

Compiled by Pam Clunie

Helping Platypus

Platypus was listed as vulnerable in Victoria in [2021](#), in recognition of its decline in the last 30 years. The species is threatened by a range of human activities, primarily related to changes in land use and waterway condition. Populations can become fragmented due to instream barriers (e.g. weirs, dams), reduced surface water, and poor habitat quality; this can lead to an increased risk of local extinctions after events such as floods and bushfires.

ARI is working with DELWP, the Australian Platypus Conservancy, several catchment management authorities and local communities to improve Platypus habitat and increase our understanding of potential threats. Physical and hydrological barriers which may be detrimental to Platypus are being investigated, classified and mapped in East Gippsland and the North East. Instream and streamside habitat restoration is also underway in fire-affected areas on the Tambo River. Assessments of Platypus eDNA, habitat and food sources are also occurring in these sites.

DELWP is preparing a Platypus Management Plan and supporting habitat restoration actions in two regional areas. Within the fire-affected areas of the Upper Murray (Cudgewa and Nariel creeks), the North East Catchment Management Authority (NECMA) is revegetating streamside areas and constructing 'log jams' (a complex array of wood secured into the creek bed/bank).

These log jams help reduce bank erosion, encourage creation of pools and low velocity refuges, and areas to hide from predators. The Glenelg Hopkins CMA is also improving instream and streamside habitats at Grange Burn near Hamilton. Excitingly, a [Platycam](#) (an online livestream camera) has been installed at the site to stream footage of this notoriously shy animal.



About us

The Applied Aquatic Ecology section aims to generate and share knowledge, through world-class, applied, ecological research. This supports and guides sustainable ecosystem policy and management to ensure healthy, resilient ecosystems. We work collaboratively with national, state and local agencies, research institutes, universities, interest groups and the community.

Understanding and protecting our threatened galaxiids

Galaxiids are a family of small freshwater fish, mostly found in southern Australia and New Zealand. Most Victorian galaxiid species are now highly threatened, with very reduced and restricted distributions in headwater streams. For over 30 years, ARI's research has supported galaxiid conservation. This has included: identifying new species; determining their distribution and abundance; assessing the impacts of threats and their status; undertaking actions to protect and restore populations; and providing advice on their conservation, particularly after bushfires. Learn more about this work on our new [ARI webpage](#) about galaxiids.



East Gippsland Galaxias

News



Searching for Dargo Galaxias

VMFRP fish surveys in the Mallee yield exciting results

Recent fish surveys in the Lindsay Wallpolla Island floodplains in northwestern Victoria, as part of the Victorian Murray Floodplain Restoration Project ([VMFRP](#)), have yielded interesting findings! Large numbers of small Golden Perch were detected in river and wetland surveys during Autumn in this area. While the origin of these fish is currently being determined, the results are exciting. This may represent one of the first large natural recruitment events for Golden Perch recorded within Victorian waters.

VMFRP is part of the Sustainable Diversion Limit program of the Murray-Darling Basin Plan. It aims to restore high value wetlands and floodplains at Victorian sites along the Murray River floodplain in the Mallee and North Central CMA regions. [ARI is involved](#) in monitoring birds, vegetation, frogs and fish in the Mallee.



Golden Perch recruitment

Fish monitoring within the Flow-MER Program

A large report, soon to be completed, evaluates the fish outcomes across the Murray-Darling Basin (MDB) from the use of Commonwealth environmental water for 2020–21, and cumulatively since monitoring began in 2014–15. This work is part of [Flow-MER](#), the Commonwealth Environmental Water Office's (CEWO) on-ground Monitoring and Research Program. Flow-MER is a partnership with many scientists and water managers across the MDB. ARI leads the Fish Theme.

This report evaluates the contribution of Commonwealth environmental water to sustaining fish populations using monitoring data and predictive modelling for six rivers in the MDB. Modelling showed that Commonwealth environmental water provided a range of benefits to native fish populations and supported critical life-history processes, such as recruitment, body condition and population growth. The evaluation makes an important contribution to better inform the CEWO and provide evidence to enhance our understanding of how water for the environment is helping maintain, protect and restore native fish populations in the MDB.



Murray Cod juveniles



Murray Cod adult

Influencing Change

Celebrating World Fish Migration Day

[World Fish Migration Day](#), held on 21 May, is a global celebration to create awareness about the importance of migratory fish and free-flowing rivers. ARI has a long history of helping improve fish passage across Victoria and within the Murray-Darling Basin. We collaborate with DELWP Water and Catchments, catchment management authorities, water authorities, engineers, consultants and the Victorian Environmental Water Holder.

ARI scientists [regularly contribute](#) to the design, establishment, maintenance and monitoring of fishways to help ensure they work effectively. Fishways, which can be diverse and complex, include vertical slot, rock ramp, fish lock and cone designs. We're also involved in improving fish passage past smaller barriers (see the [fish friendly stream gauging stations program](#)).

In recent times, ARI has been involved with the:

- [Barwon River Barrage](#) – design and establishment of a cone fishway and elver fishway (Corangamite CMA)
- [Koondrook fishway](#) – monitoring the effectiveness of a vertical slot fishway (North Central CMA)
- Melbourne Water fishways (including Dights Falls, [Pillars Crossing](#) and Darebin Creek) – design, establishment and monitoring of vertical slot, cone and rock ramp fishways
- Cudgewa Creek – monitoring before establishment of a rock ramp fishway (North East CMA)
- Fish Passage Community of Practice: this group seeks to foster a collaborative, Statewide approach to promote best-practice approaches and use current knowledge in the design, construction, and operation of Victorian fish passage projects.

Getting things right can lead to massive improvements in native fish communities, reconnecting long stretches of waterways and allowing fish of all sizes and ages to return to their former habitats.

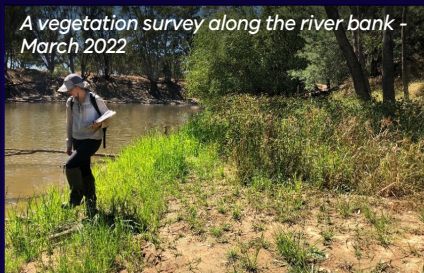


An aerial shot of Pillars Crossing on Dandenong Creek, showing a cone fishway and rock ramp fishway (Credit: Danial Robbins, Melbourne Water)

A vegetation survey along the river bank - December 2021



A vegetation survey along the river bank - March 2022



Vegetation responses to Inter-Valley Transfers

ARI is helping monitor the effects of water delivery for consumptive uses, known as inter-valley transfers (IVTs), on the ecology of the lower Goulburn River. High IVTs in the past have reduced vegetation along the lower banks of this river and increased erosion. In response, new interim water trade and operating rules have been implemented to reduce impacts. IVT monitoring is testing if these new rules are helping to protect the ecology of the Goulburn River.

In 2021-22, IVT delivery through the Goulburn River was very low due to high flows in the Murray River along with flood flow from the Murrumbidgee and Darling rivers. This meant that flows in the Goulburn River over summer were more similar to natural flow regimes where flows are low over summer months. In response to low summer flows in 2021-21, IVT monitoring has shown that vegetation on the lower bank has started to improve. This is important as vegetation on the lower bank helps to reduce erosion and provides faunal habitat.

Outputs

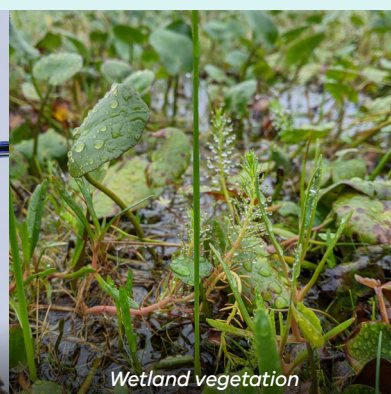
- [Papas et al.](#) (2022). Integrating data, expert opinion and fuzzy logic in the development of an index of wetland condition. Marine and Freshwater Research.
- [Jones et al.](#) (2022). Using data calibration to reconcile outputs from different survey methods in long-term or large-scale studies. Environmental Monitoring and Assessment.
- [Stoessel et al.](#) (2022). Assessing outcomes of environmental flows for an estuary- dependent fish species using a novel stochastic population model approach. Estuaries and Coasts.
- [Main et al.](#) (2022). Warmer water temperatures exacerbate the negative impacts of inundation on herbaceous riparian plants. Freshwater Biology.
- [Wootton et al.](#) (2022) Smaller adult fish size in warmer water is not explained by elevated metabolism. Ecology Letters.



Wayne Koster and Shay from GLaWAC insert a transmitter in an eel



Splendid Fairywren (Credit: Dan Eyles)



Wetland vegetation



Flat-headed Galaxias

Knowledge transfer

Please note that during COVID-19 restrictions, presentations have been given remotely via online platforms and aligned with government protocols.

Presentations and meetings: Migration patterns of eels (Koster) - at [The Lake Bolac Eel Festival](#); VEFMAP presentations to Environmental Water Advisory Groups (Loddon, Moorabool, West Gippsland); Campaspe and West Gippsland Community Stakeholder Events (Tonkin, Jones); Fish and Floodplains (Floodplain Ecology Course) (Tonkin); Mitta Mitta Murray Cod project community engagement event (Tonkin); Aquatic species in the Birrarung Valley - Wurundjeri Narrap Rangers (Raadik); Murray Codference - Murray Cod wild recruitment assessment (Lieschke); TroutFest 2022 (Lieschke); North East Fire recovery surveys (Fish) (Lieschke) (NECMA).

Interest in our eel work continues: [The eels' fantastic voyage: From the Hopkins River to the Sea](#) (Warrnambool Standard) (Koster); [DELWP ARI and Gunaikurnai Land and Waters Aboriginal Corporation \(GLaWAC\) working together to study eels](#) (DELWP Facebook)

Work that ARI has been involved in has also been shared by our collaborators: [Platypus and the Tambo River](#) (EGCMA); [The Ghost Fish \(Flat-headed Galaxias\)](#) (GBCMA); [Broken Creek fish surveys](#) (GBCMA); [Delivery of water for the environment](#) (GBCMA); [Platycam launch](#) (GHCMA); [eel migration](#) (GHCMA); [Barwon Barrage fishway](#) (CCMA); [Koondrook fishway monitoring](#) (Finterest/NCCMA); [Johnson Swamp habitat rehabilitation](#) (NCCMA); [Mullinmur wetland surveys](#) (NECMA); [VMFRP bird surveys \(Splendid Fairy-wrens\)](#); [VMFRP bird surveys \(Rainbow Bee-eaters\)](#) (VMFRP); [Cracking the code for Macquarie Perch](#) (VFA, IFish); [Relocating Murray Cod](#) (VFA); [Fish surveys in the Thomson River - video](#) (WGCMA);

PLEASE NOTE that this Update incorporates activities during the COVID-19 pandemic. Any fieldwork and presentations undertaken by ARI during this time have aligned with government protocols.

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