

# GISBORNE / TAIRĀWHITI WATER SITUATION REPORT MARCH 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 in the trend of water resources in the region overtime. Water status is categorised using indicator sites which are presented against their Monthly Normals<sup>1</sup> 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.

Indicator sites are distributed across the region and are selected due to their length of record<sup>2</sup> 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 <sup>3</sup> )	Groundwater Indicator Sites
Exceptionally High	<200%	More than the Q5	Above stable range
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	Within stable range
Below Normal	50% to 75%	Between the Q70 and Q95	Below stable range
Notably Low	25% to 50%	Between the Q95 and Q99	
Exceptionally Low	>25%	Less than the Q99	

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

<sup>2</sup> 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.

<sup>3</sup> '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 March 2024 Summary

Tairāwhiti had below average rainfall in March with all indicator sites receiving rainfall below their Monthly Normals. This is the second consecutive dry month for the region. Monthly mean river flows across Tairāwhiti ended the month between the 'Notably High' to 'Notably Low' range. Despite the dry weather in February and March, flows are considered to be within their summer range due to wetter than average conditions at the end of 2023 and January 2024. Another dry month in April will likely result in more pronounced impacts on river flows increasing the probability of abstraction cut-offs being in place.

## Rainfall

Rainfall totals at the rainfall indicator sites show that the entire region has experienced 'Below Normal' rainfall for the month of March. Minor impacts from dry weather are being observed now, as shown in **Figure 2**.

March had the driest conditions observed in the previous 6 months across the region. Rainfall totals over the previous 6 months remain 'Normal' or 'Above Normal' for the 6 months to March. 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 the 6-month data for Pakihiroa is not available in this report due to the site going offline and requiring maintenance during this period.

## River Flow Data

River flow ranges from Notably Low to Notably High conditions across the district. Rainfall was observed in Te Arai Catchment on the 30<sup>th</sup> of March, so this was 'Notably High' on the 31<sup>st</sup> of March 2024. Flows in the catchment returned to 'Normal' a few days after the rainfall event. Despite the notably low conditions for Oweka this is not reflected in the NZDI presented later in this report. River Flow is not considered within the drought index as river flows can be influenced by human activities.

Table 2: River flow data for each site as of the 31/03/2024 relative to their LTAs for that date.

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

## Groundwater Data

For the seasonal tracking of groundwater levels, three statuses (**Table 1**) have been chosen to indicate how each aquifer has responded seasonally to groundwater recharge and abstraction and whether it is within the range that is historically known to recover year on year.

Aquifer statuses are chosen as the average result from representative bores in each aquifer, with special note to those bores that may show individual signs of groundwater decline.

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 shown to return to this decline shortly after major recharge events, this is likely to happen again.

Table 3: Groundwater indicator site status

Aquifer	Winter 2023	Summer 2023/24
Makauri	Above stable	Above stable range
Waipaoa Gravel	Above stable	Below stable range
Shallow Fluvialite	Above stable	Above stable range
Matokitoki	Above stable	Above stable range
Te Hapara Sands	Above stable	Above stable range

## Drought Status

As at the end of March, some areas in the region are experiencing dry conditions as a result of two consecutive dry months. This is also 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**.

Despite the drier than average conditions in March, temperatures were much cooler than normal, which meant that evapotranspiration was low and therefore soil moisture levels are around normal. Soil moisture is a key input into the NZDI – all inputs can be reviewed separately on the [NIWA](#) website.

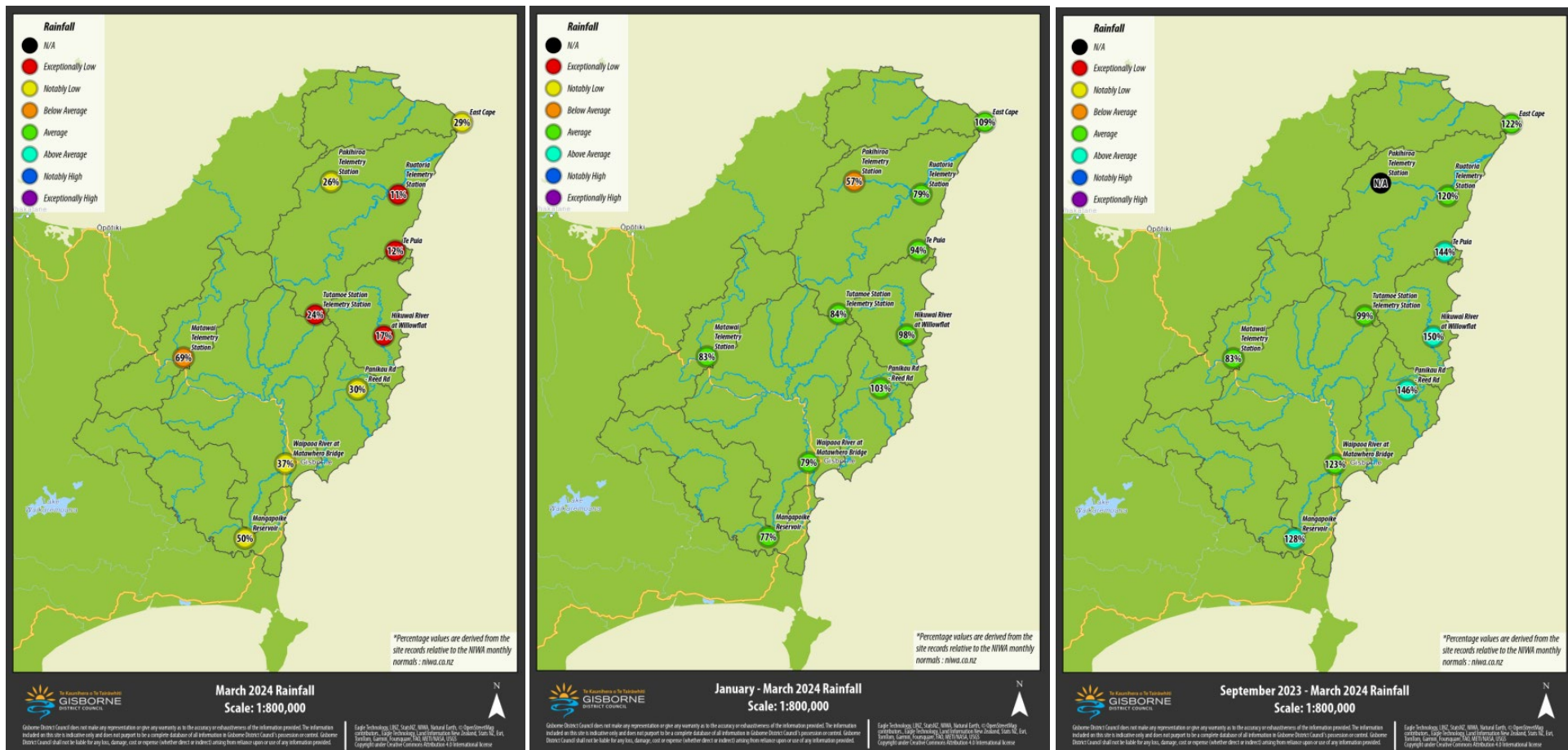
Refer to the [Drought forecasting dashboard \(niwa.co.nz\)](#) for the modelled geographic distribution of drought conditions in the next 35 days.

## 3 Month Forecast

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

- Temperatures are about equally likely to be above average (45% chance) or near average (40% chance).
- Rainfall totals are equally likely to be below normal (40% chance) or near normal (35% chance). Early April is forecast to be drier than normal before rainfall chances increase mid-month.
- 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% 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: 31-03-2024

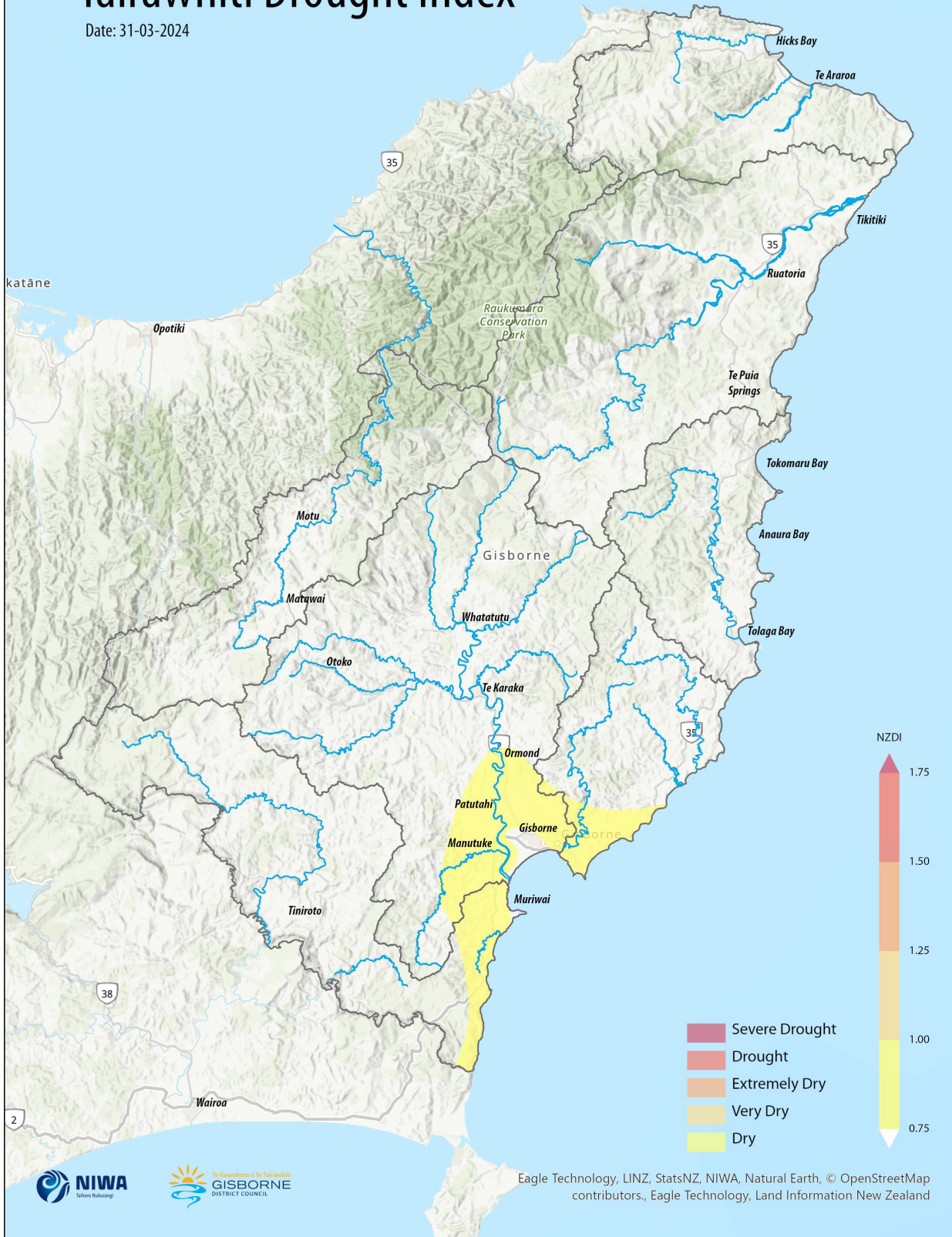


Figure 2: NZDI data for GDC as of the 31<sup>st</sup> of March 2024

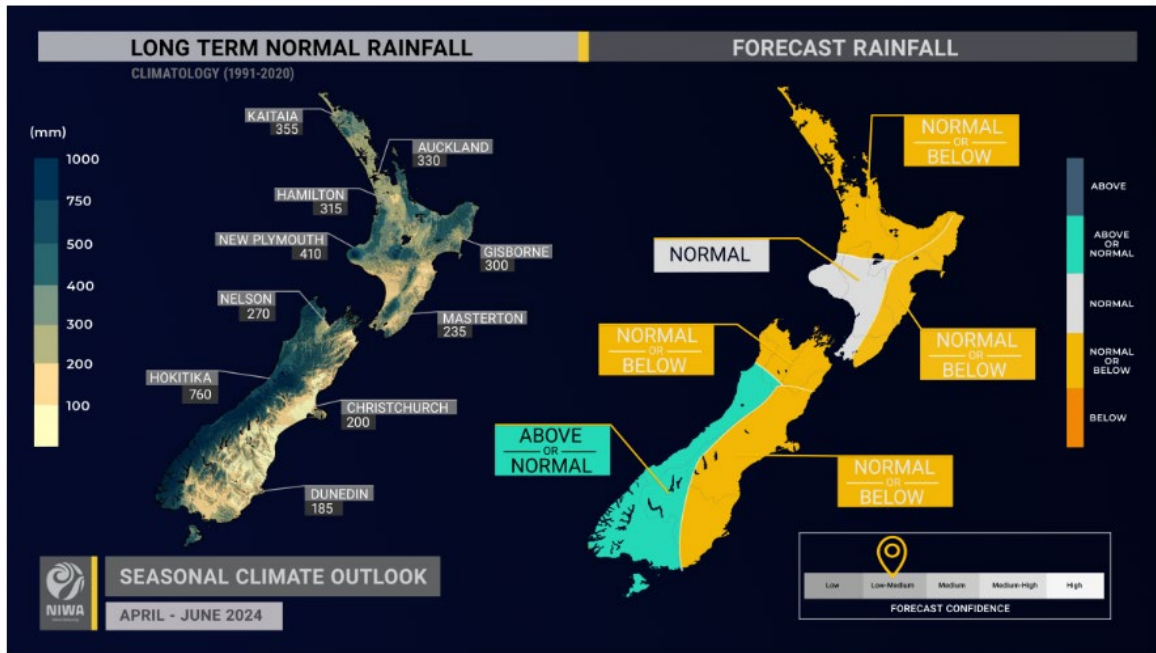


Figure 3: NIWA rainfall forecast for the next 3 months (April to June)