

Hydrology information for the situation report – 05 March 2020

Current weather situation

MetService have noted a weakening of the strong high pressure that has sat over NZ recently, leading to more low-pressure systems pushing up the country and reaching Northland. These systems usually produce patchy rain in Northland and this is what we have recorded over the last three days.

These showery rain incursions are likely to continue for the remainder of the month and met service predict that these ongoing showers producing ~20 mm per week will slowly end the drought, rather than end it abruptly with a large intense weather system.

Following today's rain, the next best chance of rain will come with a low moving across the country on the 9th, although the most recent forecast predicts this will produce less than 10 mm.

MetService Outlook

Long range:

Near normal rainfall for this month is predicted

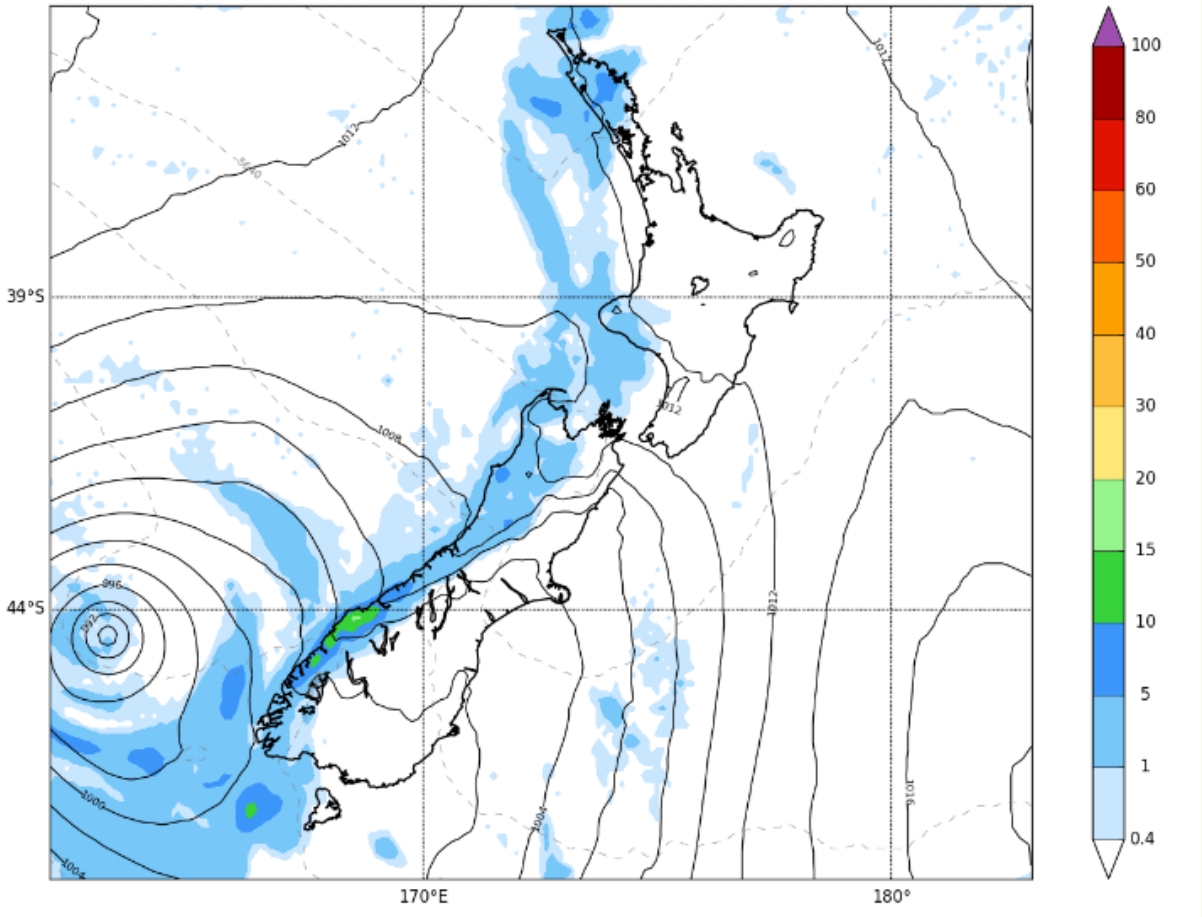
1. Week one (2 - 8 March)
Dry conditions interrupted by showery incursions.
2. Week two (2 - 8 March)
Dry conditions interrupted by showery incursions.
3. Week three (2 - 8 March)
Dry conditions interrupted by showery incursions.
4. Week four (2 - 8 March)
Unclear at this stage

Short term: 3-5 days:

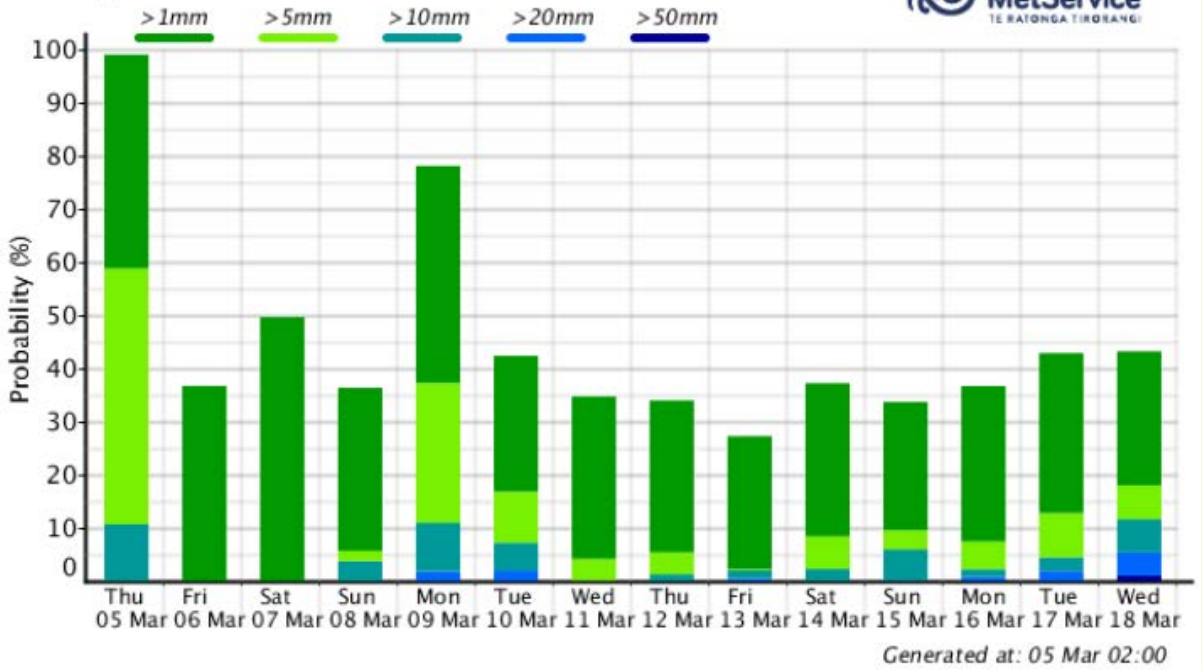
- Showers predicted for the remainder of today
- Very little rain from Friday to Sunday
- A chance of further rain on the 9th but likely <10mm

Data Source: ECMWF AusNZ
 Validity: H+102
 Model Run UTC: 2020-03-04 12:00:00

Field(s): MSL (hPa), 1000-500 Thickness (gpm), Rainfall Three Hourly (mm)
 Chart Time NZDT: Monday 2020-03-09 07:00:00
 Chart Time UTC: 2020-03-08 18:00:00



Whangarei Rain Probabilities



Rainfall

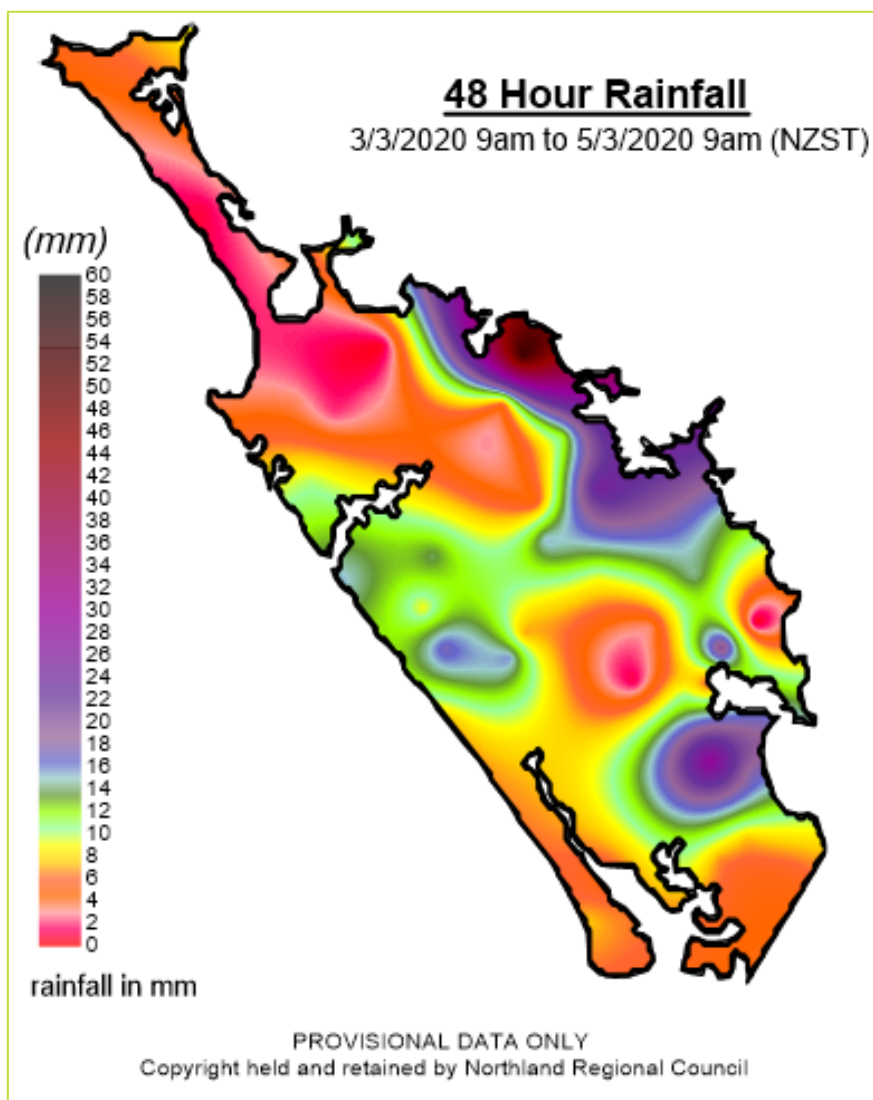
Rainfall has been patchy over the past two days, with the east coast receiving the highest totals. The Bay of Islands has received 20-60 mm, mostly lower down in the catchments near the coast. Rainfall higher in the catchment would have much more benefit.

Glenbervie has received around 20 mm over the last 2 days which has raised the Hatea River above MALF, although it will be back down below DMF in 3 days without further rain in the catchment.

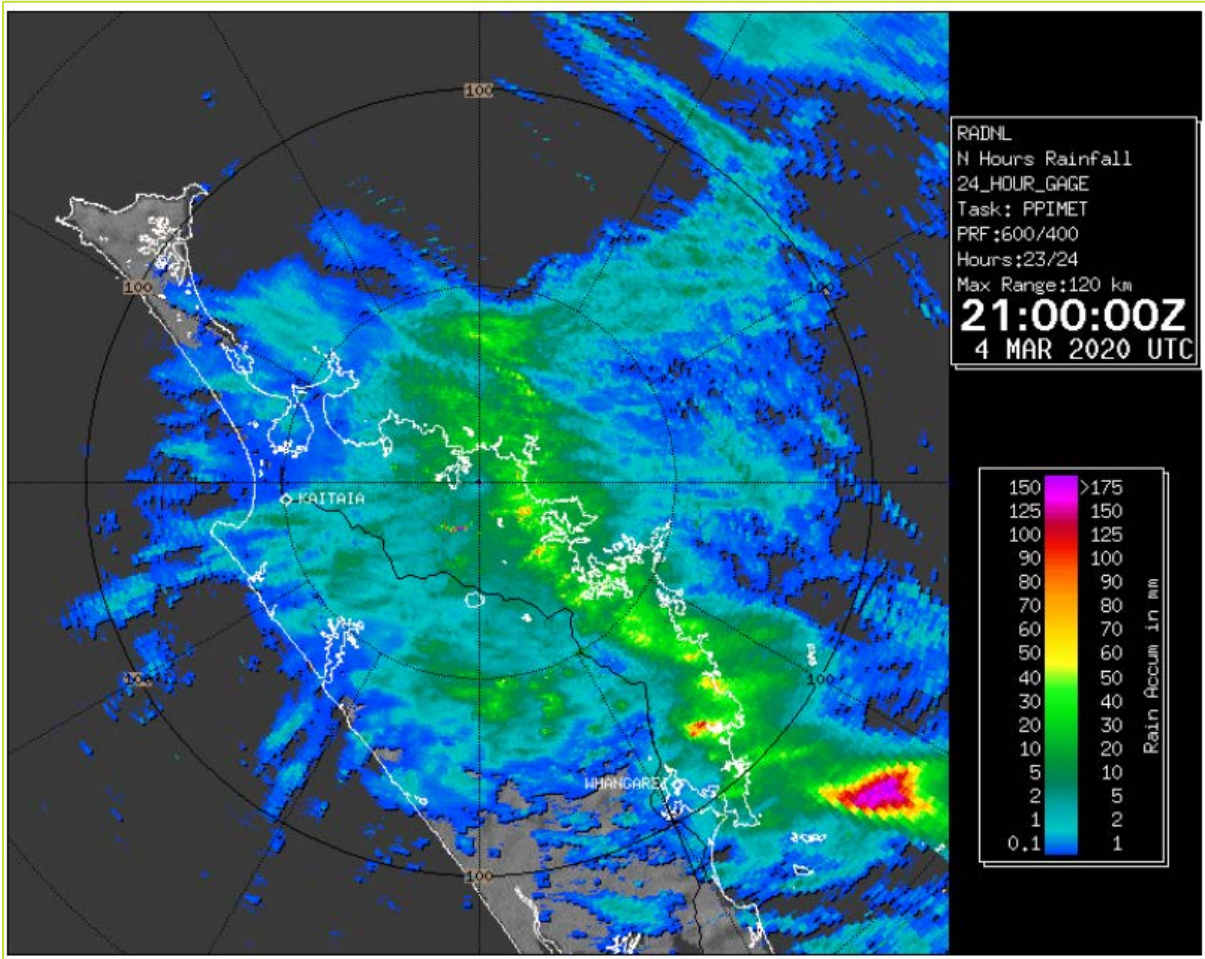
24 hour rainfall totals in the Tutomoe Ranges were 17.5 mm. This has bumped up the flows in the Kaihu to just over MALF, but may be back down below DMF within a week with little rain.

Rainfall around Bream Bay has been quite isolated to the Ruakaka catchment with the Waikokapa receiving 30 mm. This has caused the Ruakaka River to rise above MALF, although it will be back down below DMF within 5 days without further rain in the catchment.

The radar image below shows the rainfall accumulated over the last 24 hours from 10am Wednesday (04/03/2020). This shows most of the rain falling close to the east coast of Northland.



24 Rainfall accumulation from 10am 4/3/2020



Over the 48-hour period from Tuesday to Thursday (03/03/2020 - 05/03/2020), most areas received 0-10 mm of rain. Below are the top three rainfall totals for each district:

FNDC		WDC		KDC	
Towai	56 mm	Ngunguru	28.5 mm	Waima	17.5 mm
Waitangi	25 mm	Glenbervie	22.5 mm	Paparoa's	9.5 mm
Ōpua	24 mm	Marsden Point	21.5 mm	Waimamaku	9 mm
CENTRES					
Kaitiaki	0.6 mm	Whangārei	5.4 mm	Dargaville	5.6 mm
Kaikohe	5 mm				
Kerikeri	47 mm				

River flows

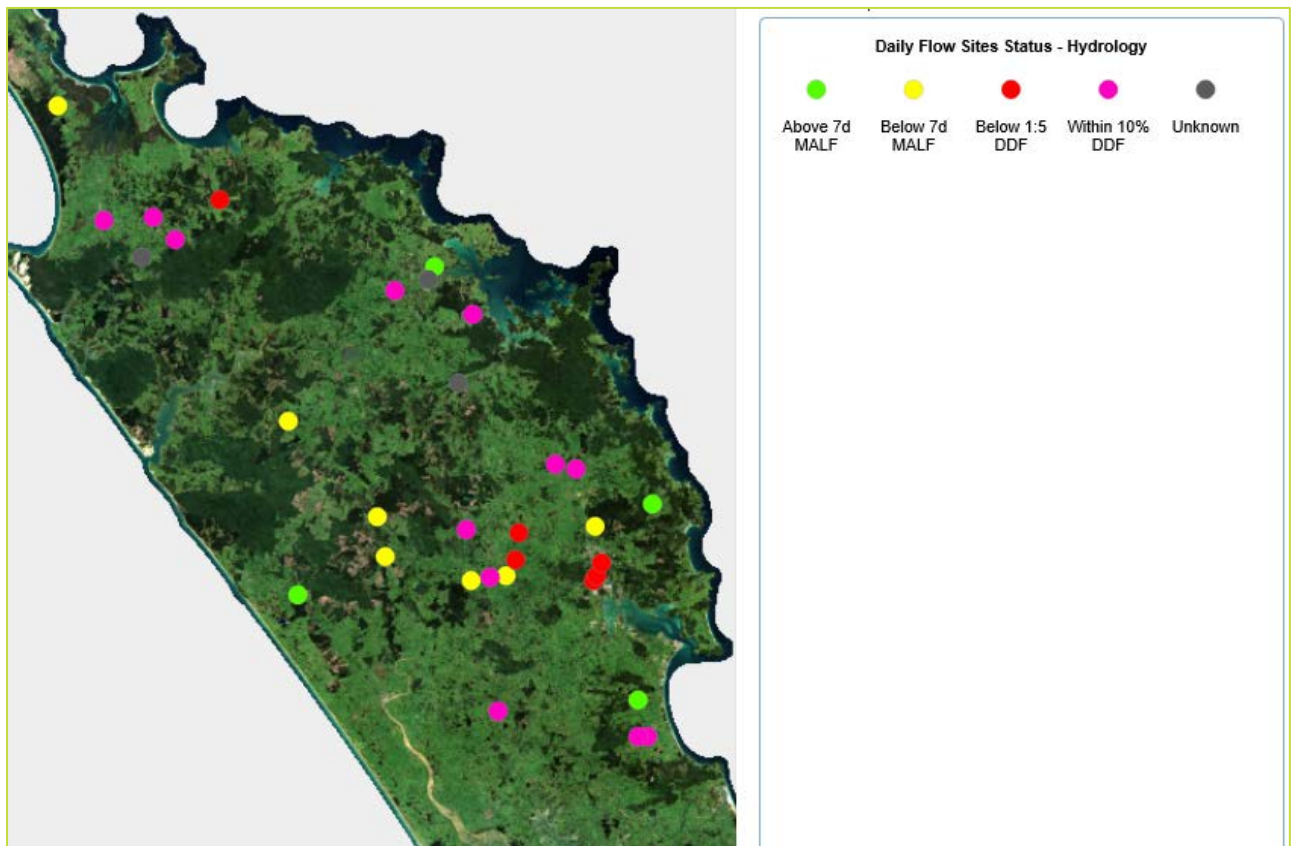
The yellow and green dots on the drought flow map indicate the rivers over the drought minimum flows (DMF). 59% of rivers are currently below DMF (as of 12:30 05/03/20)

Some rivers have risen above MALF as a result of the rain over the last 2 days. The maps show the scattered spread of the rivers that have risen due to the isolated areas that have received rainfall. Parts of the Mangakahia catchment have risen above MALF but are of little benefit for drinking water resources. The Kaihu, Hatea and Ruakaka rivers have risen above MALF but will likely be back to 'pre-rain' flows in less that a week with little rain. The Mangaharuru has seen a small rise above DMF but will drop quickly without further rain.

- Kaihu:** Sitting just over MALF currently. Further and more sustained rain is needed to keep it from falling back below DMF over the next week.
- Awanui:** Little rain in the catchment with no influence on the river. Still well below DMF
- Petaka:** 2.4 l/s on Tuesday 3/3/2020. Above consent limit
- Wairoro:** Briefly rose above consent limits but back down again now. Around 17 l/s upstream of water take currently.
- Ruakaka:** Above MALF after the recent rain. Further and more sustained rain is needed to keep it from falling back below consent limits over the next week.

For update to date river flows refer to:
www.nrc.govt.nz/environment/river-and-rainfall-data/river-and-rainfall-data/#hilltop-droughtinfo

Drought flow map:



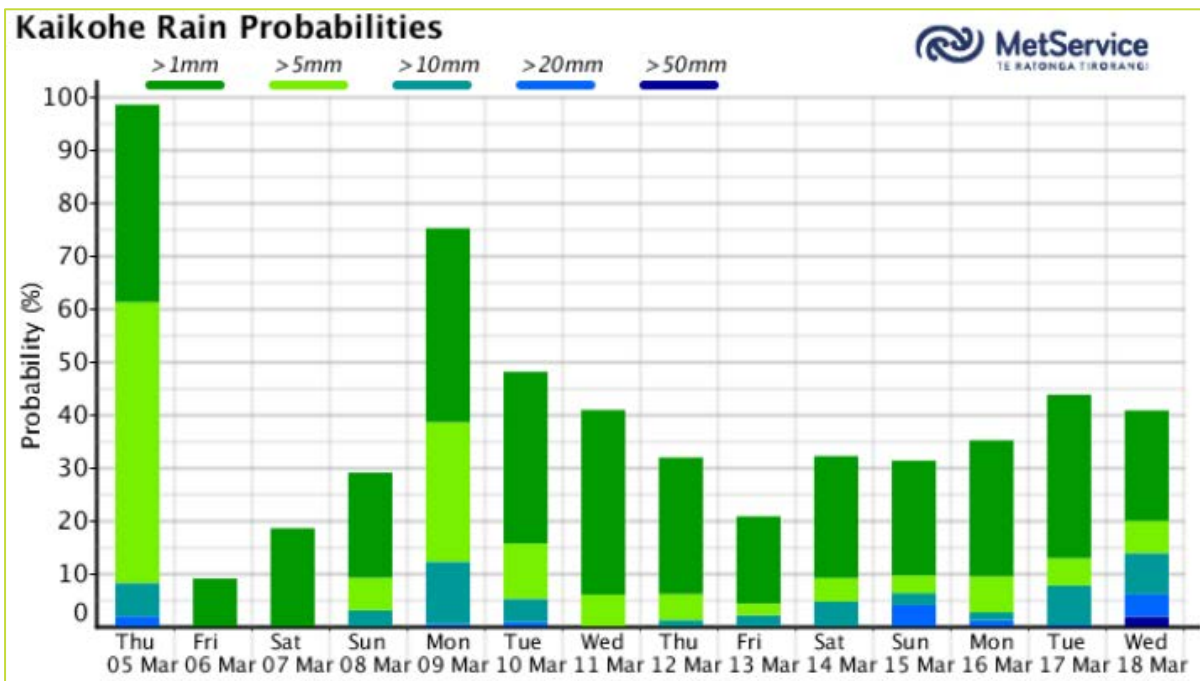
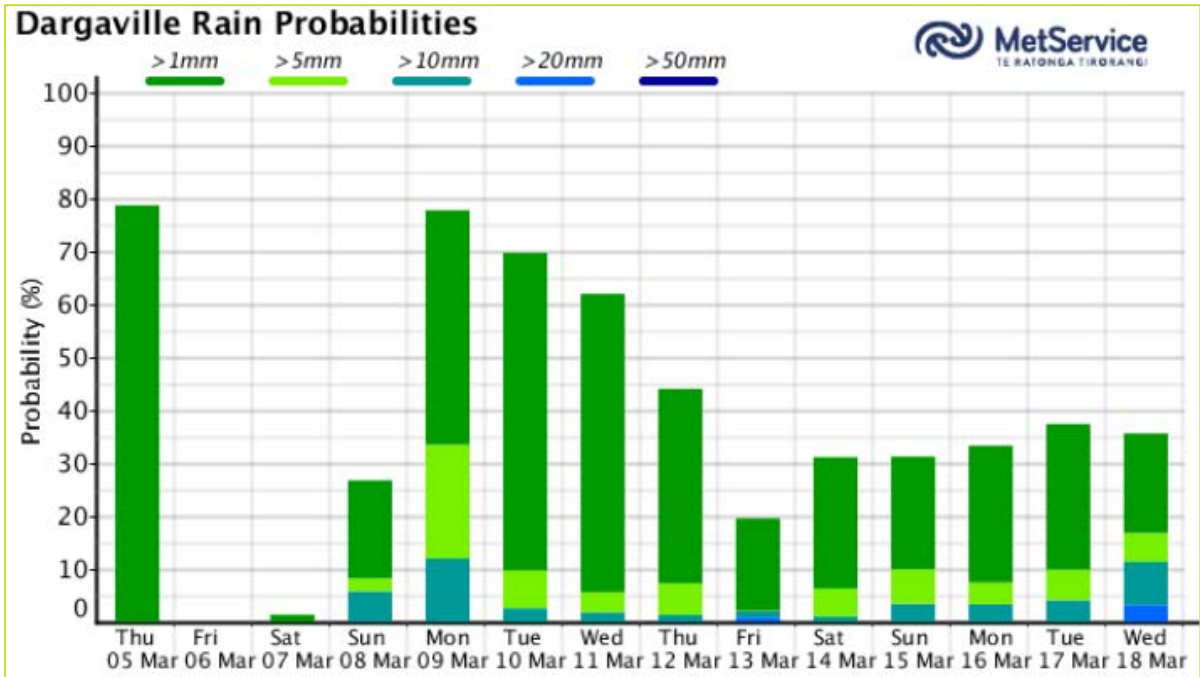
Groundwater levels

Nothing new to report

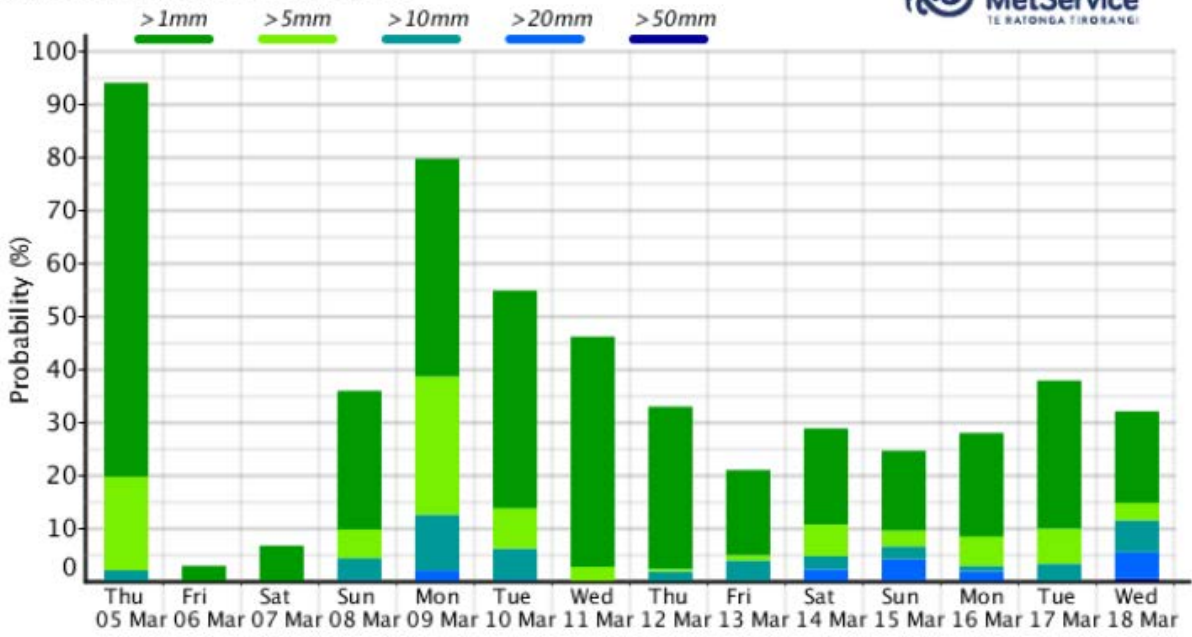
Soil moisture deficits

Nothing new to report

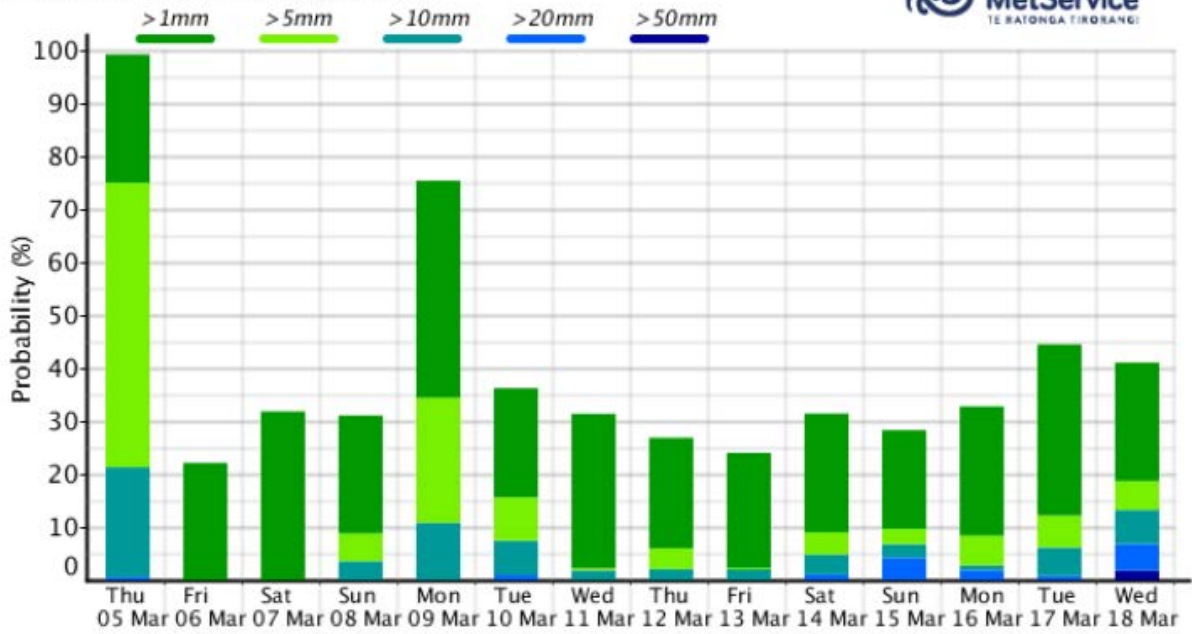
Appendices:



Kaitaia Rain Probabilities



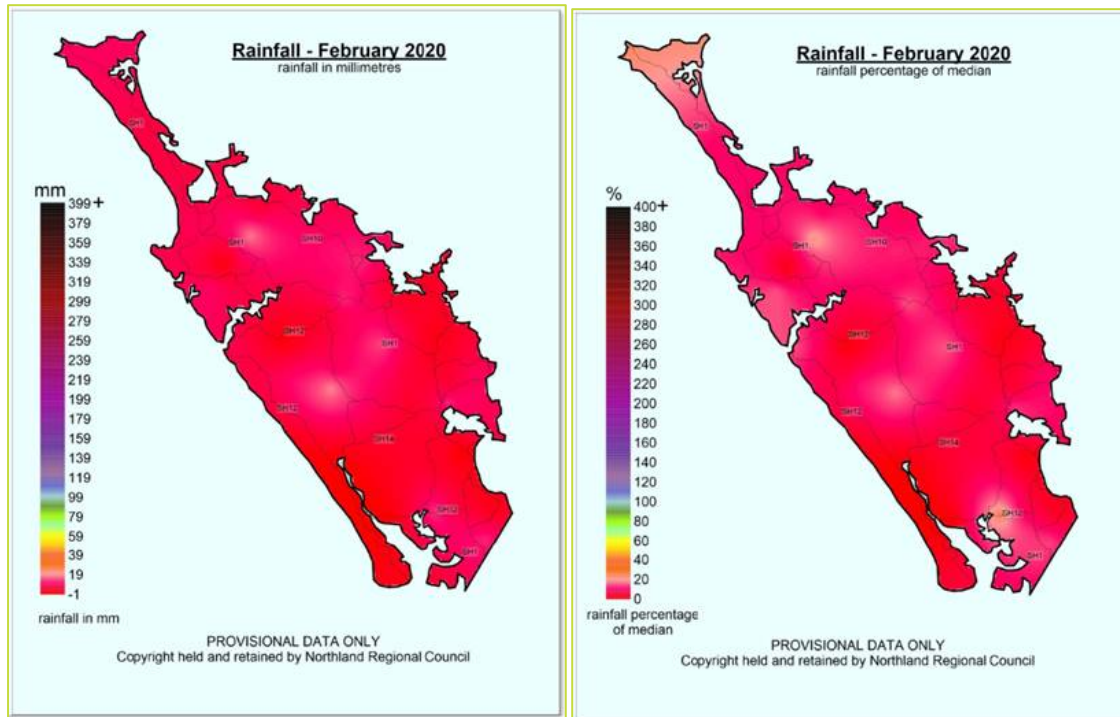
Kerikeri Rain Probabilities



February 2020 & Summer rainfall summary:

Rainfall map (mm) : 1/02/2020 -29/02/2020

Rainfall percentage map: 1/02/2020 -29/02/2020

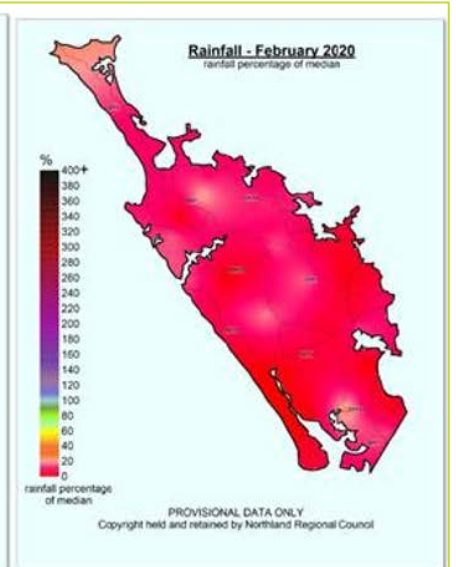
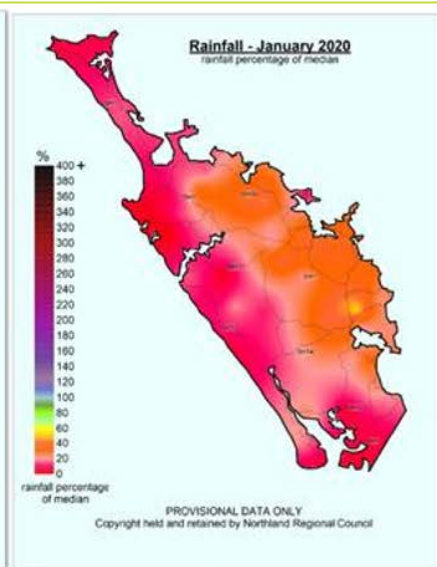
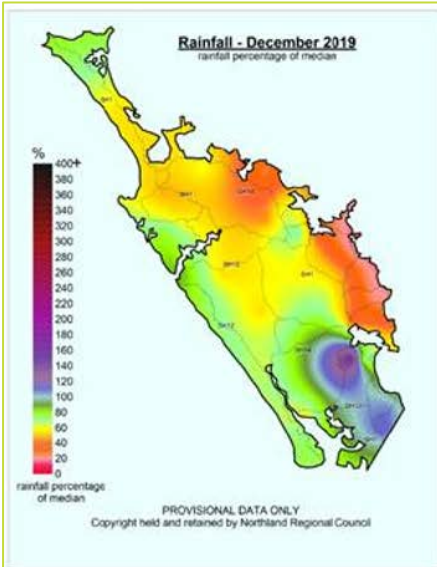
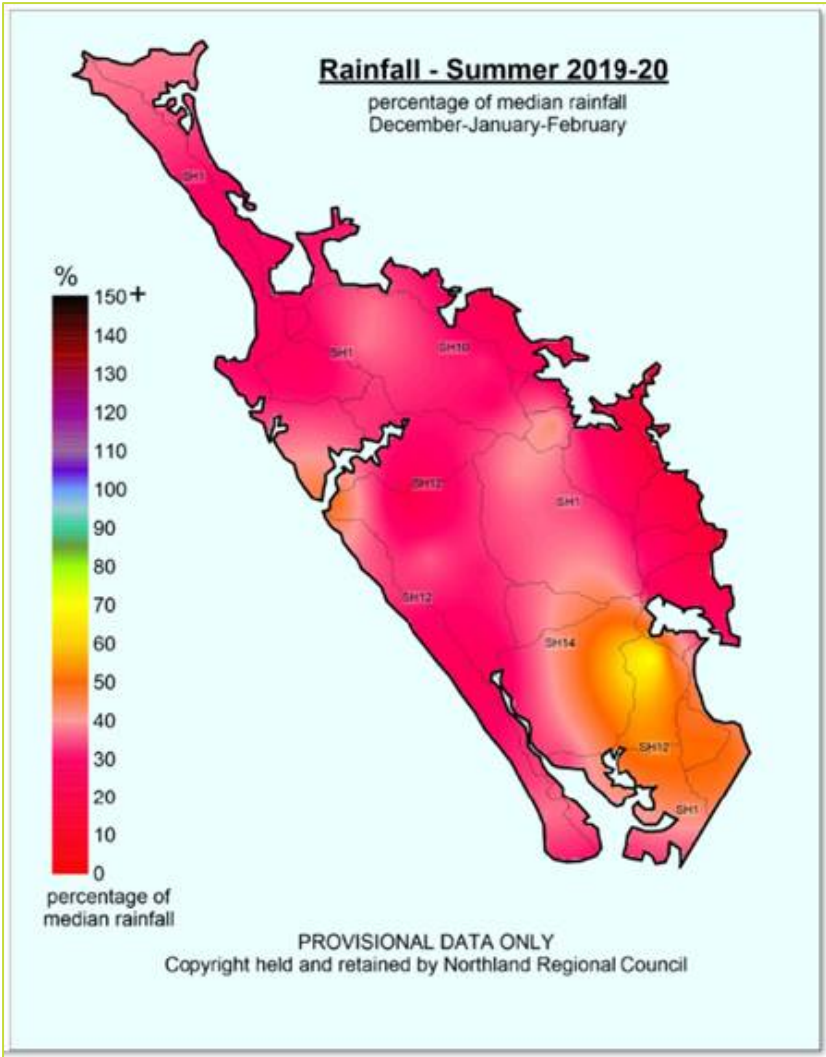


Rainfall totals at our recorder sites ranged from 0.5mm to 19.0mm. The lowest of 0.5mm for February was at Ruawai and Wilsons Dam, Ruakaka. These were followed by 0.8mm at Dargaville and 1mm at Taheke in the Hokianga with 1.5mm recorded in the Takahue catchment north of the Mangamukas and also at Kai Iwi Lakes. The highest rainfall for February was recorded up the Mangakahia Valley at Opouteke with 19mm followed closely by our Mangamuka (Maungataniwha Ranges) gauge with 18.5mm. 12 sites received 10mm or more leaving 36 sites with less than 10mm for the month. All up the region averaged 7.2mm. The drought continues!

Little more can be said about the percentages. Regionally we averaged just 9% of what we would expect in February and ranged from 25% in the south at our Paparoa gauge down to a paltry 1% at a number of sites (Dargaville, Ruawai, Taheke). 31 sites were 10% or less.

Summer map:

Another 'red' map, offset only by the yellow/orange in the Bream Bay area as a result of December thunderstorms. Regionally, Northland has had 35% of the rains we would usually expect over the summer months of December, January and February. The east coastal area around Oakura has fared the worst with only 15% and areas around the eastern hills of Puhipuhi to Whangarei about 25%. In fact 9 sites around the region received 25% or less over the 3 summer months. Gauges in the Bream Bay and southern areas received about 50% of normal with the Waikokopa site on McDonnell Road getting 71%, as indicated, largely from rain in December.



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