
Taranaki Regional Council

Summary: The Taranaki Economy and Freshwater Management



Acknowledgements



Photo credit: Sarah Coogan

All research is a collective effort, drawing together new information and expertise as well as relying on past endeavours. The collective nature of research is particularly the case when considering topics that are transdisciplinary, of which freshwater economics is a prime example.

Those who helped with Chapter 5 of this report deserve special mention. The first group of farmers who generously participated in the interviews and provided additional information. Paul Turner from Taranaki Catchment Communities for facilitating the interviews. A second group of farmers who kindly shared their stunning photographs of the region. Industry group representatives for the support they showed this research in supplying data and/or reviewing specific sections: David Cooper and Ben Marmont (DairyNZ), Michael Flett, Andrew Burt, and Angie Fisher (Beef + Lamb New Zealand), and Emily Levenson (Horticulture New Zealand). Finally, Matthew Newman for his in-depth knowledge of agricultural economics and ongoing enthusiasm for this type of research (AbacusBio).

The report as a whole has benefitted from the knowledge and interest of Taranaki Regional Council staff, particularly Finbar Kiddle, Lisa Hawkins, Thomas McElroy, Abby Matthews, Don Shearman, Tim Hawkins, Jessica Hyland, and David Munro.

Internal Taranaki Regional Council Review Only

Context: The report that this summary relates to is a background report for the section 32 report that will accompany the proposed Regional Land and Freshwater Plan for Taranaki, which will implement the National Policy Statement for Freshwater Management 2020.

Citation Advice:

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Disclaimer: Taranaki Regional Council Disclaimer: The report that this summary relates to was prepared as part of the process of developing the proposed Regional Land and Freshwater Plan for Taranaki (Land and Freshwater Plan). More specifically, the report will be used to inform the section 32 policy evaluation TRC is required to undertake to support the Land and Freshwater Plan, but the report itself does not constitute that evaluation. The approach to implementing practices within various industries that may lead to improved environmental outcomes are complex and evolve over time. This report can be used to inform the consideration of the suite of practices that may be required in developing the proposed Land and Freshwater Plan.

Cover image: Te Rewa Rewa Bridge over the Waiwhakaiho River

The bridge is named after the adjacent pa site and the name itself is very old. The name references the rewa plant, an elevated flat area and a point of departure for a journey (<https://www.npdc.govt.nz/leisure-and-culture/coastal-walkway/>). Photo credit: Simon Moran

Executive Summary

Introduction

Improving understanding of our economy is a ‘necessary condition’¹ to successful environmental management. All sectors of the economy use water as an input into their production systems (in some form or other) and to transport waste products from those systems (even if it is inadvertently). Using water to transport waste can occur via ‘end of pipe’ discharges to water or to land as well as diffuse discharges across or through land. Although water is essential across the economy, the value of its use (whether as an input or for waste products) is not fully accounted for in the production and consumption of goods and services.

This report was commissioned by Taranaki Regional Council to characterise Taranaki’s economy within the context of freshwater management, essentially creating a socio-economic baseline for the proposed Regional Land and Freshwater Plan for Taranaki. Its primary purpose is to improve general understanding of this topic as the council works with the community to develop policy options for this new regional plan. Longer-term, the report (and the database that sits behind it) will serve as an information resource for the region.

Achieving this purpose will help make sure that any changes in policy are able to occur as ‘economically’² as possible for individuals and communities. However, economics must be done in a way that is consistent with promoting sustainable management³. Otherwise, there is a very real risk that the economic thinking that led to environmental issues in the first place will be used to assess policy designed to resolve them. Such consistency can be achieved by more fully recognising the meaning of efficiency, which includes considering ‘externalities’ (i.e., consequences for others that are unaccounted for). In this way, the ‘system’ that everyone in Taranaki lives and works in is more in balance (or, to use the economic term, ‘equilibrium’) than may have otherwise been the case.

The report’s genesis was the availability of the series of demographic and macroeconomic datasets for Taranaki and its districts (Chapters 4 and 6). In addition to presenting these datasets, the report was also shaped by a need to provide some context relevant to resource management (Chapters 2 and 3). As well, a more in-depth microeconomic analysis was included for some rural industries within the primary sector (Chapter 5). These industries account for much of the region’s developed land, contain a large number of diverse businesses, and have largely diffuse discharges of contaminants. Improving understanding of these industries will help support the proposed Regional Land and Freshwater Plan.

The report uses four spatial scales: freshwater management unit, region, district, local community (based on the StatsNZ urban-rural geographies). These multiple scales are needed because while policy will be either applied broadly across the region or specific to an FMU, their impacts for the economy are likely to play out at local community and district scales. Chapter 3 shows how all three districts contain unique mixes of at least four FMUs, as well as part of the Volcanic Ring Plain FMU.

1 A necessary condition is a condition that must be present for something to occur although alone it is not sufficient to cause it. In other words, all the necessary elements must be there. There have been many examples over the years of where there have been unintended but foreseeable consequences (e.g., the loss of undeveloped land of ecological value resulting from the 1950 Marginal Lands Act) (Moran, 2019).

2 Here, ‘economically’ means minimising the possible impacts, including trying to avoid unintended consequences that are reasonably foreseeable.

3 In essence, such consistency is achieved with a fuller recognition of the meaning of efficiency, including environmental externalities.

While this report does not forecast the impacts of policy options for the proposed Regional Land and Freshwater Plan, it will be helpful for at least three of eight factors⁴ that influence such impacts (as identified in blue in Image 1). These three factors are 1) the extent to which an action(s) may be relevant within an economy, 2) the current economic situation of people and communities, and 3) the connectivity between activities within the economy. They shape how our local economies will respond as a form of 'receiving environment' for the impacts of further managing their water use.

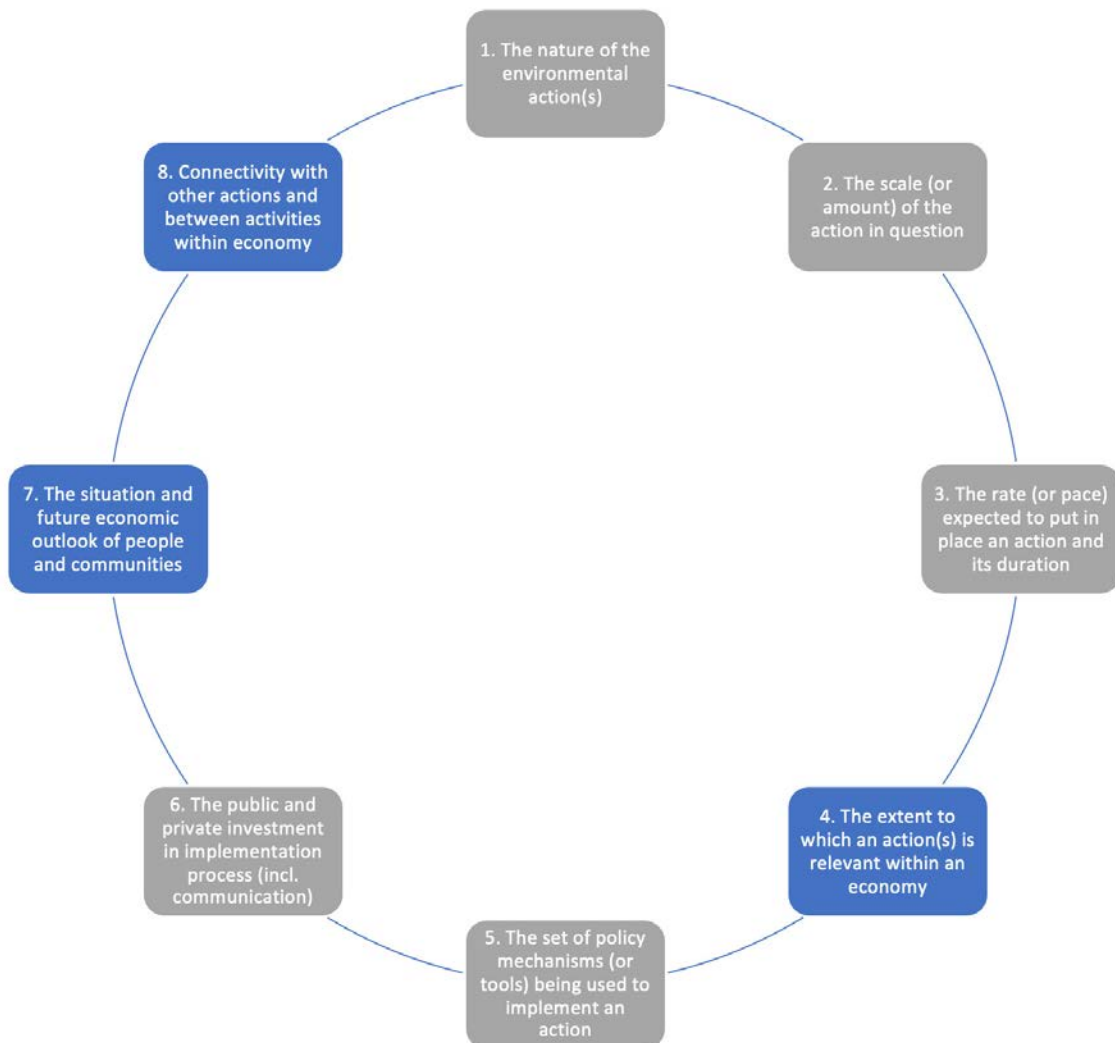


Image 1: Eight factors that can influence the impacts of a policy option

⁴ Some of these factors are within the control of decision-makers, such as the implementation process, while others are either external to their decisions or act as constraints.

General Points

This report covers a lot of territory across its five main chapters. To help with navigation, this section presents general points from each chapter. Anywhere there is variability and diversity will have consequences for the impacts of policy options for freshwater management. Scale is also important when considering possible impacts, as a change that does not register impacts at a district or regional scale can still be keenly felt within a local community.

The Natural Environment (Chapter 2)

- Taranaki's economy is both shaped and supported by the natural environment. A series of maps are presented on the landscape, climate, and soils in the region to set the scene for subsequent chapters. These components interact with each other in complex ways to influence the economy and the way water flows through the region. In the medium term, climate change is likely to mean more hot days, fewer frost days, a shift to larger extreme rainfall events, and increased potential for drought.
- The proportion and distribution of developed land in a catchment are important factors in freshwater management, as are land use patterns because of their close relationship with economic activities and fresh water. Taranaki has a relatively high proportion of Land Use Capability Classes 1-4 in comparison to other regions, which is reflected in its land development. The main land use 'trend' in Taranaki since the 1980s has been relative stability in comparison to the experience in other parts of the country.

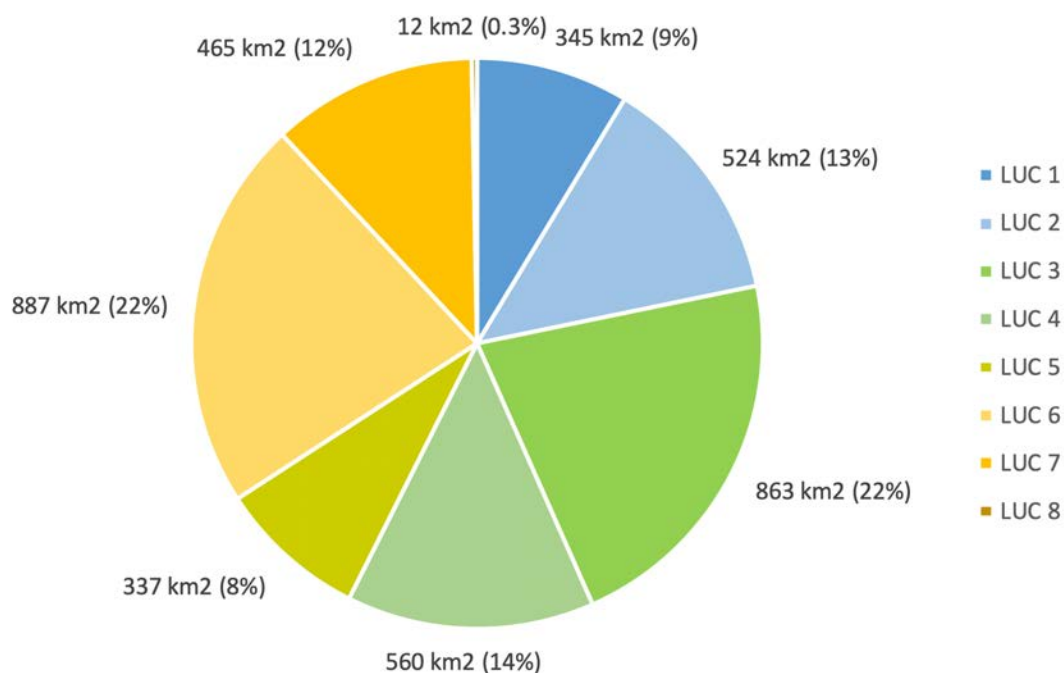


Figure 1: Distribution of Land Use Capability Classes for rural developed land in Taranaki

Source Data: Manaaki Whenua Landcare Research³⁶

Note: A km² is 100 hectares and thus 1,000 km² = 100,000 hectares.

Taranaki's Freshwater Management Units (Chapter 3)

- Taranaki's six FMUs generally fall into two main types: those largely formed by shorter coastal catchments and ones that include longer catchments that have their headwaters further inland. Each FMU has a unique land use pattern and there are marked differences in people's education, skills, and experience between the FMUs. Rates of people with no formal qualification and those with tertiary qualifications vary between the FMUs by 10 per cent and 12 per cent respectively.
- In 2018 the Volcanic Ring Plain, which contains New Plymouth City, was by far the most populated FMU and the least populous FMU was Northern Hill Country. Waitara FMU and Southern Hill Country FMU have the highest proportion of Māori and the lowest proportion of people aged 65+ years. Waitara FMU and Patea FMU leaned towards lower income distributions than the rest of the region.
- Northern Hill Country FMU and Coastal Terraces FMU have seen large shifts in their population age structure towards 65+ years. Northern Hill Country had the largest proportion of self-employed or business owner-operators (as well as longer-term residents), while the Coastal Terraces FMU had the smallest proportion. Patea FMU had the highest proportions of people in the 65+ years age bracket and those with superannuation or veteran's pension as a source of income.



Image 22: Rural land uses in the hard hill country in the New Plymouth District
Photo credit: Sarah Coogan

Taranaki's Districts (Chapter 4)

- In 2018, 82 per cent of people in the New Plymouth District were living in urban areas, which is similar to New Zealand as a whole. By contrast, the urban population in Stratford District is 61 per cent, and 50 per cent in South Taranaki District, which means it has the largest share of people living in rural settlements.

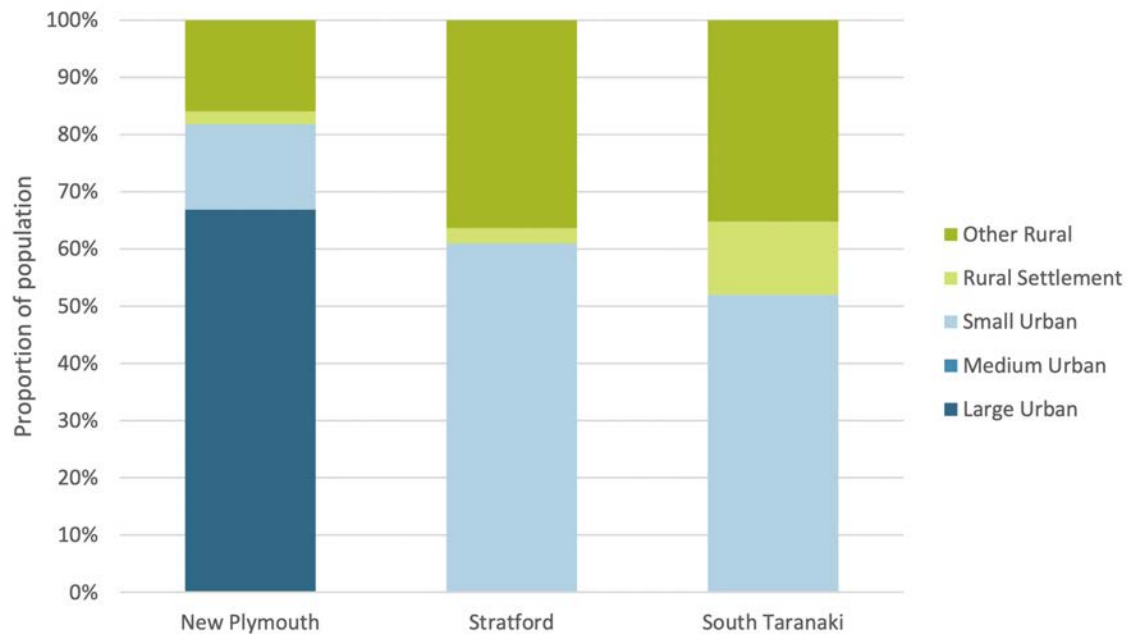


Figure 6: Urban-Rural population distribution by district in Taranaki in 2018
Source data: StatsNZ supplied by Market Economics

- Since the 1990s, Taranaki's total population is growing steadily and is projected to reach 138,000 by 2048 (+27% in the 52 years since 1996). However, there is uneven distribution between districts with most population growth continuing to largely occur in the New Plymouth District. The population's age structure is also shifting over time. By 2048 the median age is projected to be 46.3 years (+38% from the mid-point of 33.6 years in 1996).
- There was considerable variation in qualifications between local communities, which was partly reflected in personal income. Communities with lower education levels may be relatively more at risk than others from any employment impacts of policy options for the proposed Regional Land and Freshwater Plan. In some communities at least 80 per cent of people earned \$50,000 or less (e.g., Waitotara, Patea, Waverley, Waiinu Beach, Waitara, and Opunake).

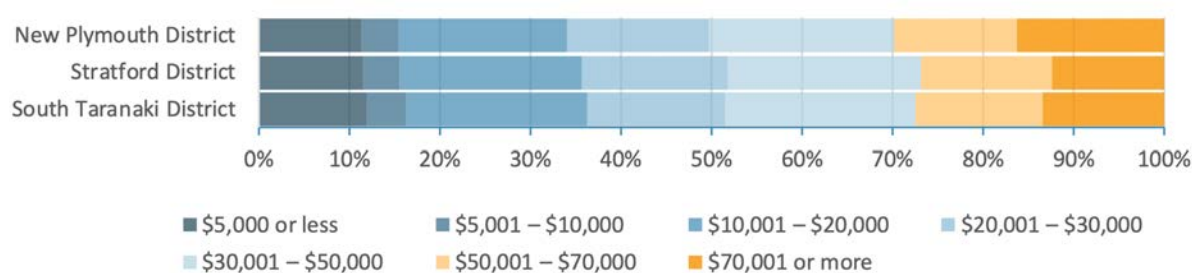


Figure 10: Distribution of Total Personal Income by district in Taranaki in 2018

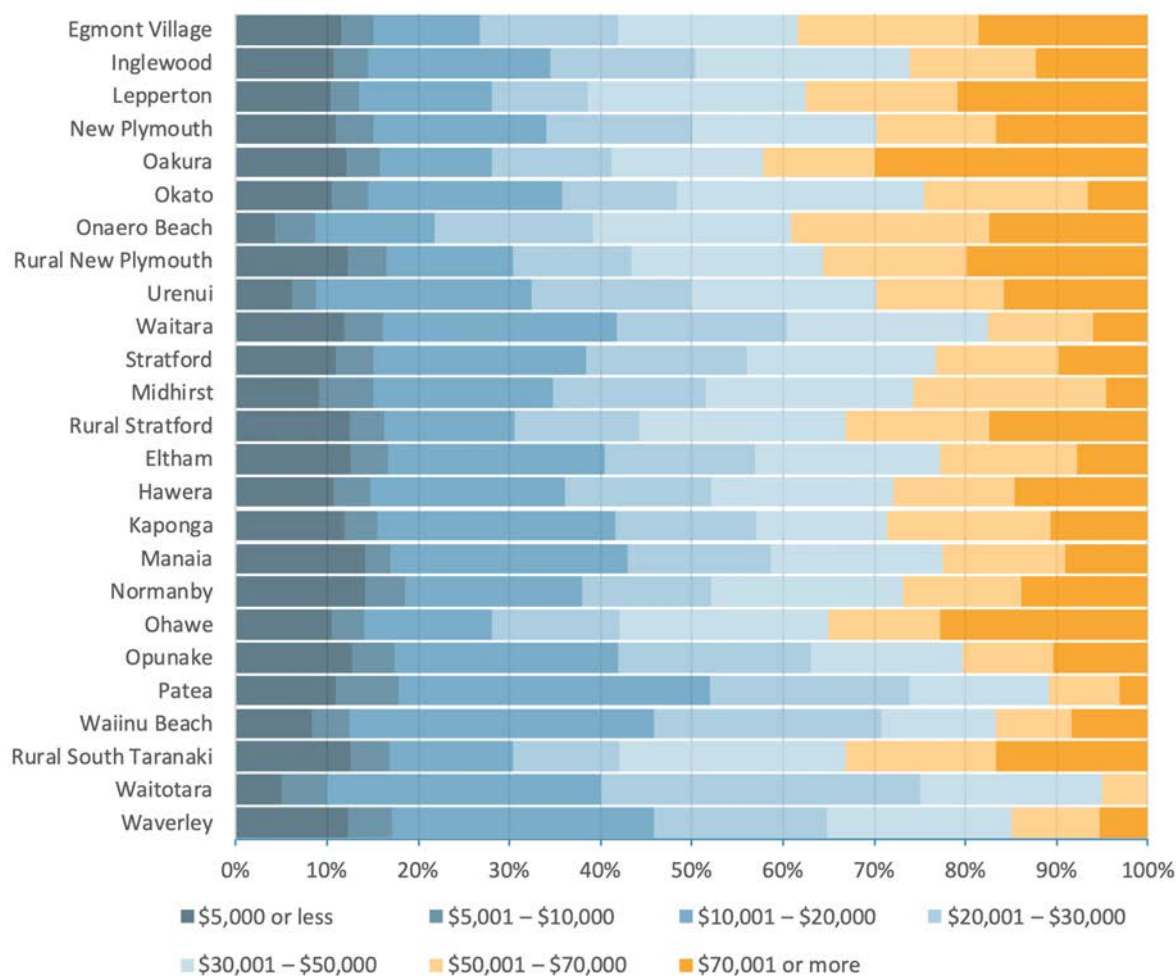


Figure 11: Distribution of Total Personal Income by Urban-Rural Geography in Taranaki in 2018

- Travel patterns were used to indicate connectivity between local communities as well as with surrounding rural areas. These patterns will help correctly identify how impacts may flow between a region's service centres. The distance from one service centre to another is also relevant because if services are lost from a town then local residents may need to travel further to the closest alternative.
- Municipal water services make it possible for people to live and work together in the region's towns as well as supporting those in the surrounding rural areas. They are part of a community's assets – as are the waterbodies they interact with. Each district council supplies a different set of 3 Waters services, with South Taranaki's services being numerous, small scale, and scattered.

Agriculture, Horticulture, and Forestry (Chapter 5)

- From 2002 to 2019 there were on average 60 fewer farms per year as properties amalgamated but the rate has since slowed. In 2022 the region's farm population was 2,736 (or 1,152 fewer than 20 years ago). Roughly 85 per cent of farms in the region are either dairy (47%) or sheep and beef cattle (38%) and around 77 per cent of farms are less than 200 hectares.

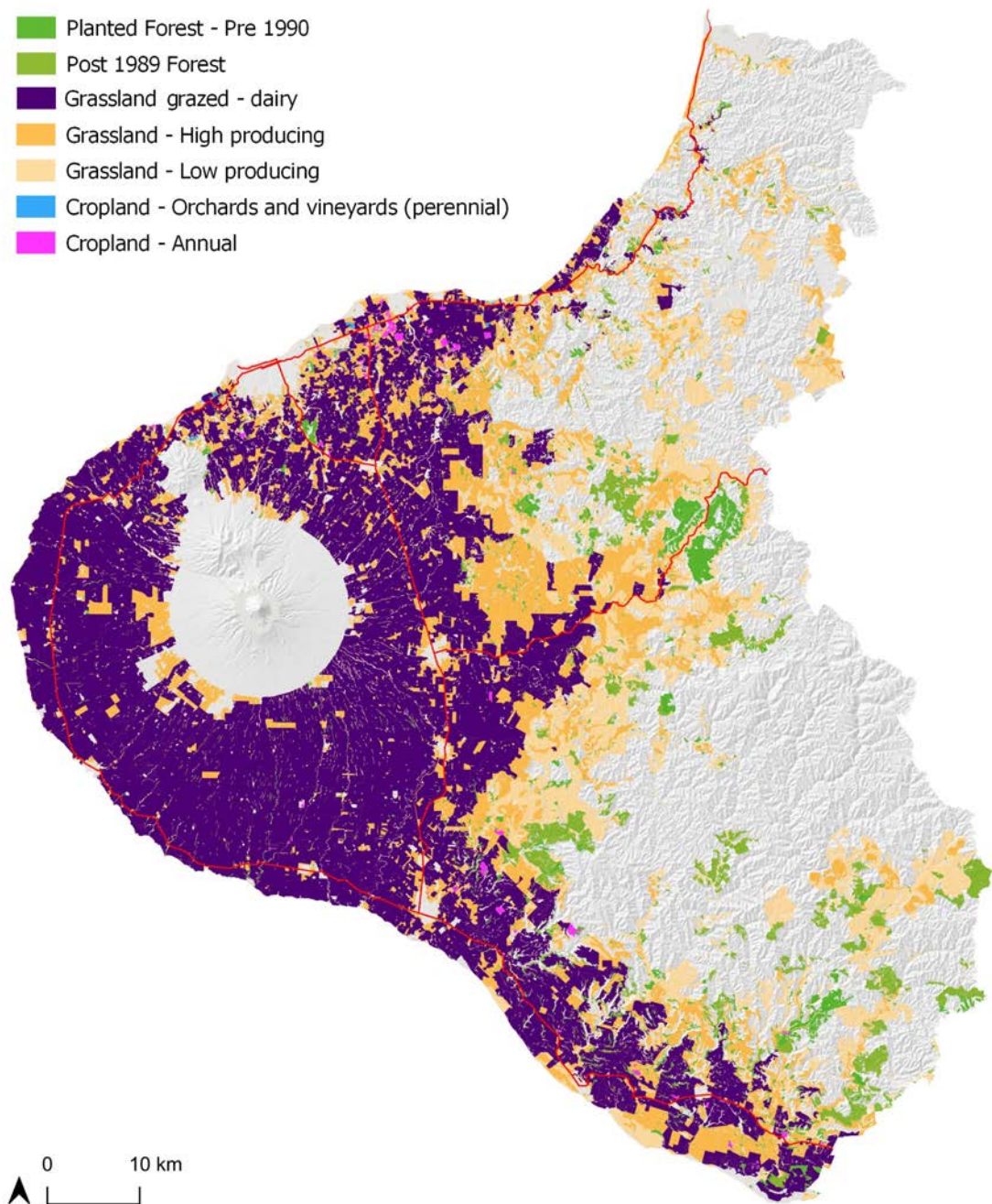


Image 27: Estimated land uses related to agriculture and forestry in Taranaki in 2016

Source data: Ministry for the Environment – Land Use and Carbon Analysis System (LUCAS)

- Overall, total livestock units gradually declined in the 50 years from 1972 to 2023 by 28 per cent from 7.2 million to 4.7 million. However, this decline in total livestock units has been offset by changes in the size of animal breeds, such as from smaller Jersey dairy cows to larger Holstein-Friesian and then to Kiwi Cross (a cross of both). There have also been incremental increases in an animal's production over time.

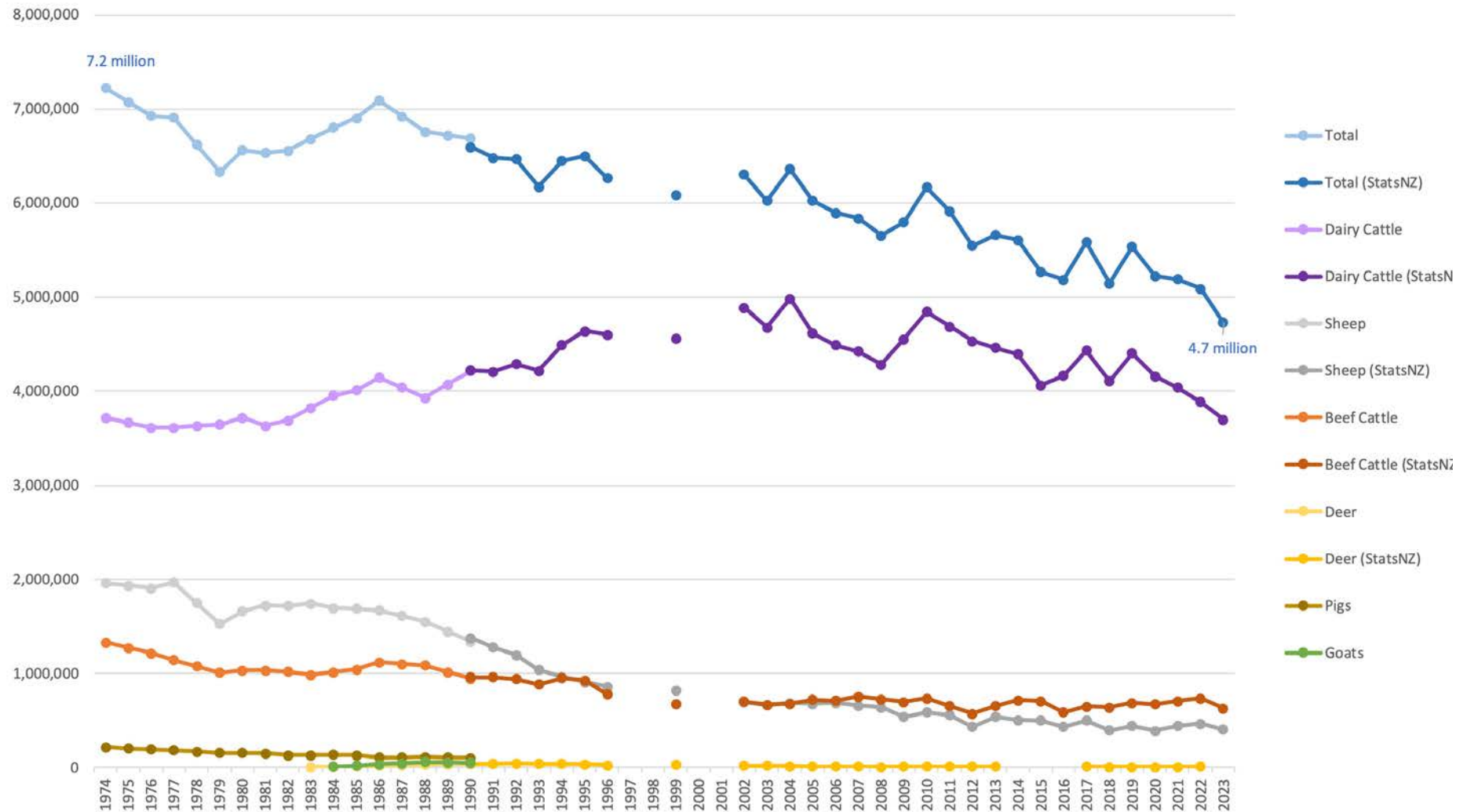


Figure 15: Changes in livestock (measured as livestock units) in Taranaki 1974-2023

Source: New Zealand Yearbooks and StatsNZ

Notes: There are data breaks in the graph because there was no Agriculture Production Survey conducted in 1997, 1998 or 2001. In 2000, the survey related only to horticulture.

- Taranaki is one of the New Zealand's traditional dairying regions and South Taranaki District consistently has the highest number of herds in the country. Almost all of the region's 1,290 dairy farms (91%) had an area less than 400 hectares. However, scale has increased over the last 30 years, bringing with it consequences for farm ownership, as has the use of supplementary feed. Dairying in the region is diverse, with a wide distribution across the LUC Classes (20% of dairy land being on LUC Classes 5 and above).

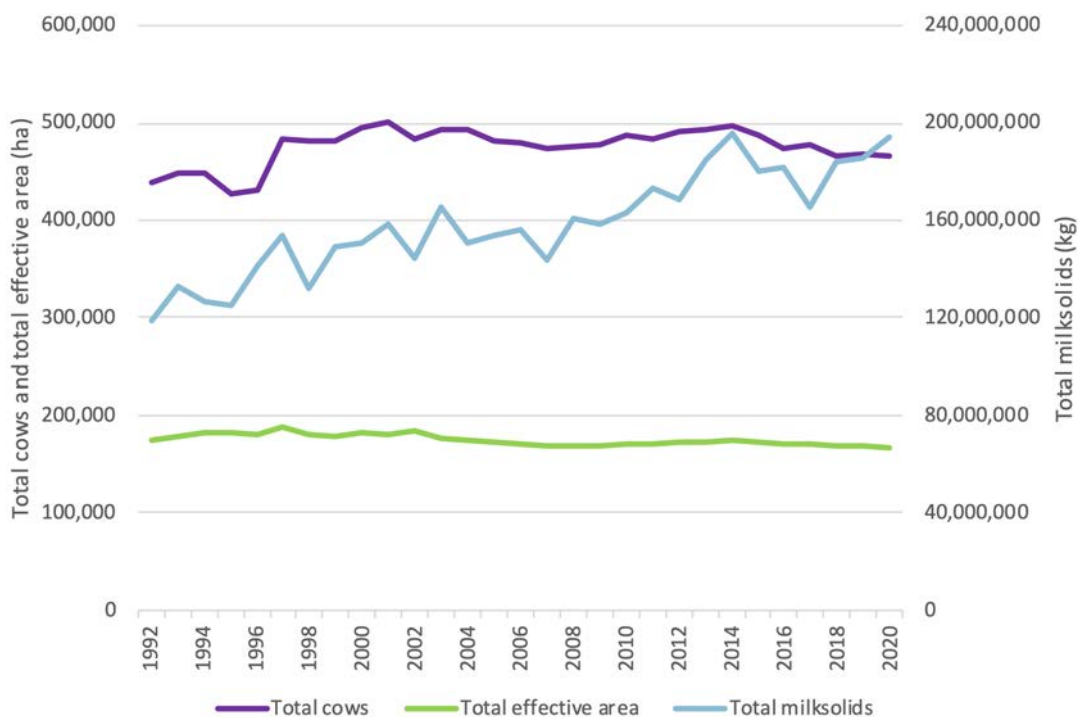


Figure 24: Change in key dairy statistics in Taranaki 1992-2020
Source data: DairyNZ

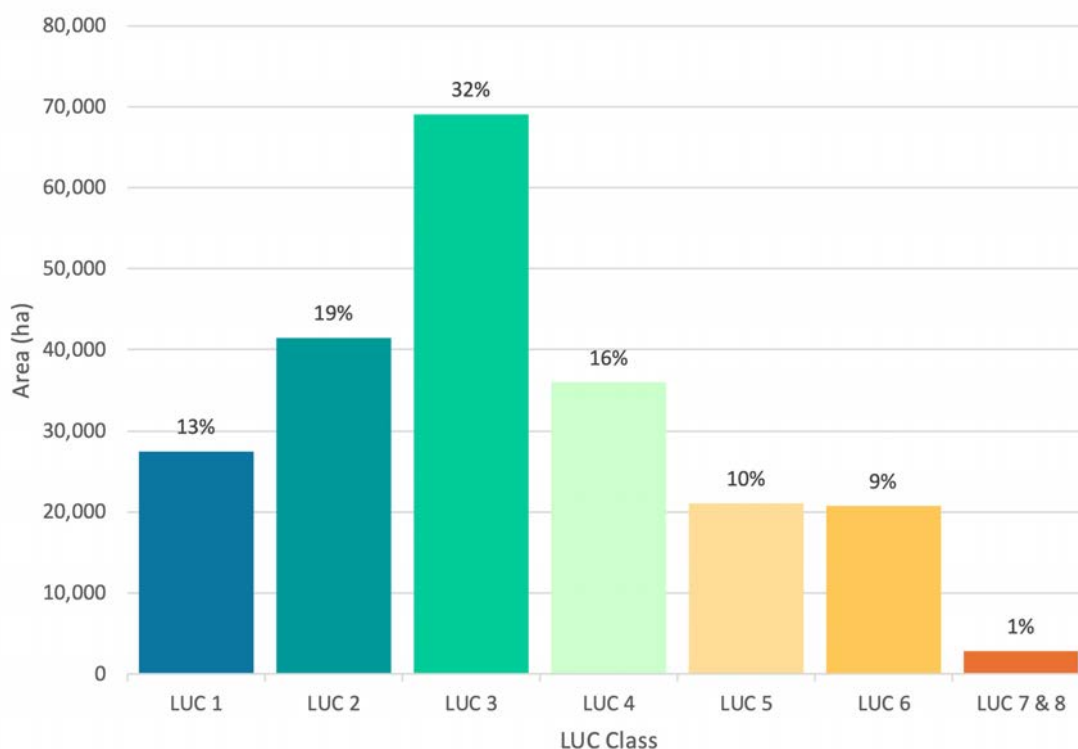


Figure 31: Distribution of land used for dairy farming by Land Use Capability Class in Taranaki
Source data: Pearson Environmental

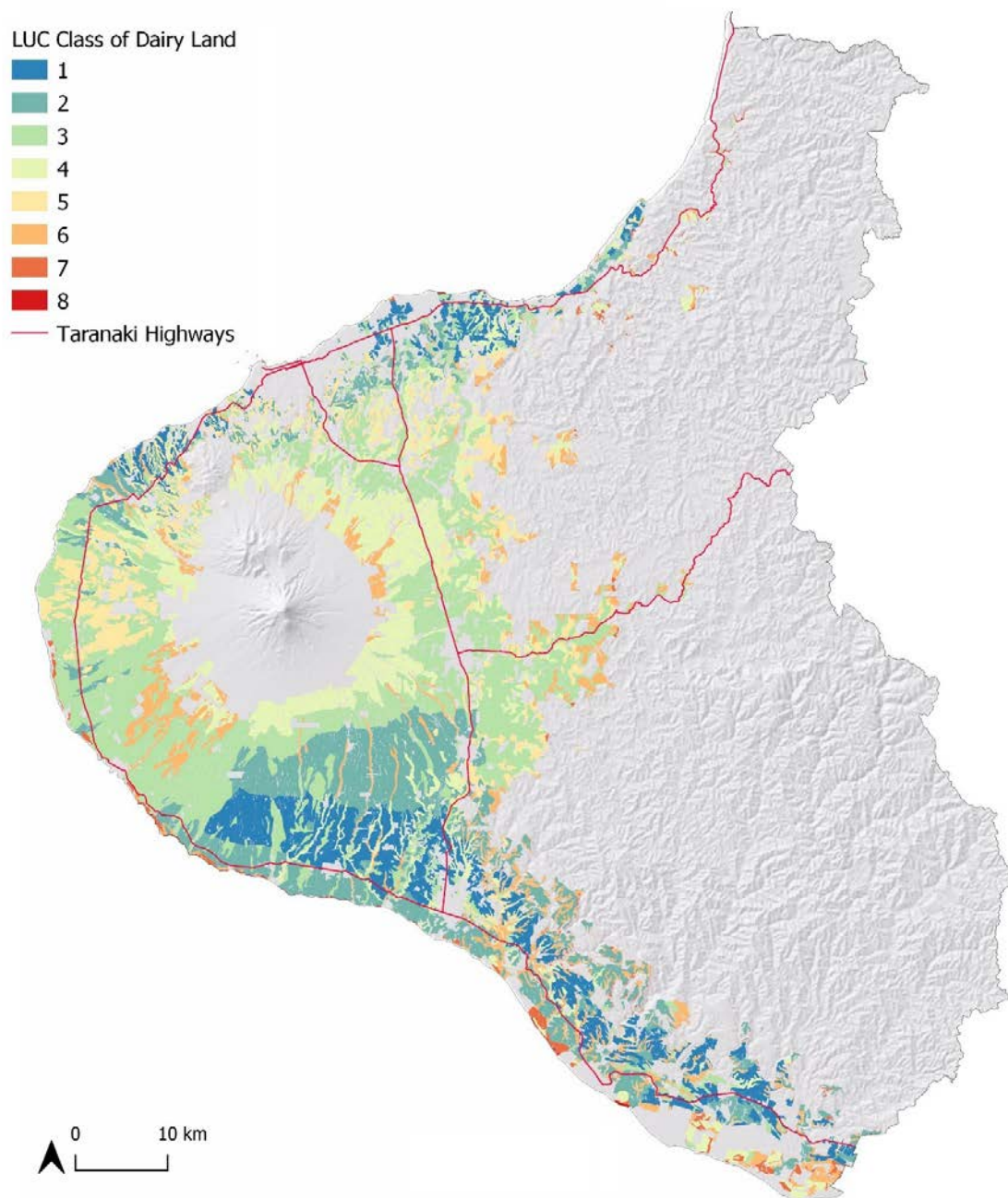


Image 33: Land Use Capability Classes for dairy land in Taranaki
Source: Pearson Environmental

- Sheep and beef farming in Taranaki occurs largely in the east of the region on various combinations of soil types, topographies, and microclimates. Farmers have a strong capacity to grow grass (less so in the south where it is drier), and the soil types mean farms usually respond well to seasonal challenges. In 2022, there were between 387 and 453 sheep and beef farms of at least 80 hectares in size. The most common farm class is Farm Class 4: North Island Hill Country, with fewer North Island Hard Hill Country farms and Finishing farms. There have been marked changes in farm size, topography, and the sheep:beef ratio since the 1980s.



Figure 37: Changes in farm size and topography for all sheep and beef farms in B+LNZ Sheep and Beef Farm Survey in Taranaki-Manawatu from 1983-84 to 2021-22

Source data: B+LNZ Economic Service Sheep and Beef Farm Survey

Note: graphs for each farm class are included in Appendix 7.3

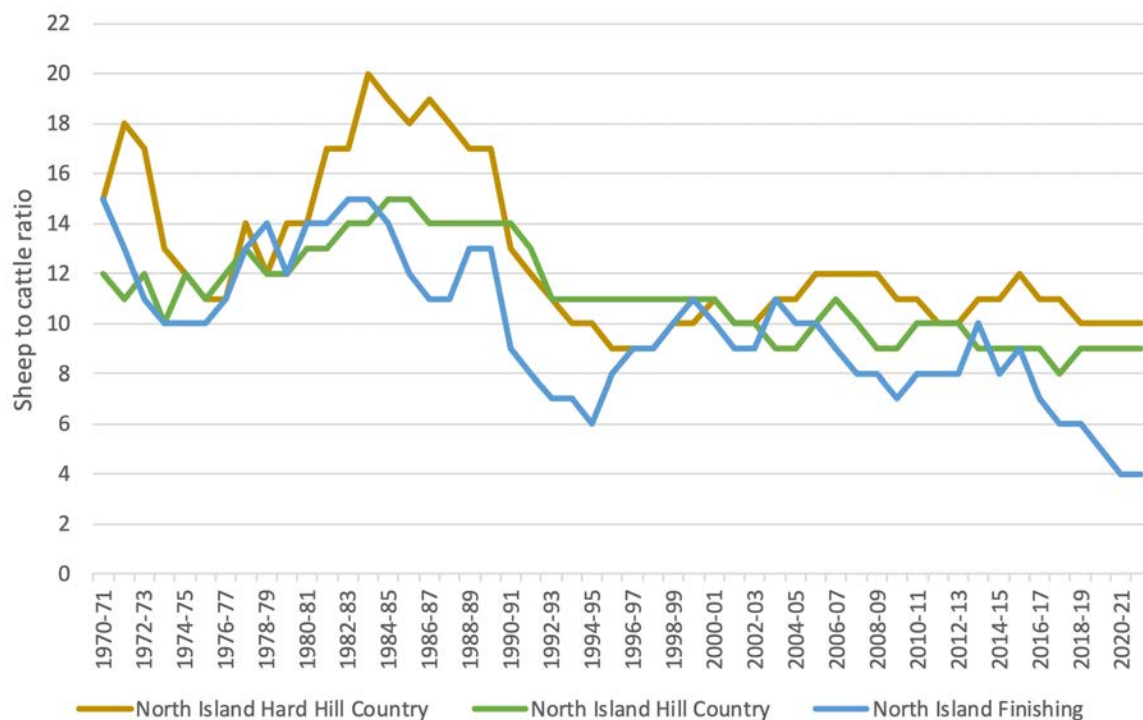


Figure 39: Changes in sheep to cattle ratio on sheep and beef farms in Taranaki-Manawatu from 1970-71 to 2021-22

Source data: B+LNZ Sheep and Beef Farm Survey

- Horticulture is also influenced by a complex array of factors and covers a wide range of production systems. While there are opportunities, the sector has less of a presence in Taranaki when compared to 1) agriculture in the region and 2) horticulture in other regions. The main growing hub is located around New Plymouth City. There are 23 growers registered with Horticulture New Zealand, including three indoor growers, who are largely producing produce for the domestic market.
- Taranaki's production forest estate⁵ in 2022 was at least 20,600 hectares, which represents 11.4 per cent of the Southern North Island wood supply region and was an increase of around 1,200 hectares since 2018. The total area was 20 per cent in the New Plymouth District, 32 per cent in the Stratford District, and 49 per cent in South Taranaki District. At present, the peak regional supply of logs will occur from mid to late 2020s. Post-1989 forest, which is relevant to carbon credits, is heavily weighted towards South Taranaki District.

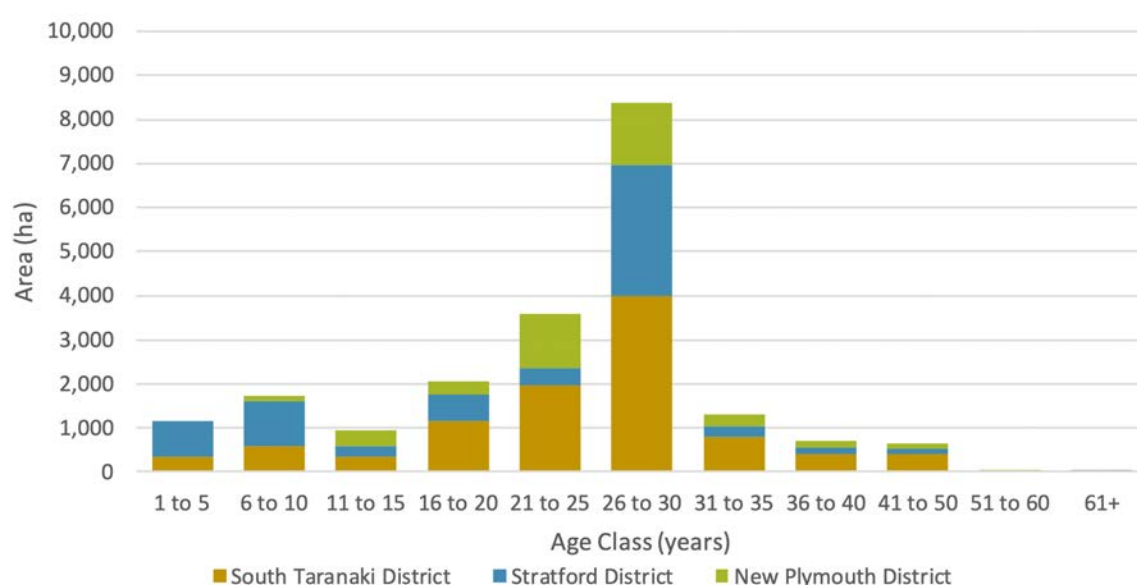


Figure 50: Distribution of forest area (all species) by age class and district in Taranaki, as at 1 April 2023
Source data: National Exotic Forest Description 2024

⁵ Exotic forest planted with the primary intention of producing wood or wood fibre.

The Taranaki Economy (Chapter 6)

This chapter presents major trade flows between industries by district in Taranaki based on intermediate demand for goods and services (Image 2)⁶. It then looks at the economy from two main perspectives: 1) employment, which is a critical metric for understanding the impacts of policy options on local communities, and 2) value added, which is also important but may be owned either within the region or beyond it. A third perspective included is gross output, which measures total economic activity and is useful when considering the economy at either industry or sector levels. The results underline the importance of using multiple metrics when assessing the impacts of policy options.

- The regional economy is 1) clearly dominated by oil and gas extraction as well as dairy cattle farming and dairy product manufacturing, and 2) heavily weighted towards the New Plymouth District. However, central to the economy in terms of its interconnections is electricity generation and on-selling in Stratford District.
- The economy provides the equivalent of around 60,000 jobs and employment patterns largely reflect the population distribution across the region. Important employers are livestock farming and related product processing and manufacturing as well as primary and fabricated metal and metal product manufacturing. Many other industries are key employers in the region are core to any economy – construction, transportation, utilities (i.e., power, water, and waste services).
- In 2023 the size of the Taranaki economy was \$8.6 billion in value added (3% of the New Zealand economy). The distribution between districts is uneven but does not fully reflect each district's contribution to the regional economy. Livestock and forestry (with support services and processing or manufacturing), oil and gas, utilities, and property operation⁷ account for just over \$4.9 billion (57% of the regional economy). The economy's basic structure currently lacks many value added industries and is focused on intermediate industries and industries driven by international and inter-regional demand.

⁶ The five largest financial flows in each of the three districts and the largest 40 remaining financial flows across the region.

⁷ An explanation of owner-occupied property operation is included as a footnote in Section 6.2. Essentially, the industry's inputs are homeownership expenses, and its outputs are the imputed rental value of the dwellings. Including net imputed rent in household accounts treats owner-occupiers as if they were renting their home from themselves. It allows for more meaningful comparison of the income circumstances of people living in different tenure types.

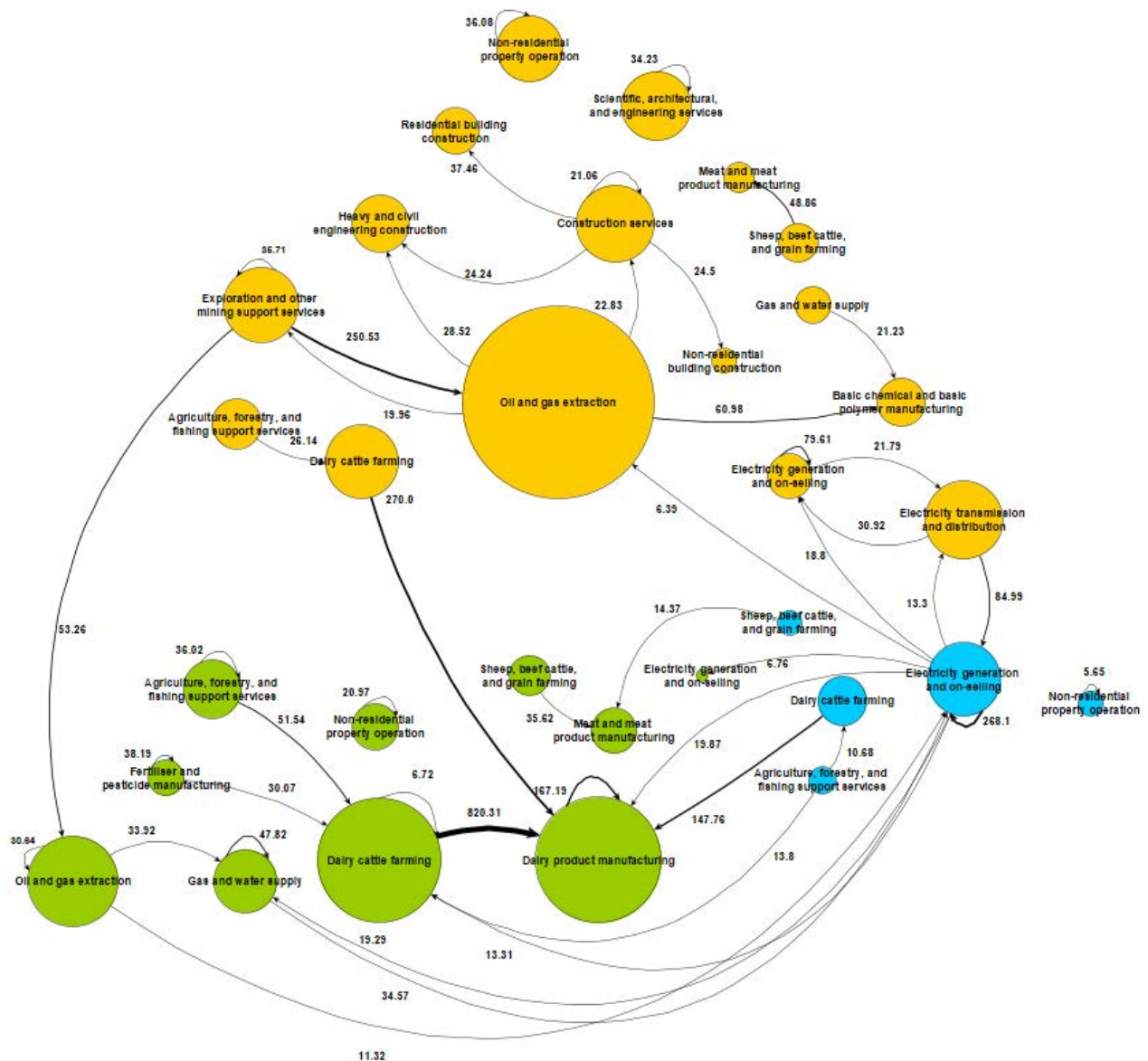


Image 2: Major trade flows within and between districts in Taranaki in 2020

Source: Market Economics

Note: Key is yellow = New Plymouth, blue = Stratford, and green = South Taranaki. The numbers on the arrows in the diagram are the values of intermediate demand (i.e., sales and purchases) between industries. The relative sizes of these values are reflected in the thickness of each arrow. An industry's intermediate demand and final demand (i.e., exports or domestic consumption) makes up its gross output.

Also presented in the chapter are economic multipliers for value added, which give a sense of how a direct impact for an industry may translate into indirect and induced impacts across the economy.

- The industries with the largest multipliers differ depending on whether the multiplier is for employment (electricity generation and on-selling) or value added (primary metal and metal product manufacturing). For most industries in each district across the region, most of the gain or benefit in value added from an additional unit of spending occurs outside of Taranaki. The exceptions all have a comparative advantage compared to the rest of New Zealand.

Limitations and Further Research

The report's primary purpose was to improve general understanding of Taranaki's economy in relation to freshwater management as policy options are developed for the proposed Regional Land and Freshwater Plan. The intent is that this understanding will help inform those options but, as they are yet to be developed, it does not forecast their impacts. Further research may be needed in this area once those options take shape.

The report is based on macroeconomic datasets that are a snapshot of the market component of Taranaki's economy. The datasets do not capture the non-market component so only give a partial view of the economy. Much of that information is science-based and essential for considering (and accounting for) externalities. Further, the datasets do not show changes in stocks of natural, human, built, and financial capitals over time so they are silent on the economy's sustainability.

While economic metrics used in this report are relevant to economic outcomes, they do not represent outcomes in themselves. Therefore, the report does not specifically consider people's living standards in Taranaki nor the general wellbeing of its local communities. Economic outcomes are influenced by both the market and non-market components of the economy.

Finally, the authors recognise that the economy described in this report is not the only one that exists in Taranaki nor was it the first. Further research is needed with Taranaki's mana whenua to describe the nature of their economies and the role of fresh water within them. Such research may also include specific consideration of Maori Agribusiness. It is likely that the impacts of freshwater management for mana whenua will be complex, with the potential for both opportunities and constraints.



Taranaki Regional Council
47 Cloten Road,
Stratford 4332
New Zealand
info@trc.govt.nz
+64 0800 736 222

EM | CONSULTING

EM Consulting Ltd
30 Newcastle Street
Invercargill 9810
New Zealand
Emma@emconsulting.co.nz
+64 27 905 5616