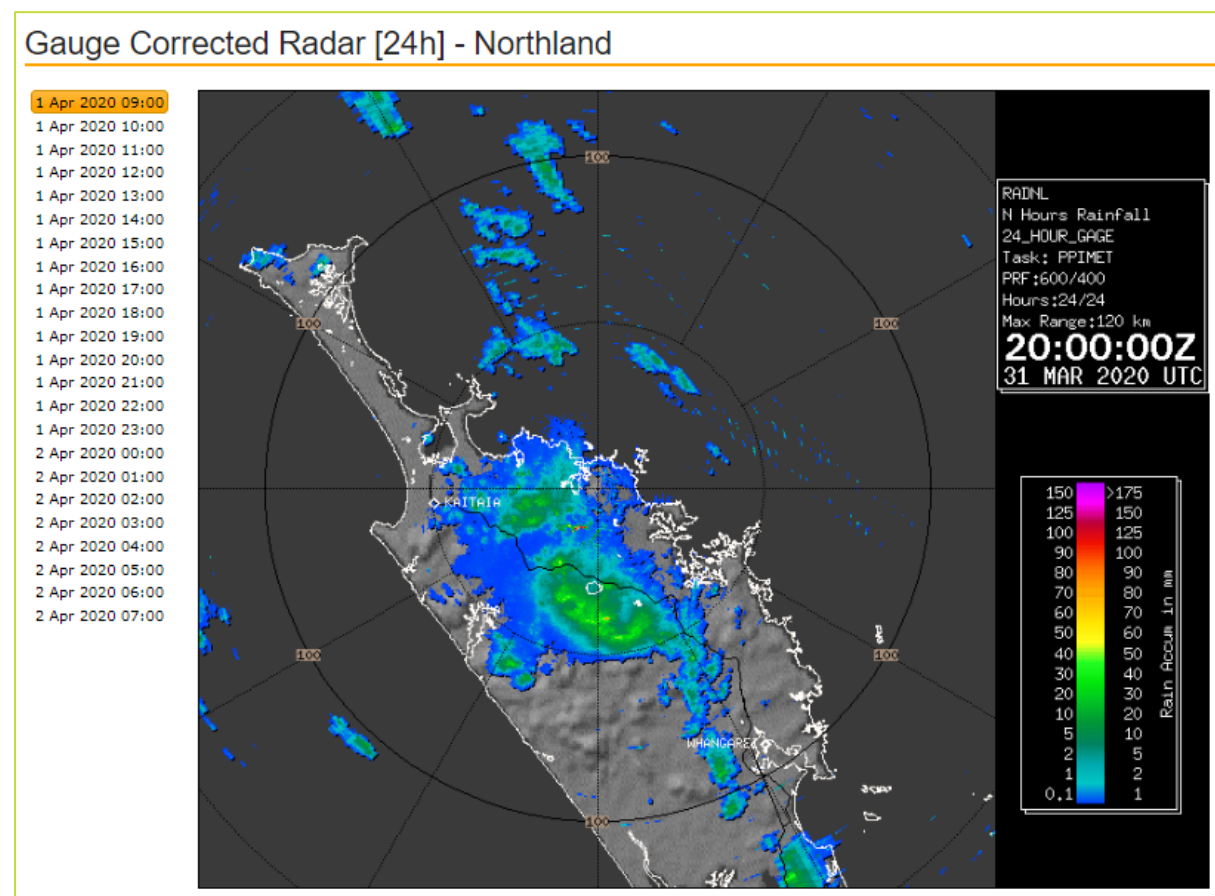


Hydrology information for the situation report – 02 April 2020

Current situation summary:

From 26 March 2020, rainfall total has been minimal with only 5-15mm recorded at most of the main centres, daily maximum temperatures reached 20-23 degrees across the region, with light westerlies winds.

The Kaikohe MetService station recorded a decent thump of 46.6mm on 31 March 2020, shown in the rain radar below, which provided a 180mm lift in the Wairoro stream.



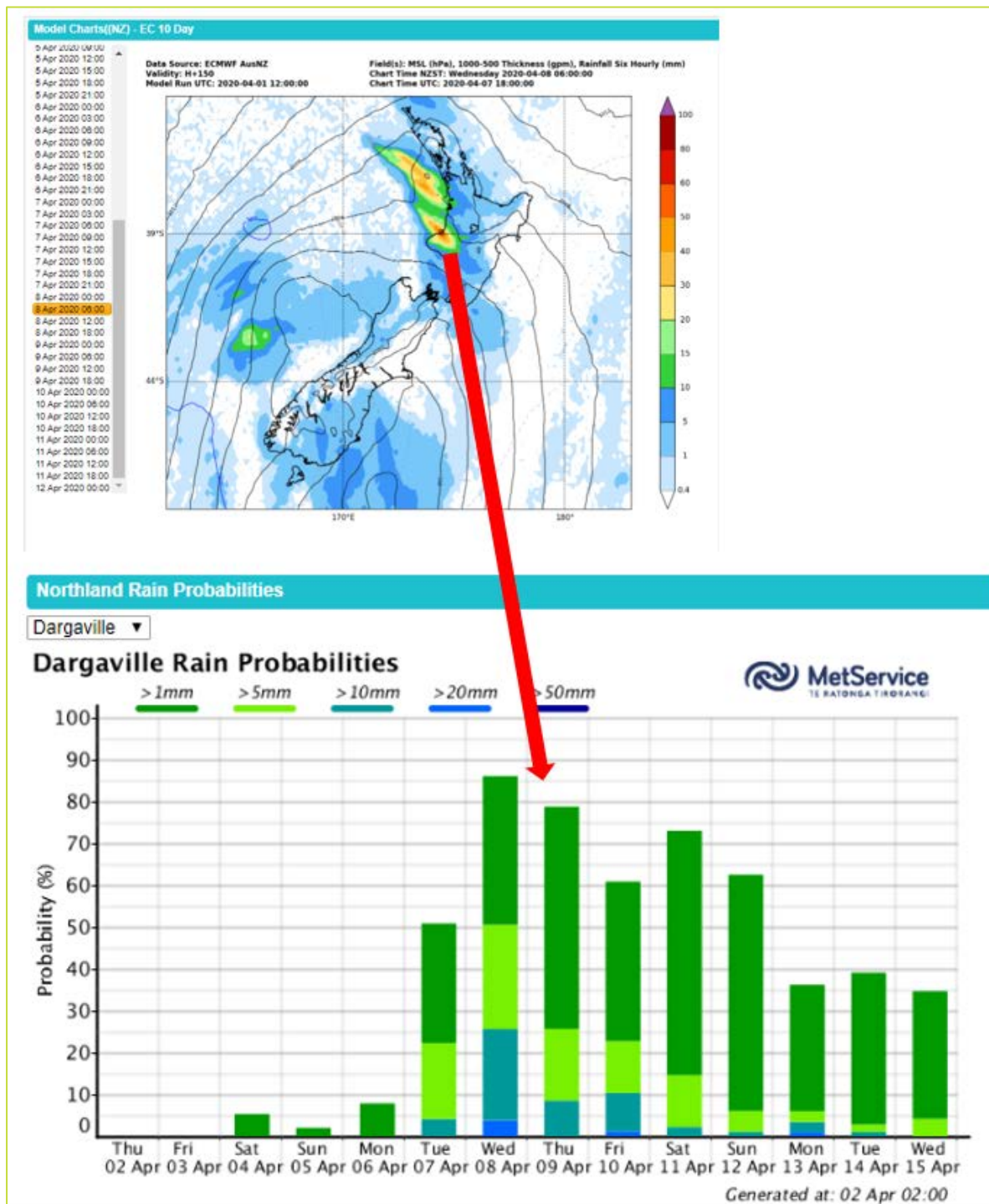
MetService Outlook

Short term: 3-5 days:

The 3x day rainfall model shows some scattered showers of 5-10mm along the east coast

Long range:

The 10x day model show a south west front fading out as it approaches Northland next week, the west coast catchments may get some rain the range of 10-15mm. The probability graphs for all the main centres show the likelihood of rainfall over 20mm in the next 10x days is less than 5%.



Rainfall anomaly (mm)	Week 1	Week 2	Week 3	Week 4
Kaitaia	-17	0	-4	3
Kaikohe	-20	1	-5	1
Whangarei	-17	-2	-5	4
Dargaville	-16	3	-3	5

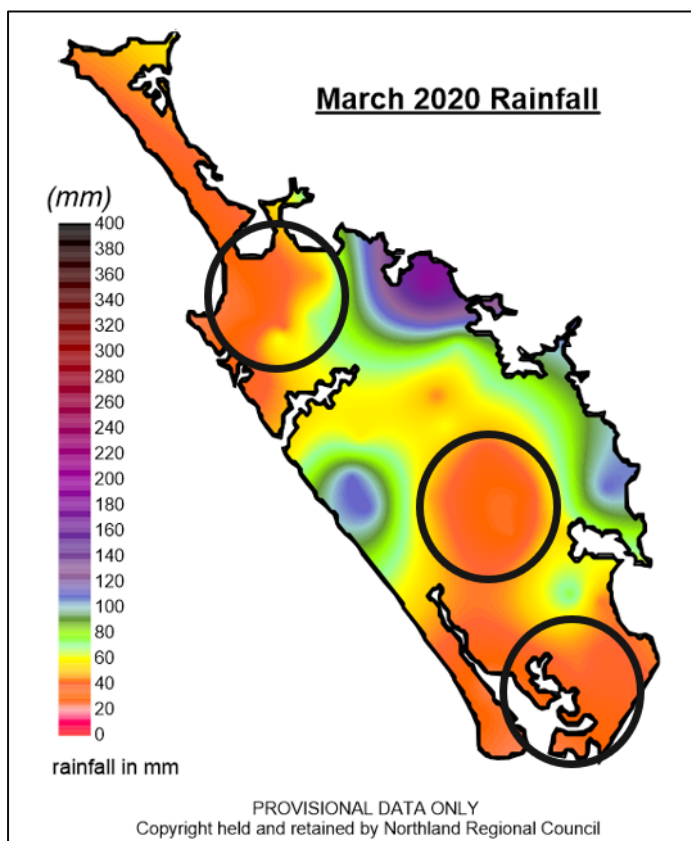
Rainfall (% anomaly)	Week 1	Week 2	Week 3	Week 4
Kaitaia	-85%	0%	-23%	15%
Kaikohe	-74%	3%	-17%	5%
Whangarei	-59%	-8%	-16%	13%
Dargaville	-64%	12%	-12%	18%

Rainfall

March 2020 was a slight improvement in small pockets of Northland, but the orange on the rainfall maps show the North Hokianga, mid north and southern Kaipara catchments still tracking with low rainfall totals of 20-40mm per month, typically 80-100mm of rain is expected over March, these areas are still strongly locked into the drought.

The purple on the map below shows the where rainfall was above the expected March rainfall totals:

- Towai catchment up at 192mm
- Waima recording 134mm
- Ngunguru recording 106mm

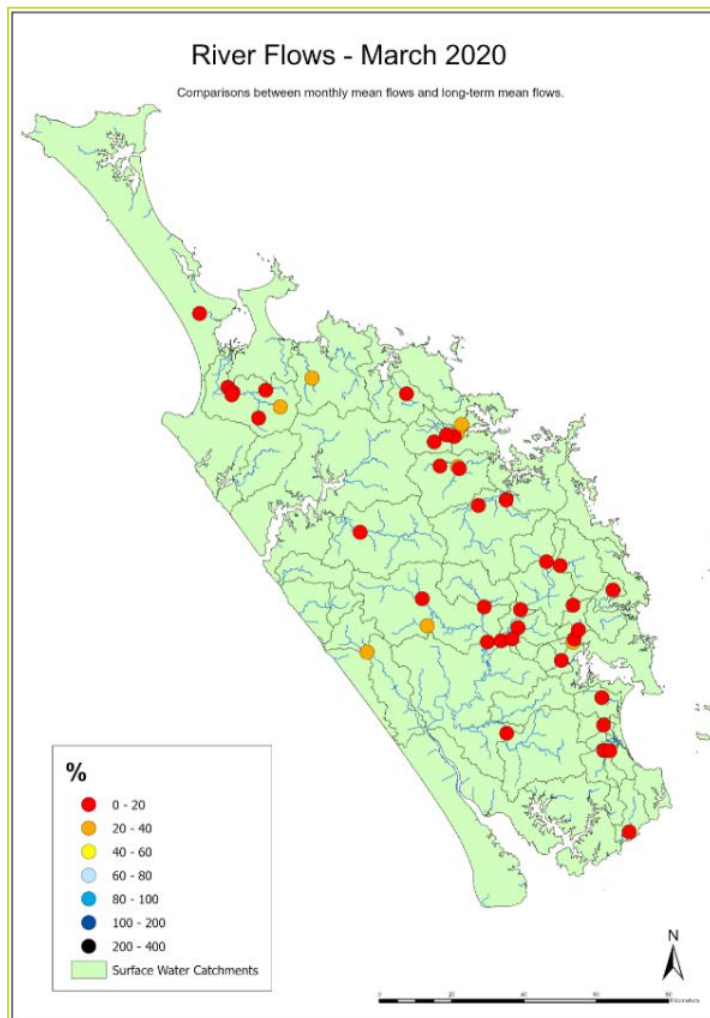


FNDC		WDC		KDC	
Otiria	9.5 mm	Mangakahia	7.0 mm	Waima	16.0 mm
Taheke	7.0 mm	Waiarohia	5.2 mm	Dargaville	14.0 mm
Tarawhataroa & Waitangi	6.0 mm	Whakapara & Waipao	3.0 mm	Paparoa	12.0 mm
CENTRES					
Kaitāia	0.0mm	Whangārei	3.2 mm	Dargaville	14.0 mm
Kaikohe	59.2 mm				
Kerikeri	13.0 mm				

River flows

River flows remain low throughout most of the region with 93% of river stations below DMF. The frequent small amounts of rain are lifting the river slightly, but they are quick to recede. The flows for March 2020 are down at 20% of normal flow.

Initial data from NRC long term stations indicate rivers during the current drought have been below DMF for 30-50% more days compared to the 2009/10 drought.



Public water supply river flows (litres per second: l/s) as of 12pm 02 April 2020					
FNDC	WDC		KDC		
Awanui	256	Hatea	75	Kaihu	630
Wairoro	~ 7 D/S	Ruakaka	19		
Waitangi	434	Ahuroa			
Puketotara	117				
Petaka	2.8				

Groundwater levels

Given the latest MetService 4x week forecast and the current recession of the aquifers, unless a storm hits Northland it is likely record low water levels will be observed by early May 2020 (excluding Aupouri & Russell).

Additional monitoring regarding saltwater intrusion is scheduled to commence on the Ruawai & Russell and small coastal systems.

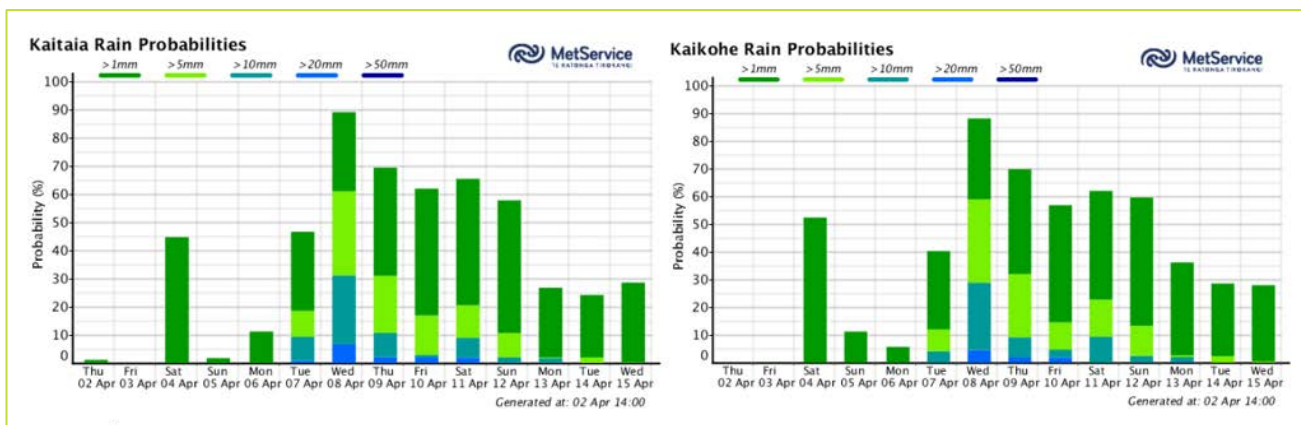
Soil moisture deficits

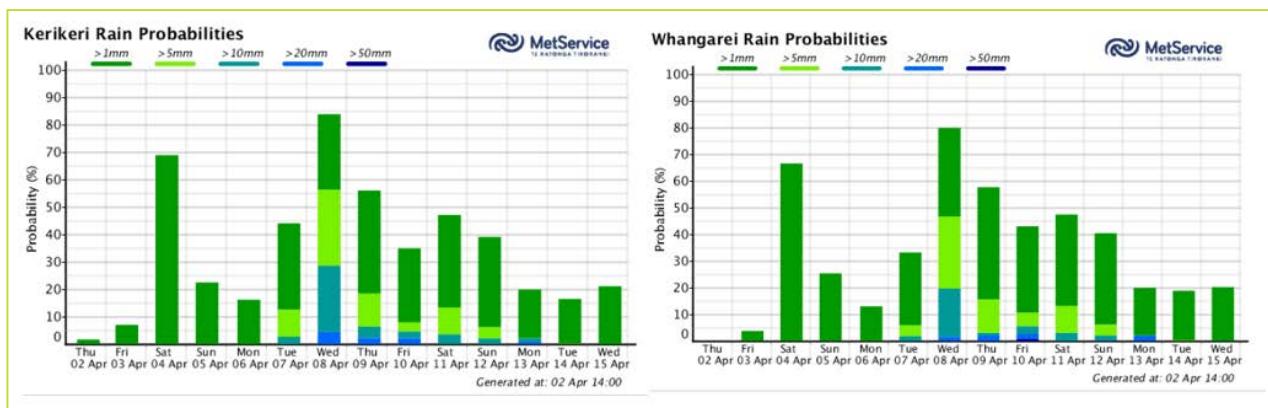
The lower air temperatures, intermittent rain is helping reduce the show soil moisture deficits as shown in the table below:

NIWA CLIMATE STATIONS	Soil moisture deficit (mm) as of 02/05/2020
Kaitiāia	-130
Kaikohe	-112
Kerikeri	-87
Dargaville	-110
Whangārei	-125
Warkworth	-130

Appendices:

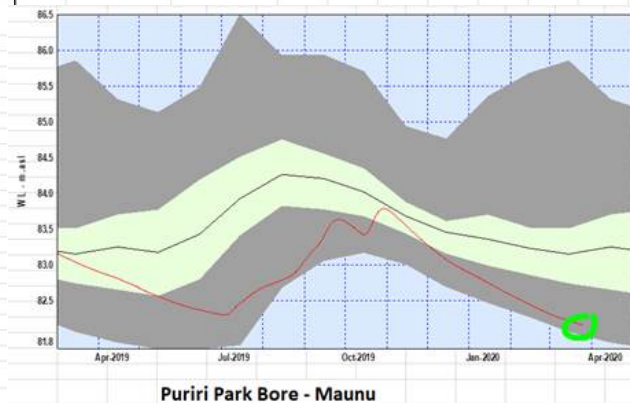
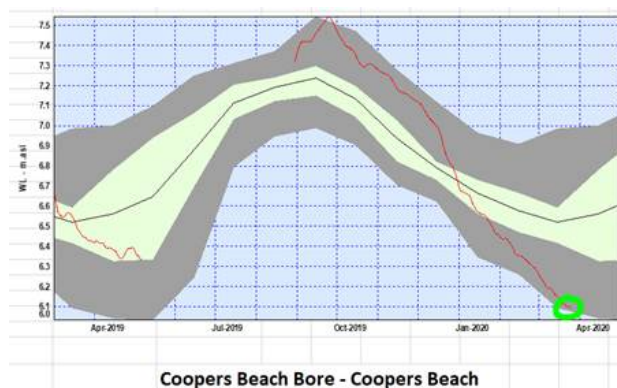
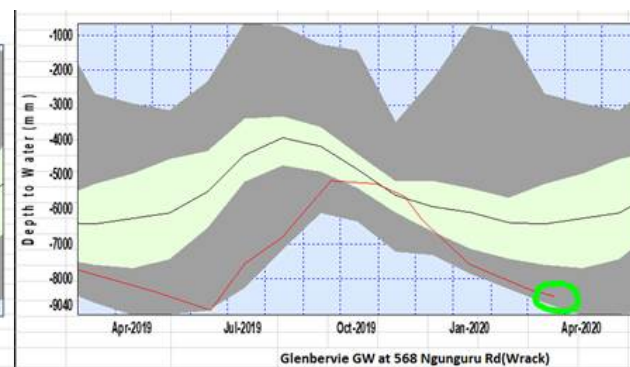
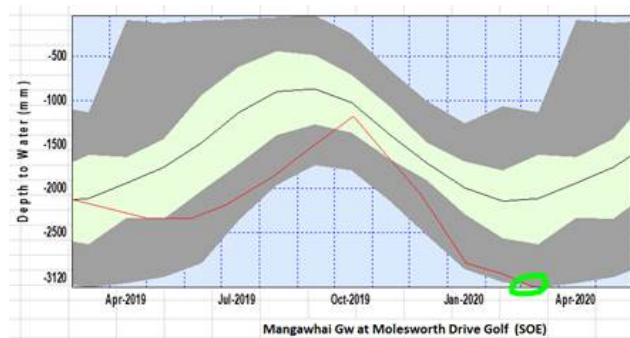
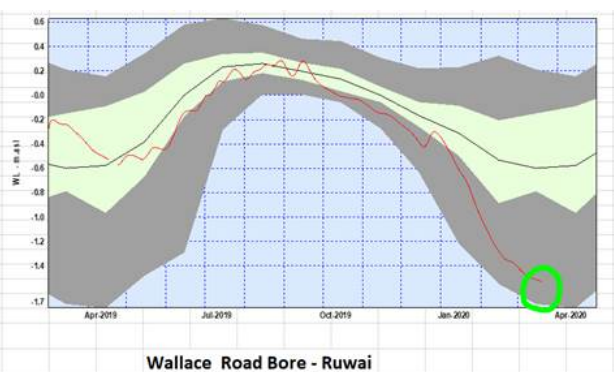
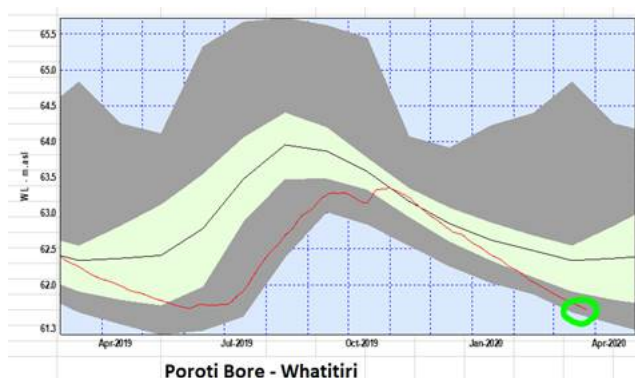
Rainfall probability plots





Groundwater plots

Showing levels relative to average (black line) and 0-20th percentile (bottom grey area).



NIWA Soil moisture deficit plots

