

FISH ECOLOGY COLLABORATIVE RESEARCH UNIT

ILWS members: Dr Paul Humphries, Dr Keller Kopf, Dr Nicole McCasker, Dr Kevin Warburton (Adjunct).
Other members: Professor Nick Bond, (Director MDRFC) and Dr Rick Stoffels (MDRFC)

The fish ecology unit was established in 2015 with the aim of fostering rigorous science in freshwater fish ecology in Australia and specifically the Murray-Darling Basin.

It has established partnerships with government natural resource agencies interested in the management, conservation and restoration of fish populations and the ecosystems they occupy, as well as other research centres such as the Murray-Darling Freshwater Research Centre (MDRFC).

Its objectives include being a hub for research collaboration that combines fundamental science with applied conservation, environmental and fisheries management; the education and support of post-graduate students and Post-Doctoral researchers; and to influence public awareness, management and conservation of fish populations and aquatic ecosystems through the dissemination of science.

Researchers from this team are involved in the Fish Theme of the Murray-Darling Basin [Environmental Water Knowledge and Research \(EWKR\)](#) project which is being managed by the Murray Darling Freshwater Research Centre and funded by the Australian Government's Department of Environment.

The primary goal of the Murray-Darling Basin EWKR project is to undertake research that Water Managers can directly apply to their programs and operations.

As part of this involvement the 'Conceptualisation of flow-recruitment for riverine fisheries' project, a desk top study, was completed in 2016. The key outcome was a flow fish recruitment model – a conceptual model which allows the prediction of the survival of young stages of fish under various flow scenarios in the Murray-Darling Basin.

The project has led to a new three-year EWKR project 'Relative importance of key recruitment drivers across multiple spatial scales and interaction with flow – reach scale' which began in 2017.

Another project still underway is Phase 2, of the Barmah-Millewa midden fish study project, now called 'Understanding historic fish populations in the Murray.' The project aims to identify which species of fish were being caught and eaten by the local Indigenous people – and so which species were abundant in the local area over the last 3-4000 years.

Further funding has been obtained from the Murray Darling Basin Authority (MDBA) to identify the fish bones, already collected, using environmental DNA technology.

Final paper(s) are also being prepared for two collaborative research activities team members are involved in - one is for an Australian Centre for Ecological Analysis and Synthesis (ACEAS) funded working group 'Where have all the fish gone, and can they come back?' and the other is the final paper to come out of a collaborative research project with the University of Vienna on the dispersal of nase in the River Danube, Austria. A review paper from this work was published in 2016.

Another research activity which began in 2015 was a citizen science project 'Stuffed Murray Cods in Pubs' initiated and led by Dr Paul Humphries. The project got off the ground with a CSU Media release which generated a lot of media interest. A public group [Facebook](#) page has been created which has 200 members. Initial research has already identified where some 100 or so trophy Murray Cod could be in the Basin. The project has attracted a scholarship grant of \$45,000 from the Murray-Darling Basin Authority and in late 2016 an ILWS PhD scholarship was awarded to Matt O'Connell.

A report on a study on the fecundity and egg quality of dusky flathead, a project funded by the Victoria Department of Economic Development, Jobs, Transport and Resources' Recreational Fishing Grant Program, has been completed with management recommendations. A draft has been prepared for a paper from the project.

Projects

Understanding historic fish populations in the Murray River. Humphries, P. (2015-2018) Murray Darling Basin Authority, \$27,273

Completed Projects

Barmah-Millewa midden fish study. Humphries, P. Partners the Yorta Yorta Nation Aboriginal Corporation. (2011-2015) Living Murray Program, MDBA, \$67,168

Fecundity and egg quality of dusky flathead in East Gippsland, Victoria. Keller, K. & Humphries, P. (2014-2015) VIC DEPI. \$49,438 [Report](#)

Conceptualisation of flow-recruitment relationships for riverine fisheries. Foundation activities for the Fish Theme of Environmental Water Knowledge Research (EWKR). (2016) Humphries, P., McCasker, N., & Kopf, R.K. MDFRC, \$117,732 [Project details](#)

VEFMAP Fish Data Analysis - Part B: Analysis on existing fish data (2008-2014) McCasker, N., Kopf, R.K. & Humphries, P. (2015) Goulburn Broken CMA, \$9,800