

Water quality objectives to protect the aquatic ecosystem environmental values for Lower GAB groundwater aquifer zones in the Queensland Murray-Darling Basin.

Zone	Percentile	Notes: 1. The ANZECC Guidelines (ANZECC/ARMCANZ, 2000) recommend that the highest level of protection should be provided to underground aquatic ecosystems, given their high conservation value. The management intent is to maintain the existing water quality distribution (20th, 50th and 80th percentiles). 2. ID: Insufficient data.																											
		Na		Ca		Mg		HCO ₃		Cl		SO ₄		NO ₃		Electrical Conductivity (µS/cm)	Hardness (mg/L)	pH	Alkalinity (mg/L)	SiO ₂ (mg/L)	F (mg/L)	Fe (mg/L)	Mn (mg/L)	Zn (mg/L)	Cu (mg/L)	SAR (meq/L)	Total Nitrogen mg/L	Total Phosphorous mg/L	
		mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%														
s7. Lower GAB																													
1. Central Surat Springbok Area	20th	234	96	2	1	0	0	353	49	80	19	0.5	0	0.00	0	923	6	7.9	321.0	14.0	0.40	0.000	0.000	0.000	0.003	27.60	0.000	0.000	
	50th	315	99	3	1	1	0	544	71	120	25	10.0	2	0.50	0	1269	12	8.3	475.0	18.0	0.70	0.010	0.005	0.005	0.015	44.64	0.109	0.000	
	80th	523	99	10	2	4	2	755	79	360	45	33.7	5	1.20	0	1987	38	8.6	668.7	28.1	1.71	0.165	0.015	0.010	0.020	62.11	0.261	0.000	
2. Eastern Springbok Outcrop	20th	243	79	5	1	2	1	198	7	183	41	0.7	0	0.00	0	963	19	7.5	194.3	13.0	0.19	0.005	0.000	0.005	0.001	14.75	0.000	0.000	
	50th	677	91	20	3	11	4	345	26	737	70	8.0	1	0.70	0	2925	96	8.0	308.5	18.0	0.30	0.050	0.010	0.010	0.015	28.97	0.152	0.000	
	80th	1830	98	89	10	83	12	838	58	2970	90	47.6	3	2.50	0	9021	612	8.4	795.2	52.1	1.75	0.891	0.097	0.049	0.030	56.49	0.543	0.016	
3. Fresh Hutton South-eastern Outcrop	20th	175	54	25	6	24	10	325	15	231	38	6.9	1	0.10	0	1400	185	7.7	275.4	16.0	0.16	0.000	0.000	ID	ID	4.61	0.022	0.000	
	50th	361	65	59	14	57	22	504	40	412	57	24.8	2	1.50	0	2150	380	8.0	420.0	24.5	0.30	0.010	0.010	ID	ID	8.10	0.326	0.000	
	80th	591	77	124	20	90	28	668	59	957	81	50.1	4	26.50	2	3790	676	8.3	568.0	37.0	0.47	0.059	0.051	ID	ID	13.39	5.761	0.029	
4. North East Walloons	20th	339	61	12	2	6	2	249	7	334	48	4.0	0	0.00	0	1650	58	7.5	230.0	12.0	0.20	0.005	0.005	0.005	0.010	9.05	0.000	0.000	
	50th	750	82	53	8	41	9	390	20	968	76	35.8	2	1.00	0	3500	308	8.0	344.5	15.0	0.40	0.020	0.020	0.020	0.015	17.69	0.217	0.000	

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		Na		Ca		Mg		HCO ₃		Cl		SO ₄		NO ₃		Electrical Conductivity (µS/cm)	Hardness (mg/L)	pH	Alkalinity (mg/L)	SiO ₂ (mg/L)	F (mg/L)	Fe (mg/L)	Mn (mg/L)	Zn (mg/L)	Cu (mg/L)	SAR (meq/L)	Total Nitrogen mg/L	Total Phosphorous mg/L	
		mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%														
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	80th	1554	96	155	18	134	21	615	47	2931	91	134.0	6	5.00	0	9015	864	8.4	539.5	27.9	0.80	0.100	0.087	0.043	0.033	48.99	1.087	0.033	
5. North-eastern Hutton Outcrop	20th	416	76	7	1	1	0	63	8	464	67	0.0	0	0.00	0	80	26	7.5	148.7	11.7	0.10	0.000	0.000	0.004	0.000	11.56	0.000	0.000	
	50th	669	93	24	3	8	2	243	16	894	80	18.3	1	0.50	0	2600	116	7.9	232.0	15.0	0.30	0.020	0.025	0.020	0.010	36.88	0.109	0.000	
	80th	1265	98	84	9	79	14	523	27	1921	91	86.5	5	3.19	0	5100	533	8.4	485.9	41.2	0.66	0.120	0.110	0.135	0.015	53.82	0.693	0.016	
6. Northern Hutton Outcrop	20th	39	38	20	20	5	3	0	37	40	20	9.3	3	0.00	0	0	91	7.0	134.2	12.0	0.05	0.000	0.000	0.003	0.000	1.63	0.000	ID	
	50th	78	50	36	31	15	18	213	55	65	33	26.0	7	0.25	0	538	162	8.0	185.0	19.5	0.13	0.000	0.005	0.010	0.005	2.49	0.054	ID	
	80th	135	69	63	35	27	29	264	71	194	56	64.1	13	0.70	0	910	259	8.3	218.0	36.4	0.30	0.020	0.040	0.025	0.015	7.28	0.152	ID	
7. Northern Walloons	20th	239	91	3	1	1	0	162	8	175	42	0.0	0	0.00	0	854	11	7.9	217.1	12.0	0.20	0.000	0.000	ID	ID	23.20	0.000	ID	
	50th	510	97	9	2	3	1	323	29	580	69	6.0	0	0.60	0	1600	32	8.2	308.0	15.0	0.69	0.000	0.010	ID	ID	39.46	0.130	ID	
	80th	1361	99	56	5	15	2	497	52	2003	91	42.0	4	3.10	0	5145	190	8.6	438.6	20.0	1.30	0.163	0.020	ID	ID	64.04	0.674	ID	
8. Saline South-eastern Hutton Outcrop	20th	212	66	19	3	10	3	201	6	262	54	2.7	0	0.00	0	1308	100	7.4	168.3	13.0	0.20	0.000	0.000	0.010	0.000	6.50	0.000	0.000	
	50th	564	79	54	9	33	12	379	24	760	73	27.0	2	0.50	0	2865	260	7.9	320.0	19.0	0.40	0.010	0.015	0.030	0.010	15.30	0.109	0.000	

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		Na		Ca		Mg		HCO ₃		Cl		SO ₄		NO ₃		Electrical Conductivity (µS/cm)	Hardness (mg/L)	pH	Alkalinity (mg/L)	SiO ₂ (mg/L)	F (mg/L)	Fe (mg/L)	Mn (mg/L)	Zn (mg/L)	Cu (mg/L)	SAR (meq/L)	Total Nitrogen mg/L	Total Phosphorous mg/L
		mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%													
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	80th	1475	92	138	18	123	19	629	41	2482	89	151.2	6	4.30	0	7068	706	8.2	520.9	39.0	0.90	0.235	0.108	0.170	0.024	28.67	1.413	0.023
9. South East Walloons	20th	121	41	9	4	4	3	300	30	101	27	3.4	1	0.00	0	880	45	7.7	250.5	12.0	0.10	0.000	0.000	0.000	0.000	2.90	0.000	0.000
	50th	225	72	39	12	27	14	455	52	236	45	13.0	2	1.00	0	1500	222	8.0	390.0	17.0	0.27	0.010	0.010	0.010	0.010	8.10	0.217	0.000
	80th	425	93	89	23	89	34	662	71	560	65	46.2	4	6.00	0	2550	566	8.4	562.0	29.5	0.50	0.060	0.020	0.148	0.025	17.89	1.324	0.033
10. South-eastern Hutton Outcrop	20th	140	41	26	9	14	9	227	15	165	41	8.6	1	0.00	0	1111	142	7.4	190.0	13.0	0.10	0.000	0.000	0.000	0.000	3.14	0.000	0.000
	50th	260	58	65	17	48	23	410	34	380	62	20.0	2	0.70	0	1817	391	7.8	346.0	20.0	0.30	0.020	0.010	0.008	0.013	5.88	0.152	0.000
	80th	507	77	140	26	145	38	581	56	1053	81	53.7	4	3.66	0	3895	959	8.2	485.0	30.0	0.50	0.090	0.080	0.048	0.020	10.34	0.796	0.031
11. Southern Limit of Adori	20th	92	66	2	2	0	0	74	19	58	29	7.9	2	0.00	0	461	6	7.7	110.6	15.0	0.10	0.000	0.000	ID	ID	4.34	0.000	ID
	50th	132	85	18	12	4	3	176	62	80	34	12.9	3	0.50	0	562	61	8.1	180.0	18.5	0.14	0.010	0.010	ID	ID	13.39	0.109	ID
	80th	288	98	43	25	9	9	221	67	393	70	21.0	7	1.09	0	1333	144	8.6	195.5	22.0	0.21	0.028	0.349	ID	ID	24.11	0.237	ID
12. Hutton Western Eromanga Region	20th	121	94	2	1	0	0	184	58	52	19	1.6	0	0.00	0	597	6	7.9	162.0	22.0	0.25	0.000	0.000	0.000	0.000	13.20	0.000	0.000
	50th	177	98	3	2	0	0	311	68	71	29	11.9	4	0.00	0	810	8	8.3	270.0	29.5	0.50	0.010	0.010	0.005	0.010	27.40	0.000	0.000

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	80th	259	99	6	4	2	3	420	80	105	34	23.7	7	0.50	0	1392	22	8.6	384.0	38.0	1.40	0.050	0.015	0.020	0.015	36.50	0.109	0.000

References:

McNeil, V.H., Raymond, M.A.A., Bennett, L. & McGregor, G.B. (2018), *Regional groundwater chemistry zones: Queensland Murray-Darling Basin*, Department of Environment and Science, Queensland Government.