

Issued
25 January
2021

RIMU Hydrology Situation Report

Research and
Evaluation Unit

RIMU



Rainfall | Soils | Rivers | Aquifers

Regional summary for 13 January to 25 January 2021

Rainfall since the last report on 13 January was generally less than 20mm, with higher totals in the south. Soil moisture fell at all sites and only two sites remain in the normal or high range, with eight sites recording low or very low soil moisture. River flows fell across the region with 19 of 39 sites now below the mean annual low flow (MALF). Eleven of the 19 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 1.17 (22 Jan 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.

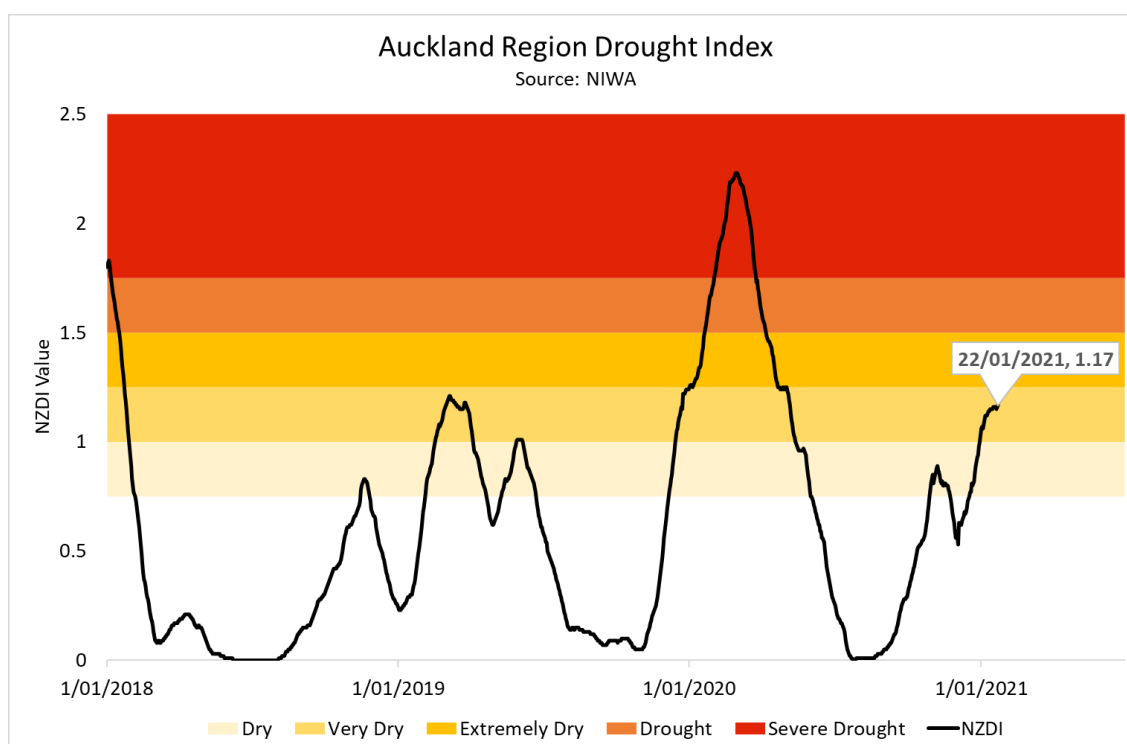


Figure 1: Auckland Region Drought Index 2018-2021 (data source: NIWA).

Rainfall

Most of the rainfall received since 13 January was from a small rain event on 20 January, however light falls occurred on several other days. Sites on the east coast and in central Auckland recorded the least rainfall, while sites in the Waitākere Ranges and in south Auckland had higher rainfall totals. The locations of sites and rainfall totals for the period 13 to 25 January are shown in Figure 2.

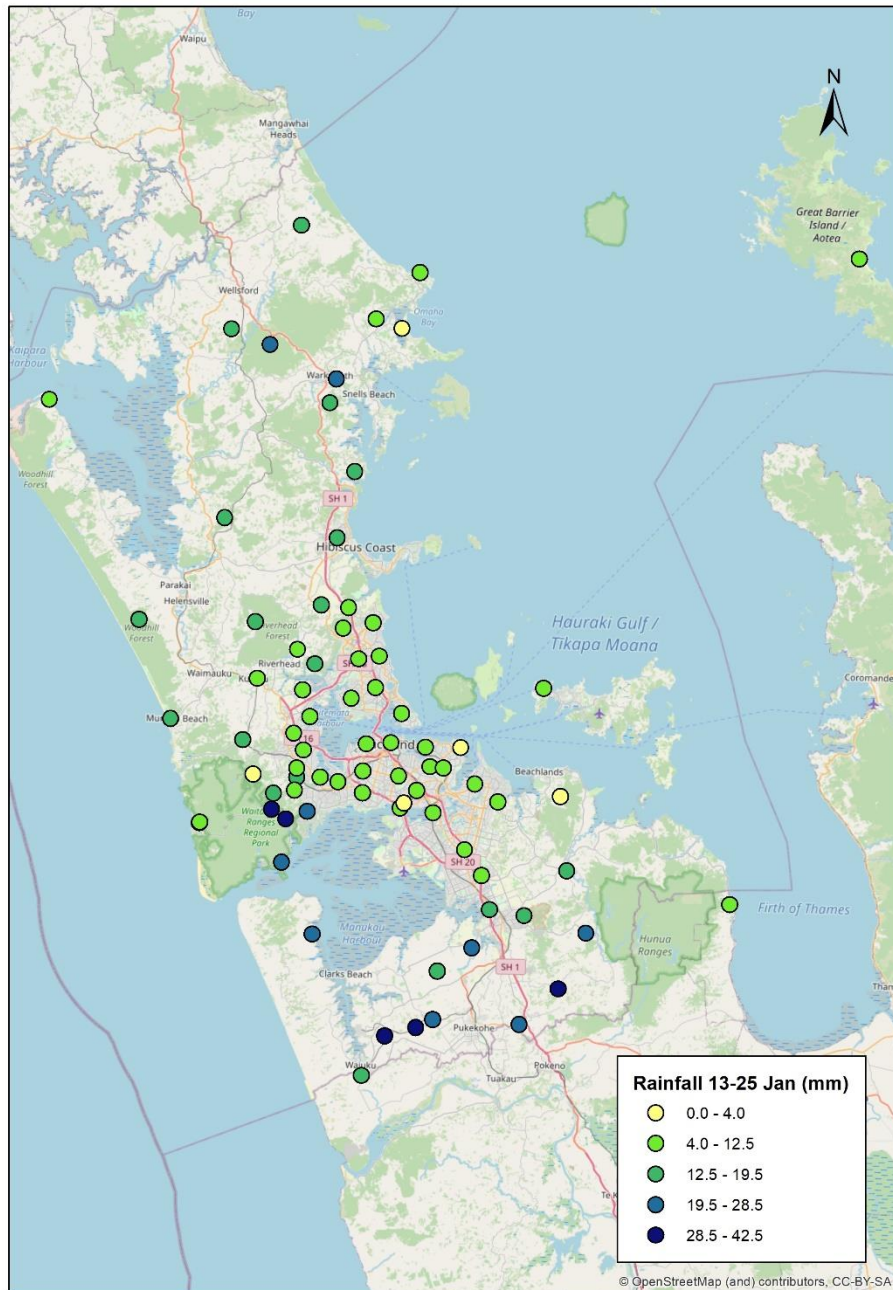


Figure 2: Total rainfall (mm) for the period 13 to 25 January 2021.

Soil moisture

Only two soil moisture sensor sites near Wellsford and Riverhead, respectively, remain in the normal or high range for late-January (Figure 3). The remaining eight sites are either at low or very low soil moisture levels.

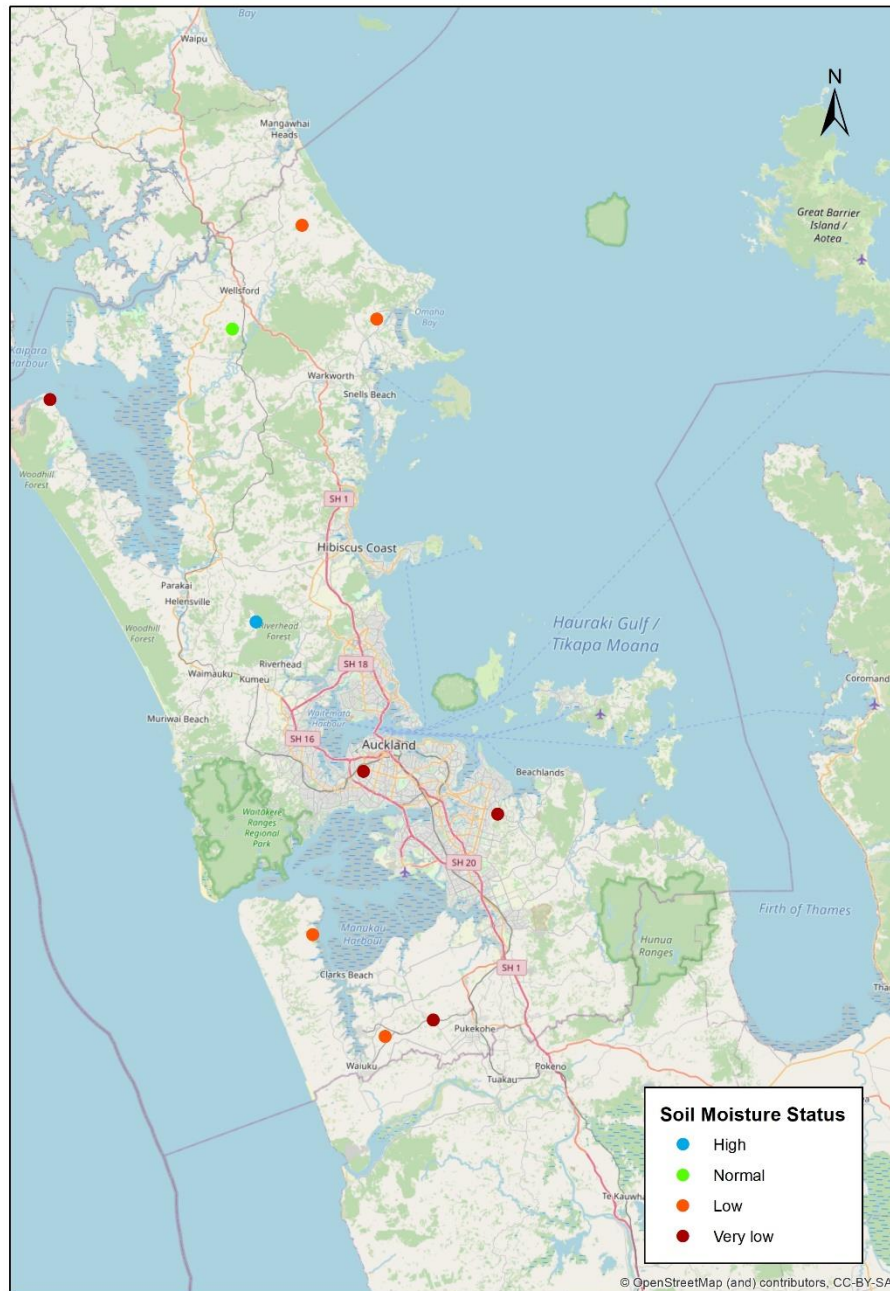


Figure 3: Current soil moisture category relative to long-term statistics for 25 January 2021.

River flows

River flows dropped throughout the last fortnight and 19 of 39 monitored sites have dropped 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 (Hotoe and Wairoa Rivers). Eleven sites had flows below the default minimum flow of 85% MALF set in Appendix 2 of the Auckland Unitary Plan. The locations of sites and the flow relative to MALF are shown in Figure 4.

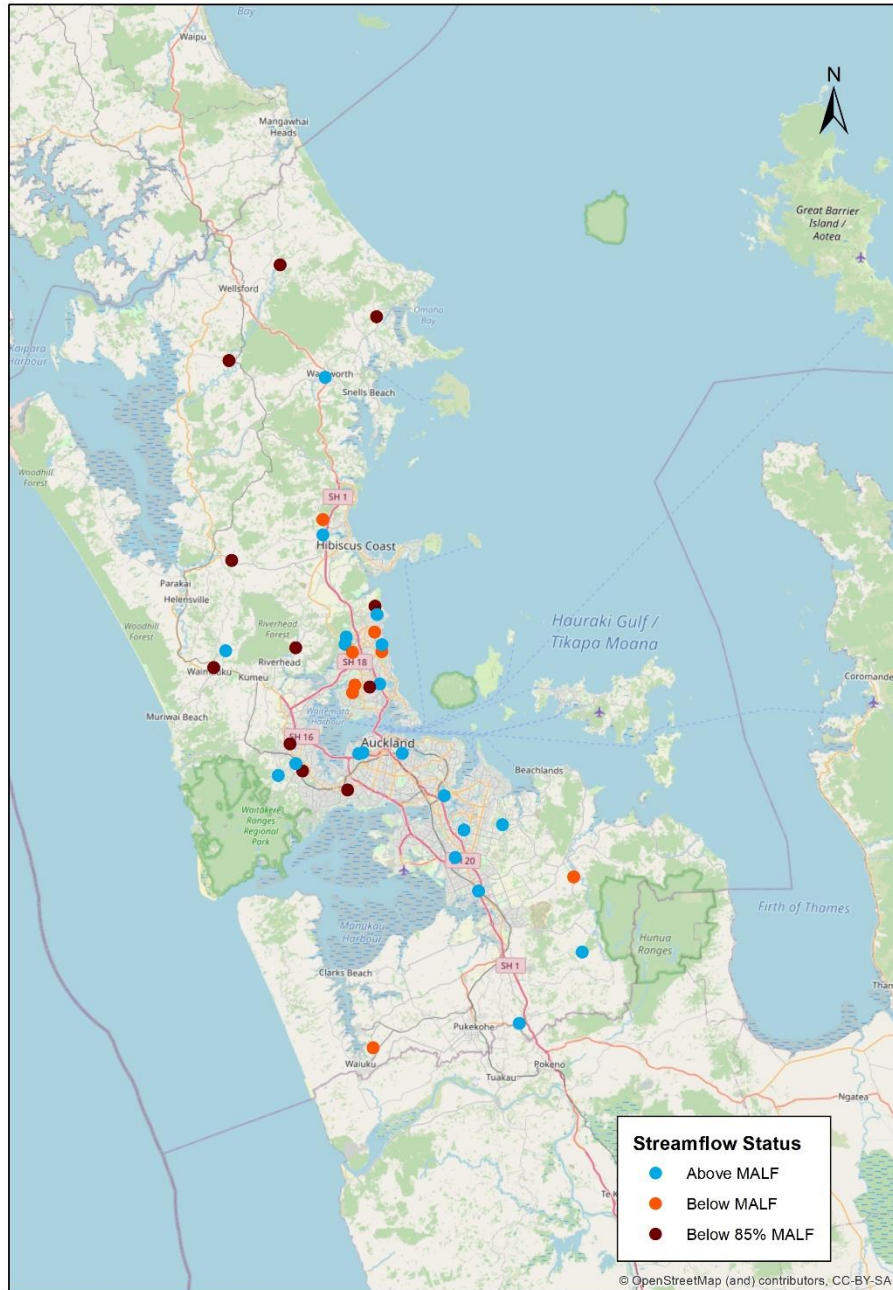


Figure 4: Stream flow on 25 January 2021 relative to the mean annual low flow (MALF).

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 13 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.

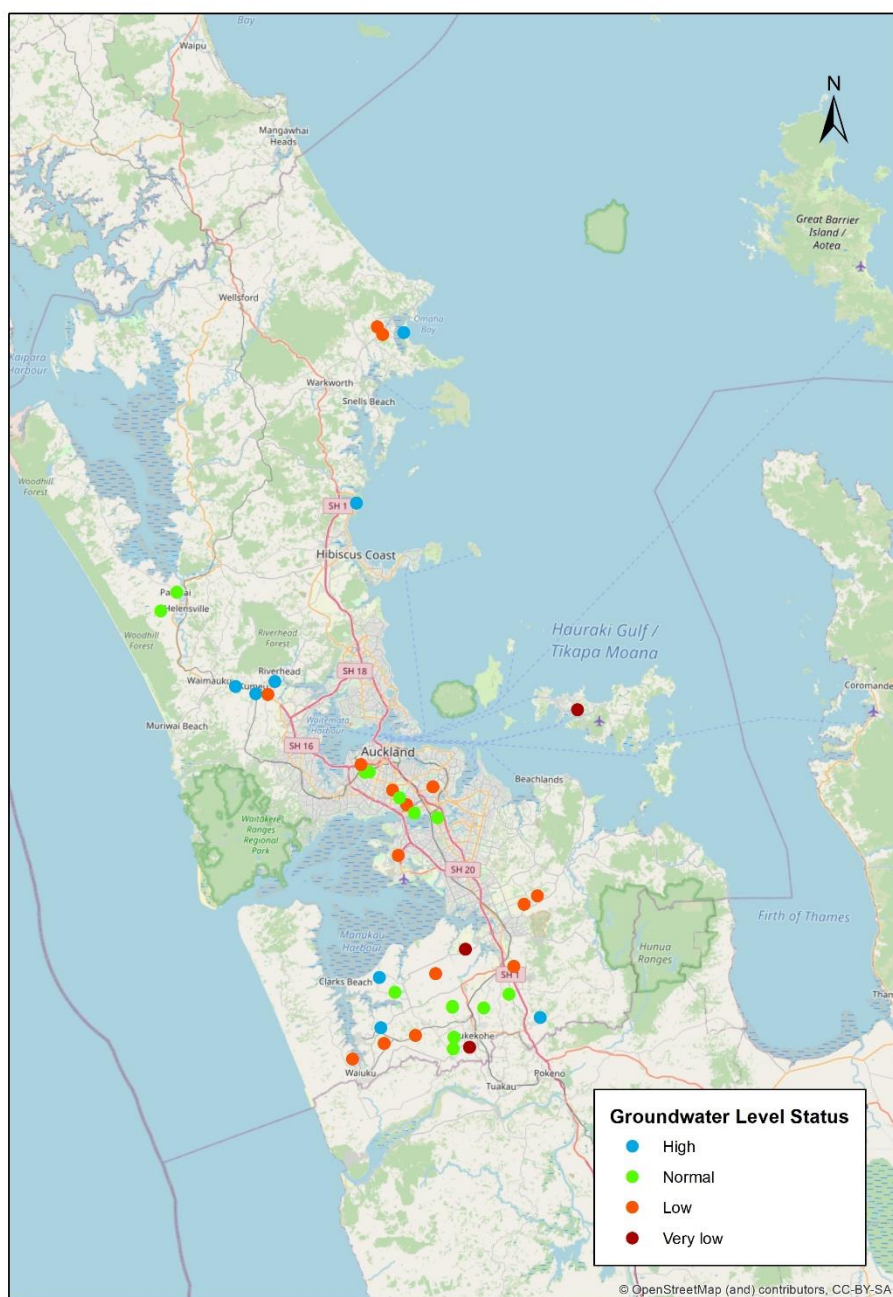


Figure 5: Groundwater levels relative to long-term statistics for 25 January 2021.

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.

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