SITUATION REPORT
Bay of Plenty Regional Council
Data Services Team

BAY OF PLENTY REGIONAL COUNCIL TOI MOANA

SitRep number:	SitRep # 9	SitRep effective as at:	4 May 2021

Key points since last SitRep

- This is the ninth SitRep of the summer of 2020/2021.
- April 2021 monthly rainfall can generally be classified as below normal with the exception of the Whakatāne and Waioeka/Otara catchments.
- Forecasts are predicting near normal rainfall being most likely with above average temperatures. Essentially these forecasts would indicate a continuing pattern of deficits we've seen over the last 1-2 years.
- Generally river flows and catchments are not under severe pressure with cooler temperatures and increasing soil moisture assisting even if stream flows are still low. The exception being the catchments with their headwaters to the west-southwest of Lake Rotorua which are still low following approximately 2 years of lower than normal rainfall.

Predicted event development (how is the situation expected to evolve?)

1 Forecast

1.1 NIWA seasonal forecast

- Rainfall is about equally likely to be below normal or near normal in all regions of Aotearoa New Zealand except the north of the North Island, where near normal rainfall is most likely. It's possible that long dry spells continue over the next three months.
- While rainfall events will occur over the next three months, their frequency may be reduced compared to normal. Groundwater and dam level recharge and increases in river flow and soil moisture will likely be less pronounced than normal.
- Temperatures are very unlikely to be colder than average for the three months as a whole. Above average or near average temperatures are favoured for all regions except the east of the South Island, where above average temperatures are most likely.

Regional predictions for April - June 2021 Northland, Auckland, Waikato, Bay of Plenty

Forecast information from local and global guidance models is used to indicate the deviation from equal chance expected for the coming three-month period, with the following outcomes the most likely (but not certain) for the upper North Island region:

- Temperatures are about equally likely to be above average (50% chance) or near average (45% chance).
- Rainfall totals are about most likely to be near normal (45% chance).
- Soil moisture levels and river flows are most likely to be near normal (45% chance).

1.2 Short-term forecast (MetService)

MetService are predicting the following conditions for the coming week.

Bay Of Plenty

	Today Mon 03	Fine, apart from cloud about the eastern ranges, clearing this afternoon. Light winds. Issued at 12:49pm Monday 03 May 2021
FOG	**Tomorrow** Tue 04	Fine, apart from areas of morning fog. Light westerlies. Issued at 11:06am Monday 03 May 2021
FOG	Wed 05	Fine, apart from areas of cloud or fog morning and night. Light westerlies. Issued at 11:06am Monday 03 May 2021
	Thu 06	Fine, apart from areas of cloud morning and night. Light winds. Issued at 10:25am Monday 03 May 2021
	Fri 07	Fine. Easterlies. Issued at 10:25am Monday 03 May 2021
	Sat 08	Rain, clearing but remaining cloudy. Northerlies. Issued at 11:32am Monday 03 May 2021

Summary of event (summary of what has happened and any critical issues/decisions made)

2 Rainfall

The predicted low pressure systems with an elevated chance for heavy rain events in the middle part March did not eventuate, apart from an isolated system that affected Whakatāne and Waioeka/Otara catchments.

April 2021 monthly rainfall can generally be classified as below normal with the exception of the Whakatāne and Waioeka/Otara catchments.

Year-to-date rainfall totals demonstrate a continuing dry signal in the western, inland central and far eastern areas of the region.

BAY OF PLENTY REGIONAL COUNCIL TOI MOANA

Bay of Plenty Regional Council
Thriving together. Mō te taiao, mō ngā tāngata

Rainfall Summary
Rainfall.Rainfall Summary Report

May 3, 2021 | 1 of 2
Period Selected: 2021-05-02 00:00 to End of Record

Location Name	Most Recent Sample	Intensity (mm/hr)	Today (mm)	Yesterday (mm)	Last 5 days (mm)	This Month (mm)	Last Month (mm)	Last Month % of Normal	Year To Date - Complete Months (mm)	Year To Date % of Normal
Tuapiro at Farm Bridge	03/05/2021 15:00:00	0.0	0.0	0.0	0.5	0.0	90.0	42 %	494.0	76 %
Te Puna at Odey Rd	03/05/2021 15:00:00	0.0	0.0	0.0	0.5	0.5	104.5		451.2	
Wairoa at Lower Kaimai	03/05/2021 15:00:00	0.0	0.0	0.0	0.5	0.0	127.5	75 %	451.0	78 %
Ngongotaha at Relph Rd	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	91.2	59 %	366.7	80 %
Rotorua at Upper Oturoa Rd	03/05/2021 15:00:00	13.0	13.0	0.0	13.0	13.0	97.0	47 %	370.3	57 %
Waimapu at Glue Pot Rd	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	187.0	99 %	488.8	77 %
Waimapu at McCarrolls	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	80.0	45 %	300.5	54 %
Rotorua at Whakarewarewa	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	84.6	77 %	352.1	88 %
Paraiti (Mangorewa) at Kaharo	03/05/2021 14:00:00	0.0	0.0	0.0	0.0	0.0	123.5	61 %	451.2	77 %
Okaro at Okaro Rd	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	64.5	50 %	284.9	72 %
Lake Rotoiti at Okawa Bay	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	90.0	50 %	391.1	77 %
Tikitere at SH30	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	117.9		470.5	
Paraiti (Mangorewa) at Upper	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	166.5	91 %	574.9	92 %
Paraiti (Mangorewa) at Link	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	153.5	77 %	450.0	81 %
Raparapahoe at Collins Lane	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	104.0	49 %	334.0	55 %
Kaituna at Marshalls Farm	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	102.6	53 %	280.5	56 %
Kaituna at Te Matai	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	128.0	82 %	371.0	85 %
Rangitaiki at Kokomoka (Bore 1	03/05/2021 15:05:00	0.0	0.0	0.0	0.0	0.0	74.5	62 %	315.0	75 %
Pongakawa at Pongakawa Bush	03/05/2021 14:00:00	0.0	0.0	0.0	0.0	0.0	170.5	106 %	418.5	83 %
Outlet at Waitangi Soda Spring	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	136.7		468.6	
Te Whaiti at Minginui	03/05/2021 14:00:00	0.0	0.0	0.0	0.5	0.0	72.0		245.7	
Kawerau at Plunket St	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	128.0		452.8	
Tarawera at Hogg Rd	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	126.0		461.6	
Ohinekoao at Harris Saddle	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	138.0	69 %	579.5	92 %
Galatea Basin at Horomanga R	03/05/2021 15:00:00	0.0	0.5	0.0	0.5	0.5	93.5	67 %	300.4	76 %
Waihua at Clearing	03/05/2021 14:00:00	0.0	0.0	0.0	0.0	0.0	115.5	62 %	427.5	76 %
Rangitaiki at Te Teko	03/05/2021 15:00:00	0.0	0.0	0.0	0.5	0.5	116.7	81 %	454.5	111 %
Edgecumbe at Edgecumbe	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	109.5	63 %	421.8	93 %
Tarawera at Awakaponga	03/05/2021 14:10:00	0.0	0.0	0.0	0.0	0.0	108.5	72 %	470.5	107 %
Rangitaiki Plains at Flax Rd	03/05/2021 11:30:00		0.0	0.0	0.0	0.0	108.0	55 %	543.0	111 %

Location Name	Most Recent Sample	Intensity (mm/hr)	Today (mm)	Yesterday (mm)	Last 5 days (mm)	This Month (mm)	Last Month (mm)	Last Month % of Normal	Year To Date - Complete Months (mm)	Year To Date % of Normal
Tarawera at ORC Pump Station	03/05/2021 15:01:00	0.0	0.0	0.0	0.0	0.0	51.5	49 %	328.5	102 %
Whakatane at Kopeopeo	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	155.0	114 %	451.3	118 %
Rangitaiki at Thornton	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	106.0	82 %	415.5	111 %
Whakatane at Huiarau Summit	03/05/2021 14:00:00	0.0	0.5	0.0	3.0	2.5	160.6	85 %	545.7	80 %
Whakatane at Huitieke rain	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	155.3	144 %	464.5	113 %
Whakatane at Awahou Rd	03/05/2021 15:00:00	0.0	0.0	0.5	0.5	0.5	251.0		690.7	
Wainui-te-whara at Munro's	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	249.0	128 %	619.0	133 %
Tauranga at Omahuru (Ogilvies	03/05/2021 14:15:00	0.0	0.0	0.0	0.0	0.0	179.0		554.4	
Nukuhou at Nukuhou North	03/05/2021 15:00:00	0.0	0.0	0.0	0.5	0.5	154.0		648.5	
Ohope Spit at Ohope Golf Coure	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	91.0		417.9	
Waioeka at Koranga	03/05/2021 15:00:00	0.0	0.0	0.0	0.5	0.0	131.0	89 %	358.7	63 %
Waioeka at Cableway	03/05/2021 14:15:00	0.0	0.0	0.0	0.0	0.0	169.3	83 %	658.4	100 %
Waioeka at Mouth of Gorge	03/05/2021 14:25:00	0.0	0.0	0.0	0.0	0.0	140.5	94 %	587.8	117 %
Otara at Opotiki Wharf	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	124.0	116 %	437.4	118 %
Otara at Tutaetoko	03/05/2021 15:00:00	0.0	0.0	0.5	0.5	0.5	205.7	105 %	639.0	94 %
Otara at Browns Bridge	03/05/2021 15:00:00	0.0	0.0	0.0	0.0	0.0	145.5	109 %	468.1	116 %
Pakihi at Pakihi Station	03/05/2021 15:10:00	0.0	0.0	0.0	0.0	0.0	196.5	102 %	528.0	84 %
Pakihi at Rakanui	03/05/2021 15:00:00	0.0	0.0	0.0	0.5	0.5	99.5	65 %	384.1	71 %
Haparapara at Haparapara	03/05/2021 15:00:00	0.0	0.0	0.5	0.5	0.5	302.5	86 %	648.0	58 %

Table 1 Rainfall statistics for April 2021

2.1 Standardised Precipitation Index

The Standardised Precipitation[1] Index (SPI) is used for high level presence/absence definition of drought type conditions.

The rainfall in April 2021 has shown continued easing of the 3 &12 month SPI figures (Figure 1) towards normal across the majority of the region, however there is a continuing lack of rain in the higher altitude fringes of the region which has seen developing severely dry signals.

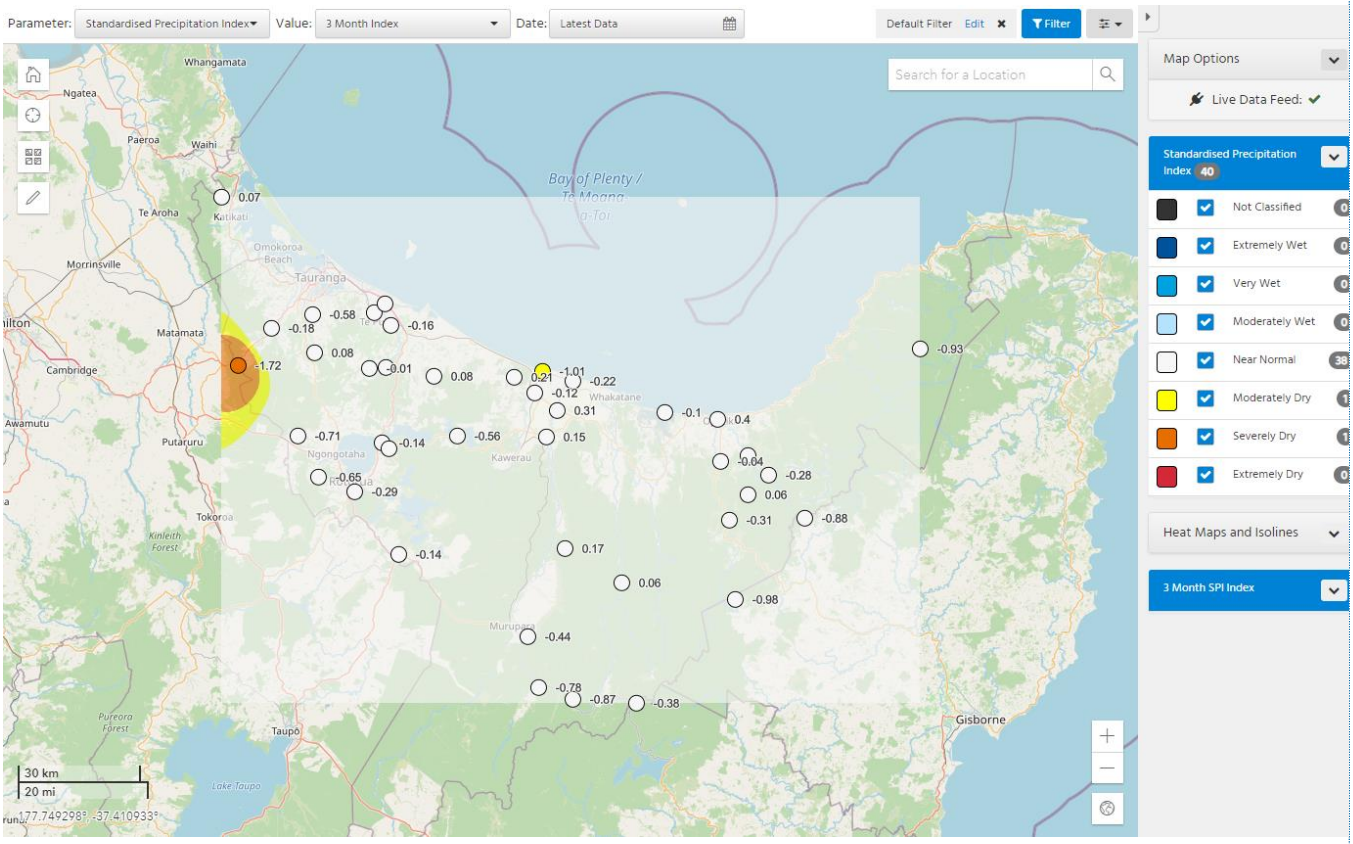


Figure 1 3 month SPI

[1] Precipitation being another name for rainfall.

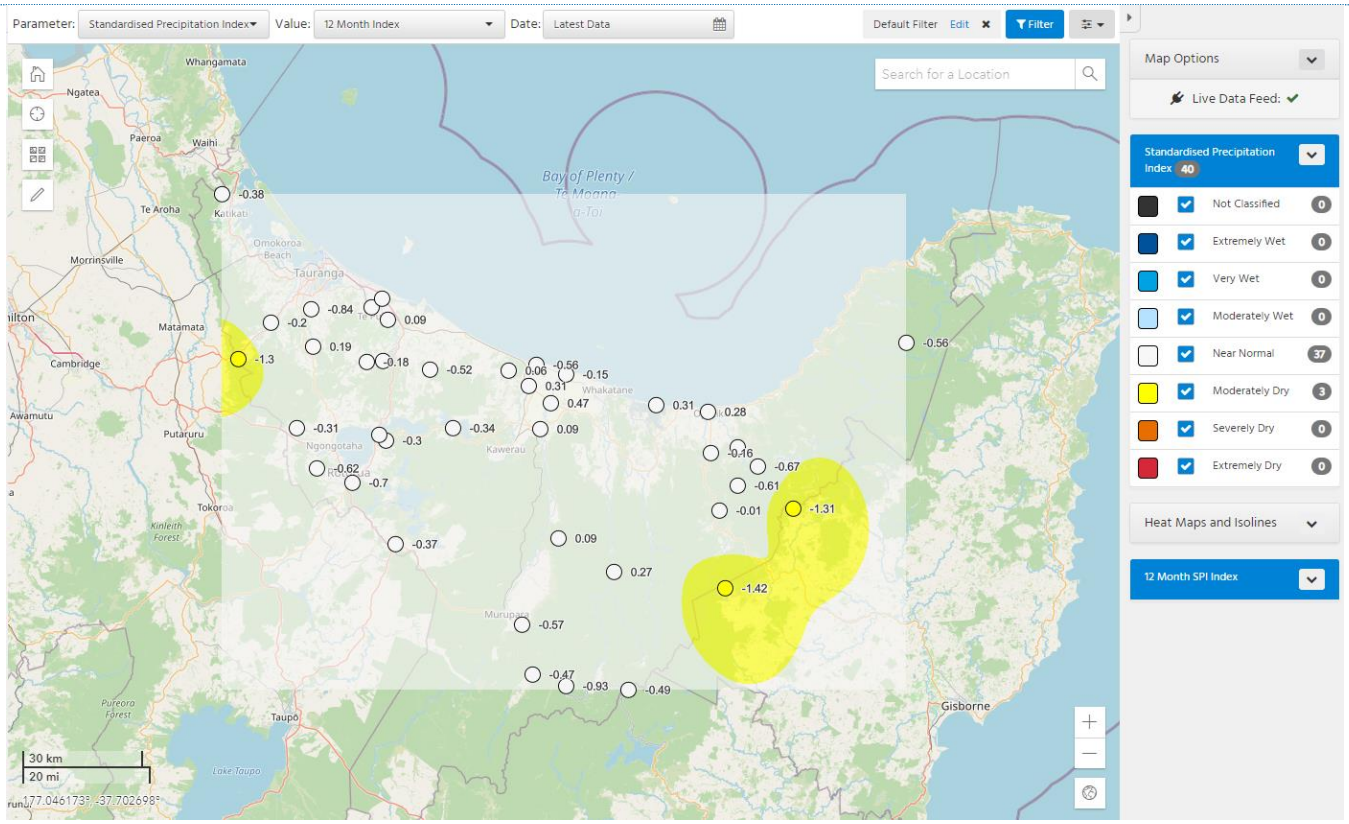


Figure 2 12 month SPI

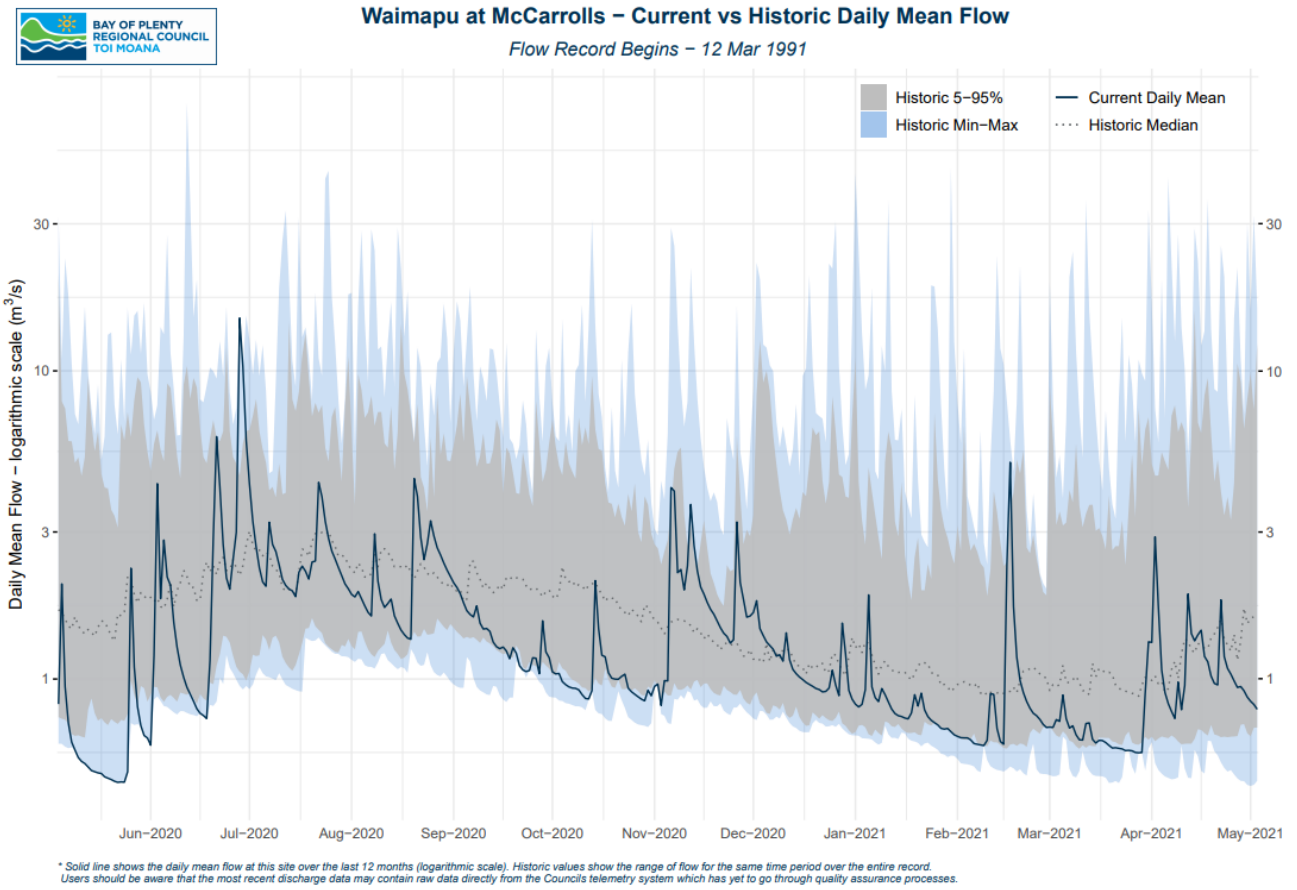
3 River Flows

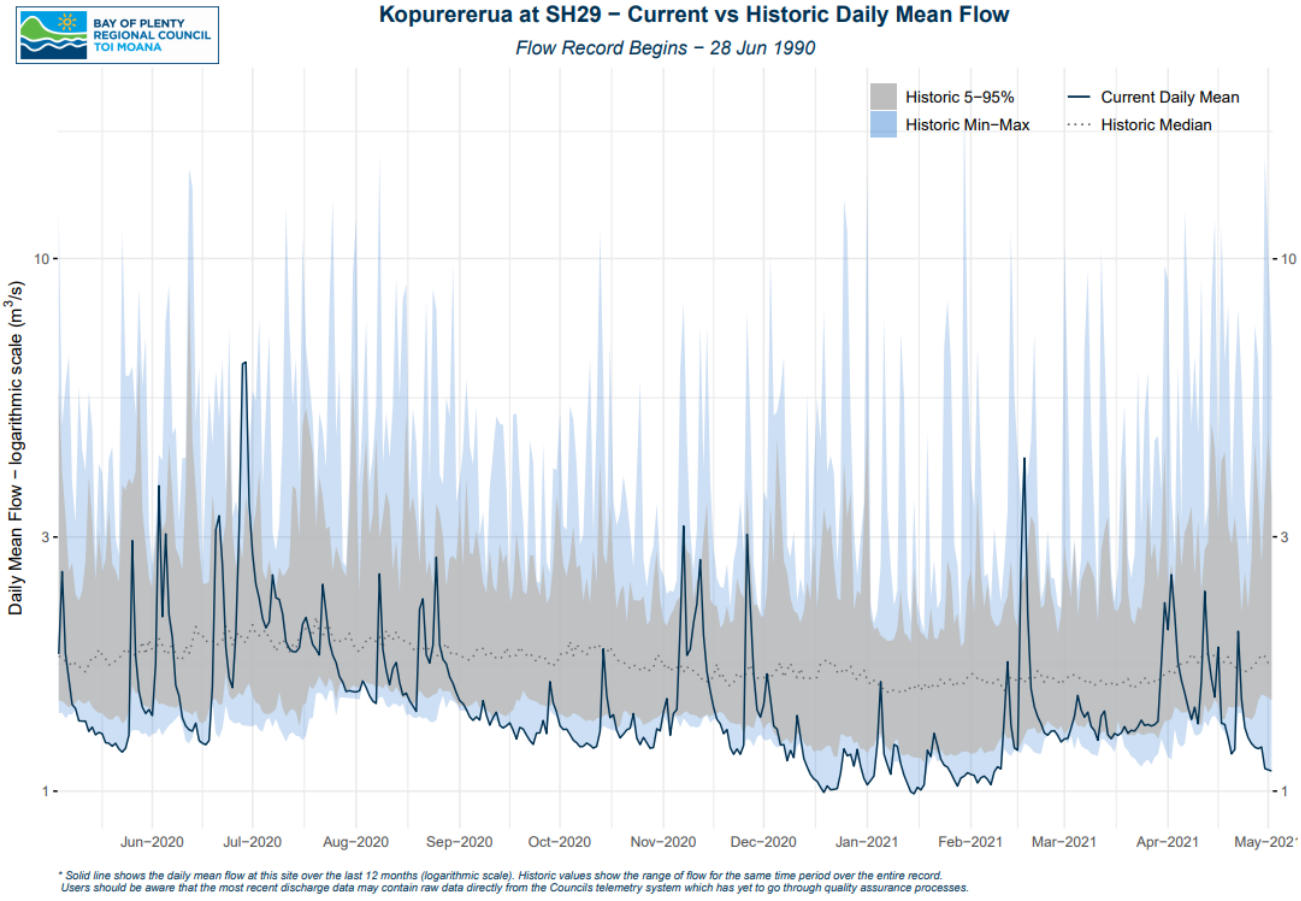
The Rotorua focus area identified in prior SitReps continues to be an area of concern, with flows at or approaching record low levels for the time of the year in many cases. The steady decline in the Waiari and Paraiti base flows over the last 12 months continues with little sustained response to rainfall events being evident.

Other parts of the region are currently not under significant river flow pressure due to rainfall, cooler temperatures and rising soil moisture levels.

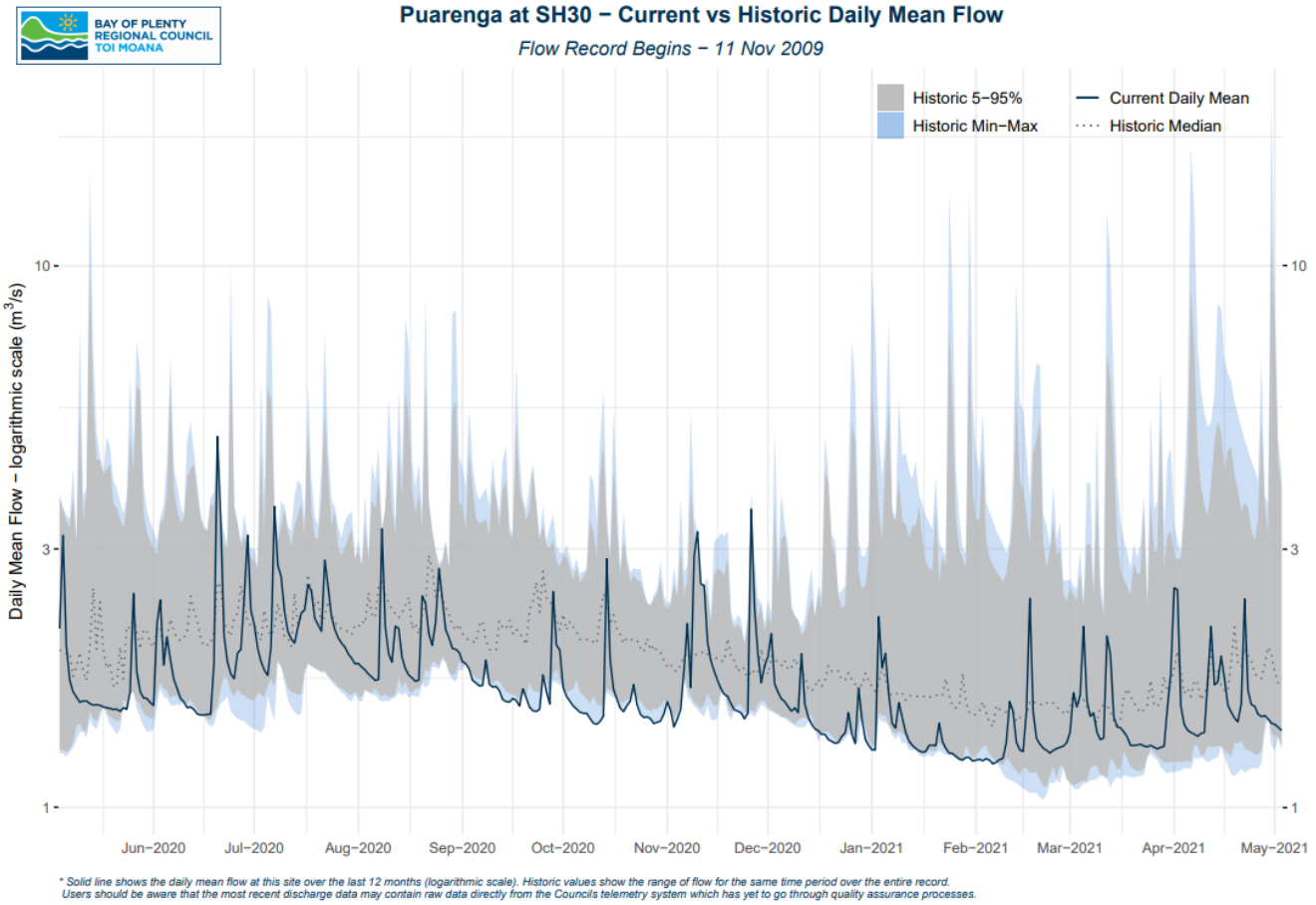
To provide some context of the length of the drought period being seen section 3.3 provides some representative daily mean flow plots over a longer 3 year term (compared to the 1 year normally shown) for the Rotorua focus area. The general continued reduction in base flows is evident over the period and it is of some concern that this trend is likely to continue if we see the forecasted normal or below normal rainfall over winter months.

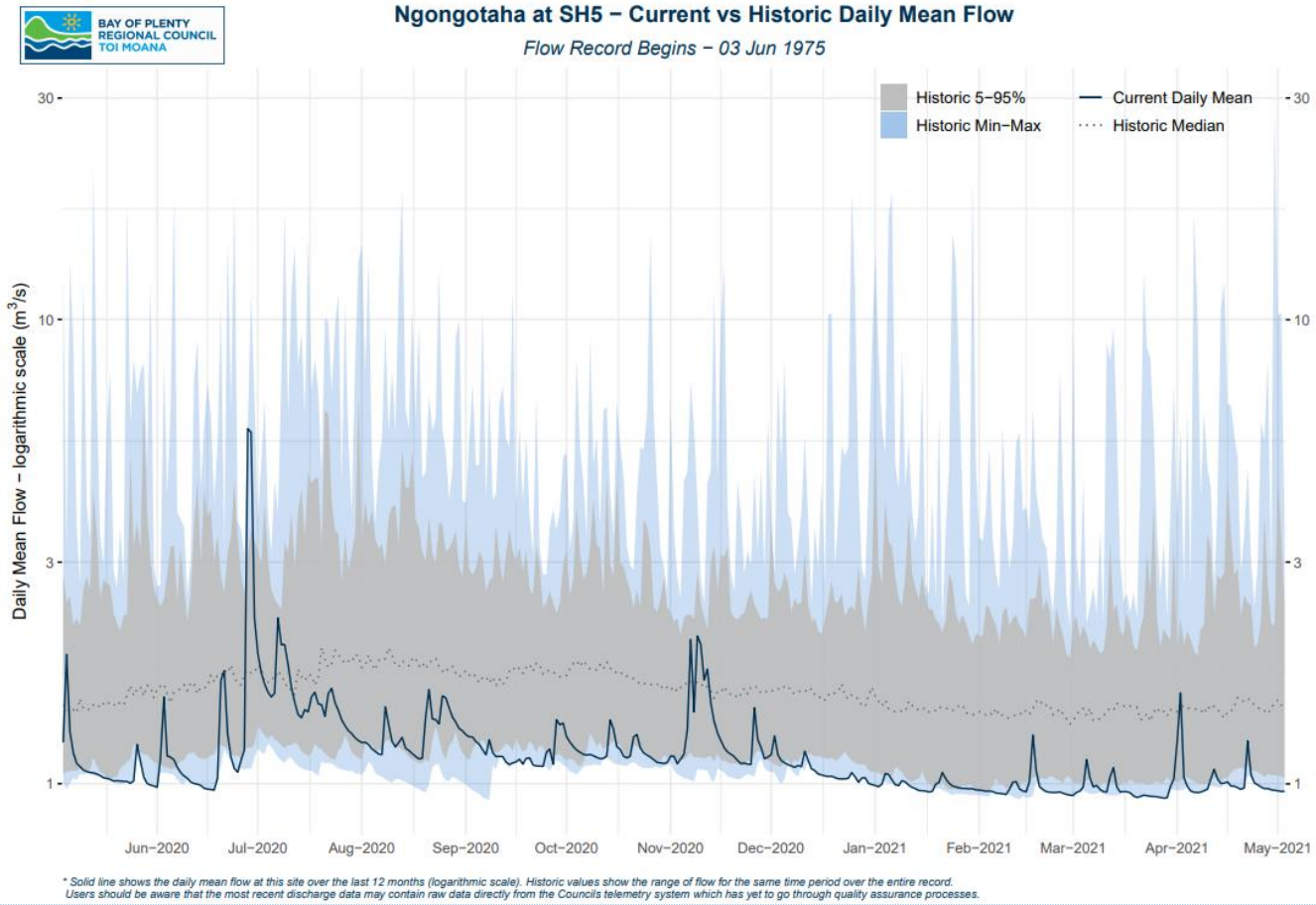
3.1 Western BOP flow monitoring sites



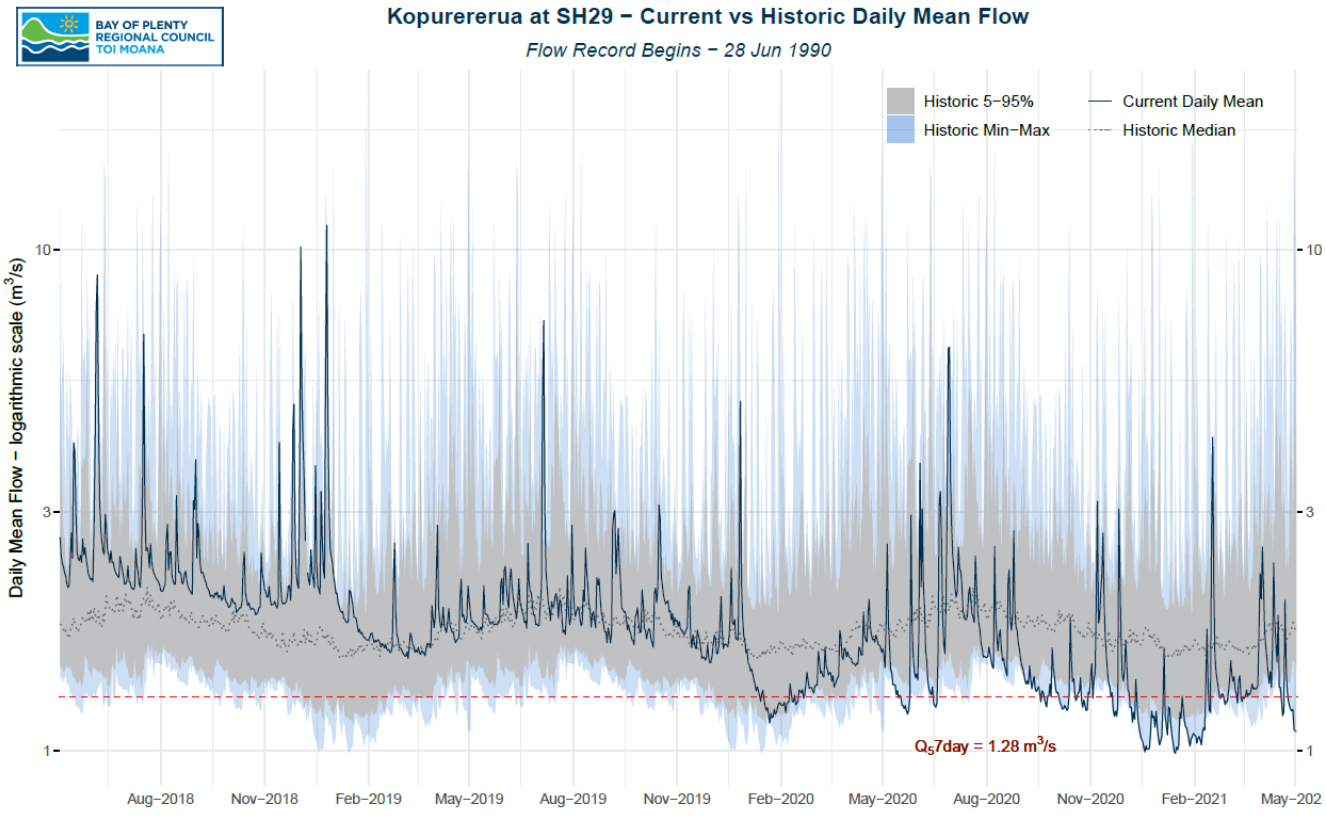


3.2 Central BOP flow monitoring sites

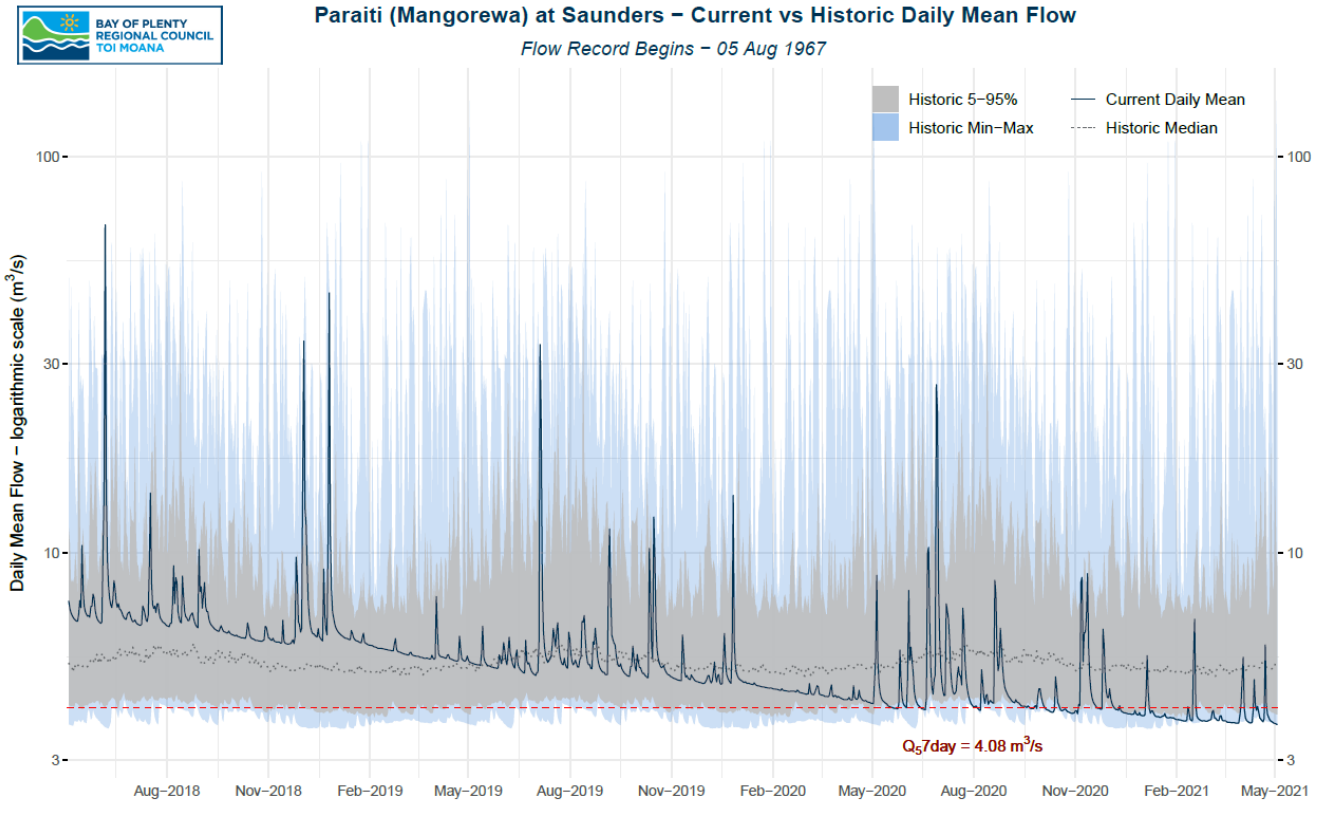




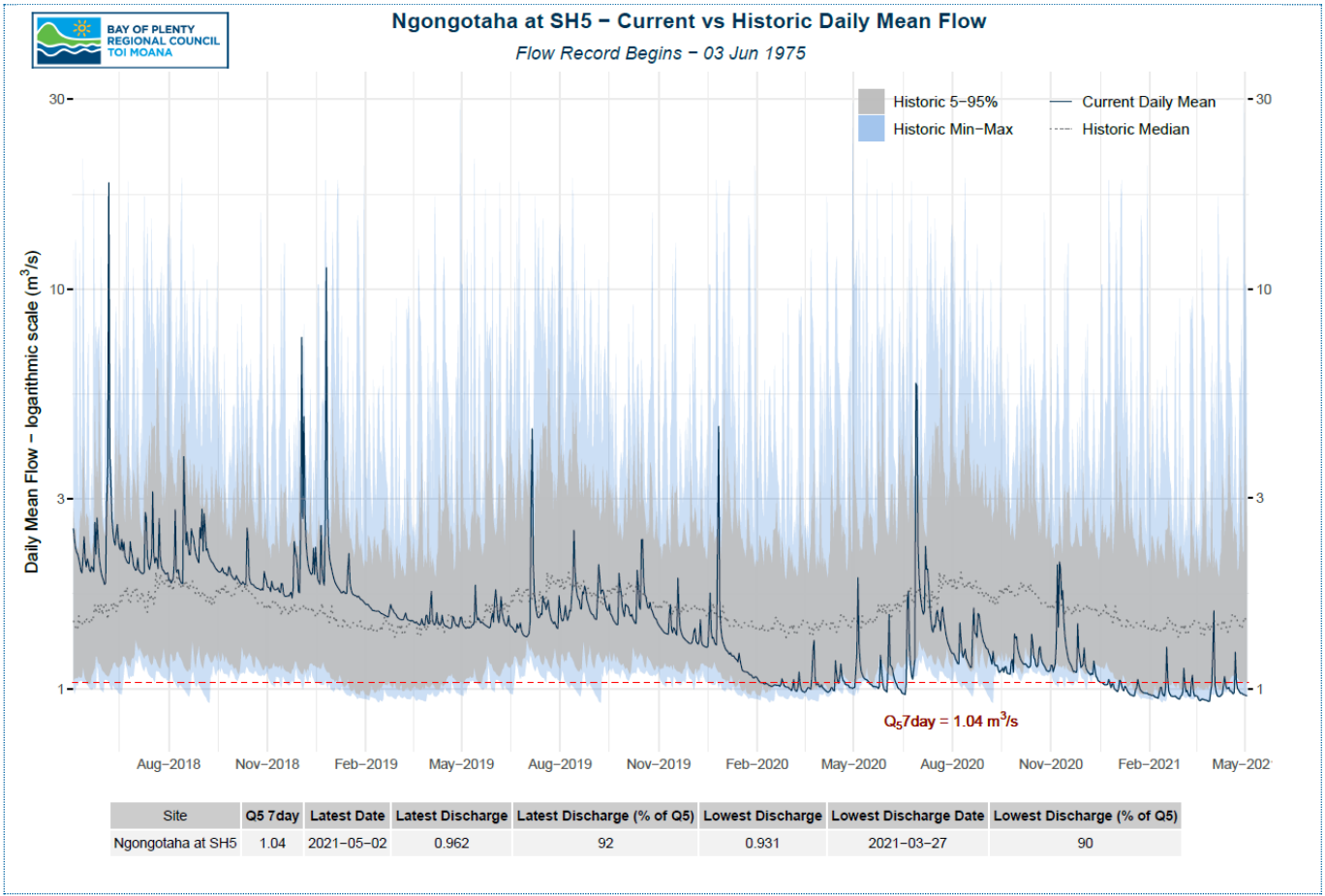
3.3 Representative daily mean flow plots over a 3 year term



Site	Q5 7day	Latest Date	Latest Discharge	Latest Discharge (% of Q5)	Lowest Discharge	Lowest Discharge Date	Lowest Discharge (% of Q5)
Kopurererua at SH29	1.28	2021–05–01	1.091	85	0.988	2021–01–14	77



Site	Q5 7day	Latest Date	Latest Discharge	Latest Discharge (% of Q5)	Lowest Discharge	Lowest Discharge Date	Lowest Discharge (% of Q5)
Paraiti (Mangorewa) at Saunders	4.08	2021–05–02	3.689	90	3.689	2021–05–02	90



Site	Q5 7day	Latest Date	Latest Discharge	Latest Discharge (% of Q5)	Lowest Discharge	Lowest Discharge Date	Lowest Discharge (% of Q5)
Ngongotaha at SH5	1.04	2021−05−02	0.962	92	0.931	2021−03−27	90

4 Soil Moisture

Soil moisture trends have shown a continuing positive response across the region resulting from March rainfall and cooling temperatures.

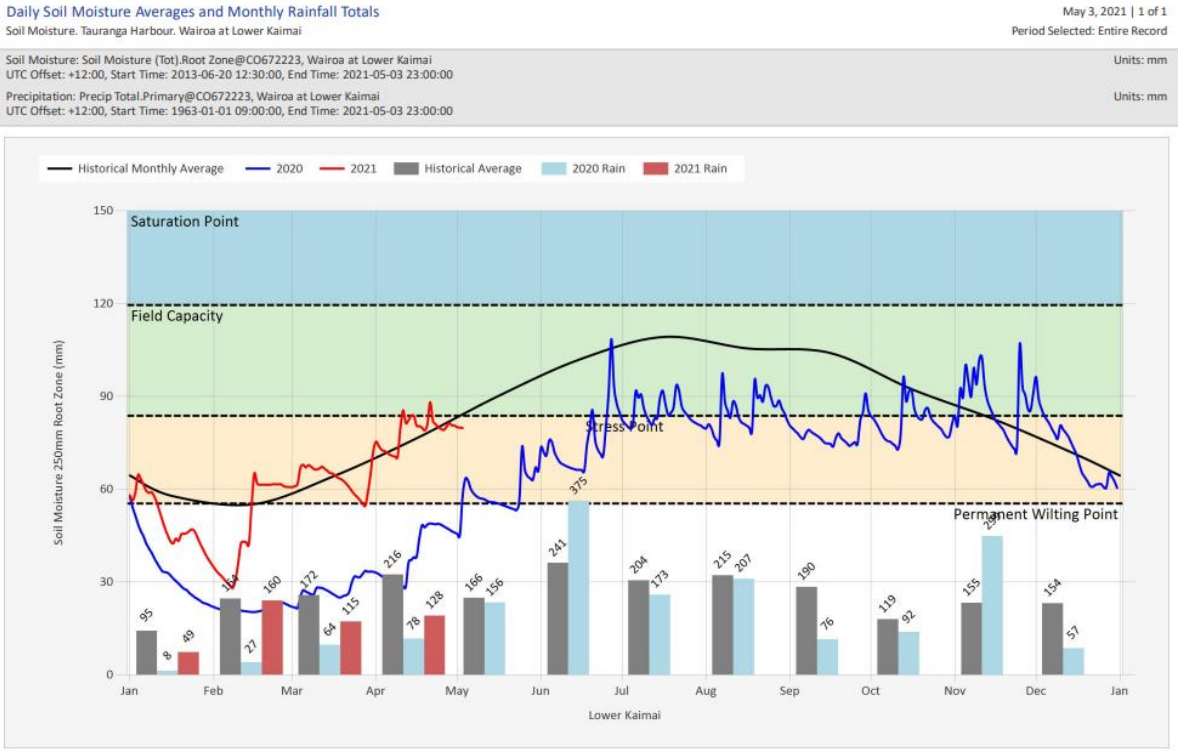


Figure 3 Lower Kaimai, Tauranga soil moisture.

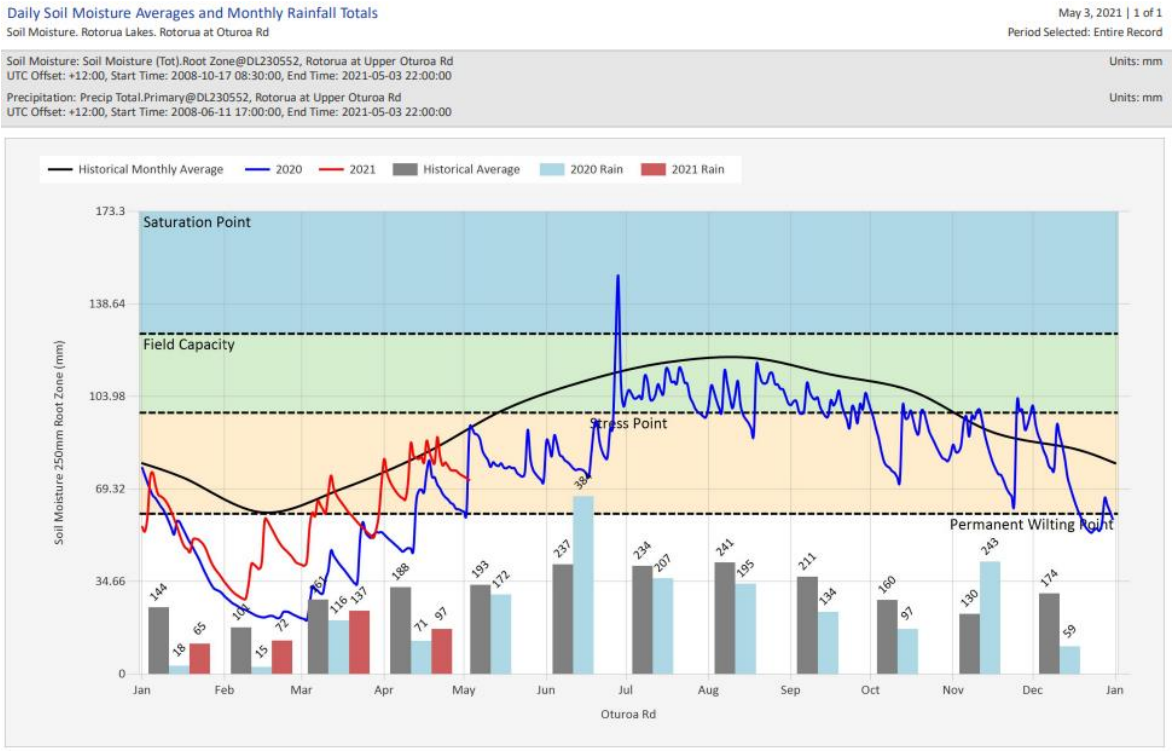


Figure 4 Oturoa Road, Rotorua soil moisture

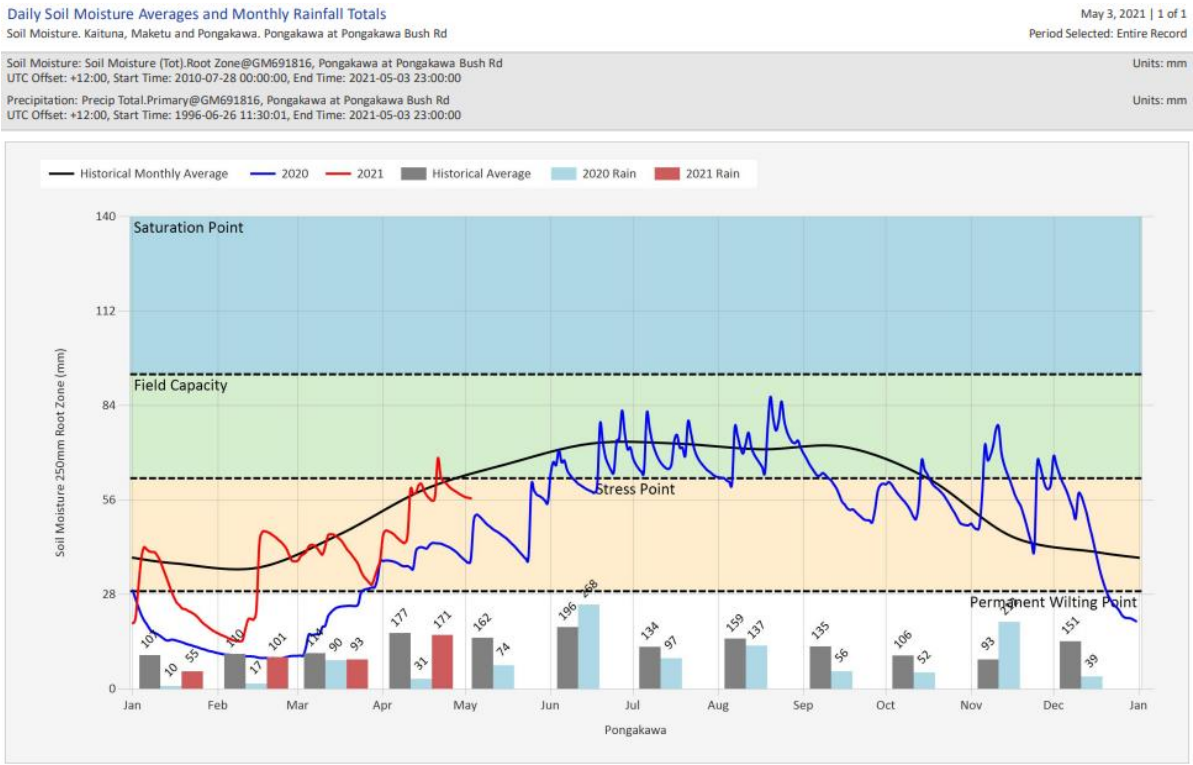


Figure 5 Pongakawa soil moisture

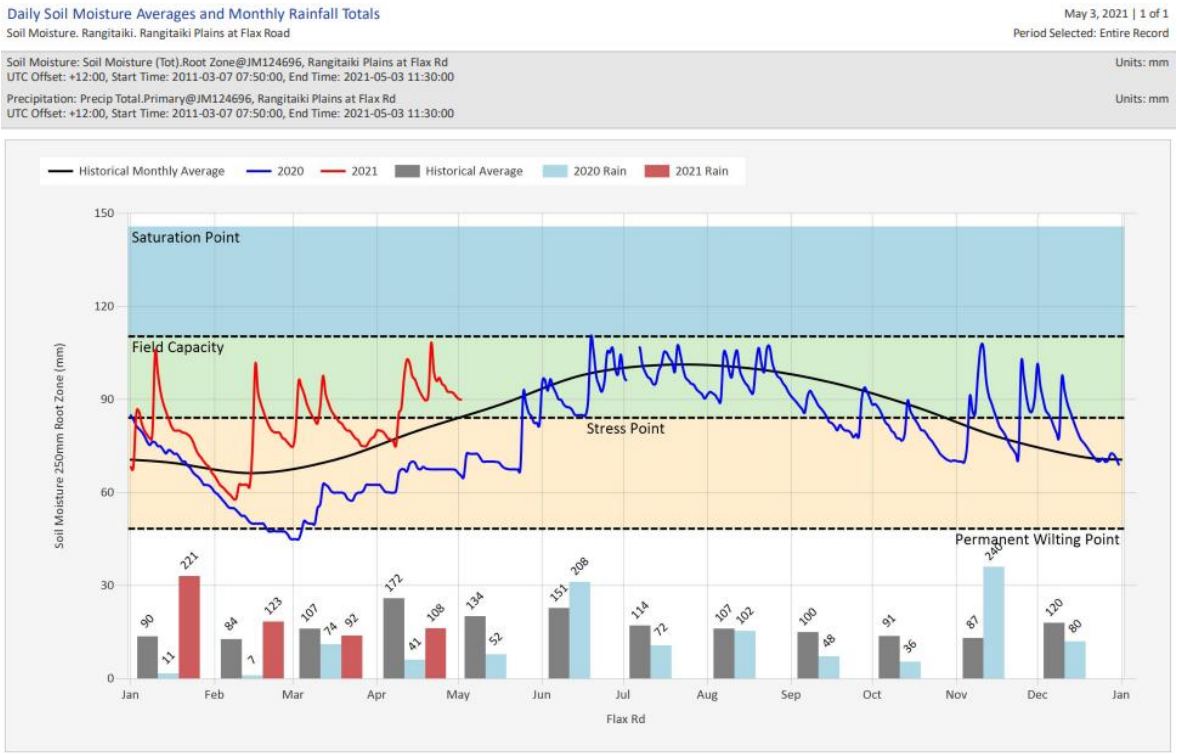


Figure 6 Rangitaiki Plains soil moisture

Report prepared by: Glenn Ellery, Data Services Manager	**Report authorised by:** Glenn Ellery, Data Services Manager
Next Situation Report will be issued at: TBD	**Time, date of approval:** 4 May 2021