



Frith Dairylands kahikatea swamp forest, Dargaville.

Biodiversity describes the variety of life on earth. Northland has a subtropical, oceanic climate and a wide variety of habitat types which ensure the region has an unusually high diversity of plants and animals. This includes many species that can be found nowhere else in New Zealand or the world, i.e. 'endemic' species.



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Tree weta on *Coprosma pedicellata*, a newly discovered threatened tree in Northland.

As one of the key environmental agencies in the region, the Northland Regional Council provides advice on biodiversity. The council also provides funding – through the Environment Fund – for landowners who want to undertake long-term land management and biodiversity projects.

The 'Environment Fund' was set up 15 years ago and has provided more than \$3 million to help people improve and protect Northland's natural environment.

Typically, projects have included fencing, tree-planting and pest control. In 2009-2010 the Environment Fund was revised to align with regional land management priorities to make it more efficient, targeting resources towards improved land management outcomes.

Wetlands and biodiversity

A wetland is land that is covered in, or saturated by water for at least some of the time. Wetlands occur in areas where surface water collects or where underground water seeps through to the surface. They include swamps, bogs, marshes, gumlands, saltmarshes, mangroves and some river and lake stream edges.

In the past wetlands in Northland covered around 258,451 hectares or 32 percent of the land area. Just 5.5 percent or 14,114ha of the original wetland area remains with less than four percent remaining south of Kaitiāia. Some of the wetlands being lost in Northland are unique and therefore irreplaceable.

In 2009 the council initiated the Top Wetlands Project which is now being carried out. More than 900 of Northland's remaining wetlands have been added to a GIS-linked database and 305 of the region's best and most irreplaceable wetlands were ranked and prioritised for management and protection using a scoring system based on national methods. More than 40 of Northland's estuarine wetland systems were scored and ranked separately.



Peat bog near Kaitiāia, one of the rarest wetland types.

Biodiversity and land performance targets:

To promote the sustainable management of land, including soil, water, and ecosystems in the Northland region by:

- Promoting sustainable land management practices by providing advice on land use alternatives, land development techniques, soil conservation and drainage – **NOT ACHIEVED (reporting issue only).**
- Promote and support community based 'coast care' projects – **ACHIEVED.**
- Developing and promoting indigenous biodiversity policies for Northland, including designing and setting up an indigenous biodiversity database for Northland – **ACHIEVED.**
- Supporting biodiversity protection and enhancement on private land, by community groups, and through the Environment Fund – **ACHIEVED.**

Key points 2010-2011

- The council's land management team responded to 65 sustainable land management enquiries related to biodiversity during 2010-2011.
- The most popular enquiries were biodiversity (22), wetlands (20), and threatened flora/fauna (seven).
- Approximately \$500,000 was granted during 2010-2011.
- More than 900 of Northland's wetlands have been identified and ranked for ecological value.
- 153 wetlands are considered as priority for protection and management.

Environment Fund

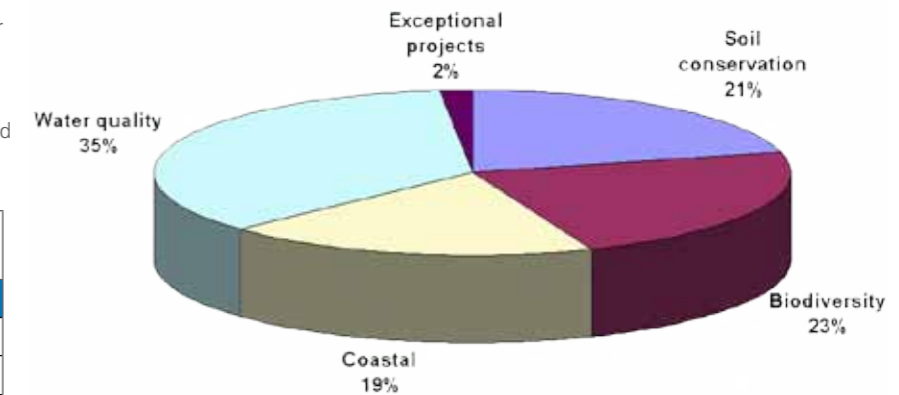
The 2010-2011 funding year has been as successful as ever, with many outstanding projects completed under the new funding streams.

The change in funding streams in 2010 meant that the most popular projects during 2010-2011 were fencing, primarily of streams and wetlands for water quality, biodiversity, soil conservation and erosion control. The changes in funding streams in 2009-2010 have focussed projects into these areas.

Number of Environment Fund Projects completed by district.

DISTRICT	NUMBER OF PROJECTS	Percentage
Far North	22	38
Whāngārei	21	37
Kaipara	14	25

Percentage of Environment Fund Projects for each funding stream



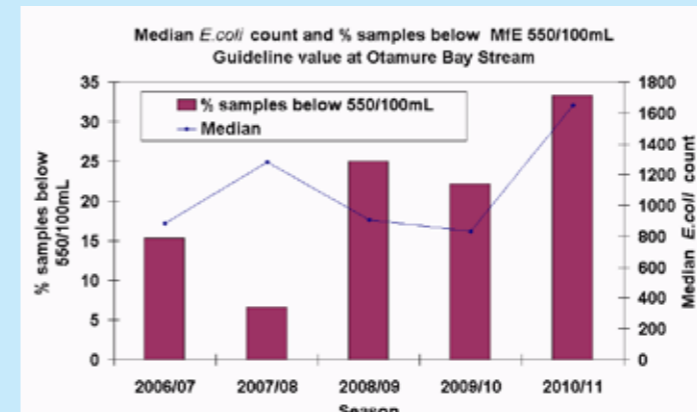
CASE STUDY: Otamure Bay Stream

Otamure Bay is located north of Whananaki on Northland's east coast. The bay is a popular holiday destination with the Department of Conservation camping ground located right by the beach.

Otamure Bay Stream flows onto the beach at the eastern end, and during summer this stream often becomes stagnant and pools on the beach when the exit is partially blocked due to the build up of sand.

Water quality in Otamure Bay Stream has been monitored as part of the recreational bathing programme since November 2006. Bacterial contamination at this site has often been high and the stream has been above the Ministry for Environment 'Action' threshold of 550 *E.coli*/100mL for 76 percent of sampling occasions.

There are two tributaries that flow into the stream before it reaches the beach. Both tributaries run through areas that are actively farmed with beef cattle. This site is also noted for its use by the critically endangered species, Brown Teal (Pāteke) *Anas chlorotis*. Results from faecal source tracking at this site over three seasons indicate that the sources of contamination at this site are ruminants and wildfowl. The avian marker identified in these samples shows the faecal pollution is from ducks (possibly brown teal).



The majority landowner in the catchment has embarked on an extensive fencing programme over the past six years. The landowner's property contains many mature native bush remnants, wetlands and small streams. The wetlands on the property are also key Pāteke breeding grounds monitored by the Department of Conservation.

The landowners have used funding from the Environment Fund to help cover the cost of fencing many hectares of native bush, 3.6km of wetland and stream fencing, 1km of estuary/coastal wetlands, 2km bush/stream and associated wetland fencing. In the past, the landowners have also fenced other areas on their property without financial assistance.



Fenced wetland in Otamure Bay Stream catchment.

While it is too soon to know the extent the land management changes are having on water quality, provisional results indicate that the presence of the herbivore marker seems to have decreased and was only found in one of the last four samples taken for faecal source tracking.

The percentage of samples that are below the Ministry for Environment 'Action' threshold of 550 *E.coli*/100mL also appears to be increasing. Ongoing monitoring is required to determine if these changes are due to the land management activities or inter-annual variation.

Land management

Soil Conservation Project

Sediment can be a major contaminant of rivers, estuaries, harbours and inshore waters in Northland. It affects land productivity, water quality, ecological health and flooding throughout the region.

In its first year (2009-2010) the focus of the project was on the 27 priority river catchments but this changed as a result of the widespread slipping caused by Cyclone Wilma on the eastern side of Northland, from Doubtless Bay to Bream Bay.

Landowners became more interested in erosion control planting over a much wider area. The increase in demand for poplar poles cannot yet be met from within the region but the council is working with growers at several locations to ensure both poplar and willow pole supplies will come from local nurseries within the next two years.

The information from priority river catchment surveys and from an aerial survey immediately after Cyclone Wilma enables areas to be targeted for soil conservation initiatives, including planting native trees, poplars and willows, preparing farm plans and encouraging land use changes of marginal pasture land.



An example of a type of erosion caused by Cyclone Wilma and targeted by the Soil Conservation Project.

Why is sediment a problem?

- Sediment contaminates rivers, estuaries, harbours and inshore waters in Northland.
- It can smother aquatic life and change the nature of river beds and estuaries, encouraging the growth of mangroves.
- It reduces water quality and carries other contaminants, such as nutrients and in some areas trace metals.
- It reduces the value of water bodies for activities such as gathering kaimoana (seafood) and swimming.
- It reduces channel capacity and increases the risk of flooding.
- It builds up the ground level on flood plains, increasing the frequency with which buildings, roads and other infrastructure flood.
- It has a major effect on the visual quality of waterways.

CoastCare Northland

CoastCare aims to protect and restore dune systems through the establishment, education, resourcing, and on-going support of community-based CoastCare groups.



Example of CoastCare sign, Waipapakauri.

The programme started in 2005 and there are now 30 groups around Northland's coast.

Between July 2010 and June 2011, 24,200 native sand-binding plants were planted on Northland's dunes by CoastCare groups.

New CoastCare signs have been designed with input from CoastCare groups and so far seven signs have been put up near CoastCare dune restoration sites. These provide information about the importance and function of dune systems and dune plants, as well as local information on the dune restoration project.

For more information about CoastCare Northland, or to find out where the groups are operating visit www.nrc.govt.nz/coastcare or join the CoastCare online community at www.facebook.com/CoastCareNorthland

Safe beach driving

The Northland Regional Council has been co-ordinating a multi-agency Safe Beach Driving education programme to promote safer and more environmentally-conscious beach driving practices.

The programme was started in 2006 due to concerns about the safety of beach users from dangerous beach driving, and damage caused to the sand dunes and beach environment. The number of incidents reported to the Northland Regional Council has been declining since a peak in 2007-2008.



Baylys Beach Bonanza community event.



Over the summer 2010-2011, beach information events and patrols were held at Baylys Beach, Tokerau Beach, Ahipara and Ruakaka. Other events such as fishing competitions, roadside fatigue stops and community events were also attended to raise awareness of the potential dangers to beach users and the environment of inappropriate vehicle use on beaches and to promote better beach driving behaviour.

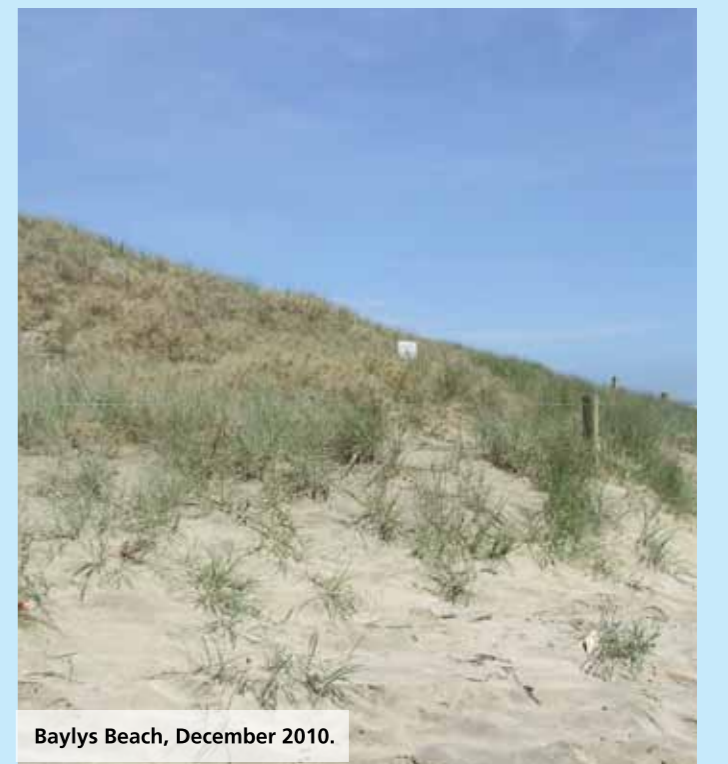
CASE STUDY: Baylys Beach

Baylys Beach Society was formed in 2007 to deal with the issue of inappropriate use of vehicles on the beach, which was causing damage to the dunes and posing a risk to other beach users.



Baylys Beach, February 2007.

The group has since fenced off the dunes between Chases Gorge and Baylys Gorge to protect the dunes and native sand-binding plants. Spinifex and pingao have been planted to fill gaps in the vegetation caused mainly by vehicles. The dunes in this area are now recovering well from previous vehicle damage.



Baylys Beach, December 2010.