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Supplementary Material

Impacts of river regulation and fragmentation on platypuses in the northern Murray–Darling Basin

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Table S1. Summary of the Wilcoxon signed rank exact test of differences between the proportion of seasonal discharge between the downstream and upstream river sections.

	Peel (V, P)	Gwydir (V, P)	Severn (V, P)	Pike (V, P)
Autumn	47, 0.008	138, 0.726	164, 0.235	52, 1.000
Spring	152, 0.216	148, 0.272	125, 0.759	85, 0.169
Summer	74, 0.092	53, 0.0156	46, 0.007	7, < 0.001
Winter	198, 0.019	168, 0.187	218, 0.002	89, 0.020

Table S2. Summary of the Kruskal–Wallis rank sum test of differences between the proportion of seasonal discharge within the downstream and upstream river sections.

	Peel (χ^2 , P)	Gwydir (χ^2 , P)	Severn (χ^2 , P)	Pike (χ^2 , P)
Downstream	32.53, <0.001	53.51, <0.001	39.14, <0.001	25.68, <0.001
Upstream	14.59, 0.002	11.24, 0.010	5.04, 0.169	1.35, 0.717

Table S3. *Post hoc* pairwise comparisons using the Wilcoxon rank-sum test with a Bonferroni correction (for significant Kruskal–Wallis rank sum test as above)

Season	Autumn	Spring	Summer
Gwydir DS			
Spring	0.033	-	-
Summer	<0.001	<0.001	-
Winter	<0.001	0.014	<0.001
Peel DS			
Summer	<0.001	-	-
Autumn	0.14	0.004	-
Winter	0.709	<0.001	0.03
Peel US			
Summer	0.925	-	-
Autumn	0.018	0.004	-
Winter	0.925	0.514	0.034
Severn DS			
Spring	0.764	-	-
Summer	<0.001	0.001	-
Winter	0.015	0.005	<0.001
Pike DS			
Spring	0.715	-	-
Summer	0.021	0.021	-
Winter	0.003	0.009	<0.001

Table S4. Summary of the Wilcoxon signed rank exact test of differences between the maximum monthly water temperatures between the downstream and upstream river sections.

	Peel (V, P)	Gwydir (V, P)	Severn (V, P)	Pike (V, P)
Autumn	153.5, 0.932	162, <0.001	171.5, 0.683	
Spring	307, 0.018	171, <0.001	296, 0.011	
Summer	384, 0.002	171, <0.001	349.5, <0.001	
Winter	83.5, 0.012	4, <0.001	1, <0.001	

Table S4. Univariate test outcomes from 'manyglm' analysis detailing Wald statistics and P-values for each order of macroinvertebrates

Order	Test statistic	P-value	Order	Test statistic	P-value
Gwydir River			Trichoptera	1.2225	0.31
Anthoathecata	11.8396	0.001	Trombidiformes	4.0029	0.079
Araneae	1.2225	0.424	Tubificida	0	1
Calanoida	1.2225	0.407	Peel River		
Coleoptera	4.0029	0.093	Anthoathecata	3.2521	0.111
Crassiclitellata	3.5606	0.074	Araneae	0.0062	0.802
Cyclopoida	8.9169	0.009	Calanoida	0.2871	0.701
Decapoda	1.9828	0.206	Coleoptera	3.0337	0.123
Diplostraca	1.1966	0.312	Crassiclitellata	0.0141	0.862
Diptera	1.6958	0.152	Cyclopoida	4.5349	0.037
Enchytraeida	1.2225	0.429	Decapoda	1.2813	0.295
Entomobryomorpha	0	1	Diplostraca	1.2813	0.301
Ephemeroptera	0.7212	0.492	Diptera	0	1
Hemiptera	2.5499	0.143	Enchytraeida	1.5563	0.25
Hymenoptera	0	1	Entomobryomorpha	3.2521	0.101
Lepidoptera	1.9828	0.203	Ephemeroptera	5.269	0.027
Limnomedusae	5.8278	0.021	Hemiptera	1.5563	0.273
Lumbriculida	0.028	0.812	Hymenoptera	1.5563	0.267
Megaloptera	0	1	Lepidoptera	4.3986	0.052
Monostilifera	0.8238	0.442	Limnomedusae	0.4354	0.56
Odonata	0	1	Lumbriculida	2.1615	0.199
Orthoptera	1.6958	0.276	Megaloptera	7.1915	0.006
Plecoptera	0	1	Monostilifera	3.2521	0.12
Poduromorpha	0.9081	0.398	Odonata	1.5563	0.178
Psocoptera	0	1	Orthoptera	3.2521	0.11
Sarcoptiformes	0.4569	0.555	Plecoptera	1.5563	0.178
Scutigeromorpha	0	1	Poduromorpha	0.0062	0.789
Spongillida	4.0029	0.056	Psocoptera	1.5563	0.254
Stylommatophora	0	1	Sarcoptiformes	2.6348	0.134
Thysanoptera	1.6958	0.136	Scutigeromorpha	0	1

Order	Test statistic	P-value
Spongillida	2.6124	0.158
Stylommatophora	3.2521	0.11
Thysanoptera	0	1
Trichoptera	1.5563	0.273
Trombidiformes	1.5563	0.162
Tubificida	0	1
Pike Creek		
Anthoathecata	0.0943	0.775
Araneae	1.8648	0.194
Calanoida	0	1
Coleoptera	3.9394	0.06
Crassiclitellata	0.5913	0.511
Cyclopoida	0.1664	0.703
Decapoda	1.6721	0.25
Diplostraca	0.0719	0.809
Diptera	0	1
Enchytraeida	0	1
Entomobryomorpha	0	1
Ephemeroptera	0.0719	0.833
Hemiptera	0.2384	0.646
Hymenoptera	0.9665	0.515
Lepidoptera	0.7961	0.415
Limnomedusae	2.4878	0.161
Lumbriculida	17.0065	0.001
Megaloptera	0	1
Monostilifera	0	1
Odonata	2.3071	0.164
Orthoptera	0	1
Plecoptera	0	1
Poduromorpha	5.5492	0.044
Psocoptera	0	1
Sarcoptiformes	0.1664	0.676

Order	Test statistic	P-value
Scutigermorpha	0	1
Spongillida	2.9151	0.096
Stylommatophora	0	1
Thysanoptera	0	1
Trichoptera	1.1047	0.288
Trombidiformes	0	1
Tubificida	0	1
Severn River		
Anthoathecata	2.7788	0.155
Araneae	0	1
Calanoida	2.7788	0.16
Coleoptera	0	1
Crassiclitellata	0.0384	0.939
Cyclopoida	0.0141	0.919
Decapoda	1.5563	0.187
Diplostraca	0.4354	0.545
Diptera	1.3336	0.497
Enchytraeida	0	1
Entomobryomorpha	0	1
Ephemeroptera	15.4734	0.002
Hemiptera	0.7039	0.412
Hymenoptera	0	1
Lepidoptera	1.3255	0.279
Limnomedusae	2.7788	0.177
Lumbriculida	1.5979	0.251
Megaloptera	2.7788	0.144
Monostilifera	0.0062	0.768
Odonata	0	1
Orthoptera	0	1
Plecoptera	1.5563	0.254
Poduromorpha	1.5979	0.268
Psocoptera	0	1

Order	Test statistic	<i>P</i>-value
Sarcoptiformes	4.3569	0.058
Scutigeromorpha	1.3336	0.427
Spongillida	0.0062	0.809
Stylommatophora	0	1
Thysanoptera	0	1
Trichoptera	0.0062	0.787
Trombidiformes	0	1
Tubificida	0	1