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SUPPLEMENTARY MATERIAL

Development and evaluation of the Lake Multi-biotic Integrity Index for Dongting Lake, China

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Supplementary Tab. 1. Rotated component matrix.

Factor	PC1	PC2	PC3
pH	-0.531	-0.430	-0.627
ρ(DO)/(mg/L)	**0.948**	0.008	0.101
$\rho(COD_{Mn})$/(mg/L)	**0.879**	0.358	-0.202
$\rho(COD_{Cr})$/(mg/L)	0.138	**-0.702**	0.232
$\rho(BOD_5)$/(mg/L)	0.140	**0.958**	-0.032
$\rho(NH_3\text{-N})$/(mg/L)	**0.812**	0.465	0.250
ρ(TN)/(mg/L)	**0.890**	0.315	-0.013
ρ(TP)/(mg/L)	-0.287	0.003	**0.919**
ρ(Fecal *escherichia coli*)/(ind/L)	0.098	0.593	0.518
ρ(Chl *a*)/(μg/L)	0.138	0.692	0.163
Characteristic value	4.029	2.712	1.701
Variance (%	)40.294	27.124	17.006
Cumulative variance (%)	40.294	67.418	84.424

Supplementary Tab. 2. Assessment of water quality by using MAI and PI in 2012.

Sections	MAI	Polluted degree	PI	Polluted degree
Potou	42	3	2.91	4
Nanzui	40	5	2.92	5
Jiangjiazui	46	1	2.49	1
Wanzi Lake	44	2	2.78	2
Hengling Lake	42	3	2.83	3
Yugongmiao	38	6	3.17	6
Lujiao	36	7	3.18	7
East Dongting Lake	32	8	3.25	8
Dongting Lake outlet	30	9	3.37	9
Big-small west Lake	28	10	3.47	10

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Supplementary Tab. 3. Assessment of water quality by using MAI and PI in 2011.

Sections	MAI	Polluted degree	PI	Polluted degree
Potou	32	3	2.98	3
Jiangjiazui	34	2	2.84	2
Nanzui	30	4	3.08	4
Wanzi Lake	36	1	2.80	1
Yugongmiao	26	6	3.67	7
Lujiao	24	7	3.34	6
East Dongting Lake	28	5	3.16	5

Note: we cancelled two metrics (% Chironomidae individuals, % Predators individuals) of the LMII during the verification by using the data of 2011 just because the majority zero values in calculation. Four levels of discriminatory biocriteria for water quality were eventually obtained by quartation: 8-16, poor; 17-24, fair; 25-32, good; 33-40, very good.

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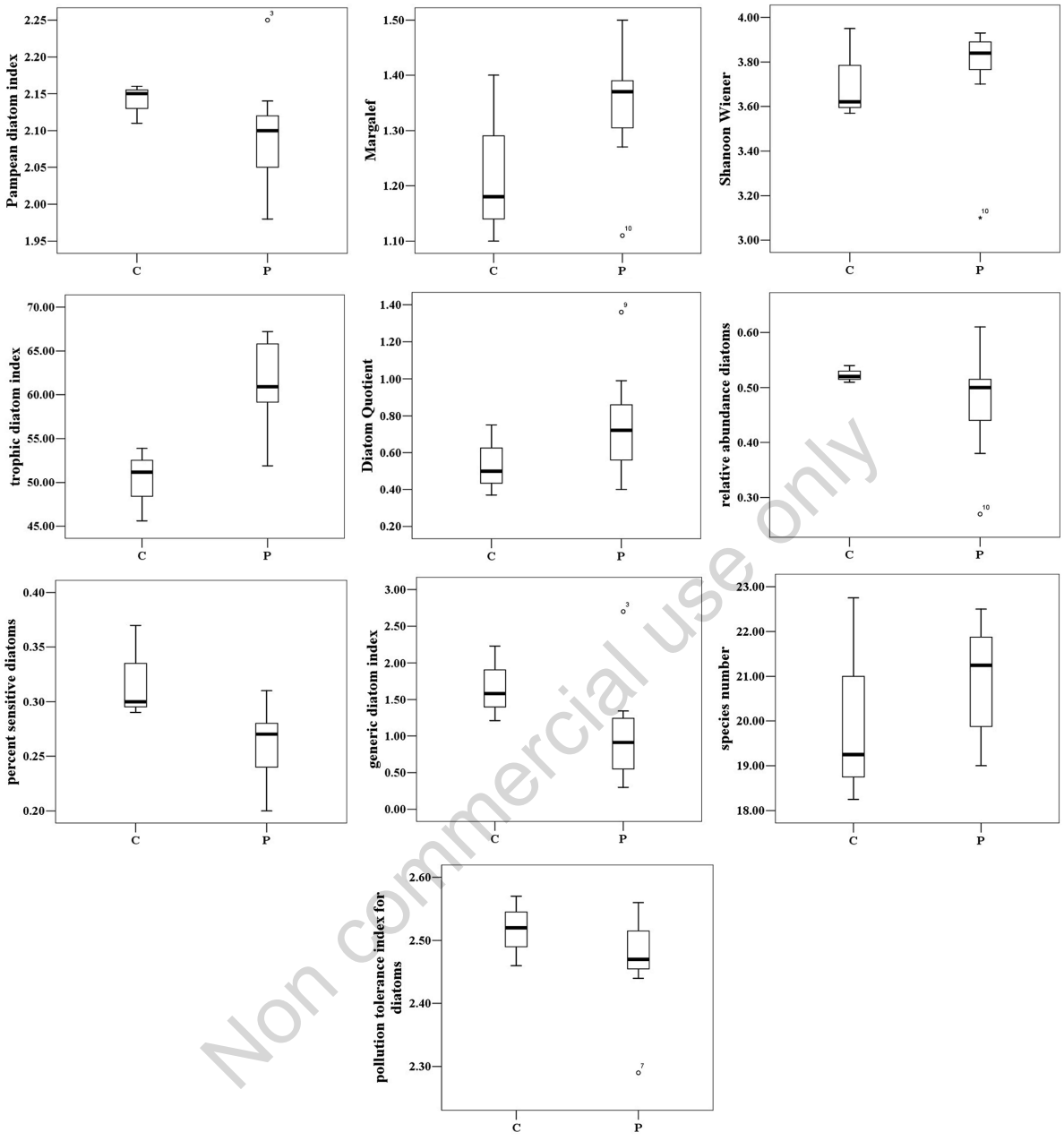

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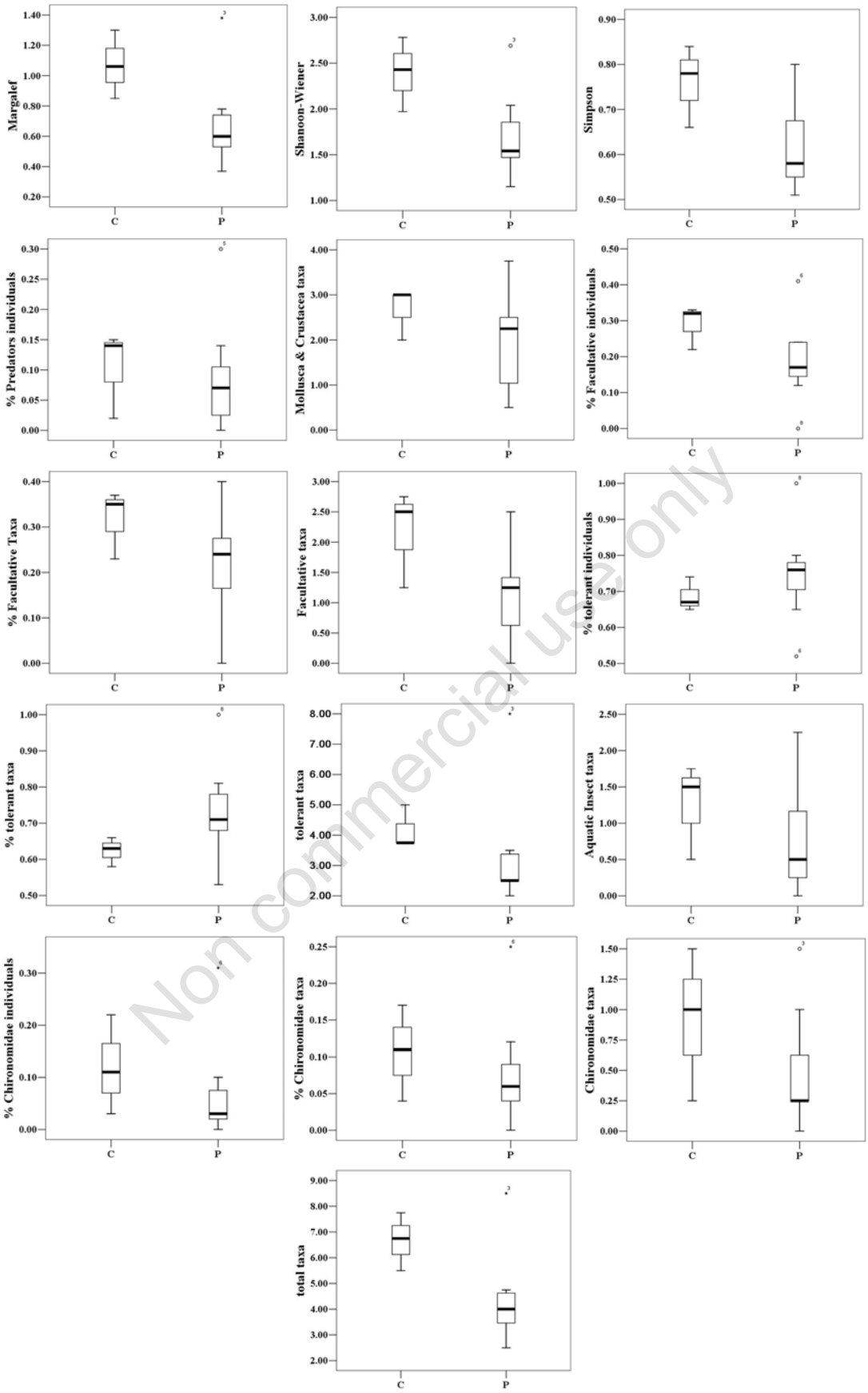
Supplementary Fig. 1. High identification quality of 10 algae metrics in all sampling sections. C, Clean sections; P, Impaired sections.



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Supplementary Fig. 2. High identification quality 16 benthos metrics in all sampling sections. C, clean sections; P, impaired sections.