# Irrigation Water
## Monitoring Programme
## Annual Report
## 2023/24
## Technical Report 2024-90

Taranaki
Regional Council

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# Executive summary

This report for the period July 2023 to June 2024 describes the monitoring programme implemented by Taranaki Regional Council (the Council) to assess the environmental and consent compliance performance of irrigation consent holders across the Taranaki region. The assessment covers resource consents held for pastoral, horticultural and golf course irrigation. This is the 21st Annual report issued by the Council to report on compliance monitoring programmes for consents authorising the abstraction of freshwater for irrigation purposes in Taranaki.

**During the monitoring period, the irrigation water take consents demonstrated a high level of environmental performance and high level of administrative performance.**

At 30 June 2024, a total of 61 resource consents to take and use freshwater for irrigation purposes were registered in the Council's database. Of these, 45 were for pasture irrigation, six for horticultural activities and ten for recreational purposes (golf clubs). Fifty of these consents authorised abstraction of surface water (82%) and 11 from groundwater sources (18%).

The Council's monitoring of irrigation water permits comprises a range of components including site inspections, the collection and assessment of abstraction data, residual flow monitoring, water quality analysis, data review and compliance assessments. The specific range of monitoring carried out for each consent is dictated by the water source, weather and flow conditions, and irrigation system design.

A total of 48 irrigation consents were exercised during the 2023/24 monitoring period, with irrigation commencing in mid-October and concluding in early April across the region. Rainfall recorded at the Council's monitoring locations over the summer irrigation period ranged between 68% and 110% of historical mean values. Due to the lower than normal rainfall, irrigation demand was high with a total water usage of 7.664ML during the 2023/24 season. This was higher than the preceding 2022/23 season, which recorded 4.063ML.

The Council carried out compliance monitoring inspections at all active irrigation sites during 2023/24 period. Compliance with residual flow conditions for surface water abstractions was assessed by the Council on 77 separate occasions, across 32 waterways. Consent holder performance for the year was assessed based on compliance with their authorised abstraction rates/volumes, maintenance of minimum residual flows, provision of abstraction records and all other general conditions of their consents.

Monitoring found all of the water takes being well managed and operating within relevant consent conditions during the 2023/24 period. There were no unauthorised incidents recording non-compliance in respect of any irrigation consent holders during the period under review. This is a significant improvement from the 2022/23 monitoring period, where 7% of exercised consents were non-compliant.

During the 2023/24 year, 72% of exercised irrigation consents in Taranaki achieved a high level of environmental performance and compliance with their consents, while 10% showed good environmental performance and the remaining 18% were not operational for the year.

For reference, in the 2023/24 year, consent holders were found to achieve a high level of environmental performance and compliance for 864 (89%) of a total of 967 consents monitored through the Taranaki tailored monitoring programmes, while for another 75 (8%) of the consents a good level of environmental performance and compliance was achieved. A further 26 (3%) of consents monitored required improvement in their performance, while the remaining two (<1%) achieved a rating of poor.

In terms of overall environmental and compliance performance by the irrigation water consent holders over the last several years, this report shows that consent holder performance remains at a high level in the year under review.

This report includes recommendations for the 2024/25 year.

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# 1. Introduction

## 1.1 Compliance monitoring programme reports and the Resource Management Act 1991

### 1.1.1 Introduction

This report is for the period July 2023 to June 2024 describing the monitoring programme implemented by the Taranaki Regional Council (the Council) for resource consents authorising the abstraction of freshwater for irrigation purposes in Taranaki.

This report covers the data collected for compliance monitoring of resource consents associated with pastoral, horticultural and golf course irrigation. This report discusses the environmental effects of the consent holders' use of water and is the 21st combined annual report by the Council for this monitoring programme.

### 1.1.2 Structure of this report

**Section 1** of this report is a background section. It sets out general information about:

- consent compliance monitoring under the *Resource Management Act 1991* (RMA) and the Council's obligations;
- the Council's approach to monitoring sites though annual programmes;
- the resource consents held by consent holders throughout the region;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted by the consent holders.

**Section 2** presents the results of monitoring during the period under review, including scientific and technical data.

**Section 3** discusses the results, their interpretations, and their significance for the environment.

**Section 4** presents recommendations to be implemented in the 2024/25 monitoring year.

A glossary of common abbreviations and scientific terms, and a bibliography, are presented at the end of the report.

### 1.1.3 The Resource Management Act 1991 and monitoring

The RMA primarily addresses environmental 'effects' which are defined as positive or adverse, temporary or permanent, past, present or future, or cumulative. Effects may arise in relation to:

a. the neighbourhood or the wider community around an activity, and may include cultural and social-economic effects;
b. physical effects on the locality, including landscape, amenity and visual effects;
c. ecosystems, including effects on plants, animals, or habitats, whether aquatic or terrestrial;
d. natural and physical resources having special significance (for example recreational, cultural, or aesthetic); and
e. risks to the neighbourhood or environment.

In drafting and reviewing conditions on water take permits, and in implementing monitoring programmes, the Council is recognising the comprehensive meaning of 'effects' in as much as is appropriate for each

activity. Monitoring programmes are not only based on existing permit conditions, but also on the obligations of the RMA to assess the effects of the exercise of consents. In accordance with Section 35 of the RMA, the Council undertakes compliance monitoring for consents and rules in regional plans and maintains an overview of the performance of resource users and consent holders. Compliance monitoring, including both activity and impact monitoring, enables the Council to continually re-evaluate its approach and that of consent holders to resource management and, ultimately, through the refinement of methods and considered responsible resource utilisation, to move closer to achieving sustainable development of the region's resources.

### 1.1.4 Evaluation of environmental performance

Besides discussing the various details of the performance and extent of compliance by the consent holders, this report also assigns a rating as to each consent holder's environmental and administrative performance during the period under review. The rating categories are high, good, improvement required and poor for both environmental and administrative performance. The interpretations for these ratings are found in Appendix II.

For reference, in the 2023/24 year, consent holders were found to achieve a high level of environmental performance and compliance for 864 (89%) of a total of 967 consents monitored through the Taranaki tailored monitoring programmes, while for another 75 (8%) of the consents a good level of environmental performance and compliance was achieved. A further 26 (3%) of consents monitored required improvement in their performance, while the remaining two (<1%) achieved a rating of poor. [1]

### 1.1.5 Regional freshwater allocation

At 30 June 2024, there were a total of 61 resource consents to take and use freshwater for irrigation purposes in Taranaki. Forty-five consents were for pasture irrigation, six for irrigation associated with horticultural activities and ten for recreational purposes (e.g. golf course watering).

Surface water is the predominant source of water for irrigation, accounting for 50 of the 61 consented water abstractions (82%). The remaining 11 consents (18%) authorise abstractions from groundwater (Figure 1).

The relatively low yields from Taranaki's aquifers are rarely sufficient to supply an entire irrigation system, and hence groundwater usage as a primary source of irrigation water is uncommon across the region. Typically, groundwater abstractions are used to supplement surface water irrigation supply.

The breakdown of freshwater allocation in the region indicates that pasture irrigation represents 24% of the total consents for water abstraction in Taranaki. Other types of irrigation (horticultural and recreational) account for approximately 8%, with other uses[2] accounting for the majority (68%) of the total water allocation across the region (Figure 2).

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[11] The Council has used these compliance grading criteria for more than 20 years. They align closely with the four compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018

[2] Includes: Aquaculture, Building Construction/Drainage/Flood Control, Chemical Processing/Manufacturing, Dairy Farm, Dairy Processing/Manufacturing, Dry Stock Farms, Hydrocarbon Exploration/Servicing Facilities, Landfills, Local Authorities, Meat and By-Product Processing, Petrochemical Processing, Piggery Farms, Poultry Farms, Power Generation – HydroPower Generation & Thermal, Quarries, Recreation/Tourism/Cultural, Road/Bridge Construction or Maintenance, Sewage Treatment, Swimming Pools, Timber Treatment or Sawmills, Water Supply or Treatment.

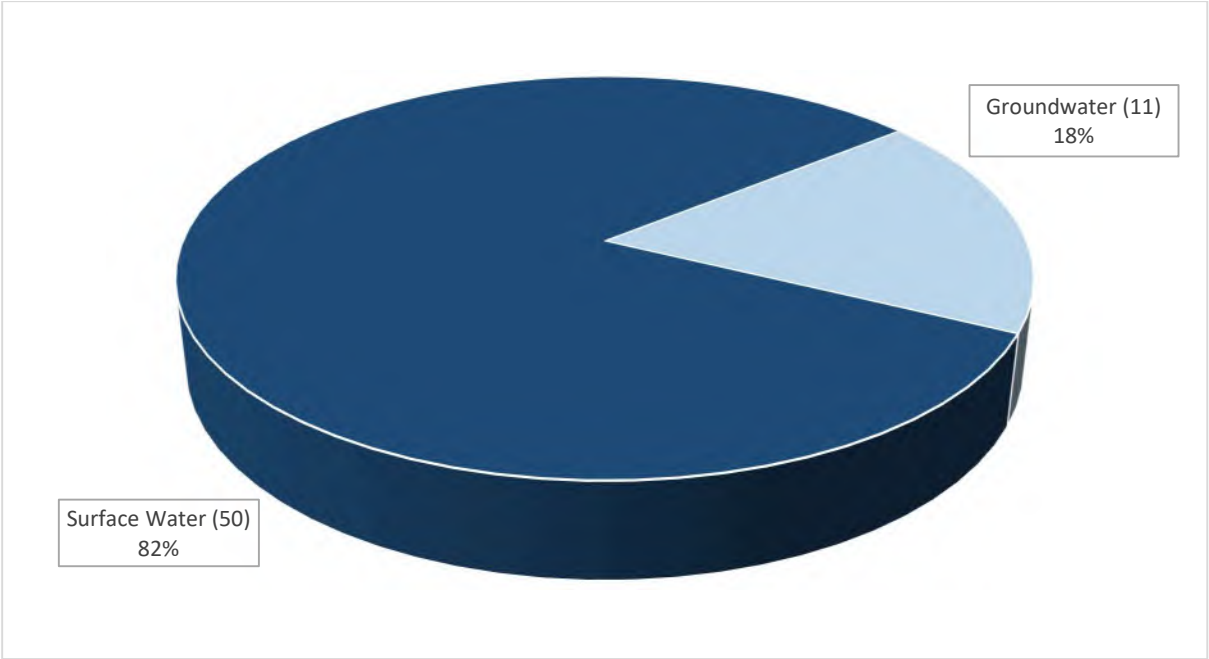


Figure 1 Total consented water abstractions – distributed by source 2023/24

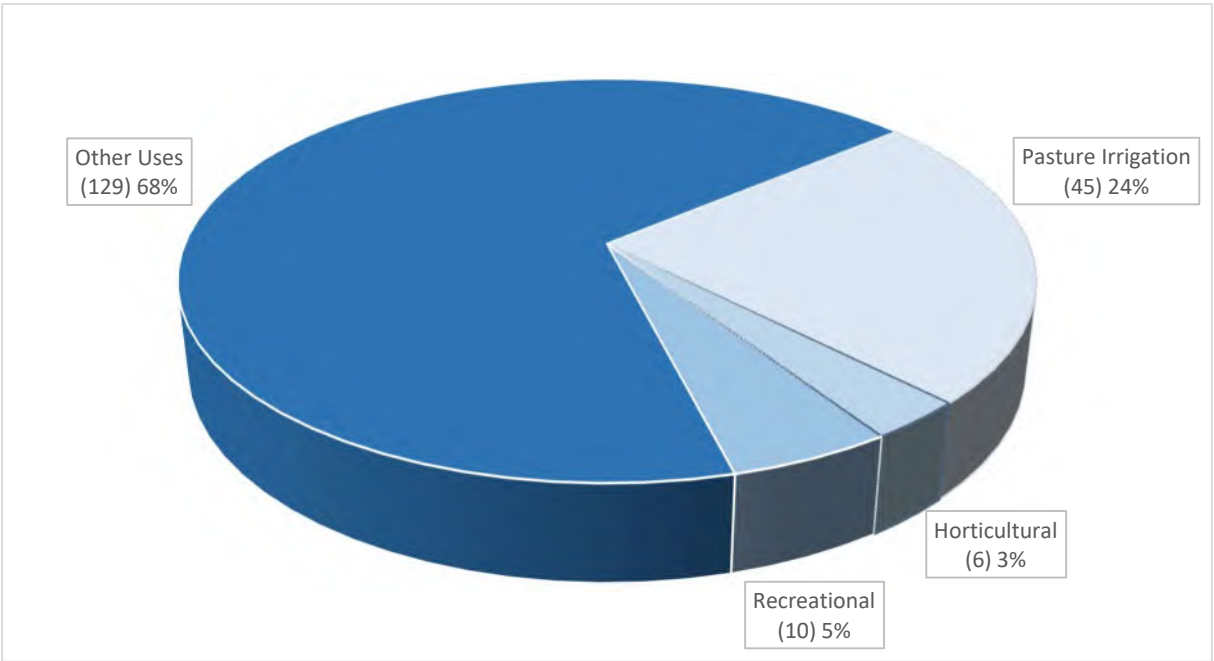


Figure 2 Total consented water abstractions – distributed by activity 2023/24

### 1.1.6 Irrigation zones

A regional study commissioned for the Council in 2002 (Rout, 2003) identified eight irrigation zones based mainly on climate. The developed potential in each zone was assessed as was the potential cost/benefit of the irrigation development in each. Each zone, and the location of all current irrigation consents are illustrated in Figure 3.

The modelling exercise identified zones with the most potential for pasture irrigation requirements, which were Normanby (Zone 2), Inaha (Zone 3), Hāwera (Zone 4) and Ōpunake (Zone 5). As illustrated in Figure 3,

the vast majority of pasture irrigation in Taranaki does take place within Zones 2, 3, 4, and 5 which represents a 10km wide belt of coastal land stretching from Oākura to Waitōtara.

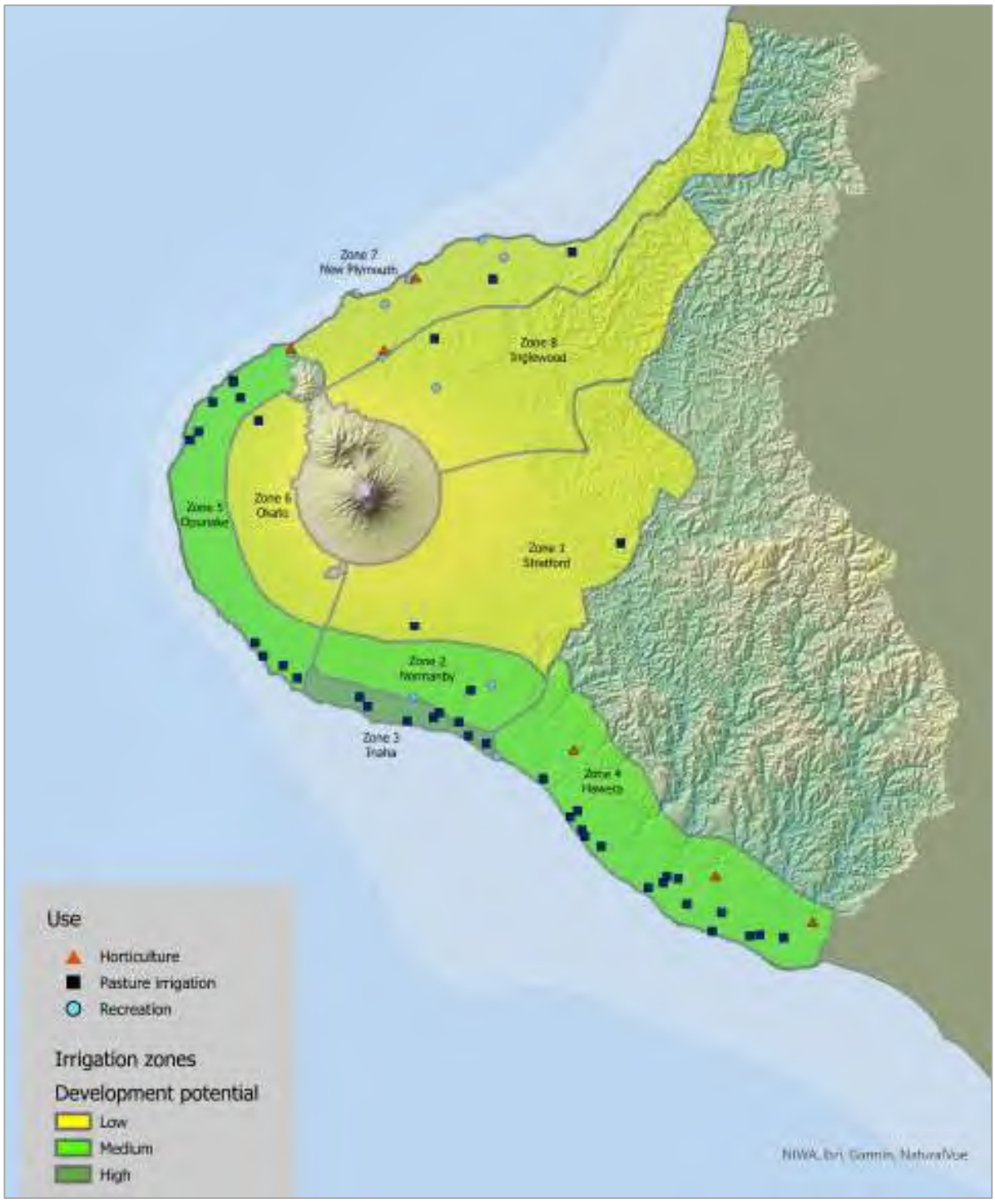


Figure 3 Pasture irrigation zones and locations of consented irrigation in Taranaki

### 1.1.7 Irrigation systems

In general, there are two types of irrigation methods: surface and pressurised. The majority of irrigation systems currently in operation in the region fall into the pressurised category. Pressurised systems can be further differentiated based on the method of operation and equipment used. A summary of the systems encountered in the region is given below.

### K-line and long-lateral types – Impact sprinklers mounted on moveable laterals (Photo 1)

These are the most common systems found in the region, as they are a low-cost option and are a low-cost option and are relatively easy to operate. They can easily be adapted to fit in with existing farm layouts and are especially suitable for windy conditions. However, these systems are labour intensive, as they need to be moved manually on a regular basis.

Photo 1 Mosaic of pictures depicting k-line long lateral type irrigation

### Centre pivot type – spray mounted on a movable lateral (Photo 2)

Centre pivot type systems are automatically controlled, so have a low labour input. They are low maintenance and have versatility in application rates and are desirable on steep, rocky or uneven soils. However, they are a high capital cost option and can be expensive to run due to electricity costs.

Photo 2 Picture depicting centre pivot

### Travelling irrigators – spray nozzles mounted on fixed or rotating boom *(rotary boom, fixed boom, gun irrigator, effluent irrigator)* (Photo 3)

Travelling irrigators are a low capital cost option and are simple to operate. They can cover a large irrigation area and there is some control over the application rate. However, these systems do not perform well in windy conditions, and tend to apply uneven amounts of water, especially at the end of a run.

The predominant irrigation system used in Taranaki is the K-line, accounting for 54% of all systems in use. A further 18% of irrigation consent holders operate solely with centre pivots, 7% operate travelling irrigators, while 18% utilise more than one type of system. The remaining 3% of consent holders are yet to install irrigation infrastructure. Appendix III shows the systems that each consent holder utilises.

Photo 3 Picture depicting travelling irrigator system

### 1.1.8 Environmental effects of exercising water permits

Environmental effects of water abstraction can include a loss of aquatic habitat and biodiversity, and impacts on cultural, recreational and aesthetic values of waterbodies. In an effort to reduce such impacts, the Council encourages the efficient use of water through technical irrigation system design, and maintenance and management practices that help achieve high irrigation efficiencies.

#### Surface water bodies

Expected periods of peak irrigation water demand normally coincide with periods of low flows in rivers and streams. During these periods, the Council closely monitors river flows and the exercising of water permits.

The majority of surface water permits for irrigation require the abstraction to cease when the flow in the river providing water for irrigation reaches, or falls below, a specified level (minimum/residual flow). Policy 6.1.5 of the *Regional Freshwater Plan for Taranaki* states that at least two-thirds of habitat within a river or stream is to be retained at mean annual low flow (MALF) levels. This figure has been derived for protection of habitat requirements for brown trout and is considered conservative for native species.

For many smaller waterways, two-thirds habitat roughly equates to two-thirds MALF, however, the cut-off flow level on many irrigation abstraction consents is in practice generally set at MALF. It is the responsibility of the consent holder to always ensure compliance with consent conditions.

In certain coastal streams, and under certain flow conditions, tidal movements can result in the migration of saline water upstream from the coastal margin. The abstraction and application of saline and brackish water to land can have adverse effects on pumping and irrigation equipment, crops and soil.

#### Groundwater abstractions

The abstraction of groundwater for use in irrigation supply has the potential to lower groundwater levels in the vicinity of the pumping bore. The potential effects of any groundwater abstraction are assessed by the Council during the processing of a resource consent application for a groundwater take. The potential impact of any new take on existing groundwater users and ecological receptors forms a major component of this assessment.

Groundwater levels in coastal bores should generally be maintained above mean sea level to avoid the risk of sea water intrusion into the freshwater aquifers. Increased salinity in previously fresh groundwater can result in significant ecological effects, adversely impact existing users of groundwater and limit its potential future use.

Fortunately, in Taranaki the risk of saltwater intrusion is low due to the limited number of high yielding coastal bores. As part of irrigation monitoring programmes, the Council monitors water quality indicators at eight coastal sites in order to assess any changes in groundwater composition as a result of abstraction.

### Nutrient loading

Irrigated pasture typically supports higher stock numbers compared with non-irrigated pasture and consequently a higher nutrient (nitrate) loading per hectare. This is particularly the case in areas where the underlying soils are free draining. Irrigation schemes in Zones 2, 3 and 4 occur in areas where groundwater is known to be at risk of nitrate contamination given the drainage characteristics of soils in those zones (TRC 1998, 2005). Careful management of irrigation water and fertiliser application regimes is therefore required to minimise the risk of groundwater and surface water contamination under irrigated conditions.

## 1.2 Climatological data and irrigation requirements

The Council provides live on-site data on soil moisture, rainfall and temperature via its website. Six sites along the coastline provide climatological information about the most intensively developed irrigation zones.

Irrigation for Taranaki dairy farms usually occurs over a three to six month period depending on location and climatic conditions. The irrigation season began in mid-October and continued through to early April. Rainfall for Taranaki Maunga was between 74% and 81% of normal for the period 1 November 2023 to 31 March 2024. Rainfall for the region was between 68% and 110% with an average of 89% as shown in Table 1 and Figure 4. Rainfall was below normal along the coastal belt from Ōkato down to Waitōtara, recording between 68% and 93% of normal.

Table 1 Rainfall totals for the period 1 November 2023 to 31 March 2024

| Site | Total rainfall | Mean rainfall | November 2023 to March 2024 rainfall as a proportion of mean values |
|---|---|---|---|
| | 1 November 2023 to 31 March 2024 (mm) | November to March (mm) | |
| North Egmont | 1,811.5 | 2,246 | 81% |
| Dawson Falls | 1,387.5 | 1,884.2 | 74% |
| Kahui Hut | 1,358 | 1,671.4 | 81% |
| Mangorei Upper | 1,129.5 | 1,205.2 | 94% |
| Hillsborough | 644 | 610.3 | 106% |
| Brooklands Zoo | 480.2 | 546.3 | 88% |
| Mangatī | 528.2 | 509.8 | 104% |
| Motunui | 544 | 535.6 | 102% |
| Egmont Village | 841.5 | 860.1 | 98% |
| Everett Park | 699 | 736.5 | 95% |
| Inglewood | 831.5 | 821.1 | 101% |
| Stratford | 489 | 634.8 | 77% |
| Mangaehu | 460.5 | 545.9 | 84% |
| Kotare | 838.5 | 764.8 | 110% |
| Kaka Rd (Uruti) | 902.5 | 819.8 | 110% |
| Pohokura Saddle | 680 | 698.7 | 97% |
| Hangatahua (Okato) | 596.5 | 694.1 | 86% |
| Kapoaiaia (Cape Egmont) | 451.2 | 482.7 | 93% |
| Taungatara (Te Kiri) | 371.5 | 518.2 | 72% |
| Kaupokonui (Manaia) | 286 | 390 | 73% |
| Duffys (Whareroa) | 315.5 | 398.1 | 79% |
| Pātea | 328.8 | 403.5 | 81% |
| Charlies | 620.5 | 599.2 | 104% |

| Site | Total rainfall | Mean rainfall | November 2023 to March 2024 rainfall as a proportion of mean values |
|---|---|---|---|
| | 1 November 2023 to 31 March 2024 (mm) | November to March (mm) | |
| Moana Trig | 462.5 | 566 | 82% |
| Rimunui Stn (Waitōtara) | 369.5 | 473 | 78% |
| Ngutuwera | 371 | 473 | 78% |
| Waitōtara Coast | 288.8 | 424 | 68% |

Rainfall has a direct impact not only on river and stream flows but also on the amount of water recharging the region's aquifers, which also contribute baseflow to surface water systems. Rainfall recharge is critical to maintain groundwater levels and thus the potential to supply water in the zones where there is more pressure on surface water resources.

Accurate interpretation of climatological data is important for the planning, scheduling an operation of efficient irrigation systems. Precipitation and evapotranspiration data are fundamental to carrying out reliable water budget calculations and calculations of crop (pasture) water requirements. Crop water requirements can be defined as the depth of water needed to offset the loss of water through evapotranspiration. In other words, for any period of time, the net irrigation requirement is the amount of water which is not effectively provided for by rainfall.

The calculated amounts of irrigation water to be efficiently applied to pasture, should also account for the water that is lost while transporting it from its source to the pasture root zone. Some of the losses that need to be estimated are those which occur due to leakage from pipelines and evaporation from droplets sprayed through the air. To compensate for these losses, additional water must be pumped than is required to be stored in the pasture root zone. Therefore, the gross irrigation requirement is the total amount that must be pumped which takes into consideration the irrigation efficiency.

The third variable that should be accounted for when planning and operating irrigation systems is soil moisture. Some of the water that is required by the pasture may already be held in the soil, so it is critical to quantify it. There is no extra value in applying more water than the soil can hold, this only results in unnecessary costs and wastage. The only reliable way of knowing how much irrigated water can be stored in the soil at the time of irrigation is by measuring soil moisture.

By measuring the soil moisture, the irrigator can be more certain that:

- Only the amount of water required by the plant is applied;
- Leaching of nutrients is minimised;
- Pasture growth and quality is maximised;
- The environmental impacts of irrigation are minimised; and
- Costs are reduced.

In order to maximise the efficient use of water taken, the Council strongly urges irrigators to monitor and plan irrigation with the factors outlined above in mind. Precision irrigation will also assist irrigators in achieving greater economic benefits from water taken.

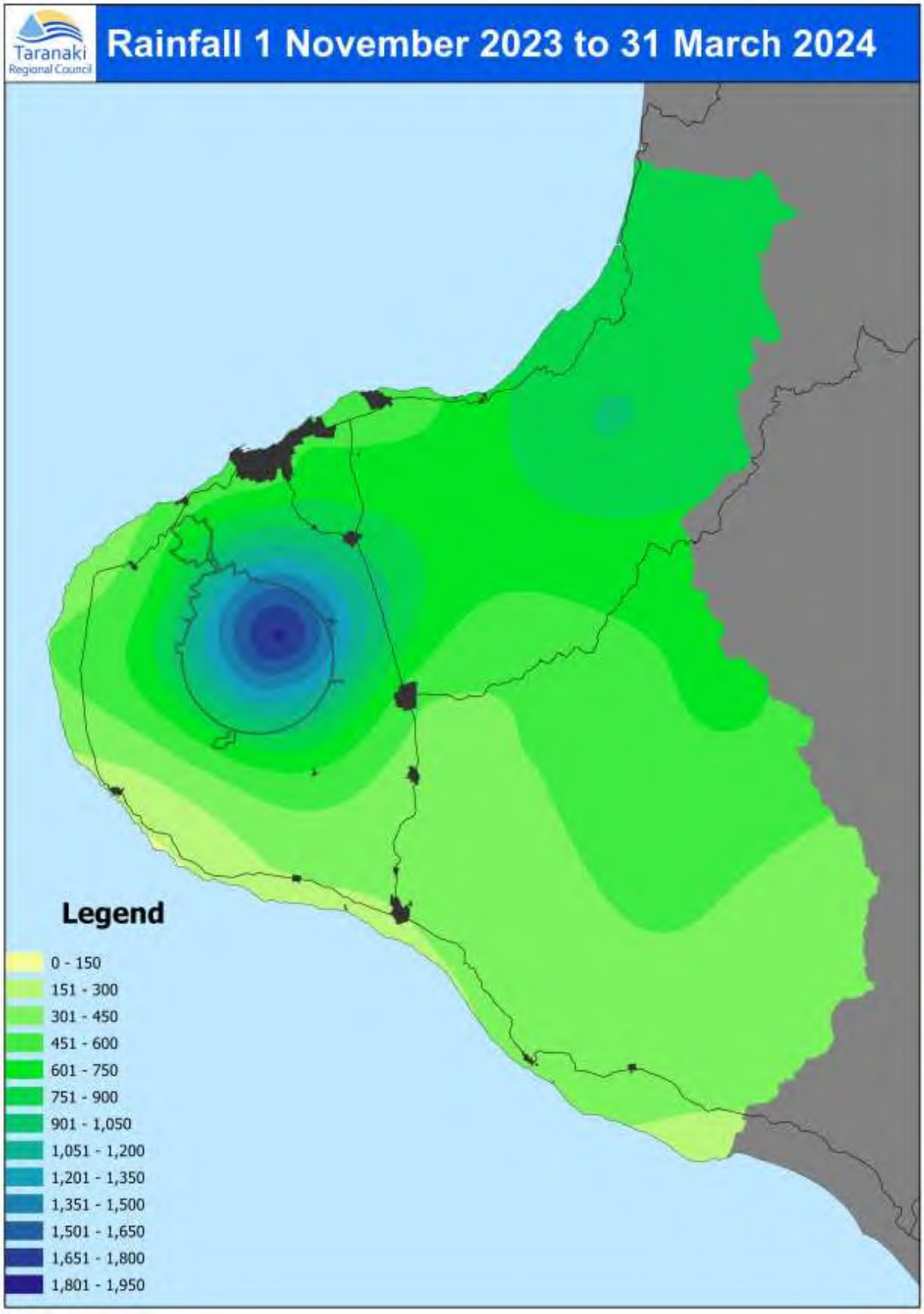


Figure 4 Rainfall distribution map from 1 November 2023 to 31 March 2024

## 1.3 Monitoring programme

### 1.3.1 Introduction

Section 35 of the RMA sets obligations upon the Council to gather information, monitor and conduct research on the exercise of resource consents within the Taranaki region. The Council is also required to assess the effects arising from the exercising of these consents and report upon them.

The Council may therefore make and record measurements of physical and chemical parameters, take samples for analysis, carry out surveys and inspections, conduct investigations and seek information from consent holders.

Every year the Council undertakes a monitoring programme for all pasture irrigation water permits. The programme lists all the work that the Council could undertake during the forthcoming monitoring period and the cost of the activities to each consent holder. As irrigation is climate dependent, the level of monitoring varies from year to year, as do associated costs. Increased monitoring is generally required during drier years. Automated monitoring systems can reduce ongoing monitoring costs for consent holders.

The monitoring programme for the irrigation water permits comprised a range of various components, including liaison with consent holders, site inspections, water take data collection, residual flow monitoring, water quality analysis, data review and compliance assessments. The specific range of monitoring carried out in relation to each consent is dictated by the water source, weather and flow conditions and system design. Irrigation began in mid-October for South Taranaki farmers and November for the rest of the region. Even though rainfall was above normal in some areas, the windy conditions meant that farmers still needed to irrigate. The irrigation ceased by mid-April. A summary of the various monitoring programme components is set out in sections 1.3.2 to 1.3.6.

### 1.3.2 Programme liaison and management

There is generally a significant investment of time and resources by the Council in:

- ongoing liaison with resource consent holders over consent conditions and their interpretation and application;
- discussion over monitoring requirements;
- preparation for any consent reviews, renewals or new consent applications;
- advice on the Council's environmental management strategies and content of regional plans; and
- consultation on associated matters.

### 1.3.3 Site inspections

The 2023/24 irrigation water takes monitoring programme provided for an annual inspection of each pasture irrigation abstraction site to assess compliance with consent conditions. Additionally, activities comprising of golf clubs, horticultural irrigation schemes and stock and dairy shed takes were also subject to a planned inspection visit.

Site inspections are focussed on assessing the overall set-up of the intake structures, a visual inspection and assessment of screenings, fences, staff gauges, flowmeters, datalogger devices and planting of riparian vegetation, in line with consent conditions.

The annual inspections occur between May and July each year, once the irrigation season has ended. The timing of inspections means that a full season’s irrigation records can be downloaded from the datalogging devices during inspections, resulting in time and cost efficiencies. It also means however that most irrigation

systems have been decommissioned for the season or undergoing maintenance, so it is sometimes difficult for staff to assess compliance with all consent conditions, particularly those relating to application efficiency and water loss across the operable system. Consent holders that breached their consent conditions in the previous monitoring period also receive an additional mid-season inspection to ensure compliance is continuing.

Monitoring of surface water abstractions also includes checking compliance with the residual flow conditions of the consent. Residual flow conditions set minimum environmental flows to be maintained during pumping in the waterways downstream from the abstraction point. Compliance with the residual flow conditions is assessed through hydrological flow gauging's which are carried out during low flow conditions in summer. The results of residual flow monitoring are summarised in section 2.2.

### 1.3.4 Measured and reporting of water takes

A special condition of all irrigation water abstractions is the requirement for the consent holder to measure and record abstraction data. The information collected contributes to the sustainable management of the resource and allows for assessment of compliance with consent conditions. The information is also useful for consent holders in managing inputs to their operations, identifying potential energy savings, operational issues and making water use efficiency gains[3].

The Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 (the Regulations) place further legislative requirement on holders of consent for water abstraction greater than 5L/s, unless the taking of water is for non-consumptive purposes.

The Regulations require:

- All water permits allowing the taking 5L/s or more to collect and report records to a set minimum requirement[4];
- Measurement at the point of where the water is taken from the river, lake or groundwater system (unless otherwise approved by the Council to be in another location);
- Continuous records of daily volumes to be collected using an appropriate flowmeter with the data transferred to the Council on at least an annual basis;
- The flowmeter to meet an accuracy standard (+/- 5%) and should be properly installed and calibrated independently every five years; and
- The consent holder is to be responsible for recording and transferring the data to the Council.

All abstractions captured under the Regulations were required to be compliant by 10 November 2016. The Council retains the authority to apply more stringent requirements on consent holders over and above those set out in the Regulations through the setting of consent conditions.

The rates and volumes of water abstraction are measured using a flowmeter. If a flowmeter is installed outside of the manufacturer's specifications, large errors may occur. The error produced by a valve installed immediately upstream of the flowmeter can be as much as 50%. Errors produced by sharp bends upstream of the flowmeter can amount to 20% of the measured flow. Photo 4 shows an example of a good installation of a flowmeter, with appropriate lengths of straight pipe either side of the meter. Photo 5 shows an example of a poor installation, with an elbow in the pipework immediately upstream of the flowmeter.

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[3] Sustainable Water Programme of Action, Ministry for the Environment.

[4] Refer to the document Resource Management (Measuring and reporting of Water Takes) Regulations 2010. REF 2010/267.

Photo 4 Example of a good flowmeter installation

Poorly installed flowmeters are unlikely to pass the verification tests required by a resource consent and/or the Regulations. In these instances, the consent holder will be required to undertake works to allow for the successful verification of the flowmeter.

Photo 5 Example of a poor flow meter installation

The majority of the water take records are now received by telemetry and have benefits for both consent compliance and water use assessment by consent holders. However, there are a few that provide manual records or require the data to be downloaded from a datalogger. This data is downloaded in the field by Council staff during end of year inspection visits, or earlier if deemed necessary. Records are required to cover the entire water year (1 July to 30 June) and must be provide to the Council by 31 July of each year.

In August 2020, the government gazetted the Resource Management (Measurement and Reporting of Water Takes) Amendment Regulations 2020[5]. The amended Regulations came in to force on 3 September 2020. Most significantly, the amended Regulations require consent holders to record measurements of the water taken under a water permit in each 15-minute period, instead of each day. The permit holder must also provide the Council with daily records of the measurements by the end of the next day (or later in

[5] Refer to the document Resource Management (Measuring and reporting of Water Takes) Amendment Regulations 2020. REF 2020/176.

certain circumstances) electronically. In effect, the amended Regulations mandate the use of telemetry systems for all takes exceeding 5L/s.

The new requirements start applying to a water permit only a number of years after these regulations commence, depending on the rate at which water may be taken under the permit, as follows:

- 2 years after if the rate is ≥ 20L/s (i.e. September 2022);
- 4 years after if the rate is ≥ 10L/s but < 20L/s (i.e. September 2024);
- 6 years after if the rate is ≥ 5L/s but < 10L/s (i.e. September 2026).

The Council is working closely with the consent holders to ensure compliance by the set date based on their abstraction rates. Information has been sent out to all water permit holders and service providers regarding the new requirements and have been provided general information on telemetry systems and operation.

As of 1 July 2024, 100% of irrigation water take that are consented to take ≥ 20L/s were sending data through the Council's telemetry network. While 71% for takes between 10L/s and 20L/s and 40% between 5L/s and 10 L/s.

As a region 100% of all active water takes ≥ 20L/s were sending data through the telemetry network. While 75% for takes between 10L/s and 20L/s and 59% for takes between 5L/s and 10L/s.

### 1.3.5 Residual flow monitoring

Compliance with consent conditions requires water to only be taken when there is water available above the minimum flow limit set out in the consent. If flows drop below this level, then irrigation is to cease until such a time that flows increase above the minimum flow limit. To determine compliance with these consent conditions the Council undertakes stream flow measurements by indirect and direct methods at control points either upstream or downstream of the abstraction point. These methods involve the measurements of velocity and cross-sectional areas which are used together to determine the stream flow rate at the time of the assessment.

### 1.3.6 Data review and compliance assessment

A major component of the monitoring programme is the assessment of water take data for consent compliance purposes. Compliance with abstraction rate and volume is assessed for all consent holders that exercised their consent. Compliance with abstraction rate and/or volume limits stipulated in the applicable resource consent was determined by assessment of remotely recorded data, or by calculating from records submitted by the consent holder. Data transferred to the Council by telemetered systems is electronically assessed on receipt, with pre-set automated alarms activated in the event of any consent limit exceedances.

# 2. Results

## 2.1 Site Inspections

The Council carried out annual compliance monitoring inspections at all sites where irrigation consents were exercised during the 2023/24 irrigation season.

Inspections found that all takes were being well managed and operated within relevant consent conditions, with no non-compliances being identified.

## 2.2 Residual flow compliance

During the period under review, compliance with residual flow conditions for surface water abstraction sites was assessed 77 times in 32 waterways.

Stream flow gaugings were generally targeted to coincide with the periods of low surface water flows. Of the 77 gaugings carried out, no measured flows were below residual flow limits as set by consent conditions. Many irrigators use the Council's website to monitor the river flows via the environmental data page to ensure they maintain compliance.

## 2.3 Water usage and compliance assessment

A total of 48 irrigation consents were exercised during the 2023/24 monitoring year, with irrigation commencing in late October and concluding by mid-April. Total water use across all exercised irrigation consents was 7.664ML. This was more than that used during the preceding 2022/23 monitoring year, when 46 irrigation consents were exercised, with a total usage of 4,063ML.

The highest water usage for the season was by Roger Dickie Family Trust, abstracting 889ML. This consent took an average of 104L/s, with irrigation occurring from early October to mid-April 2024. The second highest water user was Spenceview Farms with 846ML. Both Roger Dickie Family Trust and Spenceview Farms use large volumes of water, as they operate centre pivots to irrigate large areas of their farmland. Both consent holders operated within the conditions of their respective consents for the duration of the monitoring period. The average usage across all exercised irrigation takes for the 2023/24 year was 167ML.

The majority of the consent holders who exercised their consents during the 2023/24 period and were required to submit records, either by their consent conditions or the Regulations, did so within the required timeframe. Written notification and telephone calls received advising the non-exercising of consents were also taken as provisions of records.

Appendix IV lists each consent holder's 2023/24 water usage for comparison against their maximum authorised take volume over the monitoring period. The average annual consented take volume across all irrigation consents is 1,105ML. In contrast to this figure, the actual annual usage for the 2023/24 season was 167ML, which is only 15% of the total allowable take volume. Actual usage figures are significantly less than the volume allocated through consents given that consents are only exercised for a small portion of the year, as demand only spikes during dry periods. Also, the majority of the consent holders tend to not irrigate on a continual basis but generally irrigate at night to minimise evaporation losses and capitalise on reduced electricity supply costs. Peak irrigation demand does generally coincide with periods of reduced flow in the region's rivers and streams, which means there is a reduced volume of water available for abstraction.

All data collected is assessed for compliance against respective consent conditions. Following the assessment of the 2023/24 data, all consent holders were found to be compliant with their consent conditions.

## 2.4 Groundwater quality results

During the period under review, groundwater samples were obtained from a total of eight coastal sites to assess salinity levels in aquifers being pumped. The results indicate groundwater salinities in the range expected in coastal areas. The measured values during the 2023/24 monitoring period show little deviation from historical mean value at each site.

The results of the sampling carried out are presented below in Table 2. Historical means for each analyte are presented in brackets for comparison.

Table 2 Groundwater Quality Results

| Consent Number | Site Code | Sample date | Chloride ($g/m^3$) | Conductivity (µS/cm) | pH | Sodium ($g/m^3$) | Number of samples on record |
|---|---|---|---|---|---|---|---|
| 5950-2.1 | GND1203 | 02-Apr-2024 | 33 (33.5) | 29.7 (33.5) | 8.2 (8.4) | 63 (60.5) | 13 |
| 5950-2.1 | GND1711 | 02-Apr-2024 | 39 (36.2) | 26.9 (33.0) | 8.2 (8.4) | 60 (60.8) | 5 |
| 6026-2 | GND1233 | 02-Apr-2024 | 56 (44.4) | 45.8 (45.1) | 8.1 (7.8) | 44 (40.6) | 12 |
| 9561-1 | GND2108 | 21-Mar-2024 | 47 (45.4) | 41.8 (41.6) | 8.1 (8.1) | 26 (25.9) | 7 |
| 9561-1 | GND2109 | 21-Mar-2024 | 35 (36.8) | 35.4 (36.3) | 8.0 (8.1) | 25 (25.9) | 6 |
| 9608-1 | GND2354 | 21-Mar-2024 | 65 (80.7) | 71.5 (74.4) | 9.0 (8.8) | 171 (183.3) | 9 |
| 10767-1 | GND3089 | 29-Feb-2024 | 6.9 | 103.9 | 8.8 | 280 | 1 |
| 10916-1 | GND3106 | 21-Mar-2024 | 22 (22.3) | 26.0 (26.4) | 7.8 (7.9) | 35 (35.7) | 3 |

## 2.5 Incidents, investigations and interventions

The monitoring programme for the year was based on what was considered to be an appropriate level of monitoring, review of data and liaison with the consent holders. During the year matters may arise which require additional activity by the Council, for example provision of advice and information, or investigation of potential or actual causes of non-compliance or failure to maintain good practices. A pro-active approach, that in the first instance avoids issues occurring, is favoured.

For all significant compliance issues, as well as complaints from the public, the Council maintains a database record. The record includes events where the individual/organisation concerned has itself notified the Council. Details of any investigation and corrective action taken are recorded for non-compliant events.

Complaints may be alleged to be associated with a particular site. If there is potentially an issue of legal liability, the Council must be able to prove by investigation that the identified individual/organisation is indeed the source of the incident (or that the allegation cannot be proven).

In the 2023/24 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with any of the irrigation consent holders' conditions in resource consents or provisions in Regional Plans.

# 3. Discussion

## 3.1 Discussion of site performance

Given that this report jointly covers 61 different irrigation water take consents at numerous locations across the region, a discussion of system performance at each location is impractical. However, overall the examination of the data supplied to the Council for the 2023/24 monitoring year revealed that all 48 of the consent holders that exercised their consents, were compliant with their consent conditions. This is the first time since this report was written that this has occurred.

Discussed below are some of the key points and issues arising from the monitoring of irrigation water takes during the 2023/24 monitoring year. Also discussed are some components of irrigation system monitoring, data collection and transfer that could assist consent holders in improving compliance performance and optimisation of their water usage.

The primary means of measuring water abstraction data is the flowmeter. In order to comply with monitoring requirements, set out in consent conditions and the requirements set out in relation to meter accuracy in the regulations, it is critical that flowmeters are installed as per manufacturer's specifications. Consent holders must ensure the meter is operable at all times, even when no water is being taken. Consent holders should not tamper with the operation of the meter, or attempt to assess internals of the meter, without advising the Council and engaging a suitably qualified technician. Further information regarding preferred meter specification and operation can be obtained by contacting the Council.

To ensure data being collected by a flowmeter is accurate, the accuracy of a flowmeter needs to be confirmed by a verification test. A meter is deemed to be recording accurately (verified) when reading within +/- 5% of a calibrated reference meter. The Regulations required all takes over 5L/s to be verified by 10 November 2016. Resource consents being issued by the Council generally require flowmeters to be verified before the consent is first exercised. The correct installation of a good quality flowmeter will typically ensure a meter is able to pass a verification test. While 100% of active consents that required their meters to be verified in Taranaki have been verified, the Council has had to pursue enforcement actions in a small number of instances to ensure compliance. Re-verification of a meter is required every five years and plans should be put in place well in advance of re-verification dates to avoid any compliance issues.

As discussed previously in this report, the majority of irrigation consent holders record water take data on dataloggers which is automatically transmitted to the Council and is viewed real-time by Council staff. Automated alarms are set up to notify staff and the consent holder of any breaches of authorised rate or volume. However, there are a small number which are downloaded by Council staff at the conclusion of the monitoring year, at which point it is assessed for compliance. The amended regulations, which came in to force on 3 September 2020, require consent holders that take above 20L/s to record and transmit their data in real time by September 2022, with consents that take between 10L/s and 20L/s required to transmit their data by September 2024. This will improve consent compliance and allow water users to better monitor their water usage and improve water use efficiency.

Irrigation consent holders are also urged to investigate the use of soil moisture monitoring equipment to assist in the efficient planning and scheduling of irrigation. By monitoring soil moisture conditions, irrigators can optimise the usage of their irrigation systems to only apply water to pasture when it is required and to cease irrigation when the optimum volume of water has been applied. This has obvious benefits in terms of both maximising pasture production and the efficiency of water usage. These benefits can also result in cost savings by avoiding water being applied when it is not required. Soil moisture monitoring can be undertaken with handheld sensors, or with dedicated in-situ systems. The complexity and cost of each available system may vary, and consent holders can contact the Council for further information.

## 3.2 Evaluation of performance

A tabular summary of the consent holder's compliance record for the year under review is set out in Table 3.

Table 3 Individual performance for all irrigation consent holders

| Consent | Consent Holder | Environmental compliance achieved? | Administration compliance achieved? |
|---|---|---|---|
| 0017-3.1 | Manaia Golf Club | High | High |
| 0124-5 | Kaitake Golf Club Inc | High | High |
| 0132-3 | Hawera Golf Club Inc | High | High |
| 0189-4 | AI & KJ Williams | n/a | n/a |
| 0270-3 | Westown Golf Club Incorporated | High | High |
| 0278-4 | Oceanview Trust | n/a | n/a |
| 0464-3 | Ōākura Farms Limited | n/a | n/a |
| 0880-3 | IHC New Zealand Inc | High | Good |
| 1223-3 | EO & CP Lander | High | High |
| 1721-3.1 | Manukorihi Golf Club Inc | High | High |
| 1877-3 | Te Ngutu Golf Club Incorporated | High | High |
| 2138-3 | Riverside Farms Taranaki Limited | n/a | n/a |
| 3312-3.1 | The Tom Lance Trust | High | High |
| 4450-2.1 | Waitara Golf Club Inc | High | High |
| 4494-3 | Friesianroots Limited | High | High |
| 4783-3 | Larsen Trusts Partnership | n/a | n/a |
| 4993-2 | J & EG Sanderson | Good | High |
| 4994-2 | J & EG Sanderson | High | High |
| 5128-3 | Coastal Country Farms Limited | n/a | n/a |
| 5570-3 | Kaihihi Trust | n/a | n/a |
| 5623-2.1 | WD & SC Morrison | High | High |
| 5636-2 | Waiwira Trust | High | High |
| 5773-2 | Goodin FJ & Sons Limited | High | High |
| 5778-2 | Mara Trust | High | High |
| 5781-2.1 | Waikaikai Farms Limited | High | High |
| 5791-2 | AL & LA Campbell | Good | High |
| 5797-2 | Pihama Farms Limited | n/a | n/a |
| 5807-2 | Roger Dickie Family Trust | High | Good |
| 5827-2 | Walker & McLean Partnership | High | High |
| 5829-2 | RM & MC Julian Family Trust | High | High |
| 5840-2 | Gibbs G Trust | High | High |
| 5863-2.1 | AR Geary Trust | High | High |
| 5876-2 | MI & PM Stevenson Family Trusts Partnership | n/a | n/a |
| 5878-2.1 | Woollaston Family Trust Partnership | High | High |
| 5879-2 | BR & RG Harvey Family Trust | High | High |
| 5887-2 | BLL Farm Trust | High | High |
| 5896-2 | Kohi Investments Limited | High | High |
| 5898-2 | David Pease Family Trust | High | High |
| 5950-2.1 | WD & SC Morrison | High | High |

| Consent | Consent Holder | Environmental compliance achieved? | Administration compliance achieved? |
|---|---|---|---|
| 6026-1 | JR & DM Baker | High | High |
| 6292-2 | New Plymouth Golf Club Inc | High | High |
| 6429-1 | Leatherleaf Limited | High | High |
| 6430-1 | Fonic Farms Limited | Good | High |
| 6628-1.1 | JW & MT Hamblyn Family Trusts | High | High |
| 7346-1.1 | Spenceview Farms | High | High |
| 7372-1 | Pukeone Company Limited | High | High |
| 7470-2.1 | Taranaki Thoroughbred Racing | Good | High |
| 7527-1.1 | Pukeone Company Limited | High | High |
| 7528-1.1 | Kereone Farms Limited | High | High |
| 7626-1 | NW & DM King | n/a | n/a |
| 7768-1 | Carter AJ Limited | n/a | n/a |
| 7895-1 | Ohawe Farms Limited | High | High |
| 9561-1 | Kereone Farms Limited | Good | High |
| 9577-1.1 | Bucman Trust | High | High |
| 9597-1 | Nilock & Camole Trusts | High | High |
| 9608-1.2 | DR Wilson | High | High |
| 10135-1.1 | Luttrell Trust Partnership | High | High |
| 10369-1 | Inglewood Golf Club Inc | High | High |
| 10767-1 | Alexander Farms Limited | Good | High |
| 10903-1 | Summerset Villages | High | High |
| 10916-1 | Waitōtara Kiwifruit Limited Partnership | High | High |

N/A = not applicable

During the year, 72% of exercised water consents demonstrated a high level of environmental performance and 79% demonstrated a high level of administrative performance with the resource consents as defined in Appendix II. A further 10% showed a good level of environmental performance, while the remaining 18% were not operative during the year.

## 3.3 Recommendations from the 2022/23 Annual Report

In the 2022/23 Annual Report, it was recommended:

1. THAT in the first instance, monitoring and reporting of consented irrigation activities for the 2023/24 year continue at the same level as in 2022/23.
2. THAT should there be issues with environmental or administrative performance in 2023/24, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.
3. THAT the monitoring and the downloading of abstraction data occurs mid-season for those that had water take breaches during the 2021/22 and 2022/23 seasons.
4. THAT the Council will support and provide advice to consent holders to ensure that telemetry is in place by the dates set oy by the Resource Management (Measuring and Reporting Water Takes) Amendment Regulations 2020.

## 3.4 Alterations to monitoring programmes for 2024/25

In designing and implementing the monitoring programmes for water abstractions in the region, the Council has taken into account:

- the extent of information already made available through monitoring or other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performances of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

Is it proposed that for 2024/25 that monitoring of irrigation consents continues at the same levels as during the 2023/24 year.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the sites in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2024/25.

## 3.5 Exercise of optional review of consent

Resource consents 0124-5, 0189-4, 4494-3, 4783-3, 5128-3, 5570-3, 5773-2, 5778-2 5879-2, 5896-2, and 10135-1.1 provide for an optional review of the consent in June 2025. Each of these consents have a condition that allows the Council to review the consent, if there are grounds that the conditions are not adequate to deal with any adverse effects on the environment arising from the exercise of the resource consent, that may not have been foreseen at the time of the application or was not appropriate to deal with at the time.

Based on the results of monitoring in the year under review, and in previous years as set out in earlier annual compliance monitoring reports, it is considered that there are no grounds that require a review to be pursued.

# 4. Recommendations

1. THAT in the first instance, monitoring and reporting of consented irrigation water activities for the 2024/25 year continue at the same level as in 2023/24.
2. THAT should there be issues with environmental or administrative performance in 2024/25, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.
3. THAT the monitoring and the downloading of abstraction data occurs mid-season for those that had water take breaches during the 2022/23 and 2023/24 seasons.
4. THAT the Council will support and provide advice to consent holders to ensure that telemetry is in place by the dates set oy by the Resource Management (Measuring and Reporting Water Takes) Amendment Regulations 2020.

# Glossary of common terms and abbreviations

The following abbreviations and terms may be used within this report:

| | |
|---|---|
| Conductivity | Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 25°C and expressed in µS/cm. |
| Cumec | A volumetric measure of flow- 1 cubic metre per second (1 $m^3s^{-1}$). |
| $g/m^3$ | Grams per cubic metre, and equivalent to milligrams per litre (mg/L). In water, this is also equivalent to parts per million (ppm), but the same does not apply to gaseous mixtures. |
| Incident | An event that is alleged or is found to have occurred that may have actual or potential environmental consequences or may involve non-compliance with a consent or rule in a regional plan. Registration of an incident by the Council does not automatically mean such an outcome had actually occurred. |
| Intervention | Action/s taken by Council to instruct or direct actions be taken to avoid or reduce the likelihood of an incident occurring. |
| Investigation | Action taken by Council to establish what were the circumstances/events surrounding an incident including any allegations of an incident. |
| Incident register | The incident register contains a list of events recorded by the Council on the basis that they may have the potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan. |
| L/s | Litres per second. |
| ML | Million litres. |
| µS/cm | Microsiemens per centimetre. |
| pH | A numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and higher than 7 are increasingly alkaline. The scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5. |
| Resource consent | Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15). |
| RMA | *Resource Management Act 1991* and including all subsequent amendments. |
| Temp | Temperature, measured in °C (degrees Celsius). |

For further information on analytical methods, contact a manager within the Environment Quality Department.

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# Appendix I

# Example surface water abstraction permit for irrigation

## Water abstraction permits

Section 14 of the RMA stipulates that no person may take, use, dam or divert any water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or it falls within some particular categories set out in Section 14. Permits authorising the abstraction of water are issued by the Council under Section 87(d) of the RMA.

## Water discharge permits

Section 15(1)(a) of the RMA stipulates that no person may discharge any contaminant into water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or by national regulations. Permits authorising discharges to water are issued by the Council under Section 87(e) of the RMA.

## Air discharge permits

Section 15(1)(c) of the RMA stipulates that no person may discharge any contaminant from any industrial or trade premises into air, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising discharges to air are issued by the Council under Section 87(e) of the RMA.

## Discharges of wastes to land

Sections 15(1)(b) and (d) of the RMA stipulate that no person may discharge any contaminant onto land if it may then enter water, or from any industrial or trade premises onto land under any circumstances, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising the discharge of wastes to land are issued by the Council under Section 87(e) of the RMA.

## Land use permits

Section 13(1)(a) of the RMA stipulates that no person may in relation to the bed of any lake or river use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Land use permits are issued by the Council under Section 87(a) of the RMA.

## Coastal permits

Section 12(1)(b) of the RMA stipulates that no person may erect, reconstruct, place, alter, extend, remove, or demolish any structure that is fixed in, on, under, or over any foreshore or seabed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Coastal permits are issued by the Council under Section 87(c) of the RMA.

# Water Permit

**Pursuant to the Resource Management Act 1991**
**a resource consent is hereby granted by the**
**Taranaki Regional Council**

| | |
|---|---|
| Name of Consent Holder: | Pukeone Company Limited |
| Decision Date: | 4 December 2024 |
| Commencement Date: | 4 December 2024 |

## Conditions of Consent

| | |
|---|---|
| Consent Granted: | To take and use water from the Waiau Stream for pasture irrigation purposes |
| Expiry Date: | 1 June 2040 |
| Review Date(s): | June 2028, June 2031, June 2034, June 2037 |
| Site Location: | 23 Pukeone Road, Waitōtara |
| Grid Reference (NZTM) | 1744261E - 5590046N |
| Catchment: | Waitōtara |
| Tributary: | Waiau |

*For General, Standard and Special conditions*
*pertaining to this consent please see reverse side of this document*



47 Cloten Road, Private Bag 713,
Stratford 4352, New Zealand
06 765 7127
0800 736 222
info@trc.govt.nz
www.trc.govt.nz

**General condition**

a. The consent holder shall pay to the Taranaki Regional Council (the Council) all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

**Special conditions**

1. The exercise of this consent must be undertaken in general accordance with the documentation submitted in support of application 7372-2.0. In the case of any contradiction between the documentation submitted in support of this application and the conditions of this consent, the conditions of this consent shall prevail.

**Rate and Volume Limits**

2. Water may only be taken from the Waiau Stream, located at map reference NZTM 2000: 1744261E - 5590046N.

3. The rate of taking must not exceed 40 litres per second, and the volume taken in any 24 hour period ending at midnight (New Zealand Standard Time) must not exceed 3,456 cubic metres.

**Installation, Measuring and Reporting Requirements**

4. Upon exercising this consent and thereafter, the consent holder must maintain a record of the water taken that:

   (a) Provides a continuous measurement of water taken under this consent, including any water taken in excess of what the consent allows;
   (b) Is maintained in a format that is suitable for auditing;
   (c) Comprise measurements (in cubic metres) of the volume of water taken in each 15- minute period;
   (d) Accurately reflects the volume of water taken; and
   (e) If no water is taken, the records must specify the volume of water taken as zero cubic metres.

   *Advice Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.*

5. The record in accordance with condition 4, must be transmitted electronically to the Council's computer system no later than the end of the same day.

6. The water meter and data logger must:

   (a) Be installed at the location from which water may be taken under this consent; or as close to the site as possible with written approval from the Council;
   (b) Be installed, maintained and repaired by a suitably qualified person; and provide a maintenance report to the Council within 30 days of the work occurring for any break downs;
   (c) Be designed and installed so that they are accessible to Council officers at all reasonable times for inspection, verification of information and/or data retrieval;
   (d) Be repaired or maintained by a suitably qualified person; and provide a maintenance report to the Council within 30 days of the work occurring for any break downs; and
   (e) Use a device or system that measures the volume taken to ± 5 percent of the actual volume taken, and is:

      (i) Able to provide data in a form suitable for electronic storage;
      (ii) Suited to the qualities of the water it is measuring;
      (iii) Sealed and is as tamper-proof as practicable;
      (iv) Tested and verified as accurate.

   *Advice Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.*

7. Documentation with evidence of installation and equipment meeting requirements of condition 6 must be provided:

   (a) Within 30 days of installation of the equipment; and
   (b) At other times when reasonable notice is given and the Council has reasonable evidence that the equipment may not be functioning as required by this consent; and
   (c) No less frequently than once every five years.

8. The consent holder must ensure that the intake is screened to avoid fish entering the intake or being trapped against the screen. Once installed no modification must be made to the intake that:
   (a) increases the aperture size of any intake screen; or
   (b) increases velocity of water toward any screen (approach velocity) or across any screen (sweep velocity); or
   (c) in any other way that could increase the likelihood of juvenile fish entering the intake or being trapped against the screen.

**Low Flow Limits**

9. No taking must occur when the flow in the Waiau Stream immediately downstream of the intake point is less than 56 litres per second.

   *Advice Note: 56 litres per second is equivalent to 55% MALF.*

10. A staff gauge and low flow rating curve must be maintained to determine the flow in the Waiau Stream immediately downstream of the take site. The cost of the maintenance must be met by the consent holder.

**Efficient Use**

11. At all times the consent holder must take all practicable steps to take and use water efficiently and generally prevent or minimise any adverse effects on the environment including as minimum, by ensuring that:

    (a) the minimum amount of water necessary for the purpose is taken;
    (b) as far as practicable, soil water does not exceed field capacity;
    (c) there is no surface ponding or runoff; and
    (d) as far as practicable, equipment does not leak.

12. Within 6 months of consent commencement, the consent holder must submit an Irrigation Management Plan (IMP) to the Council for certification. The objective of the IMP is to detail the methods and techniques which will ensure the efficient use of the water taken, and how compliance with consent conditions will be achieved. The IMP must include, but not be limited to, the following:

    (a) The specific area(s) to be irrigated and the method of irrigation;
    (b) Crop water requirements, evapotranspiration and available water holding capacity of the soil(s) over the irrigated area;
    (c) How irrigation will be scheduled to maximise the benefits of rainfall and minimise subsurface drainage;
    (d) How available soil water will be determined;
    (e) How water will be applied as uniformly as practicable over the irrigated area, and the uniformity of application demonstrated;
    (f) A leak detection programme; and
    (g) Information to be provided to the Council to enable compliance to be checked.

    The consent holder must operate in accordance with the certified IMP and any certified variations thereafter. In the event of any conflict between the IMP and the consent conditions, the consent conditions will prevail.

    *Advice Note: The Council acknowledges that the IMP is intended to provide flexibility for both the consent holder and the Council for the management of the use of water for irrigation. Accordingly, the IMP may need to be reviewed over time. Any reviews should be in accordance with the objective and stated requirements of the management plan condition and limited to the scope of this consent. Certification of the management plan by the Council relates only to those aspects of the management plan that are relevant under the Resource Management Act 1991. The certification does not amount to an approval or acceptance of suitability by the Council of any elements of the management plan that relate to other legislation.*

13. Prior to 30 June 2029 and 5 yearly thereafter, the consent holder must undertake a review of the IMP. While review is mandatory, amendments are only required if there have been incidents or site changes inadequately addressed by the current IMP, as determined by the Council. Any Plan amendments must be submitted to the Council for review and certification.

**Duration and Review Provisions**

14. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2028 and at 3 yearly intervals thereafter, for the purposes of:

    (a) ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time; and/or
    (b) amending the flows specified in condition 9, if the hydrological review determines that the updated MALF is more than 5% higher or lower than the MALF figure used in condition 9; and/or
    (c) requiring any rate, volume and flow data collected in accordance with the conditions of this consent to be transmitted directly to the Council's computer system, in a format suitable for providing a 'real time' record over the internet; and or

    *Advice Note: Under section 128 of the RMA the conditions of this consent may be reviewed by the Council at the consent holder's cost in the following circumstances:*

    *(i) To provide compliance with rules in any regional plan relating to use of water (refer section 128(1)(b) of the RMA) that have been made operative since the commencement of consent.*
    *(ii) To provide compliance with any relevant national environmental standard that has been made since the commencement of consent.*
    *(iii) At any time, if it is found that the information made available to the council in the application contained inaccuracies which materially influenced the decision and the effects of the exercise of the consent are such that it is necessary to apply more appropriate conditions.*

Signed at Stratford on 4 December 2024

For and on behalf of
Taranaki Regional Council

A D McLay
**Director - Resource Management**

# Appendix II

# Categories used to evaluate environmental and administrative performance

# Categories used to evaluate environmental and administrative performance

Environmental performance is concerned with actual or likely effects on the receiving environment from the activities during the monitoring year. Administrative performance is concerned with the Company's approach to demonstrating consent compliance in site operations and management including the timely provision of information to Council (such as contingency plans and water take data) in accordance with consent conditions.

Events that were beyond the control of the consent holder and unforeseeable (that is a defence under the provisions of the RMA can be established) may be excluded with regard to the performance rating applied. For example loss of data due to a flood destroying deployed field equipment.

The categories used by the Council for this monitoring period, and their interpretation, are as follows:

## Environmental Performance

**High:** No or inconsequential (short-term duration, less than minor in severity) breaches of consent or regional plan parameters resulting from the activity; no adverse effects of significance noted or likely in the receiving environment. The Council did not record any verified unauthorised incidents involving environmental impacts and was not obliged to issue any abatement notices or infringement notices in relation to such impacts.

**Good:** Likely or actual adverse effects of activities on the receiving environment were negligible or minor at most. There were some such issues noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party but these items were not critical, and follow-up inspections showed they have been dealt with. These minor issues were resolved positively, co-operatively, and quickly. The Council was not obliged to issue any abatement notices or infringement notices in relation to the minor non-compliant effects however, abatement notices may have been issued to mitigate an identified potential for an environmental effect to occur.

For example:

- High suspended solid values recorded in discharge samples however, the discharge was to land or to receiving waters that were in high flow at the time;
- Strong odour beyond boundary but no residential properties or other recipient nearby.

**Improvement required**: Likely or actual adverse effects of activities on the receiving environment were more than minor, but not substantial. There were some issues noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent minor non-compliant activity could elevate a minor issue to this level. Abatement notices and infringement notices may have been issued in respect of effects.

**Poor:** Likely or actual adverse effects of activities on the receiving environment were significant. There were some items noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent moderate non-compliant activity could elevate an 'improvement required' issue to this level. Typically there were grounds for either a prosecution or an infringement notice in respect of effects.

## Administrative performance

**High:** The administrative requirements of the resource consents were met, or any failure to do this had trivial consequences and were addressed promptly and co-operatively.

**Good:** Perhaps some administrative requirements of the resource consents were not met at a particular time however, this was addressed without repeated interventions from the Council staff. Alternatively adequate reason was provided for matters such as the no or late provision of information, interpretation of 'best practical option' for avoiding potential effects, etc.

**Improvement required:** Repeated interventions to meet the administrative requirements of the resource consents were made by Council staff. These matters took some time to resolve, or remained unresolved at the end of the period under review. The Council may have issued an abatement notice to attain compliance.

**Poor:** Material failings to meet the administrative requirements of the resource consents. Significant intervention by the Council was required. Typically there were grounds for an infringement notice.

# Appendix III

# Active irrigation consents in Taranaki July 2023 to June 2024

# Irrigation Water Takes

## Surface water takes

| Consent | Consent Holder | Usage | Irrigation system |
|---|---|---|---|
| 0017-3.1 | Manaia Golf Club | Recreational | K – line |
| 0124-5 | Kaitake Golf Club Inc | Recreational | K – line |
| 0132-3 | Hawera Golf Club Inc | Recreational | K – line |
| 0189-4 | AI & KJ Williams | Pasture Irrigation | Travelling irrigator |
| 0270-3 | Westown Golf Club Inc | Recreational | K – line |
| 0278-4 | Oceanview Trust | Pasture Irrigation | K – line and flood irrigation |
| 0464-3 | Oākura Farms Limited | Horticultural | n/a |
| 0880-3 | IHC New Zealand Inc (NORTH TARANAKI) | Horticultural | K – line |
| 1223-3 | EO & CP Lander | Horticultural | K – line |
| 1721-3.1 | Manukorihi Golf Club Inc | Recreational | K – line |
| 1877-3 | Te Ngutu Golf Club Incorporated | Recreational | K – line |
| 2138-3 | Riverside Farms Taranaki Ltd | Pasture Irrigation | K – line |
| 4450-2.1 | Waitara Golf Club Inc | Recreational | K – line |
| 4494-3 | CT & JM McDonald | Pasture Irrigation | K – line |
| 4783-3 | Larsen Trusts Partnership | Pasture Irrigation | K – line and travelling irrigator |
| 4993-2 | J & EG Sanderson | Pasture Irrigation | K – line |
| 4994-2 | J & EG Sanderson | Pasture Irrigation | K – line |
| 5128-2 | Coastal Country Farms Limited | Pasture Irrigation | K – line and travelling irrigator |
| 5570-3 | Kaihihi Trust | Pasture Irrigation | K – line |
| 5623-2.1 | WD & SC Morrison | Pasture Irrigation | Centre pivot and K - line |
| 5636-2 | Waiwira Trust | Pasture Irrigation | Centre pivot and K - line |
| 5773-2 | Goodin FJ & Sons Limited | Pasture Irrigation | K – line |
| 5778-2 | Mara Trust | Pasture Irrigation | K – line |
| 5781-2.1 | Waikaikai Farms Limited | Pasture Irrigation | K – line |
| 5791-2 | AL & LA Campbell | Pasture Irrigation | K – line |
| 5797-2 | Pihama Farms Limited | Pasture Irrigation | K – line |
| 5807-2 | Dickie Roger Family Trust | Pasture Irrigation | Centre pivot and K – line |
| 5827-2 | Walker & McLean Partnership | Pasture Irrigation | Centre pivot |
| 5829-2 | Julian RM & MC Family Trust | Pasture Irrigation | K – line and travelling irrigator |
| 5840-2 | Gibbs G Trust | Pasture Irrigation | Centre pivot |
| 5863-2.1 | Geary AR Trust (A R Geary) | Pasture Irrigation | Centre pivot and K – line |
| 5876-2 | GA & RJ Dorn | Pasture Irrigation | K – line |
| 5878-2.1 | Woollaston Family Trust Partnership | Pasture Irrigation | Travelling irrigator |
| 5887-2 | BLL Trust | Pasture Irrigation | K – line |
| 5896-2 | Kohi Investments Limited | Pasture Irrigation | K – line |
| 5898-2 | David Pease Family Trust | Pasture Irrigation | K – line |
| 6292-2 | New Plymouth Golf Club Inc | Recreational | K – line |

| Consent | Consent Holder | Usage | Irrigation system |
|---|---|---|---|
| 6429-1 | Leatherleaf Limited | Pasture Irrigation | Centre pivot |
| 6430-1 | Fonic Farms Limited | Pasture Irrigation | Centre pivot and K – line |
| 6628-1.1 | Hamblyn Family Trusts | Pasture Irrigation | K – line |
| 7346-1.1 | Spenceview Farms | Pasture Irrigation | Centre pivot |
| 7372-1 | Pukeone Partnership | Pasture Irrigation | Centre pivot |
| 7527-1.1 | Pukeone Partnership | Pasture Irrigation | Centre pivot |
| 7528-1.1 | Kereone Farms Limited | Pasture Irrigation | Centre pivot |
| 7626-1 | NW & DM King | Pasture Irrigation | K – line |
| 7768-1 | Carter AJ Limited | Pasture Irrigation | Travelling irrigator |
| 7895-1 | Ohawe Farm Limited | Pasture Irrigation | K – line |
| 9577-1.1 | MJ Washer Trusts Partnership | Pasture Irrigation | K – line and travelling irrigator |
| 9597-1 | Nilock & Camole Trusts | Pasture Irrigation | Centre pivot |
| 10135-1.1 | Luttrell Trust Partnership | Pasture Irrigation | K – line |

## Groundwater takes

| Consent | Consent Holder | Usage | Irrigation system |
|---|---|---|---|
| 0714-2 | GD & HM McCallum | Pasture Irrigation | K – line and travelling irrigator |
| 0721-3 | Go 2 Milk Limited | Horticultural | n/a |
| 3312-3.1 | The Tom Lance Trust | Horticultural | K – line |
| 5879-2 | BR & RG Harvey Family Trust | Pasture Irrigation | n/a |
| 5950-2.1 | WD & SC Morrison | Pasture Irrigation | Centre pivot and K - line |
| 6026-1 | JR & DM Baker | Pasture Irrigation | K – line |
| 7470-1.2 | Taranaki Thoroughbred Racing | Recreational | Travelling irrigator |
| 9561-1 | Kereone Farms Limited | Pasture Irrigation | Centre pivot |
| 9608-1.2 | D Wilson | Pasture Irrigation | Centre pivot |
| 10369-1 | Inglewood Golf Club Inc | Recreational | K – line |
| 10767-1 | Alexander Farms Limited | Pasture Irrigation | Centre pivot |
| 10903-1 | Summerset Villages | Horticultural | K – line |
| 10916-1 | Waitotara Kiwifruit Limited Partnership | Horticultural | K – line |

n/a - consent holder does not have any system in place.

# Appendix IV

# Water take consent usage for 2023/24

## Water take consent usage for 2023-2024

| Consent | Consent holder | Consented allowable annual usage ($m^3$/annum) | Actual water usage from 1 July 2023 to 30 June 2024 ($m^3$/annum) | Percentage of consented volume used |
|---|---|---|---|---|
| 0017-3.1 | Manaia Golf Club | 36,500 | 4158 | 11% |
| 0124-5 | Kaitake Golf Club Inc | 47,450 | 6067 | 13% |
| 0132-4.1 | Hawera Golf Club Inc | 91,250 | n/a | 0% |
| 0189-4 | AI & KJ Williams | 365,000 | 0 | 0% |
| 0270-3 | Westown Golf Club Inc | 131,400 | 4844 | 4% |
| 0278-4 | Oceanview Trust | 4,320,432 | 0 | 0% |
| 0464-3 | Oakura Farms Limited | 36,500 | 0 | 0% |
| 0880-4 | IHC New Zealand Inc (NORTH TARANAKI) | 32,120 | 3524 | 11% |
| 1223-4.1 | EO & CP Lander | 108,405 | 9635 | 9% |
| 1721-4 | Manukorihi Golf Club Inc | 69,350 | 3287 | 5% |
| 1877-4 | Te Ngutu Golf Club Incorporated | 73,000 | 6130 | 8% |
| 2138-3 | Riverside Farms Taranaki Ltd | 756,864 | 0 | 0% |
| 3312-4 | The Tom Lance Trust | 29,200 | 19556 | 67% |
| 4450-2.1 | Waitara Golf Club Inc | 18,250 | 3115 | 17% |
| 4494-3 | Fresianroots Limited | 788,400 | 140513 | 18% |
| 4783-3 | Larsen Trusts Partnership | 1,169,825 | 0 | 0% |
| 4993-2 | J & EG Sanderson | 1,022,000 | 149594 | 15% |
| 4994-2 | J & EG Sanderson | 1,186,250 | 55898 | 5% |
| 5128-3 | Coastal Country Farms Limited | 851,545 | 0 | 0% |
| 5570-3 | Kaihihi Trust | 547,500 | 0 | 0% |
| 5623-2.1 | WD & SC Morrison | 4,730,400 | 651400 | 14% |
| 5636-2 | Waiwira Trust | 2,584,930 | 741930 | 29% |
| 5773-2 | Goodin FJ & Sons Limited | 630,720 | 84919 | 13% |
| 5778-2 | Mara Trust | 630,720 | 62301 | 10% |
| 5781-2.1 | Waikaikai Farms Limited | 2,269,205 | 142058 | 6% |
| 5791-2 | AL & LA Campbell | 958,125 | 238223 | 25% |
| 5797-2 | Pihama Farms Limited | 1,314,000 | 0 | 0% |
| 5807-2 | Dickie Roger Family Trust | 6,679,500 | 888675 | 13% |
| 5827-2 | PKW Farms LP | 821,250 | 76,782 | 9% |
| 5829-2 | RM & MC Julian Family Trust | 1,533,000 | 141,494 | 9% |
| 5840-2 | Gibbs G Trust | 821,250 | 87,294 | 11% |
| 5863-2.1 | Geary AR Trust (A R Geary) | 1,144,640 | 289,308 | 25% |
| 5876-2 | GA & RJ Dorn | 1,350,500 | 0 | 0% |
| 5878-2.1 | Woollaston Family Trust Partnership | 474,500 | 0 | 0% |
| 5879-2 | BR & RG Harvey Family Trust | 630,720 | 8,186 | 1% |
| 5887-2 | BLL Farm Trust | 547,500 | 81,852 | 15% |
| 5896-2 | Kohi Investments Limited | 1,460,000 | 151,956 | 10% |
| 5898-2 | David Pease Family Trust | 946,080 | 84,377 | 9% |
| 5950-2.1 | WD & SC Morrison | 313,900 | 10,145 | 3% |

| Consent | Consent holder | Consented allowable annual usage ($m^3$/annum) | Actual water usage from 1 July 2023 to 30 June 2024 ($m^3$/annum) | Percentage of consented volume used |
|---|---|---|---|---|
| 6026-2 | JR & DM Baker | 189,070 | 16,131 | 9% |
| 6292-2 | New Plymouth Golf Club Inc | 292,000 | 37,371 | 13% |
| 6429-2 | Leatherleaf Limited | 912,500 | 81,996 | 9% |
| 6430-1 | Fonic Farms Limited | 1,741,050 | n/a | 0% |
| 6628-2 | Hamblyn Family Trusts | 765,770 | 108,574 | 14% |
| 7346-1.1 | Spenceview Farms | 3,815,856 | 845,612 | 22% |
| 7372-2 | Pukeone Company Limited | 1,261,440 | 240,612 | 19% |
| 7470-2.1 | Taranaki Thoroughbred Racing | 146,000 | 15,886 | 11% |
| 7527-2.1 | Pukeone Company Limited | 5,545,080 | 562,138 | 10% |
| 7528-2 | Kereone Farms Limited | 3,416,400 | 728,611 | 21% |
| 7626-2 | NW & DM King | 725,328 | 0 | 0% |
| 7768-1 | Carter AJ Limited | 126,144 | 0 | 0% |
| 7895-2.2 | Ohawe Farm Limited | 1,259,250 | 55,205 | 4% |
| 9561-1 | Kereone Farms Limited | 682,550 | 127,772 | 19% |
| 9577-1.1 | Bucman Trust | 127,750 | 0 | 0% |
| 9597-1 | Nilock & Camole Trusts | 647,875 | 78,859 | 12% |
| 9608-1.2 | D Wilson | 946,080 | 176,119 | 19% |
| 10135-1.1 | Luttrell Trust Partnership | 2,043,533 | 359,987 | 18% |
| 10369-1 | Inglewood Golf Club Inc | 36,500 | 1,946 | 5% |
| 10767-1 | Alexander Farms Limited | 788,400 | 47,938 | 6% |
| 10903-1 | Summerset Villages | 45,333 | 634 | 1% |
| 10916-1 | Waitotara Kiwifruit Limited Partnership | 394,200 | 31,071 | 8% |

# Appendix V

# Minor water takes summary 2023/24

## Water take consent usage for 2023-2024

| Consent | Consent holder | Consented allowable annual usage ($m^3$/annum) | Actual water usage from 1 July 2023 to 30 June 2024 ($m^3$/annum) | Percentage of consented volume used |
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