



SITUATION REPORT

Bay of Plenty Regional Council

Data Services Team



SitRep number:	SitRep # 8	SitRep effective as at:	1 April 2021
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Key points since last SitRep

- This is the eighth SitRep of the summer of 2020/2021. This may be the last situation report for the 2020/2021 summer period unless dry conditions persist through April.
- Rainfall totals for March have been closer to normal.
- Warmer temperatures are forecast for the coming month, with the possibility of higher rainfall from mid-April.
- 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

- For April-June, air pressure is expected to be lower than normal to the northwest and higher than normal to the east of the country. Although air flows will be mixed, slightly more easterly quarter winds are favoured for the three month period as a whole.
- Low pressure systems are expected to be more common in the NZ region during April due to the presence of the Madden-Julian Oscillation (MJO), a tropical climate driver in the Pacific – there is an elevated chance for heavy rain events in the middle part of the month.
- Rainfall is about equally likely to be near normal or above normal in the north and west of the North Island, near normal rainfall is expected in the east of the North Island.
- Temperatures are about equally likely to be near average or above average for all regions of the country. While cold snaps and frosts will occur periodically, they aren't expected to define the season.
- Soil moisture levels and river flows are about equally likely to be near normal (35-40% chance) or below normal (35-40% chance) in all regions of the country.

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

1.2 Short-term forecast (MetService)

MetService are predicting the following conditions for the coming week.

Regional Forecast

Bay Of Plenty

	Today Thu 01	A fine morning apart from areas of low cloud. Showers from afternoon, some heavy with possible thunderstorms and hail, clearing overnight. Light winds, then evening southeasterlies. <small>Issued at 6:38am Thursday 01 Apr 2021</small>
	Tomorrow Fri 02	Fine, apart from areas of morning and evening cloud. Winds turning southwest in the morning. <small>Issued at 12:24am Thursday 01 Apr 2021</small>
	Sat 03	Isolated showers clearing early, then fine. Winds changing southerly early, then dying out. <small>Issued at 12:24am Thursday 01 Apr 2021</small>
	Sun 04	Mainly fine, areas of morning and evening cloud. Northwesterlies developing. <small>Issued at 10:28am Wednesday 31 Mar 2021</small>
	Mon 05	Mainly fine. Westerlies. <small>Issued at 10:28am Wednesday 31 Mar 2021</small>

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

2 Rainfall

March 2021 monthly rainfall totals can generally be classified as normal with monthly totals across the region being between 60-130% of normal.

Year-to-date rainfall totals demonstrate a continuing dry signal in the central coastal catchment East Cape areas.



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

Rainfall Summary

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Rainfall.Rainfall Summary Report

Period Selected: 2021-03-30 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	01/04/2021 07:00:00	0.0	0.5	17.5	34.5	0.5	113.5	61 %	404.0	94 %
Te Puna at Odey Rd	01/04/2021 07:00:00	0.0	0.0	28.5	58.0	0.0	121.0		371.0	
Wairoa at Lower Kaimai	01/04/2021 07:00:00	0.5	0.5	33.0	67.0	0.5	124.0	88 %	333.0	82 %
Ngongotaha at Relph Rd	01/04/2021 07:00:00	0.0	0.0	48.5	75.5	0.0	134.5	122 %	276.2	91 %
Rotorua at Upper Oturoa Rd	01/04/2021 06:00:00	0.0	0.0	34.5	57.5	0.0	136.5	82 %	273.3	62 %
Waimapu at Glue Pot Rd	01/04/2021 07:00:00	0.0	0.0	32.5	86.0	0.0	128.5	77 %	301.8	68 %
Waimapu at McCarrolls	01/04/2021 07:00:00	0.0	0.0	22.0	52.5	0.0	86.5	52 %	220.5	58 %
Rotorua at Whakarewarewa	01/04/2021 07:00:00	0.0	0.0	18.5	44.0	0.0	127.0	134 %	261.1	89 %
Paraiti (Mangorewa) at Kaharo	01/04/2021 07:00:00	0.0	0.0	34.5	66.0	0.0	132.0	98 %	327.7	86 %
Okaro at Okaro Rd	01/04/2021 07:00:00	0.0	0.5	39.0	57.0	0.5	97.4	111 %	220.4	83 %
Lake Rotoiti at Okawa Bay	01/04/2021 07:00:00	0.0	0.0	26.5	57.5	0.0	133.0	125 %	300.1	92 %
Tikitere at SH30	01/04/2021 07:00:00	0.0	0.0	33.5	80.5	0.0	187.0		368.0	
Paraiti (Mangorewa) at Upper	01/04/2021 07:00:00	0.0	0.0	31.5	71.0	0.0	110.0	67 %	407.0	92 %
Paraiti (Mangorewa) at Link	01/04/2021 07:00:00	0.0	0.0	29.5	54.5	0.0	92.5	70 %	296.5	82 %
Raparapahoe at Collins Lane	01/04/2021 07:00:00	0.0	0.0	12.0	26.5	0.0	86.5	58 %	230.0	58 %
Kaituna at Marshalls Farm	01/04/2021 07:00:00	0.0	0.0	8.0	14.0	0.0	73.0	60 %	174.5	56 %
Kaituna at Te Matai	01/04/2021 07:00:00	0.0	0.5	11.5	25.0	0.5	78.0	70 %	243.0	86 %
Rangitaiki at Kokomoka (Bore 1	01/04/2021 07:05:00	0.0	0.0	11.0	61.5	0.0	107.5	116 %	240.5	80 %
Pongakawa at Pongakawa Bush	01/04/2021 07:02:00	0.0	0.0	25.5	44.5	0.0	92.5	73 %	248.0	72 %
Outlet at Waitangi Soda Spring	01/04/2021 07:00:00	0.0	0.5	29.5	66.5	0.5	121.0		323.6	
Te Whaiti at Minginui	01/04/2021 07:00:00	0.0	0.5	8.5	34.0	0.5	74.0		173.7	
Kawerau at Plunket St	01/04/2021 07:00:00	0.0	0.0	26.0	43.5	0.0	99.5		324.8	
Tarawera at Hogg Rd	01/04/2021 05:00:00	0.0	0.0	36.0	51.0	0.0	105.8		335.6	
Ohinekoao at Harris Saddle	01/04/2021 06:00:00	0.0	0.5	14.5	38.0	0.5	185.0	130 %	441.5	102 %
Galatea Basin at Horomanga R	01/04/2021 07:00:00	0.0	0.0	10.0	43.5	0.0	88.5	85 %	206.9	82 %
Waihua at Clearing	01/04/2021 06:00:00	0.0	0.5	15.0	55.0	0.5	143.5	112 %	312.0	83 %
Rangitaiki at Te Teko	01/04/2021 07:00:00	0.0	0.0	14.5	23.5	0.0	68.5	74 %	311.5	117 %
Edgecumbe at Edgecumbe	01/04/2021 07:00:00	0.0	0.5	13.0	20.5	0.5	68.0	60 %	312.3	112 %
Tarawera at Awakaponga	01/04/2021 07:10:00	0.0	0.0	8.5	19.5	0.0	81.5	83 %	363.0	125 %
Rangitaiki Plains at Flax Rd	31/03/2021 12:00:00	0.0	0.0	2.5	14.5	0.0	87.5	80 %	430.5	147 %

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	01/04/2021 07:00:00	0.0	0.5	2.0	5.0	0.5	37.5	52 %	277.0	128 %
Whakatane at Kopeopeo	01/04/2021 07:00:00	0.0	0.0	3.5	12.0	0.0	61.5	76 %	300.3	123 %
Rangitaiki at Thornton	01/04/2021 07:00:00	0.0	0.0	2.0	10.0	0.0	49.5	55 %	309.5	126 %
Whakatane at Huiarau Summit	01/04/2021 07:00:00	0.0	0.0	16.0	62.0	0.0	144.0	78 %	382.7	78 %
Whakatane at Huitieke rain	01/04/2021 07:00:00	0.0	0.5	15.5	31.0	0.5	100.0	93 %	310.0	102 %
Whakatane at Awahou Rd	01/04/2021 07:00:00	0.0	0.0	22.0	38.0	0.0	101.0		439.7	
Wainui-te-whara at Munro's	01/04/2021 07:00:00	0.0	0.0	7.0	34.5	0.0	100.3	106 %	370.0	137 %
Tauranga at Omahuru (Ogilvies	01/04/2021 07:10:00	0.0	0.0	29.5	46.5	0.0	139.0		365.9	
Nukuhou at Nukuhou North	01/04/2021 07:00:00	0.0	0.0	14.5	38.0	0.0	128.5		494.5	
Ohope Spit at Ohope Golf Course	01/04/2021 07:00:00	0.5	0.5	2.5	17.0	0.5	87.0		326.9	
Waioeka at Koranga	01/04/2021 07:00:00	0.0	0.0	11.5	19.0	0.0	75.0	52 %	232.7	56 %
Waioeka at Cableway	01/04/2021 06:25:00	0.0	0.0	19.0	37.0	0.0	129.0	80 %	489.9	107 %
Waioeka at Mouth of Gorge	01/04/2021 06:20:00	0.0	0.0	14.5	31.0	0.0	104.5	82 %	438.3	125 %
Otara at Opotiki Wharf	01/04/2021 06:00:00	0.0	0.0	6.5	15.5	0.0	84.0	85 %	313.4	119 %
Otara at Tutaeotoko	01/04/2021 06:00:00	0.0	0.0	19.0	37.5	0.0	149.5	93 %	413.5	85 %
Otara at Browns Bridge	01/04/2021 07:00:00	0.0	0.0	9.5	19.5	0.0	97.0	93 %	322.6	120 %
Pakihī at Pakihī Station	01/04/2021 07:05:00	0.0	0.0	8.5	26.0	0.0	116.5	70 %	331.5	77 %
Pakihī at Rakanui	01/04/2021 07:00:00	0.0	0.0	5.5	12.5	0.0	102.5	70 %	306.6	79 %
Haparapara at Haparapara	01/04/2021 07:00:00	0.0	0.0	16.0	42.0	0.0	175.5	62 %	345.5	45 %

Table 1 Rainfall statistics for January 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 March 2021 has shown 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 eastern parts of the region, particularly in the higher altitude areas, which has seen developing severely dry signals.

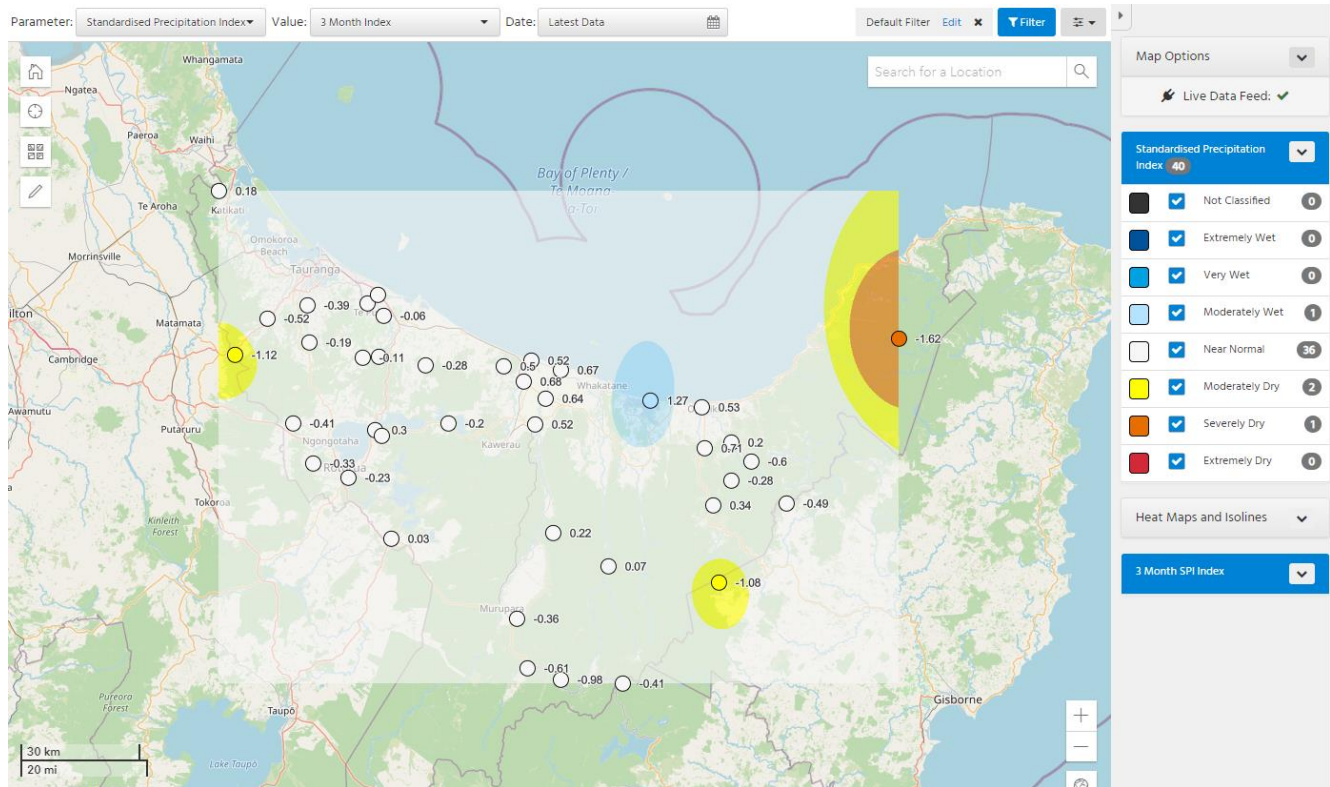


Figure 1 3 month SPI

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

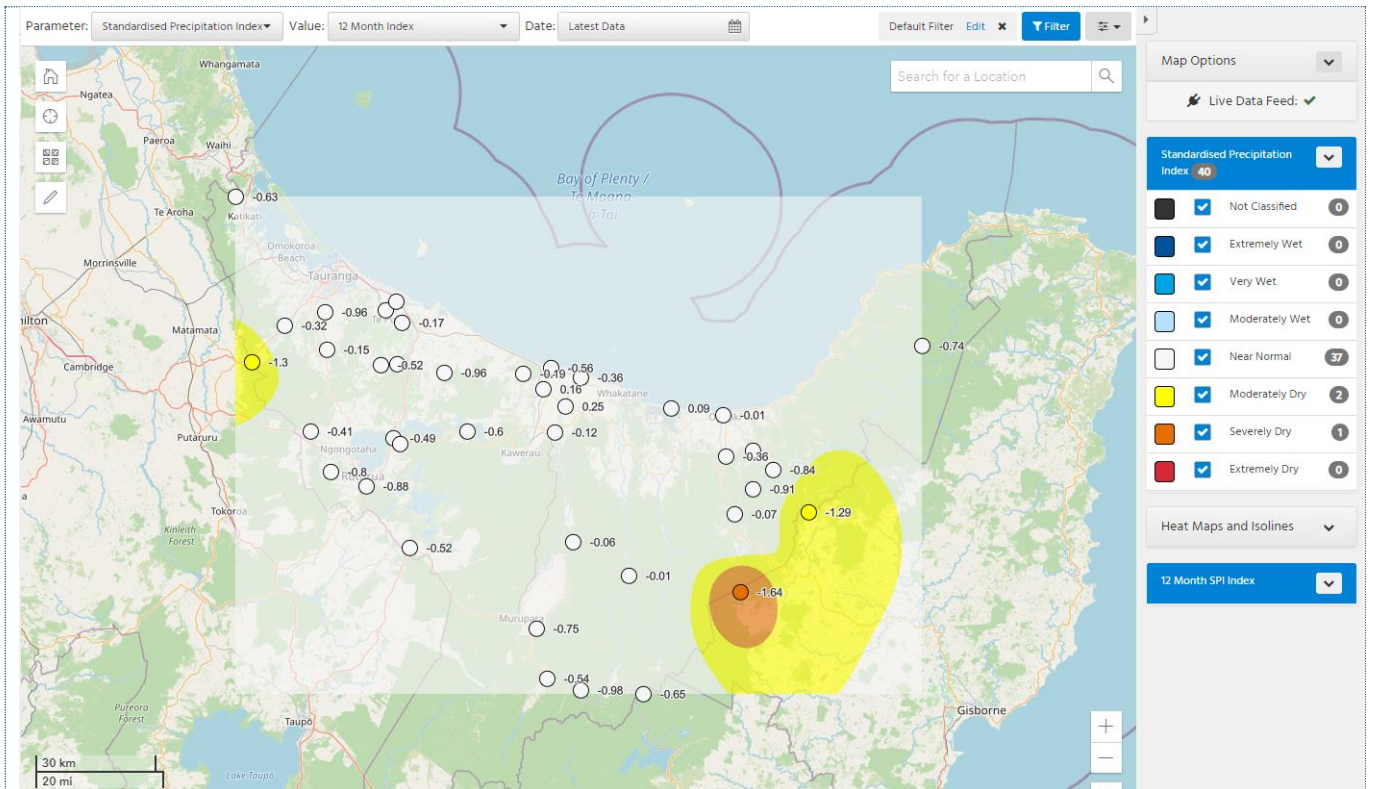


Figure 2 12 month SPI

3 River Flows

The Rotorua focus area identified in the previous two SitReps continues to be an area of concern, with flows at or approaching record low levels in many cases, as proof of that March had staff capturing the lowest ever physical flow measurement in the Ngongotahā since monitoring began in 1975. 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 and being assisted by cooler temperatures and rising soil moisture levels.

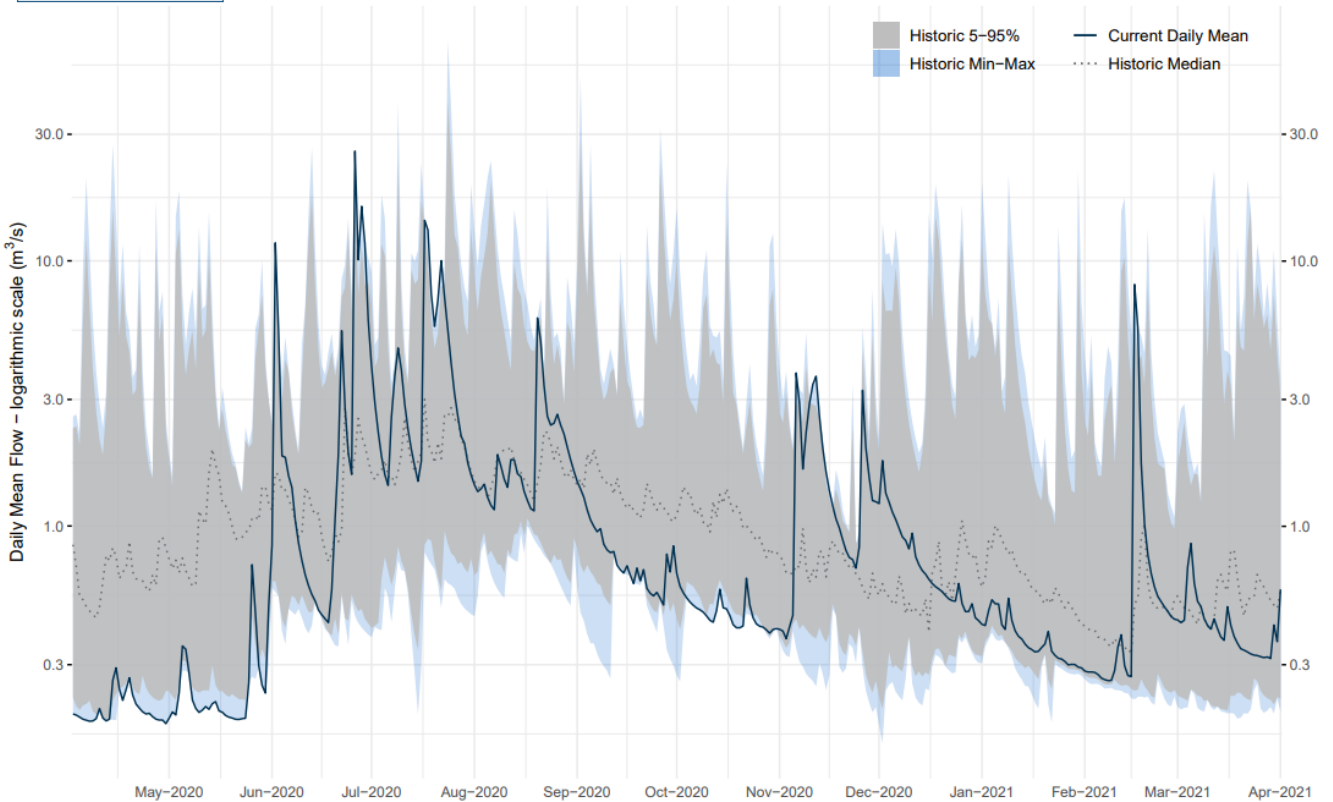
Regional Council staff undertook focussed low flow surveys in the East Cape area in response to low rainfall conditions in that area.

3.1 Western BOP flow monitoring sites



Tuapiro at Farm Bridge – Current vs Historic Daily Mean Flow

Flow Record Begins – 02 Dec 2010

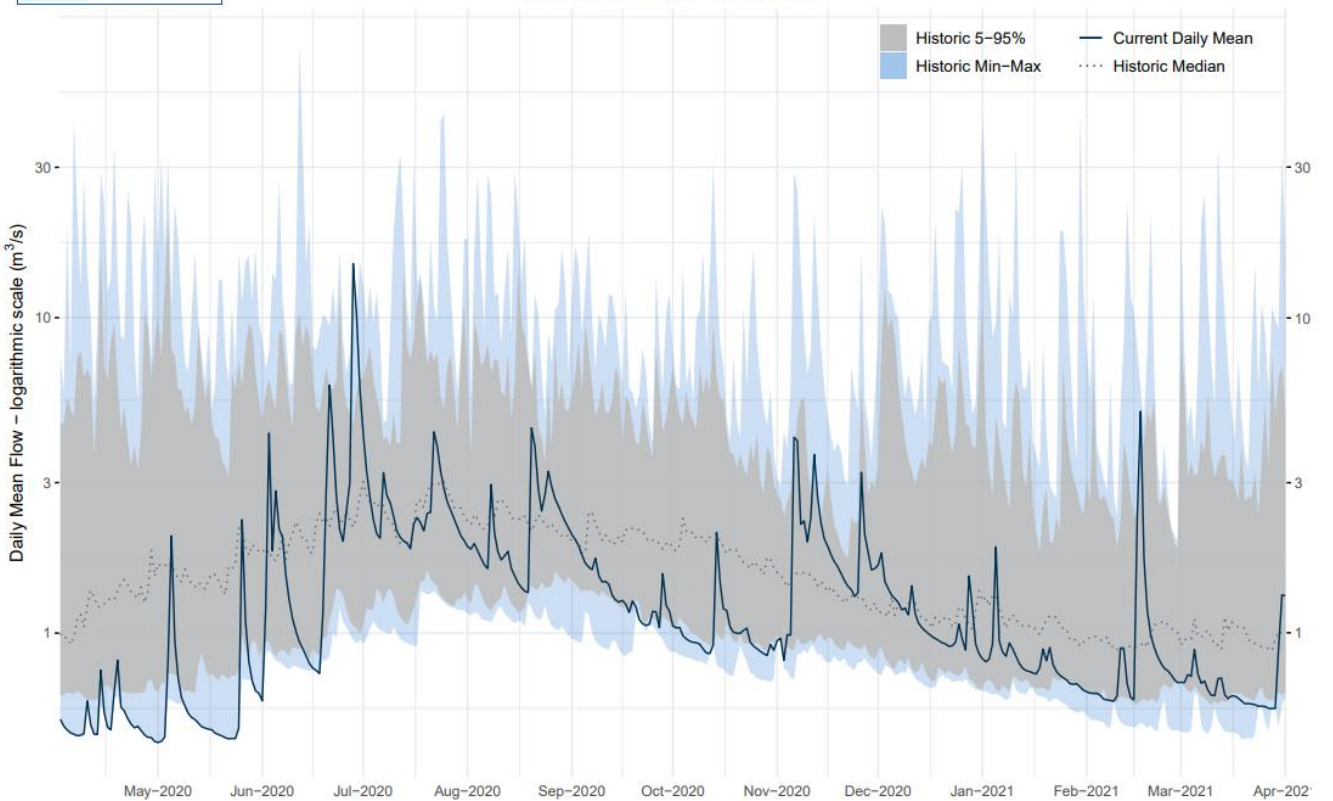


* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Councils telemetry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

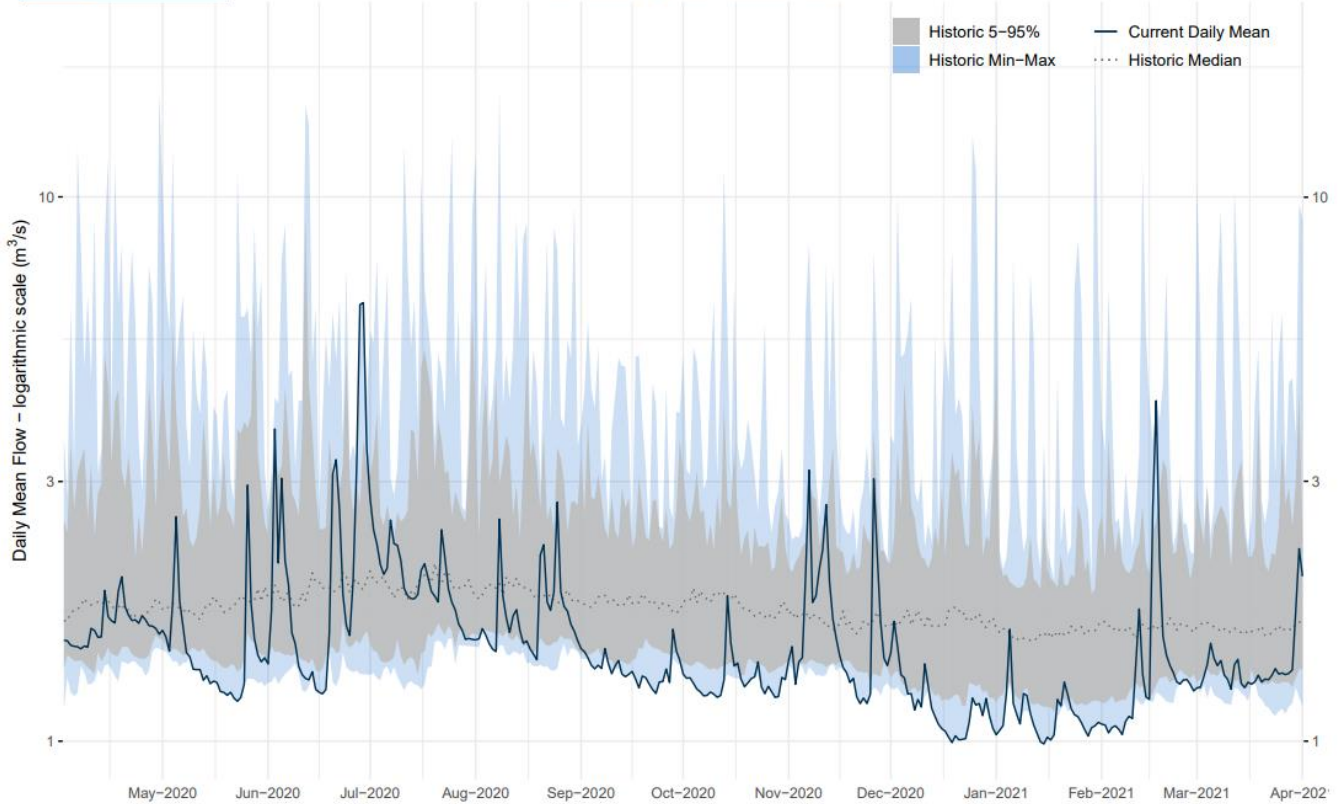


* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Councils telemetry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



Kopurererua at SH29 – Current vs Historic Daily Mean Flow

Flow Record Begins – 28 Jun 1990



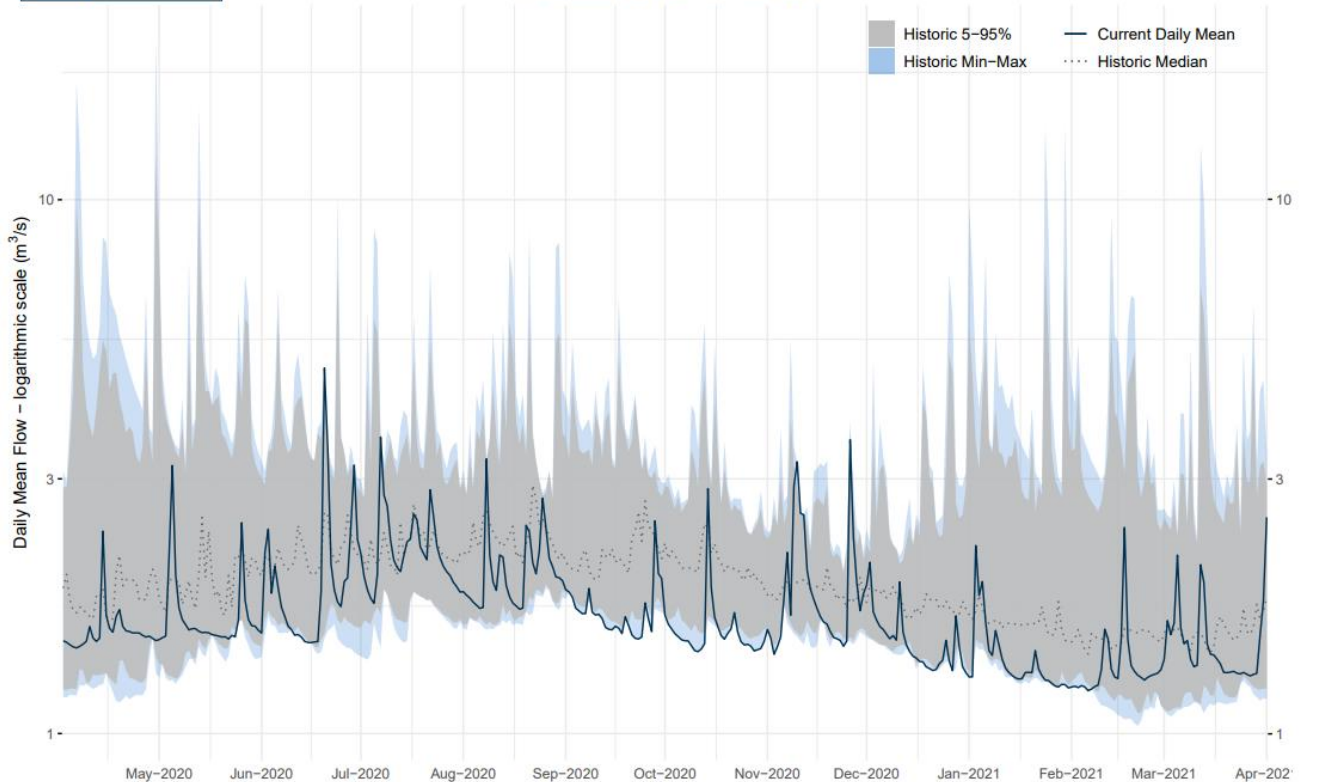
* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry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

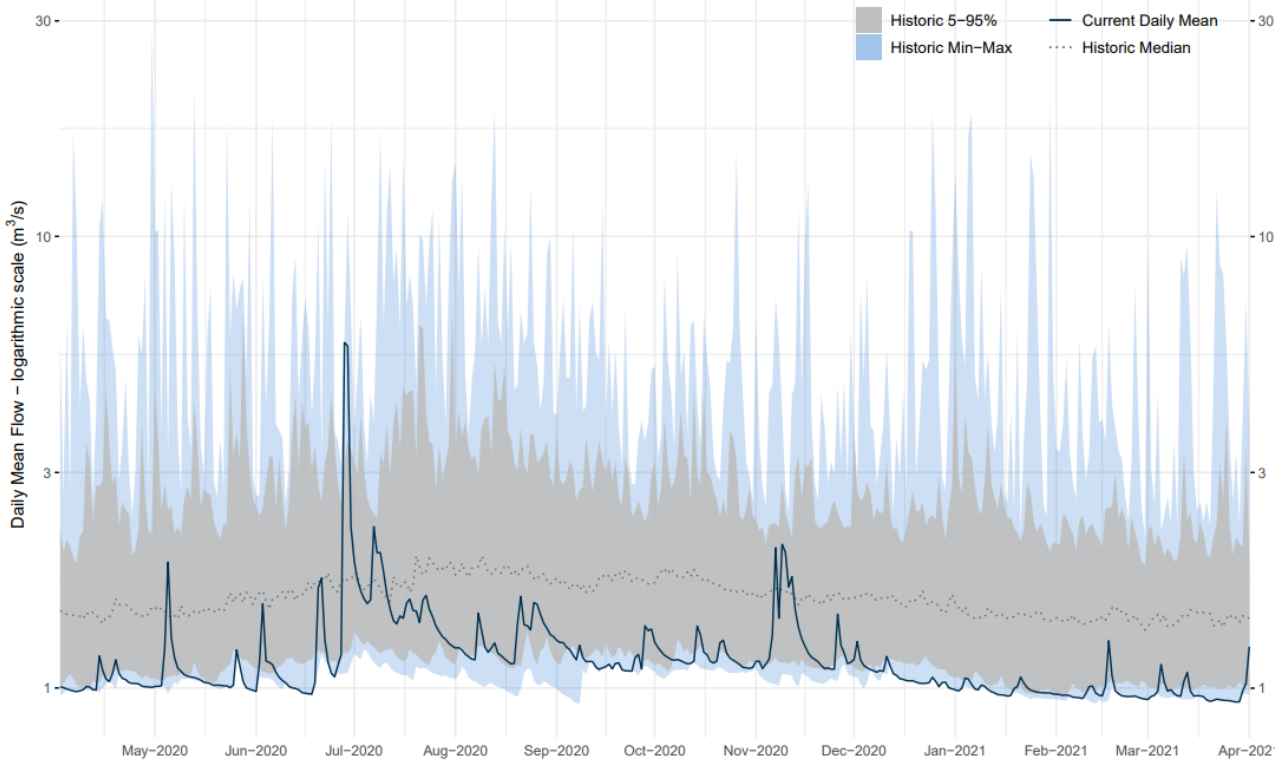


* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry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

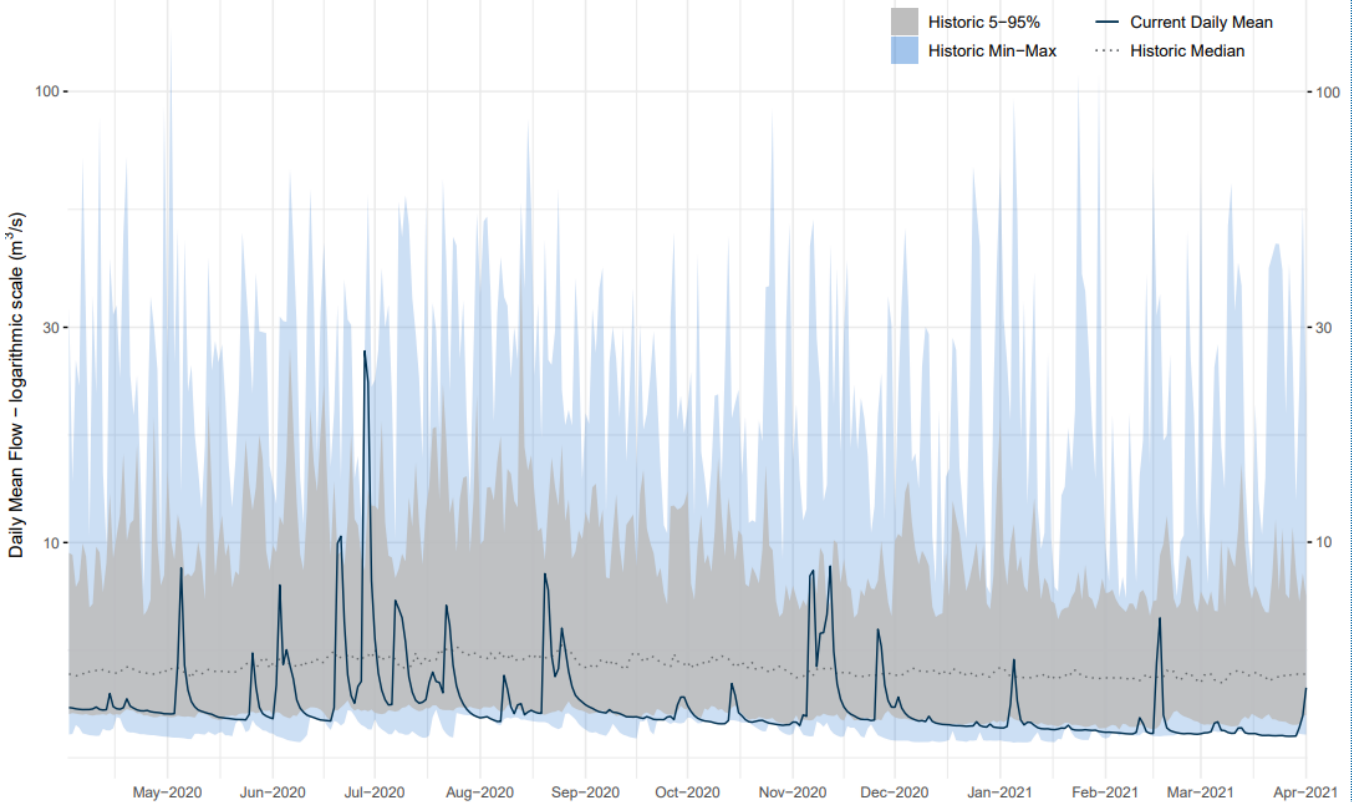


* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry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

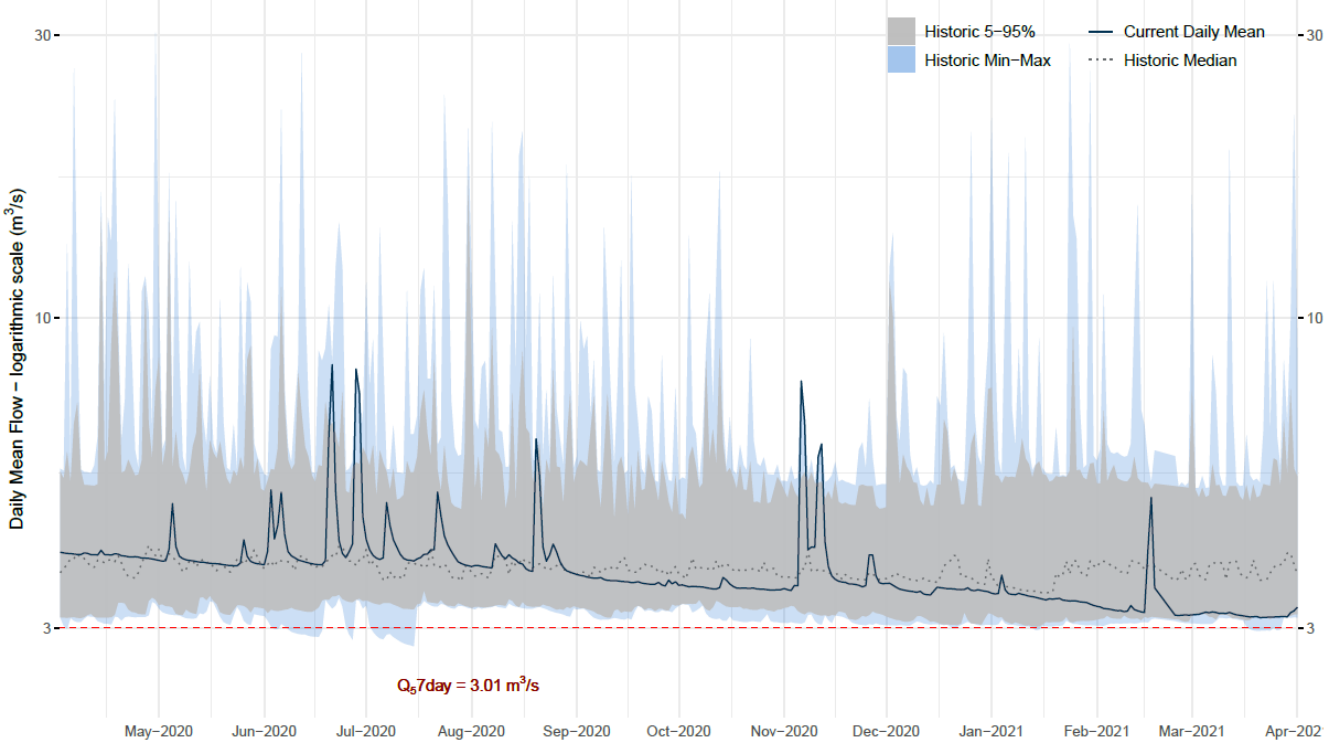


* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry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



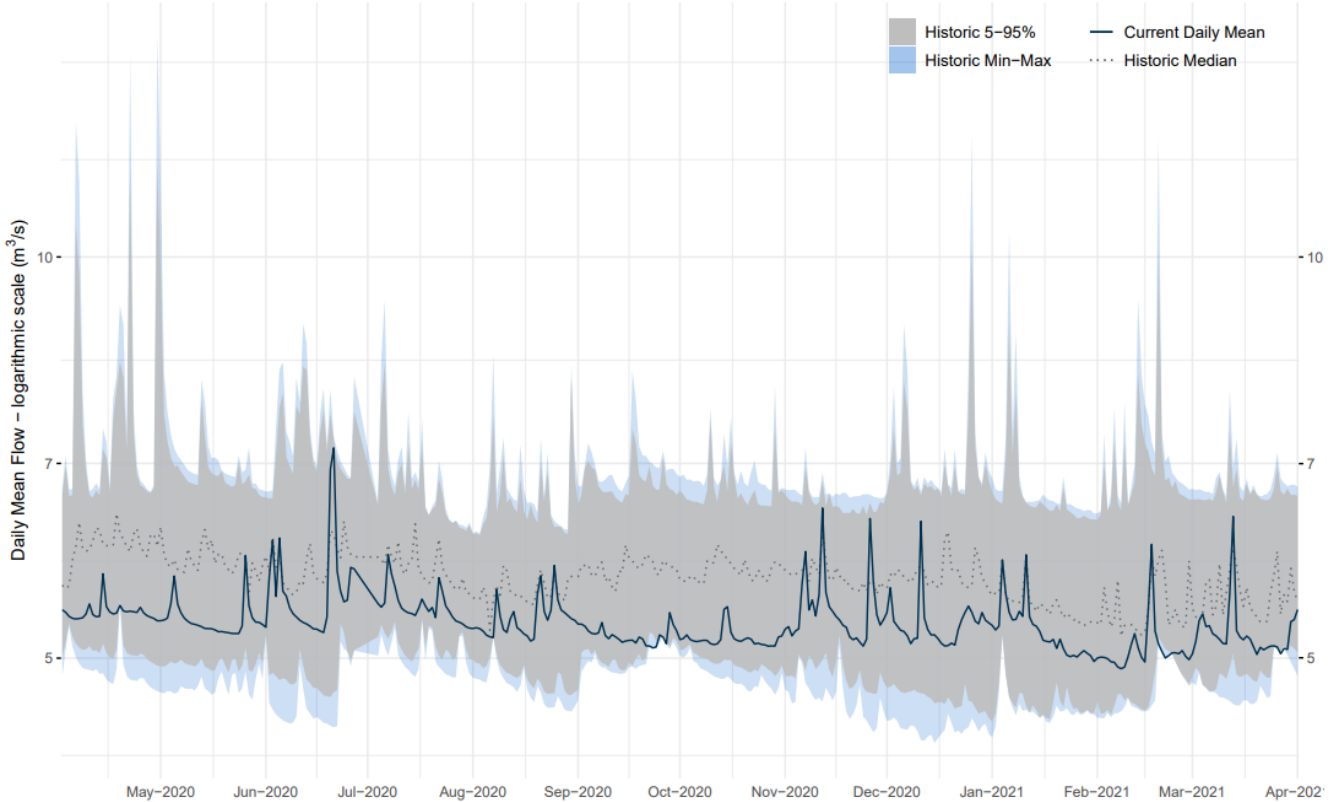
Waiari at TCC Intake (NIWA) – Current vs Historic Daily Mean Flow

Flow Record Begins – 14 Nov 2000



Waitahanui at Otamarakau Valley Rd – Current vs Historic Daily Mean Flow

Flow Record Begins – 11 Sep 2012



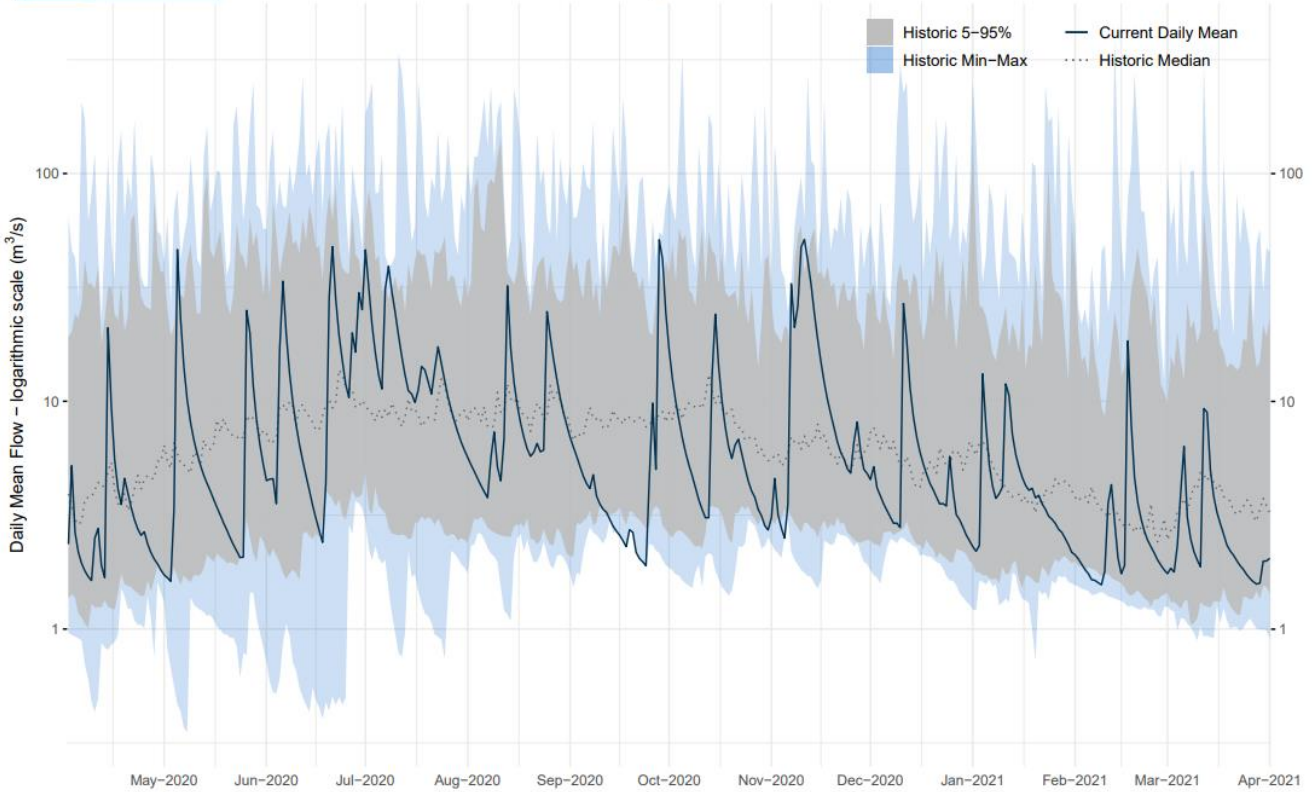
* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Councils telemetry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

3.3 Eastern BOP flow monitoring sites



Otara at Browns Bridge – Current vs Historic Daily Mean Flow

Flow Record Begins – 04 Mar 1979



* 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.

4 Soil Moisture

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

Daily Soil Moisture Averages and Monthly Rainfall Totals

Soil Moisture: Tauranga Harbour, Wairoa at Lower Kaimai

Soil Moisture: Soil Moisture [Tot].Root Zone@CO672223, Wairoa at Lower Kaimai
UTC Offset: +12:00, Start Time: 2013-06-20 12:30:00, End Time: 2021-04-01 03:00:00

Precipitation: Precip Total.Primary@CO672223, Wairoa at Lower Kaimai
UTC Offset: +12:00, Start Time: 1963-01-01 09:00:00, End Time: 2021-04-01 03:00:00

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Period Selected: Entire Record

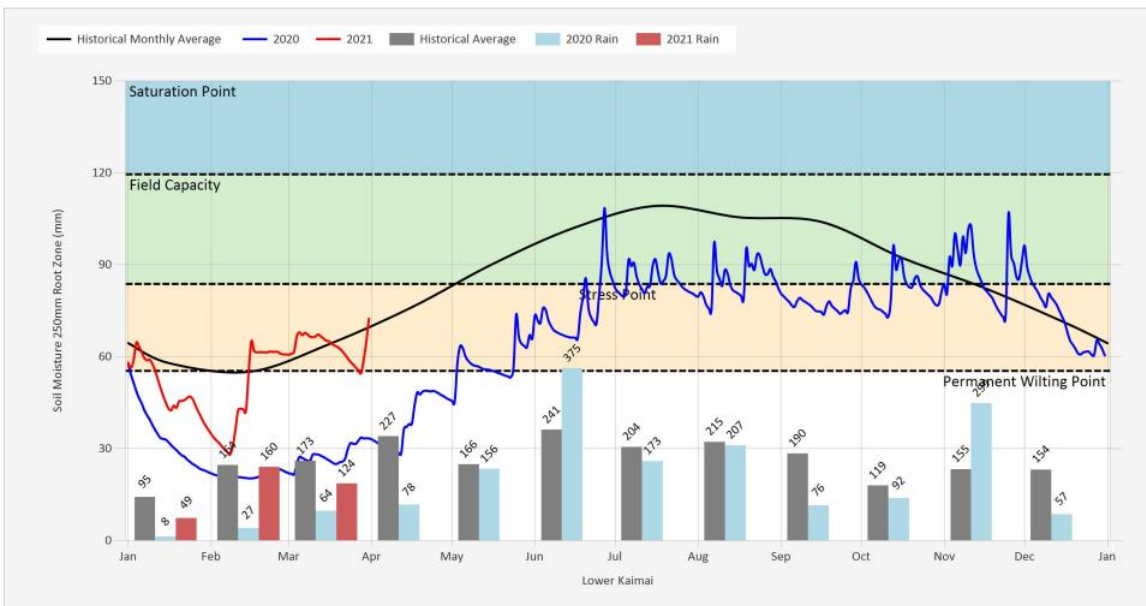


Figure 3 Lower Kaimai, Tauranga soil moisture.

Daily Soil Moisture Averages and Monthly Rainfall Totals
Soil Moisture: Rotorua Lakes, Rotorua at 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: 2021-04-01 01:00:00
Precipitation: Precip Total.Primary@DL230552, Rotorua at Upper Oturoa Rd
UTC Offset: +12:00, Start Time: 2008-06-11 17:00:00, End Time: 2021-04-01 01:00:00

Units: mm
Units: mm

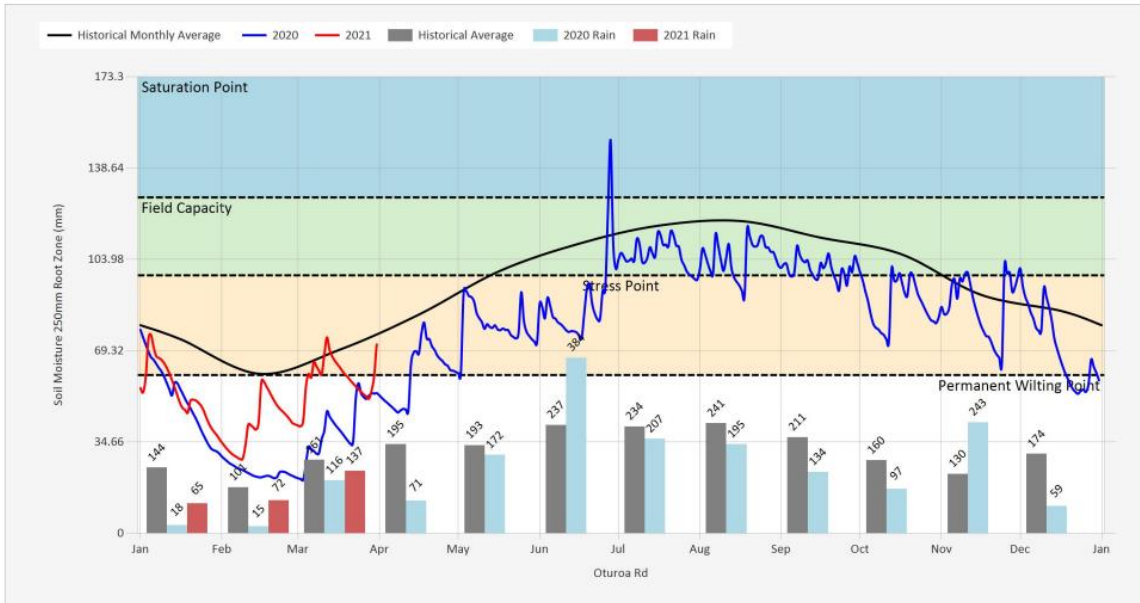


Figure 4 Oturoa Road, Rotorua soil moisture

Daily Soil Moisture Averages and Monthly Rainfall Totals
Soil Moisture: Kaituna, Maketu and Pongakawa. Pongakawa at Pongakawa Bush Rd

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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: 2021-04-01 03:00:00
Precipitation: Precip Total.Primary@GM691816, Pongakawa at Pongakawa Bush Rd
UTC Offset: +12:00, Start Time: 1996-06-26 11:30:01, End Time: 2021-04-01 03:00:00

Units: mm
Units: mm

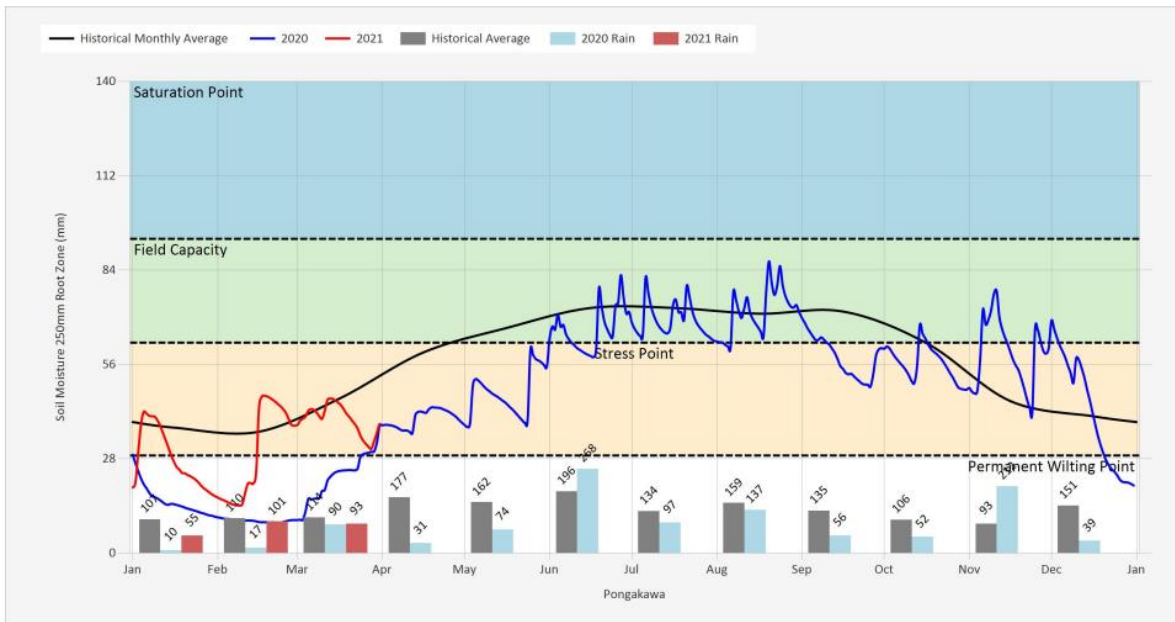


Figure 5 Pongakawa soil moisture

Daily Soil Moisture Averages and Monthly Rainfall Totals

Soil Moisture: Rangitaiki, Rangitaiki Plains at Flax Road

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: 2021-03-31 12:00:00

Precipitation: Precip Total.Primary@JM124696, Rangitaiki Plains at Flax Rd
UTC Offset: +12:00, Start Time: 2011-03-07 07:50:00, End Time: 2021-03-31 12:00:00

Apr 1, 2021 | 1 of 1

Period Selected: Entire Record

Units: mm

Units: mm

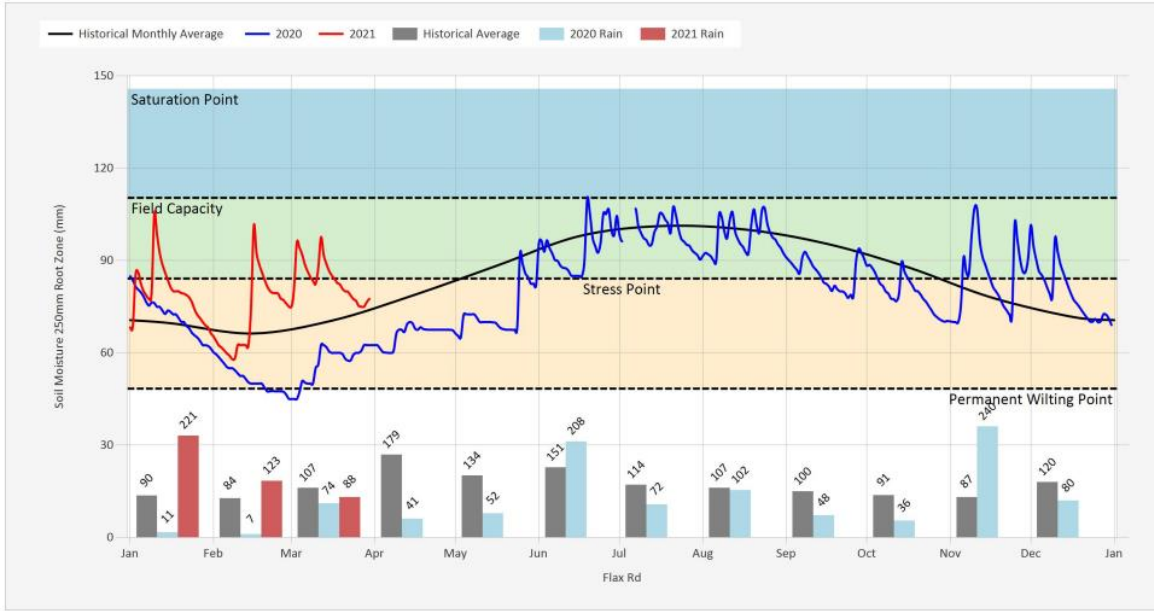


Figure 6 Rangitaiki Plains soil moisture

<p>Report prepared by: Glenn Ellery, Data Services Manager</p>	<p>Report authorised by: Glenn Ellery, Data Services Manager</p>
<p>Next Situation Report will be issued at: TBD</p>	<p>Time, date of approval: 1 April 2021</p>