

Supplementary material

Field trials to determine the efficacy of aerators to mitigate hypoxia in inland waterways

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Table S1. Locations and sampling regimes used in the current study

Site	Type	River	Latitude	Longitude	Start date	Finish date	Number of sampling trips	Depth range (m)	Transects (number of sampling trips where transects were taken)	Oxygen logger
2019-A	Multi-port aerator	Darling River	-32.438070962	142.380221771	7/2/19	17/4/19	8	2	Yes (9)	No
2019-B	Multi-port aerator	Darling River	-32.440930480	142.383934325	7/2/19	17/5/19	8	1–2.5	Yes (6)	No
2019-C	Reference station for 2019-A & -B	Darling River	-32.442932796	142.387928251	7/2/19	17/5/19	15	2–2.5	Yes (7)	No
2019-D	Single-venturi aerator	Darling River	-32.921969473	142.368383616	6/2/19	16/5/19	15	4–6	Yes (9)	Yes
2019-E	Solar bubble-plume aerator	Darling River	-32.926101675	142.376044715	26/2/19	16/5/19	10	1.5–2	Yes (1)	No
2019-F	Reference station for 2019-D & -E	Darling River	-32.929200056	142.362542066	6/2/19	16/5/19	14	3–6.5		Yes
2019-G	Solar bubble-plume aerator	Darling River	-33.392943387	142.570642313	7/2/19	16/5/19	15	1.5–3	Yes (1)	Yes
2019-H	Reference station for 2019-G	Darling River	-33.388172513	142.556759838	12/2/19	16/5/19	14	2–3		Yes
2020-A	Multi-port aerator	Darling River	-32.162223	142.782645	21/11/19	26/2/20	15	2–4	All	No
2020-B	Reference station for 2020-A	Darling River	-32.388704	142.431538	26/11/19	24/3/20	15	2.5–3	All	No
2020-C	Multi-port aerator	Darling River	-32.387136	142.447971	26/11/19	24/3/20	21	2–4.5	All	Yes
2020-D	Reference station for 2020-C	Darling River	-32.414583	142.376571	21/11/19	13/3/20	21	3.5–4.5	All	No
2020-E	Single-venturi aerator	Darling River	-32.408039	142.376551	21/11/19	13/3/20	21	3–6	All	No
2020-F	Reference station for 2020-E	Darling River	-32.408039	142.376551	21/11/19	13/3/20	21	2.5–3.5	All	No
2020-G	Reference station for 2020-J,-K & -L	Macquarie River	-31.56186	147.75787	28/10/19	22/1/20	7	4–4.5	No	No
2020-H	Reference station for 2020-J,-K & -L	Macquarie River	-31.53599	147.73818	28/10/19	22/1/20	7	4–4.5	No	No
2020-I	Reference station for 2020-J,-K & -L	Macquarie River	-31.47536	147.72386	28/10/19	22/1/20	7	4–4.5	No	Mo
2020-J	Solar bubble-plume aerator	Macquarie River	-31.460	147.726	28/10/19	22/1/20	7	4–4.5	No	No
2020-K	Solar bubble-plume aerator	Macquarie River	-31.437	147.715	28/10/19	22/1/20	7	4–4.5	No	No
2020-L	Solar bubble-plume aerator	Macquarie River	-31.436	147.715	28/10/19	22/1/20	7	4–4.5	No	No

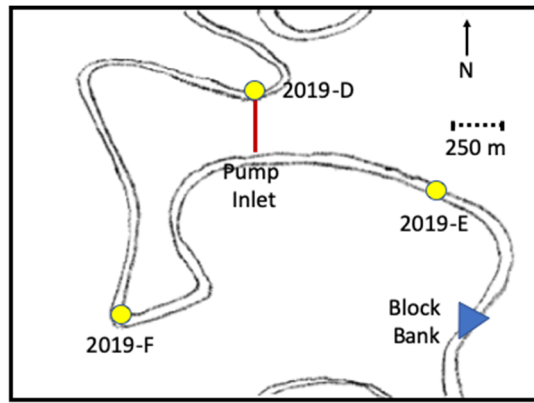


Fig. S1. Schematic representation of the positioning of the pump sampling stations and block bank at Karoola Station on the Darling River.

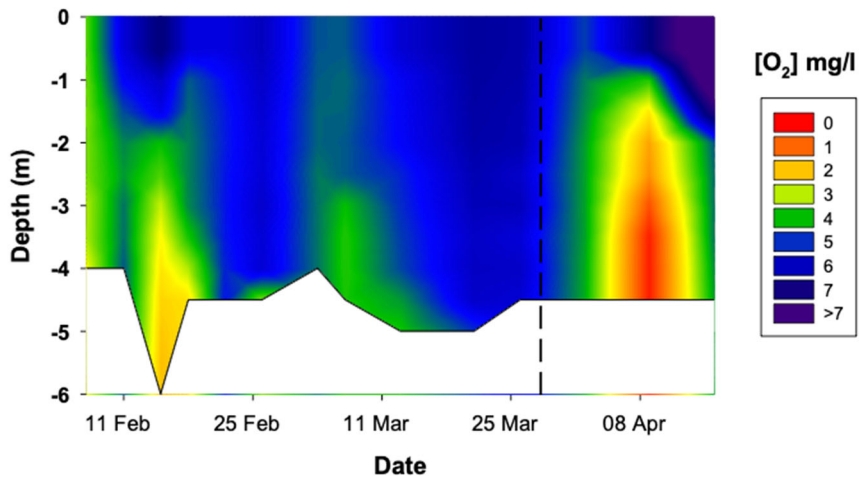


Fig. S2. Contour plot of dissolved oxygen concentrations at 2019-D during early 2019. The vertical dashed line indicates the point when the high-volume pump was turned off. Reproduced from Baldwin (2019) licenced from the Murray–Darling Basin Authority under a Creative Commons Attribution 4.0 Australia Licence.

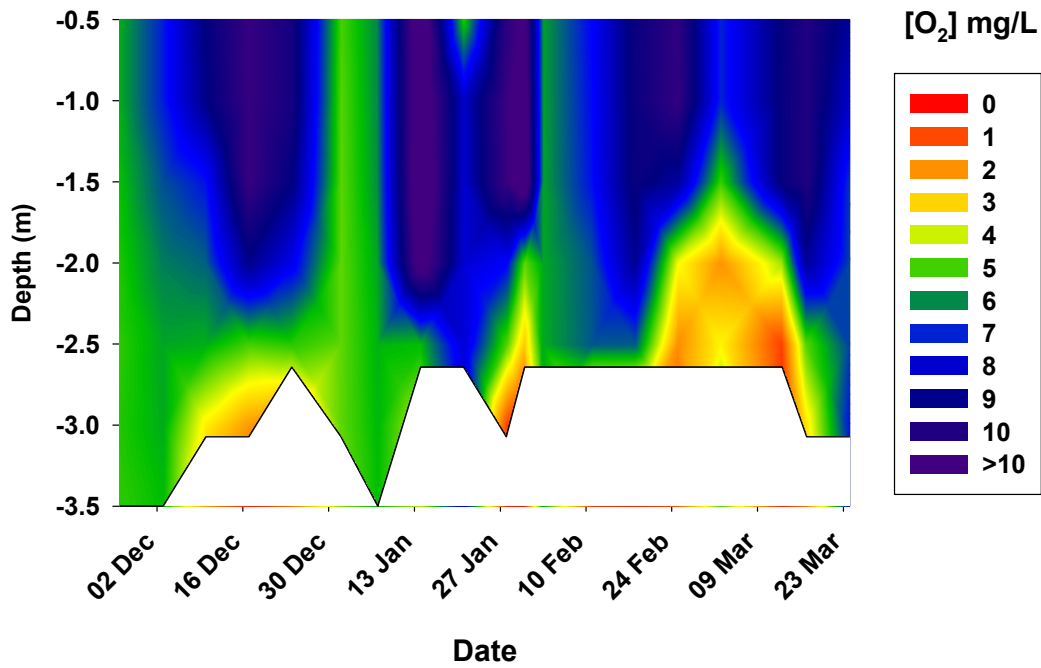


Fig. S3. Contour plots of dissolved oxygen concentration at 2020-F from late 2019 until the end of March 2020. Reproduced from Baldwin (2019) licenced from the Murray–Darling Basin Authority under a Creative Commons Attribution 4.0 Australia Licence.

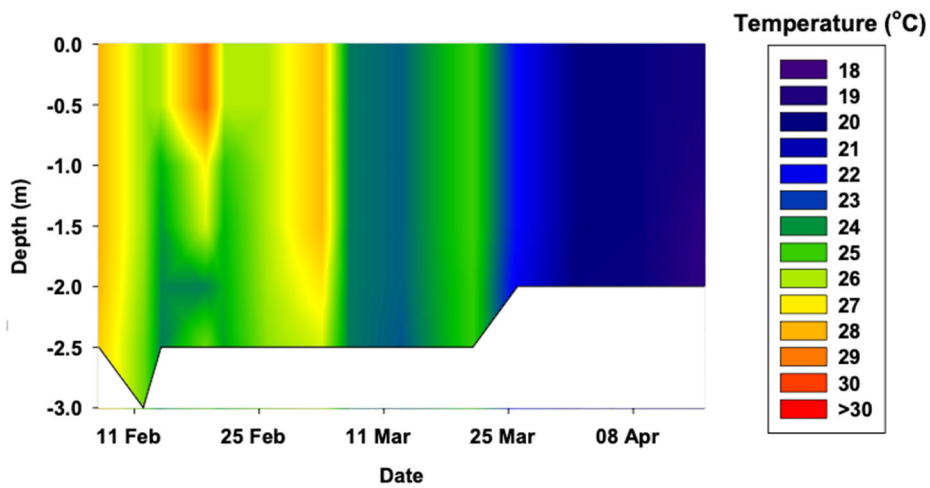


Fig. S4. Contour plots of water temperature at Site 2019-C, the reference pool for the aerators deployed in the two remnant pools immediately upstream (2019-A and -B). Reproduced from Baldwin (2019) licenced from the Murray–Darling Basin Authority under a Creative Commons Attribution 4.0 Australia Licence.

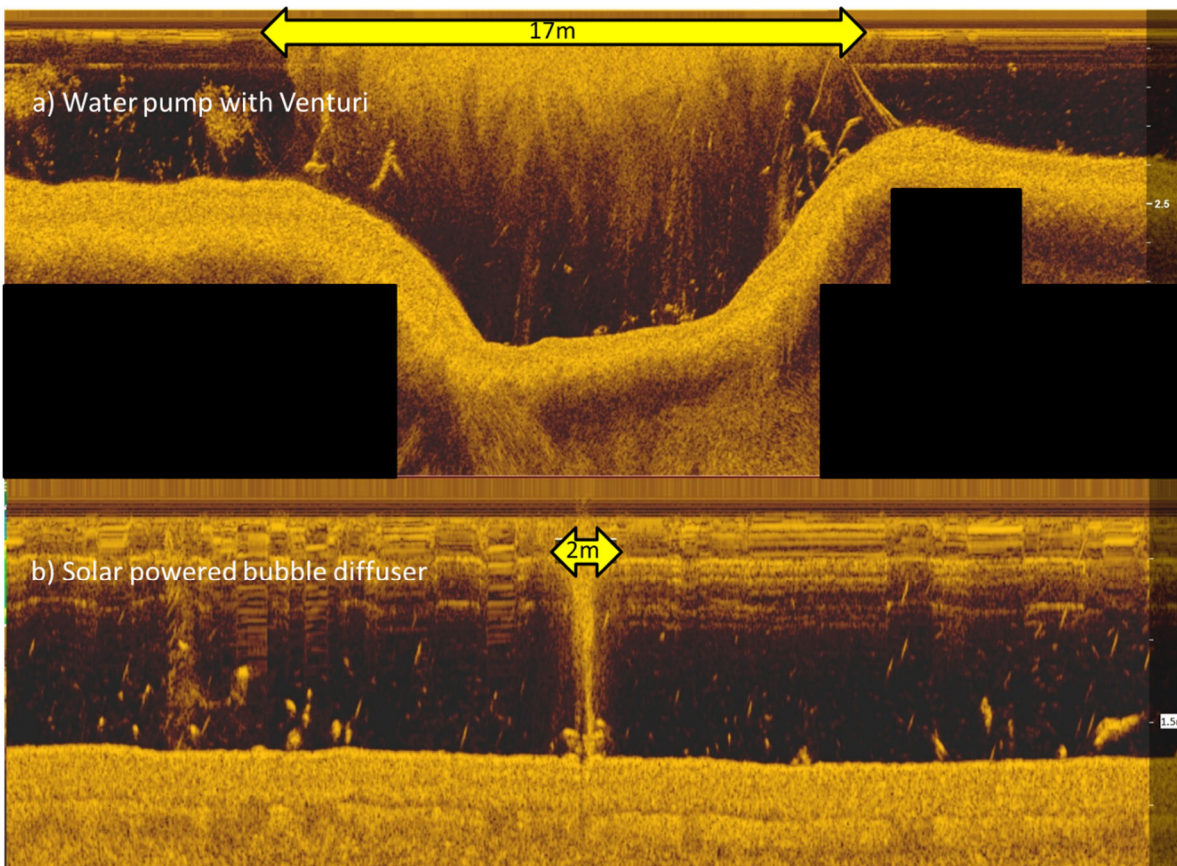


Fig. S5. Side scanning sonar images of the bubble plumes produced by the high-volume single venturi aerator (2019-D; top panel) and a solar-powered bubble-plume aerator.

Reference

Baldwin, D. S. (2019) Stratification, mixing and fish deaths in the lower Darling River. A report prepared for the Murray–Darling Basin Authority. (MDBA.) Available at <https://www.mdba.gov.au/sites/default/files/pubs/Independent-report-stratification-mixing-and-fish-deaths-in-the-Lower-Darling-River.pdf>