

What's happening at Toorale?

Update on Toorale Water Infrastructure Project – November 2021



The Toorale Water Infrastructure Project is located in Toorale National Park (Toorale) about 65 km south-west of Bourke in north-western NSW.

Toorale was jointly purchased with the Australian Government and added to the NSW reserve system to protect its outstanding environmental and cultural values. The Commonwealth Environmental Water Holder holds the Toorale water access licences for both the Warrego and Darling rivers. These licences are used to deliver environmental benefits on Toorale and in the Darling River.

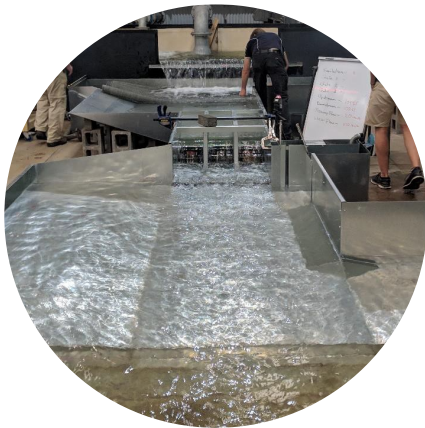
The Toorale Water Infrastructure project ensures that the important values of Toorale are maintained or enhanced, while achieving greater flexibility to pass more water to the Darling River.

Phase 1 of the project concluded in October 2019 with the removal of Peebles Dam.

Phase 2 is underway with the modification of Boera and Homestead Dams progressing to schedule. These modifications, including new regulators and fishways, will enable more water to flow to the Darling River when downstream needs are a priority, provide for ongoing watering of important habitats on Toorale when needed, and support fish passage between the Warrego and Darling rivers.

Fishway design at Boera dam

Boera Dam will have a vertical slot fishway installed that will provide fish passage independent of the regulator gates.



For a fishway to perform effectively, the flow depths and velocities need to be suitable for the target range of fish species. At Boera dam, the design had to be optimised for:

- small-bodied fish who prefer lower flows to migrate. Examples include olive perchlet, Murray-Darling rainbow fish, desert rainbow fish, unspotted hardyhead, Australian smelt and carp gudgeon
- medium-large-bodied fish who prefer higher flows to migrate. Examples include golden perch, silver perch, eel-tailed catfish and Murray cod.

Furthermore, the entrance to the Boera fishway is quite small relative to the channel area downstream of the regulator gates, so we wished to understand that fish would be able to navigate to and through this structure.

To improve confidence in the design effectiveness and ensure compliance with the *Fisheries Management Act 1994* (NSW), Department of Planning, Industry and Environment (the department) engaged Alluvium Consulting Australia to arrange for testing of the fishway design under conditions that will occur at Toorale. In consultation with a technical working group that included DPI Fisheries, Alluvium contracted the Hydraulics Department of University of South Australia to build a scaled model of the concept design, and to undertake testing of the physical model.

Different flow rates, gate combinations, and fishway entrance configurations were trialled to better understand the implications of different arrangements and operating patterns. Testing of the physical model assisted in refining the final

design of the structure, particularly the location and configuration of the fishway entrance across a range of weir discharge conditions. This also helped to develop appropriate operation protocols that will support fish movement opportunities.

Monitoring

A Fishway Management and Monitoring Plan will be prepared to inform the operation of both fishways once construction is completed.

The Commonwealth Environmental Water Office (CEWO) also provide Monitoring, Evaluation and Research (MER) activities on Toorale and in the [Warrego and Darling Rivers](#). Their Flow-MER program is helping to build knowledge about the best ways to manage environmental flows to improve the health of rivers and wetlands.

Stay up to date

The department will continue to keep stakeholders and communities informed of progress throughout the year. Find more information, including previous studies done for the project, on the department's [Environment, Energy and Science Toorale Water Infrastructure Project webpage](#), or for specific enquiries, email the Project Team at toorale.project@environment.nsw.gov.au.

The Toorale Water Infrastructure project is funded by the Australian Government in collaboration with the NSW Government.

Cover photo: Toorale wetlands, 2020, J. Smith. Above left to right: The physical model of the regulators and fishway entrance (looking upstream), 2019, Alluvium; Example of a vertical slot fishway, 2015, Dept of Primary Industries; Boera Dam, 2021, S.Stroud/DPIE.

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