

# Angler Scientists - We need your help!

**Q: Water → River = Happy fish.  
Right? Help us find the answer**

**Do you fish for Murray Cod and  
Golden Perch in northern Victoria?**

## **Become an Angler Scientist**

If you fish for Murray Cod or Golden Perch in the Loddon, Campaspe, Goulburn, Broken or mid-Murray rivers, or Pyramid or Gunbower creeks, you could become an angler scientist.

If you keep these fish to eat, then you could help us by collecting the fish's 'earbones' (or otoliths). This can help us learn more about how fish respond to water for the environment (called "environmental water") which is actively released into rivers. Fish otoliths are full of information; we hope to collect up to 50 otoliths of Golden Perch and 50 otoliths of Murray Cod for our research, and we may not collect this many in our own surveys. The more otoliths we have, the better our understanding will be of how fish respond to water for the environment.

## **Why are we collecting otoliths?**

We are using lots of methods to monitor fish, including fyke netting, electrofishing, tagging and trapping fishways, as well as looking at fish otoliths. Otoliths play a role in fish balance and hearing. Amazingly, looking at an otolith under a microscope can tell us the story of a fish's life – its age, growth, which rivers it has been in, and even if it is a stocked fish or a wild fish. Working out its age is a bit like counting the growth rings on a tree stump. We can track how fish have responded to flows in rivers.

## **We've changed our waterways**

Water is essential for sustaining urban and rural communities, as well as irrigation and industry, and the environment. We've changed our rivers and wetlands, by building dams, weirs and pipes to move water around as well as take it out. Many rivers and wetlands operate differently now, with changes in how much water flows, when it flows, how long it flows and how often. These changes mean waterways don't function as they naturally would have, and so we need to actively manage some water flows to support healthy environments.

## **Water for the environment**

Many agencies work together to deliver water for the environment (environmental water) in Victoria. This is water that is set aside in dams and then released through regulators to support rivers and wetlands and their plants and animals. The agencies involved in the delivery of environmental water include the Department of Environment, Land, Water and Planning (DELWP), the Victorian Environmental Water Holder (VEWH), Catchment Management Authorities (CMAs), water authorities and land managers.

Water is a scarce resource and the delivery of environmental water is targeted to areas with significant environmental values. It is important to use environmental water entitlements as effectively as possible for environmental benefits.



## How do fish respond to water for the environment?

A government program called the Victorian Environmental Flows Monitoring and Assessment Program (VEFMAP) is monitoring how fish and vegetation along rivers respond to the delivery of water for the environment. We've been monitoring fish movement, survival and breeding in response to this water. This can help guide government decisions on how best to provide water to the environment to get the greatest benefits. In northern Victoria, there is a particular focus on improving the movement and breeding of recreationally important species such as Murray Cod and Golden Perch.

## Good news

We've seen some encouraging results in recent years:

- There have been some general increases in abundance and distribution of important species such as Silver Perch, Murray Cod and Golden Perch across northern Victorian rivers since 2012.
- Golden Perch have responded to even small releases of water in late spring in the Murray and Goulburn rivers; with spawning occurring and eggs and larvae drifting downstream.
- In 2017, many agencies worked together to coordinate an environmental flow over hundreds of kilometres in the Murray, Goulburn and Campaspe rivers – this triggered juvenile Silver Perch to move upstream from the Murray and into tributary rivers. Excitingly, this resulted in a major population outcome for Silver Perch, with about a three-fold increase in the number of fish moving into tributaries.

## What's happening with our Angler Scientist project?

The otoliths you collect, plus the ones we also collect, will be analysed to discover where fish have been breeding and when and where they have been moving around the rivers. We've just started this project, and it will run till the end of 2019. We will be working closely with the North Central Catchment Management Authority, the Goulburn Broken Catchment Management Authority, the Victorian Fisheries Authority, and local anglers and interested community members.

An otolith under magnification – see the yellow crosses?

Each one represents a year in the life of a fish, so this one is over 20 years old!



A Golden Perch otolith.

We'll be organising some regional events to tell you all about the project and show you how to either extract otoliths or drop fish frames off at participating locations. This will give us the opportunity to provide you with dissecting kits and documentation. We need to collect your details about the fish – its length, where and when you caught it.

We are also keen to understand how you'd like to be contacted and receive information, so we can tell you all about your fish once we look at its otolith. Since we also want to hear your views on the project, we'll be including a simple questionnaire.

This project is part of VEFMAP Stage 6 which runs from 2016-20. If you are interested in finding out more about VEFMAP, see the ARI website ([www.ari.vic.gov.au/research/rivers-and-estuaries/assessing-benefits-of-environmental-watering](http://www.ari.vic.gov.au/research/rivers-and-estuaries/assessing-benefits-of-environmental-watering)).

## Contact

If you're keen to help, please contact Pam.Clunie@delwp.vic.gov.au or Mob 0428 335 706

