

Response of the Coorong – Macroinvertebrate translocation experiment

The following technical report associated with the [Murray-Darling Basin 2022-23 flood environmental response in the Coorong](#) research program is available at [Reports – Goyder Institute](#).

The 2022-2023 flood was the largest flood event since the late 1950s. The flood lowered salinities in the South Lagoon which provided an opportunity to test if the addition of macroinvertebrates can improve unhealthy sediment conditions. A translocation experiment was completed which gave valuable learnings for scaling up ecological restoration options.

PROJECT AIM:

To test if the addition of macroinvertebrates can improve unhealthy sediment conditions.

HIGHLIGHTS

- Abundances of several of the macroinvertebrates species added were higher in the treatment plots than controls at the end of the experimental period, but the effect was site specific.
- Macroinvertebrate additions contributed to lower ammonium concentrations in porewater.
- Macroinvertebrate additions to mesocosms in the South Lagoon is a possible ecological restoration approach.

KEY FINDINGS

Macroinvertebrates are relevant for the functioning of the ecosystem, but sensitive to high salinities. The flood lowered salinity in the South Lagoon to levels at which they can survive, which enabled natural recolonisation by several species of macroinvertebrates.



Figure 1: Setting up the experiment and collecting samples at the same site three weeks later as water levels had fallen.



Figure 2: The mix of macroinvertebrates added to experimental treatment plots and bivalves visible at the surface at the time of collection after three weeks.

Our experimental addition of macroinvertebrates had little detectable effect compared to controls, apart from lower ammonium concentrations in their presence. The experiment demonstrated that macroinvertebrate translocation and the use of mesocosms in sediments is feasible to further test possible ecological restoration options for the Coorong.

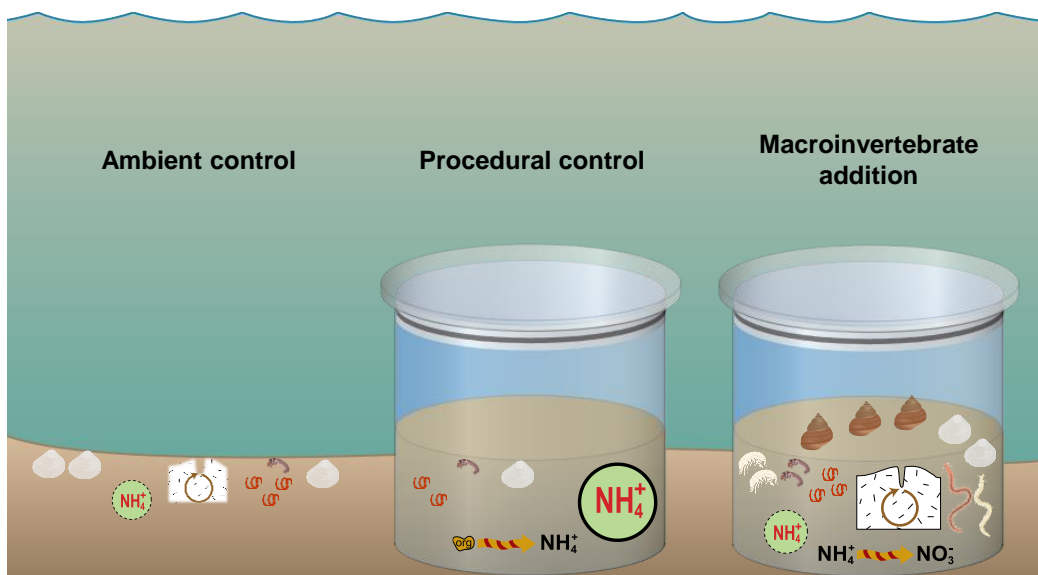


Figure 3 Conceptual summary of findings from translocation experiment, with symbols indicating types of macroinvertebrates present and biogeochemical differences between the treatments at the end of the experiment.

PROJECT TEAM: University of Adelaide: Luke Mosley, Michelle Waycott, Emily Leyden, Brett Thomas; Flinders University: Sabine Dittmann; PIRSA-SARDI: Qifeng Ye, Jason Nicol; Goyder Institute: Bryony Cotterell, Alec Rolston.

REFERENCE: Emily Leyden, Luke Mosley

CONTACT: E enquiries@goyderinstitute.org

This project was completed from August 2023- March 2024.