

Supplementary material

**Ecological improvement by restoration on the Jialu River:
water quality, species richness and distribution**

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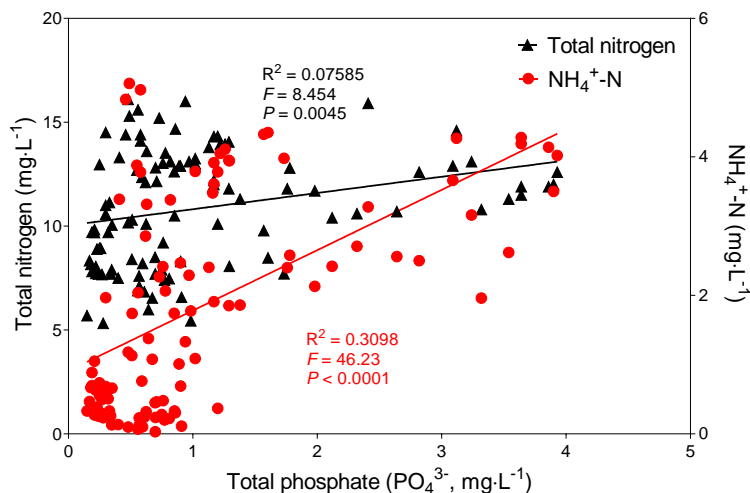


Fig. S1. The simple linear regression of the concentration of TP with TN and $\text{NH}_4^+\text{-N}$. TN, total nitrogen; TP, total phosphorus.

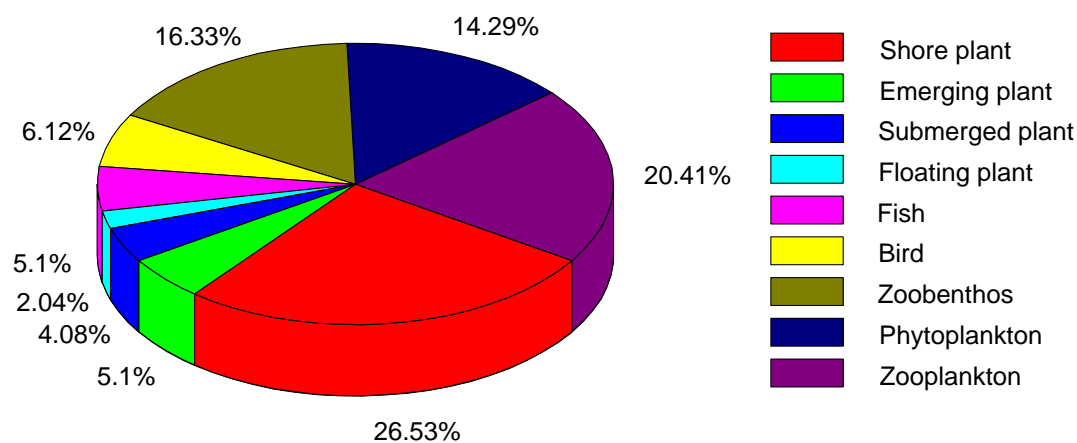


Fig. S2. The family distribution of the dominant species along the project segment of Jialu River.

Table S1. Chinese environmental quality standard for different levels of surface water (Ministry of Environmental Protection of China 2002)

Only dissolved oxygen (DO), total nitrogen (TN), total phosphorus (TP), $\text{NH}_4^+\text{-N}$, and chemical oxygen demand (COD) are listed in this table, all in milligrams per litre

Level	COD	$\text{NH}_4^+\text{-N}$	DO	TP	TN	Description
I	≤15	≤0.15	≥7.5	≤0.02	≤0.2	Source water, National Nature Reserve water
II	≤15	≤0.5	≥6	≤0.1	≤0.5	First-level protected area of centralized drinking water and surface water source area, habitat of rare aquatic life, fish and shrimp spawning grounds, larval and juvenile fish feeding grounds, etc.
III	≤20	≤1	≥5	≤0.2	≤1	Secondary protection areas of centralized protected drinking water and surface water source, wintering grounds and migratory passages of fish and shrimp, swimming areas, aquaculture areas and other fishing areas
IV	≤30	≤1.5	≥3	≤0.3	≤1.5	General industrial water areas and recreational water areas that are not in direct contact with the human body
V	≤40	≤2.0	≥2	≤0.4	≤2	Agricultural water area and general landscape requirement for water quality control

Table S2. The detail description of sampling sites in Jialu River

Sits	River section	GPS	Description
1#	005 County Road Bridge	34°48'32.87'N, 113°50'29.80'E	The 005 County Road Bridge is located 1.49 km south-east of Beijing-Hong Kong-Macao high-speed Jialu Bridge, at the intersection of 005 County Road and Jialu River
2#	White grave bridge (008 Country Road Bridge)	34°46'31.40'N, 113°52'37.39'E	The white grave bridge (or 008 Road Bridge) is located 550 m south of Zhengkai Road Jialu River Bridge, at the intersection of 008 County Road and Jialu River
3#	Groyne of Wanshan Road Bridge	34°44'31.16'N, 113°55'11.03'E	The groyne is located 680 m south-east of Wanshan Road Bridge in Jialu River
4#	Qingyuan Bridge	34°43'40.386'N, 113°57'38.861'E	1 km south-west of Qinghe Bridge
5#	Groyne of Agricultural Bridge	34°43'56.91'N, 113°59'36.85'E	The groyne located 680 m south-east of Agricultural Bridge
6#	220 m north-east of North San Guanmiao Bridge	34°45'21.86'N, 114°01'19.24'E	A small bridge located at 220 m north-east of No223 provincial highway, at the intersection of No223 provincial highway and Jialu River
7#	Longhai Railway Bridge	34°43'48.49'N, 113°03'24.46'E	Longhai Railway Bridge

Table S3. Pearson correlations (*r*-values) among water properties

The abbreviations of chemical properties are the same as shown in Table 1. DO, dissolved oxygen;

TSS, total suspended solid. Correlations are significant at: *, < 0.05; **, < 0.01; and ***, < 0.001

levels

	TSS	NH ₄ ⁺ -N	TP	TN	COD
DO	-0.068	0.175	0.236	0.204	0.107
TSS		0.091	0.089	-0.007	-0.204
NH ₄ ⁺ -N			0.557***	0.574***	0.228*
TP				0.275**	0.166
TN					0.313**

Table S4. The richness distribution of the dominant species among the family and sites

Family	Monitoring site							Total
	1#	2#	3#	4#	5#	6#	7#	
Acoraceae			1					1
Actinophryid	1		1					1
Alismataceae	1	1	2					2
Amaranthaceae	2	3	3	3	2	3	1	4
Amoebidae		1						1
Anatidae			1					1
Apiaceae			1					1
Ardeidae	1	1	1	1	1			1
Asteraceae	1		5	1	1			7
Atyidae	1	1	1	1	1	1	1	1
Azollaceae				1				1
Bacillariaceae			1			1		2
Belostomatidae	1		1	1	1	1	1	1
Botryococcaceae						1		1
Brachionidae			1		1			2
Brassicaceae	1		1					2
Bufoidea		1						1
Cannabaceae	1	1	1	1	1	1		1
Caryophyllaceae					1			1
Channidae		1						1
Chenopodiaceae			1					1
Chironomidae		1		1	1		1	1
Chlorellaceae		1	1	1	1	1	1	1
Cladocera				1				1
Cladophoraceae		1			1			1
Closteriaceae	2		2	2		3		3
Cobitidae				1				1
Coenagrionidae		1				1		1
Coenagrionoidea		1			1			1
Columbidae	1							1
Convolvulaceae			1			1		1
Corixidae	1	1		1	1	1		1
Corvidae	1		1					1
Coscinodiscaceae	1	2		1	1			2
Culicidae							1	1
Cyclopidae	1	1	1	1	1	1	1	1
Cyperaceae			4					4
Cyprinidae		1	2	1	3	2	1	4
Cyrenidae						1		1

Family	Monitoring site							Total
	1#	2#	3#	4#	5#	6#	7#	
Daphniidae	2	1	1	1	1	2	1	3
Dytiscidae		1				1		1
Epidtylidae					1			1
Epistylididae	1		1					1
Euplotidae	1		1	1	1			2
Fabaceae						1		1
Fragilariaceae	1	2	1	3	4	1	3	6
Haloragaceae						1		1
Harpacticoida			1					1
Hirundinidae	1					1		1
Hydrocharitaceae		2			1	2	1	2
Hydrodictyaceae		1	1	1	1		1	3
Hypotrich					1		1	1
Lamiaceae			1					1
Lauraceae				1				1
Lemnaceae	2	1		1	1	1		3
Libellulidae	1	1						1
Lymnaeidae		1		1				2
Malvaceae				2	1			2
Meliaceae					1	1		1
Moraceae						1		1
Naididae		1		1	1		1	1
Naticidae	1	1	1				1	1
Naviculaceae	1	1	1	1	2	1	1	5
Nitzschiaceae		1						1
Oscillatoriaceae	1	1	1			1		1
Osphronemidae	1	1						1
Oxytrichidae		1			1		1	1
Palaemonidae		1						1
Parameciidae					1	1	1	2
Passeridae	1	1			1	1	1	1
Pedaliaceae					1	1		1
Pinaceae					1			1
Plantaginaceae		1						1
Poaceae	3	5	9	3	4	7	3	12
Polygonaceae			2					2
Portulacaceae		1	1		1			1
Potamogetonaceae				2				2
Ranidae	1							1
Ranunculaceae					1			1

Family	Monitoring site							Total
	1#	2#	3#	4#	5#	6#	7#	
Rhabditidae	1		1	1		1	1	1
Rotifer		1		1			1	1
Rotifera					1		1	1
Salicaceae	1	2	1			1	2	2
Scenedesmaceae				1		1		1
Selenastraceae						1	1	1
Solanaceae			1					1
Stentoridae	1			1		1		2
Typhaceae		1	2					2
Unionidae						1		1
Urostylina	1		1					1
Urticaceae			1					1
Viviparidae		1						1
Vorticellidae					1			1
Zygnemataceae	1	1	1	1	1		1	1

Table S5. The dominant species observed at the seven sites along the Jialu River

Number	Species name	Family	Classification	Monitoring site						
				1#	2#	3#	4#	5#	6#	7#
1	<i>Amaranthus mangostanus</i> L.	Amaranthaceae	Shore plant	√	√		√		√	
2	<i>Artemisia sphaerocephala</i> Krasch.	Asteraceae	Shore plant				√			
3	<i>Abutilon theophrasti</i> Medicus	Malvaceae	Shore plant				√	√		
4	<i>Broussonetia papyrifera</i> (L.) L'Hér. ex Vent.	Moraceae	Shore plant							√
5	<i>Bidens pilosa</i> L.	Asteraceae	Shore plant				√			
6	<i>Beckmannia syzigachne</i> (Steud.) Fern.	Poaceae	Shore plant				√			
7	<i>Chenopodium album</i> L.	Amaranthaceae	Shore plant		√	√	√	√	√	
8	<i>Chenopodium glaucum</i> L.	Amaranthaceae	Shore plant				√			
9	<i>Cedrus deodara</i> (Roxb.) G. Don	Pinaceae	Shore plant						√	
10	<i>Conyza canadensis</i> (L.) Cronquist	Asteraceae	Shore plant	√		√				
11	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Shore plant		√	√				
12	<i>Cyperus iria</i> L.	Cyperaceae	Shore plant				√			
13	<i>Convolvulus arvensis</i> L.	Convolvulaceae	Shore plant				√			√
14	<i>Cinnamomum bodinieri</i> H. Lév.	Lauraceae	Shore plant				√			
15	<i>Cucumis melo</i> L.	Cucurbitaceae	Shore plant							√
16	<i>Daucus carota</i> L.	Apiaceae	Shore plant				√			
17	<i>Echinochloa caudata</i> Roshev	Poaceae	Shore plant	√	√	√		√	√	√
18	<i>Eleusine indica</i> (L.) Gaertn.	Poaceae	Shore plant				√		√	√
19	<i>Erigeron annuus</i> (L.) Pers.	Asteraceae	Shore plant				√			
20	<i>Hibiscus syriacus</i> L.	Malvaceae	Shore plant				√			
21	<i>Humulus scandens</i> (Lour.) Merr.	Cannabaceae	Shore plant	√	√	√	√	√	√	√
22	<i>Inula japonica</i> Thunb	Asteraceae	Shore plant				√			
23	<i>Lactuca seriola</i> Torner	Asteraceae	Shore plant				√			
24	<i>Leonurus japonicus</i> Houtt.	Lamiaceae	Shore plant				√			

Number	Species name	Family	Classification	Monitoring site						
				1#	2#	3#	4#	5#	6#	7#
25	<i>Lycium chinense</i> Mill.	Solanaceae	Shore plant			√				
26	<i>Quercus variabilis</i> L.	Fagaceae	Shore plant					√	√	
27	<i>Myosoton aquaticum</i> (L.) Moench	Caryophyllaceae	Shore plant					√		
28	<i>Raphanus raphanistrum</i> L.	Brassicaceae	Shore plant			√				
29	<i>Ranunculus japonicus</i> Thunb	Ranunculaceae	Shore plant					√		
30	<i>Rorippa indica</i> (L.) Hiern.	Brassicaceae	Shore plant	√						
31	<i>Paspalum paspaloides</i> (Michx.) Scribn.	Poaceae	Shore plant	√						
32	<i>Plantago asiatica</i> L.	Plantaginaceae	Shore plant		√					
33	<i>Portulaca oleracea</i> L.	Portulacaceae	Shore plant		√	√		√		
34	<i>Populus canadensis</i> Moench	Salicaceae	Shore plant	√	√				√	√
35	<i>Polygonum lapathifolium</i> L.	Polygonaceae	Shore plant			√				
36	<i>Prunus cerasifera</i> Ehrh.	Rosaceae	Shore plant					√		
37	<i>Pycnus polystachyus</i> (Rottb.) P. Beauv.	Cyperaceae	Shore plant			√				
38	<i>Salsola collina</i> Pall	Chenopodiaceae	Shore plant			√				
39	<i>Salix matsudana</i> Koidz.	Salicaceae	Shore plant		√	√				√
40	<i>Sapindus mukurossi</i> Gaertn	Sapindaceae	Shore plant					√		
41	<i>Scirpus triqueter</i> L.	Cyperaceae	Shore plant			√				
42	<i>Schoenoplectus triqueter</i> (L.) Palla	Cyperaceae	Shore plant			√				
43	<i>Sesamum indicum</i> L.	Pedaliaceae	Shore plant					√	√	
44	<i>Setaria glauca</i> (L.) Beauv.	Poaceae	Shore plant		√	√	√	√	√	
45	<i>Sorghum bicolor</i> (L.) Moench	Poaceae	Shore plant						√	
46	<i>Urtica fissa</i> E. Pritz.	Urticaceae	Shore plant			√				
47	<i>Utricularia australis</i> R. Br.	Poaceae	Shore plant		√	√	√	√	√	
48	<i>Vicia sepium</i> L.	Fabaceae	Shore plant						√	
49	<i>Xanthium sibiricum</i> Patrín ex Widder	Asteraceae	Shore plant					√		

Number	Species name	Family	Classification	Monitoring site							
				1#	2#	3#	4#	5#	6#	7#	
50	<i>Zea mays</i> L.	Poaceae	Shore plant							√	
51	<i>Acorus calamus</i> L.	Acoraceae	Emerging			√					
52	<i>Alternanthera philoxeroides</i> (Mart.)	Amaranthaceae	Emerging	√	√	√	√	√	√	√	√
53	<i>Echinochloa crusgalli</i> (L.) Beauv. var. <i>zelayensis</i> (H. B. K.) Hitchc.	Poaceae	Emerging			√					
54	<i>Phragmites australis</i> (Cav.) Trin. ex Steud.	Poaceae	Emerging	√	√	√	√	√	√	√	√
55	<i>Polygonum hydropiper</i> L.	Polygonaceae	Emerging			√					
56	<i>Sagittaria trifolia</i> L.	Alismataceae	Emerging	√		√					
57	<i>Sagittaria trifolia</i> L. var. <i>sinensis</i> (Sims.) Makino	Alismataceae	Emerging		√	√					
58	<i>Sparganium stoloniferum</i> (Buch.-Ham. ex Graebn.) Buch.-Ham. ex Juz.	Typhaceae	Emerging			√					
59	<i>Typha orientalis</i> Presl.	Typhaceae	Emerging		√	√					
60	<i>Zizania latifolia</i> (Griseb.) Stapf	Poaceae	Emerging			√					
61	<i>Cladophora</i> Geyer	Cladophoraceae	Submerged		√			√			
62	<i>Hydrilla verticillata</i> (Linn. f.) Royle var. <i>rosburghii</i> Casp.	Hydrocharitaceae	Submerged		√			√	√	√	
63	<i>Myriophyllum verticillatum</i> L.	Haloragaceae	Submerged							√	
64	<i>Potamogeton crispus</i> L.	Potamogetonaceae	Submerged				√				
65	<i>Potamogeton pectinatus</i> L.	Potamogetonaceae	Submerged				√				
66	<i>Vallisneria natans</i> (Lour.) H. Hara	Hydrocharitaceae	Submerged		√					√	
67	<i>Azolla imbricata</i> (Roxb.) Nakai	Azollaceae	Floating				√				
68	<i>Lemna minor</i> L.	Lemnaceae	Floating	√	√		√	√			
69	<i>Spirodela polyrrhiza</i> (L.) Schleid.	Lemnaceae	Floating	√							
70	<i>Wolffia arrhiza</i> (L.) Wimmer	Lemnaceae	Floating							√	
71	<i>Carassius auratus</i> L.	Cyprinidae	Fish		√	√		√	√	√	
72	<i>Channa argus</i> Cantor	Channidae	Fish		√						
73	<i>Ctenopharyngodon idellus</i> Günther	Cyprinidae	Fish					√			
74	<i>Cyprinus carpio</i> L.	Cyprinidae	Fish			√	√	√			

Number	Species name	Family	Classification	Monitoring site						
				1#	2#	3#	4#	5#	6#	7#
75	<i>Macropodus ocellatus</i> Cantor	Osphronemidae	Fish	√	√					
76	<i>Megalobrama amblycephala</i> Yih	Cyprinidae	Fish						√	
77	<i>Misgurnus anguillicaudatus</i> Cantor	Cobitidae	Fish				√			
78	<i>Egretta</i> Forster	Ardeidae	Bird	√		√	√	√		
79	<i>Hirundo rustica</i> L.	Hirundinidae	Bird	√					√	
80	<i>Passer montanus</i> L.	Passeridae	Bird	√	√			√	√	√
81	<i>Pica pica</i> L.	Corvidae	Bird	√		√				
82	<i>Tadorna ferruginea</i> Pallas	Anatidae	Bird			√				
83	Turtle Dove	Columbidae	Bird	√						
84	<i>Corbicula fluminea</i> Müller	Cyrenidae	Zoobenthos						√	
85	Caenagrion larvae	Coenagrionoidea	Zoobenthos		√			√		
86	Culicidae larvae	Culicidae	Zoobenthos							√
87	Chironomid	Chironomidae	Zoobenthos		√		√	√		√
88	Coenagrionidae Kirby	Coenagrionidae	Zoobenthos		√				√	
89	Dragonfly larvae	Libellulidae	Zoobenthos	√	√					
90	<i>Glossaulax didyma</i> Röding	Naticidae	Zoobenthos	√	√	√				√
91	<i>Kirkaldyia deyrollei</i> L.	Belostomatidae	Zoobenthos	√		√	√	√	√	√
92	<i>Limnodrilus hoffmeisteri</i> Claperede	Naididae	Zoobenthos		√		√	√		√
93	<i>Lymnaea stagnalis</i> L.	Lymnaeidae	Zoobenthos				√			
94	<i>Macrobrachium nipponense</i> De Haan	Palaemonidae	Zoobenthos		√					
95	<i>Neocaridina denticulata</i> De Haan	Atyidae	Zoobenthos	√	√	√	√	√	√	√
96	predaci diving beetle	Dytiscidae	Zoobenthos		√				√	
97	<i>Rana nigromaculata</i> Hallowell	Ranidae	Zoobenthos	√						
98	<i>Radix ovata</i> L.	Lymnaeidae	Zoobenthos		√					
99	Tadpole	Bufoidea	Zoobenthos		√					

Number	Species name	Family	Classification	Monitoring site						
				1#	2#	3#	4#	5#	6#	7#
100	<i>Unionidae</i>	Unionidae	Zoobenthos							√
101	Viviparidae	Viviparidae	Zoobenthos		√					
102	Water boatman	Corixidae	Zoobenthos	√	√		√	√	√	
103	<i>Botryococcus braunii</i> Kutzing	Botryococcaceae	Phytoplankton							√
104	<i>Chlorella vulgaris</i> L.	Chlorellaceae	Phytoplankton		√	√	√	√	√	√
105	<i>Closterium venus</i> Kuetz.	Closteriaceae	Phytoplankton	√		√	√		√	
106	<i>Closterium moniliferum</i> (Bory) Ehrenb. ex Ralfs	Closteriaceae	Phytoplankton							√
107	<i>Cyclotella comta</i> (Ehrenb.) Kütz.	Coscinodiscaceae	Phytoplankton	√	√					
108	<i>Closterium lanceolatum</i> Kützing ex Ralfs	Closteriaceae	Phytoplankton							√
109	<i>Closterium acerosum</i> (Schrank) Ehrenb. ex Ralfs	Closteriaceae	Phytoplankton	√		√	√		√	
110	<i>Diatoma vulgare</i> Bory de Saint-Vincent	Fragilariaceae	Phytoplankton					√		
111	<i>Fragilaria capucina</i> Desm.	Fragilariaceae	Phytoplankton		√			√		√
112	<i>Gyrosigma acuminatum</i> Ehr.	Naviculaceae	Phytoplankton		√					
113	<i>Melosira islarica</i> Miill	Coscinodiscaceae	Phytoplankton		√		√	√		
114	<i>Navicula bicapitellata</i> Hust	Naviculaceae	Phytoplankton	√					√	√
115	<i>Navicula simplex</i> Krasske	Naviculaceae	Phytoplankton				√	√		
116	<i>Navicula exigua</i> Pantocsek	Naviculaceae	Phytoplankton					√		
117	<i>Navicula cryptocephala</i> Kützing	Naviculaceae	Phytoplankton			√				
118	<i>Nitzschia sublinearis</i> Hust.	Bacillariaceae	Phytoplankton			√				
119	<i>Nitzschia palea</i> Grunow	Bacillariaceae	Phytoplankton						√	
120	<i>Nitzschia sublinearis</i> Hust.	Nitzschiaceae	Phytoplankton		√					
121	<i>Oscillatoria princeps</i> Vaucher ex Gomont	Oscillatoriaceae	Phytoplankton	√	√	√			√	
122	<i>Pediastrum duplex</i> Meyen	Hydrodictyaceae	Phytoplankton		√	√		√		
123	<i>Pediastrum biradiatum</i> Meyen	Hydrodictyaceae	Phytoplankton				√			
124	<i>Pediastrum simplex</i> Meyen	Hydrodictyaceae	Phytoplankton							√

Number	Species name	Family	Classification	Monitoring site						
				1#	2#	3#	4#	5#	6#	7#
125	<i>Quadrigula chodatii</i> (Tanner-Füll.) G.M.Sm.	Selenastraceae	Phytoplankton						√	√
126	<i>Spirogyra</i> Link	Zygnemataceae	Phytoplankton	√	√	√	√	√		√
127	<i>Synedra acus</i> var Ehrenberg	Fragilariaceae	Phytoplankton				√			
128	<i>Synedra amphicephala</i> Kütz.	Fragilariaceae	Phytoplankton	√		√	√	√	√	
129	<i>Synedra ulna</i> (Nitzsch) Ehrenb.	Fragilariaceae	Phytoplankton		√			√		√
130	<i>Scenedesmus quadricauda</i> (Turpin) Bréb.	Scenedesmaceae	Phytoplankton				√		√	
131	<i>Tabellaria fenestrata</i> (Lyngb.) Kütz.	Fragilariaceae	Phytoplankton				√			√
132	<i>Actinosphaerium eichhorni</i> Ehr.	Actinophryid	Zooplankton	√		√				
133	<i>Amoeba proteus</i> (Pal.)	Amoebidae	Zooplankton		√					
134	<i>Brachionus calyciflorus</i> Pallas	Brachionidae	Zooplankton					√		
135	<i>Brachionus</i>	Brachionidae	Zooplankton			√				
136	<i>Caenorhabditis elegans</i> Maupas	Rhabditidae	Zooplankton	√		√	√		√	√
137	<i>Cyclopoidea</i>	Cyclopidae	Zooplankton	√	√	√	√	√	√	√
138	<i>Ciliophora</i> Petr.	Epistylididae	Zooplankton	√		√	√			
139	Cladocera	Cladocera	Zooplankton				√			
140	<i>Daphnia magna</i> Straus	Daphniidae	Zooplankton	√		√			√	√
141	<i>Daphnia carinata</i> King	Daphniidae	Zooplankton		√			√		
142	<i>Euplotes eurystomus</i> Wrzesniowski	Euplotidae	Zooplankton	√		√		√		
143	<i>Euplotes</i> O.F.Müller	Euplotidae	Zooplankton				√			
144	<i>Harpacticoida</i> Sars	Harpacticoida	Zooplankton			√				
145	<i>Paramecium acutum</i> Dumas	Parameciidae	Zooplankton						√	√
146	<i>Paramecium caudatum</i> Ehrenberg	Parameciidae	Zooplankton					√		
147	<i>Paruroleptus caudatus</i> Stokes	Epidtylidae	Zooplankton					√		
148	Rotifer	Rotifer	Zooplankton		√		√			√
149	<i>Synchaeta pectinata</i> Ehrenberg	Rotifera	Zooplankton					√		√

Number	Species name	Family	Classification	Monitoring site						
				1#	2#	3#	4#	5#	6#	7#
150	<i>Simocephalus vetulus</i> (O. F. Müller)	Daphniidae	Zooplankton	√			√		√	
151	<i>Stentor polymorphus</i> (Müller) Ehr	Stentoridae	Zooplankton				√			
152	<i>Stentor roeseli</i> Kahl	Stentoridae	Zooplankton	√					√	
153	<i>Stylonychia notophra</i> Stokes	Oxytrichidae	Zooplankton		√			√		√
154	<i>Uroleptus caudatus</i> (Stokes) Bardele	Urostylina	Zooplankton	√		√				
155	<i>Urostyla mullipes</i> (Claparède & Lachmann) Kahl	Hypotrich	Zooplankton					√		
156	<i>Vorticella campanula</i> Ehrenberg	Vorticellidae	Zooplankton					√		

Table S6. Comparison of the dominant species found in Jialu River on July 2013 and 2015

Shore plant	Hydrophyte	Zoobenthos	Zooplankton	Phytoplankton	Bird and fish
<i>Abutilon theophrasti</i> ^A	<i>Acorus calamus</i> ^A	<i>Caenagrion</i> larvae	<i>Actinosphaerium eichhorni</i>	<i>Botryococcus braunii</i> ^A	<i>Carassius auratus</i>
<i>Amaranthus mangostanus</i>	<i>Alternanthera philoxeroides</i>	Chironomid	<i>Amoeba proteus</i>	<i>Chlorella vulgaris</i>	<i>Ctenopharyngodon idellus</i> ^A
<i>Artemisia sphaerocephala</i> ^A	<i>Azolla imbricata</i>	Coenagrionidae	<i>Brachionus</i>	<i>Closterium lanceolatum</i>	<i>Cyprinus carpio</i> ^A
<i>Broussonetia papyrifera</i>	<i>Cladophora</i>	<i>Corbicula fluminea</i> ^A	<i>Brachionus calyciflorus</i>	<i>Closterium</i>	<i>Egretta</i>
<i>Cedrus deodara</i> ^A	<i>Cladophora</i>	Culicidae larvae	<i>Caenorhabditis elegans</i>	<i>Closterium acerosum</i>	<i>Hirundo rustica</i>
<i>Chenopodium album</i> Linn	<i>Hydrilla verticillata</i>	Dragonfly larvae	Cladocera ^A	<i>Closterium moniliferum</i>	<i>Megalobrama amblycephala</i> ^A
<i>Cinnamomum bodinieri</i>	<i>Lemna minor</i>	<i>Glossaulax didyma</i>	Cyclopoidea	<i>Cyclotella comta</i>	<i>Misgurnus anguillicaudatus</i> ^A
<i>Conyza canadensis</i>	<i>Myriophyllum verticillatum</i>	<i>Kirkaldyia deyrollei</i> ^A	<i>Daphnia magna</i>	<i>Diatoma vulgare</i>	<i>Passer montanus</i>
<i>Cucumis melo</i>	<i>Phragmites australis</i>	<i>Limnodrilus hoffmeisteri</i>	<i>Daphnia carinata</i> ^A	<i>Fragilaria capucina</i>	<i>Pica pica</i> (or Eurasian magpie)
<i>Daucus carota</i> ^A	<i>Potamogeton pectinatus</i> ^A	<i>Neocaridina denticulata</i> ^A	<i>Euplotes eurytomus</i>	<i>Gyrosigma acuminatum</i>	<i>Tadorna ferruginea</i>
<i>Echinochloa caudata</i>	<i>Sagittaria trifolia</i> ^A	<i>Radix ovata</i>	<i>Euplotes</i>	<i>Melosira islarica</i>	
<i>Erigeron annuus</i>	<i>Typha orientalis</i> ^A	<i>Rana nigromaculata</i> ^A	<i>Harpacticoida</i>	<i>Navicula bicapitellata</i>	
<i>Hibiscus syriacus</i>		Tadpole ^A	<i>Paramecium</i>	<i>Navicula simplex</i>	
<i>Humulus scandens</i>		Unionidae ^A	<i>Paruroleptus caudatus</i> Stokes	<i>Navicula exigua</i>	
<i>Lactuca seriola</i> Torner		Viviparidae ^A	<i>Paramecium caudatum</i>	<i>Navicula cryptocephala</i>	
<i>Leonurus japonicus</i> ^A		Water boatman ^A	<i>rotifer synchaeta</i>	<i>Nitzschia sublinearis</i>	
<i>Melia azedarach</i> ^A			<i>Rotifer</i>	<i>Nitzschia palea</i> ^A	
<i>Plantago asiatica</i> ^A			<i>Stentor polymorphus</i>	<i>Oscillatoria princeps</i>	
<i>Portulaca oleracea</i>			<i>Stentor roeseli</i>	<i>Pediastrum simplex</i>	
<i>Populus canadensis</i>			<i>Uroleptus caudatus</i>	<i>Pediastrum duplex</i>	
<i>Prunus cerasifera</i> ^A			<i>Urostyla mullipes</i>	<i>Quadrigula chodatii</i>	
<i>Raphanus raphanistrum</i> ^A			<i>Vorticella campanula</i>	<i>Scenedesmus quadricauda</i>	
<i>Ranunculus japonicus</i>				<i>Spirogyra</i>	
<i>Salix matsudana</i>				<i>Synedra amphicephala</i>	
<i>Sapindus mukurossi</i>				<i>Synedra acus</i> var	

Shore plant	Hydrophyte	Zoobenthos	Zooplankton	Phytoplankton	Bird and fish
<i>Sesamum indicum</i>				<i>Tabellaria fenestrata</i>	
<i>Schoenoplectus triqueter</i> ^A					
<i>Sorghum bicolor</i> ^A					
<i>Urtica fissa</i>					
<i>Utricularia australis</i>					
<i>Xanthium sibiricum</i>					
<i>Zea mays</i> ^A					

^ASpecies found during July 2015 but not during July 2013.



Fig. S3. The representative emerging plants. *Zizania latifolia* (top left), *Phragmites australis* (top right), *Typha orientalis* (bottom left) and *Sagittaria latifolia* (bottom right).



Fig. S4. The representative submerged plants. *Hydrilla verticillata* (top left), *Myriophyllum verticillatum* (top right), *Potamogeton crispus* (bottom left) and *Ceratophyllum demersum* (bottom right).

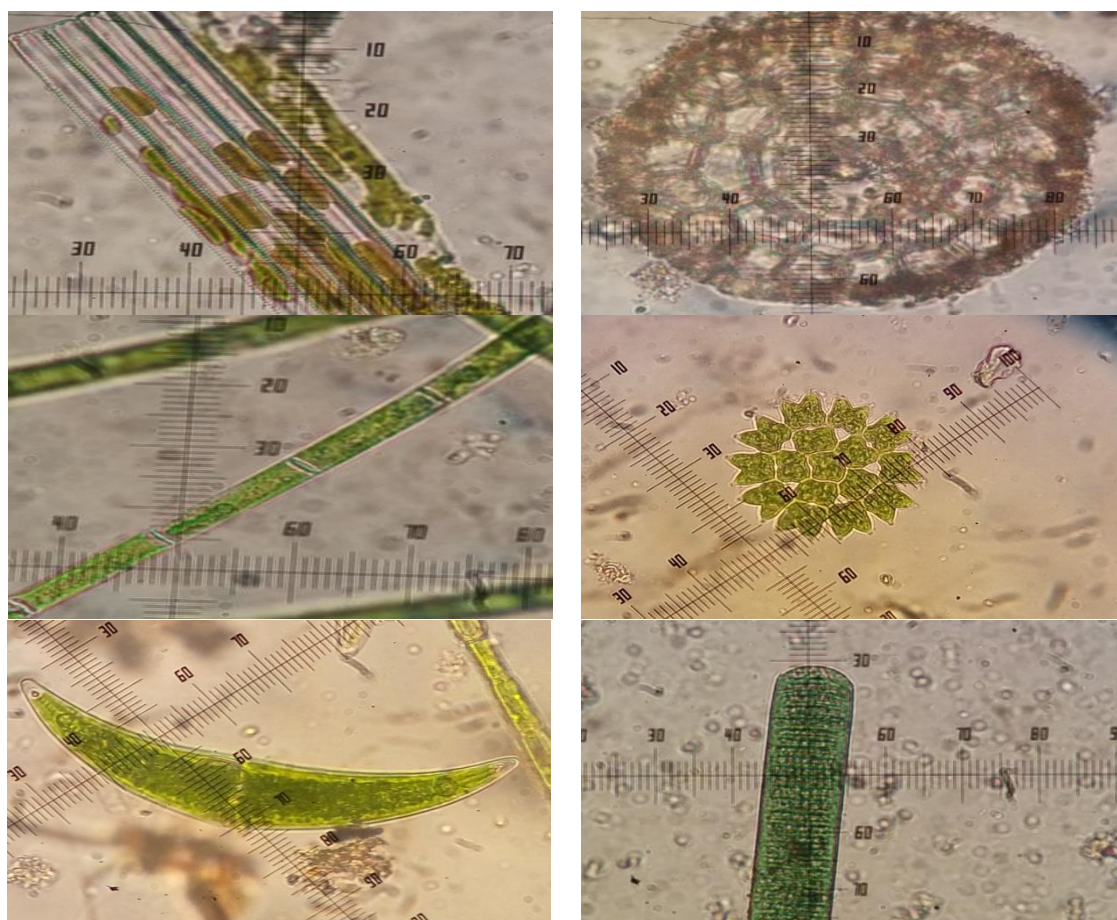


Fig. S5. The representative phytoplankton. *Fragilaria capucina* (top left), *Cyclotella* (top right), *Melosira* (middle left), *Pediastrum biradiatum* (middle right), *Closterium moniliferum* (bottom left) and *Oscillatoria princeps* (bottom right).

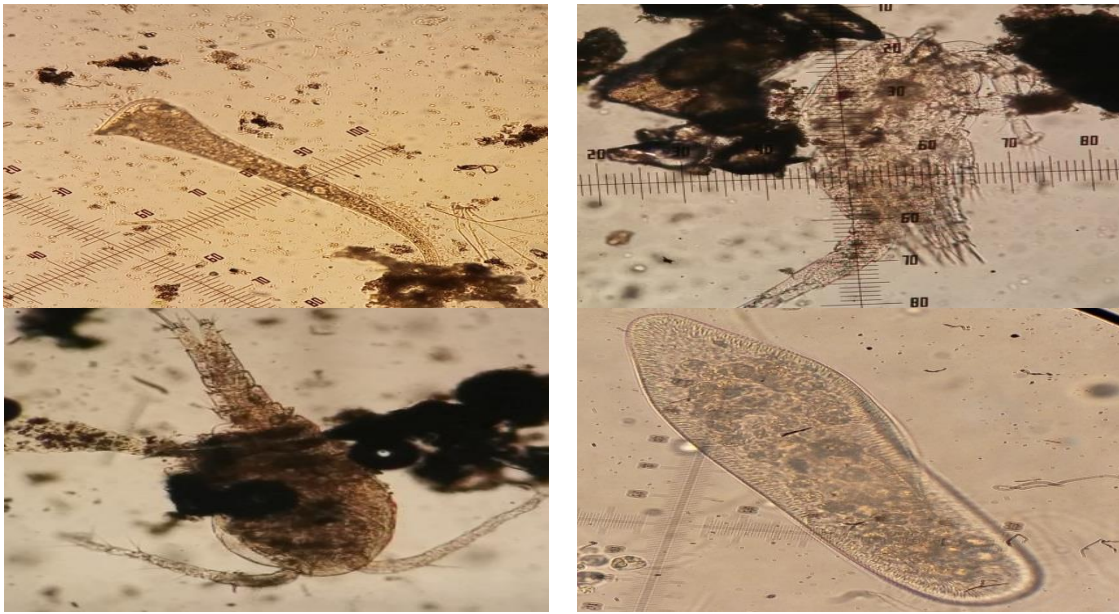


Fig. S6. The representative zooplankton. *Stentor roeseli* (top left), *Daphnia longispina* (top right), *Cyclopoida* (bottom left) and *Paramecium* (bottom right).



Fig. S7. The representative zoobenthos. *Corixidae* (top left), *Dragonfly* larvae (top right), *Caenagrion* larvae (middle left), *Kirkaldyia deyrollei* (middle right), *Planorbis planorbis* (bottom left) and *Limnodrilus hoffmeisteri* (bottom right).



Fig. S8. The representative fish. *Misgurnus anguillicaudatus* (top left), *Megalobrama amblycephala* (top right), *Cyprinus carpio* (middle left), *Carassius auratus* (middle right), *Macropodus ocellatus* (bottom left) and *Channa argus* (bottom right).



Fig. S9. The representative birds. *Ardea alba* (top left and right), *Pica pica* (bottom left) and *Tadorna ferruginea* (bottom right).

Reference

Ministry of Environmental Protection of China (2002). 'Environmental Quality Standard for Surface Water in China (GB3838-2002).' (MEPC: Beijing, PR China.) [In Chinese].