

**Supplementary material**

**Population demographics of golden perch (*Macquaria ambigua*) in the Darling River prior to a major fish kill: a guide for rehabilitation**

Brenton P. Zampatti<sup>A,B,N</sup>, Benjamin G. Fanson<sup>C</sup>, Lee J. Baumgartner<sup>D</sup>, Gavin L. Butler<sup>E</sup>, Steven G. Brooks<sup>F</sup>, David A. Crook<sup>G</sup>, Katherine Doyle<sup>D</sup>, Alison J. King<sup>G</sup>, Wayne M. Koster<sup>C</sup>, Roland Maas<sup>H</sup>, Aleksey Sadekov<sup>M</sup>, Peter Scott<sup>I</sup>, Arron Strawbridge<sup>B</sup>, Jason D. Thiem<sup>D,J</sup>, Zeb Tonkin<sup>C</sup>, Phillipa J. Wilson<sup>B,K</sup>, Jon Woodhead<sup>H</sup> and Ryan Woods<sup>L</sup>

<sup>A</sup>CSIRO Land and Water, Locked Bag 2, Glen Osmond, SA 5064, Australia.

<sup>B</sup>Inland Waters and Catchment Ecology Program, South Australian Research and Development Institute (SARDI) – Aquatic Sciences, PO Box 120, Henley Beach, SA 5022, Australia.

<sup>C</sup>Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg, Melbourne, Vic. 3084, Australia.

<sup>D</sup>Institute for Land, Water and Society, Charles Sturt University, PO Box 789, Albury, NSW 2640, Australia.

<sup>E</sup>Department of Primary Industries, Grafton Fisheries Centre, Grafton, NSW 2460, Australia.

<sup>F</sup>Electrofishing Services, Wamuran, Qld 4512, Australia.

<sup>G</sup>Centre for Freshwater Ecosystems, La Trobe University, Wodonga, Vic. 3689, Australia.

<sup>H</sup>School of Geography, Earth and Atmospheric Sciences, The University of Melbourne, Vic. 3010, Australia.

<sup>I</sup>Centre for Microscopy, Characterisation and Analysis, The University of Western Australia, Perth, WA 6009, Australia.

<sup>J</sup>Department of Primary Industries, Narrandera Fisheries Centre, Narrandera, NSW 2700, Australia

<sup>K</sup>Australian Institute of Marine Science, Indian Ocean Marine Research Centre, The University of Western Australia (M096), Perth, WA 6009, Australia.

<sup>L</sup>Department of Environment and Science, Ecosciences Precinct, GPO Box 5078, Brisbane, Qld 4001, Australia.

<sup>M</sup>Ocean Graduate School, The University of Western Australia, Perth, WA 6009, Australia.

<sup>N</sup>Corresponding author. Email: [brenton.zampatti@csiro.au](mailto:brenton.zampatti@csiro.au)

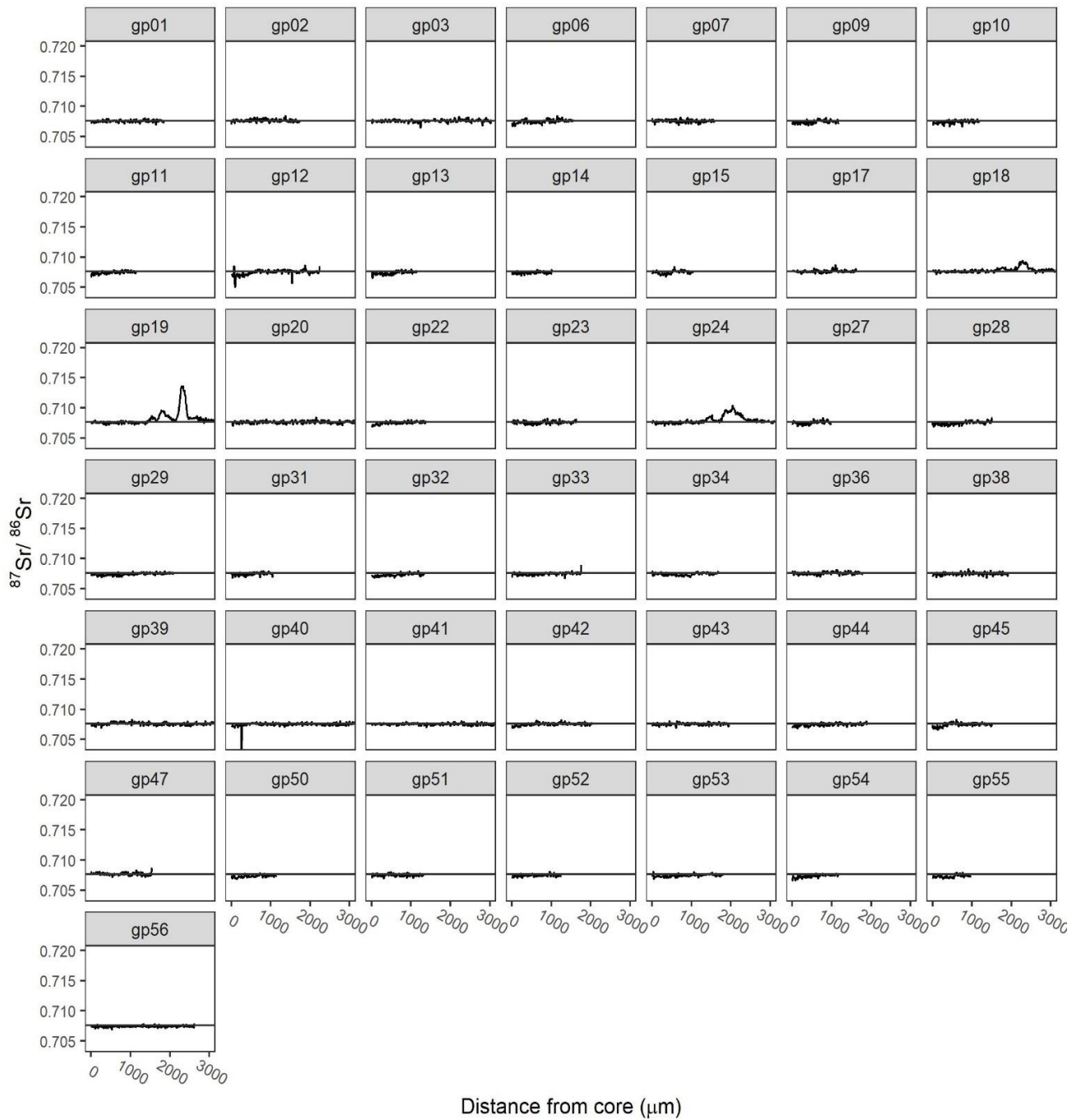
**Summary of fish collection locations in the lower and mid-Darling River**

**Table S1. Details of boat electrofishing sites in the lower and mid-Darling River in 2014 and 2017–18 and the number of fish retained for ageing and otolith chemistry analysis**

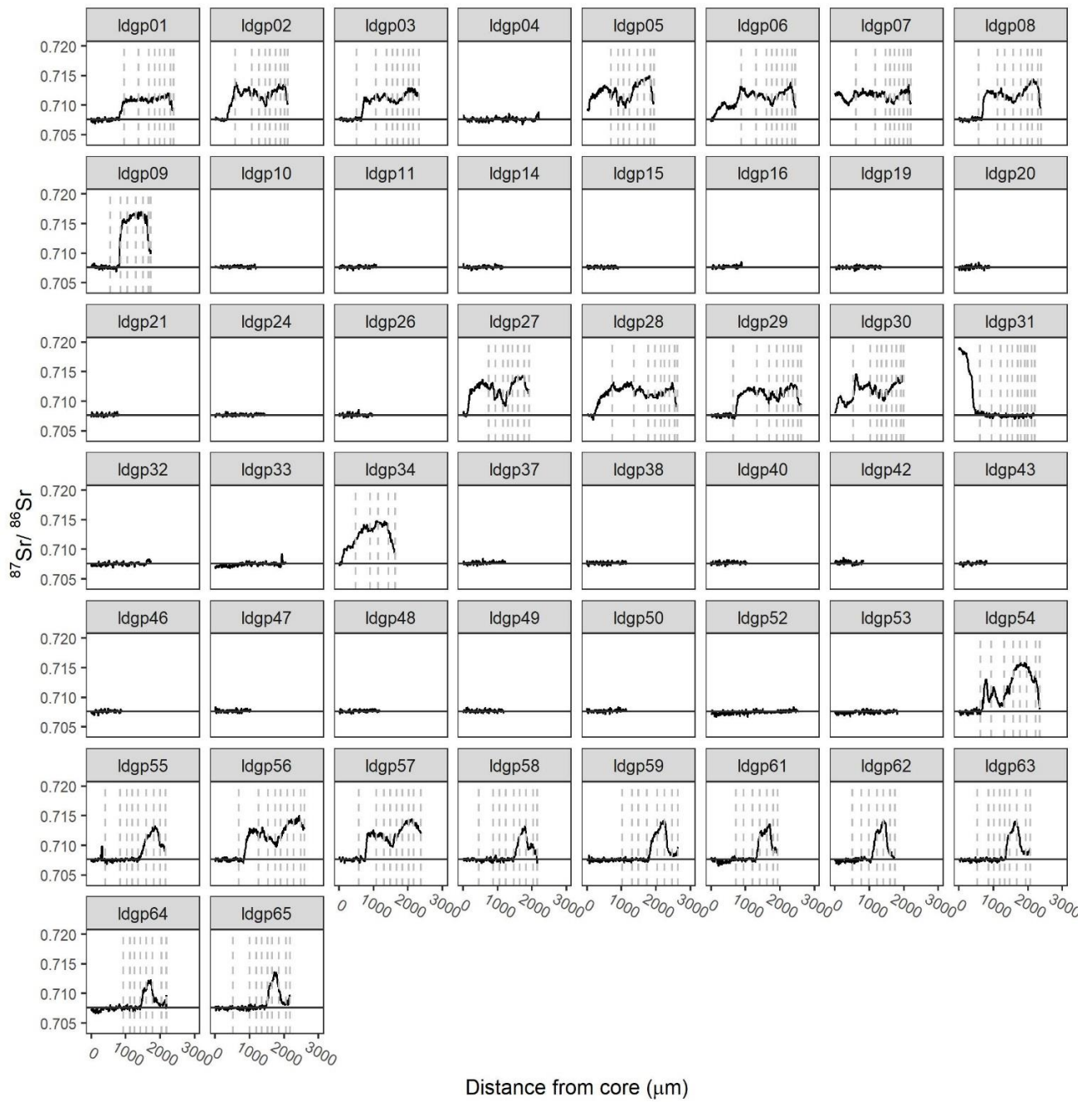
LD, Lower Darling; MD, Mid Darling

Region	Site	Year sampled	Number of fish retained for ageing	Latitude (°S)	Longitude (°E)
LD	Pomona	2014	12	34.00913	141.9037
LD	Lethro	2014	15	33.59618	142.4388
LD	Pooncarie (downstream)	2014	14	33.37666	142.5618
LD	Pooncarie (upstream)	2014	13	33.37972	142.5555
LD	Bono station	2018	14	32.57111	142.3968
LD	Karoola station	2018	17	32.90602	142.3723
LD	Lethero station	2018	12	33.59230	142.4417
LD	Pooncarie	2018	11	33.38473	142.5616
LD	Pomona	2018	11	34.02785	141.9058
MD	Downstream Jandra Weir 19a	2017	29	30.23450	145.6869
MD	Upstream Jandra Weir 19a	2017	1	30.22817	145.7156
MD	Weelong downstream Louth	2017	3	30.56047	145.0887
MD	Talowla	2017	3	30.45698	145.1921
MD	Upstream Talowla	2017	4	30.46802	145.2190
MD	Toorale National Park (NP)	2017	6	30.40579	145.4478
MD	Louth weir 21a	2017	6	30.64106	145.0074
MD	Kallara	2017	2	30.89030	144.5189
MD	Wilga (Paroo-Darling NP)	2017	1	31.42700	143.9255
MD	Upstream Wilcannia Weir	2017	5	31.55207	143.4016

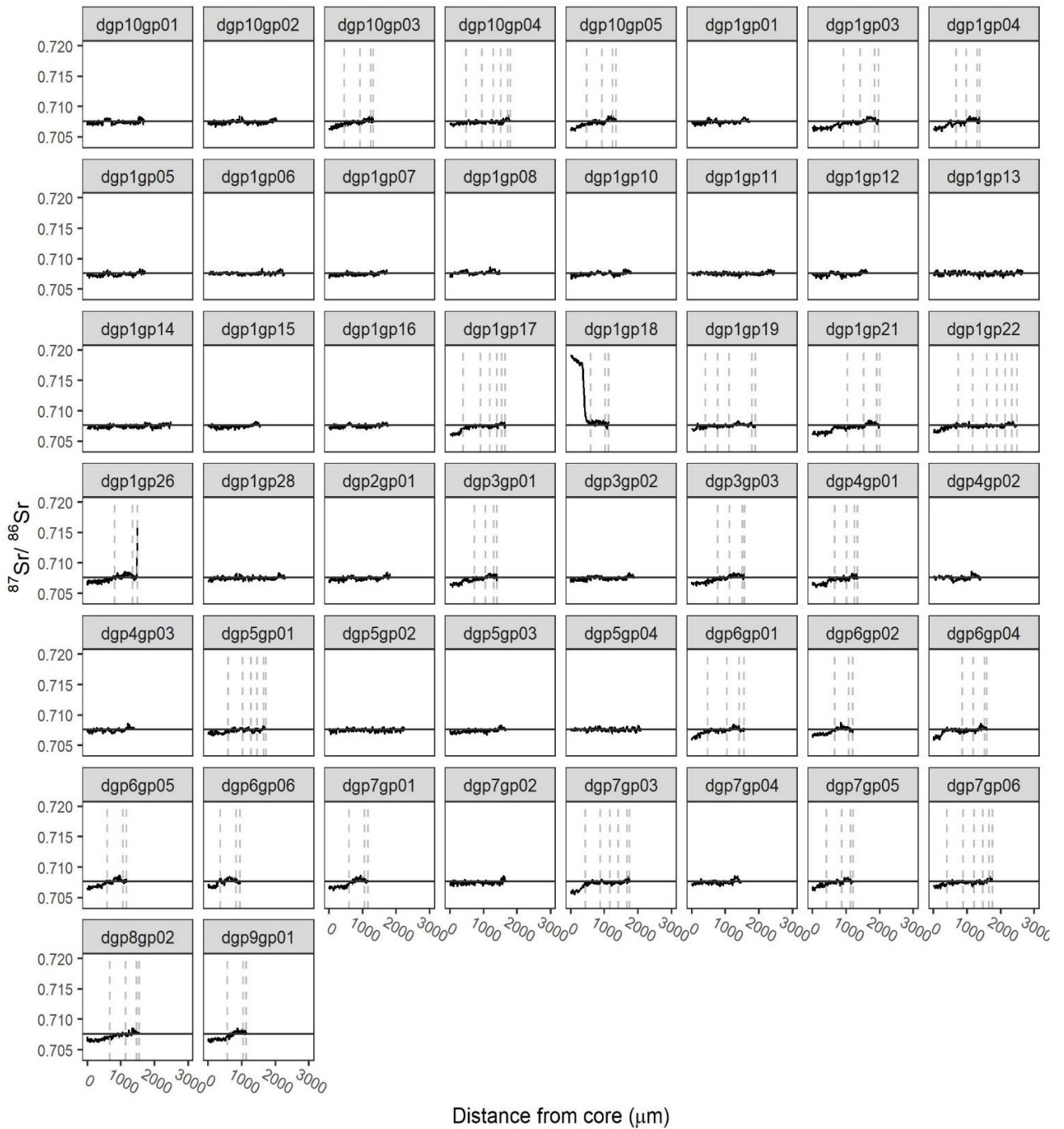
## Individual $^{87}\text{Sr}/^{86}\text{Sr}$ profiles



**Fig. S1.** Individual  $^{87}\text{Sr}/^{86}\text{Sr}$  profiles for golden perch collected from the lower Darling River in 2014. Horizontal black lines indicate the  $^{87}\text{Sr}/^{86}\text{Sr}$  of the Darling River (0.7077).



**Fig. S2.** Individual  $^{87}\text{Sr}/^{86}\text{Sr}$  profiles for golden perch collected from the lower Darling River in 2018. Vertical grey dashed lines indicate location of annual otolith growth increments. Horizontal black lines indicate the  $^{87}\text{Sr}/^{86}\text{Sr}$  of the Darling River (0.7077).



**Fig. S3.** Individual  $^{87}\text{Sr}/^{86}\text{Sr}$  profiles for golden perch collected from the mid-Darling River in 2017. Vertical grey dashed lines indicate location of annual otolith growth increments. Horizontal black lines indicate the  $^{87}\text{Sr}/^{86}\text{Sr}$  of the Darling River (0.7077).