



AUSTRALIAN FRESHWATER SCIENCES SOCIETY

Formerly Australian Society for Limnology, Est 1961

July 2023 update from NSW

NSW Department of Planning and Environment – Water



DPE – Water Surface Water Science team are busy working on several projects under the state-wide environmental outcomes monitoring and research program. We had the pleasure to present asome of these projects at the AFSS conference in Brisbane. Many thanks to the organisers for putting together such a fabulous conference, we loved listening to the excellent talks especially from the international community and Indigenous perspectives.



DPE Water staff with ring-in Lisa Thurtell from DPE Environment and Heritage

If you want to know more about our research, please visit our website:

<https://water.dpie.nsw.gov.au/science-data-and-modelling/surface-water/environmental-outcomes-monitoring-and-research-program>

Andrew Brooks, Matthew Balzer, Dane Parsons and Doug Westhorpe are collaborating with **Simon Mitrovic and Donald Davis** at the University of Technology, Sydney to investigate how flow velocity and discharge minimises persistent thermal stratification and algal blooms in major weir pools within the Barwon-Darling (Baaka) River.

Brewarrina weir and fishway Barwon (Baaka) River, January 2023

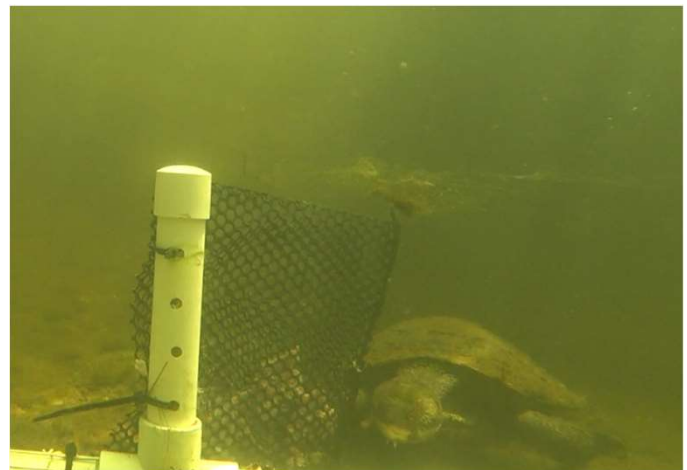


Sara Shaeri Karimi recording flow and bathymetric data with an Acoustic Doppler Current Profiler (Baaka) River, June 2021

Daniel Coleman, Bec Wood, Caitlan Deeth and Tim Haeusler have recently published a study (<https://onlinelibrary.wiley.com/doi/10.1111/aec.13365>) that tested the use of Baited Remote Underwater Videos (BRUV) to survey freshwater turtle populations in NSW, Australia. **Dan Coleman, Jay Van Den Broek and Alison Lewis** are now using BRUVs as a tool to monitor turtle populations in NSW, such as the endangered Manning River turtle. This work will help us to ensure that adequate flows are protected to support freshwater turtle populations.



Deploying BRUV in the Gloucester River, NSW.



An adult female Manning River turtle approaching a BRUV setup

Daniel Coleman, Bec Wood, Dane Parsons and Michael Healey have been using life history traits to develop functional groups and environmental water requirements for stream breeding frogs in NSW.



Litoria lesueurii or the Stony Creek Frog, a common stream breeding frog which occupies flowing habitats like riffles

Dane Parsons, Andrew Brooks, Dan Coleman and Lauren MacRae have been monitoring macroinvertebrate communities both upstream, downstream and within tributaries of the Gwydir River to understand the influence of unregulated tributary flows to the ecology of a regulated river.



The Gwydir River near Bingara

Andrew Brooks, Tim Haeusler and Bruce Chessman (UNSW) are modelling the response of invertebrate assemblages in riffle and pool-edge habitats to severe flow reduction or cessation during the previous 24 months. We found that these assemblages exposed long periods of low flows were dominated by taxa tolerant of low dissolved-oxygen concentrations, low water velocities and high temperatures.



The Horton River NSW



DPE Water staff collecting eDNA at Baroona Waterhole in the Gwydir catchment

Daniel Coleman, Lauren MacRae, Anna Helfensdorfer, Panayiotis Panaretos and Tim Haeusler are investigating the influence of water persistence, connectivity and inundation on the presence of water-dependent fauna in 35 floodplain pools using eDNA within the Northern Murray-Darling Basin.



Sharon Bowen, Anna Helfensdorfer, Jay Van Den Broek, Dane Parsons, Kelly Marsland are undertaking surveys in the water dependent vegetation communities in the Namoi, Gwydir and Border Rivers to set a baseline condition for river red gum, coolibah and blackbox woodlands. This will allow for temporal comparisons to be made and to determine how rules in NSW Water Sharing Plans are maintaining or improving the condition of these communities. We are assessing the condition of existing trees (tree stand), the condition of the community (structure and species composition) and tree population health (demographic condition). Preliminary findings are that tree health is better than the community condition and that Australian woodlands and forests may not adhere to traditional models of population viability.



River red gum woodland in the Border Rivers



Riparian River red gum on the Macintyre River

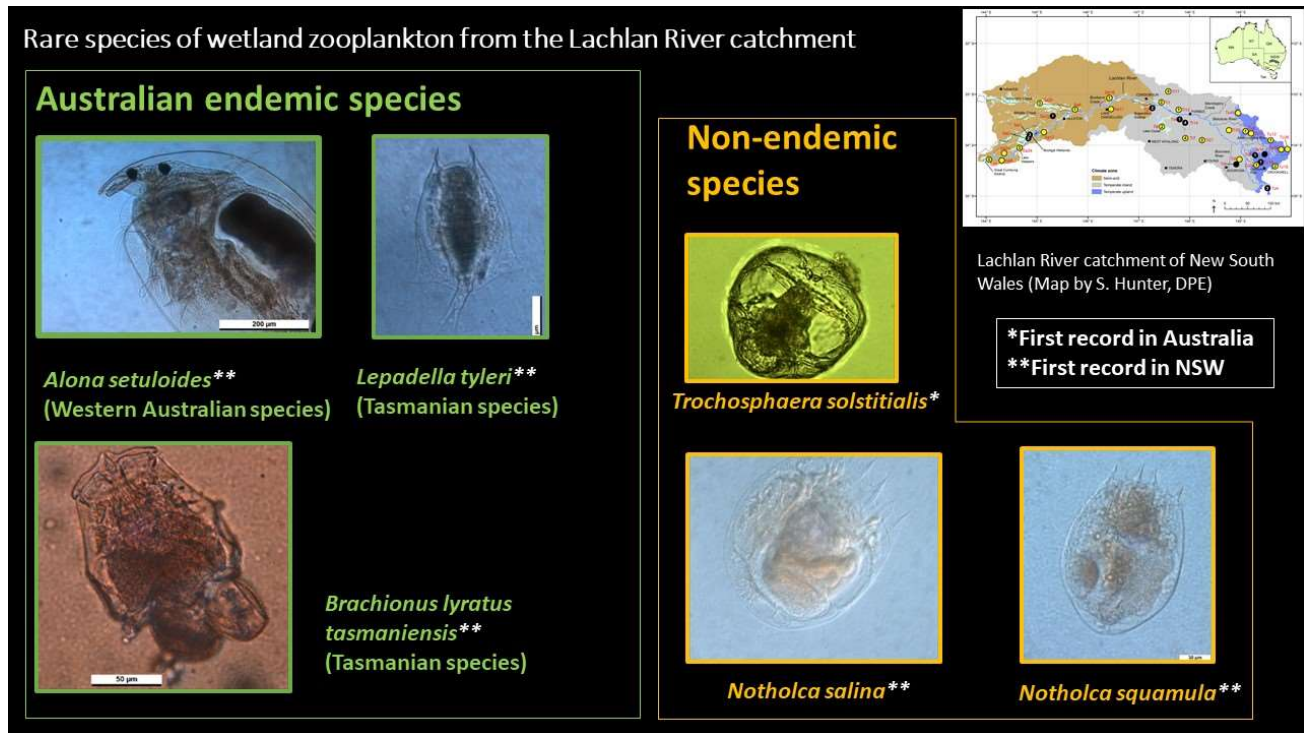
NSW Department of Planning and Environment – Science, Economics and Insights Division

Yoshi Kobayashi and his colleagues assessed the species composition and species richness of wetland zooplankton (rotifers, cladocerans and copepods) in the Lachlan River catchment in southeast NSW. We recorded over 140 species of wetland zooplankton from the Lachlan River catchment, including several rare species (attachment).

They made further additions to the recent new records of zooplankton, both endemic and non-endemic species in inland wetlands of NSW.

More information on wetland zooplankton is found in <https://doi.org/10.7882/AZ.2023.021>

Rare species of wetland zooplankton from the Lachlan River catchment



Australian endemic species

*Alona setuloides***
(Western Australian species)

*Lepadella tyleri***
(Tasmanian species)

*Brachionus lyratus tasmaniensis***
(Tasmanian species)

Non-endemic species

*Trochosphaera solstitialis**

*Notholca salina***

*Notholca squamula***

Lachlan River catchment of New South Wales (Map by S. Hunter, DPE)

*First record in Australia
**First record in NSW

NSW Department of Planning and Environment – Environment and Heritage Group

Staff of the Environment and Heritage Group, at NSW Department of Planning and Environment, have been working with scientists from other organisations to evaluate potential environmental outcomes from the Reconnecting River Country Program.

The program focuses on relaxing or removing some of the constraints or physical barriers impacting the delivery of water for the environment in the southern-connected Murray–Darling Basin and supports improved environmental outcomes for water dependent flora and fauna in low-lying floodplain habitats. Read the reports and find out more on the program's Information hub: [Information hub | Water \(nsw.gov.au\)](#)

