



# TARANAKI

## WHERE WE STAND

STATE OF THE ENVIRONMENT REPORT 2009



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State of the Environment Report 2009

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David MacLeod (Chairman) and Basil Chamberlain (Chief Executive), Taranaki Regional Council.

## MESSAGE FROM THE CHAIRMAN AND CHIEF EXECUTIVE

We have great pleasure in presenting to you, the third state of the environment report for Taranaki. It reports on current environmental conditions and trends since monitoring programmes began.

It is not that many years ago, at the time of the creation of the Taranaki Catchment Commission in 1970 in fact, that most wastes from dairy farms discharged directly into the nearest watercourse. That meant that the untreated waste generated by tens of thousands of cows was washed into the region's rivers and streams every day. Not only that, there were no fewer than 43 dairy factories around the region, almost all of them built alongside rivers which they both drew water from, and discharged wastes into.

Today, every dairy farm in Taranaki operates under a regularly monitored discharge permit that does not allow discharge of untreated waste directly into any stream, and the rationalisation of the dairy industry means that there is now just one (large) dairy factory that discharges a strictly-controlled discharge of treated waste into the Tasman Sea through a long outfall.

Equally, it's not that many years ago, that possum numbers in Taranaki were high – competing with cattle for grass and posing a risk of Bovine TB, and severely impacting on biodiversity. Today, possum numbers, particularly on the ring plain, are very low, thanks to the joint efforts of all the landowners in the Council's self-help possum programme and the Department of Conservation.

The information contained in this report draws on comprehensive state of the environment monitoring programmes put in place by the Taranaki Regional Council mainly in the mid 1990s. It also draws on information from other agencies involved in environmental management in Taranaki: the three district councils, the Department of Conservation, the Ministry for Fisheries and many other agencies and community-based groups. This highlights that managing the environment takes a collective response from a whole range of agencies and individuals.

Many state of environment monitoring programmes have now been in place for a sufficiently long period of time that the data

can be analysed for statistically significant trends. This is important because it provides us with scientifically robust measures of how the environment is changing.

Overall, the report shows that the health of our rivers and streams – an important issue for Taranaki – does decrease down catchments, as would be expected in an intensively farmed region, but significantly, over time, it is either not changing or has measurably improved. This is despite expansion and intensification of our agricultural sector over the past five to 10 years. Positive movements towards sustainability continue in our erosion-prone inland hill country. Improvements in air emissions from our major industries have continued over the last five years and, by all measures, we in Taranaki enjoy excellent air quality. The report shows similar results for coastal waters and bathing beaches.

Biodiversity, on land, in fresh water and on the coast, is an emerging issue, and much good work is being undertaken by many people from all corners of the region to combat the pressures on our biodiversity from land development and invasive pest plants and pest animals. Residents and visitors to Taranaki enjoy marvellous landscapes and natural and physical amenities. Our historic heritage is well preserved in many fine buildings and other historic places. Taranaki is working hard to manage the waste it generates, although there is always scope for innovative solutions. Energy production and efficiency are key features of Taranaki, the energy province of New Zealand.

The science is one thing, and basing decisions on sound, robust scientific monitoring is crucial, but equally important is the perception of people out and about in the environment, living their lives, every day. Almost nine in 10 residents (87%) of Taranaki recently surveyed are satisfied with the management of the natural environment. This is an overwhelming endorsement indeed.

The positive outcomes in this report towards achieving sustainable management have

not come about by mere good fortune or by accident. The Taranaki community can feel justifiably proud of the efforts it has made in recent years to ensure that Taranaki's natural resources – vital to our economic and social well-being – are managed for the benefit of present and future generations. These efforts have come at some considerable effort, hard work and serious money. It has been conservatively estimated that over the past five years environmental capital investments on water resources, air and noise, land management, energy efficiency and environmental services totalled \$216.7 million – almost two and a half times the expenditure identified in 2002 for the previous five-year period. Local actions by the community, both proactive and reactive, are perhaps the single most important change towards sustainable development in Taranaki. These are illustrated in this report through dozens of stories highlighting individuals doing their bit for the environment. We know they are just the tip of the iceberg.

However, Taranaki's clean, green image must never be taken for granted. This report does raise concerns regarding the effects of continued intensification of our dairying industry on soil compaction, modification of stream and wetland habitats for land development, and nutrient run-off from pasture with effects on water quality in the lower reaches of our rivers and streams. These pressures will intensify with continued growth in our agricultural sector. They will require ongoing attention and responses. Restoring the riparian vegetation along the length of our rivers and streams is our biggest challenge – to fence and plant along waterways that cumulatively could stretch from Auckland to Sydney and back again.

The Taranaki Regional Council is greatly heartened by the extent to which the Taranaki community has moved to embrace environmental stewardship and the concept of sustainability. This bodes well for meeting future issues that will almost certainly challenge us.

The Council believes that sustainable development – a balanced, integrated approach to development that ensures we look after people and the environment in the long term – is the key to prosperity. This will involve working alongside other environmental agencies, farmers, landowners, industries and businesses to bring about practical, positive and permanent results over the next five years and in the decades beyond.

## ACKNOWLEDGEMENTS

Many people and organisations have assisted in the production of this report. The Taranaki Regional Council would like to thank the following organisations and individuals for their assistance.

Contributions for the report were provided by staff from: Stratford District Council; South Taranaki District Council; New Plymouth District Council; Department of Conservation; Ministry of Fisheries; and the Queen Elizabeth II National Trust.

Research was commissioned for the report from Landcare Research and Business and Economic Research Limited. Many of the photos were taken by Rob Tucker, with others sourced from the Taranaki Regional Council, Department of Conservation, The Taranaki Daily News and other groups and individuals.

Susette Goldsmith provided editorial services.

Graham McBride, from NIWA is specifically acknowledged for undertaking a peer review of the Fresh Water chapter.

The following agencies and individuals provided information for the research undertaken by Business and Economic Research Limited: Methanex New Zealand Limited; Swift Energy (New Zealand) Limited; Shell Todd Oil Services Limited; Tasman Oil Tools Ltd; Olex New Zealand Limited; Ravensdown Fertiliser Limited; Taranaki By-Products Limited; Riverlands Eltham Limited; Clelands Timber Limited; Ballance Agri-Nutrients (Kapuni) Limited; PCL Industries Limited; MCK Metals Pacific Ltd; ABB Limited; C&O Concrete Products Ltd; Technix Group Limited; Firth Industries Ltd; Taranaki Galvanizers Ltd; Fitzroy Engineering Group Limited; Allied Concrete; Bulk Storage Terminals Limited; Stratford High School; Weatherford New Zealand Limited; Fonterra Co-operative Group Limited; Liquigas Limited; New Zealand Oil & Gas Limited; Hooker Bros Holdings Ltd; Sandford Bros Limited; New Plymouth New World; Pak N Save; Hawera Rewinds; Independent Blast Services; Inglewood Metal Limited; Gough Gough & Hamer Limited; Hurlstone Earthmoving Limited; Inglewood Golf Club; La Nuova Ltd; Vector Gas Ltd; Kibby Metal Pressing Limited; Stresscrete; Graham Harris (2000) Limited; Austral Pacific Energy Ltd; Mainfreight Transport Ltd; Manukorihi Golf Club; G R & L J Jones; Taranaki Jockey Club; Gully Rock Limited; Powerco Limited; Matador Meats; Toll NZ Consolidated Ltd; Osof Spreading Industries Limited; Dow AgroSciences (NZ) Limited; Shaun Pattinson; Oaonui Water Supply; Vid Pro Services Ltd; Taranaki Drum and Pallet Recycling; South Road Quarries; Tyco Flow Maintenance; The New Zealand Transport Agency; Downer EDi Works Limited; Auto Lodge Motor Inn; Plymouth Hotel; Falcon Engineering Ltd; Brian Crawford Contracting Limited; Ferndene Quarries Limited; Greymouth Petroleum Limited; Fulton Hogan Limited; Blast It; Clark & Rogers Limited; Halliburton New Zealand Limited; B J & L B Bishop; Berridge Pet Food; D M & D L Bourke; Chevron New Zealand; AB & DM Sybrandy Contracting Limited; Dick Sybrandy Limited; ALSCO NZTS New Zealand; New Plymouth Quarries Ltd; Meadowvale Stud Farm Limited; TrustPower Limited; New Zealand Oil Services Ltd; AA Contracting Ltd; Winstone Aggregates Limited; Pacific Natural Gut String Company Ltd; A J Cowley Ltd; Howard Wright Limited; Port Taranaki Limited; Taranaki Sawmills Ltd; LA Chatterton (Waitara) Ltd; The Kiwi Butcher; BTW Company Ltd; Dan Cosgrove Ltd; Mountain House Motor Lodge; Egmont Seafoods Limited; Te Ngutu Golf Club (Inc); M-I New Zealand Ltd; PEL Waste Services Limited; Vector Gas Limited; Zelam Limited; Waitara Golf Club; Silver Fern Farms Limited; Whitaker Civil Engineering Limited; New Zealand Energy Limited; Westwill Properties Limited; Origin Energy Resources (Kupe) Limited; Wai-iti Beach Camp Limited; Vickers Quarries Ltd; Hawera Golf Club (Inc); Summit Quinphos (NZ) Limited; Contact Energy Limited and TBS Farnworth Ltd.

Finally, the valuable assistance in providing information for the case studies is gratefully acknowledged from: Stratford District Council; South Taranaki District Council; New Plymouth District Council; Department of Conservation; Kii Tahurangi Nursery; Genner family; Taranaki Arts Festival Trust; AgResearch; Clive Cullen; Ngāti Tawhirikura Hapū; Janice Adamson; Opunake High School; Inglewood High School; Lincoln Ventures Ltd; Emma Crofskey; Furlong Motor Inn; Better Homes; Friends of the Eltham Town Hall; Rev David Hollingsworth; Clive Cullen; Ella Borrows; Collette Holgate; Waste Management Ltd; St Joseph's School, Hāwera; Diana Reid; Greg Topless; Mark and Leigh Caskey; Ngāti Tara Oaonui Sandy Bay Society; Barry Hartley; Cam and Sarah Collier; Tom Gibson; Parininihi Ki Waitōtara Incorporation; Ngāti Tama Iwi Development Trust; Merv and Rae Hooker; Bernard and Pauline Gibson; Bill Clarkson; Moturoa School; Venture Taranaki Trust; Riverlands Eltham Limited; Russell Joblin; East Taranaki Environment Trust; Lake Rotokare Scenic Reserve Trust; Balance Agri-Nutrients; Peter Burgham; Taranaki Tree Trust; Tom Gibson; Trust Power; Len Pentelow; Pat Morris and Civil Defence Emergency Management Group.

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# EXECUTIVE SUMMARY



Pukearuhe and Whitecliffs, North Taranaki.

Under the Resource Management Act 1991, regional councils are required to monitor the overall state of the environment of the region. Monitoring the state of the environment is important because it tells the Council and the wider community how successful we have been as a community in promoting the sole purpose of the Resource Management Act – the sustainable management of our natural and physical resources.

This is the third state of the environment report for Taranaki – the earlier reports were prepared in 1996 and 2003. Such reports help us answer questions such as: ‘Is the quality of our environment improving or deteriorating?’ ‘Have our policies and programmes been effective in promoting sustainable management?’ ‘What standard of environmental quality do we want in Taranaki and what changes, if any, are required?’

The Taranaki environment is managed by a number of organisations, not just the Taranaki Regional Council. For that reason this report has attempted to incorporate monitoring from other agencies, such as the Department of Conservation (DOC), the New Plymouth, Stratford and South Taranaki district councils, the Ministry for Fisheries and the Ministry of Agriculture and Forestry, and from community groups.

The report is organised around the core resources of land, fresh water, coast and air as well as landscape, natural and built heritage and amenity values, natural hazards, waste and energy.

Chapter 1 introduces the report. It describes the purpose and content of the report and how information is organised and presented.

Chapter 2 describes the physical, economic and social characteristics of the region. This is important because managing natural and physical resources and the environment takes place within, and is influenced by, these wider physical, economic and social circumstances.

Each of the chapters that follow covers each section of the environment such as land, fresh water, coast and air. Biodiversity is considered under each of these environment types. Additional chapters consider landscape, historic heritage and amenity values, natural hazards, waste and energy. Each chapter:

- begins with an opening scene-setting introduction which explains why this part of the environment is significant for Taranaki people 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 in the preceding text and what might be done in the future;
- provides a summary of progress in implementing regional objectives and policies in relation to the chapter topic; and
- provides regional comparisons where relevant information is available. This information enables comparisons to be made between environmental conditions and trends in Taranaki and other parts of New Zealand.

Much of the information contained in the report is based on comprehensive state of the environment monitoring programmes established by the Council in the mid-1990s. These programmes have been purpose-built for state of the environment monitoring and have now been running for sufficient lengths of time to enable statistical testing of trends in the data.

The report generally presents Taranaki as having a high-quality environment, which is valued and well-managed by the community.

Like any report card there are positives and negatives. In summary, the report concludes that:

- 87.4% of the hill country is being used sustainably with no significant soil erosion problems. Sustainability in the hill country has increased by 2.4% over the past 5 years, with less land in sheep and beef farming, and 30.8% of hillcountry land now reverting to scrub.
- 58% of privately-owned hillcountry land, and 41% of privately-owned sand country, is now included in the Council's sustainable land management programme;
- 97% of Taranaki soils have only low to moderate vulnerability to soil compaction and while there is evidence of soil compaction on some Taranaki farms this is usually only under wet winter conditions and is generally reversible with appropriate pasture and stock management. There do not appear to be any significant problems with soil carbon content, phosphate, nitrogen, cadmium or residual or cumulative agrichemicals in the soils of the region;
- 757 potentially contaminated sites have been investigated with no contamination found to be present, 16 sites have been remediated and 480 sites contain hazardous substances, but not at levels that would pose an unacceptable environmental risk, or are currently being managed so that there is no unacceptable risk;
- in terms of biodiversity protection, 20% of the region is in public conservation land and managed by the Department of Conservation to safeguard biodiversity values. Furthermore, predator control programmes, aimed at protecting threatened birds, are undertaken by a range of agencies and community groups. Possum numbers are maintained at low levels through both the Taranaki Regional Council's self-help possum control programme on the ring plain, and the Department of Conservation programmes in priority conservation areas;
- restoration of riparian vegetation has been shown to result in increased plant and bird biodiversity;
- measures of freshwater ecological health, such as the communities of invertebrates living in streams, are good to excellent in the upper catchments where there is more stream bank vegetation cover, but only fair further down catchments where land use is more intense. However, over the past 12 years, ecological health has demonstrably improved at a number of sites, including in the middle and lower reaches of catchments, and has not demonstrably deteriorated at any sites.
- the region's fresh water usually meets the bacteriological guidelines for swimming, except after floods or in some intensively farmed catchments. Taranaki rivers are naturally high in phosphorus and so do not meet national guidelines, and furthermore, phosphorus levels are generally increasing. Nitrogen levels meet guidelines in the upper reaches of catchments, but not further down, where impacts of agriculture are more intense.
- the Council's riparian management programme is designed to address these issues with the preparation of 2,009 riparian plans covering 10,818 km of stream bank. Landowners have fenced 504 km of stream bank and planted 426 km, which, added to existing fencing and planting means 60% of stream bank on the ring plain is fenced, and 43% is vegetated. Council will continue to work with landowners to fence and plant streams to meet the 2015 target of 90% of riparian plans implemented.
- measures of levels of organic pollution (BOD), bacteriological pollution (faecal coliforms and enterococci) and toxicity (ammonia) are now stable regionally, after past improvements.
- most of Taranaki's 530 streams and rivers are not under any allocation pressure although interest in water abstraction for irrigation has increased in recent years. More than 20% of the average low flow is allocated for use in the nine most highly allocated catchments, but flows at which abstraction must cease are set to safeguard ecological values;
- although there has been an increase in the amount of groundwater abstracted, there is not a significant pressure on groundwater levels;
- groundwater quality in Taranaki is generally high with no problems associated with pesticide residues, microbial contamination or saltwater intrusion, and groundwater quality, in terms of nitrate levels, is generally improving;
- in terms of freshwater biodiversity, regionally significant wetlands have on the whole been adequately protected through formal mechanisms and proactive protection works such as fencing and planting, but small wetlands and streams are under pressure from land improvement. Of 108 structures that have the potential to impede fish passage, 49 provide adequate fish passage, two have been removed and the others need remedial work;
- coastal water quality for swimming is excellent, the product of an exposed coastal environment and few direct point source discharges;
- with the reduction in the number of point source discharges and better treatment of wastewater, the greater influence on coastal water quality is from rivers and streams discharging the cumulative effects of land use within their catchments to the sea;
- rocky shore ecological health is reasonably stable at most sites monitored;
- the rugged high-energy nature of the Taranaki coastal environment means that much of the coastal area has retained its distinct natural character and so far levels of development are not impacting on that character;
- biodiversity protection on the coast has been enhanced over the past five years with the establishment of two new marine reserves;
- ecological conditions in both the Tongaporutu and Waitōtara estuaries, where long term monitoring is carried out, are generally stable although they can be affected by severe floods;
- the legally protected subtidal habitats around the Sugar Loaf (Ngā Motu) Islands provide shelter for a greater diversity and higher numbers of fish and other organisms than neighbouring areas of reef;
- there is a range of disparate views on trends in local fish stocks;
- public access to both freshwater and coastal environments is generally good, as illustrated by the popular New Plymouth coastal walkway;

- overall air quality in the region is excellent enabling the Taranaki community to enjoy one of the healthiest regions in New Zealand. Significant improvements have been made in the quality of point source discharges;
- natural features and landscapes, and amenity and heritage values are of a high quality;
- over the past five years there has been continued provision, development or upgrading of a number of community recreational and cultural facilities;
- over the past five years there have been four significant flood events, a number of minor events and one period of significant drought over the summer of 2007-08;
- the swarm of tornadoes that hit Taranaki in July 2007 triggered a state of emergency. The emergency response systems functioned well;
- while the whole region is now serviced by just one well managed landfill, at Colson Road in New Plymouth, the quantity of waste discharged has increased by 20%; and
- Taranaki produces all of the oil and gas produced in New Zealand and uses 3.2% of the total energy used, with industry using 38% of all energy consumed in Taranaki, and households using the next greatest proportion (28%).

The report finds that the Taranaki community has made a substantial investment in protecting and enhancing the environment. Capital investment by the Taranaki community has been estimated in excess of \$216 million in the period 2002-2007 compared with \$91 million in the preceding five-year period. Annual operating costs are of the order of \$41.8 million (\$28.8 million in the preceding four year period). Total spending on the environment by the Taranaki community has been conservatively estimated at \$85.1 million per annum. This is an increase of \$28 million per annum from the \$57.1 million per annum reported in our 2003 report. The high quality environment enjoyed by residents and visitors alike has therefore not come about by accident but by the co-operative and increasingly proactive actions of the community.

The combined effort of all of the policies, programmes and actions described in this report, representing the combined effort of the Taranaki Regional Council, district councils, the Department of Conservation, the Ministry of Fisheries, community groups, iwi and landowners, is a significant step along the path to sustainable management in Taranaki. The Council's slogan of 'working with people, caring for our environment' summarises the approach believed to be critical to successful environmental programmes in the future.

## INTRODUCTION

# INTRODUCTION

## THE PURPOSE OF THE REPORT

Under the Resource Management Act 1991 (RMA) regional councils like the Taranaki Regional Council are required to monitor the overall state of the environment of the region. Monitoring the state of the environment is important because it tells the Council and the wider community how successful we have been as a community in promoting the sole purpose of the RMA – the sustainable management of our natural and physical resources. While the report looks back on environmental trends and changes over the past five to 10 years or more, its fundamental outlook is forward looking. It will help us answer such questions as:

- 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?; and
- what changes are required and what standard of environmental quality do we wish to see in Taranaki?

The purpose of this report is therefore to provide high quality environmental information that is accessible and understandable to the Taranaki community at large, and upon which sound resource management decisions can be based in future.

## THE CONTENT OF THE REPORT

The content of this report primarily reflects the responsibilities that local government has under the RMA. Under the RMA regional councils are responsible for:

- the control and management of water, air 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.

District councils are responsible for:

- the integrated management of the effects of the use, development or protection of land such as development and subdivision;
- the avoidance or mitigation of natural hazards;
- the management of storing, using, disposing and transporting hazardous substances; and
- the maintenance of indigenous biological diversity.

Objectives and policies for managing resource management issues and land use effects that are of regional significance ie: issues of importance to the region as a whole are set out in the *Regional Policy Statement for Taranaki 1994* and the reviewed *Proposed Regional Policy Statement for*

*Taranaki* released in 2006. Some of these issues, such as those dealing with natural features and landscapes, historic heritage and amenity values and the natural character of the coast, arise from the effects of land use which are dealt with largely by district councils. However, the Taranaki Regional Council has adopted policy on these issues in accordance with its statutory functions.

While Local Government manages a diverse range of responsibilities in relation to the environment as a whole, some aspects are managed by central government agencies such as the Ministry for Agriculture and Forestry, the Ministry of Fisheries and the Department of Conservation. Where information was easily obtained on environmental matters that are not strictly under the management of Local Government, such as the management of fish stocks, or changes in the condition of the conservation estate, this has been included in this report. However, the primary focus is reporting on the state of those aspects of the environment managed under the Resource Management Act.

The report has 11 chapters as follows:

### 1. INTRODUCTION

The Introduction provides an outline of the purpose, content and organisation of the report.

### 2. TARANAKI – THE PEOPLE AND THE PLACE

This chapter contains a brief outline of the natural and physical features of the region, its human history and development and social and economic characteristics. Such information provides a context vital for understanding environmental conditions, pressures and responses in Taranaki.

### 3. LAND, SOIL AND BIODIVERSITY

This chapter addresses soil erosion and soil health issues and the management of contaminated sites and hazardous substances. Biodiversity, or biological diversity, means the variability among living organisms and the ecological complexes of which they are a part. The biodiversity section of this chapter looks at biodiversity on land.

### 4. FRESH WATER

The chapter on fresh water considers a wide range of issues relating to fresh water, rivers and lakes. Reporting on water quality considers the effects of point and diffuse source discharges on water quality in rivers, streams and lakes and forms a major part of this chapter. Water quantity is addressed from the point of view of water flows, use and availability. Also reported on are groundwater quantity and quality. Fresh water biodiversity, in terms of ecosystems (rivers and wetlands), invertebrates and fish, is considered. Finally, public use and access to rivers and lakes are examined.

## 5. COASTAL AND MARINE ENVIRONMENT

This chapter discusses coastal water quality, natural character of the coast, biodiversity of the coastal marine area and public use and access to the coast. Coastal erosion is addressed in the Natural Hazards chapter.

## 6. ATMOSPHERE

This chapter addresses overall air quality in Taranaki as well as issues surrounding greenhouse gases and climate change.

## 7. LANDSCAPE, HERITAGE AND AMENITY VALUES

This chapter looks at Taranaki's natural landscape features, historic heritage resources such as our historic buildings and places and archaeological sites and amenity values – those things that make up or detract from an enjoyable and pleasant living environment.

## 8. NATURAL HAZARDS

The chapter on natural hazards reports on the main natural hazards in Taranaki – flooding, volcanic activity, earthquakes, high winds and land instability and erosion, including coastal erosion.

## 9. WASTE

This chapter looks at the situation with regard to waste and how it is managed in Taranaki.

## 10. ENERGY

This chapter looks at energy production, distribution and use in Taranaki. It looks at both renewable and non-renewable sources of energy.

## 11. TOWARDS SUSTAINABLE DEVELOPMENT

This concluding chapter draws together the underlying directions of and approaches to managing the environment described in the previous chapters and comments on what this means for sustainable development in future.

## HOW THE REPORT IS ORGANISED

Each of the chapters 3 to 10 covers particular aspects of the environment, for example, land and soil, fresh water and the coastal and marine environment. Each chapter:

- begins with an opening scene-setting introduction which explains why this part of the environment is significant for Taranaki people, 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 in the preceding text and what might be done in future;
- provides a summary of progress in implementing regional objectives and policies in relation to the chapter topic; and
- provides regional comparisons where relevant information is available. This information enables comparisons to be made between environmental conditions and trends in Taranaki and other parts of New Zealand.

The organisation of the report follows the Pressure-State-Response model widely adopted overseas in state of the environment reporting. The report format is similar to that adopted for the Council's previous state of the environment reports in 2003 and 1996. However, the format has been revised slightly by bringing to the front of each chapter, the values of and pressures on that aspect of the environment, that in previous reports were spread throughout each subsection of each chapter. This provides readers with a broad context for each chapter, for example on fresh water, before information is presented on the state or condition of the environment and management responses.

## PRESENTATION OF INFORMATION

The Taranaki Regional Council has had the benefit of another five years of data collection and analysis since it last reported in 2003. In a number of cases data has now been collected over a sufficiently long time period specifically for state of the environment monitoring purposes to enable statistically robust, long-term trend analysis to be undertaken. This was generally not the case for the Council's 2003 report. Trend analysis can indicate with a high degree of certainty whether the data collected is showing an improvement or deterioration (or no change) in environmental conditions.

The New Plymouth, Stratford and South Taranaki district councils have assisted in the preparation of this report by providing information on environmental conditions and trends for which they are responsible. Other agencies or organisations such as the Department of Conservation and Ministry of Fisheries have similarly assisted in this way. Dozens of businesses, industries, individuals and community groups have contributed information on their environmental work including information for case studies and information on their level of spending on environmental improvements over the last five years.

Information provided from all such sources has been a valuable addition to the report enabling the Council to present relevant and up-to-date information to the community. Those who have contributed to this report through providing information or in other ways are acknowledged at the beginning of the report.

# INTRODUCTION

Every attempt has been made to present the information in a form that is understandable to the community. At the beginning of most chapters there is a box entitled 'At a glance'. This provides a very short summary of the key points contained in the chapter. Throughout the chapters, information is provided with a reference (footnote) to reports or databases containing more detailed information for those who want it. Wherever possible, maps, diagrams and photographs have been used to demonstrate environmental conditions and trends. Case studies of particular programmes or examples are presented for added interest and to showcase practical examples of the Taranaki community 'at work' on protecting and enhancing the environment in which we live.

## SUMMARY REPORT

Much of the information presented in the following report is of technical and scientific nature. Furthermore, the report has endeavoured to be comprehensive, covering environmental issues of interest or concern to the Taranaki community. It is therefore a relatively large document. The Council has also summarised the main findings of the report to present to a wide audience including schools and community groups.

## WEBSITE

The full report and summary document are available on the Taranaki Regional Council website [www.trc.govt.nz](http://www.trc.govt.nz).

## CONTACTING THE TARANAKI REGIONAL COUNCIL

If you wish to contact the Council on matters raised in the report you can do so by

Phone: 06 765 7127 or 0800 736 222

Fax: 06 765 5097

Email: [publications@trc.govt.nz](mailto:publications@trc.govt.nz)

by writing to the Council at:

Taranaki Regional Council  
Private Bag 713  
Stratford

or by calling into the Council offices at 47 Cloten Road, Stratford.