

Many of New Zealand's whitebait and other freshwater fish species spend some of their lifecycle at sea. But fish access to and from the sea is often hindered by barriers such as floodgates and culverts. Bay of Plenty Regional Council is helping locals to improve fish passage in drains and streams across the Bay of Plenty region.

Why improve fish passage?

Protecting the whitebait fishery is important to many kiwis and the five New Zealand fish which are collectively referred to as whitebait need free access between the sea and freshwater environments to complete their life cycle.

With many of our freshwater fish species in decline it's important that we do what we can to prevent further loss. By restoring unimpeded access for fish between the sea and inland waterways where they spend most of their lives, we can help them breed and feed.

Not only do native freshwater fish require free access along waterways but some need access to the vegetation beside stream banks too. Species such as inanga, which live in lowland streams, drains and wetlands during their adult life, lay their eggs in bankside vegetation that becomes submerged during the autumn high tides.

Other whitebait species, such as kōaro and kōkopu, travel further inland to access the cool clean water that is shaded by the stream bank vegetation.

Maintenance of fish passage is also a requirement for occupiers of the land (or land owners) under Part 6 of the Freshwater Fisheries Regulations 1983. Although this law only applies to natural waterways, many of the drains in our region are in fact natural streams that have simply been straightened, so they too should have no impediments to fish passage.



*Top: Inanga. Middle: Inanga eggs. Bottom: Banded Kokopu.
Images courtesy of Department of Conservation & Auckland Museum.*

What can we do to improve fish passage?

Traditional floodgates and culverts can prevent fish from swimming further upstream but there are ways to make these structures more fish friendly.

In the tidal parts of the lower catchment, we can replace existing floodgates with Fish Friendly Floodgates (FFG). A FFG maintains flood and water level protection by remaining open for the lower part of the tide and closing when the water reaches a certain level (see diagram on right).

Where there are perched culverts, or the flow through a culvert is too fast for fish to swim against, we can install fish ladders, baffles, or lay thick ropes through the culvert. All of these solutions provide enough shelter and traction for climbing fish to be able to swim upstream.

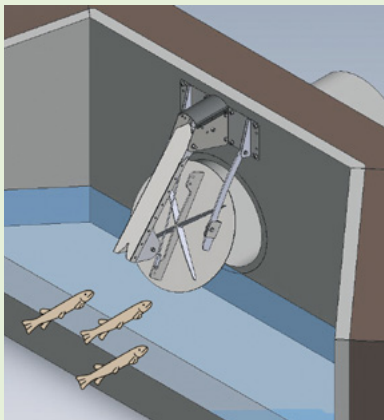
Water quality

Improving fish passage is only part of the solution. Poor water quality including high temperatures and low dissolved oxygen can also cause problems for fish. This is especially true in open streams and drains where plant growth can be excessive, leading to changes in oxygen concentrations between day and night. Other drains may contain high levels of ammonia from sources such as dairy shed wastewater that can be toxic to fish.

Bay of Plenty Regional Council works with land owners and businesses to improve land-use practices and reduce agricultural and industrial run-off. Practical advice and funding assistance is available to landowners for fencing and planting to improve water quality in local streams and drains. Council is also implementing the governments National Policy Statement for Freshwater Management by working with local community representatives to set water quality standards and quantity limits for the future.

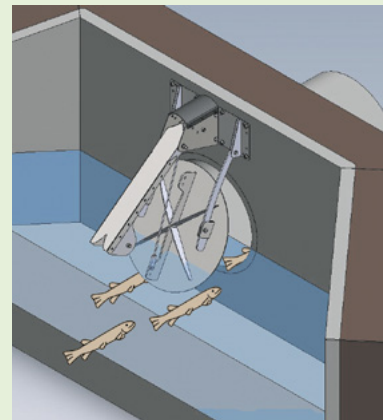
Find out more at www.boprc.govt.nz/landmanagement

Fish Friendly Floodgate operation during the tidal cycle



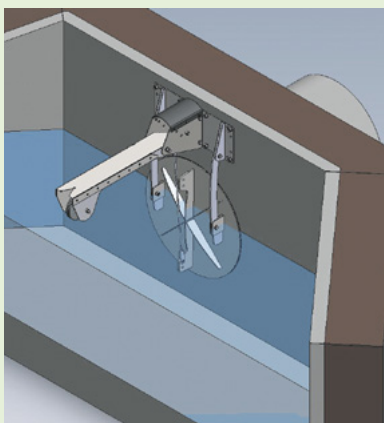
Low tide

Floodgate held partially open to allow some tidal inflow.



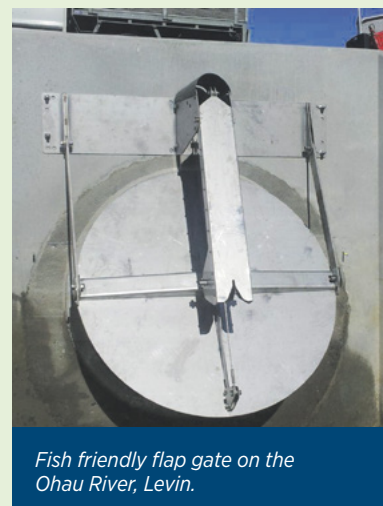
Half tide

As the water level rises the FFG delays the closing of the gate.



High tide

The rising water continues to push the flap until it closes as normal.



Fish friendly flap gate on the Ohau River, Levin.

Images provided by ATS Environmental



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