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Education & Experience

Chris Keneally is an Early Career Researcher who earned his BSc in Microbiology & Immunology (2018) and Honours in Microbial Ecology (2020) from The University of Adelaide, culminating in the recent completion of his PhD dissertation (January 2025) entitled: “*Salinity-Dependent Microbial Ecology and Biogeochemical Dynamics in a Degraded Hypersaline Coastal Lagoon*”. He now serves as a Post-Doctoral Researcher at The University of Adelaide’s School of Biological Sciences, focusing on carbon-cycling microbes and biogeochemistry in hypersaline environments.

Chris’ previous work also includes casual Research Assistant positions extending from boat-based field campaigns investigating zooplankton dynamics in Australian freshwater systems, to roles in data analysis, using both wet-lab microbiology and advanced bioinformatics. Committed to bridging science and policy, he participates in collaborative projects emphasizing microbial health and biodiversity as indicators of ecosystem resilience.

Alongside his research, Chris teaches and mentors students in aquatic ecology and microbiology, preparing them to address environmental challenges with rigorous, data-driven methods. He has served as both Secretary and President of the Biology Society of South Australia (BSSA), which was recognised with Landcare Australia’s NextGen Award for youth-led environmental nonprofits.

His research achievements include a High Commendation under The Max Day Environmental Science Fellowship (Australian Academy of Science) and the inaugural Ganf Prize in Aquatic Sciences (The University of Adelaide). The latter awarded for a peer-reviewed publication during his PhD: “[Organic matter accumulation drives methylotrophic methanogenesis and microbial ecology in a hypersaline coastal lagoon.](#)” This publication has since been identified as an [L&O paper attracting attention](#), representing one of the top three accessed articles within its issue.

For more details on Chris’s professional background, publications, and ongoing projects, please visit his [LinkedIn profile](#).

Five Representative Publications

Keneally, C., Southgate, M., Chilton, D., Gaget, V., Welsh, D.T., Mosley, L., Erler, D.V., Kidd, S.P., Brookes, J., 2024. Organic matter accumulation drives methylotrophic methanogenesis and microbial ecology in a hypersaline coastal lagoon. *Limnology and Oceanography* 69, 1970–1983. <https://doi.org/10.1002/lno.12637>

Keneally, C., Gaget, V., Kidd, S.P., Brookes, J.D., 2024. Sample preservation solution increases nucleic acid yield and environmental RNA quality in sediments across an estuarine salinity gradient. *Environmental DNA* 6, e70016. <https://doi.org/10.1002/edn3.70016>

Huang, J., Lam-Gordillo, O., Mosley, L.M., **Keneally, C.**, Brookes, J., Welsh, D.T., 2024. Understanding Sediment Nutrient Cycling in a Hypersaline Coastal Lagoon Using DET/DGT Techniques. Pre-Print available at SSRN. <http://dx.doi.org/10.2139/ssrn.5072573>

Brookes, J.D., Busch, B., Cassey, P., Chilton, D., Dittmann, S., Dornan, T., Giatas, G., Gillanders, B.M., Hipsey, M., Huang, P., **Keneally, C.**, Jackson, M.V., Mosley, L., Mott, R., Paton, D., Prowse, T., Waycott, M., Ye, Q., Zhai, S., Gibbs, M., 2023. How well is the basin plan meeting its objectives? From the perspective of the Coorong, a sentinel of change in the Murray-Darling Basin. *Australasian Journal of Water Resources* 1–18. <https://doi.org/10.1080/13241583.2023.2241161>

Huang, J., Welsh, D., Erler, D., Ferguson, A., Brookes, J., **Keneally, C.**, Chilton, D., Dittmann, S., Lam-Gordillo, O., Southgate, M., 2022. Coorong nutrient cycling and fluxes. Goyder Institute for Water Research Technical Report Series. https://goyderinstitute.org/wp-content/uploads/2023/03/goyder_trs_22-7_coorong_nutrient_cycling_and_fluxes.pdf

Candidate's Statement

My first experience with the ISSLR was at the 15th ICCLR in Antalya, Turkey, where I was deeply inspired by the spirit of international collaboration and the shared dedication to saline lake research. Although my current work focuses on carbon cycling, microbial ecology, and biogeochemistry in hypersaline environments beyond lakes—particularly in Australia's hypersaline coastal lagoons—I see tremendous potential for cross-pollination of ideas and technologies within the ISSLR community.

In my first project as an early career researcher, I am currently designing and validating affordable, reproducible automated greenhouse gas flux sensors for saline waters, with the ultimate goal of establishing global sensor networks. By integrating these networks with established initiatives like GLEON (Global Lake Ecological Observatory Network), we can collectively answer critical questions about saline environments as potential greenhouse gas sources or sinks. I believe the ISSLR is perfectly positioned to foster these types of broad, high-impact collaborations.

If elected as a young scientist representative to the ISSLR Board, my aim will be to promote active communication and synergy among members who share an interest in saline waters. I look forward to discussing these ideas further at the upcoming February 2025 GLEON meeting in North Sumatra, where I will continue advocating for integrating ISSLR-driven research into global ecological observatories. Together, we can broaden the Society's reach, elevate the profile of saline lake research, and deepen our collective understanding of these critically important yet underappreciated ecosystems.