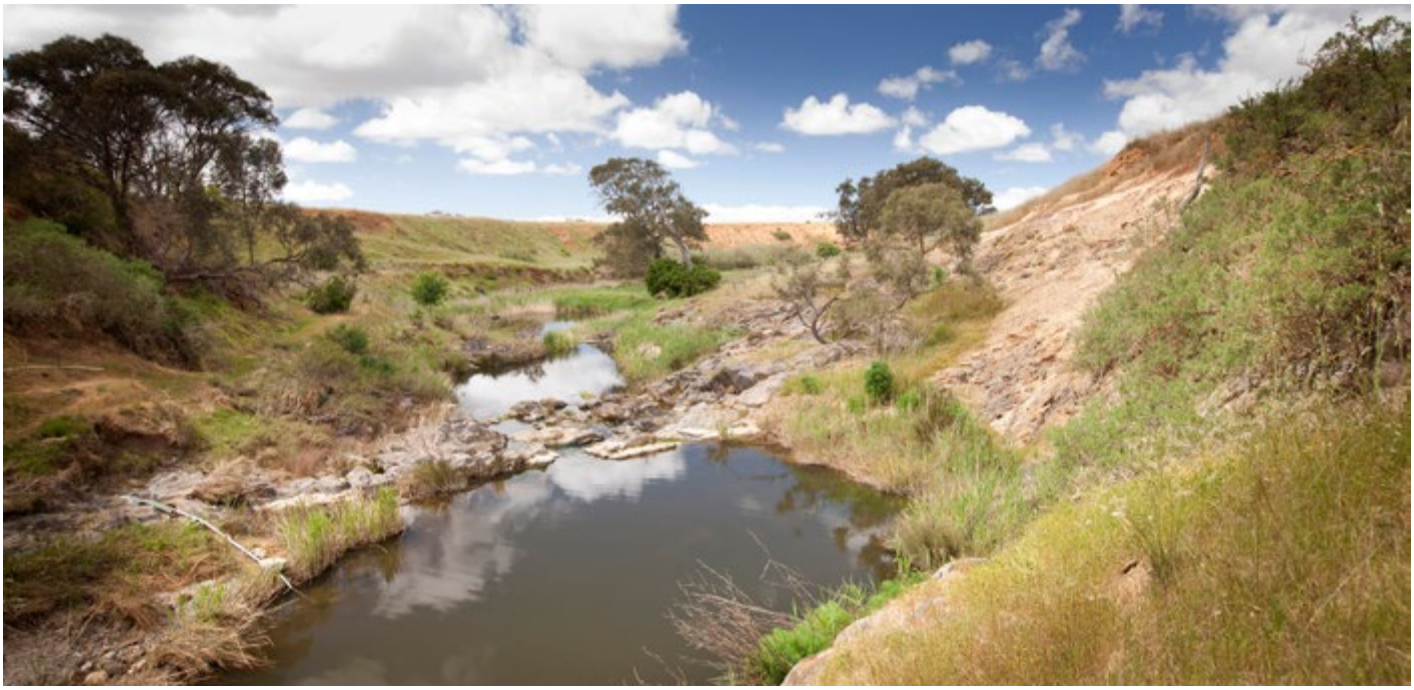
Critical fish habitat



Fish habitat

The Critical Fish Habitat Project released threatened small-bodied freshwater fish populations, maintained and bred in surrogate sites during the drought, into the Coorong, Lower Lakes and Murray Mouth (CLLMM) region.

The Critical Fish Habitat Project, undertaken by the Department of Environment, Water and Natural Resources (DEWNR), commenced on 1 July 2011 and was completed at the end of June 2013.

DEWNR worked with South Australian Research and Development Institute (SARDI), the SA Murray-Darling Basin NRM Board, the SA Museum, Flinders University, Aquasave Consultants, and Native Fish Australia (SA) to deliver the Critical Fish Habitat Project.

Before the fish were released into these surrogate sites, ecological information was gathered to determine which sites could provide adequate fish numbers for re-introductions.

Native freshwater fish under threat

Freshwater fish are under threat worldwide, with an alarming number of Australian freshwater native fish rapidly becoming at risk and in need of greater conservation efforts.

During the recent drought of 2006-2010, the majority of sites across the CLLMM region that provided refuge for native freshwater fish were severely compromised.

As a consequence, four species of freshwater native fish significantly declined in numbers and were a high priority for protection under this project.

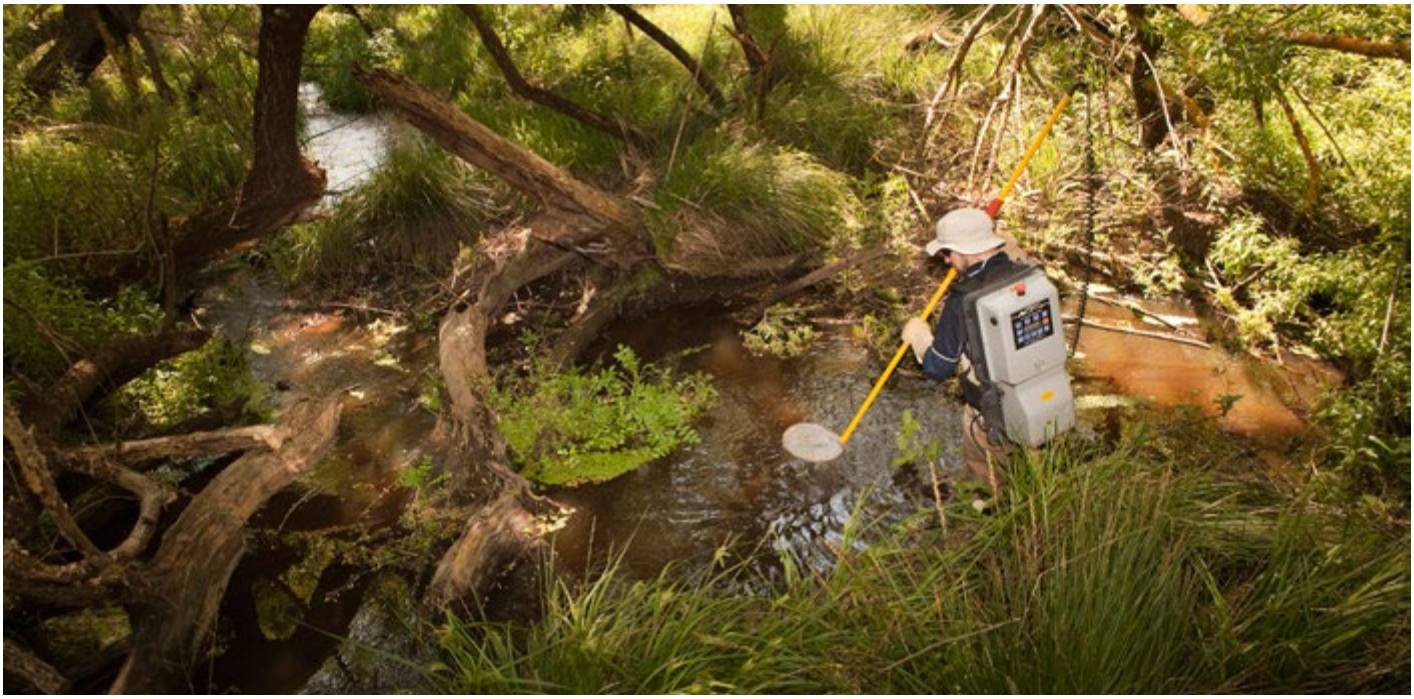
The Coorong, Lower Lakes and Murray Mouth (CLLMM) Recovery Project is a key component of South Australia's $610 million Murray Futures program, funded by the Australian Government's Water for the Future initiative.

The CLLMM Recovery Project, is comprised of a suite of management actions that collectively aim to improve the ecological features of the CLLMM site to deliver a healthy, productive and resilient wetland of international importance, as well as to increase capacity, knowledge and understanding across communities. It is being delivered in collaboration with the community and Ngarrindjeri, the areas traditional owners.

They were:

- Murray hardyhead *(Craterocephalus fluviatilis)*
- Southern pygmy perch *(Nannoperca australias)*
- Yarra pygmy perch *(Nannoperca obscura)*
- Southern purple-spotted gudgeon (*Mogurnda adspersa*)

During the drought, wild fish populations were captured before they became locally extinct. Rescued fish populations were maintained in purpose-built fish hatcheries and surrogate refuge sites, and bred to increase populations before being released back into the wild.



Electro Fishing

What has been done to help the fish?

Early works

Work to ensure the survival of the CLLMM sites threatened native fish began under the *Early Works for the Water for the Future, Enduring Response for the Coorong and Lower Lakes Priority Project* (Early Works), funded by the Australian Government's *Water for the Future* initiative and delivered through South Australia's *Murray Futures* program.

Work undertaken by the former Department of Environment and Natural Resources included the captive maintenance and breeding of the native fish species.

Captive maintenance

Rescued populations of fish were kept in captivity pending their return to the natural environment.

Ensuring the fish survived while in captivity required:

- daily feeding
- cleaning and vacuuming of tanks to prevent build up of organic matter
- careful, regular observation of behaviour and health
- maintenance and cleaning of water filters
- water quality monitoring and fortnightly water changes.

Maintenance of surrogate refuge sites

Surrogate refuge sites have provided an essential stepping stone between captive breeding and returning the fish to the wild.

Surrogate refuge sites were assessed to ensure they provided adequate water quality and habitat for the fish populations.

Improved water levels and aquatic habitat in the Lower Lakes since 2010-2011 have allowed the native fish to be re-introduced to their natural environment.

Wild re-introductions

Before fish were released into the wild, suitable re-introduction sites were chosen, based on:

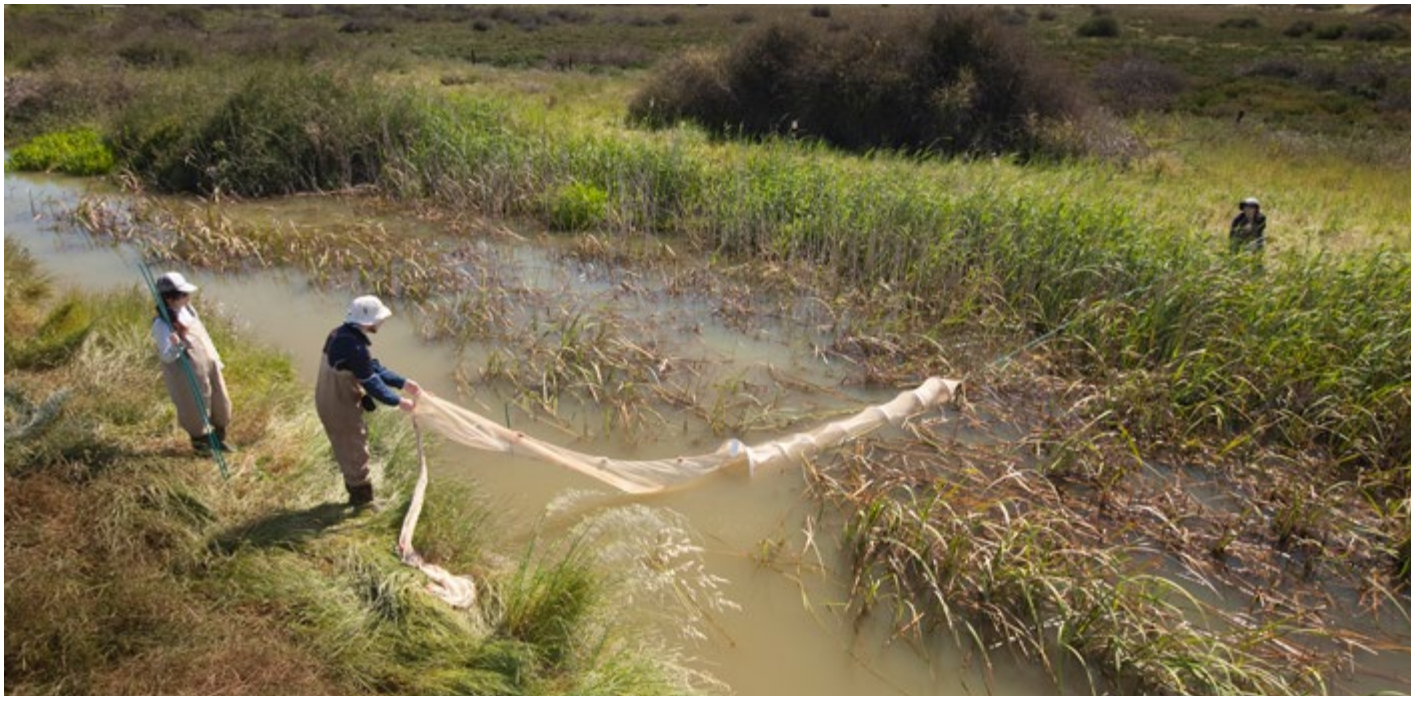
- presence of the species being released
- water quality
- vegetation habitat
- habitat patchiness and connectivity
- availability of food
- non-native fish present.

The re-introduction sites have included:

- Steamer Drain and Wyndgate North on Hindmarsh Island
- Mundoo Drain on Mundoo Island
- Blue Lagoon (Lower Finniss River)
- Lower Finniss River at Winery Road.

This project helped to restore self-sustaining populations of these native fish species back into the wild.

This is a first for South Australia and involves capturing and re-introducing small-bodied fish to reduce the threat of local extinction during low inflows.



Setting fyke net

How many fish have been released?

In 2011-2012, more than 10 000 fish were released across nine sites:

- 1350 southern pygmy perch were released at Hunters Creek on Hindmarsh Island, Turvey's Drain at Milang, and in the Mundoo Island Channel.
- 5000 Yarra pygmy perch were released near the upper Finniss River junction, and into Steamer Drain and Wyndgate North on Hindmarsh Island.
- 600 southern purple-spotted gudgeon were released in the lower Finniss River.
- 3500 Murray hardyhead were released in the Mundoo drain on Mundoo Island

In 2012-2013, more than 5000 fish were released across four sites:

- 4000 Murray hardyhead were released in the Mundoo Drain on Mundoo Island and in Hunters Creek on Hindmarsh Island.
- 650 Yarra pygmy perch were released at Wyndgate North and Hunters Creek both on Hindmarsh Island.
- 500 southern purple-spotted gudgeon were released in the lower Finniss River.

A total if more than 15 000 threatened native fish have been released through this project.

Community involvement

The project has worked closely with landholders to maintain surrogate refuge sites on their properties. These sites have been important sources of fish for wild re-introductions.

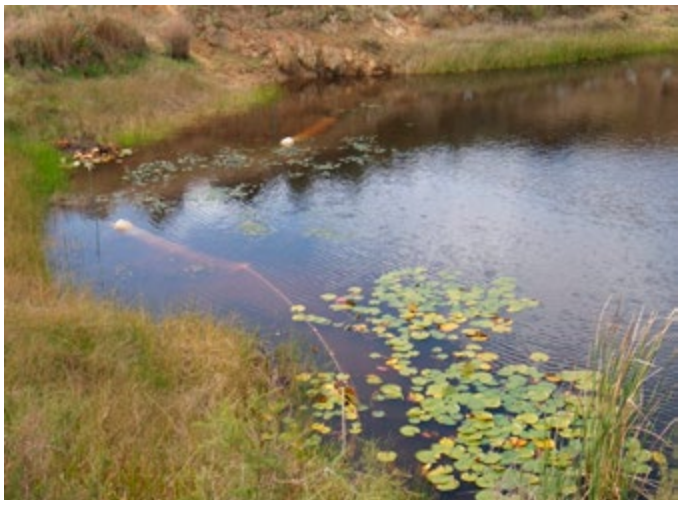
Two schools in the Adelaide region – Alberton Primary School and Urrbrae Agricultural High School – have also been involved in the Critical Fish Habitat Project by maintaining some of the fish in captivity.

Fish recapture

Following fish releases, the re-introduction sites were checked to assess the success of the project.

Given the size of these threatened fish species and the vast area of the CLLMM site, the likelihood of recapturing the released fish was small.

Although the number of recaptured fish was small, it was still considered to be positive given the potential for high mortality rates and the difficulty of recapturing the fish.



Yarra pygmy perch dam

Spotlight on species released

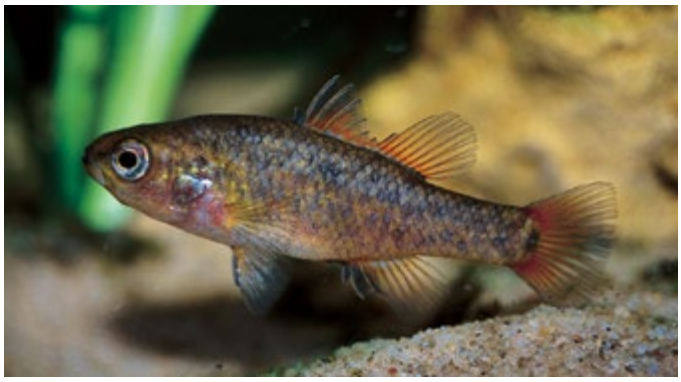
Murray hardyhead

This endangered species dwells around the shallow edges of wetlands, lakes, and backwaters in the mid to lower Murray and Lower Lakes. This species generally lives for one year, though some individuals survive into a second year. The Murray hardyhead grows to 40 – 65 mm and can be seen swimming in schools equivalent to their size range.

Murray hardyhead

Southern pygmy perch

This species prefers slow flowing water with thick aquatic vegetation. The southern pygmy perch or swamp perch, is listed as threatened, and is found in the Mount Lofty Ranges, the Lower Lakes, and lower Murray. It grows to around 65 – 85 mm. Studies have shown that there are two species in this family: a western coastal species and an eastern coastal species.



Southern pygmy perch © Mike Hammer

Yarra pygmy perch

Listed as vulnerable, this small fish has a distinctive single dorsal fin and is found in the slow-moving waters of Lake Alexandrina and the lower Murray. The Yarra pygmy perch can grow to 75 mm, and is often found in small groups of fish. Predation by redfin perch and loss of habitat have had an impact on this species.

Yarra pygmy perch

Southern purple-spotted gudgeon

This small, robust fish has a rounded head, small mouth, and generally grows between 60 – 120 mm in length. Classed as endangered, the southern purple-spotted gudgeon is an ambush predator that eats small fish, worms, tadpoles and macro invertebrates, and is often found in the deep, still waters of wetlands, rivers, and creeks.

Southern purple-spotted gudgeon © Mike Hammer

Futher information

Department of Environment, Water and Natural Resources
T: (08) 8204 1910

www.naturalresources.sa.gov.au

JANUARY 2014 | FIS 92228