

Hydrology information for the situation report – 28 February 2020

Current weather situation

The dry weather continues across the region, with some scattered showers occurring on 22 and 27 February, and further scattered showers predicted for 2 to 15 March. There is no significant rainfall so far in the forecast. Temperatures have remained lower than the heat wave conditions experienced earlier in the month, with most days around 25 degrees.

MetService Outlook

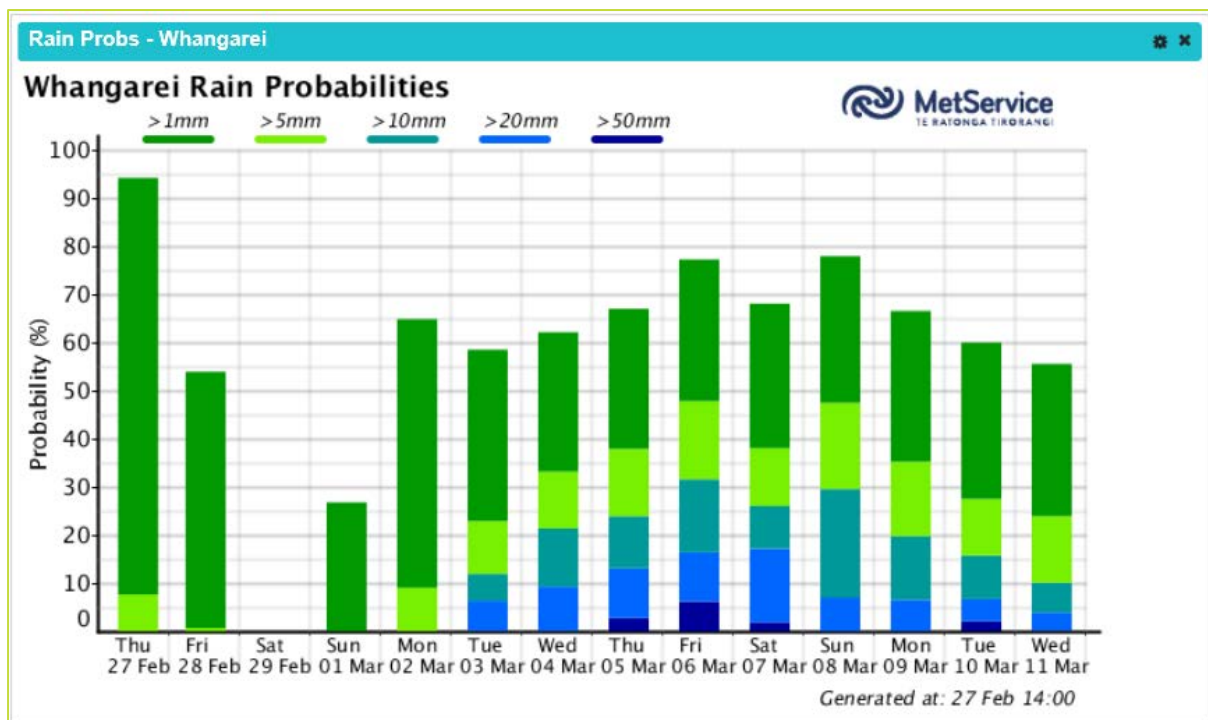
Long range:

- Previous long range forecast predicted scattered showers for 2 March to 15 March. The latest model run still predicts this rainfall, but it is unlikely to be enough to break the drought.
- Warmer temperatures and high pressure systems remain dominant.
- No convincing signals of active tropical cyclones or tropical lows approaching NZ.

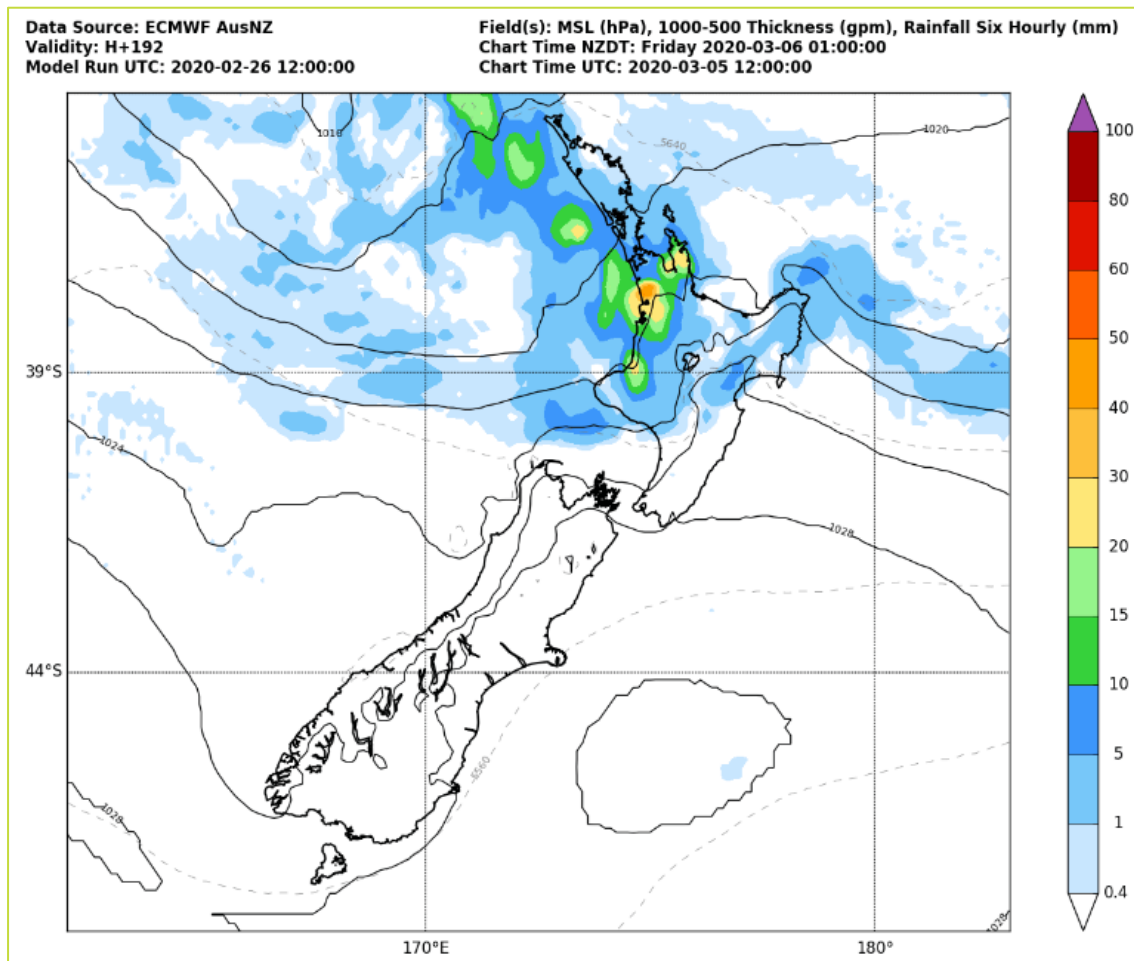
Short term: 3-5 days:

- A small amount of rain is predicted from 1 to 4 March, although this is forecast to be less than 5mm on these days.

Whangārei rain probabilities



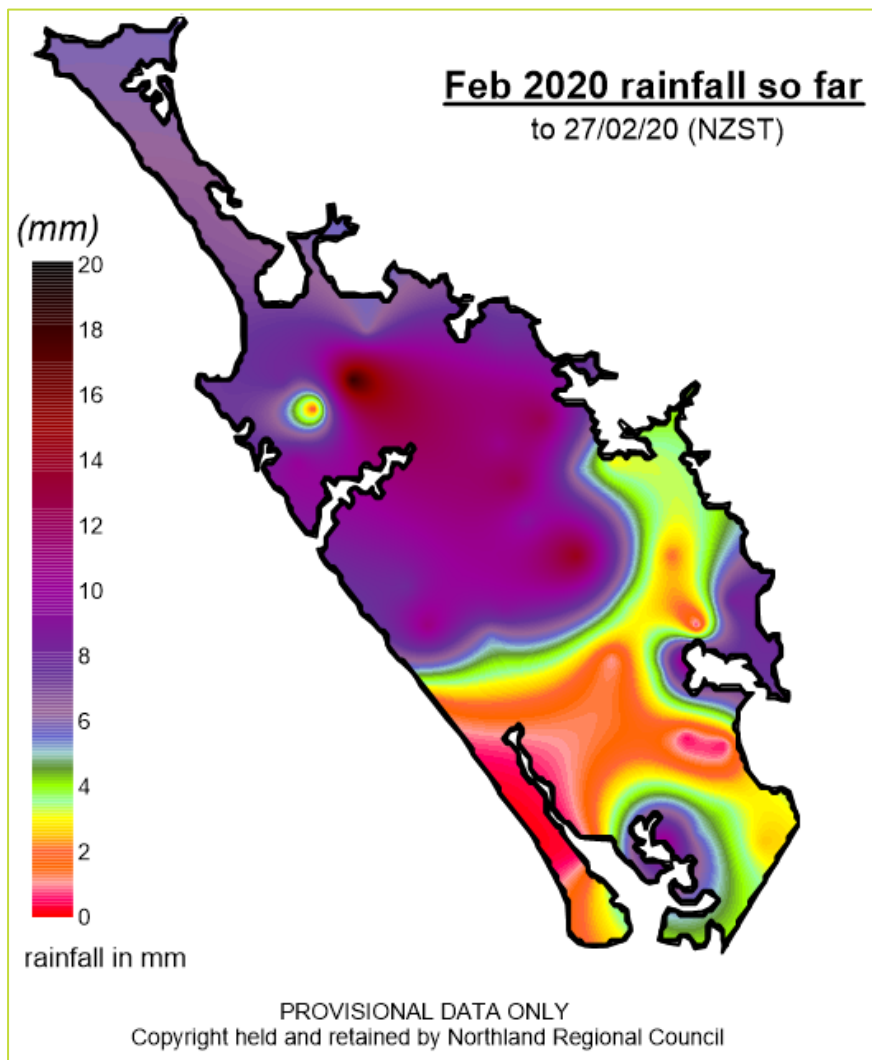
6/02/20 model chart



Rainfall

Rainfall for the month so far (to 27 February - 1500) has been very low, with the highest rainfall at Mangakawakawa of 18 mm. The month is not yet over, but with only 2.5 days to get the typical ~70 mm for the month, this will be another dry one.

Rainfall map (mm) : 1/02/2020 -27/02/2020



Since 01 January 2020, less than 6mm has been recorded at the below raingauges, which is significant. To have only single digit rainfall occurring over consecutive months is highly unusual:

- Taheke: 3.5 mm
- Kaiwi lakes: 6 mm
- Pouto Point: 5.5 mm

Further to this, rainfall records show that the last two months of rainfall was the driest two month period at on record at Kerikeri, second driest at Whangārei and third driest two month period on record in Kaitiāia.

River flows

The yellow and green dots on the drought flow map indicate the rivers over the drought minimum flows (DMF). 96% of rivers are currently below DMF (as of 1500 27/02/20), with many around 50% of DMF and lowest flows on record.

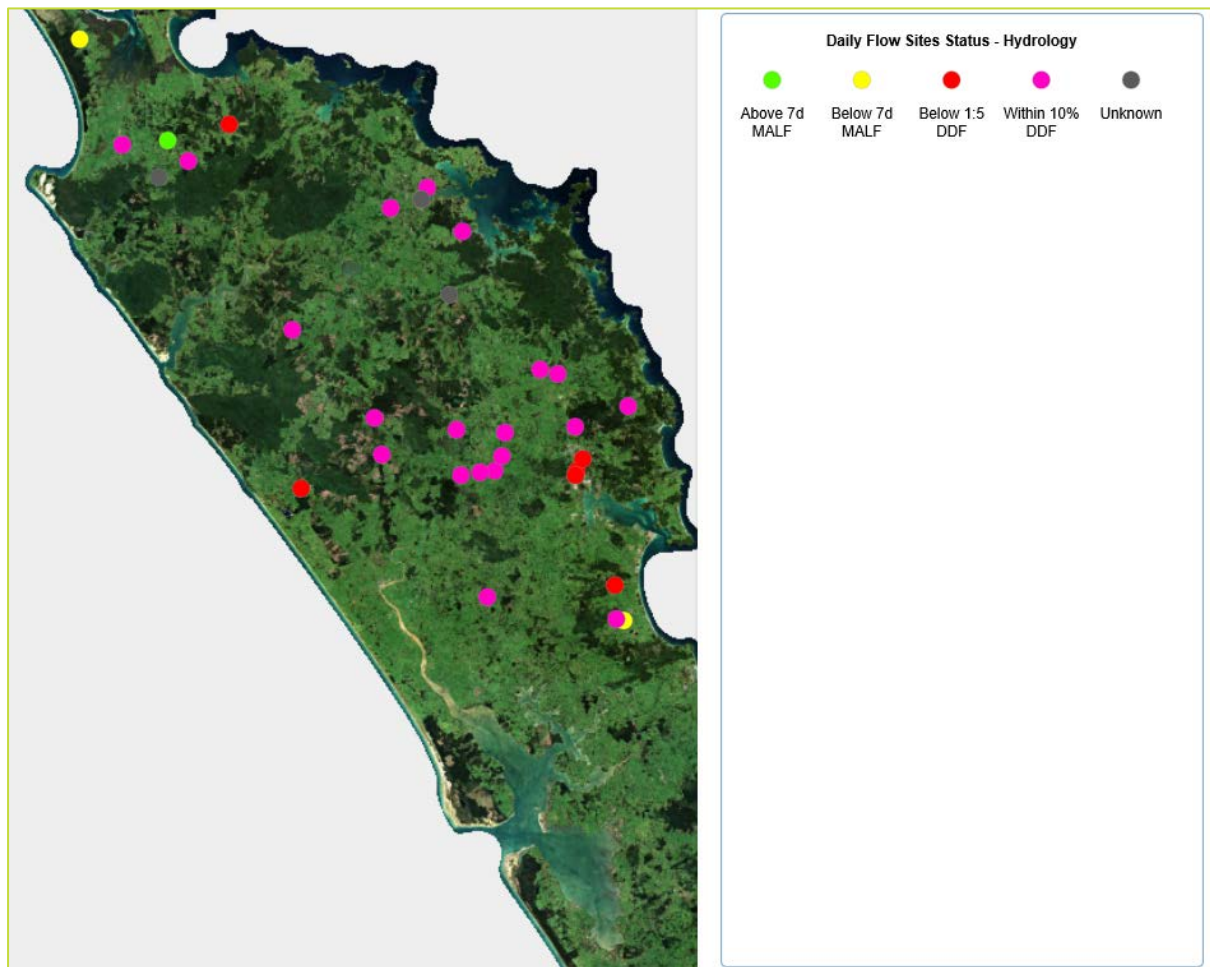
For update to date river flows refer to:

www.nrc.govt.nz/environment/river-and-rainfall-data/river-and-rainfall-data/#hilltop-droughtinfo

Most notably, at the long running stations, the lowest 7 day mean flows on record have occurred at the Awanui (since records began in 1958), the Whakapara (since records began in 1959), Maungaparerua (since records began in 1967), the Ngunguru river (since records began in 1969), the Wairua (since records began in 1960) and second lowest on record in the Hikurangi and Ahuroa rivers.

What's staggering is how much lower these rivers are than they have ever been, with flows in the Awanui are 30% lower than the previously recorded lowest flows, in the Whakapara they are 170% lower than the previously recorded lowest flows, the Maungaparerua 50% lower than previously recorded, and the Wairua 24% below previously recorded lowest 7 day mean flows.

Drought flow map:



We are seeing some really high temperatures and very low dissolved oxygen levels in the rivers and some algal blooms. This is only likely to worsen if flows continue to decrease.

Groundwater levels

The latest round of conductivity readings at coastal bores are similar to previous readings so indicates no significant increase in saline intrusion with low groundwater levels. Although as noted below salinity has been noted at some compliance bores.

- Groundwater levels are continuing to decline. Many coastal aquifer levels are at or near lowest recorded since monitoring commenced in the early 1990s.
- Water shortage directions have been issued for the small east coast aquifers, and Consent Holders taking water from these aquifers have been individually contacted.
- Monthly groundwater quality sampling for the state of environment monitoring bores in coastal aquifers has commenced this week. Initial results will be available next week.
- Monthly groundwater quality sampling from additional bores in Russell township will also commence as a result of consistently low groundwater levels in the sentinel bore located near the Russell foreshore.

Soil moisture deficits

Nothing new to report

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