Top: Aquatic insects are a great indicator of water quality – the WaiCare Invertebrate Field Guide is a useful tool for species ID. Photo: Janet McDonald, Atlas Communications & Media Ltd for Project Twin Streams

Middle: You'll need to work with experts if you plan on electric fishing, alternately you could go spotlighting at night. Photo: Robin Black, Hancock Natural Resource Group

Bottom: Basic equipment is needed to monitor water clarity, temperature, pH, and conductivity. A SHMAK kit (Stream Health Monitoring Assessment Kit) is available for loan from NZ Landcare Trust's Hamilton office. Photo: Monica Peters NZLT

Keep a watching brief

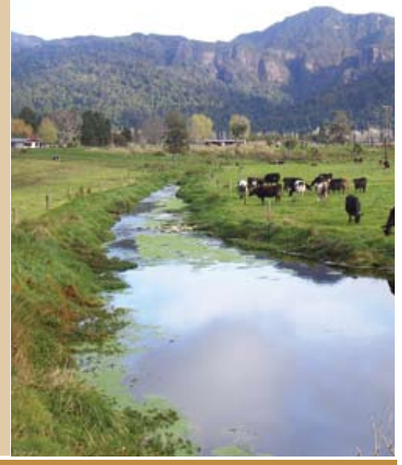
Monitoring is important! It's easy to get so caught up working on restoration you forget to stop and take stock of your progress, or to keep an eye out for new or unexpected problems.

The big picture

Many of New Zealand's streams and rivers originally flowed through dense bush where the forest held soil together, shaded the water and dropped leaf litter and insects to feed native fish. Today the landscape has been transformed and most waterways pass through towns and farmland. Many streams are now silt-laden, less shaded, enriched with nutrients and polluted with contaminants.

Catchment groups are landowners, their supporters and advisors who work at a 'whole of catchment' scale to ensure the water that leaves their land is as good as the water that reaches it. Photo: Abby Davidson, NZLT

River with Dairy cows alongside. Photo: Gretchen Robertson, NZLT



Getting good advice

The following are likely to have information about your catchment and how to restore it, or may wish to get involved.

- Local landowners and residents
- NZ Landcare Trust
- Regional and District councils
- Scientists from NIWA, Landcare Research and universities
- Independent freshwater ecologists
- Local schools and plant nurseries

Aorere: a winning catchment

Making sure their cattle don't taint a $15 M aquaculture industry at the bottom of their catchment is a major objective of the 33 dairy farmers who live along Golden Bay's Aorere River.

The deep family links and stewardship for the catchment, along with a strong commitment to implementing best management practices on the farm, are key ingredients to their success. In 2002 local shellfish harvest rates were around 28%, today they are up to 79%
See the Aorere Catchment project: www.landcare.org.nz/regional-focus/upper-south-island/aorere-catchment/

Ministry for the Environment
Manatū Mo Te Taiao
Sustainable Management Fund

Want to know more?

Maori and Integrated Catchment Management www.arc.govt.nz

Some great examples of successful catchment scale projects:

Whaingaroa Harbourcare
www.harbourcare.co.nz

Motueka River Integrated Catchment Management Project
www.landcareresearch.co.nz

Lake Omapere Integrated Catchment Management
www.nrc.govt.nz

Waihao River - Wainono Lagoon Management Strategy
www.ecan.govt.nz

NZ LANDCARE TRUST

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Fishy factsheets in this series:
#1 Our freshwater fish
#1 Ngā ika wai māori
#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

hooked on fish #6

hooked on fish #6

Caring for our catchments

NEW ZEALAND HAS 425,000 KILOMETRES OF RIVERS AND STREAMS TO LOOK AFTER. CLEARLY IT'S A JOB FOR US TO WORK ON AS A COMMUNITY. CATCHMENT GROUPS ARE BEING FORMED AROUND THE COUNTRY TO LOOK AFTER OUR WATERWAYS FROM THE MOUNTAINS TO THE SEA. READ ON TO FIND OUT WHAT THEY DO.

Raglan – restoring waterways in such a large catchment requires people with vision, adequate funding and lots of stamina. Photo: Monica Peters, NZLT

Planning for change

If you want to help protect or improve the health of streams in your catchment the following steps will help.

1. Build the background picture

Talk to people who can give advice (listed on back page) about:

- what fish and other species (native and exotic) are currently and/or historically in streams
- catchment soils, flooding potential, vegetation cover
- current and historic stream and catchment photos, reports and maps
- existing programmes to restore/ protect streams
- developments planned in the catchment
- contaminated sites e.g. old mines, tanneries, landfills or sheep dips
- current sources of potential contamination (water treatment plants, industries)
- rules or requirements about stream works e.g. planting banks, upgrading culverts

The freshwater dwelling black flounder. Photo: Peter Hamill, Marlborough District Council

2. Take a hike

Take a good map and/or aerial photo, and walk or boat the length of your stream. Check for, take photos and note the location and state of:

- springs, seepages and wetlands
- culverts/ dams/ weirs (are they fish friendly?)
- waterfalls, rapids or other natural fish passage barriers
- bank erosion, stock access, areas with no riparian shade
- ephemeral (seasonal) streams
- potential spawning areas
- pipes and potential sources of discharges e.g. water treatment plants, industrial sites, or landfills
- polluted areas with e.g. cloudy/ smelly water, litter or dead fish
- invasive weeds

Discuss your findings with the Regional Council, and immediately report any signs of pollution, hazards or invasive species that need urgent attention.

What's in your stream? The unusual lamprey, a much prized food of Maori. Photo: Stephen Moore, Landcare Research

3. Get together

Form a catchment care group with neighbours and other interested parties to develop a vision for the catchment. Some goals may be to:

- improve water quality for safer recreational use
- provide habitat for aquatic wildlife and native birds
- beautify the catchment with native plants
- restore whitebait spawning sites
- remove barriers to fish passage
- reduce flooding and prevent/ minimise erosion
- regularly monitor stream health
- fence and restore wetlands to filter out silt

List what prevents your vision or goals from being realised, and talk to people who may be able to assist you with them.

4. Develop an Action Plan

There are plenty of people out there to help you find practical solutions (listed on back page). The next step is developing an Action Plan to achieve your goals. Other factsheets in this series have basic information on improving fish habitat and riparian planting.

FISH FRIENDLY CATCHMENTS

Best practices to help our native fish survive and thrive

Protect forested headwaters: fencing, pest control and covenants if on private land

See pollution or dead fish? Let your local council know

Link mountains to sea: create fish passes to overcome manmade obstacles

Maintain habitat variety in streams: pools, riffles, runs and meanders

Don't tip pollutants (paint, solvents etc) down drains

Plant riparian zones: protects streams from nutrient rich run-off and silt

Fence waterways and wetlands: prevents stock access

Plant riparian zones: create shade, lower water temperatures and create food for fish

Covenant special habitats to ensure lasting protection

Join/start a local streamcare group to restore and protect your streams

Design or retrofit culverts to enable fish passage

Establish weirs if water levels are at risk from surrounding drainage

Minimise runoff through permeable surfaces, such as pavers, which allow rain to soak into the ground

Consider "soft" engineering approaches e.g. swales, rain gardens, man-made wetlands

Don't tip aquarium fish or plants down drains

Wash your car on grass

Plant along coastal streams to create whitebait habitat