

# Fixing your stream edges

OUR NATIVE FISH LIKE TO KEEP THEIR COOL. THEY'RE USED TO SHADED WATERWAYS LINED WITH DENSE VEGETATION BECAUSE OVER 80% OF NEW ZEALAND WAS ONCE FORESTED. READ ON TO FIND OUT THE THREE STEPS FOR RESTORING STREAM HEALTH AND FISH HABITAT.

Photo: Waitete Stream,  
Rob Davies-Colley, NIWA

## Stream wise

Our native fish love living in streams and rivers lined by native grasses, trees and shrubs. Fish need bushy overhangs to shade the water, provide cover, stabilise the banks, and drop leaves and insects for the fish to eat. Did you know that...

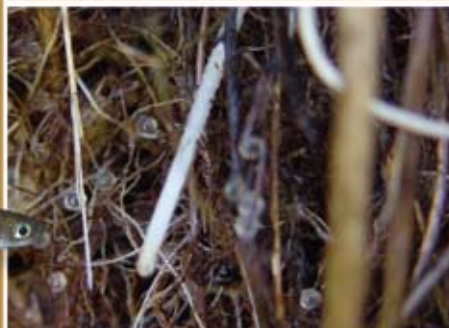
- fencing rural streams from stock dramatically improves water quality and can prevent possible stock losses in boggy ground
- planting stream banks can dramatically improve native fish habitat and water quality
- whitebait lay their eggs on long grass, sedges and rushes by coastal streams and estuaries
- seeps and springs densely planted with sedges, native toetoe and flax help trap sediment, nutrients, bacteria and other pollutants before entering streams and waterways
- if you're on a farm, planting and fencing your drains will reduce weed growth and drain maintenance costs in the long term as well as provide habitat for other species such as insects and birds

Priority fish habitat restoration areas:

- open streams such as farmland with no riparian vegetation
- small streams in the head-waters of catchments
- sunny (north and west-facing) sides of streams
- continuous strips of at least 200 m to cool the water
- estuaries where sedges and grasses can be planted for whitebait spawning habitat

Check with your regional council before planting drains – there may be controls on access for maintenance.

*Inanga/whitebait eggs amongst the sedges. Photo: Sjaan Charteris, Crown Copyright, Department of Conservation*



*Inanga/whitebait.*  
Photo: Stephen Moore, Landcare Research

## Three steps for restoring streams

### 1. Prepare

Good site preparation will improve the success of your planting. Preparation should commence over summer, in readiness for planting over autumn and winter.

If your site is in rank grass, you can mow, lightly graze, or spot spray with the appropriate herbicide or plant straight into it depending on the species. Sites with short grass can usually be planted directly into, but take care if there is kikuyu or pasture weeds that could overgrow your plants.

Some sites can be full of exotic weeds, particularly near urban areas. Many weeds will overgrow native plants if they are left unchecked. Make sure you do a thorough job of removing weeds before planting out any natives. For very weedy sites, stage weed control and planting over several years. This allows you to tackle a small area at a time, and also improves the transition between a weed dominated system to a native one. Remember that in the absence of native trees and shrubs birds, lizards and fish may be utilising the exotic weeds as habitat.

Check out the Weedbusters website for advice on dealing with problem weeds or contact your local council for more information.



manuka

mahoe

toetoe

flax

cabbage tree

Waitete Stream, Waihi. Photo: Rob Davies-Colley, NIWA

Cabbage trees are both fast growing and great bank stabilisers



Planting kowhai, karamu and flax provides food for native birds such as the Tui. Photo: Dianne John

**2. Plant**

Autumn is the optimum time to plant. This allows plants time to establish over the colder, wetter months in readiness for the summer. For areas which suffer from heavy frosts, it can be best to wait until later in the season so that your young plants are not killed. Very wet sites are best planted in spring to early summer, once water levels have receded. This ensures that plants do not become waterlogged or washed away during the winter rains.

**A helpful tip:** Make sure to place a stake next to each plant. This will help you find them when you are weeding and is a useful way to tell if any plants have died and need replacing. It is amazing how difficult it can be to relocate plants once the surrounding weeds have started to grow in spring and summer.

**Which plants should I use?**

The best way is to find a natural stream or wetland near your site. Observe what is growing naturally and try to recreate this pattern. Often it is best to start with a few hardy species and to allow others to colonise the site

naturally over time. Alternatively, 'diversity' species can be added at a later date once the original hardy 'pioneer plants' are established. The best species to plant depends on your location, so always source local information. You can get advice on what to plant and when to plant from your regional council, NZ Landcare Trust or the Department of Conservation.

Here are some suggestions:

- Fast growing trees and shrubs:** Manuka, kanuka, karamu and cabbage trees.
- Great bank stabilisers:** Sedges, cabbage trees, lowland ribbonwood, karamu, tutu\*, lemonwood and kohuhu. (\*tutu is poisonous to stock and humans.)
- Homes for fish:** Carex sedges, giant umbrella sedge and native toetoe near the stream edge.
- The edges of wetlands:** Sedges, flax, cabbage trees and native toetoe.
- Flood prone areas:** Sedges and native toetoe.
- Attracting birds:** Kowhai, karamu and flax

As a general rule, plant sedges 1 m apart, shrubs 1.5 m apart and trees 2-5 m apart. Where weeds are a problem, plants should be closer together to help shade them out.

**3. Maintain**

Maintenance is the key to a successful planting. Many planted areas have inadequate weed control, causing high losses as weeds overgrow and kill native plants. Committing to regular maintenance will ensure that the efforts of preparing and planting the site have not been wasted. New riparian plantings will need regular weed control for 3-4 years or until they are tall enough and dense enough to out compete weeds. New plantings should be checked once per month during spring and summer. Hand weeding around the base of each plant is all that is required. You will need to be particularly vigilant on sites that had lots of weeds originally, or where there are weeds nearby that will colonise the site. You will need to replace any plantings that die as leaving gaps may mean weeds move in. Don't forget about pest control – rabbits, hares and possums like to nibble new plantings. Pest control can be conducted using traps or baits, with detailed information available from your regional council.



Blackberry establishes rapidly and is likely to require on going maintenance

**Want to know more?**

Many native plant nurseries specialise in wetland and riparian plants, or you can propagate or transplant your own (see Environment Waikato's guide Planting Natives in the Waikato Region for tips). To learn about native plants check out the New Zealand Plant Conservation Network [www.nzpcn.org.nz](http://www.nzpcn.org.nz)

A simple web search for 'riparian management' and 'riparian planting guidelines' for NZ sites will bring up a host of links.

Check out 'A Guide to Managing Waterways on Canterbury Farms' Environment Canterbury [www.ecan.govt.nz](http://www.ecan.govt.nz) 'Clean Streams' Environment Waikato's [www.ew.govt.nz](http://www.ew.govt.nz) 'Riparian Planting and Management Guidelines for Tangata Whenua' Ngai Tahu [www.ngaitahu.iwi.nz](http://www.ngaitahu.iwi.nz) and Landcare Research riparian planting studies in the Sherry River Catchment (Tasman) [www.icm.landcareresearch.co.nz](http://www.icm.landcareresearch.co.nz)

- Fishy factsheets in this series:
- #1 Our freshwater fish
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  - #2 Stream works for fish
  - #3 Fixing your stream edges**
  - #4 Native fish in the city
  - #5 Native fish on the farm
  - #6 Caring for our catchments

All factsheets can be downloaded from: [www.landcare.org.nz](http://www.landcare.org.nz)

