

GISBORNE / TAIRĀWHITI WATER SITUATION REPORT FEBRUARY 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 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.

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)	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	

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 February 2024 Summary

Tairāwhiti had below average rainfall in February with all indicator sites receiving rainfall below their Monthly Normals with the exception of East Cape. Monthly mean river flows across Tairāwhiti ended the month between the 'Above Normal' to 'Below Normal' range. Despite the dry weather in February, flows are considered to be in their normal summer range due to wetter than average conditions at the end of 2023 and January 2024.

Rainfall

Rainfall totals at the rainfall indicator sites show that the entire region has experienced below average rainfall for the month of February with the exception of East Cape. Above average rainfall was observed across the region during in January so the rainfall deficit in February has not caused pronounced dry weather impacts.

February had the driest conditions observed in the previous 6 months across the region. Rainfall totals over the previous 6 months remain well above the Monthly Normals for the 6 months to February. 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 Te Puia was impacted due to the upgrade of the site in September 2023, and Pakihiroa was offline for a period.

River Flow Data

River flow ranges from Below Normal to Above Normal conditions across the district. Despite a dry February, river flows are considered to be in their normal summer range across the region.

Table 2: River flow data for each site as of the 29/02/2024 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	Above Normal
Whakaahu Stream at Brunton Rd	Normal
Hikuwai River at Willowflat	Normal
Waiapu River at Rotokautuku Bridge (SH35)	Normal
Oweka River at SH35 Bridge	Normal

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	Within stable range
Shallow Fluvialite	Above stable	Above stable range
Matokitoki	Above stable	Within stable range
Te Hapara Sands	Above stable	Above stable range

Drought Status

As of the end of February the region is experiencing dry to very dry conditions, particularly in the north. This is determined using the NZDI.

The NZDI is an index of different indicators of drought helping to define when the environment is in a state of stress. It has been created by NIWA who have made a regional data set available for presentation in this report. NZDI data is presented in **Figure 2**.

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 is sourced from [NIWA](https://niwa.co.nz) and is for the Gisborne and Hawkes Bay regions and is for the period March to May:

- Temperatures are most likely to be above average (55% chance). Although a cool spell is expected early-to-mid March.
- Rainfall totals are most likely to be near normal (45% chance). The start of the month has an elevated chance of rainfall, though drier conditions may return toward the end of the month and into April.
- Soil moisture levels and river flows are about equally likely to be near normal (40% chance) or below normal (45% chance).

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**.

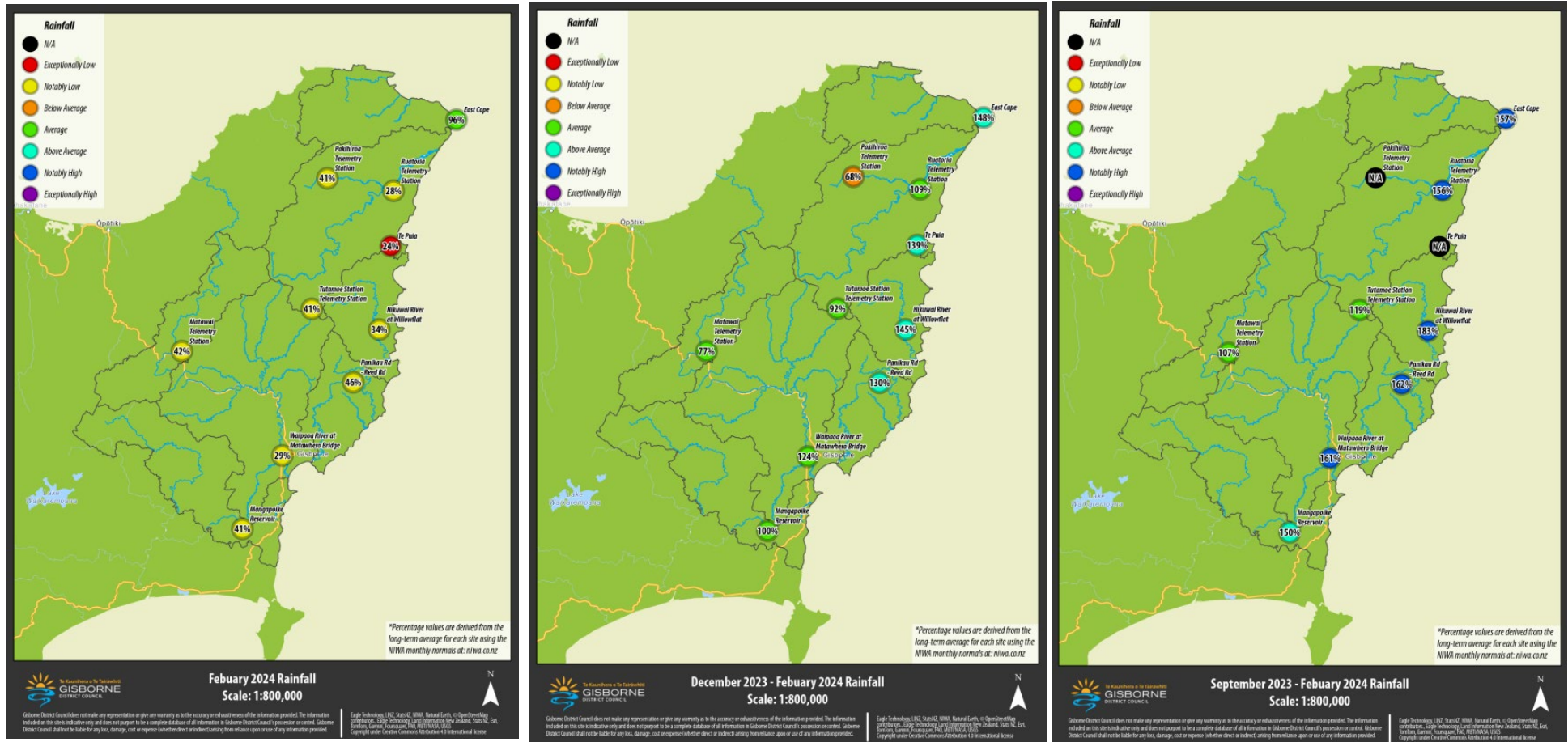


Figure 1: Rainfall maps showing 10 indicator sites across GDC and rainfall at these sites relative to their Monthly Normals for the last month, 3-months and 6-months.

Tairāwhiti Drought Index

Date: 29-02-2024

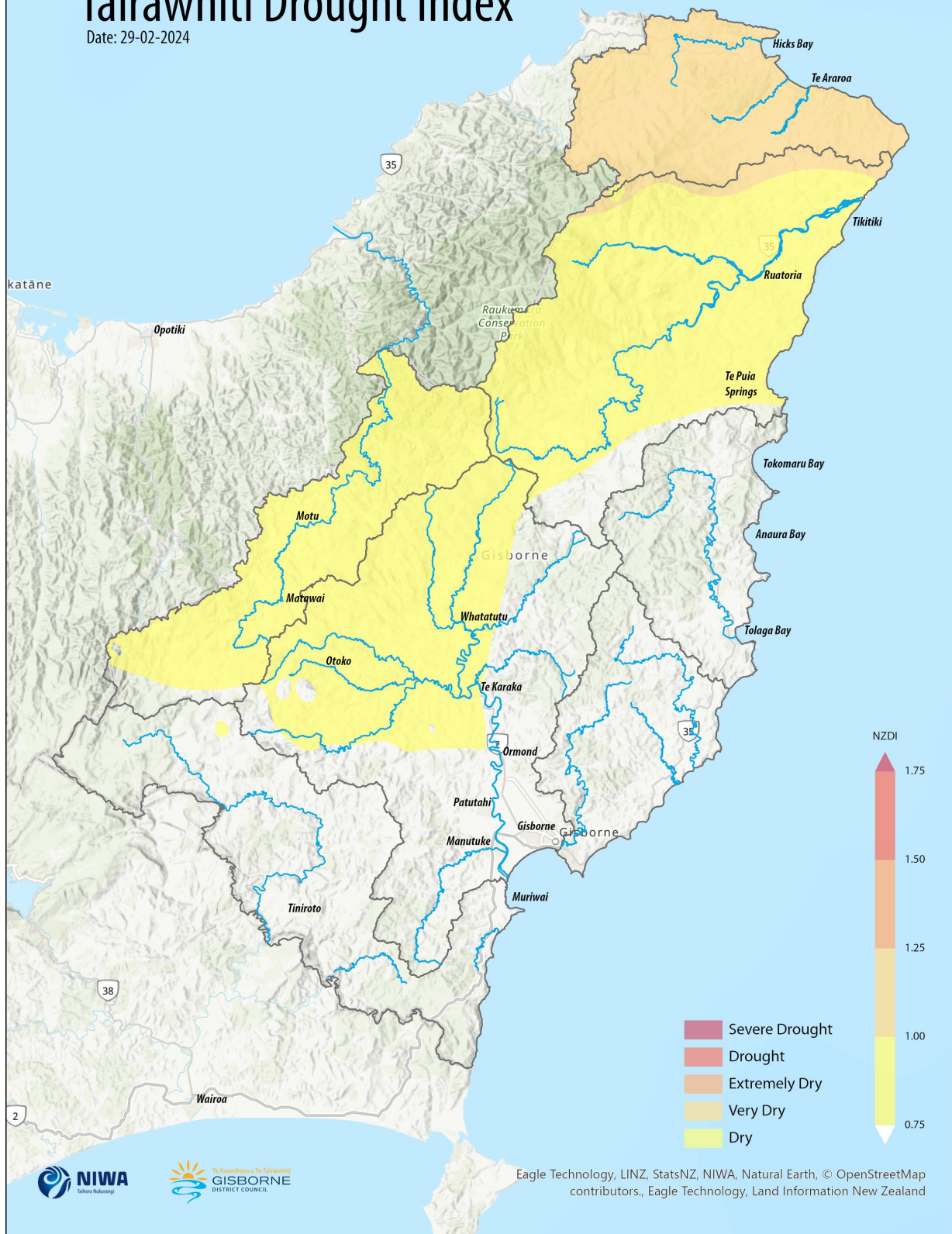


Figure 2: NZDI data for GDC as of the 29th of February 2024

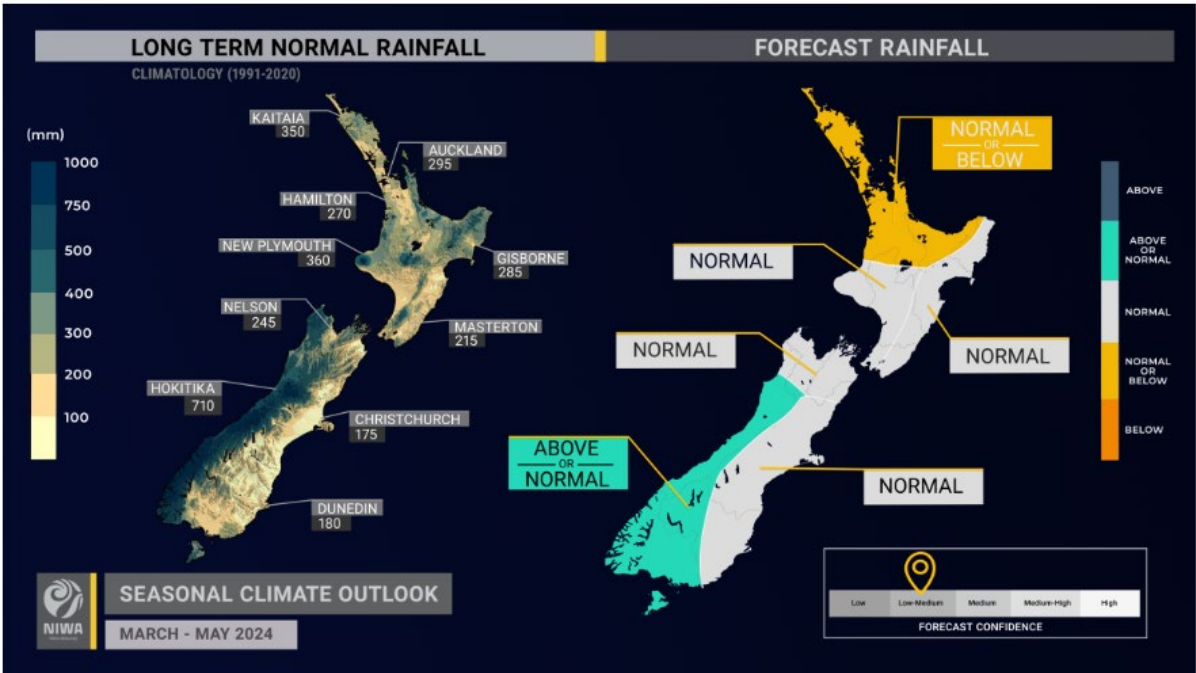


Figure 3: NIWA rainfall forecast for the next 3 months (March to May)