## **Elver Trap Design For Dam Passage**

The lifecycle for the native short/longfinned eel is 60-80 years. Adults mature upstream and migrate downstream into the Pacific for spawning where eggs hatch. These larvae then return and begin their upstream migration as 'glass' eels whilst developing further into juvenile eels, called Elvers. Elver migration occurs in large numbers prior maturing upstream.

(migrant eal)

Freshwater

Adult Tu



Juvenile Elvers are caught in the traps to be transported upstream for release prior maturing and completing their migration cycle. Elvers average 100mm in length and weigh ~2 grams each when they first arrive at Roxborough. They appear dark brown or black.

## **PROJECT OBJECTIVE(S):**

 Upgrade and reinstall the existing Elver trap at the Roxborough dam with Contact Energy Ltd.
Use 3D modelling software to design a new and improved Elver trap design for use on the Roxborough dam.

FEC

## **References:**

D. J. Jellyman (1984) Distribution and biology of freshwater fish in the Clutha River. Fisheries Environmental Report No. 46. Ministry of Agriculture and Fisheries in Christchurch.

Goodman, J., Dunn, N. R., Ravenscroft, P. J., Allibone, R. M., Boubee, J., David, B. O., ... & Rolfe, J. R. (2014). Conservation status of New Zealand freshwater fish,





The Roxborough dam is the furthermost downstream hydroelectric dam located within the Clutha catchment and is the first obstacle for migratory eels and elvers to overcome. Constructed in 1957, it is 76 meters heigh. Ongoing experimentation with different Elver trapping/passage methods are continuously tried and implemented by Contact.



Using a 3D viaCAD program a new and improved Elver trap could be designed. This design provides an increased contact area for easier access onto the ramp for elvers. Elevating the trap and reinforcing the design makes it less vulnerable to rising river levels and turbulent water within the dams tailrace.



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