

Construction of fishways



Existing vertical slot fishway at the Tauwichee Barrage

The Construction of Fishways Project will be installing a series of fishways at the River Murray Barrages to improve connectivity and support lifecycles for populations of fish in the Coorong, Lower Lakes and Murray Mouth region.

Fishways

Fishways, which are also known as fish ladders, are structures that allow fish to navigate through obstacles in rivers and creeks.

At the River Murray Barrages, new fishways will be constructed to help native fish species complete their natural lifecycle by moving between the ocean, Coorong and lakes.

This project is being delivered in partnership with experts from the Department of Environment, Water and Natural Resources (DEWNR), the Murray-Darling Basin Authority (MDBA), SA Water and the South Australian Research and Development Institute (SARDI).

The project has several objectives, including:

- protecting and retaining native fish species in their natural range at the barrages of Boundary Creek, Ewe Island, Mundoo, Goolwa and Tauwichee.
- maintaining and undertaking research on the effectiveness of the structures in ensuring the passage of native fish species.

With at least one new structure proposed for each of the five barrages, the fishways will greatly improve connectivity for the fish across the barrages.

Improving connectivity aims to support more than 30 species of fish to spawn and go through their lifecycle, helping increase fish populations within the CLLMM region.

Fishway construction will be undertaken between 2014 and 2016.

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.

The CLLMM Recovery Project, in partnership with the community and Ngarrindjeri, the area's traditional owners, 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.



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The importance of fish migration

The Murray Mouth allows water to flow into and out of the Coorong estuary, a narrow lagoon system that follows the coast for about 100 km. This is an important nursery area for many fish species of significant environmental and commercial value.

Barriers to fish migration and breeding patterns can lead to ecological degradation if movement between water bodies is blocked and fish are unable to complete critical stages of their lifecycle.

Why is a fishway important?

Fishways are important as they allow fish to access feeding grounds, give them greater habitat selection, and provide access to or from areas affected by drought or floods by:

- allowing adult fish to move to and from spawning environments
- encouraging fish to disperse to new habitats
- providing access to feeding grounds that were previously inaccessible
- allowing access to and from drought refuge areas.

The Construction of Fishways Project will:

- help protect threatened fish species by allowing them to move between important habitats
- ensure significant species and populations of fish are retained in the CLLMM region.



Placement of monitoring cage in existing fishway at Goolwa Barrage

What does a fishway look like?

Fishways are uniquely designed for their specific location, site conditions, and fish species. They create slowed water velocity, eddies and resting pools suitable for fish migration. Water flowing swiftly through open barrage gates presents a physical barrier to the upstream migration of fish. When closed they also create a barrier for fish.

Water flowing through the barrage fishways attracts fish to the entrances. Once inside, fish of various sizes move through the fishway and exit on the other side of the barrage.

Two fishway examples are:

Vertical slot fishways are designed to operate in changeable headwater and tailwater levels and allow fish to pass through the fishway at any depth. Water falls through a slot between each pool and this allows fish to rest as they travel through the fishway.

Fish lock fishways work similarly to a boat lock. This fishway attracts fish through an entrance chamber connected to a holding area at the base of the lock. The holding area is then sealed and filled with water to the top of the chamber, permitting the fish to exit the fishway.



Goolwa Barrage



The five barrages at the mouth of the River Murray were constructed between 1935 and 1940, to keep salt water from entering the lower reaches of the River Murray system.

They are designed to withstand tidal pressure, but not to obstruct flood waters.

The barrages were not originally designed with fish passage in mind and have hindered significant species from completing their lifecycles.

Where will the fishways be located?

This project involves the design, construction, and installation of new fishways in the CLLMM region's barrages.

There are four fishways already in place on the barrages. These are:

- two vertical slot fishways at Tauwitche Barrage
- a vertical slot fishway at Goolwa Barrage
- a rock-ramp fishway at Tauwitche Barrage

While the fishways currently in place are effective in providing passage, they are located far apart and do not suit all species and size ranges of fish migrations.

New fishways are proposed at the Mundoo, Ewe Island and Boundary Creek barrages which currently offer no fish passage.

An additional fishway at Tauwitche is proposed to increase the opportunities for fish migration through this extensive obstacle.

Additional fishways are proposed at Goolwa Barrage, where the majority of fish movement occurs, both to allow more fish to travel through at the peak migration times and to provide passage for fish species currently not catered for.



Who is involved?

A fishways working group established in late 2011 has membership from the Murray-Darling Basin Authority (MDBA), SA Water, the South Australian Research and Development Institute (SARDI), DEWNR, and Fishway Consulting Services.

The working group assessed the needs, number and type of fishways proposed and contributed to finalising detailed designs. It will oversee fishway construction and monitoring to ensure they are functioning effectively.

The significance of the Construction of Fishways Project

It is important to continue providing connectivity for the CLLMM region's fish, particularly the diadromous species, (which must migrate between fresh and salt water to complete their lifecycle).

If movement between the Coorong and the lakes is blocked, it could lead to the demise of fish species such as:

- lampreys
- long-finned eels
- short-finned eels
- congolli
- common galaxias



Rock-ramp and vertical slot fishways, Tauwichee Barrage



Congolli migrate substantial distances upstream of estuaries



Entrance/exit to vertical slot fishway, Tauwichee Barrage

Further information

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