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*Marine and Freshwater Research*

### **Supplementary Material**

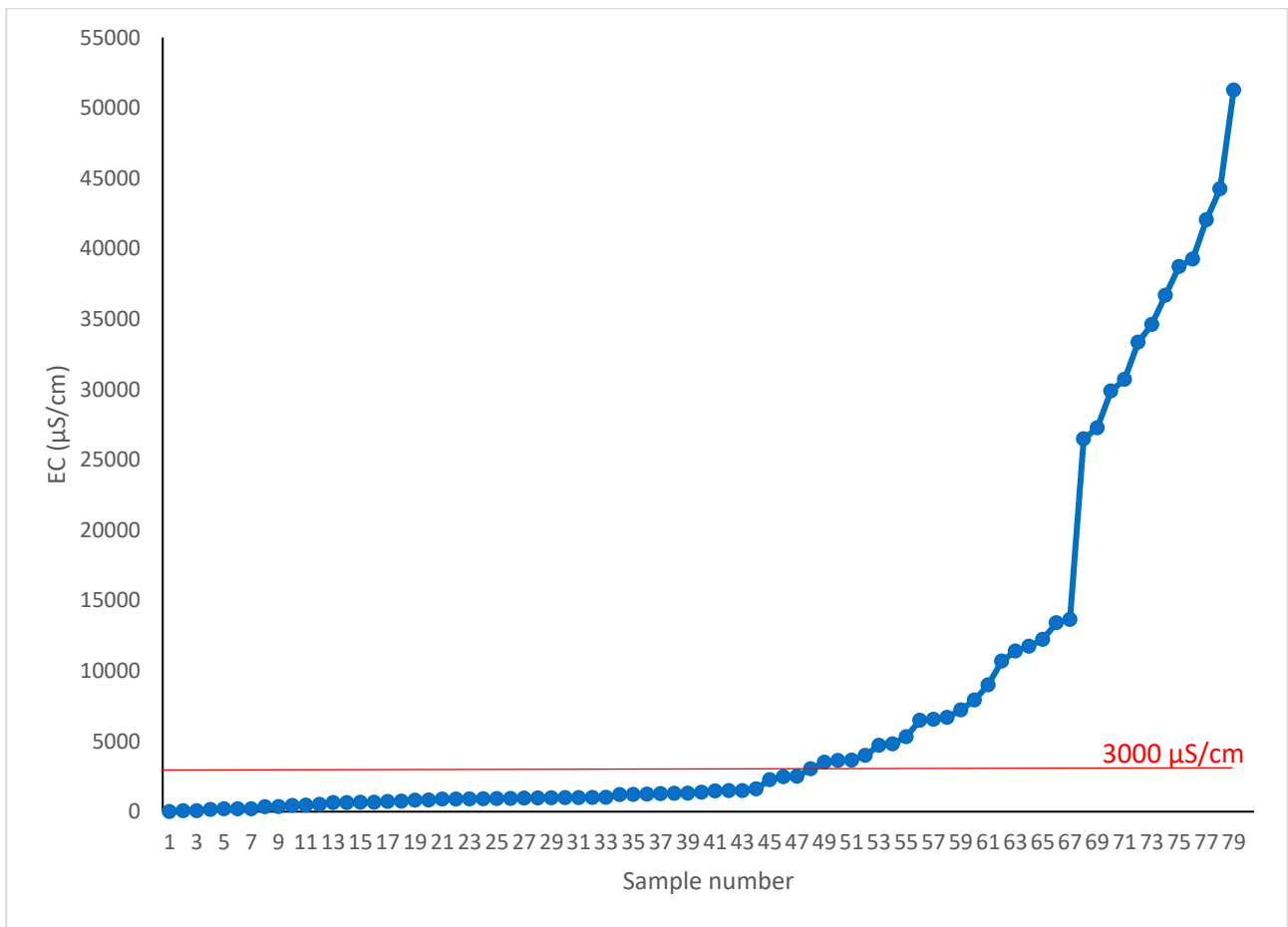
#### **Salinity as a major influence on groundwater microbial communities in agricultural landscapes**

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**Fig. S1.** Ranked distribution plot of EC ( $\mu\text{S cm}^{-1}$ ).

**Table S1.** Standard method protocols used for chemical analyses.

Variable	Units	Method used
Total nitrogen	mg L <sup>-1</sup>	4500B
Nitrate	mg L <sup>-1</sup>	4500F
Ammonia	mg L <sup>-1</sup>	4500G
Total phosphorus	mg L <sup>-1</sup>	4500BF
Sulphate	mg L <sup>-1</sup>	4110B
Dissolved organic carbon	mg L <sup>-1</sup>	5310C
Manganese	mg L <sup>-1</sup>	3120B
Total dissolved ferrous iron	mg L <sup>-1</sup>	3120B

Method used are based on American Public Health Association *et al.* (2012). Analysis completed by Sydney Analytical Lab, Sydney, NSW, Australia.

**Table S2.** Categories of environmental variables recorded at each site on each sampling occasion.

<b>Variable</b>	<b>Scale used</b>
Volume of sediment <sup>A</sup>	1, Very low (<100 mL of sediment) 2, Low (100-500 mL of sediment) 3, Medium (0.5–2 L) 4, High (2–5 L) 5, Very high (>5 L)
Sediment categories <sup>B</sup> (indicating mode particle size)	Very fine sand (0.062–0.125 mm) Fine sand (0.125–0.25 mm) Medium sand (0.25–0.5 mm) Coarse sand (0.5–1 mm) Organic sediment
Land use categories Dominant land use within 5-km radius of sampling bore	Cropping – irrigated Cropping – non-irrigated Grazing (sheep or cattle) Conservation (land or national park)
Tree cover Number of trees >5 m tall within a 50-m radius from bore.	0, no tree cover 1, 1–2 trees surrounding bore 2, 3–4 trees surrounding bore 3, ≥5 trees surrounding bore

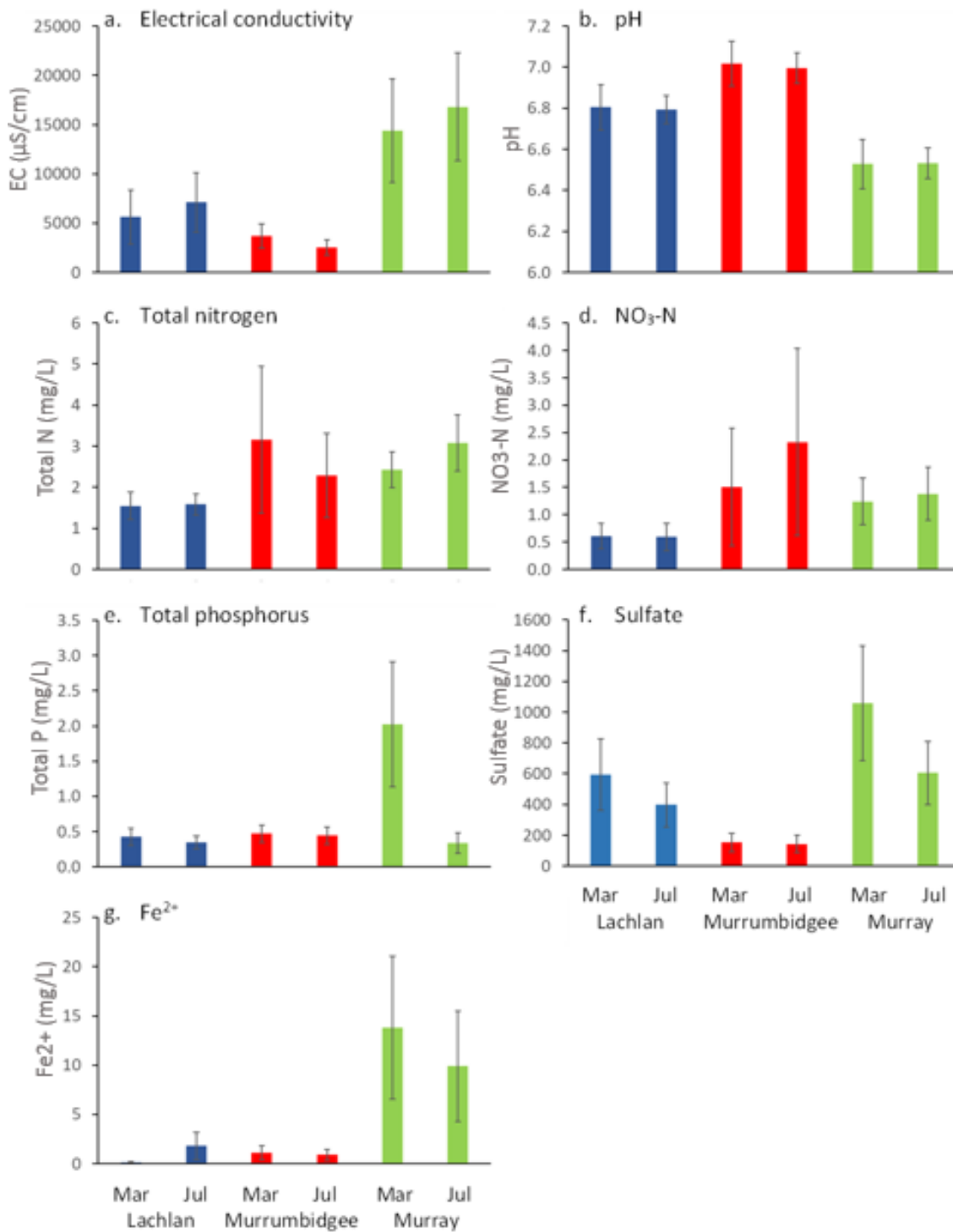
<sup>A</sup>Indicative sediment volumes used as an ordinal variable in analyses.

<sup>B</sup>Based on the Wentworth (1922) scale and used as discrete categorical variables in analyses.

**Table S3.** ANOVA tables and summary of *post hoc* test on significant taxa.

Order	Group	Mean	Tukey	Order	Group	Mean	Tukey
<b>Woesearchaeota</b>				<b>Rhodospirillales</b>			
Catchment × EC interaction $F = 4.43, P = 0.016$	M H	0.66	B	Catchment	M	1.76	A
	M L	1.69	A	$F = 4.19, P = 0.019$	MB	1.29	AB
	MB H	1.16	AB		L	1.23	B
	MB L	1.02	AB	EC	H	1.71	A
	L H	1.71	A	$F = 11.84, P = 0.001$	L	1.14	B
L L	1.45	AB	<b>Chromatiales</b>				
<b>Nitrososphaerales</b>				EC	H	1.24	A
Catchment × EC interaction $F = 9.13, P < 0.01$	M H	0.20	A	$F = 22.71, P < 0.001$	L	0.52	B
	M L	2.29	B		<b>Burkholderiales</b>		
	MB H	0.32	A	EC	H	0.74	A
	MB L	0.47	A	$F = 5.82, P = 0.019$	L	1.24	B
	L H	0.47	A		Season	MARCH	0.74
L L	0.64	A	$F = 5.71, P = 0.02$	JULY	1.24	B	
<b>Acidobacteria</b>				<b>Anaerolineales</b>			
Catchment × EC interaction $F = 16.31, P < 0.001$	M H	1.14	C	EC	H	2.3	A
	M L	3.42	A	$F = 15.85, P < 0.001$	L	1.18	B
	MB H	2.53	AB		Season	MARCH	2.08
	MB L	1.99	BC	$F = 4.88, P = 0.031$	JULY	1.44	B
	L H	2.12	BC		<b>Chloroflexi</b>		
L L	2.16	BC	Catchment	M	0.79	A	
<b>Desulfobacterales</b>				$F = 5.13, 0.008$	MB	1.34	B
Catchment × EC Interaction $F = 3.64, P = 0.032$	M H	1.53	A	L	1.04	AB	
	M L	0.21	B	Season	MARCH	1.23	A
	MB H	0.79	AB	$F = 5.77, P = 0.019$	JULY	0.89	B
	MB L	1.08	AB		<b>Myxococcales</b>		
	L H	1.59	A	Catchment	M	0.86	A
L L	1.12	AB	$F = 5.41, P = 0.007$	MB	1.35	B	
<b>Betaproteobacteria</b>				L	1.07	AB	
				Catchment	M	0.49	A
				$F = 8.07, P = 0.001$	MB	1.50	B
					L	0.91	A

Group: catchment: M, Murray; MB, Murrumbidgee; L, Lachlan. EC: H, High; L, Low. Mean and Tukey's *post hoc* comparison (means that share a letter are not significantly different). EC, electrical conductivity.



**Figure S2.** Water quality variables (a) electrical conductivity (EC), (b) total phosphorus (total P), (c) sulphate ( $\text{SO}_4^{2-}$ ), (d) ferrous iron ( $\text{Fe}^{2+}$ ), (e) pH and (f) nitrogen ( $\text{NO}_3^-$ ), by sampling period (March–July) and catchment. Within each plot columns with letters identify a significant difference between catchments, columns with different letters are significantly different ( $P < 0.05$ ).

## References

American Public Health Association, American Water Works Association, Water Environment Federation (2012) 'Standard Methods for the Examination of Water and Waste Water', 22nd edn. (APHA, AWWA, WEF)

Wentworth CK (1922) A scale of grade and class terms for clastic sediments. *The Journal of Geology* **30**, 377–392.