

Works within a Watercourse

Stream Habitat

Why is stream habitat so important?

Fish need healthy places to live, feed and reproduce. Streams supply fish with their requirements for food, shelter, water, reproduction and growth over their life cycle. Lakes, reservoirs, rivers, streams, wetlands, canals and drains can sustain fish life. If you are working on a project in or near water, your actions can affect Auckland's streams.

Habitat requirements may change for each stage in a fish life cycle, from egg to adult. If some fish requirements are not met due to loss of habitat, their numbers drop and in time the entire population may die out.

It's therefore important that stream habitat is protected so that fish are provided with clean water, spawning grounds, an adequate food supply and clear migration routes. In doing so, we safeguard our fishing industry for the future, provide iwi a traditional source of food, and protect amenity values by ensuring the waterbodies where we live are environmentally healthy and pleasant places to live, work and play.

Threats to fish habitat

Unfortunately, streams and fish habitat are vulnerable to a variety of threats from those that are obvious to those that become apparent only when the fish are gone.

Some threats, like the release of high concentrations of sediment from a construction area, kill fish downstream in a matter of minutes. Other threats, like clearing trees and shrubs from stream edges can damage habitat over several years, gradually depleting fish populations.

Poorly installed watercourse crossings of all kinds may block fish migrations and release sediment from construction. For example, at high flows undersized culverts can turn into water 'cannons' that repel even the most powerful fish.

Clearing land for urban development, farming and forestry, building drainage ditches, and straightening channels cause higher peak flows in spring. High flows can create obstacles to upstream fish movement and suspend more sediment in the water, making it more difficult for some fish to find food. Peak flows are often followed by rapid declines in flow rate that can strand fish upstream and dry out recently spawned fish eggs.

Clearing aquatic "weeds" and vegetation in and around streams removes protective cover for fish and the invertebrates they eat.

ARC is Involved in Protecting Streams and Fish habitat

The Resource Management Act requires the ARC to be responsible for the sustainable management of natural and physical resources within their catchment boundaries, and this includes surface water. The ARC is required to sustain fish habitat, ecosystems and other intrinsically or culturally valuable features.

The Proposed Auckland Regional Plan: Air, Land and Water is the planning document which authorises, or otherwise, works within streams.

The ARC *Stream Fact* series have been prepared to help you plan your project with stream habitat protection in mind. They outline the best management practices for common projects such as bridges, culverts and fords. Fact sheets also provide information about erosion and sediment control, streamwork methodologies and fish passage. Whatever your project, our fact sheets can help by explaining how to undertake it in a way that is environmentally sound.

The key ARC management policy relating to streams is to maintain and where practicable, enhance water quality for the health of the natural ecosystems and for amenity values whilst recognising that some streams are impacted by the nature of their surroundings. You can help accomplish this goal by working with ARC staff to protect stream habitat in our lakes and streams, thereby ensuring healthy streams and fish populations for future generations.

What can you do to protect streams?

The combined effect of many small harmful alterations can degrade or destroy large areas of habitat and cause decline in fish populations. Here are some suggestions for protecting and maintaining stream habitat:

Maintain/Plant trees and shrubs on shorelines

Vegetation helps stabilise banks and keeps sediment from washing into the water where it suffocates eggs. The trees and shrubs also harbour insect life for food, shade water keeping temperatures cool, and trap contaminants that poison fish. For further details see the ARC riparian planting guide (Technical Publication 131).

Keep contaminants out of the water

Keep water that runs off your land or work area free of fertilizers, herbicides, petroleum products, etc. that pollute the water. Dispose of wastes properly. Never use a storm drain for disposing of used motor oils, solvents or any chemical wastes – it should only be for rain. Storm drains funnel flows directly into streams.

Leave a buffer zone

Leave a buffer zone between your activities along streams and lakes.

Ensure fish passage

Don't block or restrict fish migration in streams and rivers. Keep passages clear of obstructions.

Fallen trees and branches in the water

Woody debris is important to stream ecosystems. Beneath the water it provides a home to tiny aquatic organisms that feed fish and a place for fish to hide from predators.

Further Information and References

The Auckland Regional Council has a number of technical publications relating to works within a watercourse including fish passage, sizing and design suggestions and appropriate models of stream diversions available for viewing at the Internet link: <http://www.arc.govt.nz/arc/about-arc/publications/> There are also further fact sheets available on related topics such as, Sediment Management: Site staging and stabilisation, Streamworks methodology and Fish passage or for further information contact the Stormwater/Sediment Management Team on (09) 366 2000.

Also, check out the following web pages:

- www.niwa.co.nz/rc/freshwater/fishatlas/index.htm
- www.nzfreshwater.org/