

Water quality objectives to protect the aquatic ecosystem environmental values for Upper 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	%														
s4. Upper GAB groundwater																													
1. Winton Mackunda Western	20th	332	77	22	5	10	2	0	3	400	63	8.6	0	0.00	0	104	7.2	107.0	18.0	0.14	0.000	0.010	0.011	0.000	11.60	0.000	ID		
	50th	864	85	64	7	27	6	0	9	1301	77	128.7	9	2.15	0	262	7.7	179.5	20.5	0.40	0.010	0.025	0.030	0.015	23.69	0.467	ID		
	80th	1828	93	185	12	95	12	172	23	2997	93	449.5	17	8.00	1	3892	876	8.2	282.9	43.7	0.66	0.065	0.160	0.100	0.285	36.29	1.739	ID	
2. Winton Mackunda Central	Insufficient data																												
3. Winton Mackunda Eastern	20th	276	74	21	5	13	5	0	4	168	41	20.5	3	0.00	0	99	7.4	124.9	16.1	0.15	0.000	0.000	ID	ID	11.59	0.000	0.000		
	50th	1025	83	59	8	40	10	240	15	1260	75	138.0	9	0.50	0	1976	291	7.9	282.5	38.0	0.30	0.000	0.000	ID	ID	22.45	0.109	0.000	
	80th	1584	89	142	11	97	14	534	50	2483	86	410.5	12	7.21	0	7920	715	8.2	518.6	53.0	0.65	0.017	0.100	ID	ID	31.55	1.567	0.000	
4. South West Upper Cretaceous Aquitard	Insufficient data																												
5. Central Upper	20th	240	80	8	2	2	1	120	10	172	49	16.0	2	ID	ID	546	27	7.8	153.5	ID	0.31	ID	ID	ID	ID	11.28	ID	ID	

Draft Water Quality Objectives for Queensland Murray-Darling Basin – Upper GAB Aquifer Zones

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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	%													
Cretaceous Aquitard	50th	460	87	14	5	11	7	259	36	455	57	37.0	7	ID	ID	1520	70	8.0	310.0	ID	0.65	ID	ID	ID	ID	17.39	ID	ID
	80th	1026	97	44	7	53	13	585	48	1511	81	185.3	11	ID	ID	3745	331	8.3	516.9	ID	1.29	ID	ID	ID	ID	38.28	ID	ID
6. Probable Upper Cretaceous Aquitard	20th	201	69	20	6	20	9	161	7	342	64	17.7	3	ID	ID	1260	130	7.8	135.7	ID	0.20	ID	ID	ID	ID	9.61	ID	ID
	50th	655	76	79	8	77	14	342	13	913	82	60.0	4	ID	ID	3150	520	8.0	300.0	ID	0.35	ID	ID	ID	ID	13.63	ID	ID
	80th	1559	83	149	12	195	23	547	32	3061	89	155.5	5	ID	ID	8900	1417	8.2	449.0	ID	0.50	ID	ID	ID	ID	19.76	ID	ID

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.