

Table 2

Biological characteristics (total length, fork length, weight, age), release information (date, site) and tracking statistics (travelling distance, duration from release to last location) of 28 sub-adult Chinese sturgeon tagged with acoustic transmitter IDs, 2008–2012 reintroduction trials

Transmitter ID	Total length (cm)	Fork length (cm)	Weight (kg)	Age (years)	Release date	Release site	Travel distance (km)	Time interval from release to last localization (h)
8270	120	94	8.4	3	09 June 2008	Yibin	–20 <sup>b</sup>	240
8276	122	100	12.3	5	10 June 2008	Yibin	835	360
8269 <sup>a</sup>	136	110	17.6	5	10 June 2008	Yibin	–15 <sup>b</sup>	240
21	127	105	12.7	5	10 June 2008	Yibin	–25 <sup>b</sup>	240
17	138	114	20.4	5	13 June 2008	Yibin	67	120
162	158	132	42.8	7	24 May 2010	Yibin	877	347
166	145	124	17.7	4	28 May 2010	Nanxi	23	48
167	157	132	42.2	6	03 June 2010	Nanxi	23	25
168	117	98	9.5	3	08 June 2010	Nanxi	75	12
164	119	96	9.4	3	08 June 2010	Nanxi	819	321
20	178	150	37.8	6	15 June 2009	Chongqing	120	4486
8268	165	146	28.4	6	15 June 2009	Chongqing	21.3	46
8272	161	135	25.0	5	15 June 2009	Chongqing	31.4	48
8271	128	105	13.2	4	15 June 2009	Chongqing	28	26
8273	135	115	9.1	4	15 June 2009	Chongqing	21.25	23
174	168	135	21.8	6	24 July 2011	Naxi	ND	ND
49012	150	124	22.9	6	24 July 2011	Naxi	93.2	19
49022	142	117	18.8	6	24 July 2011	Naxi	849	6063
172	140	114	17.5	6	24 July 2011	Naxi	ND	ND
49023	147	120	17.5	6	24 July 2011	Naxi	80.8	31
49010	150	123	15.2	6	23 October 2011	Naxi	395	288
175	141	118	12.8	6	23 October 2011	Naxi	ND	ND
49021	137	113	13.8	6	23 October 2011	Naxi	ND	ND
49009	146	123	16.3	6	23 October 2011	Naxi	395	167
169	158	130	14.0	6	23 October 2011	Naxi	395	224
8267 <sup>a</sup>	170	144	33.4	6	23 July 2009	Shennongxi	ND	ND
19	152	122	11.5	4	28 July 2009	Badong	74.9	62
18	151	129	15.7	6	08 July 2008	Badong	15	16 776

ND, no specific data.

<sup>a</sup>Sturgeon were dead after being recaptured.

<sup>b</sup>Fish made a upstream migration.

Table 3

Traveling speed and swimming depth of juvenile and sub-adult Chinese sturgeon

Region	Travelling speed (km h <sup>-1</sup> )				Swimming depth of Sub-adults (m)	N
	Juveniles	N**	Sub-adults	N		
Free-flowing reaches	2.5 (1.8–5.13)	5	3.70 (1.51–8.25)*	13	3.63 (2.12–9.03)	8
Back-water reaches	0.45 (0.13–1.20)	4	1.05 (0.12–1.82)*	35	11.47 (8.26–24.1)	12

\*Significant difference ( $p < 0.05$ ) between groups. \*\*N = sample number.

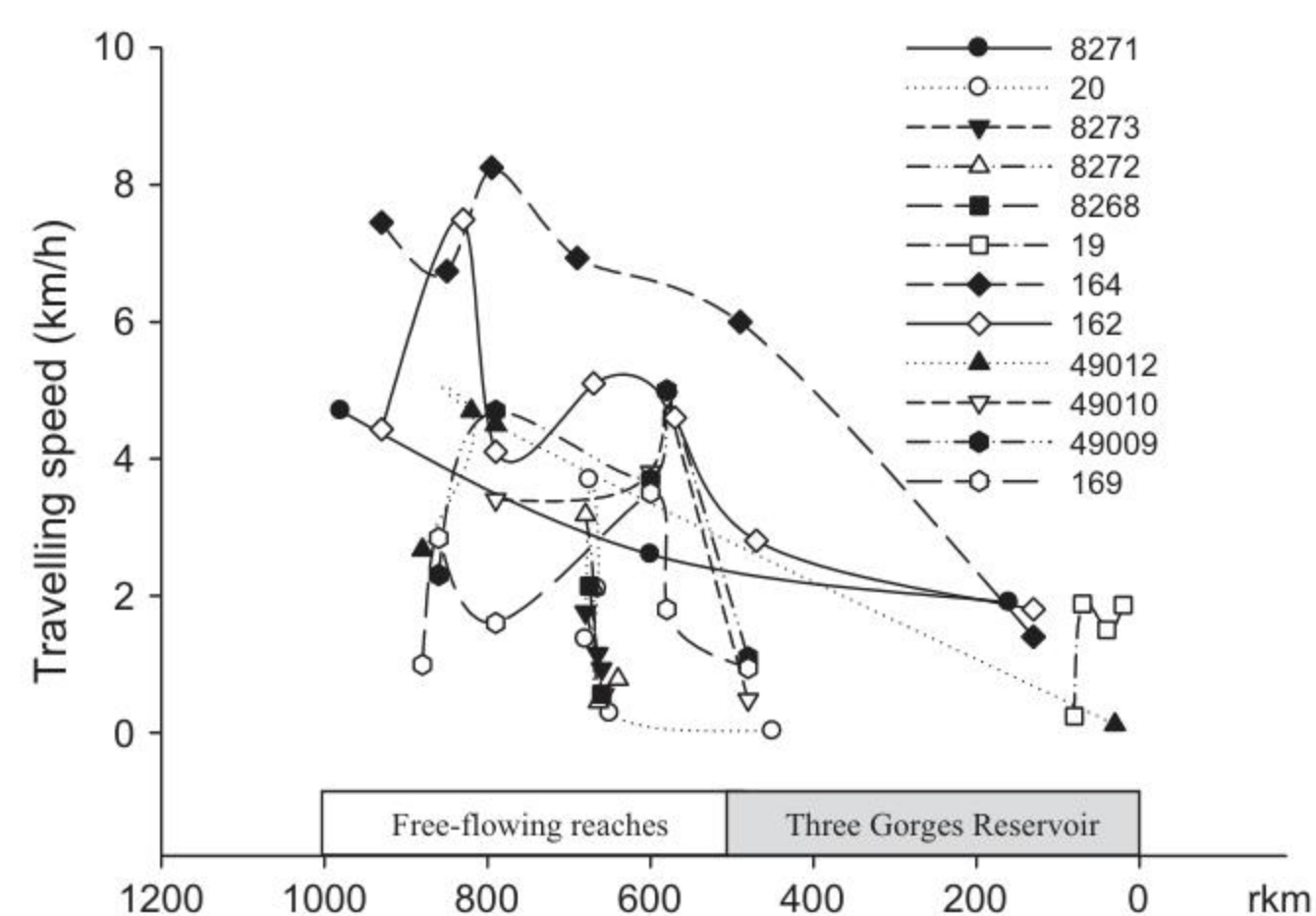


Fig. 3. Traveling speeds of ultrasonically-tagged sub-adult Chinese sturgeons (with transmitter IDs) when passing through free-flowing reaches of upper Yangtze River and Three Gorges Reservoir

distance of the Vemco acoustic system in the Yangtze River was between 300 and 900 m. Water velocity, transparency, silt concentration, distance and surface attachment are all associated factors that highly affect the valid detection distance of the acoustic transmitters, passive receivers and mobile tracking hydrophones in our tests; such interferences may be the main handicaps for acoustic telemetry use in a long-term project in the fast-flowing, seasonal changing water quality of large rivers such as the Yangtze River (Wang et al., 2012). Careful design engineering tasks to improve habitat and recheck the system are important management steps to achieve good results. In our experiment, only four of 28 sub-adult Chinese sturgeon tagged with acoustic transmitters were lost and we still received much telemetric information. The tracking distance of six sub-adults (21.4%) was more than 300 km, with the longest value of 877 km and the most effective in the nearly two-year tracking period.