

Why did the fish cross the road? Ways to improve natural flows and fish passage through road culverts.

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Road crossings of waterways throughout Australia have often been built without considering potential impacts on the movement of fish under varying flow conditions. Native fish need to move upstream and downstream in order to access food, habitat, to breed and also to escape predators. Many fish also undertake migrations from fresh to saltwater, or within river reaches to breed. Poorly designed road crossings can have a significant impact on the ability of fish to migrate, therefore reducing their ability to breed, leading to reduced population sizes.

To assist those involved in the planning, design and construction of “fish friendly” road crossings, NSW Fisheries released the *NSW Fisheries Policy and Guidelines: Bridges, Roads, Causeways, Culverts and Similar Structures (1999)*. While this document has been well received, it has also raised interest on the cost implications of building “fish friendly” structures, the need to test the design requirements in the Policy and Guidelines document to see how effective they are in the field, and the need to develop detailed standard drawings which can be used by engineers.

To this end the department is currently finalising a two year project, funded by the Murray Darling Basin Fishrehab Program, to develop and test national guidelines for “fish friendly” causeways and culverts. Partners on the project include Tenterfield Shire Council, Copmanhurst Shire Council, Guyra Shire Council, and the Roads and Traffic Authority. The project has involved the following components:

- Monitoring fish passage at four existing culvert sites owned by the project partners in four different catchments (3 freshwater and 1 tidal culvert) which have been identified as potential blockages to fish passage and required upgrading.
- Developing innovative culvert designs for the four locations to improve flows and fish passage at each site.
- Constructing innovative culvert designs at each of the four locations.
- Follow up monitoring to determine if the designs have resulted in improved flows and fish passage.
- Developing national guidelines for “fish and flow friendly” culverts and causeways in consultation with a National Steering Committee. Representatives from NSW Fisheries, the RTA and the Local Government and Shires Associations are represented on this committee.

This presentation will provide an overview of the project outcomes, focusing in particular on the results of the fish passage monitoring, the innovative culvert designs used, lessons learned and the content of the national guidelines.