

ESD Matters

Protecting our waterways

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Our nation's geography means that most New Zealanders live in close proximity to a coastline, lake, river or waterway of some description. For many of us, they are our playgrounds, food baskets, transportation routes and irrigation providers.

However, as our population grows, urban development spreads and industry activity increases and intensifies, water pollution and the ecological health of our waterways is becoming of increasing concern.

In an urban context:

Unfortunately, with large amounts of paved and road-covered surfaces in urban centres, much of our run-off heads directly for drains and pollutants are not filtered through soil. Detergents, waste oil, litter and faecal matter are the main culprits. In most of New Zealand's main centres, you will now see plastic blue fish on the curb-side at storm water drains, highlighting the need to protect our waterways and the species that reside within them from harmful pollutants and bacteria.

With urban development, regional and local councils have laws and operating guidelines in place to protect waterways from sediment run-off caused by disturbed or exposed soils. Straw bales and storm water settling pools are commonplace in subdivisions to protect nearby water systems from harm. Whilst soil run-off may seem natural and harmless, some solid matter can in fact be devastating to our waterways. For example, clay clouds water and greatly reduces the amount of light that can penetrate. Sediment settles in thick layers on riverbeds and harbour floors, smothering plants and animal life. From any building site, there is the added concern of potential contamination from pollutants used in construction materials and methods.

In areas with intensive development and growth, there is great concern for many aquatic species. Human activity and in particular land use changes, are affecting the breeding grounds and habitats of some species. Research indicates that the population of some species is in decline and diversity in many waterways is lacking.

Snapper (an iconic coastal fish) is a species near and dear to the hearts of many Kiwis (the largest recreational fishery) and of significance to our economy (with an annual \$36 million export value)¹. However, research tells us that Snapper, like many aquatic species, is in danger due to habitat degradation. Land use changes and sediment run-off from recent and significant development in and around the Kaipara Harbour, has greatly affected the nursery ground of an estimated 98% of New Zealand's West Coast Snapper (according to NIWA research)². Natural vegetation in the Kaipara catchment has been reduced to islands of wetlands and forest in man-made landscapes – separated by urban areas, roads, exotic forests and pastures. An estimated 90% of land cover is no longer indigenous wetland or vegetation³. Scientists fear that the Snapper fishery could be wiped-out almost entirely if this aquatic habitat is not carefully managed back to good health.

Findings like this are not uncommon. From stoneflies and native frogs to iconic fisheries, man's impact on the ecosystems of our waterways is increasingly noticeable.

Water quality is also a matter of human health. With many waterways used for recreational purposes, it is important public are aware when it is not safe to swim or gather food.

The current RMA places a large amount of responsibility on regional councils to manage water use and misuse. Councils currently monitor water quality at over 200 freshwater sites and more than 350 coastal sites where they are predominantly testing for bacteria levels that present a human health risk.

Although a lot of damage has been done over years through land use change and the introduction of harmful chemicals such as fertilisers, we are starting to see and hear more about protecting our waterways. With information comes the ability to create change and to act more responsibly. Recent campaigns aimed at reducing the polluting effects of "dirty dairying", "freedom campers" and the likes, have brought waterway protection into mainstream media.

New Zealand artist Bill Culbert is also among the people drawing attention to issues of water pollution. His 2007 work titled *Pacific Flotsam*, is an installation of fluorescent light, electric wire and plastic bottles that refers to the state of our oceans and specifically the large islands of marine litter that have drifted together on ocean currents. They are now kilometres wide (potentially twice the size of Texas), and float on and just below the surface of the water as a constant reminder of mankind's ill-treatment of our oceans. This highly concentrated mass of plastic, chemical sludge and other debris, trapped by the currents of the North Pacific Gyre, is not only an eye-sore, but a danger to aquatic species and humans. Overtime it is disintegrating into smaller and smaller pieces, which when small enough are ingested by aquatic organisms and enter the food chain.

To watch Christchurch Art Gallery's curator Justin Paton discussing Bill Culbert's *Pacific Flotsam*, [click here](#).



Bill Culbert *Pacific Flotsam* 2007. Source: www.govettbrewster.com

Water management is an integral part of ESD, and features in the New Zealand Green Building Councils' Green Star rating tools. Green Star NZ works by evaluating a building against nine categories that assess the environmental impact that is a direct consequence of a building's site selection, design, construction and maintenance. Credits are given and the resulting rating system identifies buildings as 'Best Practice', 'New Zealand Excellence' or 'World Leadership'.

Projects are assessed for the management of water use (reducing demand on potable water supply) and treatment and reduction of waste and storm water from site. ESD considers practices and products such as rainwater harvesting, grey water units and diverters, and landscape features such as rain gardens and permeable paving to diffuse run-off, as critical for water management.

1. www.seafoodindustry.co.nz/n1128,208.html
2. www.northernadvocate.co.nz/local/news/kaipara-is-a-giant-snapper-nursery-experts/3795595/
3. http://en.wikipedia.org/wiki/Kaipara_Harbour

FOR MORE INFORMATION:

The **Water Quality Information System (WQIS)** contains data and metadata on a range of common water quality indicators (e.g. nutrient concentrations, water clarity) gathered from New Zealand's freshwater streams, rivers and lakes. <https://secure.niwa.co.nz/wqis/index.do>

Water fails clean, green test – *The NZ Herald*: A damning report by the National Institute of Water and Atmospheric Research on 229 lowland waterways has found that New Zealand's clean, green self-image is no longer true for our water. http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=3576307

Ministry for the Environment's **snapshot of water quality compliance** with E.coli guidelines: <http://www.mfe.govt.nz/environmental-reporting/freshwater/recreational/snapshot/index.html>

The **Great Pacific Garbage Patch**: http://en.wikipedia.org/wiki/Great_Pacific_Garbage_Patch

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