Table S1. *Size and sex of subjects*

Species	*N*	Mass (g)	Length (cm)	Sex
Sternarchorhynchus cf. *curvirostris*	7	0.4–4.1	5.0–16.4	2 female, 5 N.D.
Sternarchorhynchus cf. *roseni*	8	7.6–17.1	15–20	1 female, 2 male, 5 N.D.
Parapteronotus hasemani (Peru)	10	2.7–17.7	9.1–16.8	2 female, 2 male, 6 N.D.
Parapteronotus hasemani (Brazil)	4	2.6–12.4	11.3–21.5	1 female, 1 male, 2 N.D.
'*Apteronotus*' *bonapartii*	10	10.6–64.7	13–32	4 female, 6 male
'*Apteronotus*' n. sp. B	1	1.8	8	N.D.
Sternarchogiton nattereri	9	3.4–30.9	11.9–24.0	4 female, 2 male, 3 N.D.
Sternarchogiton porcinum	1	39.2	27	N.D.
Porotergus gimbeli (Peru)	7	3.0–6.2	9.8–13.0	1 male, 6 N.D.
Porotergus gimbeli (Brazil)	2	1.7–3.2	10.6–10.7	N.D.
Sternarchella terminalis	5	0.5–3.4	5.5–11.7	N.D.
Adontosternarchus balaenops	10	3.5–11.75	11.1–16.4	3 female, 2 male, 5 N.D.

N.D.=not determined; sex of some individuals was not determined because they were not morphologically sexually dimorphic and the fish were either not sacrificed to determine sex or the fish died and the sex was not determined at the time of death.

Table S2. *Contributions of EOD, chirp and GFR factors to discriminant function analysis*

Factor	Partial Wilks Lambda[1]	F-to-remove[2]
Chirp factor 1	0.126	31.44***
EOD factor 1	0.133	29.73***
EOD factor 2	0.155	24.71***
Chirp factor 2	0.319	9.72***
Chirp factor 6	0.404	6.70**
EOD factor 3	0.426	6.12**
Chirp factor 4	0.453	5.48**
Chirp factor 5	0.519	4.22*
GFR factor 3	0.616	2.84*
Chirp factor 3	0.639	2.56
GFR factor 2	0.658	2.37
GFR factor 1	0.669	2.25
GFR factor 4	0.849	0.80

[1]Smaller Partial Wilks Lambda indicates stronger contribution to DFA model.

[2]Degrees of freedom = (11,50).

***$P<10^{-6}$; **$P<10^{-4}$; *$P<0.01$.