

GISBORNE / TAIRĀWHITI WATER SITUATION REPORT APRIL 2024



About

A summary for the end of the month, of the current and forecast water resources situation, is provided in this report. The intent of this report is to provide an overview of the trend of water resources in the region overtime. Water status is categorised using indicator sites which are presented against their Monthly Normals¹ for rainfall and Long-Term Averages (LTA) for river flow. GDC data is combined with other national data sets such as the New Zealand Drought Index (NZDI) from NIWA to demonstrate the status of water resources in the region. Groundwater status is also presented later in the report.

Indicator sites are distributed across the region and are selected due to their length of record² and/or geographic location. Categorisation is provided in **Table 1**.

10 rainfall indicator sites have been selected from the 59 rain gauges in the district, and 7 river flow sites have been selected from the 29 river flow sites across the region.

Table 1: Legend for the Water Situation report and metrics for each category.

Description / Category	Raingauge Indicator Sites (% of rain compared to Monthly Normals)	River Flow Indicator Sites (Q value compared to Long-Term Average ³)
Exceptionally High	<200%	More than the Q5
Notably High	150% to 200%	Between the Q5 and Q10
Above Normal	125% to 150%	Between the Q10 and Q30
Normal	75% to 125%	Between the Q30 and Q70
Below Normal	50% to 75%	Between the Q70 and Q95
Notably Low	25% to 50%	Between the Q95 and Q99
Exceptionally Low	>25%	Less than the Q99

¹ Monthly Normals are sourced from [NIWA](#). Refer to NIWA for information on how these are calculated.

² Indicator sites have different lengths of record so the respective LTAs are relative to the site and should not be compared against each other. The shortest record is Oweka which goes back to 2014 and the longest record is at Kanakanaia (flow) which goes back to 1966.

³ 'Q' statistics are generated using long term records to show the current flow relative to its historic record. This does not account for future flow ranges as a result of climate change. A Q5 means a flow that is exceeded less than 5% of the time meaning a very high or 'flood' flow.

End of April 2024 Summary

On the 21st of April a lightning strike damaged the radio receiver which sends data from sites in the north of the region back to the GDC database. As a result, flow data for the following sites is only reported on up until the 20th of April:

- Waipapu River at Rotokautuku Bridge (SH35)
- Oweka River at SH35 Bridge

Rainfall data from the following indicator sites is not reported on in this report:

- Pakihiroa Telemetry Station
- Ruatoria Telemetry Station at Barry Ave
- East Cape at Lighthouse

This is the third consecutive dry month for the region. Monthly mean river flows across Tairāwhiti ended the month between the 'Below Normal' to 'Notably Low' range. Flows are now considered to be below their summer range. The impact of El Niño is forecast to ease towards the end of May meaning wetter conditions are likely to develop which should ease the dry conditions observed in the last two months.

Rainfall

Rainfall totals at the available rainfall indicator sites show a range from 'Notably Low' to 'Normal' for the month of April. Impacts from dry weather are being observed now, particularly in the Poverty Bay flats, as shown in **Figure 2**.

April followed on from a very dry March meaning the last 3 months have been drier than average for this time of year. However, rainfall totals over the previous 6 months are not considered to be exceptionally below 'Normal'. This is due to a wet December and January. Rainfall data for the last month, last 3 months and last 6 months is presented in **Figure 1**.

Please note data for Pakihiroa, Ruatoria and East Cape is not available in this report due to the earlier stated damage to the radio receiver site.

River Flow Data

River flow ranges from Notably Low to Below Normal conditions across the district.

Table 2: River flow data for each site as of the 30/04/2024 relative to their LTAs for that date.

Site	Status at the end of April 2024
Waipaoa River at Matawhero Bridge	Below Normal
Waipaoa River at Kanakanaia	Below Normal
Te Arai River at Pykes Weir	Below Normal
Whakaahu Stream at Brunton Rd	Below Normal
Hikuwai River at Willowflat	Below Normal
Waipapu River at Rotokautuku Bridge (SH35)	Below Normal
Oweka River at SH35 Bridge	Notably Low

Groundwater Data

For the seasonal tracking of groundwater levels, the aquifer statuses indicate the comparison of the current groundwater levels against percentiles of the three-month moving average. This uses the entire history of each bore's groundwater levels, often dating back to the 1980s.

Groundwater status is categorised using the below categories:

Table 3: Groundwater status categories

Description / Category	Groundwater
Very High	90-99th Percentile
High	75-90th Percentile
Normal	25-75th Percentile
Low	25-10th Percentile
Very Low	<10th Percentile

Aquifer statuses are chosen as the average result from representative bores in each aquifer. It is important to note that the statuses in this report are only short-term seasonal views. Prior to the intense recharge events of 2023, the Makauri and Matokitoki aquifers were known to be in a long-term decline. Historically the aquifers have returned to this decline shortly after major recharge events. This is likely to happen again.

Table 4: Groundwater indicator site status

Aquifer	Summer	Autumn 2024
Makauri	High	Normal
Waipaoa Gravel	Normal	Low
Shallow Fluvial	Very High	Very High
Matokitoki	Normal	High
Te Hapara Sands	Very High	High

Drought Status

As at the end of April, some areas in the region are experiencing extremely dry conditions as a result of three consecutive dry months. This is reflected in NZDI.

The NZDI is an index of different indicators of drought helping to define when the environment is dry, very dry, extremely dry, in drought or in severe drought. It has been created by NIWA which has made a regional data set available for presentation in this report. NZDI data is presented in **Figure 2**.

The NZDI shows that very dry conditions are being experienced in the Poverty Bay flats and there are widespread dry conditions across the region. Whilst dry, the region remains outside of drought categorisation.

Refer to the [Drought forecasting dashboard \(niwa.co.nz\)](https://niwa.co.nz/drought-forecasting) for the modelled geographic distribution of drought conditions in the next 35 days.

3 Month Forecast

Forecast data are sourced from [NIWA](#) and are for the Gisborne and Hawkes Bay regions and are for the period May to July:

- Temperatures are about equally likely to be above average (45% chance) or near average (40% chance).
- Rainfall totals are about equally likely to be below normal (40% chance) or near normal (35% chance).
- Soil moisture levels are most likely to be below normal (50% chance) while river flows are equally likely to be near normal or below normal (45-50% chance each).

Probabilities are assigned in three categories: above average, near average, and below average. Please note these differ from the GDC data. The rainfall forecast summary for the next 3 months is presented in **Figure 3**.

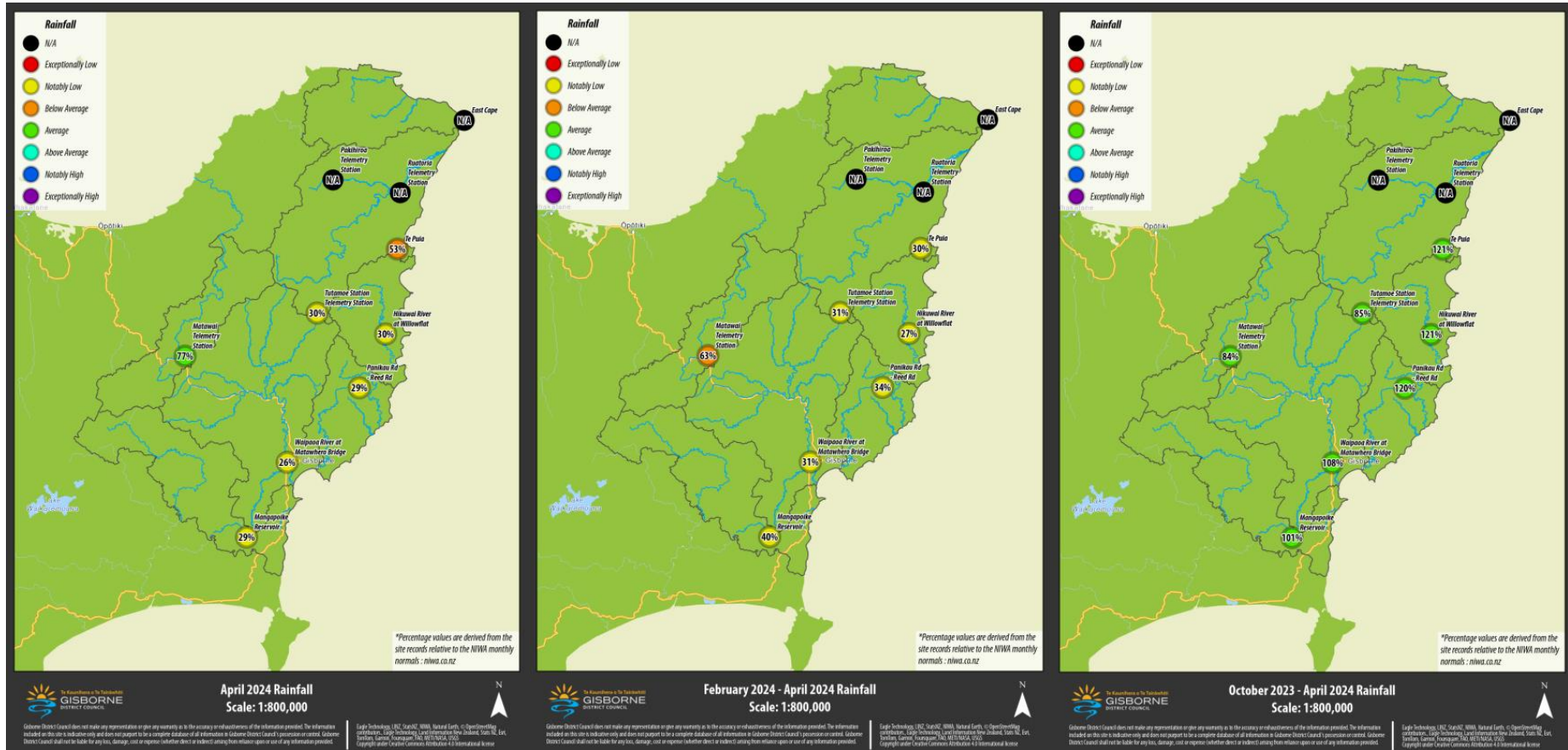


Figure 1: Rainfall maps showing 10 indicator sites across GDC and rainfall at these sites relative to their Monthly Normals for the last month, 3-months and 6-months.

Tairāwhiti Drought Index

Date: 30-04-2024

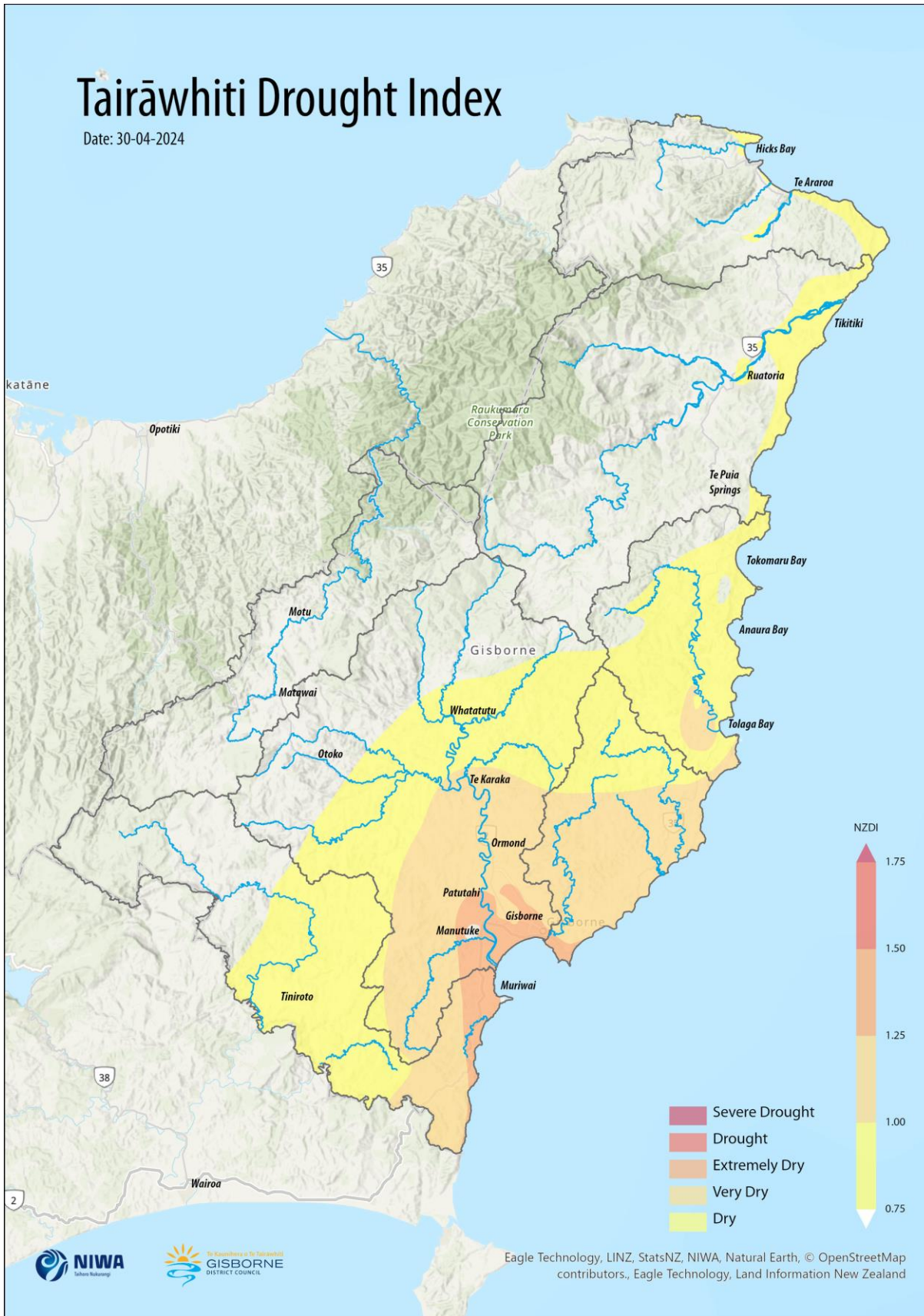


Figure 2: NZDI data for GDC as of the 30th of April 2024

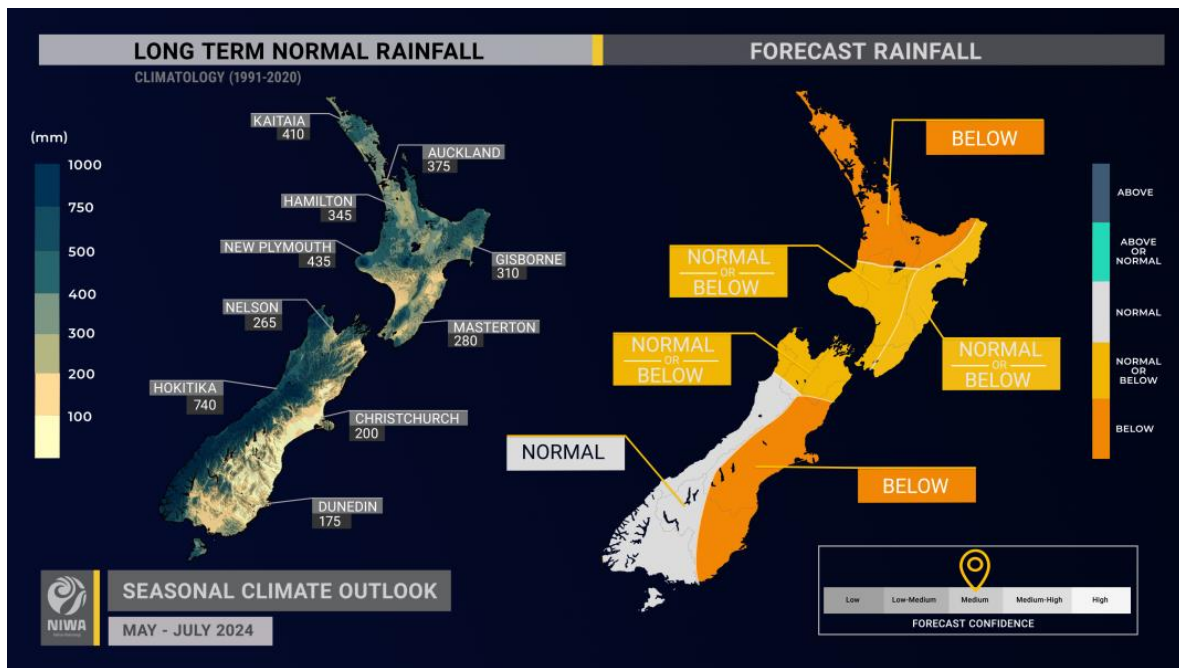


Figure 3: NIWA rainfall forecast for the next 3 months (May to July)