

# State of the Environment Report

## 2012



Putting Northland first

# REGIONAL OFFICES

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# Foreword



It is with great pleasure that we present to you Northland Regional Council's third State of the Environment Report. The information gathered through our environmental monitoring programme informs much of the council's work and this report, which covers the period 2007-2011, presents a summary of this.

Much has changed since the first state of the environment report in 2002. The council has responded to developing trends and issues, feedback from the community, and changes in government legislation. As a regional council, we have one of the country's most rigorous environmental monitoring programmes, which allows us to respond to issues with appropriate measures – whether that's working with the community or putting in place regulatory controls.

The development of the Proposed Regional Policy Statement 2012 – which provides the broad direction and framework for managing Northland's physical and natural resources – has been directly influenced by our environmental monitoring work. This report is therefore closely aligned with the anticipated

environmental results contained in both the proposed and operative regional policy statements, reflecting the environmental aims of the past and what Northlanders want for the future.

What is the state of our environment?

On the whole, Northland's environment is in good health. There have been steady improvements in water quality with more rigorous monitoring and enforcement of resource consents that allow discharges to waterways.

Waiora Northland Water, a council-wide project which encompasses many of our work programmes, has been developed as a result of state of the environment monitoring and as a means of implementing the National Policy Statement for Freshwater Management 2011. It reflects our commitment to continuing to improve the state of Northland's water and the importance the community places on this valuable resource.

Other important work programmes including the Priority Rivers Project, the Top Wetlands Project, Community Pest Control Areas, and Farm Management Plans, have been developed and influenced by our on-going environmental monitoring programme and there have been environmental improvements as a result.

Farm Management Plans are a good example of a project that has been developed in response to the results of environmental monitoring. Council staff work with landowners to develop the plans – now required for all Environment Fund applications

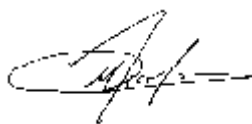


– which will ultimately help to reduce the amount of sediment and farm runoff from entering the region’s waterways. Northland’s landscape is changing – there’s increasing pressure from pest plants and animals (like Mediterranean fanworm) and while overall stock numbers have decreased, farming systems have intensified. Population growth on urban fringes has increased pressures on infrastructure while diverting quality land away from production. This changing context has meant we’ve adopted a wider approach to this report and have included information about our people and our economy.



**Craig Brown**

As your regional council we are tasked with monitoring and providing advice, incentives and regulations to protect our environment while balancing the economic needs of the community. Ultimately, the state of our environment is determined by the people who live in and use it. On-going monitoring helps the council keep an eye on what’s happening to the environment but it’s a joint effort, and we look forward to continuing to work with Northlanders to set and meet your environmental expectations.



**Malcolm Nicolson**

# Introduction

## The purpose of the report

The Resource Management Act 1991 requires all regional councils to monitor the overall state of the environment of the region they represent. While this state of the environment report looks back on the environmental trends and changes over the past five years – 2007-2011 – its primary outlook is forward-focussed as it informs us on important questions for the future of our environment:

- In what direction is our environment heading?
- Have our policies and programmes been effective in promoting sustainable management and will they continue to be effective in the future?

The report provides quality environmental information that is accessible and understandable to Northlanders and which can be used to make important resource management decisions in the future.

The full report is available online from the council's website at [www.nrc.govt.nz/soe](http://www.nrc.govt.nz/soe)

## The content of this report

This is the council's third state of environment report and builds on information gathered in the previous reports, in 2007 and 2002. It reports on the current environmental conditions and trends since monitoring programmes began. It also reflects the role of the council, as defined by the Resource Management Act 1991:

- The control and management of water, air discharges and land (in relation to land for the purposes of soil conservation and the avoidance or mitigation of natural hazards);
- The control of the coastal marine area (in conjunction with the Minister of Conservation);
- The control of the discharge of contaminants into the environment;
- The control of the use of river and lake beds; and
- The establishment and implementation of policies and methods for maintaining indigenous biological diversity.

The objectives and policies for managing resource management issues and land use effects that are of regional significance are set out in the operative *Regional Policy Statement for Northland* (2002) and the *Proposed Regional Policy Statement for Northland* (2012).

The development of the *Proposed Regional Policy Statement* has been influenced by the results of the monitoring undertaken during this state of the environment reporting period. This report is therefore closely aligned with the anticipated environmental results contained in both the proposed and operative regional policy statements, reflecting the environmental aims of the past and what Northlanders want for the future. (For more information about the operative *Regional Policy Statement*, go to [www.nrc.govt.nz/rps](http://www.nrc.govt.nz/rps). To read the *Proposed Regional Policy Statement*, go to

[www.nrc.govt.nz/newRPS](http://www.nrc.govt.nz/newRPS).)

The council manages a diverse range of responsibilities in relation to the environment however some aspects are managed by central government agencies such as the Ministry for Primary Industries and the Department of Conservation. Relevant information from these and many other sources has been used in this report, to provide a complete picture of the state of Northland's environment, a reflection that environmental management takes a collective response from a range of agencies and individuals.

This report is arranged into five chapters: Our people; Our place; Our land, our air; Our freshwater; and Our coast. The chapters provide a broad picture of the core components that make up the state of our environment. Each chapter:

- Begins with a scene-setting introduction which explains why this part of the environment is significant for Northlanders and what the major pressures on the environment are;
- Describes the current state of each aspect of the environment – core information is presented on the state of the environment and key trends or changes over time;
- Outlines the management responses to environmental conditions now and in the future. Information is presented on what is being done now to address issues raised and what might be done in the future; and
- Provides a summary of progress in implementing regional objectives and policies in relation to the chapter topic.

## Chapter 1: Our people

This chapter discusses the people of Northland, our society, economy and tangata whenua expectations. Each of these areas is impacted by, and has an impact on our

environment and the information provides a context to understanding environmental conditions, the pressures and responses in Northland.

## Chapter 2: Our place

This chapter contains an outline of the natural and physical features of the region, our climate, the make-up of our land, natural hazards and infrastructure. Data is presented within each area, showing where we stand and what we want for each in the future.

## Chapter 3: Our land, our air

Northland has a wide variety of landforms, soil types and associated land uses with inherent pressures and demands. This chapter addresses land use and soil quality and the biodiversity and biosecurity within our land. Contaminated sites and air quality are also discussed.

## Chapter 4: Our freshwater

The management of freshwater – both the quality and quantity – are important concerns for all Northlanders. In this chapter we examine the make-up of surface water quality and quantity and what we, as a community, want. Groundwater and freshwater biodiversity complete the picture of the state of our freshwater.

## Chapter 5: Our coast

Northland is known for its coastal environment, which includes 14 major harbours, many smaller estuaries and long stretches of open, sandy coastline. In this chapter we investigate the state of coastal water quality and what's being done, and marine biodiversity and biosecurity.

# At a glance – the state of Northland's environment

What is the state of Northland's environment? As with any report card, there are positive highlights and areas to be worked on. Here's a brief look at some of the main findings in each chapter of the report.

## Our people

- Northland is home to just over 158,000 people (3.6% of New Zealand's total population).
- Population growth was 3.6% over the 2007-2011 period, or 0.7% a year – similar to most regions but slower than the previous five years.
- Northland is the most rurally-based population in NZ with the highest proportion of people living outside urban areas, and it's becoming more rural.
- Almost one third of our population is Māori – only Gisborne has higher. Just over 50,000 Māori live in Northland or 7.5% of the total Māori population.
- 40% of our population is aged either under 15 or over 65.
- We're the region with the highest non-working age population and have the lowest number of 15-39 year olds of any region.
- Northland's GDP value was just under \$4.8 billion in 2011; 2.3% of NZ's GDP.
- 2007-2011 annual economic growth was 0.2% compared with 3.5% in the period 2002-06.
- Most income produced in Whāngārei (60%) compared with 30% and 12% in the Far North and Kaipara districts respectively. This is quite different to the previous reporting period when the districts' growth was very similar.
- Primary industries account for 16% of Northland's GDP compared with 7% nationally. The service industries account for 48% in Northland compared to 62% nationally.
- Forestry and logging grew – almost 11% of the national harvest in 2011.
- Milk production fell by almost 10% during the 5-year period – it came back slightly in 2011 but is still below early 2000s levels, and beef stock numbers have fallen by 20%. Both could be due to extreme weather.
- The refinery makes a valuable contribution to the economy being directly responsible for 5% of Northland's GDP.
- The unemployment rate rose from 4.3% in 2007 to 8.5% in 2011.
- In July 2012: four Deeds of Settlement were agreed to between iwi and the Crown; two went through the ratification process with their respective iwi constituents.
- The Memorandum of Understanding between Te Uri o Hau and council was updated and reaffirmed

## Our place

- Mild, humid, windy climate, with mean annual temperatures in the Far North and eastern areas and southwest coastal the highest in NZ.
- Cyclones can cause high rainfall of 100mm/hour and flooding.
- Droughts are common during summer.
- Few mountain ranges – highest point, near Te Raupua in Waima Range, only 781m above sea level.
- The New Zealand Land Inventory identifies over 230 different soil types in Northland.
- Some 32% of Northland's land area remains in native vegetation including over half of the nation's remaining kauri forest.
- Forest and shrubland areas support a rich diversity of wildlife with large populations of nationally rare or declining species: North Island brown kiwi, North Island kōkako, native pigeon or kukupa and Hochstetter's frog; and small residual populations of more threatened species:

- red and yellow crowned parakeets, kaka and long and short-tailed bats.
- Northland has the greatest number of dune lakes nationally.
  - Lake Taharoa of the Kai Iwi group is one of the largest and deepest dune lakes in the country – 237ha and 37m deep – with the deepest growing vegetation in the North Island (24m).
  - Ngāwhā geothermal field is the only one in the region.
  - No part of Northland is more than 40km from the sea and our coastline is 3200km long.
  - Council has embarked on a regional mapping project to provide a consistent approach to identifying the coastal environment, outstanding natural features/landscapes and high and outstanding natural character areas.
  - Flooding is the most frequent natural hazard that affects Northland.
  - The Priority Rivers Flood Risk Reduction project aims to assess what is at risk from flooding and looks at what can be done to treat risk.
  - Tsunami hazard is considered a high risk for Northland, especially among coastal communities. Computer inundation modelling has been undertaken by NIWA for 30 Northland coastal settlements and community response plans have been developed in high-risk areas.
  - Changes in infrastructure are required due to a shift towards tourism and industries clustered around Marsden Point and Ruakaka.
  - There is a focus on moving towards high-volume energy, communications and transport networks, modern, quality municipal utilities (such as water and wastewater).
  - A geographically balanced approach to infrastructure spending is essential to ensure that economic development throughout the region is evenly distributed, equitable and of maximum benefit to the people of Northland.
  - Since 2007, wastewater upgrades have come online in both Mangawhai and Whāngārei, and consents have been granted for new wastewater reticulation in Ruakaka and Kerikeri.
  - The 2008 Northland Sewage Accord helps councils to work together to improve sewage management.
  - An aging water supply network can worsen drought conditions. For example, 2007/08 the Far North lost 28% of its water supply through leaks and Whāngārei district lost almost the same quantity in 2009/10.
  - There is a need for more water storage in the region to ensure greater resilience in 'dry' years.
  - Northland's percentage of unsealed roads is high – 47.2% sealed compared to 66% in the rest of the country in 2010/11.
  - Marsden Point is a significant port handling 31% of the total volume of merchandise imports into New Zealand sea ports and 8% of exports. Exports have doubled since 2006.
  - Marsden Point is the deepest natural harbour in NZ. It requires significant development of facilities and access to the area to expand.
  - In the 2011/12 season, 52 cruise ships carrying almost 79,000 passengers arrived. This compares with just 19 ships and 12,000 passengers in 2006/07.
  - There is significant potential for the development of further renewable electricity sources, for example, biofuels, wind, wave and solar generation, and tidal.
  - Northland is responsible for 40% of New Zealand's energy production through Marsden Point Oil Refinery.
  - Waste to landfills in Whāngārei district decreased by more than 25% from 2006 to 2011. Far North and Kaipara districts were also down by a few hundred tonnes each.

## Our land, our air

- There is a diverse range of landforms from young active sand dunes along the west coast to relatively old greywacke hill country on the east coast, with volcanic peaks, ranges and plateaus providing stark contrast to subdued low hills in inland areas.

- Only approximately 10% of Northland's land area is considered to have 'highly versatile soils.'
- 46% of Northland's land is in pasture, 14% exotic forest, 1% horticulture and 32% indigenous forest.
- Exotic forest has steadily decreased from 171,000ha to 159,000ha (7%).
- Dairy farming decreased from 141,000ha to 119,000ha in 2008 and increased back up to 126,000 (10%) in 2011.
- Avocado orchards occupied 575ha in 2002 and now 1415ha, a 146% increase.
- There were about 385,000 dairy cattle (275,000 cows), 402,000 beef cattle and 400,000 sheep in Northland, in 2011.
- Beef numbers are relatively static however more intensive farming systems can lead to decreased water and soil quality.
- Sheep numbers have dropped by 25% – 534,000 in 2007 to 400,000 in 2011.
- While horticultural crops occupy only 1% of the agricultural land in Northland, the sector generates around 7% of the region's agricultural GDP.
- Large areas of land with prime soils suited for agricultural and horticultural production continues to be subdivided for lifestyle blocks and urban development.
- The council undertakes 5-yearly soil monitoring covering 24 sites that represent a few of the major soil types and land uses within the region. These are due to be re-sampled in 2015-16 and an extension of the range of soil types and land uses is being considered.
- Runoff from eroding earthworks and changes in land use is continuing to cause contamination of waterways.
- Water Quality Improvement Plans are now developed for any applicants for the Environment Fund. In 2011/12, 44 fencing projects were assisted through funding, with the focus on excluding stock from the coastal marine area, streams and wetlands, and protecting erosion-prone land.
- Since the hazardous waste programme was established 20 years ago at least 44 tons of waste chemicals and hazardous substances have been collected and sent for proper disposal.
- In recent years, the quantity of persistent organic pollutants received has decreased, while industrial waste substances left for the council to dispose of has increased.
- Over most of the region for most of the time air quality in Northland is very good. There are no large-scale persistent air quality problems.
- Some areas in Northland can have poor air quality, especially during colder, calm weather when pollutants can build up to levels that may adversely affect human health.
- Whāngārei city is the most likely area to have significant air pollution episodes during winter. Air quality around busy roads can be degraded by pollutants emitted from motor vehicles.
- Dust emissions from unsealed roads are a particular air quality issue.
- 14.4% of current land area had some form of legal protection by 2012.
- In 2004 there were 179 threatened plant species recorded in Northland – in 2009, 241.
- Feral deer numbers in Northland are extremely low due to the joint agency wild deer response team which began in 1996.
- 39 community pest control plans have been developed targeting multiple species including feral goat and possums. Of these, 21 were set up in the last five years and now involve more than 830 people, and 38,000 hectares of land.
- Community groups are involved in active management of kiwi populations at approximately 34 sites in Northland.

## Our freshwater

- In most summers, at least a quarter of the freshwater swimming spots sampled generally meet the suitability for swimming guidelines, while at least a quarter typically have water quality that does not meet the guidelines. Faecal bacteria levels usually exceed guidelines after rainfall which washes contaminants off the land into waterways.
- Rivers in at least partly forested catchments remain in relatively good health. Lowland streams are often highly modified and

- water quality is often poorer, largely the result of agricultural land use, and associated runoff. Point source discharges (such as farm dairy effluent) are improving, but diffuse agricultural runoff (directly off the land) remains a significant problem.
- Many of the river sites have shown positive trends such as decreasing nutrient levels or increasing water clarity, which suggests there have been improvements in point source discharges. However, some sites have also shown negative trends such as increasing turbidity and decreasing oxygen levels.
  - Lake water quality varies widely over the rest of Northland with eutrophication apparent in some lakes on Aupōuri and Poutō peninsulas. Despite this, 67% of the lakes surveyed by NIWA are classed as either 'outstanding' or 'high value' based on ecological and water quality data.
  - Several of Northland's catchments have relatively high levels of allocation for a variety of uses. Abstraction of the full allocation has the potential to cause environmental issues during prolonged dry periods because demand during this time is the highest. Uses include agriculture, horticulture, water supply to towns and cities and industrial purposes.
  - There are more consents to take groundwater than surface water from rivers, lakes, and springs. However, surface water takes, including those from dams account for 92% of the total water allocated.
  - The Regional Water and Soil Plan currently contains minimum flows for rivers but does not contain minimum levels for lakes or wetlands, or any allocation limits (the amount of water that can be extracted above a minimum flow or level).
  - The council has assessed the likely level of allocation in the region's catchments using methods in the Proposed National Environmental Standard and Ecological Flows and Water Levels 2008. Identifying areas of high allocation helps prioritise catchments for establishing freshwater objectives and setting associated water quantity limits, required by the National Policy Statement for Freshwater Management 2011.
  - Irrigation is the main water use in Northland, with pasture irrigation accounting for 31% and horticultural irrigation 19% of total volume of water allocated. Water supplies to towns and cities account for 42% of total volume allocated whereas water use for industrial purposes is low, at only 6% of allocation.
  - In general, groundwater in Northland is of a high enough quality that it can be consumed without treatment. However, elevated concentrations of nitrates, manganese, iron, sodium and chloride (saltwater) and bacteria have occurred at some sites.
  - The council undertakes appropriate groundwater quality investigations where potential issues have been identified from groundwater quality monitoring, for example, elevated nitrate or increased risk of saltwater intrusion in coastal areas. There are currently six aquifers in Northland that are subject to further investigation – Ruāwai, Taipā, Maungakaramea, Mangawhai, Russell and Whatitiri.
  - The Northland Regional Pest Management Strategies 2010-2015 include 17 freshwater plants and 12 freshwater animals of concern.
  - Targeted freshwater weed surveillance is carried out in seven high priority lakes, and an additional 8-12 lakes, during the ecological assessment surveys each year.
  - In 2009, the council started the Top Wetlands Project. More than 900 of Northland's wetlands have been added to a database and 304 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.
- The non-statutory approaches to biodiversity management are working well. The Northland Biodiversity Enhancement Group is a good example of inter-agency co-operation on an informal level and there are over 50 active environmental land care groups in the region.
- Northland continues to lose significant indigenous wetland and species through human activities, such as land drainage.

## Our coast

- Northland is known for its coastal environment, which includes 14 major harbours, many smaller estuaries and long stretches of open, sandy coastline.
- Coastal water quality and estuary (ecological) health is monitored through a number of council state of the environment programmes.
- The council's Estuary Monitoring Programme – carried out in five harbours – assesses the health of estuaries, and monitors change over time, by analysing sediment chemistry and physical characteristics and biological communities.
- The council currently conducts routine monitoring of harbour water quality in the Whāngārei Harbour, the Bay of Islands, and Kaipara Harbour, and undertakes water quality investigations in other harbours.
- Generally, water quality is good in Northland's harbours, with a general pattern of good water quality in the lower harbour and reduced water quality in the upper harbour nearer contaminant runoff.
- A total of 74 coastal swimming sites were monitored over the last five seasons. In general, the open coast has excellent water quality while enclosed estuaries and harbours occasionally exceed the suitability for swimming guidelines after rainfall. However, the median levels of faecal indicator bacteria at all sites are within the 'suitable for swimming' category.
- Monitoring of commercial oyster growing areas of Kerikeri Inlet and Whangaroa was undertaken in 2009 – results showed that concentrations of faecal coliform bacteria were occasionally above the guidelines for the collection of shellfish in 2008-2009.
- Land management can impact coastal water quality – the council supports landowners through advice and the Environment Fund to fence stock out of waterways and plant poplars and willows for erosion control.
- Stock access to the Coastal Marine Area was prohibited under the Regional Coastal Plan in 2009.
- Northland's coastal waters contain the highest diversity of fish and invertebrates of any region in mainland New Zealand.
- The Department of Conservation has compiled a marine habitat map for the Northland section of the Northeast Marine Bioregion, which covers an area of 1.34 million hectares of coastal habitat from Ahipara to Mangawhai. This document can be viewed online at [www.nrc.govt.nz/Northlandmarinehabitats](http://www.nrc.govt.nz/Northlandmarinehabitats)
- The council has mapped key indigenous marine vegetation, including saltmarsh and mangroves in the Kaipara, Bay of Islands and Whāngārei harbours.
- Northland's marine environment is under increasing risk from a variety of non-indigenous marine species that have established in the region.
- Approximately 73% of all international recreational vessels visiting New Zealand use the Bay of Islands or Whāngārei Harbour as the port of entry – this poses a threat with increased opportunities for invasive marine pests.
- The current Regional Pest Management Strategies 2010-2015 includes the region's first marine pest strategy.
- There was an increase in areas of significant indigenous vegetation and the significant habitats of indigenous fauna formally protected between 2007 and 2011.