.5	Toms Creek	8	8	4		4	26	Moderate
24	3	13.8	Forge Creek	7	10	6		4	30	Moderate
24	5	24.1	Mitchell River	4	7	4	9	4	24	Moderate
24	6	14.5	Mitchell River	4	8	4	9	7	27	Moderate
24	7	36.1	Mitchell River	9	9	8	6	8	38	Good
24	8	26.4	Mitchell River	9	9	6		9	39	Good
24	9	19.4	Wonnangatta River	9	9	6		9	39	Good
24	10	21.2	Wonnangatta River	9	9	8		9	43	Excellent
24	11	6.5	Wonnangatta River	9	8	6		9	38	Good
24	12	33.2	Wonnangatta River	9	8	6	8	7	36	Good
24	13	27.2	Wonnangatta River ⁴	9	9	9		9	45	Excellent
24	14	15.1	Wonnangatta River	9	9	10		8	44	Excellent
24	15	16.8	Wonnangatta River ⁴	9	9	10		8	44	Excellent
24	19	16.4	Prospect Creek	9	7	8		7	37	Good
24	20	30.4	Prospect Creek	9	9	9		4	35	Good
24	21	20.6	Skull Creek	8	8	3			27	Moderate
24	22	27.1	Iguana Creek	7	9	8		7	37	Good
24	23	36.1	Cobbannah Creek	9	9	10		4	36	Good
24	24	13.6	Wentworth River	10	9	8		8	42	Excellent
24	25	75.9	Wentworth River	10	9	9		9	45	Excellent
24	26	22.4	Dargo River	9	9	6	8	9	39	Good

⁴ No instream woody habitat score available

Basin	Reach	Reach Length (Km)	River	Hydrology	Physical Form	Streamside Zone	Water Quality	Aquatic Life	ISC Score	Condition
24	27	111.1	Dargo River	9	9	8		8	42	Excellent
24	28	54.9	Moroka River	10	9	9		9	45	Excellent
24	29	61.9	Crooked River	9	9	9		9	45	Excellent
24	30	85.6	Wongungarra River	9	9	9		6	39	Good
24	203	0.7	Forge Creek	7	10	5		4	28	Moderate
24	204	15.8	Mitchell River	4	6	4		4	21	Poor
24	205	4.1	Mitchell River	4	10	4		4	23	Poor



Thurra River. Courtesy Alison Pouliot