

Issued  
2 February  
2021

# RIMU Hydrology Situation Report

Research and  
Evaluation Unit

RIMU



Rainfall | Soils | Rivers | Aquifers

## Regional summary

Total January rainfall was either at or below the long-term normal range. Most of the rain occurred early in the month and during an event on 20 January. The relatively long periods with no rain have effects that are seen in the other hydrological monitoring sites. Soil moisture fell at all sites and only two sites remain in the normal range, with eight sites recording low or very low soil moisture. River flows fell across the region with 29 of 39 sites now below the mean annual low flow (MALF). Nineteen stream sites are below the AUP default minimum flow of 85% MALF. Groundwater levels vary according to geology and water use pressures. Low groundwater levels were generally observed in shallow volcanic and deep Waitematā sandstone aquifers.

## Current drought index

The New Zealand Drought Index (NZDI) is used to determine the severity of drought conditions across the country. The latest NZDI value for Auckland is 1.12 (30 January 2021), which is within the second NZDI category of Very Dry (1.0-1.25). A chart of the NZDI for the Auckland region is shown in Figure 1.

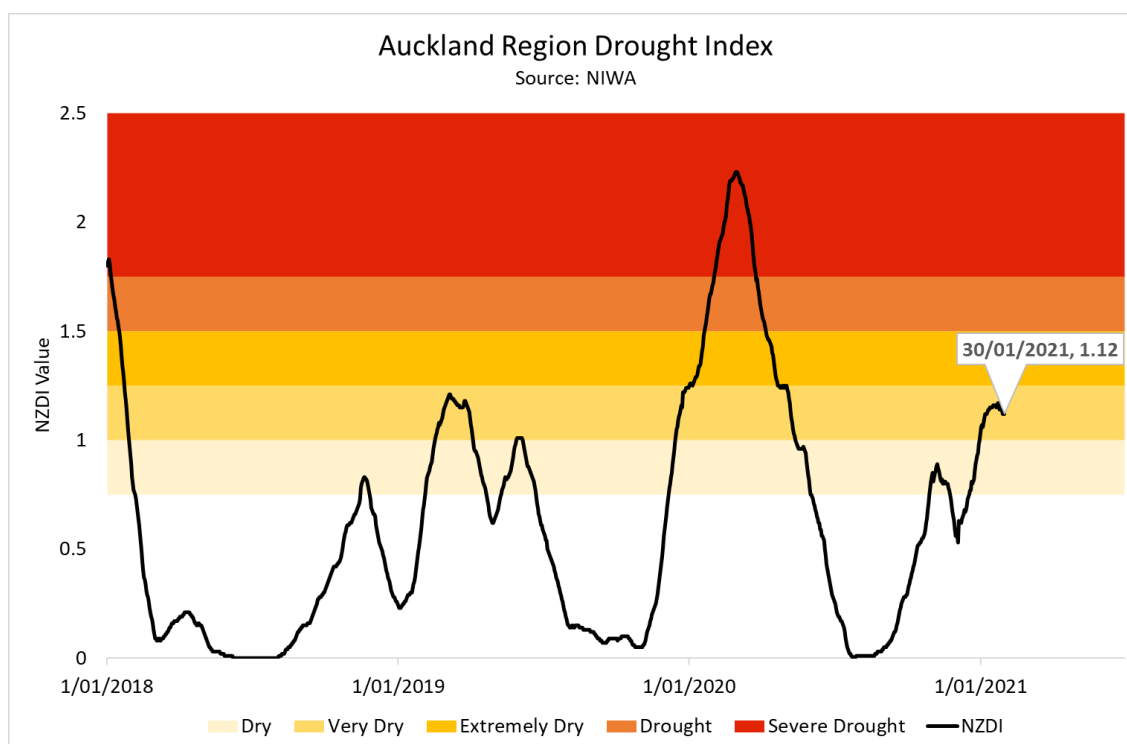
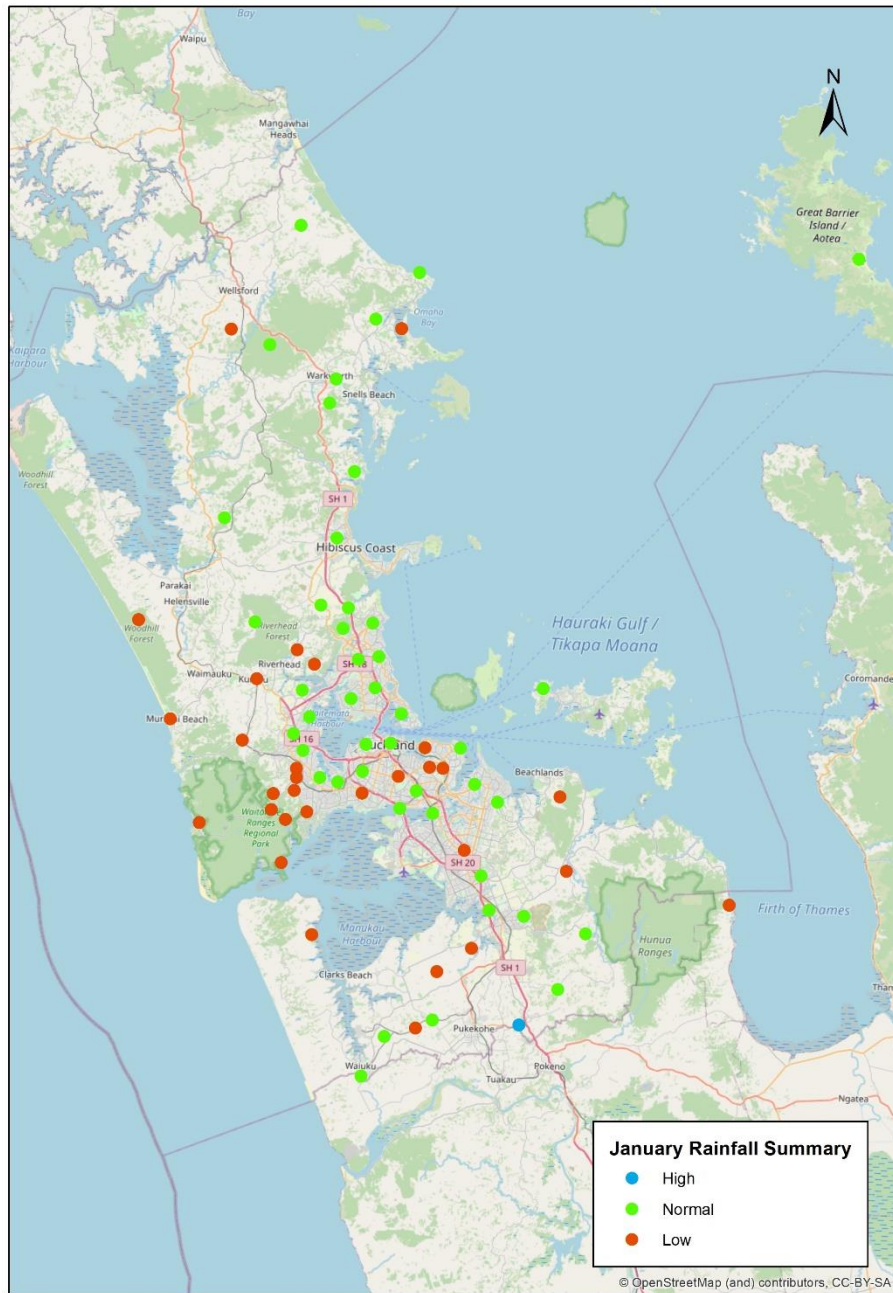


Figure 1: Auckland Region Drought Index 2018-2021 (data source: NIWA).

## Rainfall

Little rainfall was recorded since the last report. The January total rainfall was within the normal range for about half of the rainfall sites, with the remaining sites below the normal range. Extended periods of no rain were recorded and this is reflected in the reduction of soil moisture, river flows, and some groundwater levels.



**Figure 2: Summary rainfall category for the month of January 2021.**

## Soil moisture

Only two soil moisture sensor sites near Wellsford and Riverhead Forest remain in the normal range for early February (Figure 3). The remaining eight sites are either at low or very low soil moisture levels.

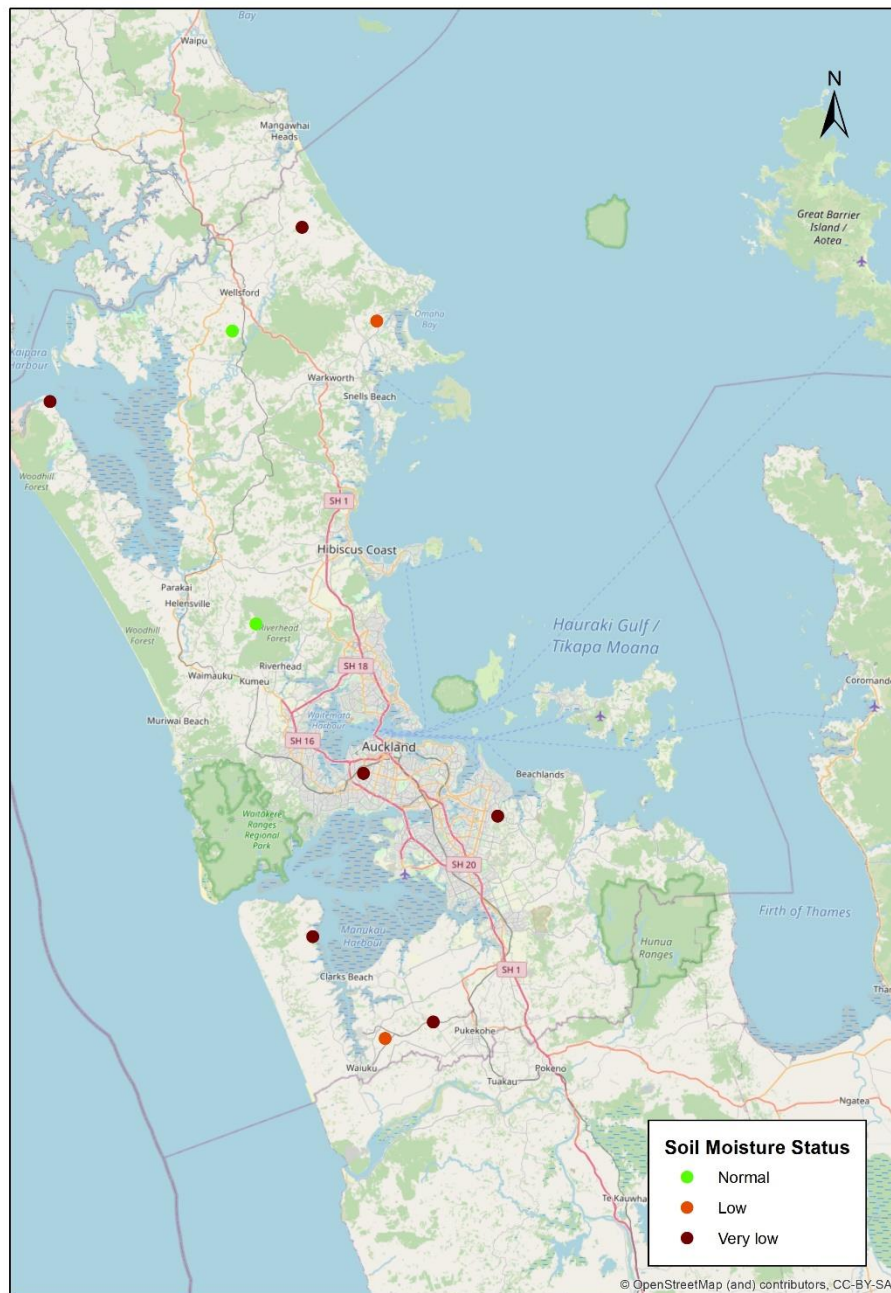


Figure 3: Current soil moisture category relative to long-term statistics for 2 February 2021.



## River flows

River flows continued to fall over the last week. Twenty-nine of 39 monitored sites are below the mean annual low flow (MALF). The streams with flows below the MALF range from small urban streams to the largest river systems in the region (Hoteo and Wairoa Rivers). Nineteen sites had flows below the default minimum flow of 85% MALF set in Appendix 2 of the Auckland Unitary Plan (an increase of eight streams since the last report). The locations of sites and the flow relative to MALF are shown in Figure 4.

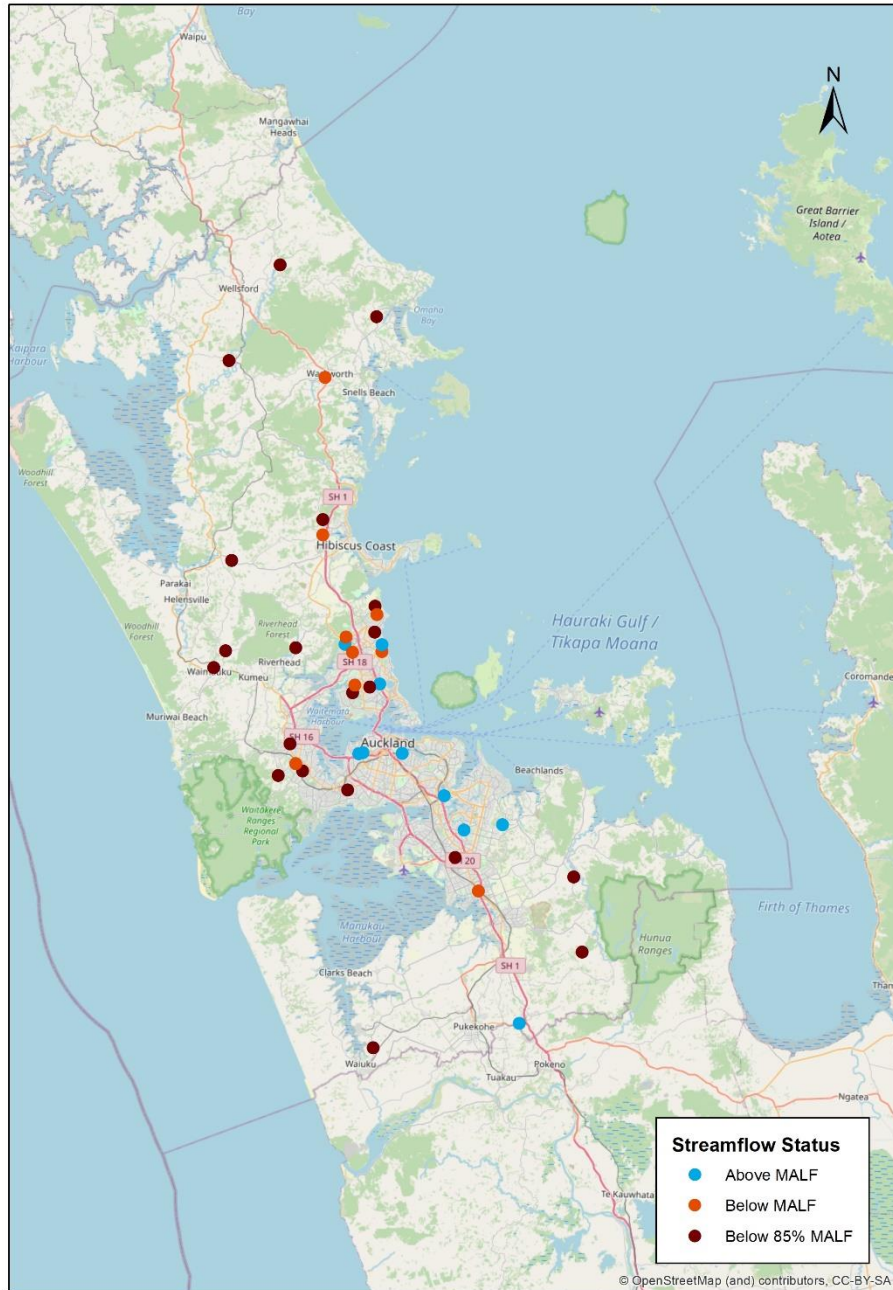


Figure 4: Stream flow on 2 February 2021 relative to the mean annual low flow (MALF).

## Aquifer water levels

Groundwater levels in aquifers vary considerably across the region and relate to the geology of the aquifer and water use pressures. Groundwater levels are very similar to the last report on 25 January. This is due to the slow response of groundwater levels to very recent hydrological conditions and the corresponding measurement frequency (some groundwater levels are only recorded monthly). Groundwater levels are below the normal range for several sites in the region, including unconfined volcanic aquifers in the Auckland Isthmus and south Auckland. Several sites in deep sandstone Waitematā Group aquifers continue to have low groundwater levels due to low antecedent water levels and continued water use pressure. Groundwater monitoring sites and groundwater level category are shown in Figure 5.

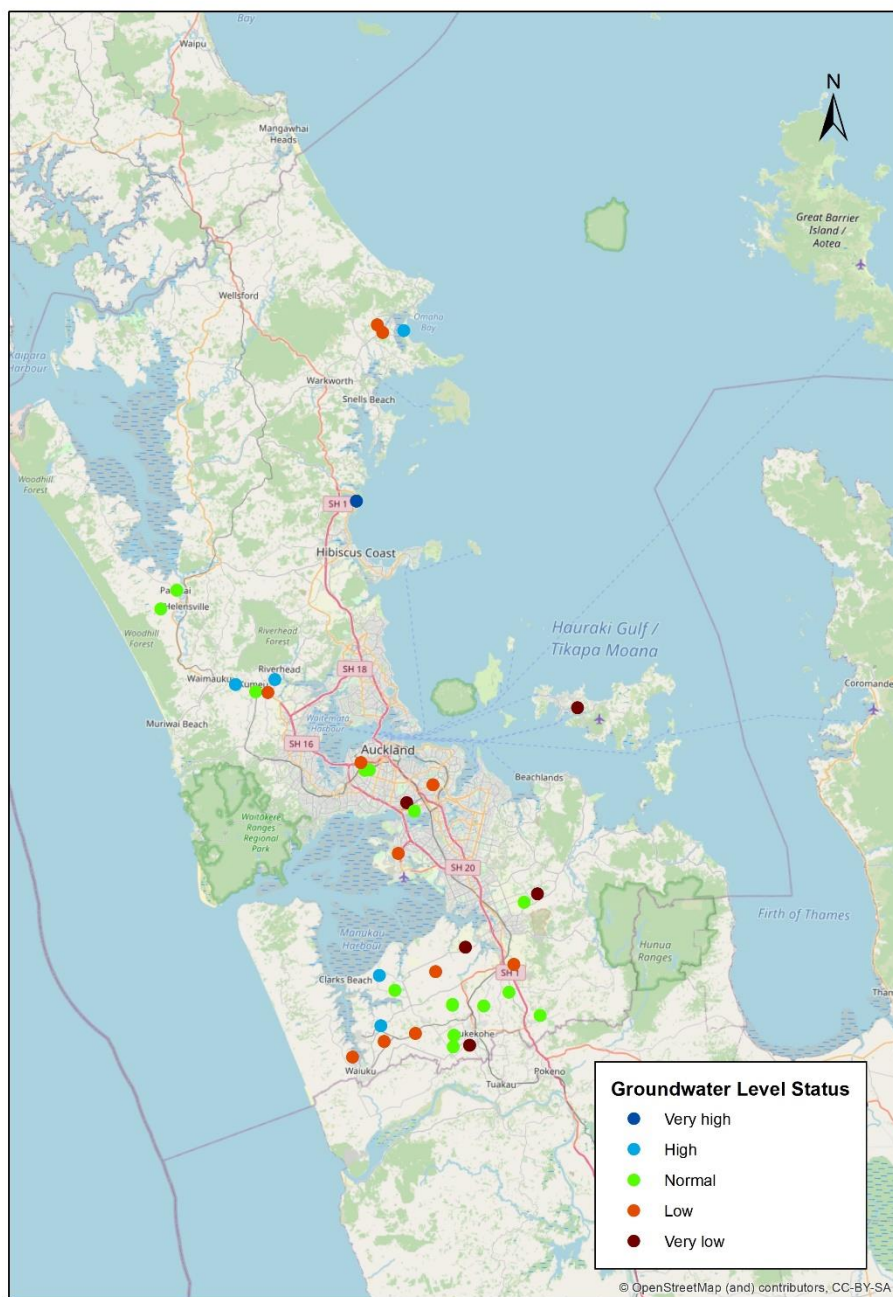


Figure 5: Groundwater levels relative to long-term statistics for 2 February 2021.

## Disclaimer

This report contains provisional data and is intended for informational purposes only. For detailed questions concerning hydrometric data, please email [EnvironmentalData@aucklandcouncil.govt.nz](mailto:EnvironmentalData@aucklandcouncil.govt.nz).

## Primary contact

For inquiries concerning this report, contact Kolt Johnson, Senior Scientist (RIMU):  
[Kolt.Johnson@aucklandcouncil.govt.nz](mailto:Kolt.Johnson@aucklandcouncil.govt.nz).



**Find out more:** phone 09 301 0101, email  
[rimu@aucklandcouncil.govt.nz](mailto:rimu@aucklandcouncil.govt.nz) or visit  
[aucklandcouncil.govt.nz](http://aucklandcouncil.govt.nz) and [knowledgeauckland.org.nz](http://knowledgeauckland.org.nz)