Supplementary data

Table S1. Coordinates of survey stations in the Yong River basin

Sections	Sites	Sites ID	Longitude (°E)	Latitude (°N)
UYAR	FengHuangShanQiao	1	121.0507965	30.03350757
	JingJiangDu	2	121.0846138	30.04781053
	ZhongShanZhongLuQiao	3	121.1652517	30.04457861
	PuKouZha	4	121.2185955	30.02815736
MYAR	XinQiaoPu	1	121.2533999	30.02146919
	DanDongXianQian	2	121.2862301	29.99984103
	CheJiu	3	121.3098335	29.97768772
	ChengShanDu	4	121.3788414	29.95538074
LYAR	ShenHaiGaoSu	1	121.4366484	29.93477951
	XiHongDu	2	121.4638138	29.91335567
	HuanWeiMaTou	3	121.510613	29.90428819
	QingLinDu	4	121.5300751	29.90889178
FHR	YinChengDaDao	1	121.445446	29.77413737
	FanShiDu	2	121.4788342	29.79246273
	YinXianDaDao	3	121.5163422	29.82024234
	ChengLangYan	4	121.5453529	29.85629592
YOR	ZhongXingDaQiao	1	121.5751362	29.89453161
	SanJiangKou	2	121.6172791	29.90688297
	QingShuiPuDaQiao	3	121.6789913	29.92258039
	ZhangJianQi	4	121.6957283	29.94645655

Table S2. Fish composition and habitat types in Yong River basin based on historical records.

Order	Family	Scientific name	Habitat type
Clupeiformes	Clupeldae	*Tenualosa reevesii*[§]	Brackish fish
	Engraulidae	*Coilia nasus*	Brackish fish
Osmeriformes	Salangidae	*Protosalanx hyalocranius*	Brackish fish
		Neosalanx tangkahkeii	Freshwater fish
		Neosalanx taihuensis	Freshwater fish
		Salanx ariakensis	Brackish fish
Anguilliformes	Anguillidae	*Anguilla japonica*	Brackish fish
Cypriniformes	Cyprinidae	*Mylopharyngodon piceus*	Freshwater fish
		Ctenopharyngodon idella[c4]	Freshwater fish
		Elopichthys bambusa[c4]	Freshwater fish
		Opsariichthys uncirostris[c8]	Freshwater fish
		Zacco platypus[c8]	Freshwater fish
		Nipponocypris temminckii[c8]	Freshwater fish
		Squaliobarbus curriculus#*	Freshwater fish
		Toxabramis swinhonis[c6]	Freshwater fish
		Hemiculter leucisculus[c3]	Freshwater fish
		Hemiculter bleekeri[c3]	Freshwater fish
		Chanodichthys erythropterus#[c3]	Freshwater fish
		Parabramis pekinensis[c3]	Freshwater fish
		Pseudolaubuca sinensis[c3]	Freshwater fish
		Sinibrama macrops#	Freshwater fish
		Megalobrama terminalis[c3]	Freshwater fish
		Chanodichthys dabryi[c3]	Freshwater fish
		Chanodichthys mongolicus[c3]	Freshwater fish
		Xenocypris macrolepis#[§]	Freshwater fish
		Plagiognathops microlepis[c3]	Freshwater fish
		Distoechodon tumirostris	Freshwater fish
		Pseudobrama simoni[c6]	Freshwater fish
		Rhodeus sinensis#	Freshwater fish
		Rhodeus ocellatus#	Freshwater fish
		Rhodeus lighti	Freshwater fish
		Acheilognathus imberbis	Freshwater fish
		Acheilognathus macropterus	Freshwater fish
		Acheilognathus tonkinensis	Freshwater fish
		Acheilognathus polylepis[§]	Freshwater fish
		Acheilognathus taenianalis[§]	Freshwater fish
		*Acanthorhodeus chankaensis**	Freshwater fish
		Hypophthalmichthys nobilis[c4]	Freshwater fish
		Hypophthalmichthys molitrix#*[c4]	Freshwater fish
		Acrossocheilus fasciatus	Freshwater fish
		Acrossocheilus paradoxus	Freshwater fish
		Cyprinus carpio#	Freshwater fish

Order	Family	Scientific name	Habitat type
		Carassius auratus#	Freshwater fish
		Hemibarbus labeo[c5]	Freshwater fish
		Hemibarbus maculatus[c5]	Freshwater fish
		Hemibarbus longirostris	Freshwater fish
		Belligobio nummifer[c5]	Freshwater fish
		Pseudorasbora parva#	Freshwater fish
		Sarcocheilichthys sinensis	Freshwater fish
		Sarcocheilichthys parvus	Freshwater fish
		Sarcocheilichthys nigripinnis#	Freshwater fish
		Gnathopogon taeniellus	Freshwater fish
		Squalidus argentatus[c4]	Freshwater fish
		Squalidus wolterstorffi[c4]	Freshwater fish
		Microphysogobio chenhsienensis	Freshwater fish
		Saurogobio dabryi	Freshwater fish
		Saurogobio gymnocheilus	Freshwater fish
	Cobitidae	*Cobitis sinensis*	Freshwater fish
		Niwaella laterimaculata[§]	Freshwater fish
		Misgurnus anguillicaudatus#[c7]	Freshwater fish
		Paramisgurnus dabryanus[c7]	Freshwater fish
	Botiidae	*Leptobotia tchangi*[§]	Freshwater fish
	Gastromyzontidae	*Vanmanenia stenosoma*	Freshwater fish
Siluriformes	Siluridae	*Silurus asotus*	Freshwater fish
	Bagridae	*Tachysurus fulvidraco*[c2]	Freshwater fish
		*Tachysurus nitidus**	Freshwater fish
		Pseudobagrus vachellii[§]	Freshwater fish
		Tachysurus dumerili[§]	Freshwater fish
		Pseudobagrus crassilabris[c2]	Freshwater fish
		Pseudobagrus tenuis[c2]	Freshwater fish
		Pseudobagrus truncatus	Freshwater fish
		Pseudobagrus albomarginatus[c2]	Freshwater fish
	Amblycipitidae	*Liobagrus marginatus*	Freshwater fish
Beloniformes	Adrianichthyidae	*Oryzias latipes*	Freshwater fish
	Hemiramphidae	*Hyporhamphus intermedius*	Brackish fish
Mugiliformes	Mugilidae	*Mugil cephalus**	Brackish fish
		Planiliza haematocheilus	Brackish fish
Synbranchiformes	Synbranchidae	*Monopterus albus*	Freshwater fish
Perciformes	Sinipercidae	*Siniperca chuatsi*	Freshwater fish
	Lateolabracidae	*Lateolabrax japonicus*	Brackish fish
	Eleotridae	*Bostrychus sinensis*	Brackish fish
		Eleotris oxycephala	Brackish fish
	Odontobutidae	*Odontobutis obscurus*[§]	Freshwater fish
		Micropercops swinhonis	Freshwater fish
	Gobiidae	*Psammogobius biocellatus*	Brackish fish

Order	Family	Scientific name	Habitat type
		Rhinogobius giurinus#§	Brackish fish
		Ctenogobius shennongensis§	Freshwater fish
		Odontamblyopus rubicundus	Marine fish
	Osphronemidae	*Macropodus opercularis*	Freshwater fish
	Channidae	*Channa argus*	Freshwater fish
	Mastacembelidae	*Macrognathus aculeatus*	Freshwater fish
Pleuronectiformes	Cynoglossidae	*Cynoglossus lachneri*§	Marine fish
		Cynoglossus purpureomaculatus§	Marine fish
		Cynoglossus gracilis	Marine fish
		Cynoglossus abbreviatus	Marine fish
Tetraodontiformes	Tetraodontidae	*Takifugu vermicularis*c1	Marine fish
		*Takifugu ocellatus*c1	Brackish fish
		*Takifugu obscurus*c1	Brackish fish
		*Takifugu bimaculatus*c1	Marine fish

Note: # captured by drift gillnets and ground cages in the study; *detected by eDNA metabarcoding in the study; § the *12S RNA* sequence of this species is absent; the same number after c means that these species cluster together when the sequence similarity is 100%.

Table S3. Survey of fish composition, reads, relative abundance, *IRI* and habitat types in Yong River basin based on eDNA metabarcoding.

Order	Family	Scientific name	Habitat type	Reads	Relative abundance (%)	*IRI*
Cypriniformes	Cyprinidae	*Acanthorhodeus chankaensis*[&]	Freshwater fish	1338	0.33	3
		Acheilognathus hypselonotus	Freshwater fish	5965	1.47	59
		Rhodeus uyekii	Freshwater fish	1227	0.30	5
		Microphysogobio fukiensis	Freshwater fish	75	0.02	0
		Saurogobio lissilabris	Freshwater fish	169	0.04	0
		Alburnus mossulensis	Freshwater fish	133849	32.98	3134
		Hypophthalmichthys molitrix[&]	Freshwater fish	69680	17.17	1288
		Squaliobarbus curriculus[&]	Freshwater fish	322	0.08	2
Siluriformes	Bagridae	*Tachysurus nitidus*[&]	Freshwater fish	94620	23.32	2099
Perciformes	Gobiidae	*Mugilogobius myxodermus*	Freshwater fish	1207	0.30	4
		Oxuderces dentatus	Freshwater fish	1734	0.43	2
		Rhinogobius nagoyae	Freshwater fish	3699	0.91	18
	Odontobutidae	*Odontobutis potamophilus*	Freshwater fish	775	0.19	1
	Carangidae	*Trachinotus ovatus*	Marine fish	30854	7.60	228
	Sciaenidae	*Larimichthys crocea*	Marine fish	2076	0.51	13
		Larimichthys polyactis	Marine fish	8687	2.14	75
	Priacanthidae	*Priacanthus macracanthus*	Marine fish	9255	2.28	57
Clupeiformes	Clupeidae	*Sardinella hualiensis*	Marine fish	35630	8.78	615
		Herklotsichthys quadrimaculatus	Brackish fish	2742	0.68	14
Atheriniformes	Atherinidae	*Atherinomorus lacunosus*	Brackish fish	74	0.02	0
Anguilliformes	Muraenesocidae	*Muraenesox cinereus*	Brackish fish	1483	0.37	7
Mugiliformes	Mugilidae	*Mugil cephalus*[&]	Brackish fish	333	0.08	0

Note: [&] this specie has historical records.

Table S4. Survey of fish composition and habitat types in Yong River based on drift gillnets and ground cages.

Order	Family	Scientific name	Habitat type	Abundance (Ind.)	Relative abundance (%)	Biomass (g)	Relative biomass (%)	*IRI*
Cypriniformes	Cyprinidae	*Rhodeus ocellatus*	Freshwater fish	4	10.53	36.9	4.92	1030
		Rhodeus sinensis	Freshwater fish	4	10.53	40	5.34	1058
		Carassius auratus	Freshwater fish	2	5.26	68.4	9.13	480
		Cyprinus carpio	Freshwater fish	3	7.89	95.8	12.78	2068
		Sarcocheilichthys nigripinnis	Freshwater fish	4	10.53	73	9.74	1351
		*Hypophthalmichthys molitrix**	Freshwater fish	1	2.63	41.9	5.59	274
		Hemiculter leucisculus	Freshwater fish	3	7.89	62.7	8.37	542
		*Squaliobarbus curriculus**	Freshwater fish	1	2.63	18.6	2.48	170
		Chanodichthys erythropterus	Freshwater fish	2	5.26	90.2	12.04	577
		Sinibrama macrops	Freshwater fish	2	5.26	73	9.74	500
		Xenocypris macrolepis§	Freshwater fish	1	2.63	41.7	5.56	273
		Pseudorasbora parva	Freshwater fish	3	7.89	33.3	4.44	411
	Cobitidae	*Misgurnus anguillicaudatus*	Freshwater fish	3	7.89	47.4	6.33	474
Perciformes	Gobiidae	*Rhinogobius giurinus*§	Brackish fish	5	13.16	26.5	3.54	556

Note: * this species detected by eDNA metabarcoding as well; § the *12S RNA sequence* of this species is absent.