Table S2 The Functional traits values of each fish species

NO	Species	Relative body depth	Contribution to swimming	Relative caudal-peduncle size	Relative oral fissure size	Relative eye size
		T1	T2	T3	T4	T5
1	*Abbottina rivularis*	0.214872149	1.404041589	0.081484462	0.09223113	0.211529282
2	*Acheilognathus gracilis*	0.328284699	1.218504199	0.089896519	0.031043816	0.505576208
3	*Acheilognathus chankaensis*	0.400292514	1.389776152	0.056915858	0.047181884	0.554259882
4	*Acheilognathus imberbis*	0.341695936	1.474647887	0.092418423	0.038107871	0.533255543
5	*Acheilognathus macropterus*	0.331076623	2.03924229	0.03487997	0.344129496	0.310013569
6	*Aristichthys nobilis*	0.316742663	2.00734578	0.050244555	0.120188168	0.393245474
7	*Carassius auratus*	0.393059825	1.592877646	0.073022107	0.064957706	0.436358185
8	*Channa argus*	0.188763644	1.064833303	0.040628455	0.174311049	0.427255464
9	*Chanodichthys dabryi*	0.281701794	1.675951019	0.060213925	0.080167848	0.46710011
10	*Chanodichthys erythropterus*	0.245766543	1.770789504	0.049011086	0.082097205	0.502409078
11	*Cobitis macrostigma*	0.129321638	1.15192582	0.097228322	0.068876366	0.290677675
12	*Coilia brachygnathus*	0.140054858	1.150912106	0.007144405	0.217365792	0.430407801
13	*Coilia ectenes*	0.170112205	1.496215087	0.010803036	0.605177392	0.433789954
14	*Ctenopharyngodon idellus*	0.284126731	1.836056645	0.063461079	0.033975438	0.353958144
15	*Culter alburnus*	0.270076991	2.002817481	0.047662706	0.102701521	0.484315538
16	*Cyprinus carpio*	0.333147132	1.531959076	0.04841546	0.094778801	0.431988493
17	*Gnathopogon imberbis*	0.235050414	1.615415987	0.116024122	0.048004655	0.493126386
18	*Gobiobotia filifer*	0.167980236	1.350228441	0.050999201	0.238057933	0.451636529
19	*Hemibarbus labeo*	0.23503769	2.10173848	0.056318391	0.163985881	0.491625348
20	*Chanodichthys mongolicus*	0.195538604	2.232318226	0.069455987	0.142841299	0.530081593
21	*Hypophthalmichthys molitrix*	0.312733635	1.845626455	0.056281532	0.167170679	0.250192383
22	*Hyporhamphus intermedius*	0.076350033	2.416390848	0.029924732	0.207665738	0.602128831
23	*Leiocassis crassilabris*	0.230291243	2.04395684	0.060079358	0.143840573	0.392929659
24	*Megalobrama amblycephala*	0.437589982	2.02071229	0.029020382	0.064004989	0.456603774
25	*Megalobrama terminalis*	0.411783601	2.086171192	0.027463823	0.077065748	0.469766688
26	*Misgurnus anguillicaudatus*	0.14343663	1.152209949	0.118103106	0.062808793	0.30317624
27	*Mugilogobius myxodermus*	0.194390893	1.553116784	0.12136322	0.272135342	0.384748526
28	*Mylopharyngodon piceus*	0.294843209	1.144471348	0.053624497	0.094761201	0.442608439
29	*Ochetobius elongatus*	0.135858342	2.726183343	0.083744332	0.150048883	0.575067541
30	*Odontobutis potamophila*	0.242540269	1.096761485	0.074738836	0.341056567	0.308184084
31	*Parabotia fasciata*	0.172866214	1.520332717	0.070784231	0.09665819	0.386921573
32	*Paramisgurnus dabryanus*	0.139405391	0.943286605	0.116531027	0.102424703	0.234988842
33	*Pelteobagrus eupogon*	0.161770614	1.411850555	0.084796052	0.118551262	0.824740783

NO	Species	Relative body depth	Contribution to swimming	Relative caudal-peduncle size	Relative oral fissure size	Relative eye size
		T1	T2	T3	T4	T5
34	*Pelteobagrus fulvidraco*	0.253412597	1.57797966	0.046068436	0.12874398	0.32763831
35	*Pelteobagrus nitidus*	0.234085209	1.521664505	0.077174876	0.089771441	0.398628987
36	*Pseudobrama simoni*	0.301622103	1.83703271	0.058216809	0.065701171	0.423826053
37	*Pseudolaubuca engraulis*	0.218547011	1.47060505	0.07215911	0.106385592	0.627005431
38	*Pseudolaubuca sinensis*	0.204892349	1.692837196	0.04341679	0.128777926	0.515042915
39	*Pseudorasbora parva*	0.238923925	1.463785387	0.091906838	0.087044083	0.517927999
40	*Rhinogobius cliffordpopei*	0.164318814	1.658658659	0.129191816	0.278640893	0.409717186
41	*Rhinogobius giurinus*	0.217569512	1.484796399	0.116853109	0.263862066	0.369010933
42	*Rhodeus fangi*	0.445337088	1.740828891	0.078904735	0.087910935	0.511582699
43	*Rhodeus ocellatus*	0.4498	2.3802	0.06896	0.04214	0.43668
44	*Rhodeus sinensis*	0.425727259	2.027815381	0.072669394	0.056695696	0.374187139
45	*Sarcocheilichthys sinensis*	0.290820312	1.354770151	0.054510241	0.078727147	0.402661645
46	*Saurogobio dabryi*	0.130681795	1.661818353	0.058528987	0.029961382	0.443436667
47	*Saurogobio dumerili*	0.154887156	2.100076394	0.056382169	0.03204836	0.404145078
48	*Saurogobio gymnocheilus*	0.130681795	1.661818353	0.058528987	0.029961382	0.443436667
49	*Silurus asotus*	0.151322035	1.433823642	0.032331754	0.22843347	0.269488984
50	*Silurus meridionalis*	0.16536281	1.602090032	0.01157756	0.417642972	0.262632906
51	*Siniperca chuatsi*	0.331076623	2.03924229	0.03487997	0.344129496	0.310013569
52	*Siniperca roulei*	0.233896817	1.985492746	0.044437811	0.311841496	0.47367007
53	*Sinobdella sinensis*	0.086390969	0.877659574	0.013851646	0.178841386	0.382219903
54	*Squalidus argentatus*	0.24411	1.826504	0.071181	0.0759869	0.513563
55	*Squaliobarbus curriculus*	0.211213036	1.256130701	0.066642765	0.164987892	0.550616849
56	*Toxabramis swinhonis*	0.211311054	1.750566893	0.057814722	0.073881634	0.474501109
57	*Xenocypris davidi*	0.258087649	1.841940243	0.063995305	0.089628548	0.417720764
58	*Opsariichthys acutipinnis*	0.227994173	1.507572799	0.049619577	0.192772709	0.580166227
59	*Hemiculter leucisculus*	0.19553852	2.232318	0.06945596	0.25134347	0.53008147
60	*Rhynchocypris oxycephalus*	0.19535149	1.0708798	0.102312227	0.1224941	1.1032648
61	*Xenocypris fangi*	0.209676371	2.032291067	27.32579984	61.18624532	0.318609807
62	*Siniperca scherzeri*	0.2615677	1.336918304	39.6350658	296.864956	0.183348161
63	*Monopterus albus*	0.03773295	0.7580072	0	0.27320045	1.798816568
64	*Pseudobagrus ussuriensis*	0.1579645	1.5226415	0.07668492	0.14600772	3.010869565
65	*Microphysogobio elongatus*	0.170723425	1.566769282	0.076802036	0.086398427	0.417934776
66	*Squalidus argentatus*	0.220875639	1.770759325	10.04324448	10.41464561	0.280998877

NO	Species	Relative eye anterior distance	Relative head length	Relative head depth	Spawn Type	Living habits
		T6	T7	T8	T9	T10
1	*Abbottina rivularis*	0.521077711	0.280771646	0.763702752	sinking	settled
2	*Acheilognathus gracilis*	0.506006395	0.214246038	0.364128596	sinking	settled
3	*Acheilognathus chankaensis*	0.367568686	0.228398157	0.36876665	sinking	settled
4	*Acheilognathus imberbis*	0.44639103	0.238668674	0.419481155	sinking	settled
5	*Acheilognathus macropterus*	0.159073141	0.404344861	0.617149556	sinking	settled
6	*Aristichthys nobilis*	0.259853829	0.337020376	0.531131565	drift	migratory
7	*Carassius auratus*	0.383788906	0.308623831	0.483633952	sticky	settled
8	*Channa argus*	0.302719116	0.243126044	0.560329166	floating	settled
9	*Chanodichthys dabryi*	0.250532838	0.222814619	0.443733815	sticky	settled
10	*Chanodichthys erythropterus*	0.234194686	0.243974273	0.505307308	sticky	settled
11	*Cobitis macrostigma*	0.482476253	0.173890756	0.640167364	drift	settled
12	*Coilia brachygnathus*	0.320505111	0.172782811	0.669436202	floating	settled
13	*Coilia ectenes*	0.360635021	0.155429792	0.521541459	floating	settled/migratory
14	*Ctenopharyngodon idellus*	0.280569801	0.279414106	0.492659419	drift	migratory
15	*Culter alburnus*	0.332397682	0.244985018	0.464855917	sticky	settled
16	*Cyprinus carpio*	0.41071137	0.315315566	0.553812509	sticky	settled
17	*Gnathopogon imberbis*	0.339485336	0.263801537	0.478870248	sinking	settled
18	*Gobiobotia filifer*	0.52536207	0.226656793	0.733435827	drift	settled
19	*Hemibarbus labeo*	0.588857785	0.247520827	0.690799103	sticky	settled
20	*Chanodichthys mongolicus*	0.337776468	0.222837574	0.586993464	sticky	settled
21	*Hypophthalmichthys molitrix*	0.360526945	0.312975957	0.844027393	drift	migratory
22	*Hyporhamphus intermedius*	0.350416741	0.169752591	0.716144464	sticky	settled
23	*Leiocassis crassilabris*	0.43582863	0.264381735	0.732458703	sticky	settled
24	*Megalobrama amblycephala*	0.427963353	0.255502501	0.410847851	sticky	settled
25	*Megalobrama terminalis*	0.469275661	0.251918016	0.462932405	sticky	settled
26	*Misgurnus anguillicaudatus*	0.475660721	0.17515414	0.604969773	sinking	settled
27	*Mugilogobius myxodermus*	0.455322678	0.294878546	0.740204945	sinking	settled
28	*Mylopharyngodon piceus*	0.28071962	0.279519901	0.545293644	drift	migratory
29	*Ochetobius elongatus*	0.365511964	0.268828775	0.754469746	drift	migratory
30	*Odontobutis potamophila*	0.319952425	0.35613111	0.637392454	sinking	settled
31	*Parabotia fasciata*	0.545473336	0.246268182	0.677709069	drift	settled
32	*Paramisgurnus dabryanus*	0.444135165	0.186225002	0.770421015	sticky	settled
33	*Pelteobagrus eupogon*	0.496027356	0.166432326	0.359252936	sinking	settled

NO	Species	Relative eye anterior distance	Relative head length	Relative head depth	Spawn Type	Living habits
		T6	T7	T8	T9	T10
34	*Pelteobagrus fulvidraco*	0.270560235	0.288995197	0.54412701	sinking	settled
35	*Pelteobagrus nitidus*	0.513823898	0.22814306	0.552523769	sinking	settled
36	*Pseudobrama simoni*	0.418652014	0.231942959	0.612907039	drift	settled
37	*Pseudolaubuca engraulis*	0.37239421	0.198709127	0.504360694	drift	migratory
38	*Pseudolaubuca sinensis*	0.446315681	0.174603777	0.462727413	sticky	settled
39	*Pseudorasbora parva*	0.411778811	0.240364407	0.526450758	sticky	settled
40	*Rhinogobius cliffordpopei*	0.462526767	0.302965709	0.777777778	sinking	settled
41	*Rhinogobius giurinus*	0.449494508	0.288645213	0.718333005	sinking	settled
42	*Rhodeus fangi*	0.362419661	0.252001546	0.318899428	sinking	settled
43	*Rhodeus ocellatus*	0.41014	0.240608	0.368271	sticky	settled
44	*Rhodeus sinensis*	0.105288542	0.243412125	0.487432643	sticky	settled
45	*Sarcocheilichthys sinensis*	0.491968984	0.220141818	0.521778436	sinking	settled
46	*Saurogobio dabryi*	0.515300108	0.203227989	0.884073823	drift	migratory
47	*Saurogobio dumerili*	0.395964691	0.229029995	0.668353756	drift	migratory
48	*Saurogobio gymnocheilus*	0.515300108	0.203227989	0.884073823	drift	settled
49	*Silurus asotus*	0.362624398	0.236049016	0.666102247	sticky	settled
50	*Silurus meridionalis*	0.411581407	0.238345753	0.682910397	sticky	settled
51	*Siniperca chuatsi*	0.159073141	0.404344861	0.617149556	drift	settled
52	*Siniperca roulei*	0.472787611	0.396926454	0.698704712	drift	settled
53	*Sinobdella sinensis*	0.303254178	0.153526934	0.598937168	sticky	settled
54	*Squalidus argentatus*	0.341194	0.234697	0.570853	drift	settled
55	*Squaliobarbus curriculus*	0.270340311	0.219835308	0.482687864	drift	migratory
56	*Toxabramis swinhonis*	0.242348219	0.204935733	0.43892944	sinking	settled
57	*Xenocypris davidi*	0.444133597	0.231414343	0.646804569	sticky	settled
58	*Opsariichthys acutipinnis*	0.435697937	0.250931751	0.590564844	sinking	settled
59	*Hemiculter leucisculus*	0.3377765	0.22283748	0.58699365	sticky	settled
60	*Rhynchocypris oxycephalus*	0.3955362	0.2630892	0.6829757	sticky	settled
61	*Xenocypris fangi*	0.386730495	0.252665251	16.4895	sticky	settled
62	*Siniperca scherzeri*	0.447116419	0.360470077	26.8845	sticky	settled
63	*Monopterus albus*	0.24483539	0.0971535	1.253046	floating	settled
64	*Pseudobagrus ussuriensis*	0.408349758	0.232375684	0.850510223	sticky	settled
65	*Microphysogobio elongatus*	0.355095055	0.234781759	0.751576861	sticky	settled
66	*Squalidus argentatus*	0.478858548	0.25615505			

NO	Species	Vertical position of water body	Average body length	Feeding type
		T11	T12	T13
1	*Abbottina rivularis*	benthopelagic	small	omnivorous
2	*Acheilognathus gracilis*	benthopelagic	small	omnivorous
3	*Acheilognathus chankaensis*	benthopelagic	small	omnivorous
4	*Acheilognathus imberbis*	benthopelagic	small	omnivorous
5	*Acheilognathus macropterus*	benthopelagic	small	omnivorous
6	*Aristichthys nobilis*	benthopelagic	large	filter feeder
7	*Carassius auratus*	benthopelagic	medium	omnivorous
8	*Channa argus*	benthopelagic	large	carnivorous
9	*Chanodichthys dabryi*	benthopelagic	medium	carnivorous
10	*Chanodichthys erythropterus*	benthopelagic	large	carnivorous
11	*Cobitis macrostigma*	benthopelagic	small	omnivorous
12	*Coilia brachygnathus*	pelagic	medium	omnivorous
13	*Coilia ectenes*	pelagic	medium	carnivorous
14	*Ctenopharyngodon idellus*	benthopelagic	large	herbivorous
15	*Culter alburnus*	benthopelagic	medium	carnivorous
16	*Cyprinus carpio*	benthopelagic	large	omnivorous
17	*Gnathopogon imberbis*	benthopelagic	small	omnivorous
18	*Gobiobotia filifer*	benthopelagic	small	carnivorous
19	*Hemibarbus labeo*	benthopelagi	medium	omnivorous
20	*Chanodichthys mongolicus*	benthopelagi	small	omnivorous
21	*Hypophthalmichthys molitrix*	benthopelagic	large	filter feeder
22	*Hyporhamphus intermedius*	pelagic	small	carnivorous
23	*Leiocassis crassilabris*	benthic	small	omnivorous
24	*Megalobrama amblycephala*	benthopelagic	large	carnivorous
25	*Megalobrama terminalis*	benthopelagic	medium	omnivorous
26	*Misgurnus anguillicaudatus*	benthic	small	omnivorous
27	*Mugilogobius myxodermus*	benthic	small	carnivorous
28	*Mylopharyngodon piceus*	benthic	large	carnivorous
29	*Ochetobius elongatus*	benthopelagic	medium	carnivorous
30	*Odontobutis potamophila*	benthopelagic	small	carnivorous
31	*Parabotia fasciata*	benthic	small	omnivorous
32	*Paramisgurnus dabryanus*	benthic	small	omnivorous
33	*Pelteobagrus eupogon*	benthic	small	omnivorous

NO	Species	Vertical position of water body	Average body length	Feeding type
		T11	T12	T13
34	*Pelteobagrus fulvidraco*	benthic	medium	carnivorous
35	*Pelteobagrus nitidus*	benthic	small	carnivorous
36	*Pseudobrama simoni*	benthopelagic	small	omnivorous
37	*Pseudolaubuca engraulis*	benthopelagic	small	omnivorous
38	*Pseudolaubuca sinensis*	benthopelagic	small	omnivorous
39	*Pseudorasbora parva*	benthopelagic	small	omnivorous
40	*Rhinogobius cliffordpopei*	benthopelagic	small	carnivorous
41	*Rhinogobius giurinus*	benthic	small	carnivorous
42	*Rhodeus fangi*	benthopelagic	small	omnivorous
43	*Rhodeus ocellatus*	benthopelagic	small	omnivorous
44	*Rhodeus sinensis*	benthopelagic	small	omnivorous
45	*Sarcocheilichthys sinensis*	benthopelagic	small	omnivorous
46	*Saurogobio dabryi*	benthopelagic	small	omnivorous
47	*Saurogobio dumerili*	benthopelagic	small	carnivorous
48	*Saurogobio gymnocheilus*	benthopelagic	small	omnivorous
49	*Silurus asotus*	benthic	large	carnivorous
50	*Silurus meridionalis*	benthic	large	carnivorous
51	*Siniperca chuatsi*	benthopelagic	medium	carnivorous
52	*Siniperca roulei*	benthopelagic	small	carnivorous
53	*Sinobdella sinensis*	benthopelagic	small	carnivorous
54	*Squalidus argentatus*	benthopelagic	small	omnivorous
55	*Squaliobarbus curriculus*	benthopelagic	medium	omnivorous
56	*Toxabramis swinhonis*	benthopelagic	small	omnivorous
57	*Xenocypris davidi*	benthopelagic	medium	omnivorous
58	*Opsariichthys acutipinnis*	benthopelagic	small	carnivorous
59	*Hemiculter leucisculus*	benthopelagic	small	omnivorous
60	*Rhynchocypris oxycephalus*	benthic	small	omnivorous
61	*Xenocypris fangi*	benthopelagic	small	herbivorous
62	*Siniperca scherzeri*	benthopelagic	medium	carnivorous
63	*Monopterus albus*	benthic	medium	carnivorous
64	*Pseudobagrus ussuriensis*	benthic	medium	carnivorous
65	*Microphysogobio elongatus*	benthopelagic	small	herbivorous
66	*Squalidus argentatus*			