



SITUATION REPORT

Bay of Plenty Regional Council

Data Services Team



SitRep number:	SitRep # 10	SitRep effective as at:	1 July 2021
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Key points since last SitRep

- This is the 10th and last SitRep of 2020/2021 water year.
- The month of June delivered rainfall totals near to or above normal for most parts of the region, the exception being the coastal fringe of the central BOP.
- Forecasts are predicting rainfall for the period July to September that is about equally likely to be near normal or above normal in the north and east of the North Island.
- Generally river flows and catchments are not under severe pressure with cooler temperatures and increasing soil moisture. The exception being the catchments with their headwaters to the west-southwest of Lake Rotorua which are still in slow recovery from 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 July -September

- Rainfall is about equally likely to be near normal or above normal in the north and east of the North Island.
- Periodic heavy rainfall events remain possible during the coming months, particularly in eastern areas. Some of the heavy rain events could be a result of atmospheric rivers making landfall in New Zealand, similar to the recent Canterbury and Gisborne flooding events. It is not possible to predict specific extreme weather events months in advance, however.
- Temperatures remain very unlikely to be colder than average for the next three months as a whole, although occasional cold snaps and frosts will occur.

Regional predictions for July – September 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 this region:







- Temperatures are about equally likely to be above average (50% chance) or near average (45% chance).
- Rainfall totals are about equally likely to be near normal (40% chance) or above normal (35% chance).
- Soil moisture and river flow levels are most likely to be near normal (40-45% chance).

Full NIWA predications available here: <https://niwa.co.nz/seasonal-climate-outlook-july-september-2021>.

1.2 Short-term forecast (MetService)

MetService are predicting the following conditions for the coming week.

Bay Of Plenty

	Today Thu 01	Fine. Light southerlies. Issued at 9:04am Thursday 01 Jul 2021
	Tomorrow Fri 02	Fine, apart from areas of low cloud or fog inland morning and night. Light winds. Issued at 12:14am Thursday 01 Jul 2021
	Sat 03	Fine, apart from areas of low cloud or fog inland morning and night. Southeasterlies. Issued at 10:26am Thursday 01 Jul 2021
	Sun 04	Fine, apart from areas of low cloud or fog inland morning and night. Southeasterlies dying out. Issued at 10:26am Thursday 01 Jul 2021
	Mon 05	Fine, apart from areas of low cloud or fog inland morning and night. Northeasterlies developing. Issued at 10:26am Thursday 01 Jul 2021
	Tue 06	Rain, clearing and becoming fine. Northeasterlies. Issued at 12:33am Thursday 01 Jul 2021

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

2 Rainfall

The month of June delivered rainfall totals near to or above normal for most parts of the region, the exception being the coastal fringe of the central BOP.

Year-to-date rainfall totals demonstrate a continuing dry signal in the western, inland central and far eastern areas of the region but are showing a positive trend towards normal with recent late autumn and early winter rainfalls.



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

Rainfall Summary

Jul 1, 2021 | 1 of 2

Rainfall.Rainfall Summary Report

Period Selected: 2021-06-29 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	01/07/2021 08:00:00	0.0	0.0	0.0	24.0	0.0	336.5	157 %	948.0	91 %
Te Puna at Odey Rd	01/07/2021 08:00:00	0.0	0.0	0.0	37.5	0.0	258.0		814.2	
Wairoa at Lower Kaimai	01/07/2021 08:00:00	0.0	0.0	0.0	39.0	0.0	239.5	133 %	818.5	90 %
Ngongotaha at Relph Rd	01/07/2021 07:00:00	0.0	0.0	0.0	35.5	0.0	269.0	131 %	737.2	87 %
Rotorua at Upper Oturoa Rd	01/07/2021 08:00:00	0.0	0.0	0.5	49.5	0.0	258.0	113 %	743.3	68 %
Waimapu at Glue Pot Rd	01/07/2021 08:00:00	0.0	0.0	0.0	34.0	0.0	246.0	131 %	869.8	88 %
Waimapu at McCrolls	01/07/2021 08:00:00	0.0	0.0	0.0	17.0	0.0	163.0	94 %	579.5	67 %
Rotorua at Whakarewarewa	01/07/2021 08:00:00	0.0	0.0	0.0	20.0	0.0	165.0	123 %	599.1	91 %
Paraiti (Mangorewa) at Kaharo	01/07/2021 08:00:00	0.0	0.0	0.0	32.5	0.0	256.0	141 %	821.7	87 %
Okaro at Okaro Rd	01/07/2021 08:00:00	0.0	0.0	0.0	17.5	0.0	188.0	142 %	570.4	86 %
Lake Rotoiti at Okawa Bay	01/07/2021 08:00:00	0.0	0.0	0.0	16.0	0.0	161.0	103 %	639.6	79 %
Tikitere at SH30	01/07/2021 08:00:00	0.0	0.0	0.0	19.0	0.0	207.0		798.0	
Paraiti (Mangorewa) at Upper	01/07/2021 08:00:00	0.0	0.0	0.0	27.0	0.0	247.5	120 %	964.4	96 %
Paraiti (Mangorewa) at Link	01/07/2021 08:00:00	0.0	0.0	0.0	19.5	0.0	207.0	119 %	806.0	89 %
Raparapahoe at Collins Lane	01/07/2021 08:00:00	0.0	0.0	0.0	15.0	0.0	175.5	115 %	630.0	72 %
Kaituna at Marshalls Farm	01/07/2021 08:00:00	0.0	0.0	0.5	9.0	0.0	131.0	72 %	508.5	65 %
Kaituna at Te Matai	01/07/2021 08:00:00	0.0	0.0	0.0	15.5	0.0	149.0	104 %	639.5	91 %
Rangitaiki at Kokomoka (Bore 1	01/07/2021 08:05:00	0.0	0.0	0.0	45.0	0.0	187.0	123 %	639.5	89 %
Pongakawa at Pongakawa Bush	01/07/2021 08:00:00	0.0	0.0	0.0	12.5	0.0	192.5	113 %	712.5	85 %
Outlet at Waitangi Soda Spring	01/07/2021 08:00:00	0.0	0.0	0.0	24.5	0.0	289.5		884.1	
Te Whaiti at Minginui	01/07/2021 08:00:00	0.0	0.0	0.0	31.5	0.0	121.2		458.2	
Kawerau at Plunket St	01/07/2021 08:00:00	0.0	0.0	0.5	13.0	0.0	163.0		722.3	
Tarawera at Hogg Rd	01/07/2021 08:00:00	0.0	0.0	0.0	14.0	0.0	158.1		789.1	
Ohinekoao at Harris Saddle	01/07/2021 08:00:00	0.0	0.0	0.0	13.0	0.0	185.0	93 %	891.5	87 %
Galatea Basin at Horomanga R	01/07/2021 06:00:00		0.0	0.0	23.5	0.0	119.0	110 %	490.9	79 %
Waihua at Clearing	01/07/2021 08:00:00	0.0	0.0	0.0	22.0	0.0	172.5	100 %	697.0	78 %
Rangitaiki at Te Teko	01/07/2021 08:00:00	0.0	0.0	0.5	9.5	0.0	110.0	83 %	698.0	105 %
Edgecumbe at Edgecumbe	01/07/2021 08:00:00	0.0	0.0	0.0	8.0	0.0	101.0	66 %	633.7	85 %
Tarawera at Awakaponga	01/07/2021 08:05:00	0.0	0.0	0.0	12.0	0.0	117.5	88 %	734.0	103 %
Rangitaiki Plains at Flax Rd	30/06/2021 11:30:00		0.0	0.0	10.5	0.0	112.5	77 %	788.0	101 %

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	01/07/2021 08:00:00	0.0	0.0	0.0	5.0	0.0	65.5	61 %	495.5	90 %
Whakatane at Kopeopeo	01/07/2021 08:00:00	0.0	0.0	0.0	5.0	0.0	94.5	56 %	678.3	97 %
Rangitaiki at Thornton	01/07/2021 08:00:00	0.0	0.0	0.0	7.0	0.0	89.0	65 %	605.0	97 %
Whakatane at Huiaarau Summit	01/07/2021 08:00:00	0.5	2.5	3.5	58.0	2.5	273.5	108 %	1057.2	90 %
Whakatane at Huitieke rain	01/07/2021 07:00:00	0.0	0.0	0.0	34.5	0.0	159.0	110 %	720.5	106 %
Whakatane at Awahou Rd	01/07/2021 07:00:00	0.0	0.0	0.0	15.0	0.0	179.0		1018.7	
Wainui-te-whara at Munro's	01/07/2021 08:00:00	0.0	0.0	0.0	8.0	0.0	129.4	81 %	897.0	116 %
Tauranga at Omahuru (Ogilvies	01/07/2021 08:05:00	0.0	0.0	0.0	38.0	0.0	178.0		862.4	
Nukuhou at Nukuhou North	01/07/2021 08:00:00	0.0	0.0	0.0	17.5	0.0	171.9		973.0	
Ohope Spit at Ohope Golf Course	01/07/2021 08:00:00	0.0	0.0	0.0	6.5	0.0	111.0		676.4	
Waioka at Koranga	01/07/2021 08:00:00	0.0	0.0	0.5	25.5	0.0	157.5	69 %	673.2	69 %
Waioka at Cableway	01/07/2021 08:10:00	0.0	0.0	0.0	54.0	0.0	282.5	111 %	1159.9	101 %
Waioka at Mouth of Gorge	01/07/2021 08:10:00	0.0	0.0	0.0	26.5	0.0	220.7	128 %	1051.6	127 %
Otara at Opotiki Wharf	01/07/2021 08:00:00	0.0	0.0	0.0	7.5	0.0	127.5	86 %	631.9	96 %
Otara at Tutaeotoko	01/07/2021 08:00:00	0.0	0.0	0.0	65.5	0.0	293.0	126 %	1249.0	110 %
Otara at Browns Bridge	01/07/2021 08:00:00	0.0	0.0	0.0	14.0	0.0	146.9	92 %	775.6	111 %
Pakihi at Pakihi Station	01/07/2021 08:05:00	0.0	0.0	0.0	54.5	0.0	285.5	121 %	1085.0	102 %
Pakihi at Rakanui	01/07/2021 08:00:00	0.0	0.0	0.0	65.5	0.0	220.0	99 %	853.6	90 %
Haparapara at Haparapara	01/07/2021 08:00:00	0.0	0.0	1.0	171.0	0.0	625.5	125 %	1790.0	86 %

Table 1 Rainfall statistics for June 2021

2.1 Standardised Precipitation Index

The Standardised Precipitation¹ Index (SPI) is used for high level presence/absence definition of drought type conditions.

The rainfall in June 2021 has shown continued easing of the 3 month SPI figures (Figure 1) even to the point we are seeing some 'moderately wet' signals in response to the rain over the last few months. However when looking at the longer term 12 month SPI (Figure 2) there are still visible dry signals due to a continuing lack of rain compared to long term normal in the higher altitude fringes of the region.

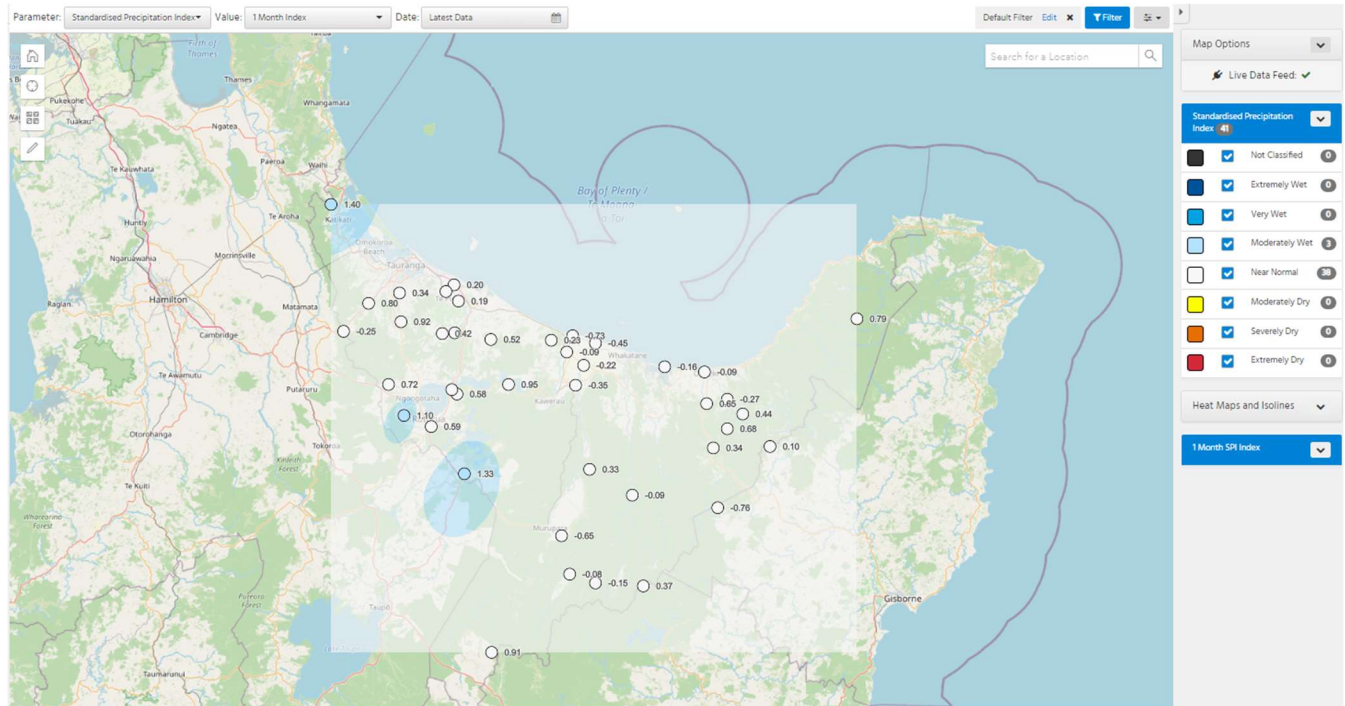


Figure 1: 3 month SPI

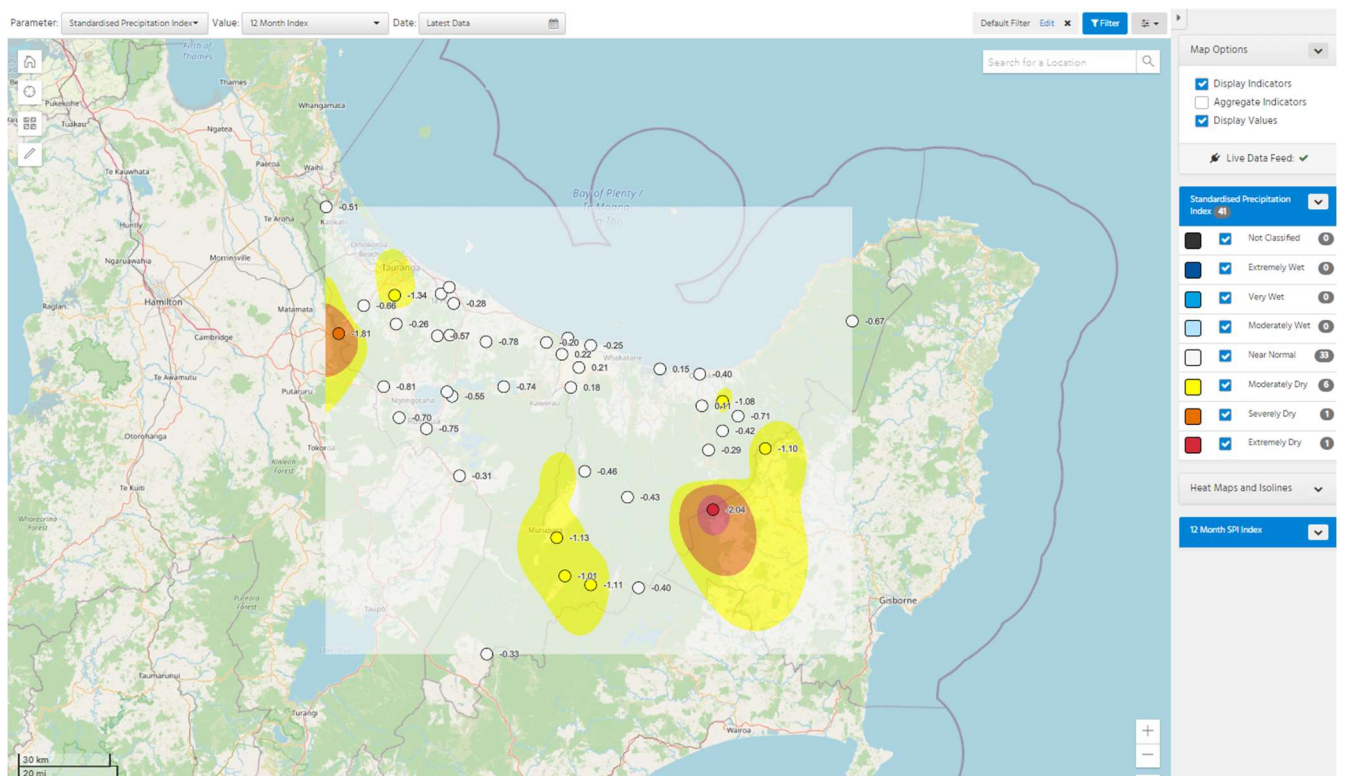


Figure 2: 12 month SPI

¹ Precipitation being another name for rainfall.
Version 1, July 2021

3 River Flows

The Rotorua Focus Zone identified in prior SitReps continues to be watched closely. Flows are still low for this time of year, however recent rainfall has resulted in small increases to flow rates compared to their lowest flows of two months ago. Several of the waterways in the zone are lower than where they were at this time last year. Therefore without sustained rainfall through to the end of winter and into spring, it is possible that these waterways will be starting the summer season off in a low flow state.

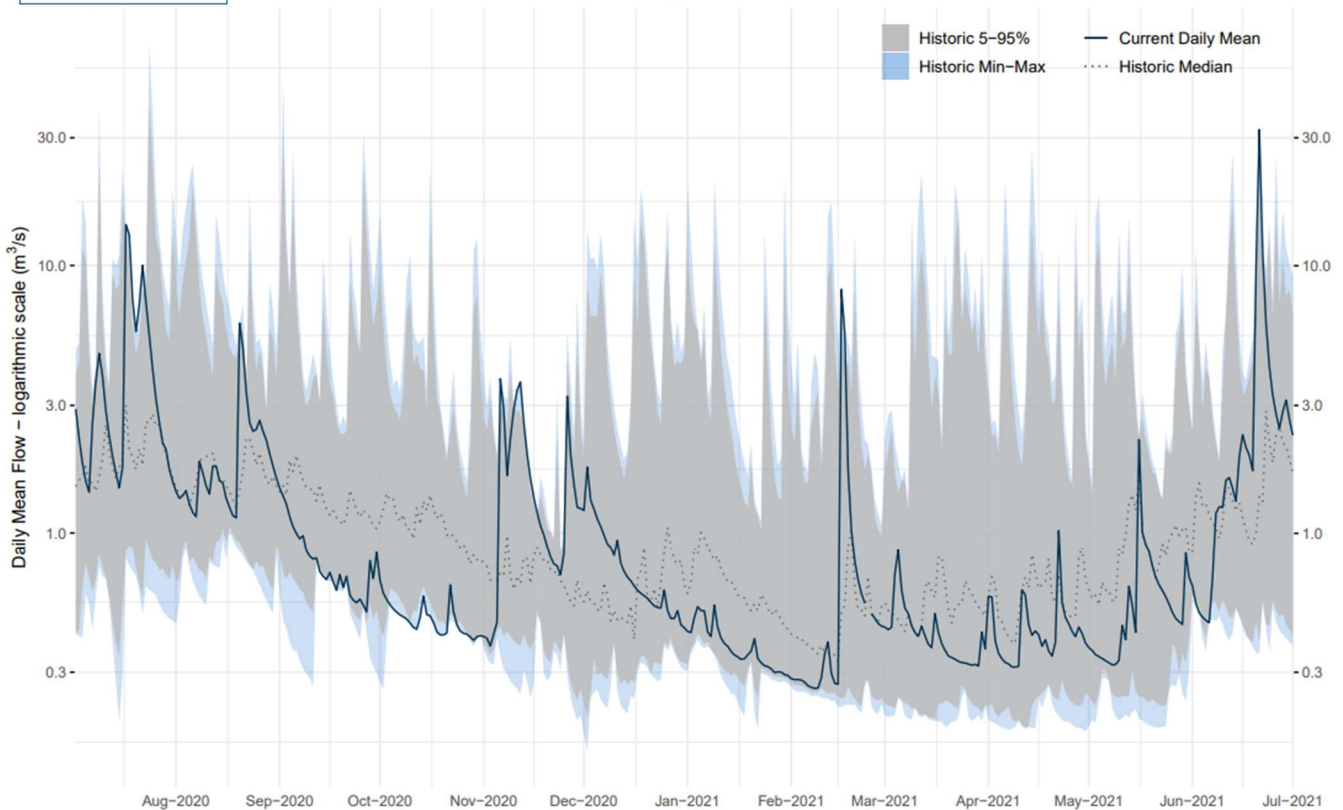
Other parts of the region are currently not under significant river flow pressure due to rainfall, cooler temperatures and rising soil moisture levels.

3.1 Western BOP flow monitoring sites



Tuapiro at Farm Bridge – Current vs Historic Daily Mean Flow

Flow Record Begins – 02 Dec 2010

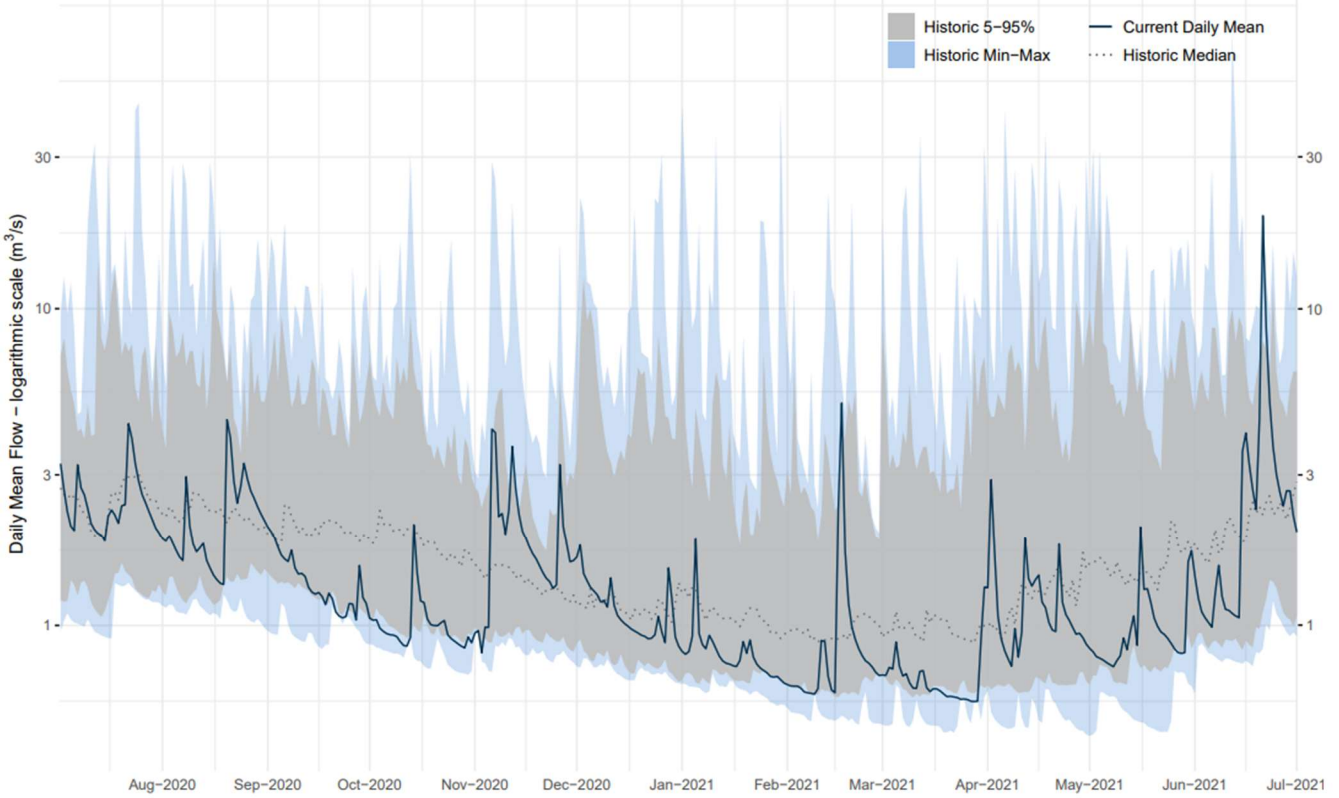


* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Councils telemetry system which has yet to go through quality assurance processes.



Waimapu at McCarrolls – Current vs Historic Daily Mean Flow

Flow Record Begins – 12 Mar 1991

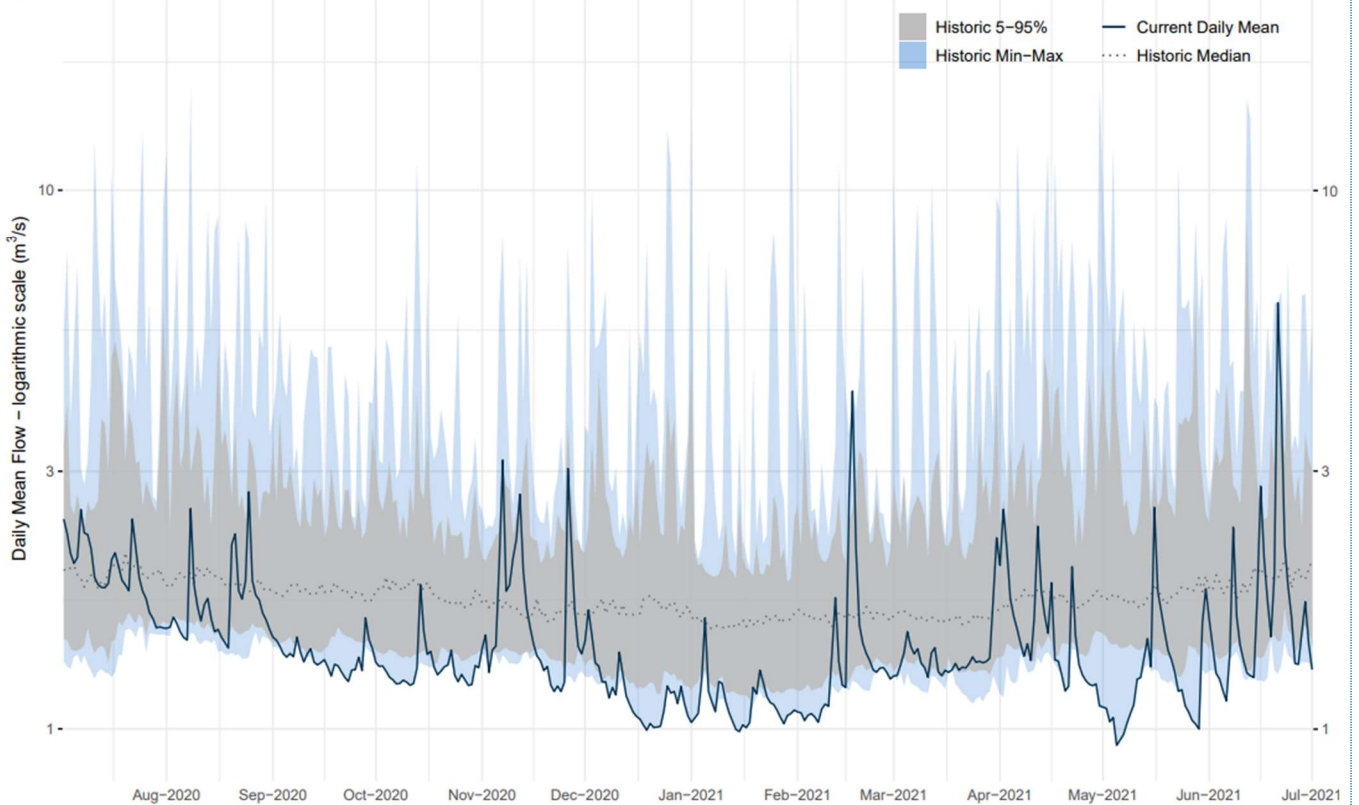


* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry system which has yet to go through quality assurance processes.



Kopurererua at SH29 – Current vs Historic Daily Mean Flow

Flow Record Begins – 29 Jun 1990



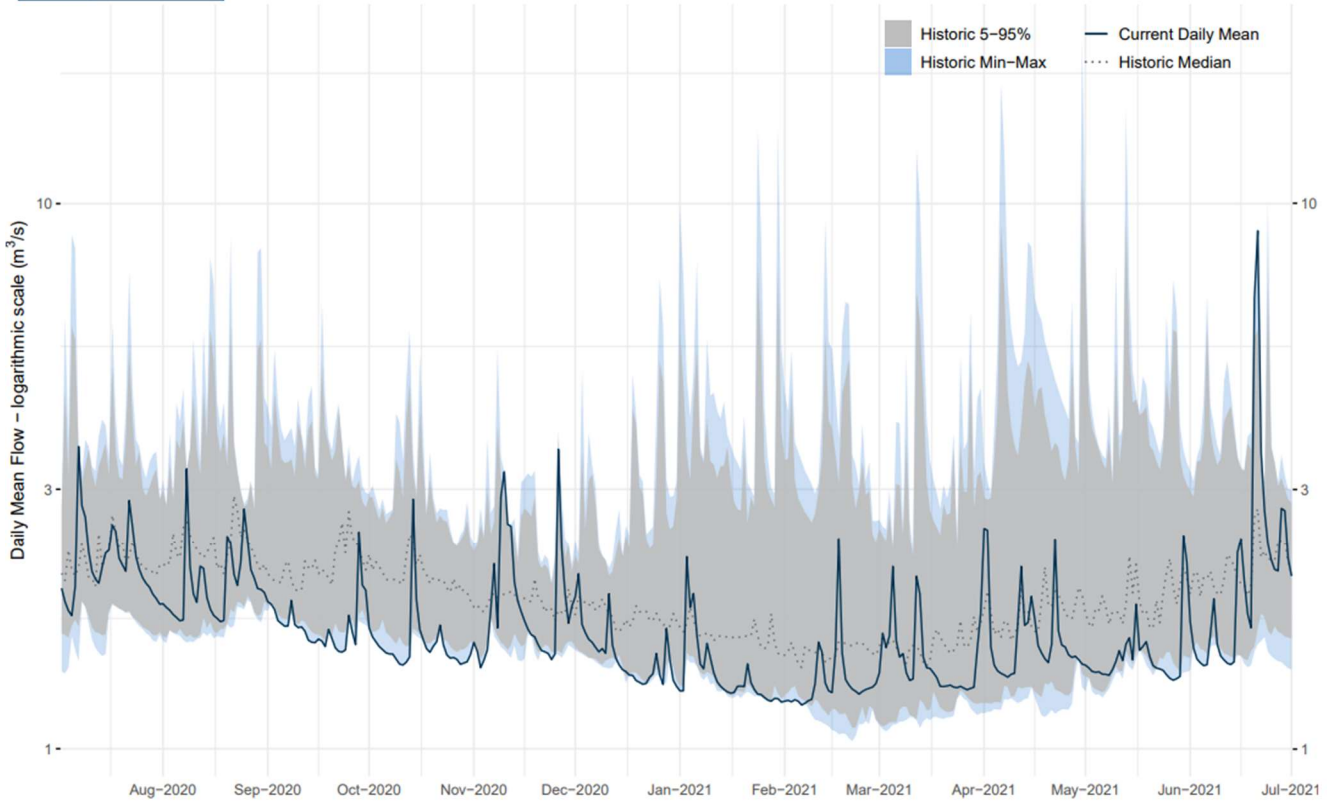
* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry system which has yet to go through quality assurance processes.

3.2 Central BOP flow monitoring sites



Puarenga at SH30 – Current vs Historic Daily Mean Flow

Flow Record Begins – 11 Nov 2009

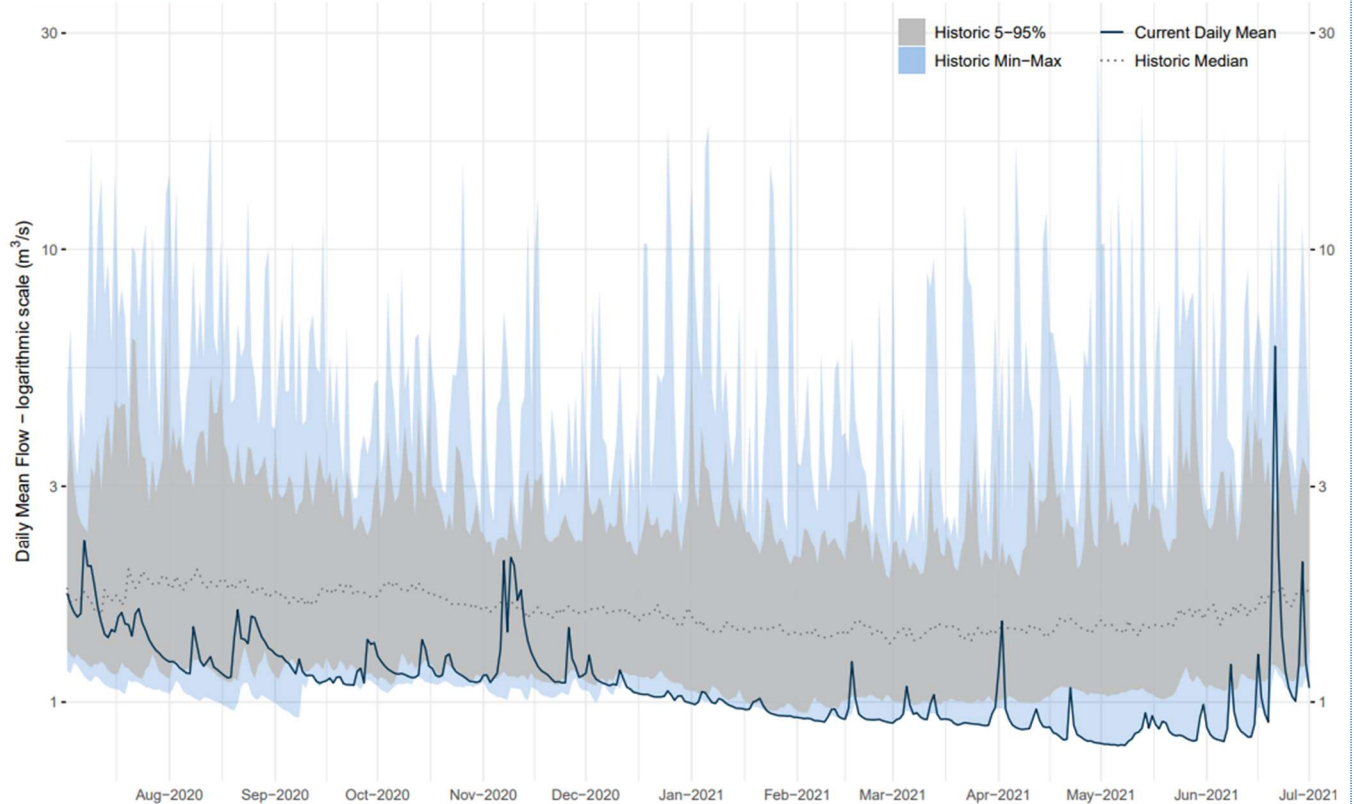


* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Councils telemetry system which has yet to go through quality assurance processes.



Ngongotaha at SH5 – Current vs Historic Daily Mean Flow

Flow Record Begins – 03 Jun 1975

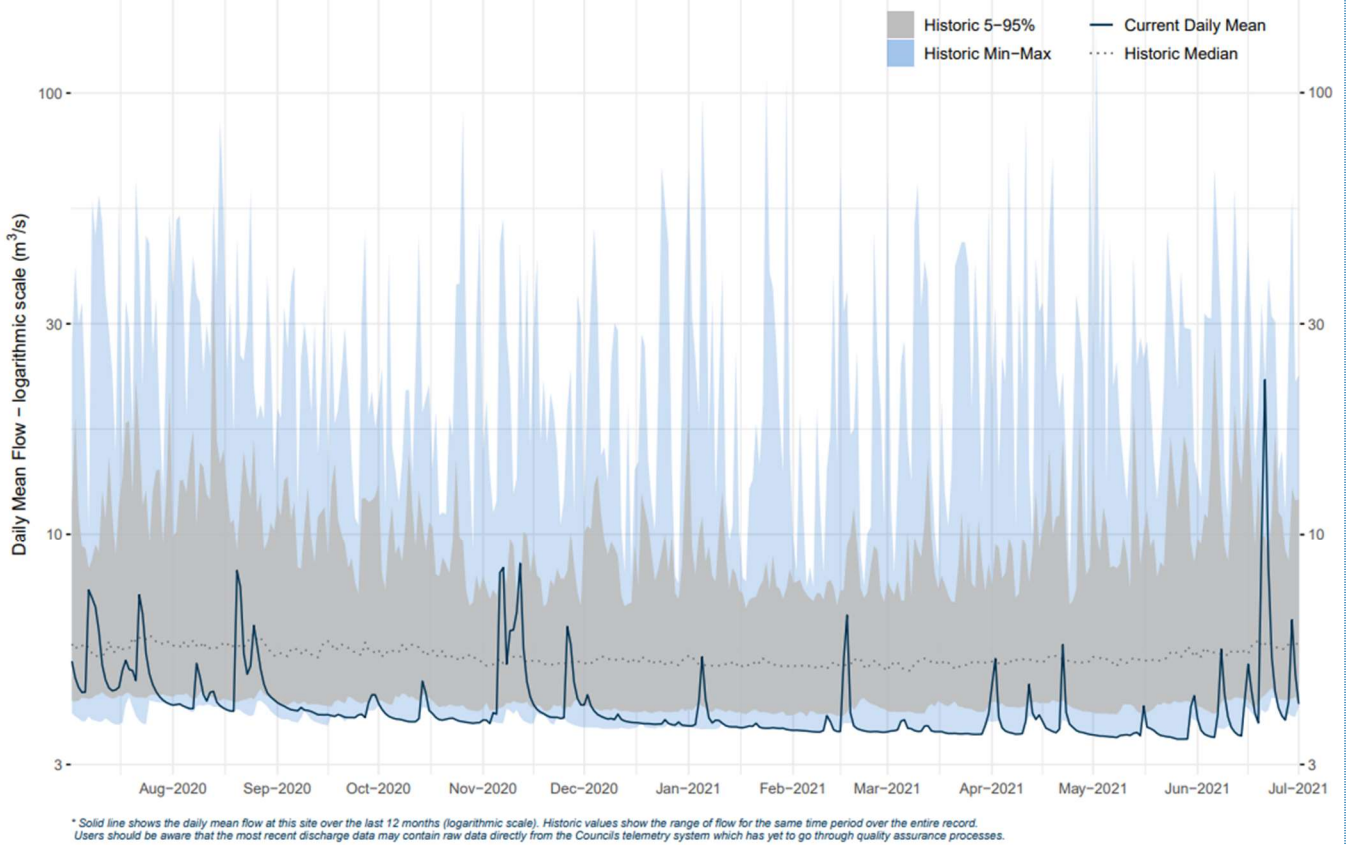


* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Councils telemetry system which has yet to go through quality assurance processes.



Paraiti (Mangorewa) at Saunders – Current vs Historic Daily Mean Flow

Flow Record Begins – 05 Aug 1967

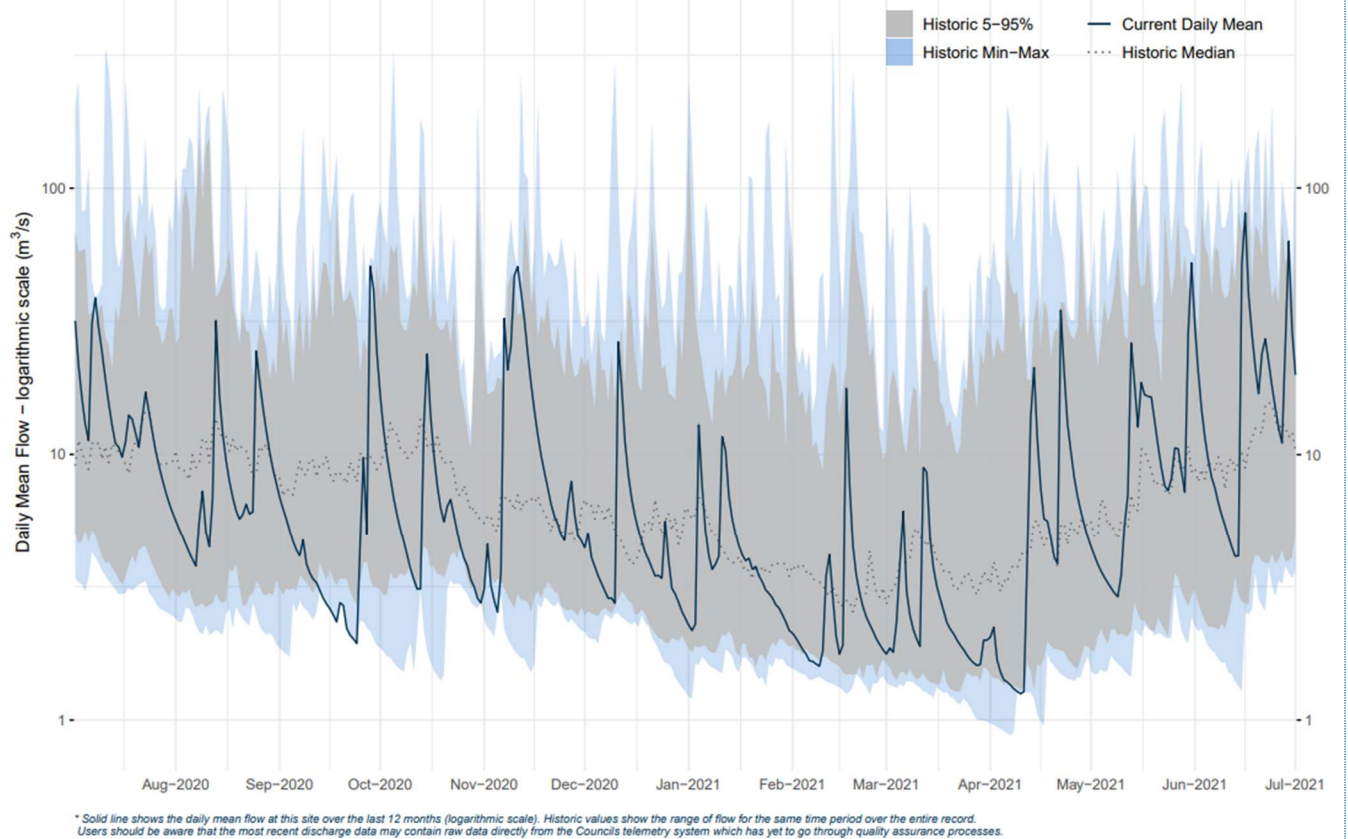


3.3 Eastern BOP flow monitoring sites



Otara at Browns Bridge – Current vs Historic Daily Mean Flow

Flow Record Begins – 08 Jan 1990



4 Groundwater

The extended rainfall deficit across the Bay of Plenty has resulted in some measured and visible effects on groundwater levels in the region. There have been the occasional report of shallow wells drying up and small springs ceasing to flow. This does not mean that the water levels in aquifers are dropping to unsustainable levels, as they have a lot of storage capacity.

Groundwater levels respond to two main factors – recharge, and the amount of water abstracted from the system. Levels respond almost instantaneously to pumping in the aquifers but respond to recharge in a slower timeframe. Therefore, unlike surface water systems, the lag times and the impact of cumulative use can make interpretation of groundwater levels difficult, hence why analysing long term levels and trends is important.

If rainfall returns to normal or above normal levels, it is likely that recharge will increase and groundwater levels will rise, as both water use decreases and recharge increases. However if rainfall deficit continues, and water abstraction remains high, groundwater levels would be expected to continue dropping.

We will continue to monitor groundwater trends and will use the information to inform future water shortage management decisions.

5 Soil Moisture

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

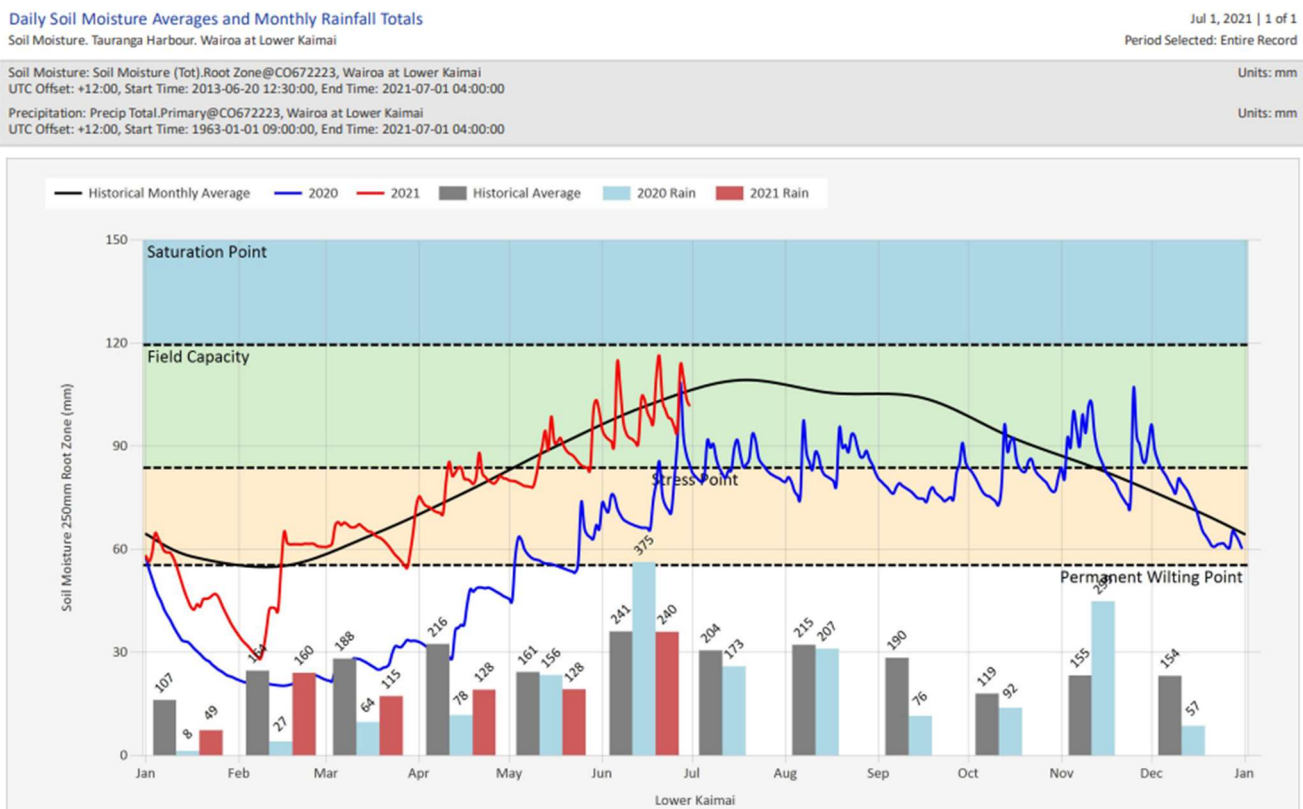


Figure 3: Lower Kaimai, Tauranga soil moisture.

Daily Soil Moisture Averages and Monthly Rainfall Totals

Soil Moisture: Rotorua Lakes, Rotorua at Upper Oturoa Rd

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Period Selected: Entire Record

Soil Moisture: Soil Moisture (Tot).Root Zone@DL230552, Rotorua at Upper Oturoa Rd
UTC Offset: +12:00, Start Time: 2008-10-17 08:30:00, End Time: 2021-07-01 05:00:00

Units: mm

Precipitation: Precip Total.Primary@DL230552, Rotorua at Upper Oturoa Rd
UTC Offset: +12:00, Start Time: 2008-06-11 17:00:00, End Time: 2021-07-01 05:00:00

Units: mm

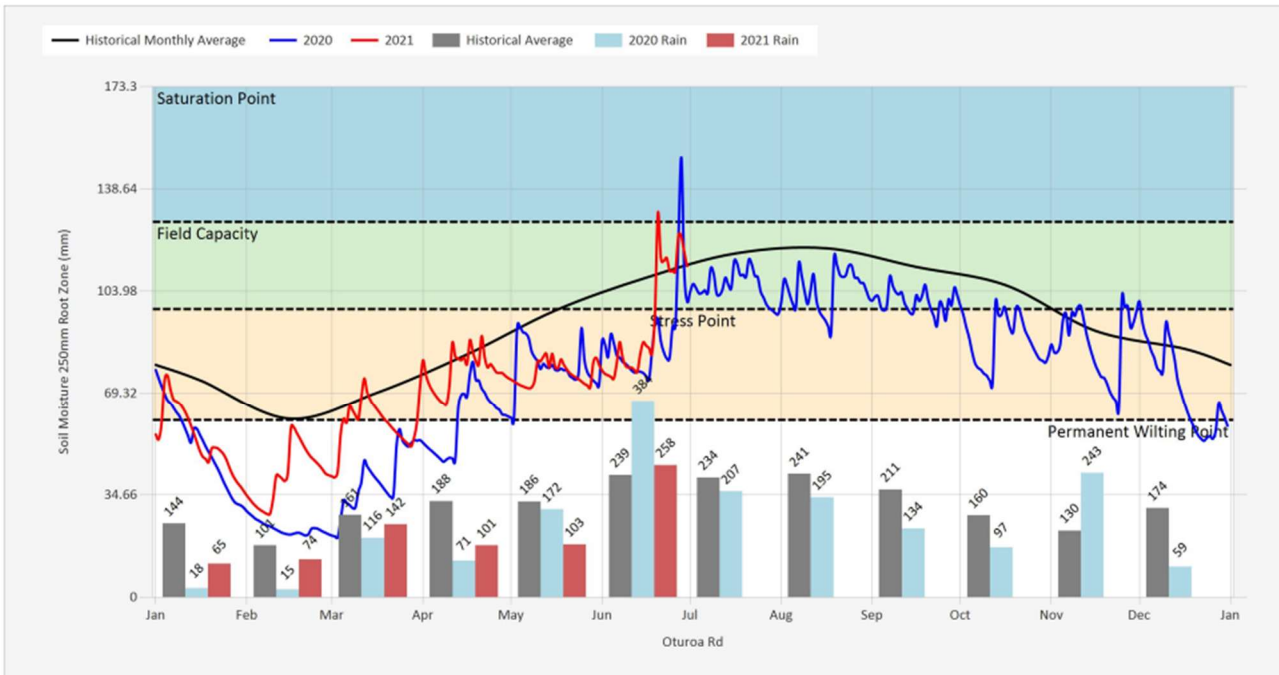


Figure 4: Oturoa Road, Rotorua soil moisture

Daily Soil Moisture Averages and Monthly Rainfall Totals

Soil Moisture: Kaituna, Maketu and Pongakawa. Pongakawa at Pongakawa Bush Rd

Jul 1, 2021 | 1 of 1

Period Selected: Entire Record

Soil Moisture: Soil Moisture (Tot).Root Zone@GM691816, Pongakawa at Pongakawa Bush Rd
UTC Offset: +12:00, Start Time: 2010-07-28 00:00:00, End Time: 2021-07-01 05:00:00

Units: mm

Precipitation: Precip Total.Primary@GM691816, Pongakawa at Pongakawa Bush Rd
UTC Offset: +12:00, Start Time: 1996-06-26 11:30:01, End Time: 2021-07-01 05:02:00

Units: mm

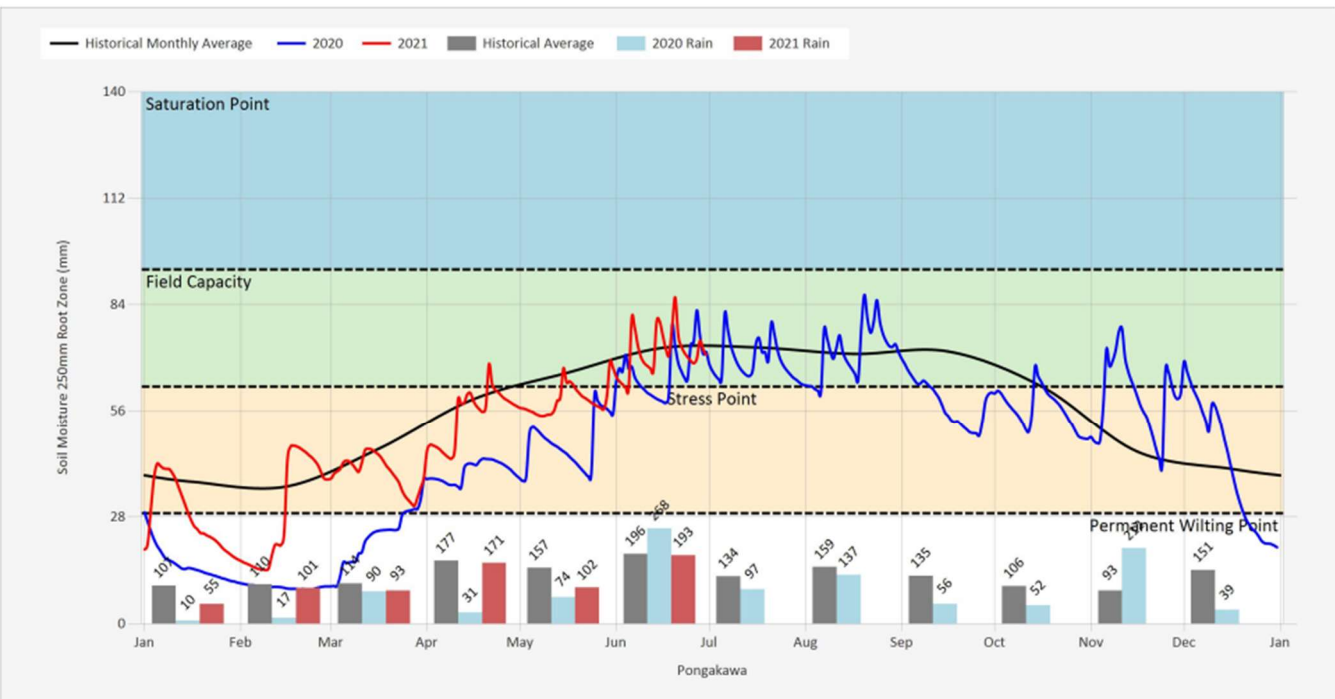


Figure 5: Pongakawa soil moisture

Daily Soil Moisture Averages and Monthly Rainfall Totals

Soil Moisture. Rangitaiki. Rangitaiki Plains at Flax Road

Jul 1, 2021 | 1 of 1

Period Selected: Entire Record

Soil Moisture: Soil Moisture (Tot).Root Zone@JM124696, Rangitaiki Plains at Flax Rd
 UTC Offset: +12:00, Start Time: 2011-03-07 07:50:00, End Time: 2021-06-30 11:30:00

Units: mm

Precipitation: Precip Total.Primary@JM124696, Rangitaiki Plains at Flax Rd
 UTC Offset: +12:00, Start Time: 2011-03-07 07:50:00, End Time: 2021-06-30 11:30:00

Units: mm

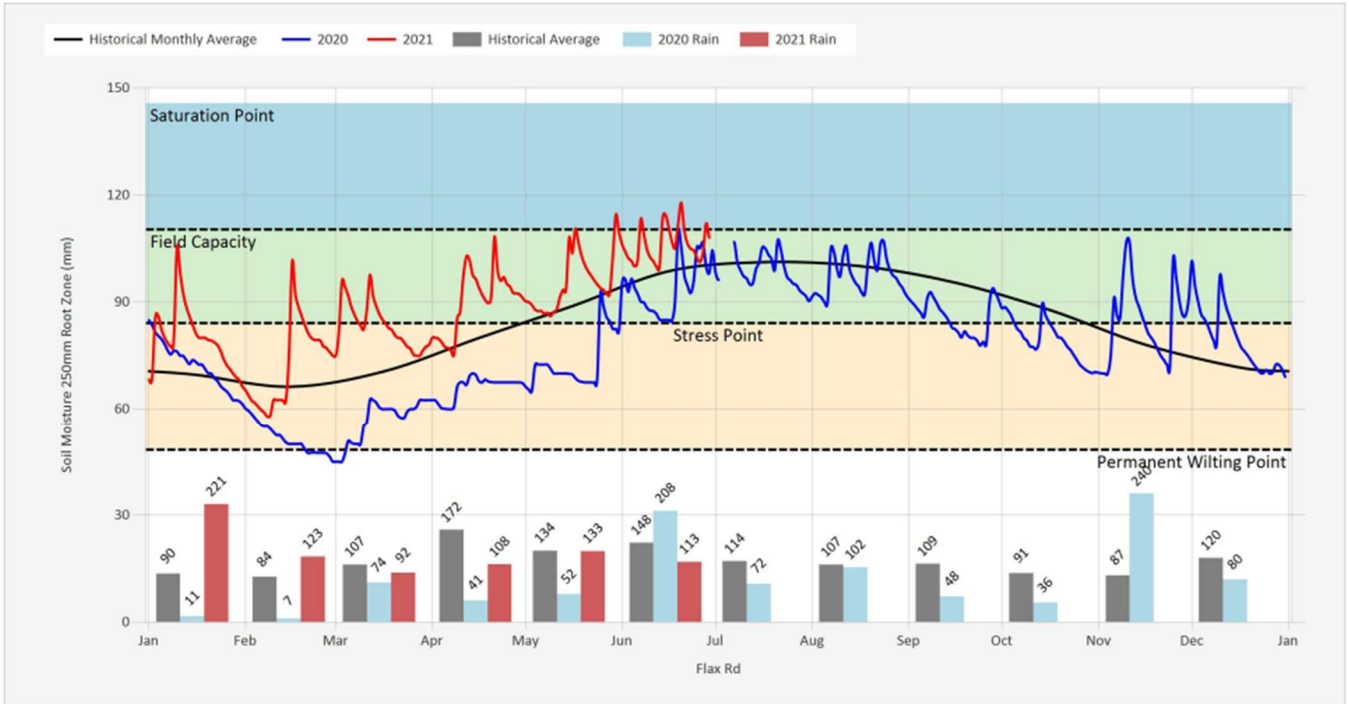


Figure 6: Rangitaiki Plains soil moisture

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:

1 July 2021