

# SITUATION REPORT

## Bay of Plenty Regional Council

### Data Services Team



<b>SitRep number:</b>	SitRep # 6	<b>SitRep effective as at:</b>	3 February 2021
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### Key points since last SitRep

- This is the sixth SitRep of the summer of 2020/2021.
- La Nina conditions currently being experienced are non-traditional so tropical cyclone and possibility of increased rainfall are predicted to be delayed until towards the end of summer.
- Extended dry spells are expected to continue over the coming three months. Three month rainfall totals are about equally likely to be near normal or above normal in the north of the North Island, however sub-tropical air flows may fuel areas of localised heavy rainfall as we have already seen in the eastern BOP in January.
- MetService predict dry conditions until mid-February with increasing rainfall towards the end of the month.
- Generally river flows are not under pressure, the exception being the catchments with their headwaters to the west-southwest of Lake Rotorua which are very low, this now includes the Kopurererua catchment which flows into the Tauranga Harbour.
- River flow and soil moisture levels are in steady recession due to continuing lack of rainfall.

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

#### 1.1 NIWA seasonal forecast

- Although moderate La Niña conditions continued during December, the impact was non-traditional for parts of New Zealand due to persistently warm ocean waters in the tropical Indian Ocean.
- While extended dry spells are expected to continue over the coming three months, predicted three month rainfall totals are about equally likely to be near normal or above normal in the north of the North Island.
- Sub-tropical air flows may fuel areas of localised, heavy rainfall that can cause flooding, similar to what was experienced in parts of the country during late December and early January. It is not possible to pinpoint exactly which regions may experience extreme weather months in advance, hence the need to keep an eye on day to day weather forecasts through the season.
- Extended dry spells will likely continue to be interspersed with the unsettled conditions, a by-product of the ongoing non-traditional La Niña and a predominantly positive Southern Annular Mode (SAM).

#### Regional predictions for January – March 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 very likely to be above average (65% chance).
- Rainfall totals are about equally likely to be near normal (40% chance) or above normal (35% chance).
- Abnormally dry conditions are occurring across northern Waikato, Auckland, and Northland according to [NIWA's New Zealand Drought Index](#).
- Extended dry spells are expected to continue with the potential for periodic heavy rainfall, particularly later in the three month period.
- Soil moisture levels and river flows are most likely to be near normal (45-50% chance).

## 1.2 MetService 4 week forecast

The following forecast is provided by the MetService for the month of February and is developed from long-range (4 week) forecasts based on the ECMWF ensemble data and forecaster interpretation of local conditions:

**This week:** High pressure is in charge this week with little to no rain. South-easterly showers late in the week won't amount to much. South-westerlies bring below average temperatures, particularly in the east.

**Next week:** A front moves up the country through mid-week with western parts likely to see the best of the rain, and diminishing returns as it moves east. Behind this front we may see showery northerlies but confidence in this is low.

**Week three:** There are signs that we are likely to transition from high pressure to low pressure over northern NZ this week. This may well open the door to a Tasman low, and fairly widespread rain.

**Week four:** The pressure patterns this week support the continuation of a Tasman low regime, either with an actual low, or increased north-easterly showers.

Throughout this 4 week forecast period the tropics are expected to be very active. This week there is a blocking high stopping any systems approaching NZ, but that is less likely to be the case as the month progresses.

## 1.3 Short-term forecast (MetService)

MetService are predicting dry conditions for the coming week.

### Bay Of Plenty

	<b>Today</b> Tue 02	<b>Fine. Light winds and afternoon sea breezes.</b> Issued at 9:08am Tuesday 02 Feb 2021
	<b>Tomorrow</b> Wed 03	<b>Fine, apart from some areas of morning cloud in the west. Light winds and afternoon sea breezes.</b> Issued at 10:38am Tuesday 02 Feb 2021
	Thu 04	<b>Fine, apart from areas of morning and evening cloud. Southeasterlies, but afternoon sea breezes.</b> Issued at 10:38am Tuesday 02 Feb 2021
	Fri 05	<b>Fine. Southeasterlies.</b> Issued at 10:08am Tuesday 02 Feb 2021
	Sat 06	<b>Fine. Southeasterlies dying out.</b> Issued at 10:08am Tuesday 02 Feb 2021
	Sun 07	<b>Fine. Light winds and daytime sea breezes.</b> Issued at 10:08am Tuesday 02 Feb 2021

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

### 2 Rainfall

January 2021 monthly rainfall totals delivered a range of extremes due to subtropical air systems and an example of what climate change is forecasted to bring more of in the future with continuing long term lack of rainfall in some areas and high intensity storm events in other parts of the region that resulted in flooding and road closures.

Generally western and central inland parts of the region showed a continuation of the dry trend we have seen since the beginning of last summer with January rainfalls being 30-60% of normal.

Further east, lower lying areas between Matatā and Ōpōtiki were affected by two events in early January that brought high intensity short duration storm events resulting in surface flooding and road closures. These events affected relatively small lower altitude areas nearer the coast, whereas higher altitude and more eastern parts of the region show similar rainfall deficits as seen in western parts of the region.



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

#### Rainfall Summary

Rainfall.Rainfall Summary Report

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Period Selected: 2021-01-31 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	01/02/2021 18:00:00	0.0	0.0	0.0	0.5	0.0	38.5	29 %	38.5	29 %
Te Puna at Odey Rd	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	58.5		58.5	
Wairoa at Lower Kaimai	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	49.0	39 %	49.0	39 %
Ngongotaha at Relph Rd	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	64.5	50 %	64.5	50 %
Rotorua at Upper Oturoa Rd	01/02/2021 17:00:00	0.0	0.0	0.0	0.0	0.0	64.5	40 %	64.5	40 %
Waimapu at Glue Pot Rd	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	71.0	55 %	71.0	55 %
Waimapu at McCarrrolls	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	43.0	43 %	43.0	43 %
Rotorua at Whakarewarewa	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	76.5	77 %	76.5	77 %
Paraiti (Mangorewa) at Kaharo	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	105.5	86 %	105.5	86 %
Okaro at Okaro Rd	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	62.5	66 %	62.5	66 %
Lake Rotoiti at Okawa Bay	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	105.5	87 %	105.5	87 %
Tikitere at SH30	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	105.0		105.0	
Paraiti (Mangorewa) at Upper	01/02/2021 18:00:00	0.0	0.0	0.0	1.5	0.0	81.5	59 %	81.5	59 %
Paraiti (Mangorewa) at Link	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	59.0	56 %	59.0	56 %
Raparapahoe at Collins Lane	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	55.5	64 %	55.5	64 %
Kaituna at Marshalls Farm	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	27.0	44 %	27.0	44 %
Kaituna at Te Matai	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	68.0	85 %	68.0	85 %
Rangitaiki at Kokomoka (Bore 1	01/02/2021 18:10:00	0.0	0.0	0.0	0.0	0.0				
Pongakawa at Pongakawa Bush	01/02/2021 17:00:00	0.0	0.0	0.0	0.0	0.0	55.0	55 %	55.0	55 %
Outlet at Waitangi Soda Spring	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	109.0		109.0	
Te Whaiti at Minginui	01/02/2021 17:00:00	0.0	0.0	0.0	0.0	0.0	60.5		60.5	
Kawerau at Plunket St	01/02/2021 18:00:00	0.0	0.0	0.0	2.0	0.0	114.5		114.5	
Tarawera at Hogg Rd	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	99.0		99.0	
Ohinekoao at Harris Saddle	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	133.0	102 %	133.0	102 %
Galatea Basin at Horomanga R	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	69.5	101 %	69.5	101 %
Waihua at Clearing	01/02/2021 17:00:00	0.0	0.0	0.0	0.0	0.0	77.5	54 %	77.5	54 %
Rangitaiki at Te Teko	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	114.0	131 %	114.0	131 %
Edgecumbe at Edgecumbe	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	123.5	169 %	123.5	169 %
Tarawera at Awakaponga	01/02/2021 18:10:00	0.0	0.0	0.0	0.0	0.0	167.5	176 %	167.5	176 %
Rangitaiki Plains at Flax Rd	01/02/2021 12:00:00		0.0	0.0	0.0	0.0	220.5	263 %	220.5	263 %

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	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	182.0	276 %	182.0	276 %
Whakatane at Kopeopeo	01/02/2021 16:00:00	0.0	0.0	0.0	0.0	0.0	152.3	167 %	152.3	167 %
Rangitaiki at Thornton	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	176.0	238 %	176.0	238 %
Whakatane at Huiaarau Summit	01/02/2021 17:00:00	0.0	0.0	1.5	3.5	0.0	111.0	67 %	111.0	67 %
Whakatane at Huitieke rain	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	112.5	116 %	112.5	116 %
Whakatane at Awahou Rd	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	201.0		201.0	
Wainui-te-whara at Munro's	01/02/2021 17:00:00	0.0	0.0	0.0	0.0	0.0	165.0	199 %	165.0	199 %
Tauranga at Omahuru (Ogilvies)	01/02/2021 18:10:00	0.0	0.0	0.0	0.0	0.0	127.0		127.0	
Nukuhou at Nukuhou North	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	270.0		270.0	
Ohope Spit at Ohope Golf Course	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	179.0		179.0	
Waioeka at Koranga	01/02/2021 18:00:00	0.0	0.0	0.5	0.5	0.0	82.7	55 %	82.7	55 %
Waioeka at Cableway	01/02/2021 17:15:00	0.0	0.0	0.0	0.0	0.0	229.5	146 %	229.5	146 %
Waioeka at Mouth of Gorge	01/02/2021 17:25:00	0.0	0.0	0.0	0.0	0.0	233.8	207 %	233.8	207 %
Otara at Opotiki Wharf	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	156.0	188 %	156.0	188 %
Otara at Tutatoko	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	142.0	83 %	142.0	83 %
Otara at Browns Bridge	01/02/2021 18:00:00	0.0	0.0	0.0	0.0	0.0	126.5	142 %	126.5	142 %
Pakihī at Pakihī Station	01/02/2021 18:05:00	0.0	0.0	0.0	0.0	0.0	96.0	74 %	96.0	74 %
Pakihī at Rakanui	01/02/2021 18:00:00	0.0	0.0	1.5	2.5	0.0	92.6	75 %	92.6	75 %
Haparapara at Haparapara	01/02/2021 18:00:00	0.0	0.0	0.0	4.5	0.0	68.0	26 %	68.0	26 %

Table 1 Rainfall statistics for January 2021

## 2.1 Standardised Precipitation Index

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

The rainfall in January 2021 has resulted in near-normal 3 month SPI figures (Figure 1) which indicate an easing of pressure on agricultural and horticultural users of water for the shorter term; the wetter than normal area in blue reflects the area where the two high intensity rainfall events occurred in early January.

The 12-month SPI figures (Figure 2) show a slight easing in rainfall deficit however areas of the region are still in long term rainfall deficit, meaning low water supply may still be evident in streams, reservoirs and groundwater.

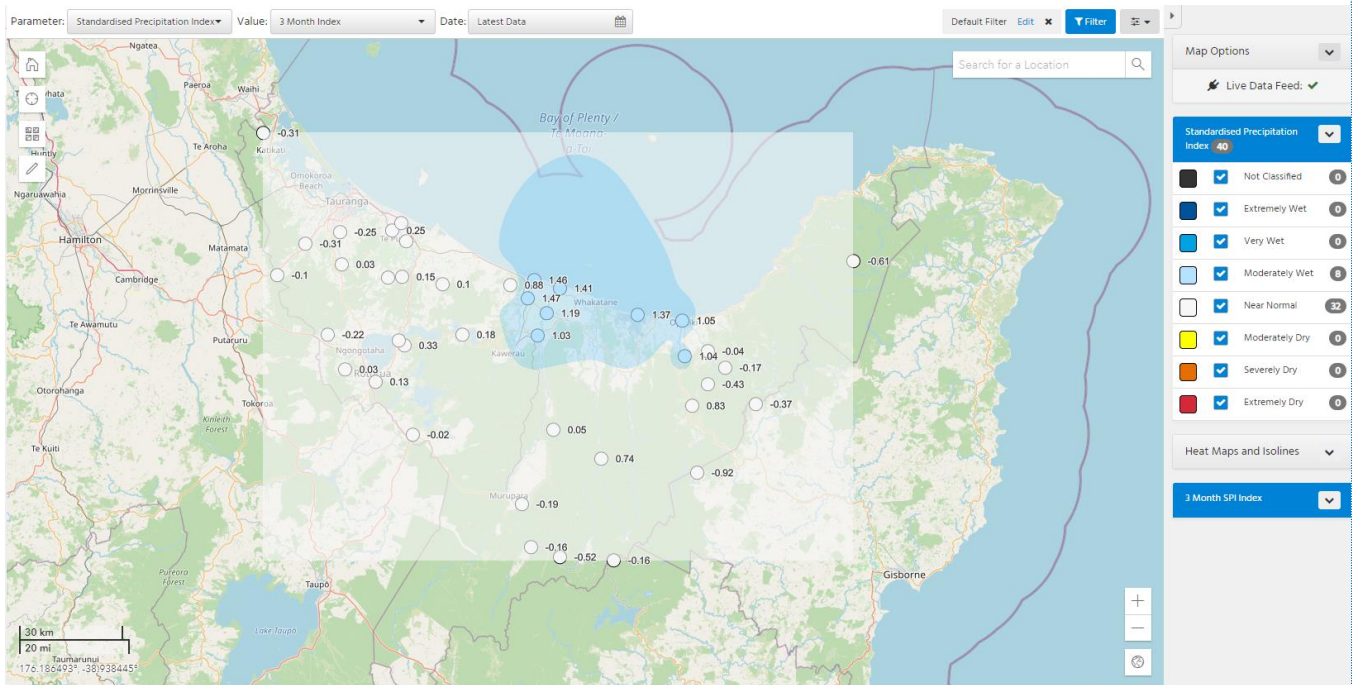


Figure 1 3 month SPI

<sup>1</sup> Precipitation being another name for rainfall.  
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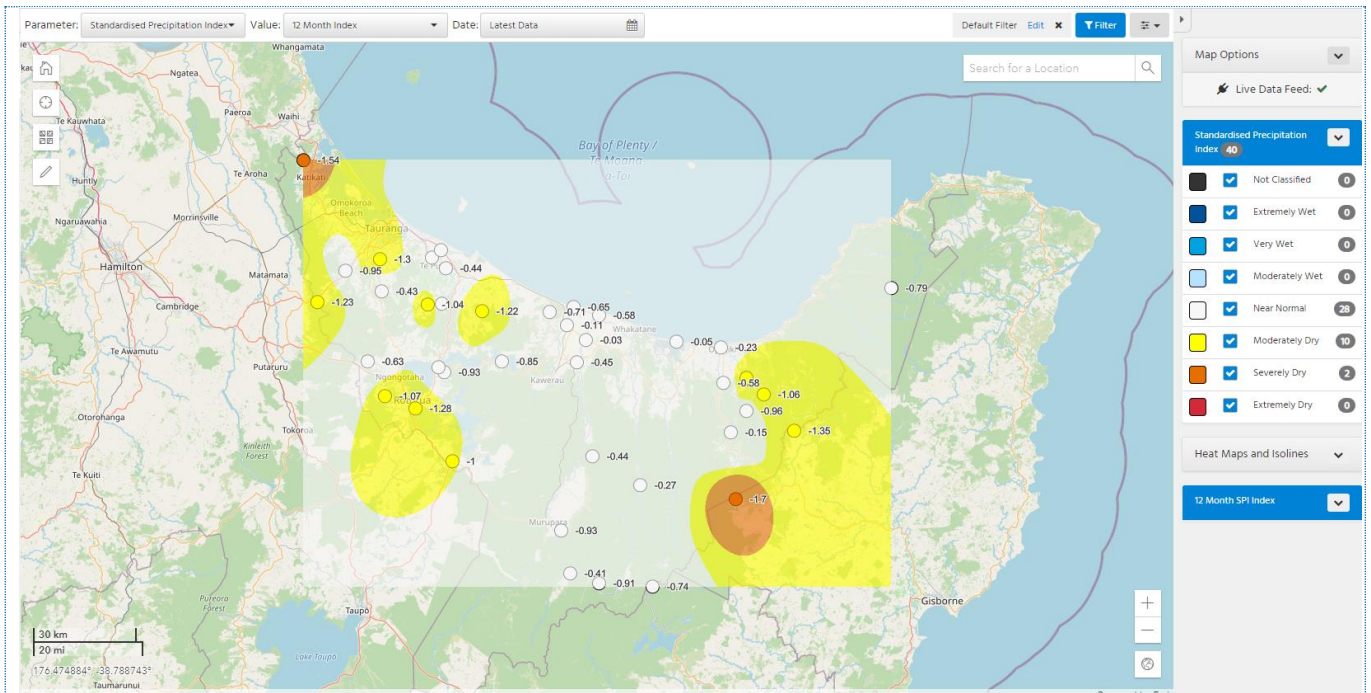


Figure 2 12 month SPI

### 3 River Flows

The Rotorua focus area identified in the previous two SitReps continues to be an area of concern, with flows at or below Q5 levels. The Kopurererua catchment is also now of significant concern being much lower than last year and it may well be that this is due to the top of this catchment being up in a similar area to the Rotorua focus catchments.

Other western Bay of Plenty catchments are dropping due to the dry conditions but are significantly higher than they were last year.

Eastern rivers are also falling but are not of concern currently.

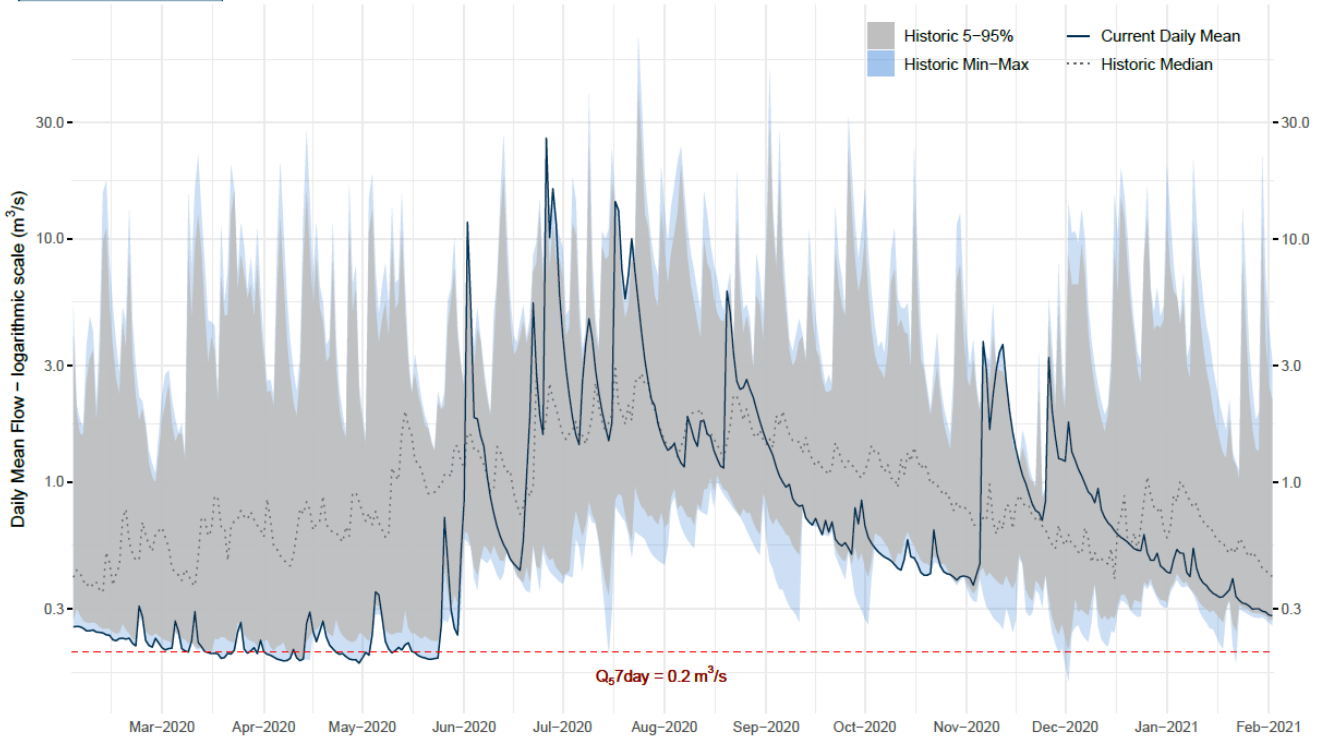
Bay of Plenty Regional Council staff are undertaking low flow measurement surveys in a variety of catchments over the month of February to collect low flow data that will assist with allocation and management into the future.

### 3.1 Western BOP flow monitoring sites



#### Tuapiro at Farm Bridge – Current vs Historic Daily Mean Flow

Flow Record Begins – 02 Dec 2010

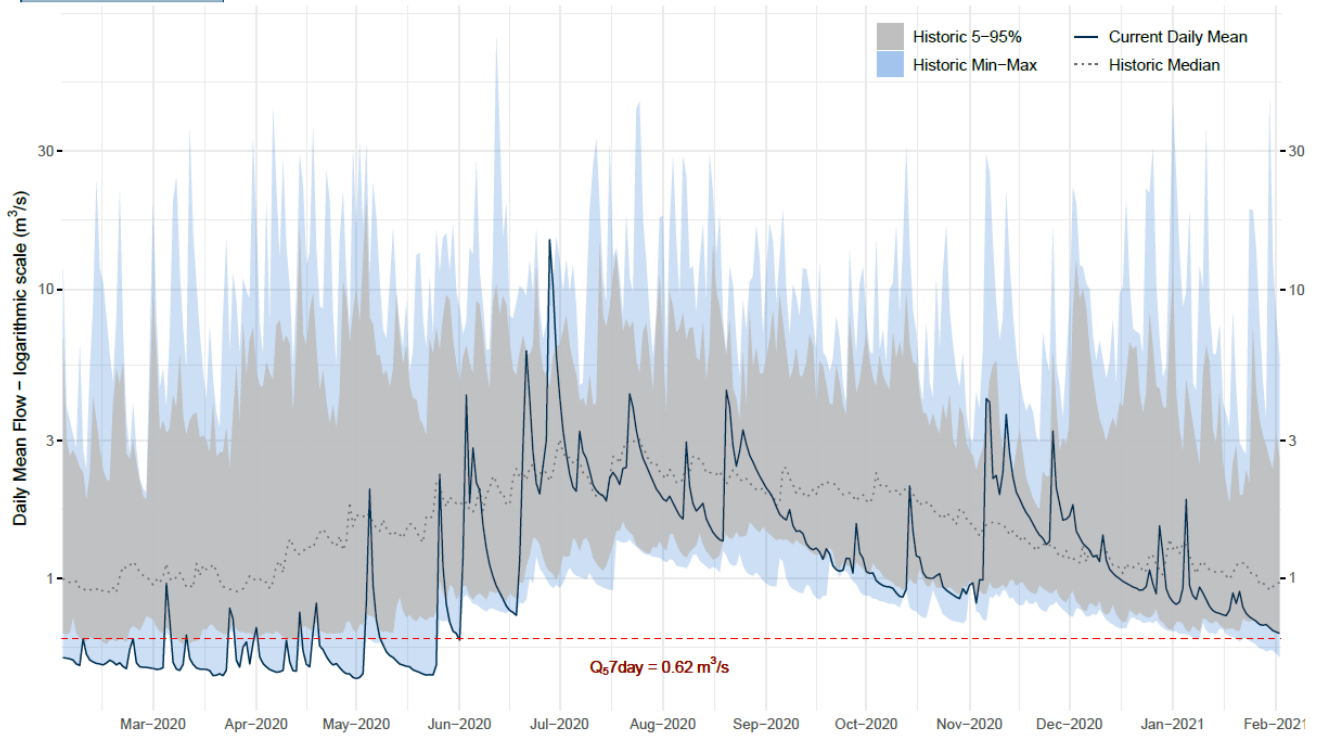


Site	Q5 7day	Latest Date	Latest Discharge	Latest Discharge (% of Q5)	Lowest Discharge	Lowest Discharge Date	Lowest Discharge (% of Q5)
Tuapiro at Farm Bridge	0.2	2021-02-01	0.281	140	0.281	2021-02-01	140



#### Waimapu at McCarrolls – Current vs Historic Daily Mean Flow

Flow Record Begins – 12 Mar 1991

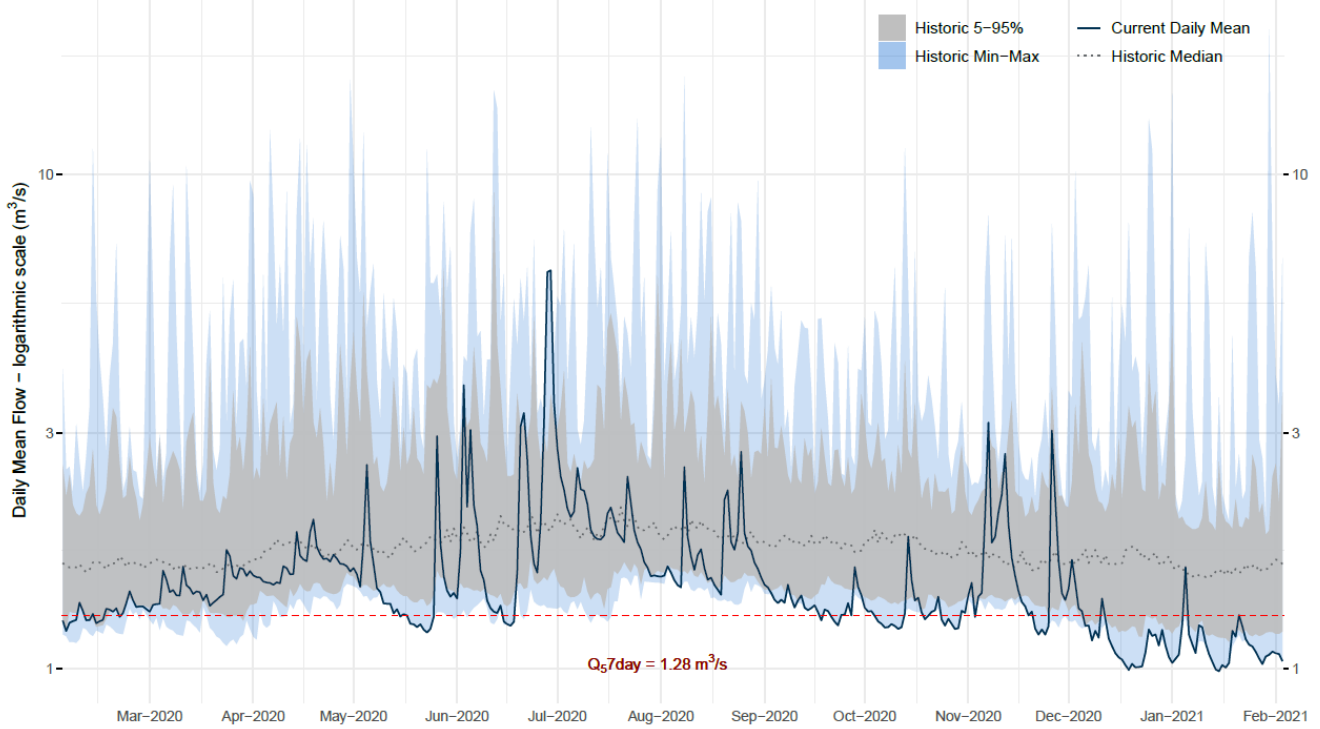


Site	Q5 7day	Latest Date	Latest Discharge	Latest Discharge (% of Q5)	Lowest Discharge	Lowest Discharge Date	Lowest Discharge (% of Q5)
Waimapu at McCarrolls	0.62	2021-02-01	0.645	104	0.645	2021-02-01	104



### Kopurererua at SH29 – Current vs Historic Daily Mean Flow

Flow Record Begins – 28 Jun 1990



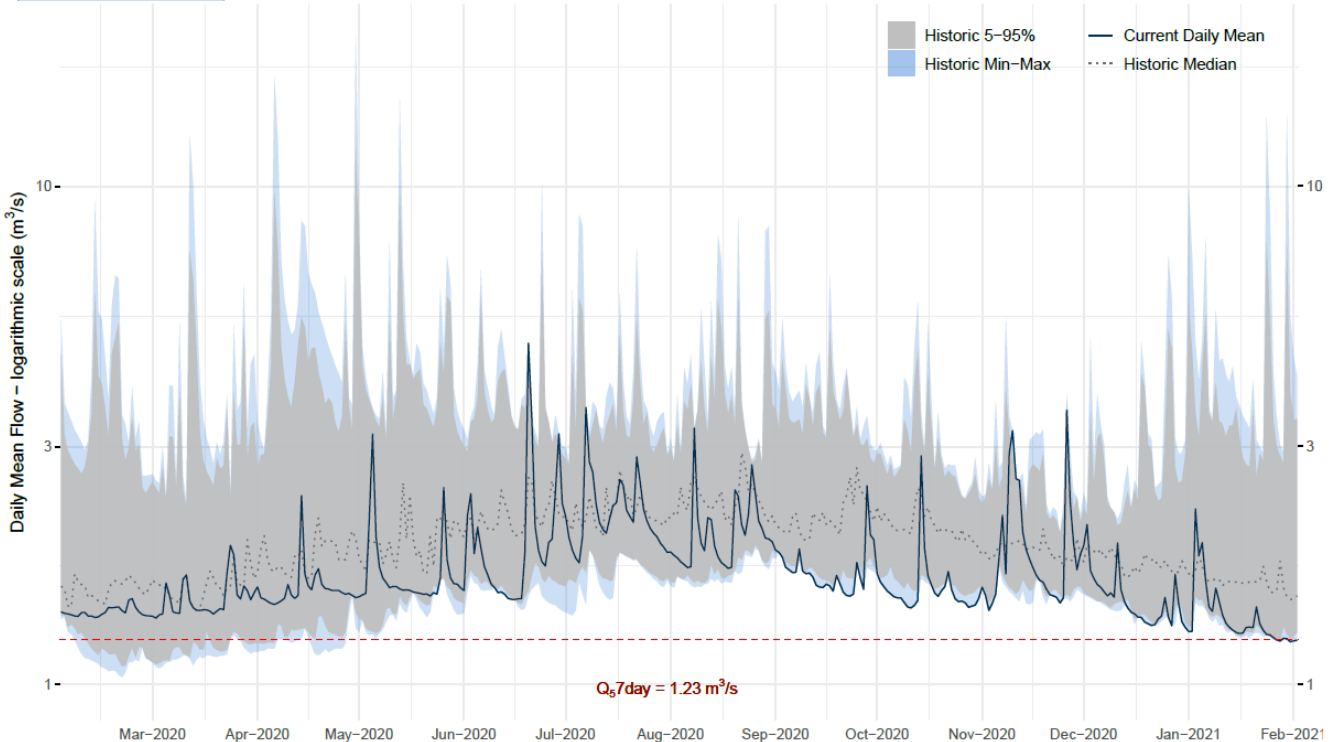
Site	Q5 7day	Latest Date	Latest Discharge	Latest Discharge (% of Q5)	Lowest Discharge	Lowest Discharge Date	Lowest Discharge (% of Q5)
Kopurererua at SH29	1.28	2021-02-02	1.036	81	0.988	2021-01-14	77

## 3.2 Central BOP flow monitoring sites



### Puarenga at SH30 – Current vs Historic Daily Mean Flow

Flow Record Begins – 11 Nov 2009

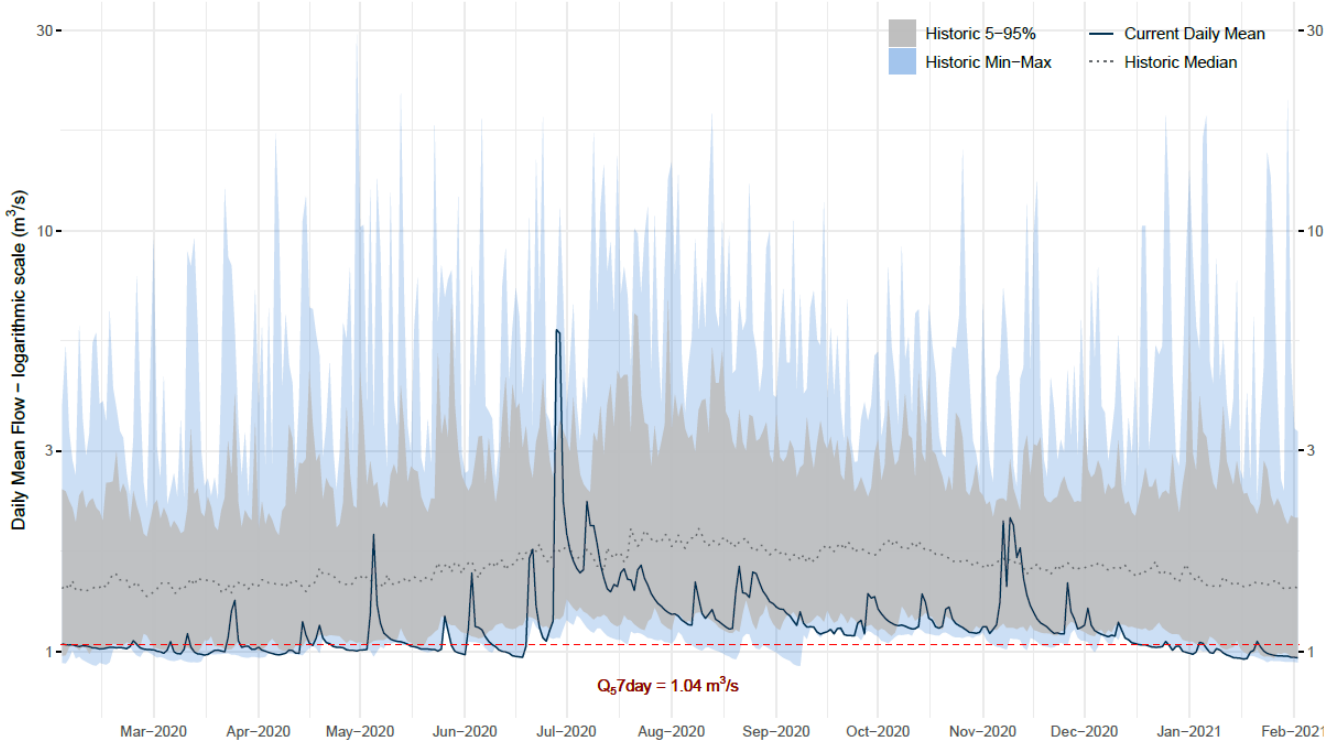


Site	Q5 7day	Latest Date	Latest Discharge	Latest Discharge (% of Q5)	Lowest Discharge	Lowest Discharge Date	Lowest Discharge (% of Q5)
Puarenga at SH30	1.23	2021-02-01	1.226	100	1.217	2021-01-30	99



### Ngongotaha at SH5 – Current vs Historic Daily Mean Flow

Flow Record Begins – 03 Jun 1975

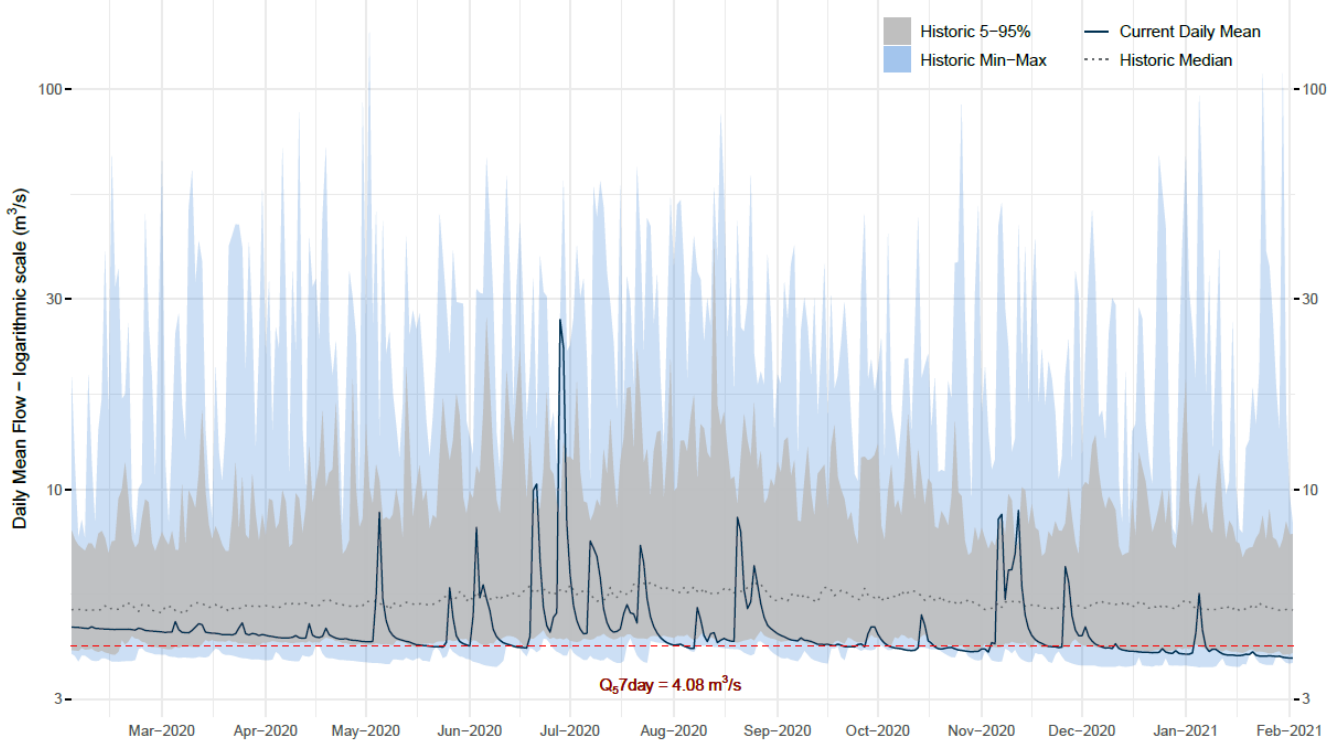


Site	Q5 7day	Latest Date	Latest Discharge	Latest Discharge (% of Q5)	Lowest Discharge	Lowest Discharge Date	Lowest Discharge (% of Q5)
Ngongotaha at SH5	1.04	2021-02-01	0.967	93	0.959	2021-01-16	92



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

Flow Record Begins – 05 Aug 1967



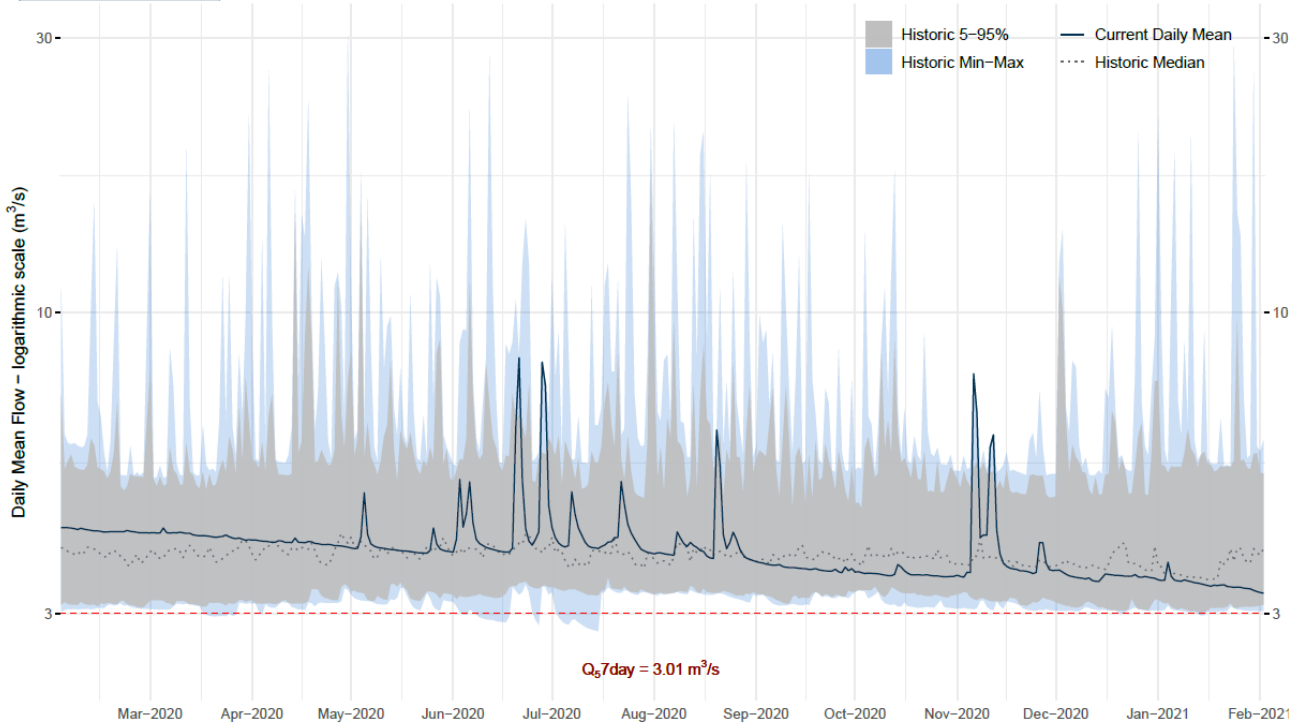
Site	Q5 7day	Latest Date	Latest Discharge	Latest Discharge (% of Q5)	Lowest Discharge	Lowest Discharge Date	Lowest Discharge (% of Q5)
Paraiti (Mangorewa) at Saunders	4.08	2021-02-01	3.799	93	3.797	2021-01-31	93





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

Flow Record Begins – 14 Nov 2000

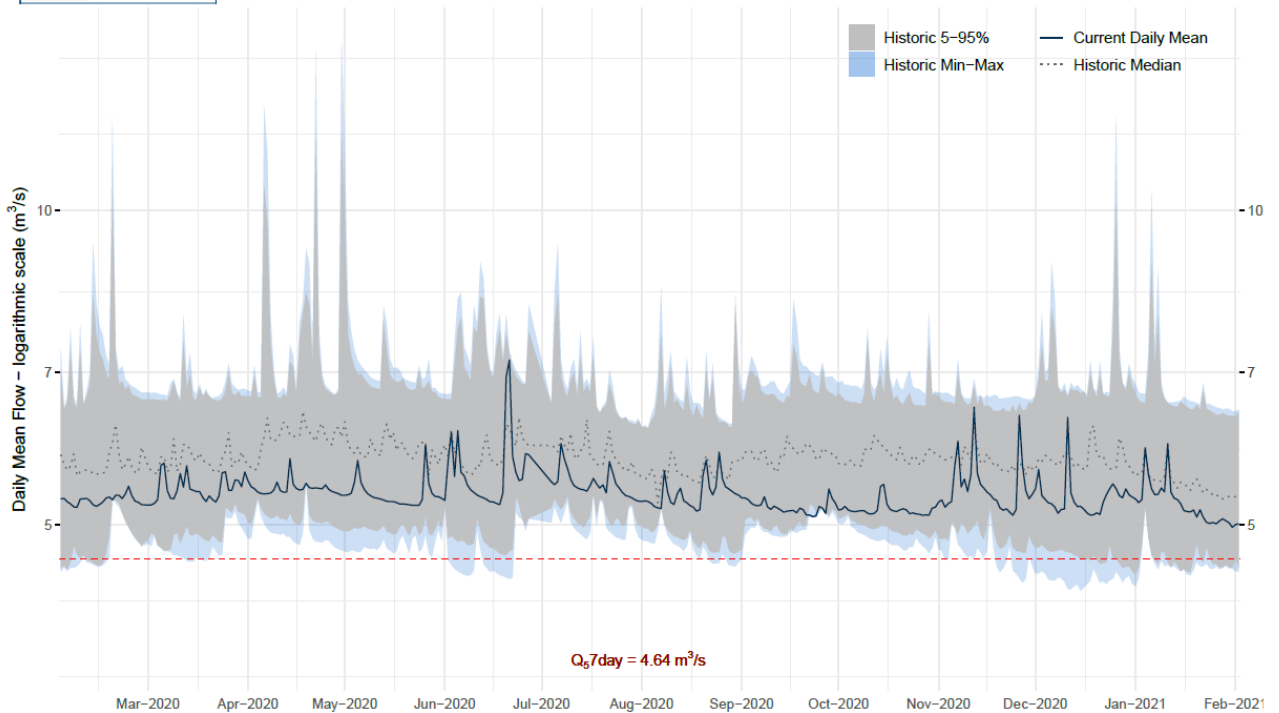


Site	Q5 7day	Latest Date	Latest Discharge	Latest Discharge (% of Q5)	Lowest Discharge	Lowest Discharge Date	Lowest Discharge (% of Q5)
Waiari at TCC Intake (NIWA)	3.01	2021-02-01	3.258	108	3.258	2021-02-01	108



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

Flow Record Begins – 11 Sep 2012



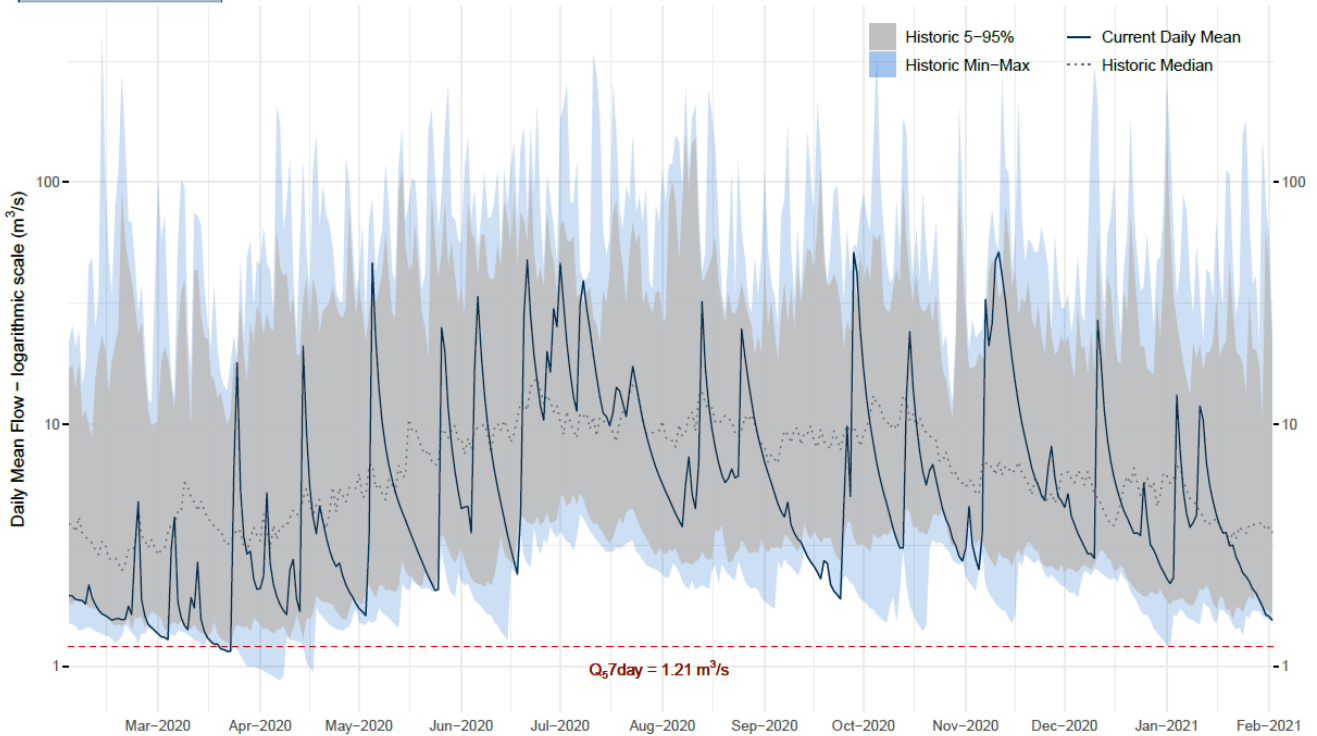
Site	Q5 7day	Latest Date	Latest Discharge	Latest Discharge (% of Q5)	Lowest Discharge	Lowest Discharge Date	Lowest Discharge (% of Q5)
Waitahanui at Otamarakau Valley Rd	4.64	2021-02-01	5.009	108	4.971	2021-01-30	107

### 3.3 Eastern BOP flow monitoring sites



#### Otara at Browns Bridge – Current vs Historic Daily Mean Flow

Flow Record Begins – 08 Mar 1984



Site	Q5 7 day	Latest Date	Latest Discharge	Latest Discharge (% of Q5)	Lowest Discharge	Lowest Discharge Date	Lowest Discharge (% of Q5)
Otara at Browns Bridge	1.21	2021-02-01	1.546	128	1.546	2021-02-01	128

## 4 Soil Moisture

Soil moisture trends generally indicate that compared to last year at the same time conditions aren't quite as extreme, but compared to longer term averages still very dry. Noteworthy is the speed at which soil moisture levels have receded following the heavy rain experienced on the Rangitāiki Plains in early January, refer Figure 7.

Daily Soil Moisture Averages and Monthly Rainfall Totals

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Soil Moisture, Tauranga Harbour, Wairoa at Lower Kaimai

Period Selected: 1921-02-01 00:00 to End of Record

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: 2021-02-01 22:00:00

Units: mm

Precipitation: Precip Total, Primary@CO672223, Wairoa at Lower Kaimai

UTC Offset: +12:00, Start Time: 1963-01-01 09:00:00, End Time: 2021-02-01 22:00:00

Units: mm

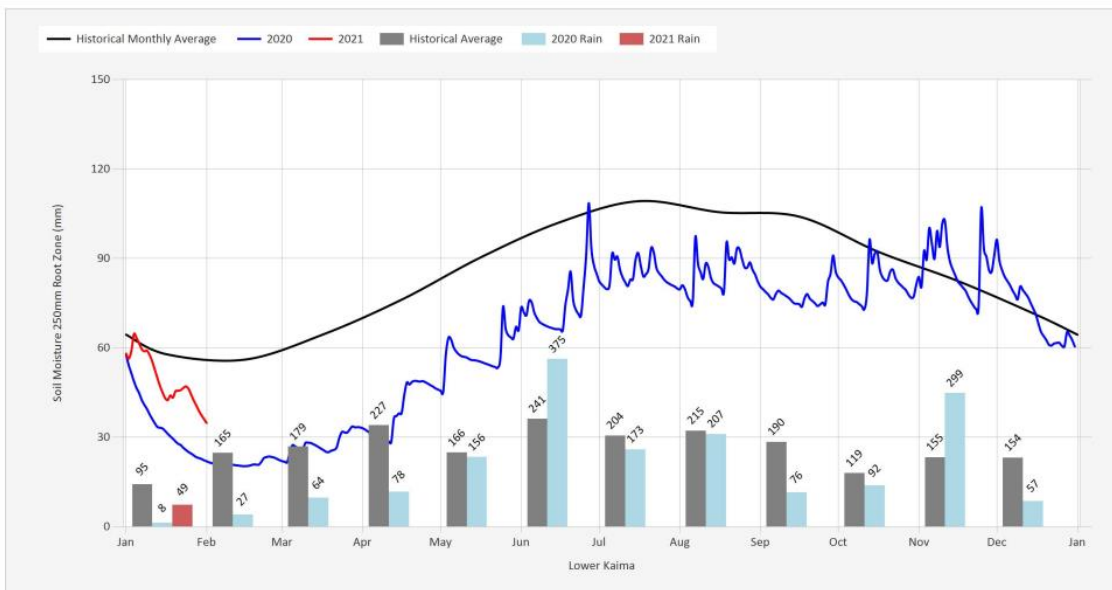


Figure 3 Lower Kaimai, Tauranga soil moisture.

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BOPRC ID: A3728178

Daily Soil Moisture Averages and Monthly Rainfall Totals  
Soil Moisture, Rotorua Lakes, Rotorua at Oturoa Rd

Feb 1, 2021 | 1 of 1

Period Selected: 1921-02-01 00:00 to End of 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: 2021-02-01 22:00:00 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: 2021-02-01 22:00:00 Units: mm

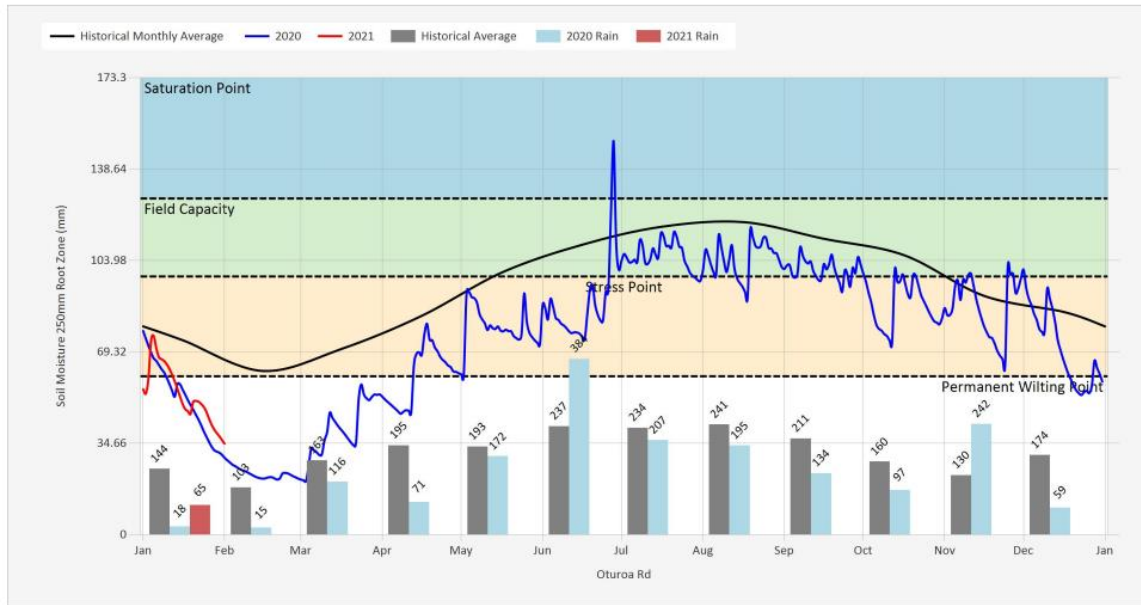


Figure 4 Oturoa Road, Rotorua soil moisture

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

Feb 1, 2021 | 1 of 1

Period Selected: 1921-02-01 00:00 to End of 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: 2021-02-01 22:00:00 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: 2021-02-01 22:00:00 Units: mm

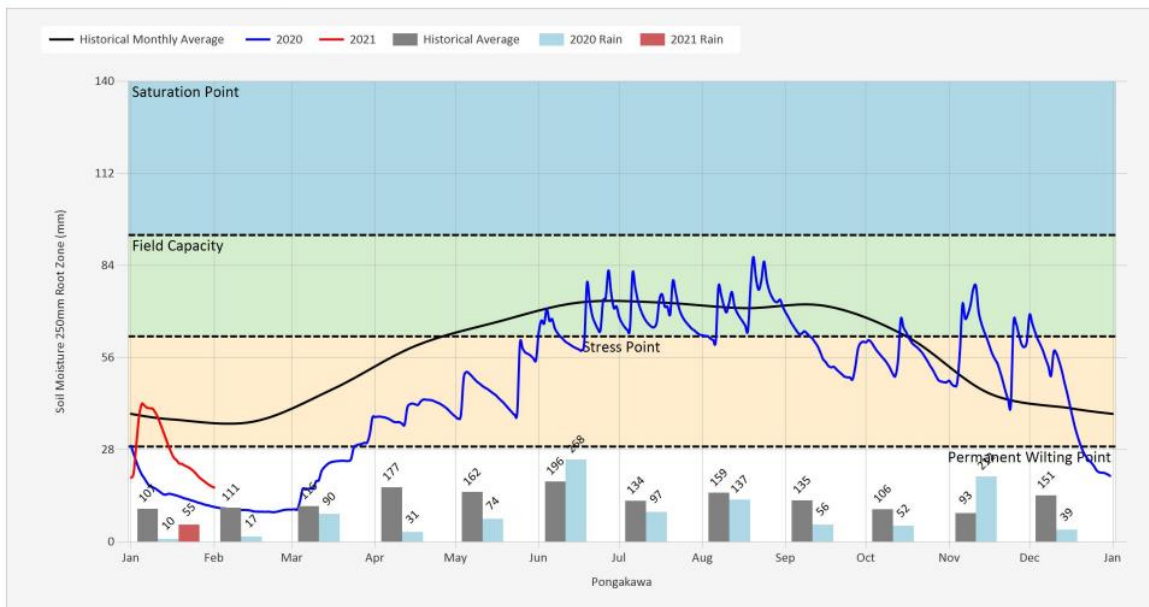


Figure 5 Pongakawa soil moisture

Daily Soil Moisture Averages and Monthly Rainfall Totals

Soil Moisture: Rangitaiki, Rangitaiki Plains at Flax Road

Feb 1, 2021 | 1 of 1

Period Selected: 1921-02-01 00:00 to End of 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: 2021-02-01 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: 2021-02-01 12:00:00

Units: mm

Units: mm

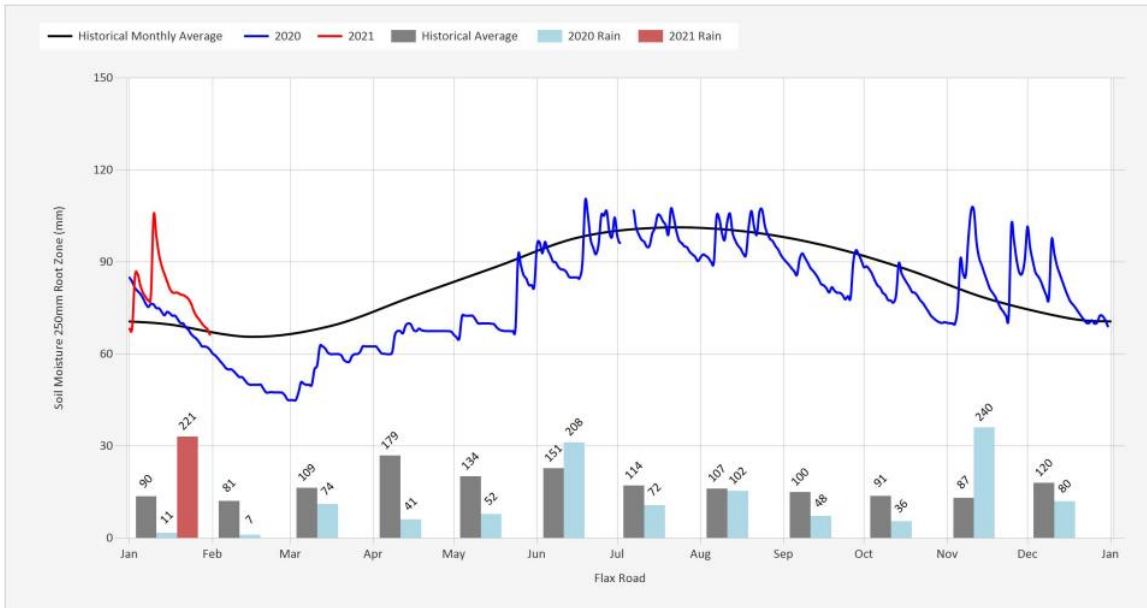


Figure 6 Rangitaiki Plains soil moisture

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<p><b>Next Situation Report will be issued at:</b>                  March 2021</p>	<p><b>Time, date of approval:</b>                  3 February 2021</p>