

Interactive comment on “Inter-annual variability of dissolved inorganic nitrogen in the Biobío River, Central Chile: an analysis base on a decadal database along with 1-D reactive transport modeling” by M. Yévenes et al.

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The authors would like to thank the reviewer 2 for the valuable comments and incorporate these two responses to the comments.

Table 2. Looks like ranges for water quality variables are give but this is not clearly stated in the caption. What do the errors represent? SD, SEM, CIs? This is sloppy. We clarify this term in the tableb 2, and we add the statistical parameter name in the Table 2. In terms of the total annual flux, it would be helpful if the authors could convert

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the 159 Mmol y⁻¹ value into kg/y and kg/ha/y. Respond: we have expressed the 0.159 Gmol in kg/ha/year as the authors suggested. The new unit value is 19 kg/ha/year.

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Table 2: Chemical parameters for winter and summer for each station in the Biobío River. Total suspended solid, oxygen, biological oxygen demand, nitrate, nitrite and ammonium are expressed in mg L⁻¹. Temperature (T) in °C. Conductivity in µS·cm. Statistic: \bar{x} : refers to arithmetic media, SD: standard deviation, min: minimum, max: maximum.

Season	Statistic	T	pH	Cond	TSS	DO ₂	ODD	NO ₃	NO ₂	NH ₄	
ABB0	Winter	\bar{x} -SD	7.3±0.6	7.2±0.45	64±6	24.4±38.8	0±0.7	1.4±0.7	0.2±0.07	0.005±0.00	0.07±0.14
		min-max	4-8.3	6.4-7.9	40-95	1.2-125	0.9-18.9	0.9-9	0.05-0.57	0.005-0.005	0.02-0.43
	Summer	\bar{x} -SD	18.9±1.8	7.4±0.29	47±7.9	187±20.7	9.5±0.8	1.1±0.3	0.05±0.00	0.005±0.00	0.05±0.02
	min-max	17-20.6	7.1-7.9	36-60	1706	8.3-10.6	1±9	0.05-0.05	0.005-0.005	0.02-0.08	
BB0	Winter	\bar{x} -SD	6.1±1.1	7.4±0.45	74±18	19.8±6.2	0±0.5	1.2±0.2	0.14±0.06	0.005±0.00	0.03±0.03
		min-max	4-7.5	6.8-8.3	50-99	1.265	0.8-12.4	1±4	0.05-0.21	0.005±0.005	0.02-0.10
	Summer	\bar{x} -SD	12.3±1.8	7.5±0.4	80±7	14.3±12.4	10±0.7	1.5±0.5	0.05±0.02	0.005±0.002	0.07±0.10
	min-max	8.2-19.3	6.9-8.6	53-100	1.269	10.2-8.3	1-2.4	0.05-0.10	0.005±0.00	0.02-0.06	
BB1	Winter	\bar{x} -SD	6.1±1.1	7.5±0.3	69±17	2.8±2.8	11.9±0.9	1.2±0.08	0.15±0.03	0.005±0.00	0.04±0.06
		min-max	4-7.7	6.8-7.7	4-72	1±15	10.2-8.7	1±5	0.12-0.2	0.005±0.005	0.02-0.19
	Summer	\bar{x} -SD	14±2.6	7.4±0.2	55.4±7.2	2.5±2.4	10.2±0.7	1.2±0.3	0.06±0.009	0.005±0.00	0.03±0.02
	min-max	8.2-20.5	6.9-7.9	40-81	1±15	10.0-14.4	1±8	0.05-0.07	0.005±0.005	0.02-0.06	
BB3	Winter	\bar{x} -SD	8.9±0.6	7.48±0.26	58±10	0±0.5	11.6±0.5	1.1±0.17	0.72±0.23	0.007±0.009	0.03±0.08
		min-max	7.9-9.6	7.07±1.7	42-86	3.5-35	10.2-10.7	1±4	0.44-1.05	0.005±0.008	0.02-0.15
	Summer	\bar{x} -SD	18±1.9	7.7±0.2	70±10	8.7±1.5	8±0.5	1.2±0.3	0.7±0.07	0.005±0.00	0.05±0.08
	min-max	12-22	6.6-7.8	44-98	14-35	9.9-12	1±8	0.1-0.26	0.005±0.005	0.02-0.15	
BB4	Winter	\bar{x} -SD	8.2±1.1	7.5±0.69	63±5	1.5±7.9	11.2±0.6	1.5±0.9	0.88±0.12	0.07±0.17	0.03±0.10
		min-max	6.1-9.5	6.9-9.3	42-95	3.5-35	10-2	1-2.2	0.28-2.8	0.005±0.48	0.02-0.15
	Summer	\bar{x} -SD	17.3±2.3	7.7±0.6	79±15	9.9±7.2	9.1±2	1.4±0.6	0.16±0.1	0.02±0.03	0.02±0.07
	min-max	13-22	6.4-8.7	50-141	2.8-30	8.9-10.7	1-2.6	0.05-0.25	0.005±0.09	0.02-0.04	
BB7	Winter	\bar{x} -SD	9.2±0.98	7.5±0.27	87±48	15.8±12	10.5±0.5	1.3±0.4	1.01±0.46	0.01±0.002	0.04±0.02
		min-max	7.9-9.9	7.1-7.8	56-171	2.7-27	9.7-10.3	1.0-1.9	0.6-1.76	0.005±0.018	0.02-0.06
	Summer	\bar{x} -SD	22.9±7.7	7.7±0.2	69±22	14±10.9	10.0±0.5	1±1.1	0.4±0.16	0.005±0.002	0.05±0.003
	min-max	11.6-30	7.3-7.8	49-135	2.4-27	7.8-9	1.0-1.3	0.24-1.70	0.005±0.009	0.02-0.02	
BB8	Winter	\bar{x} -SD	9.9±3.5	7.2±0.25	59±7	1.9±7.9	10.8±0.6	1.4±0.5	0.75±0.17	0.006±0.007	0.05±0.05
		min-max	8.0-12	6.5-7.6	44-93	3.6-36	9.5-10.7	1-2.4	0.44-1.1	0.005±0.009	0.02-0.18
	Summer	\bar{x} -SD	21±7.9	7.6±0.47	87±26	9.5±7	8.9±1	1.1±0.1	0.27±0.02	0.007±0.005	0.02±0.18
	min-max	11.9-26	6.4-7.9	50-126	2.9-36	8.1-12	1±3	0.08-0.51	0.005±0.021	0.02-0.15	
BB11	Winter	\bar{x} -SD	10.1±1.4	7.6±0.75	58±11	8.6±12	10.8±0.5	1.4±0.7	0.9±0.22	0.006±0.009	0.05±0.05
		min-max	5.0-12	6.3-9.5	45-91	6.3-34	10-17	1-2.8	0.28-1.0	0.005±0.005	0.02-0.19
	Summer	\bar{x} -SD	21.6±1.7	7.7±0.4	85±22	14±1	8.4±0.9	1.2±0.5	0.38±0.23	0.005±0.000	0.02±0.07
	min-max	12.3-27	6.7-8.3	59-124	3.6-51	8.3-9.3	1±4	0.13-0.8	0.005±0.006	0.02-0.04	
BB32	Winter	\bar{x} -SD	10.5±1.4	7.3±0.2	80±19	15.5±18.5	10.1±0.94	1.6±0.8	1.3±0.4	0.005±0.005	0.03±0.09
		min-max	9-10.5	7-7.7	56-111	2.8-86	7.9-14.4	1-3.2	0.27-1.8	0.005±0.073	0.02-2.13
	Summer	\bar{x} -SD	21.3±1.7	7.6±0.5	225±181	15±6	8.0±1.3	1.9±0.9	1.0±0.1	0.05±0.07	0.04±0.21
	min-max	13-27	6.7-8.5	12.2-330	2.8-66	5.9-9.6	1±5	1.0-16	0.04-0.22	0.02-0.70	

Fig. 1.