

# Dry weather water management SITUATION REPORT



**SitRep number:** WSAE22-23:01      **SitRep effective as at:** 3 November 2022

## Key points



- This is the first SitRep for the spring/summer period of 2022/2023 and provides a snapshot of antecedent conditions as we enter the drier months. Forecast of conditions for Nov-January are also provided.
- A wet winter and early spring have seen rainfall totals for the calendar year to-date being 30-50% above long-term normals.
- Temperatures are very likely to be above average. More north-easterly winds and marine heatwave conditions will result in high heat and humidity at times.
- Rainfall totals are most likely to be near normal for the season as a whole, but there may still be dry periods and wet periods that occur.
- Soil moisture levels and river flows are about equally likely to be below normal or near normal.
- In general, the winter rainfall has resulted in elevated waterway base flows, improved groundwater levels and increased soil moisture.
- The whole of the Bay of Plenty region now sits at **Level 0** of the Water Shortage Standard Operating Procedure.

# Weather forecast



[NIWA forecasts](#) November 2022 to January 2023 suggest:

- Moderate La Niña conditions continued during October. La Niña will have a meaningful influence on Aotearoa New Zealand's climate in the coming months.
- Air pressure is forecast to be higher than normal over and to the south of the South Island and lower than normal north of the country. This will likely result in an easterly quarter air flow anomaly and fewer westerly winds over the three months as a whole.
- Rainfall is about equally likely to be near normal or above normal in the east of the North Island and most likely to be near normal in the north of the North Island.
- A dry spell may develop during the second week of November. Such periods will occur occasionally through the season, increasing the risk for lower-than-normal soil moisture. These dry periods may be occasionally interspersed with tropical downpours, especially in the north.
- There is an increased risk for early-season tropical cyclone activity in the Southwest Pacific, however it is not possible to predict where they might form or track months in advance.
- Temperatures are very likely to be warmer than average in the north of the North Island and the west of both islands. Above average warmth and periodic humidity is expected from November, a change from the relatively cooler conditions experienced during October.
- Coastal sea surface temperatures (SSTs) ranged from 0.3°C to 1.0°C above average during October. Conditions became less unusually warm in all regions except the west of the South Island during the month due to frequent south-east winds. Warm conditions during November may see SSTs increase notably.
- Soil moisture levels and river flows are most likely to be below normal in the west of the North Island and about equally likely to be near normal or below normal in all other regions except the east of the North Island where soil moisture is most likely to be near normal and river flows near normal or above normal.

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 (70% chance). More northeasterly winds and marine heatwave conditions will result in high heat and humidity at times.
- Rainfall totals are most likely to be near normal (45% chance) for the season as a whole. However, note that there is a 35% chance for below normal rainfall. There is an increased risk for dry spells over the period, like what was experienced in 2020-21 and 2021-22. Occasional tropical moisture plumes are also possible.
- Soil moisture levels and river flows are about equally likely to be below normal (45% chance) or near normal (40% chance).

# Rainfall



The winter of 2022 brought a number of significant rainfall events interspersed with frequent lower level events keeping soil moisture levels up. This trend has continued through October where a number of locations received twice their normal monthly rainfall.

In general, rainfall for the calendar year so far has been 30-50% above long term normal.



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

## Rainfall Summary

Rainfall Rainfall Summary Report

Nov 1, 2022 | 1 of 2  
Period Selected: 2022-10-30 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	01/11/2022 07:00:00	0.0	0.0	0.5	59.5	0.0	188.5	140 %	1994.9	110 %
Te Puna at Odley Rd	01/11/2022 07:00:00	0.0	0.5	0.5	69.0	0.5	217.0		2344.5	
Wairoa at Lower Kaimai	01/11/2022 07:00:00	0.0	0.0	0.5	74.5	0.0	274.5	164 %	2341.0	146 %
Ngongotaha at Relph Rd	01/11/2022 07:00:00	0.0	0.0	0.0	68.5	0.0	248.0	189 %	2261.4	142 %
Rotorua at Upper Oturoa Rd	01/11/2022 07:00:00	0.0	0.0	0.5	76.5	0.0	246.0	150 %	2249.1	116 %
Waimapu at Glue Pot Rd	01/11/2022 07:00:00	0.0	0.0	1.0	94.0	0.0	258.5	176 %	2234.1	134 %
Waimapu at McCarrolls	01/11/2022 07:00:00	0.0	0.0	1.0	75.5	0.0	187.5	186 %	1639.5	116 %
Rotorua at Whakarewarewa	01/11/2022 07:00:00	0.0	0.0	0.5	69.0	0.0	223.5	183 %	1686.3	145 %
Paraiti (Mangorewa) at Kaharo	01/11/2022 07:00:00	0.0	0.0	1.0	89.0	0.0	285.0	199 %	2220.9	138 %
Okaro at Okaro Rd	01/11/2022 07:00:00	0.0	0.0	1.0	62.0	0.0	205.0	244 %	1453.5	130 %
Lake Rotoiti at Okawa Bay	01/11/2022 07:00:00	0.0	0.0	1.5	72.5	0.0	235.5	240 %	1748.1	130 %
Paraiti (Mangorewa) at Upper	01/11/2022 07:00:00	0.0	0.0	5.5	100.5	0.0	343.0	198 %	2663.8	151 %
Paraiti (Mangorewa) at Link	01/11/2022 07:00:00	0.0	0.0	8.0	91.5	0.0	285.0	216 %	2350.2	154 %
Kaituna at Marshalls Farm	01/11/2022 07:00:00	0.0	0.0	3.0	48.0	0.0	165.0	190 %	1586.9	127 %
Kaituna at Te Matai	01/11/2022 07:00:00	0.0	0.0	4.0	54.0	0.0	175.5	181 %	1743.8	148 %
Rangitaiki at Kokomoka (Bore 1	01/11/2022 07:05:00	0.0	0.0	1.5	99.0	0.0	214.5	174 %	1731.7	134 %
Rerewhakaaitu at Republican R	01/11/2022 05:00:00		0.0	1.0	60.0	0.0	205.0		1608.5	
Pongakawa at Pongakawa Bush	01/11/2022 07:04:00	0.0	0.0	2.5	43.0	0.0	95.0	81 %	1740.0	127 %
Outlet at Waitangi Soda Spring	01/11/2022 05:00:00		0.0	12.0	137.0	0.0	317.0	235 %	2420.4	136 %
Te Whaiti at Minginui	01/11/2022 07:00:00	0.0	0.0	3.0	79.5	0.0	179.0		1494.2	
Kawerau at Plunket St	01/11/2022 07:00:00	0.0	0.0	6.5	71.5	0.0	303.5		2176.8	
Tarawera at Hogg Rd	01/11/2022 06:45:00	0.0	0.0	4.5	68.0	0.0	264.0	185 %	2235.1	135 %
Ohinekoao at Harris Saddle	01/11/2022 06:00:00	0.0	0.0	10.0	50.5	0.0	215.5	141 %	2193.5	132 %
Galatea Basin at Horomanga R	31/10/2022 13:40:00		0.0	2.0	75.5	0.0	174.5	210 %	1378.5	135 %
Waihua at Clearing	01/11/2022 07:00:00	0.0	0.0	7.5	62.5	0.0	232.5	182 %	1963.5	132 %
Rangitaiki at Te Teko	01/11/2022 07:00:00	0.0	0.0	5.0	36.0	0.0	192.0	211 %	1900.9	172 %
Edgecumbe at Edgecumbe	01/11/2022 07:00:00	0.0	0.0	5.0	24.0	0.0	137.5	148 %	1794.0	152 %
Tarawera at Awakaponga	01/11/2022 07:05:00	0.0	0.5	5.5	34.0	0.5	148.5	155 %	1878.9	159 %
Rangitaiki Plains at Flax Rd	26/10/2022 12:00:00		0.0	0.0	0.0	0.0	128.5	134 %	1726.0	143 %
Tarawera at ORC Pump Station	01/11/2022 06:45:00	0.0	0.5	4.0	13.5	0.5	91.5	112 %	1206.0	132 %

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
Whakatane at Kopeopeo	01/11/2022 07:00:00	0.0	0.0	5.5	21.5	0.0	114.0	120 %	1402.8	125 %
Rangitaiki at Thornton	31/10/2022 14:01:00		0.0	5.5	24.0	0.0	129.0	136 %	1390.4	131 %
Whakatane at Huiarau Summit	01/11/2022 07:05:00	0.0	0.0	8.0	112.0	0.0	257.0	116 %	2943.0	144 %
Whakatane at Huitieke rain	01/11/2022 06:00:00	0.0	0.0	12.0	111.5	0.0	282.0	199 %	2099.5	167 %
Whakatane at Awahou Rd	01/11/2022 06:00:00	0.0	0.0	5.0	44.0	0.0	202.0		2061.7	
Wainui-te-whara at Munro's	01/11/2022 07:00:00	0.5	0.5	12.5	37.5	0.5	151.5	150 %	1721.6	135 %
Tauranga at Omahuru (Ogilvies	01/11/2022 07:05:00	0.0	0.0	12.5	157.5	0.0	344.0	173 %	2574.7	138 %
Nukuhou at Nukuhou North	01/11/2022 06:00:00	0.0	0.0	11.0	61.5	0.0	247.0		2008.7	
Ohope Spit at Ohope Golf Course	01/11/2022 07:00:00	0.0	0.0	3.5	18.5	0.0	137.0	130 %	1294.5	123 %
Waioeka at Koranga	01/11/2022 07:00:00	0.0	0.0	7.5	60.0	0.0	245.7	120 %	2216.9	122 %
Waioeka at Cableway	01/11/2022 06:35:00	0.0	0.0	30.0	208.0	0.0	464.5	212 %	3049.5	147 %
Waioeka at Mouth of Gorge	01/11/2022 07:05:00	0.0	0.5	9.0	50.5	0.5	181.5	127 %	2214.5	152 %
Otara at Opotiki Wharf	01/11/2022 07:00:00	0.0	0.0	4.0	26.0	0.0	143.5	153 %	1527.1	138 %
Otara at Tutaeotoko	01/11/2022 07:00:00	0.0	0.5	14.0	131.5	0.5	364.5	174 %	2860.8	140 %
Otara at Browns Bridge	01/11/2022 07:00:00	0.0	0.5	7.0	52.5	0.5	235.0	210 %	1755.3	145 %
Pakihī at Pakihī Station	01/11/2022 07:00:00	0.0	0.5	16.5	117.5	0.5	350.0	167 %	2622.2	138 %
Pakihī at Rakanui	01/11/2022 07:00:00	0.0	0.5	8.0	87.5	0.5	227.1	123 %	2572.2	132 %
Haparapara at Haparapara	01/11/2022 07:00:00	0.5	1.0	75.0	270.0	1.0	597.0	153 %	4630.5	124 %

# River flows



River flows throughout most of the region have shown a recovery over winter due to the frequent and sometimes heavy rainfall. Rivers that formed part of the Rotorua Focus Zone (RFZ) have largely recovered.

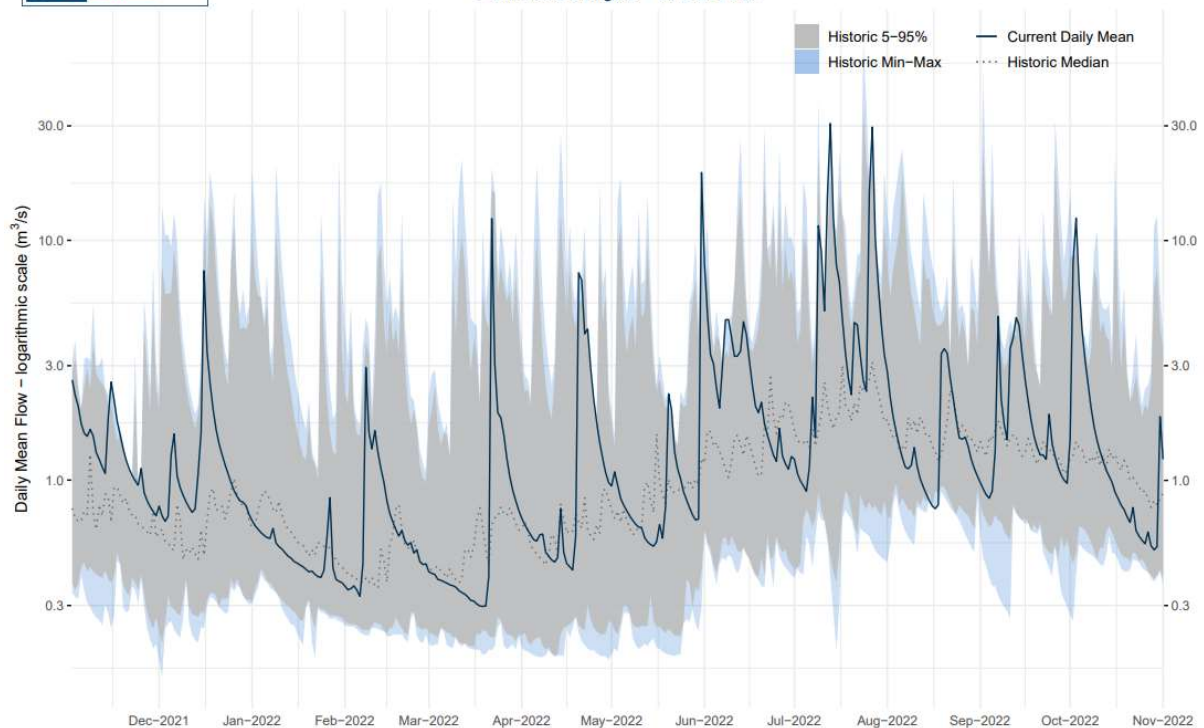
**Note: The following graphs are based upon preliminary data and will undergo refinement as further information is collected.**

## Representative western Bay of Plenty rivers



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

Flow Record Begins – 02 Dec 2010

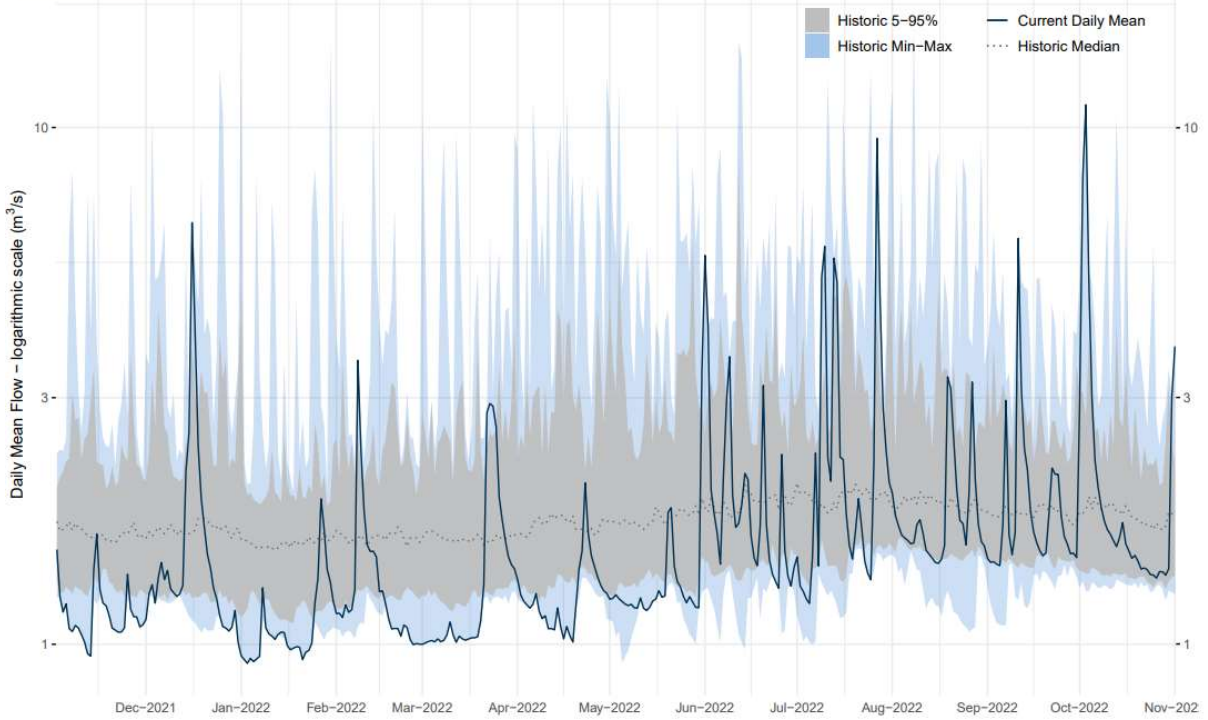


\* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry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



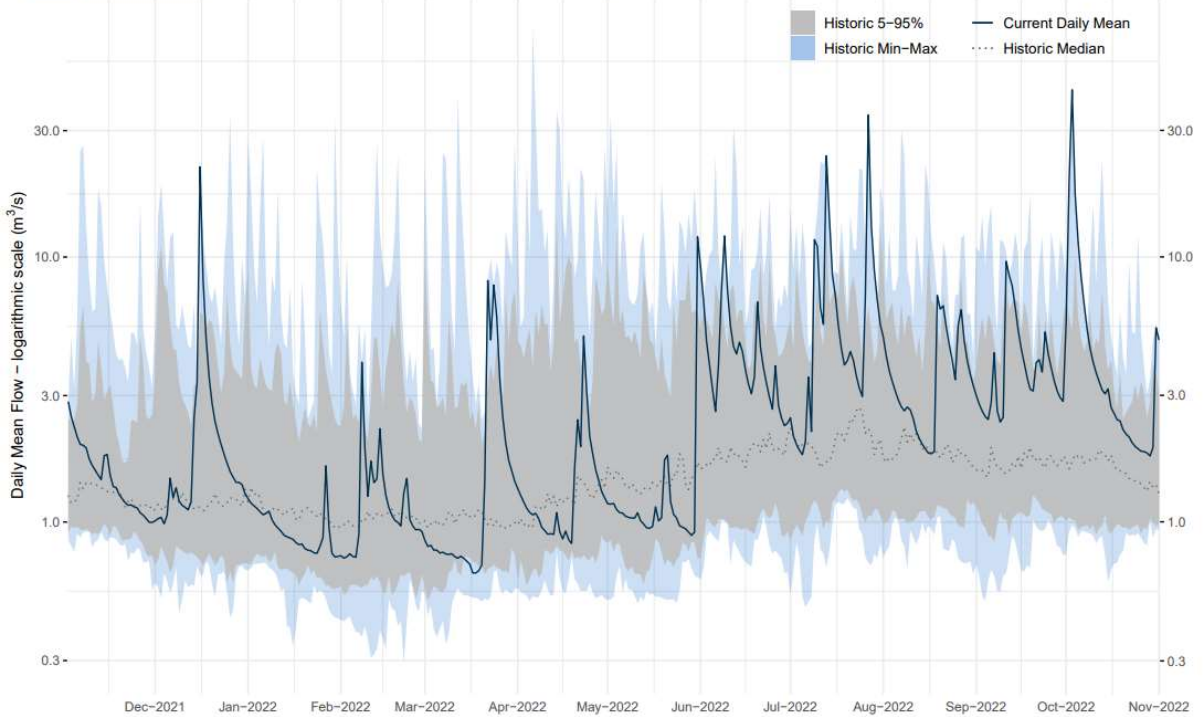
\* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry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

### Representative central Bay of Plenty rivers



### Raparapahoe at Above Drop Structure – Current vs Historic Daily Mean Flow

Flow Record Begins – 14 Oct 1991

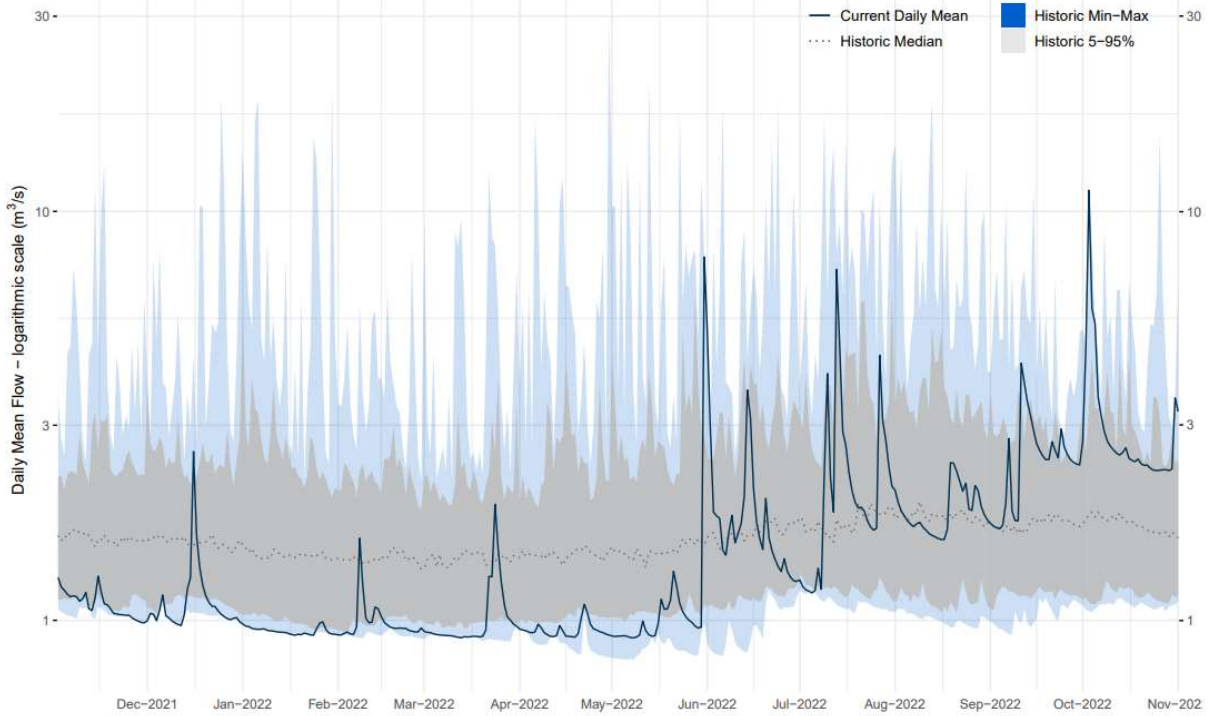


\* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry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



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

Flow Record Begins – 03 Jun 1975

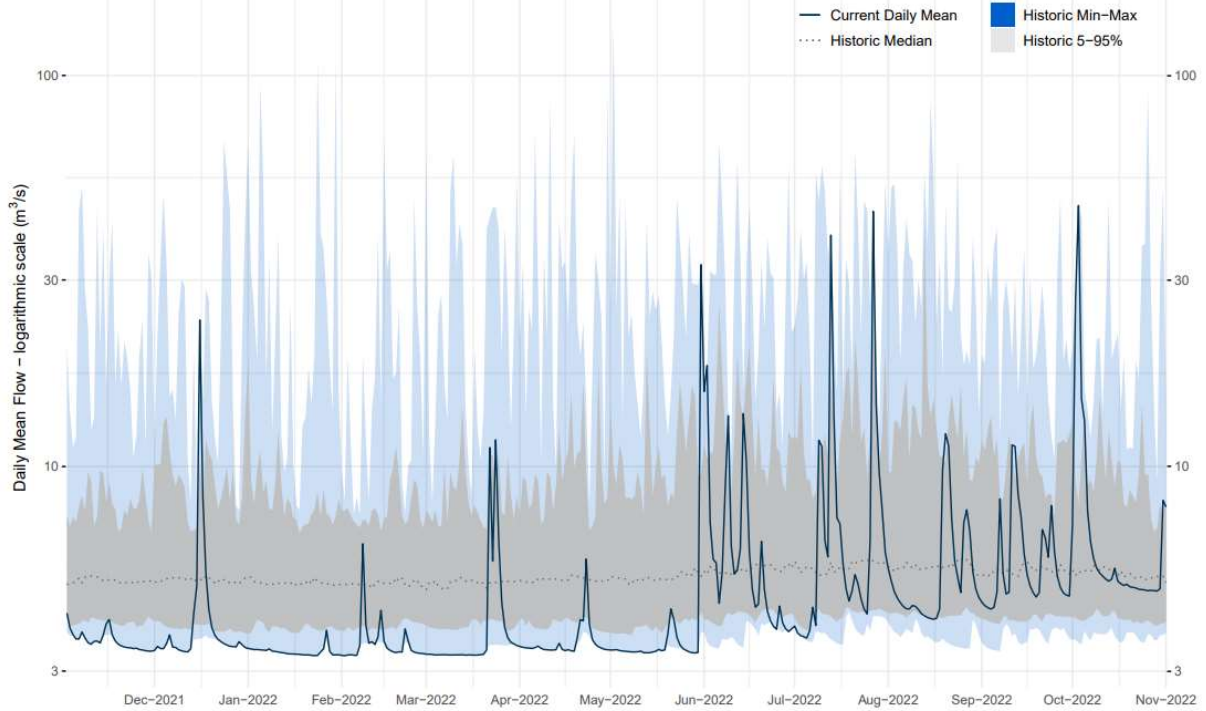


\* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry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



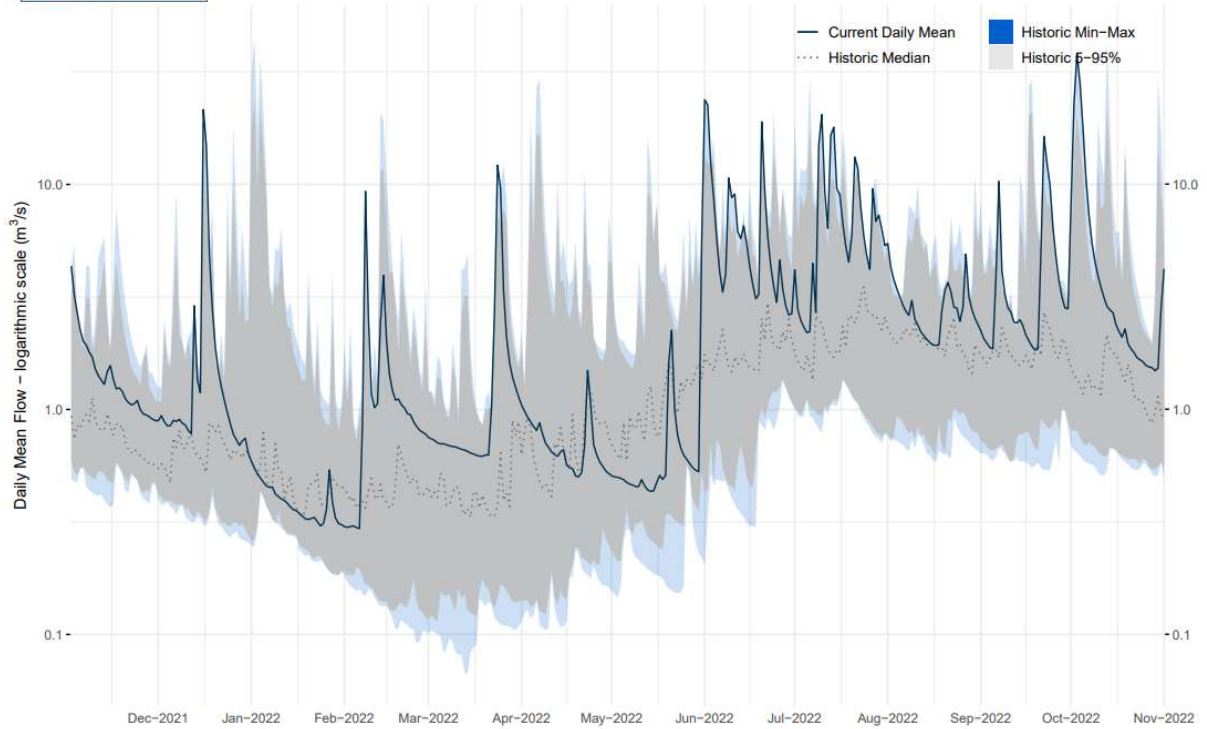
\* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry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

# Representative eastern Bay of Plenty rivers



## Nukuhou at Glenholme Rd – Current vs Historic Daily Mean Flow

Flow Record Begins – 07 Oct 2011

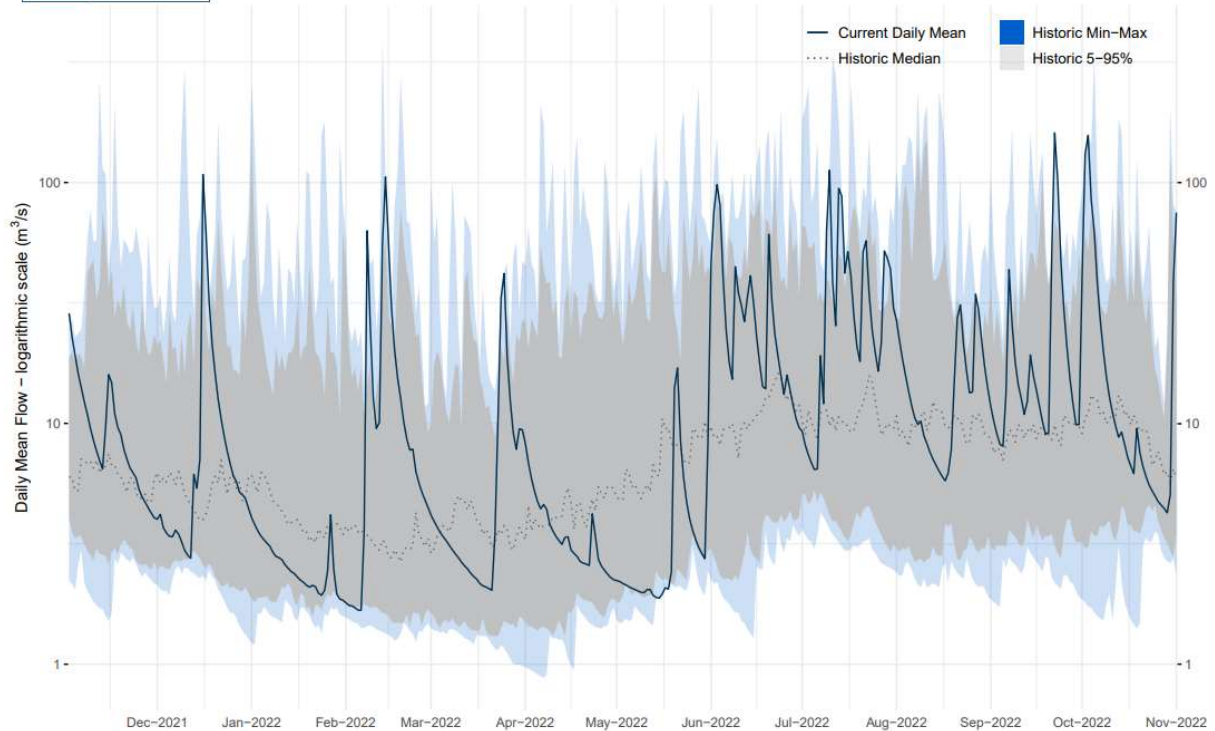


\* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry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



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

Flow Record Begins – 08 Jan 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.

# Groundwater



Groundwater levels across the Bay of Plenty's groundwater monitoring network continue to recover due to increased recharge over a wet winter. While some aquifers have recovered to 2017/18 levels (the last peak wet year), others are yet to recover to a similar level.

Kaituna-Pongakawa aquifers continue to show improvement on low summer minimums reached in 2021 and 2022. Coastal aquifers have been quicker to recover than those further inland.

Tauranga bores are showing some recovery but have not recovered to historic levels.

Rotorua groundwater levels remain down compared to levels experienced in 2017/18 but show some winter recovery.

Upland areas, upper Rangitāiki and Tarawera Lakes also have experienced a rise in groundwater levels through the winter period, although in some cases are yet to fully recover to 2017/18 levels. Lower Rangitāiki levels have been slower to recover in some areas.

The Otara-Waioeka gravel aquifers remain stable.

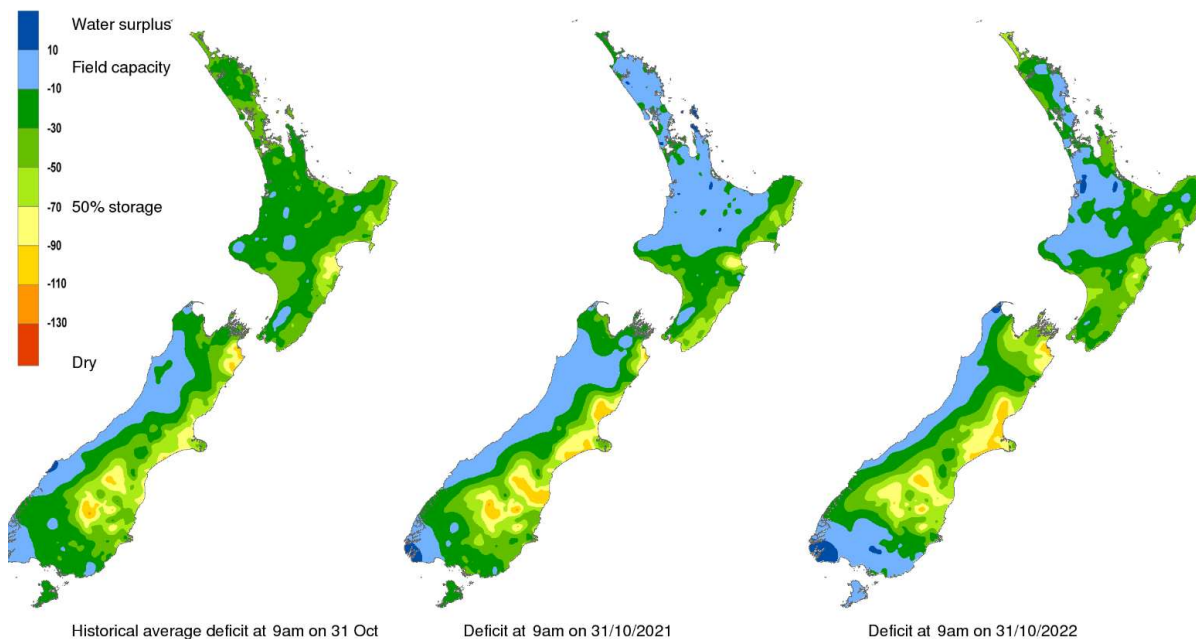


# Soil moisture



Soil moisture levels are at or near field capacity across most of the region, with some surplus evident in the Kaimai area.

Soil moisture deficit (mm) at 9am on 31/10/2022



# Water Shortage Event Status



Given the elevated rainfall figures experienced over the 2022 winter period, resulting in an improvement in groundwater levels and rising stream base flows, it is now deemed appropriate to lower the Rotorua Focus Zone (RFZ) from Level 1 (Reducing Water Availability) to Level 0 (No Water Shortage Concerns). This brings the RFZ in line with the rest of the Bay of Plenty and reflects the fact that there are no immediate concerns for waterways over the region.

**Therefore, the Alert Level for the whole of the Bay of Plenty is now at 'Level 0'.**



# Water Shortage Standard Operating Procedure (July 2021)

The following Levels can be in place for the whole of the Bay of Plenty, or only apply to certain Focus Zones. Focus Zones can refer to specific waterbodies, whole catchments, multiple catchments, or districts. The Focus Zones will always be identified via a Focus Zone map.



**No Water Shortage Concerns** – Streams, groundwater and rainfall within expected range. No issues of concern

- Normal BAU review of data from Council's monitoring network



**Reducing Water Availability** – Lower than expected levels of any of the following occurring: Rainfall, stream flows, groundwater and/or soil moisture

- Appoint Water Shortage Manager
- Increased review of stream, soil and groundwater state
- Analysis of short and long-range weather forecasts
- Review and refresh (if needed) Stakeholders Communications Plan
- Update webpage
- Commence issuing of regular Situation Reports (usually 1-2 monthly)



**Impending Water Shortage** – Any or all of the following occurring: Continued reduction in stream flows and/or groundwater levels, lack of rainfall i.e. growing risk to waterway health

- Closer assessment of forecasts, rainfall, stream, soil and groundwater state
- Convene subject matter expert meeting to evaluate all available data
- Increase frequency of Situation Reports (at least monthly) – place on website
- Define catchments/waterbodies of interest (known as Focus Zones)
- Generate list of potentially affected consent holders (ensure contact details are accurate)
- Communicate as per Stakeholders Communications Plan – keep webpage updated
- Specifically, inform consent holders, iwi/ hapū, Councillors, stakeholders, local authorities within Focus Zones of elevated risk of water shortage event



**Water Shortage Event** – Low flow and/or drought conditions affecting waterways i.e. risk to waterway health

- Focus Zone Situation Reports increased to every two weeks (unless no change)
- Convene Water Shortage Decision Group (WSDG) made up of at least four of the following: GM Regulatory Services, GM Integrated Catchments, Environmental Data Services Manager, Science Manager and a Regulatory Compliance Manager (or a senior/experienced delegate)
- The WSDG shall review recommendations from Water Shortage Manager, including any possible Water Shortage Direction before recommending to CE for approval
- CE approves issuing a Water Shortage Direction as allowed for by s.329 RMA
- Inform affected consent holders, iwi/hapū, Councillors and stakeholders at least 5 working days prior to issuing a Water Shortage Direction (NB: this may not always be possible)
- Increase compliance monitoring of consented and unconsented (where possible) water takes and discharges (if relevant)
- Water Shortage Manager to review Water Shortage Direction every 14 days. Decision to cancel or re-issue to be reviewed by WSDG, prior to CE approval (if decision is to re-issue)