

Dry weather water management SITUATION REPORT



SitRep number: WSAE21-22:04 **SitRep effective as at:** 8 March 2022

Key points



- This is the fourth SitRep of the summer of 2021/2022.
- La Niña conditions continue to be a key climate driver but are expected to transition to ENSO neutral conditions over the next three months, which will come with more climate variability.
- Temperatures are very likely to be above average for the Bay of Plenty. Periods of warm, summer-like temperatures are likely during March, with a possible cold-snap in early April.
- Aotearoa New Zealand's coastal waters continue to experience marine heatwave (MHW) conditions. The MHW, while easing over autumn, will likely delay the seasonal transition to cooler temperatures and increase the odds for stormy weather.
- February 2022 brought above average rainfall across the region that significantly lifted soil moisture levels. Rainfall for March is forecast to be normal or below normal.
- Generally, rivers flows are in a reasonable state. A careful watch is being taken on those rivers that formed part of the Rotorua Focus Zone, these rivers their headwaters in the Mamaku area behind Rotorua. These rivers are still very low.
- Groundwater levels are generally stable when compared to last year.
- Summer rainfall has resulted in some recharge occurring and may have reduced abstraction demand.
- The Rotorua Focus Zone (RFZ) remains at Level 1 of the Water Shortage SOP, while the rest of the Bay of Plenty remains at Level 0.

Weather forecast



[NIWA forecasts](#) March 2022 to May 2022 suggests:

- March is expected to feature spells of higher than normal pressure, especially during the first half of the month, with drier than normal conditions favoured in the North Island in particular. Late March and early April may feature a period of unsettled weather.
- La Niña is expected to transition to ENSO neutral conditions over the next three months, which will come with more climate variability.
- At the end of February, marine heatwave (MHW) conditions were occurring in the northern and western North Island. The MHW, while easing over autumn, will likely delay the seasonal transition to cooler temperatures and increase the odds for stormy weather.
- Temperatures are very likely to be above average for the Bay of Plenty. Periods of warm, summer-like temperatures are likely during March, although an unseasonable cold spell may occur during the first half of April.
- Rainfall is about equally likely to be near normal or below normal.
- Seasonal rainfall may be influenced by tropical cyclone activity in the SW Pacific. Any activity during early March is not expected to impact New Zealand, although there will be another chance in late March or early April.
- Soil moisture levels and river flows are most likely to be normal in the 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 (70% chance). Marine heatwave conditions will likely contribute to elevated humidity and warm temperatures during March and delay the seasonal transition to cooler temperatures during April-May.
- Rainfall totals are equally likely to be normal (40% chance) or below normal (35% chance).
- Extended dry spells are likely, especially during March. An elevated chance for atmospheric rivers and ex-tropical cyclone activity may increase the risk for heavy rainfall events later in March or early in April.
- In late February, very dry conditions were occurring in parts of Northland, Auckland & Waikato according to NIWA's New Zealand Drought Index.
- Soil moisture levels and river flows are most likely to be below normal (50% chance).

Rainfall



February 2022 brought above average rainfall across the region to balance the lower than average rainfall and hot temperatures seen in January 2022. Beneficially much of the rainfall occurred over a 1-2 day period at a nice steady rate allowing for water to soak in and improve soil moisture levels.

Annual rainfall totals show a slightly drier signature to the west of the region, gradually changing to a slightly wetter signature in the east of the region.



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

Rainfall Summary

Rainfall.Rainfall Summary Report

Mar 1, 2022 | 1 of 2
Period Selected: 2022-02-27 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 | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 2.5 | 0.0 | 171.0 | 154% | 218.5 | 90% |
| Te Puna at Odey Rd | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 139.5 | | 199.5 | |
| Waioia at Lower Kaimai | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 153.0 | 110% | 205.0 | 77% |
| Ngongotaha at Relph Rd | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 9.0 | 0.0 | 151.0 | 236% | 176.0 | 91% |
| Rotorua at Upper Oturoa Rd | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 130.5 | 118% | 177.5 | 65% |
| Waimapu at Glue Pot Rd | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 134.5 | 91% | 214.0 | 78% |
| Waimapu at McCarrolls | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 78.5 | 69% | 136.0 | 64% |
| Rotorua at Whakarewarewa | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 131.0 | 134% | 150.0 | 76% |
| Paraiti (Mangorewa) at Kaharo | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 140.0 | 112% | 176.0 | 71% |
| Okaro at Okaro Rd | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 119.0 | 142% | 130.5 | 73% |
| Lake Rotoiti at Okawa Bay | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 156.0 | 159% | 183.5 | 84% |
| Paraiti (Mangorewa) at Upper | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 203.5 | 145% | 260.0 | 94% |
| Paraiti (Mangorewa) at Link | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 195.5 | 162% | 269.7 | 119% |
| Raparapahoe at Collins Lane | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 167.5 | 105% | 208.5 | 84% |
| Kaituna at Marshalls Farm | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 124.0 | 98% | 154.9 | 83% |
| Kaituna at Te Matai | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 161.0 | 177% | 211.5 | 124% |
| Rangitaiki at Kokomoka (Bore 1 | 01/03/2022 09:05:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 191.8 | 204% | 198.2 | 96% |
| Pongakawa at Pongakawa Bush | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.5 | 2.0 | 0.0 | 186.0 | 156% | 252.0 | 115% |
| Outlet at Waitangi Soda Spring | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 178.0 | | 209.5 | |
| Te Whaiti at Munginui | 01/03/2022 07:00:00 | | 0.0 | 0.0 | 0.0 | 0.0 | 110.6 | | 131.2 | |
| Kawerau at Plunket St | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 2.5 | 0.0 | 177.5 | | 230.4 | |
| Tarawera at Hogg Rd | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 184.0 | | 266.5 | |
| Ohinekoao at Harris Saddle | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 176.1 | 111% | 229.0 | 79% |
| Galatea Basin at Horomanga R | 01/03/2022 08:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 107.0 | 134% | 134.0 | 90% |
| Waihua at Clearing | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 156.5 | 148% | 210.0 | 84% |
| Rangitaiki at Te Teko | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 192.0 | 218% | 255.0 | 146% |
| Edgecumbe at Edgecumbe | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 176.0 | 187% | 256.5 | 154% |
| Tarawera at Awakaponga | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 172.5 | 178% | 221.9 | 116% |
| Rangitaiki Plains at Flax Rd | 28/02/2022 12:00:00 | | 0.0 | 0.0 | 0.0 | 0.0 | 181.0 | 181% | 239.5 | 130% |
| Tarawera at ORC Pump Station | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 143.0 | 181% | 177.5 | 122% |

| 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 | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 177.0 | 242% | 212.8 | 130% |
| Rangitaiki at Thornton | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 6.5 | 0.0 | 178.5 | 218% | 215.0 | 138% |
| Whakatane at Huiaurau Summit | 01/03/2022 09:05:00 | 0.0 | 0.0 | 0.5 | 7.5 | 0.0 | 340.5 | 238% | 404.0 | 131% |
| Whakatane at Huitieke rain | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 196.5 | 201% | 252.5 | 129% |
| Whakatane at Awahou Rd | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 183.5 | | 216.0 | |
| Wainui-te-whara at Munro's | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 200.0 | 215% | 258.0 | 147% |
| Tauranga at Omahuru (Ogilvies | 01/03/2022 09:00:00 | 0.0 | 0.0 | 24.5 | 24.5 | 0.0 | 299.0 | | 350.0 | |
| Nukuhou at Nukuhou North | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 221.0 | | 242.5 | |
| Ohope Spit at Ohope Golf Course | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 170.5 | | 197.5 | |
| Waioeka at Koranga | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.5 | 2.0 | 0.0 | 226.0 | 184% | 303.0 | 111% |
| Waioeka at Cableway | 01/03/2022 09:05:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 311.9 | 223% | 342.5 | 115% |
| Waioeka at Mouth of Gorge | 01/03/2022 09:05:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 207.5 | 185% | 249.5 | 111% |
| Otara at Opotiki Wharf | 01/03/2022 09:00:00 | 0.0 | 0.0 | 13.0 | 13.0 | 0.0 | 237.0 | 289% | 286.5 | 174% |
| Otara at Tutaetoko | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 342.0 | 219% | 379.5 | 116% |
| Otara at Browns Bridge | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 226.5 | 298% | 266.5 | 162% |
| Pakihī at Pakihī Station | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 130.5 | 96% | 170.5 | 64% |
| Pakihī at Rakanui | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 3.5 | 0.0 | 300.0 | 259% | 342.5 | 143% |
| Haparapara at Haparapara | 01/03/2022 09:00:00 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 454.5 | 200% | 544.5 | 111% |

River flows



Rivers flows throughout most of the region have shown a recovery towards normal levels for this time of the year due to February rainfall.

A continued watch is being taken on those rivers that formed part of the Rotorua Focus Zone (RFZ) which have their headwaters in the Mamaku area behind Rotorua. These rivers are still very low and recent rain has only provided a pause in the receding trend that has occurred for some time.

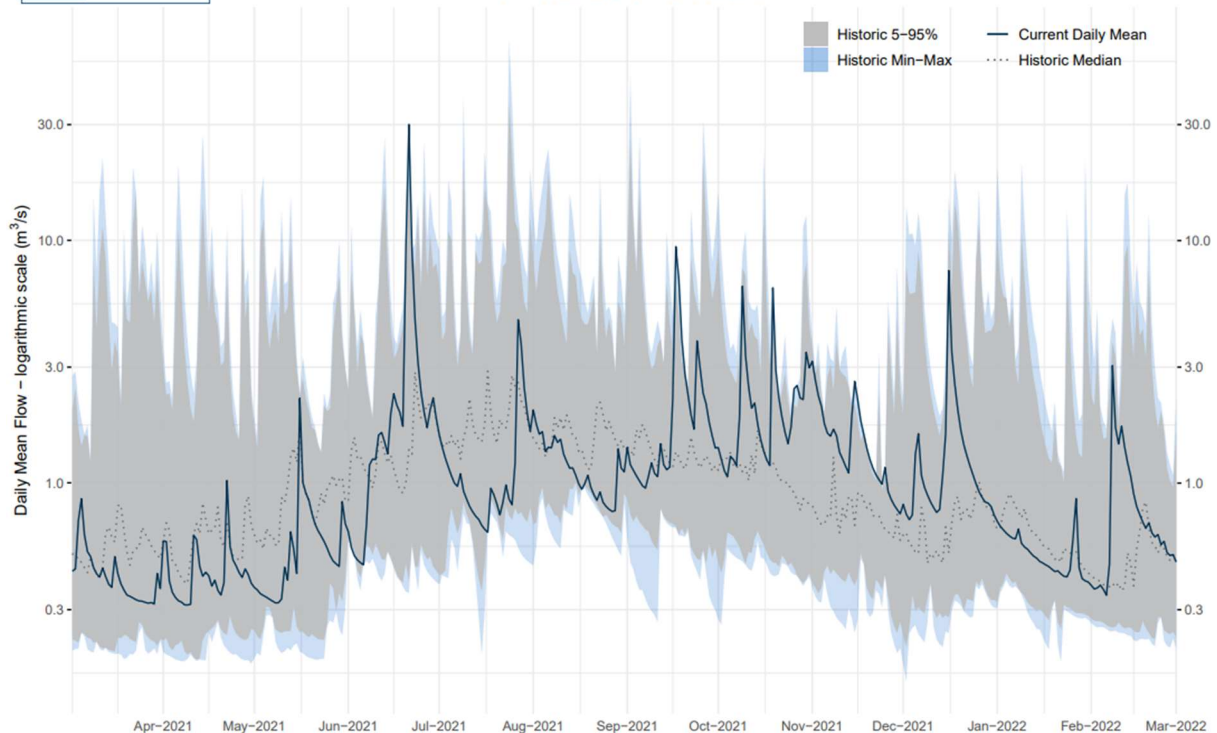
Note: The following graphs are based upon preliminary data and will undergo refinement as further information is collected.

Representative western Bay of Plenty rivers



Tuapiro at Farm Bridge – Current vs Historic Daily Mean Flow

Flow Record Begins – 02 Dec 2010

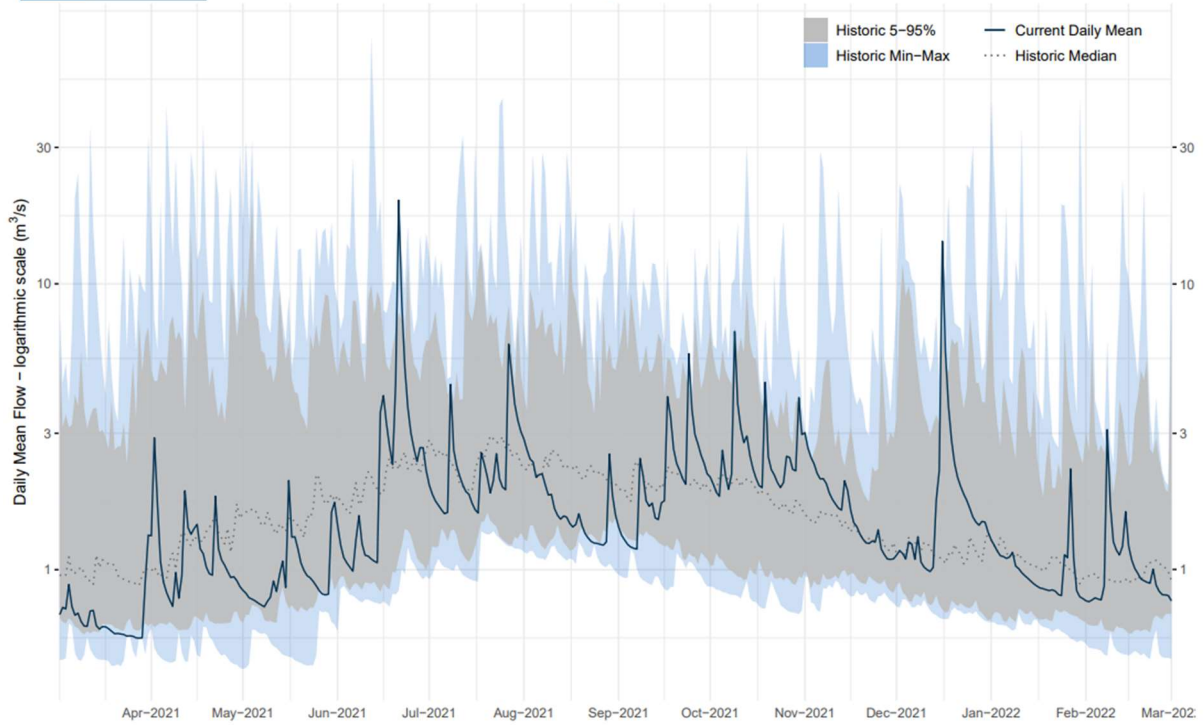


* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry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



Waimapu at McCarrolls – Current vs Historic Daily Mean Flow

Flow Record Begins – 12 Mar 1991

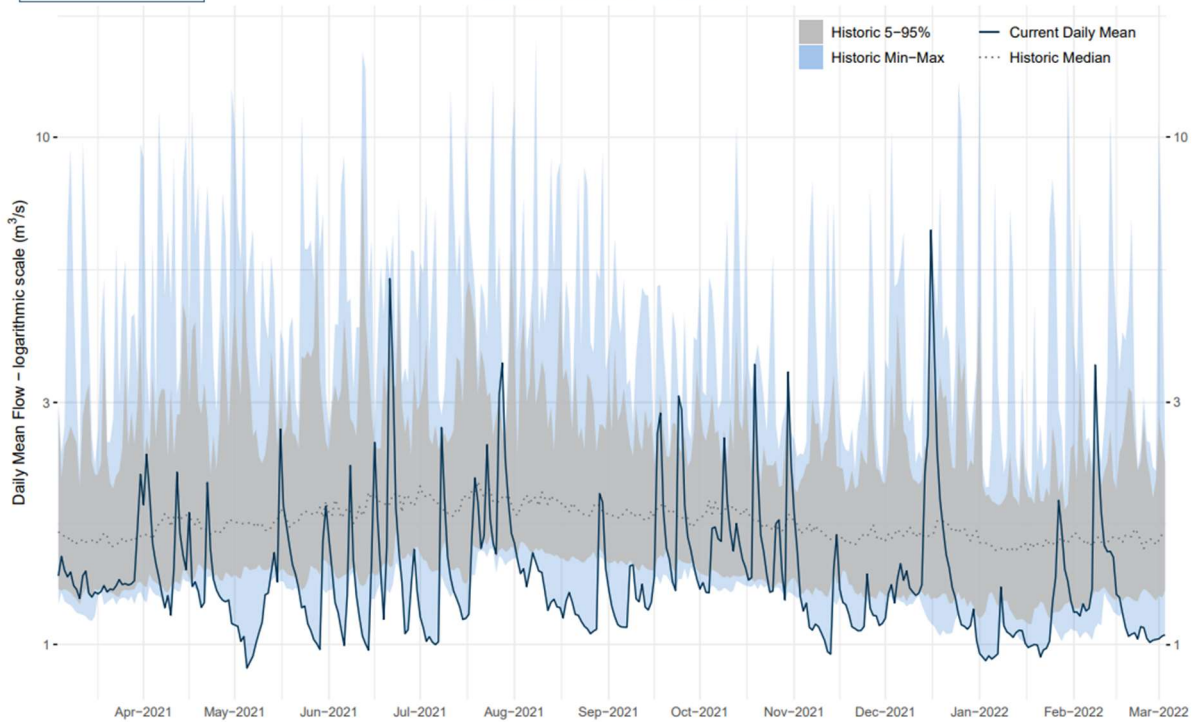


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Kopurererua at SH29 – Current vs Historic Daily Mean Flow

Flow Record Begins – 29 Jun 1990



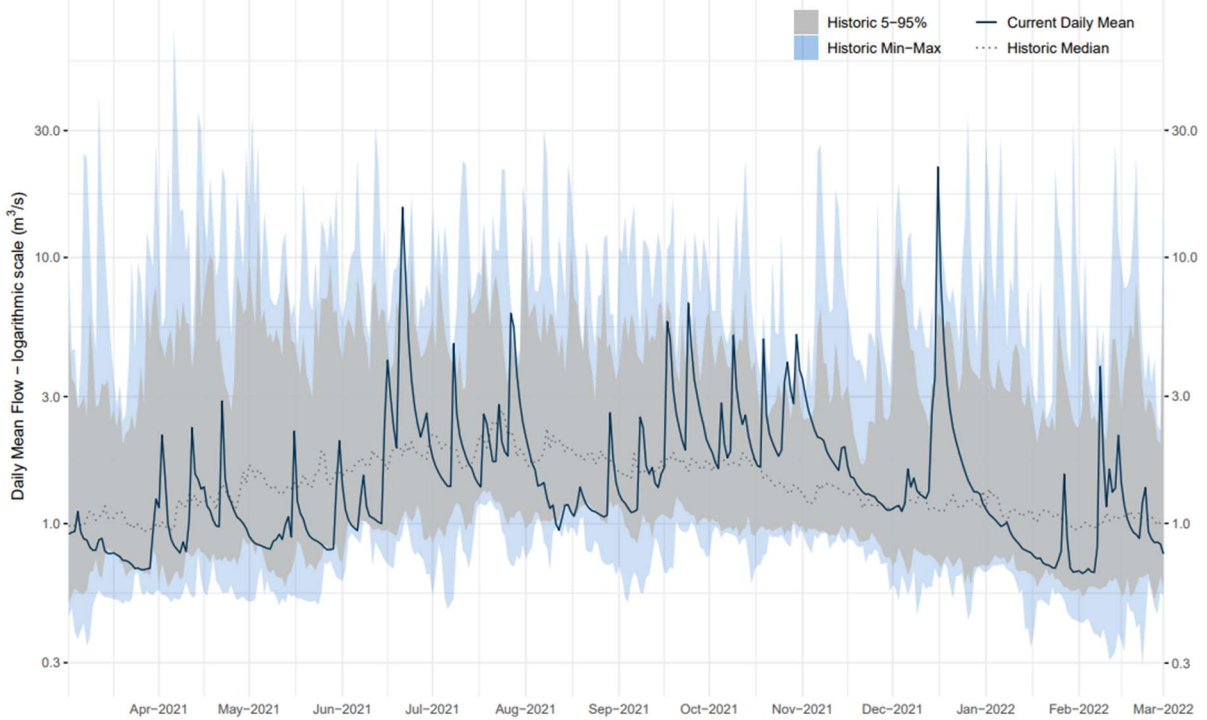
* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Councils telemetry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

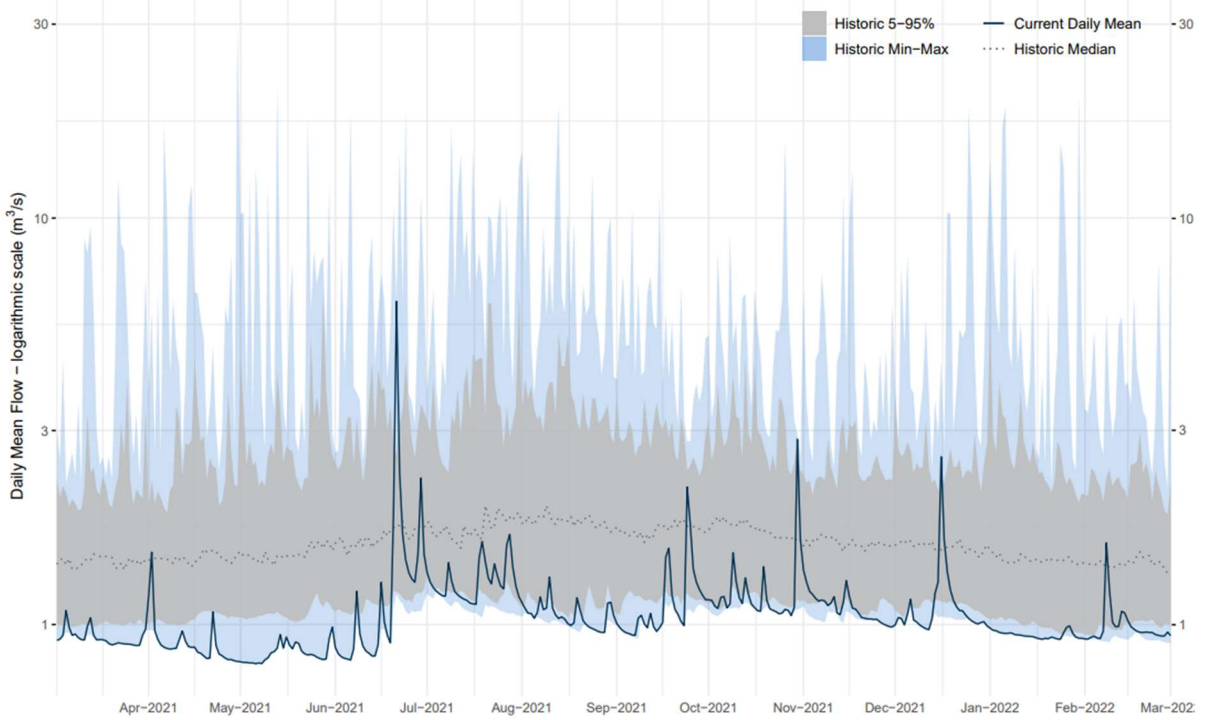


* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry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

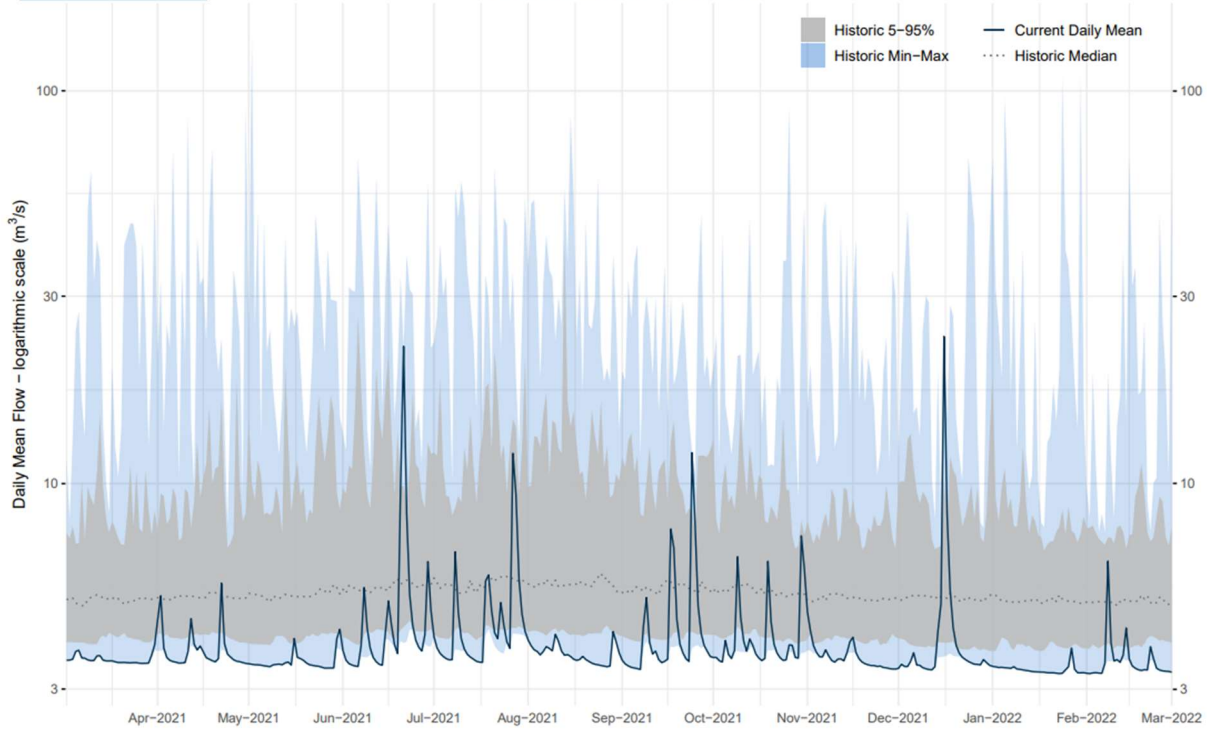


* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Council's telemetry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

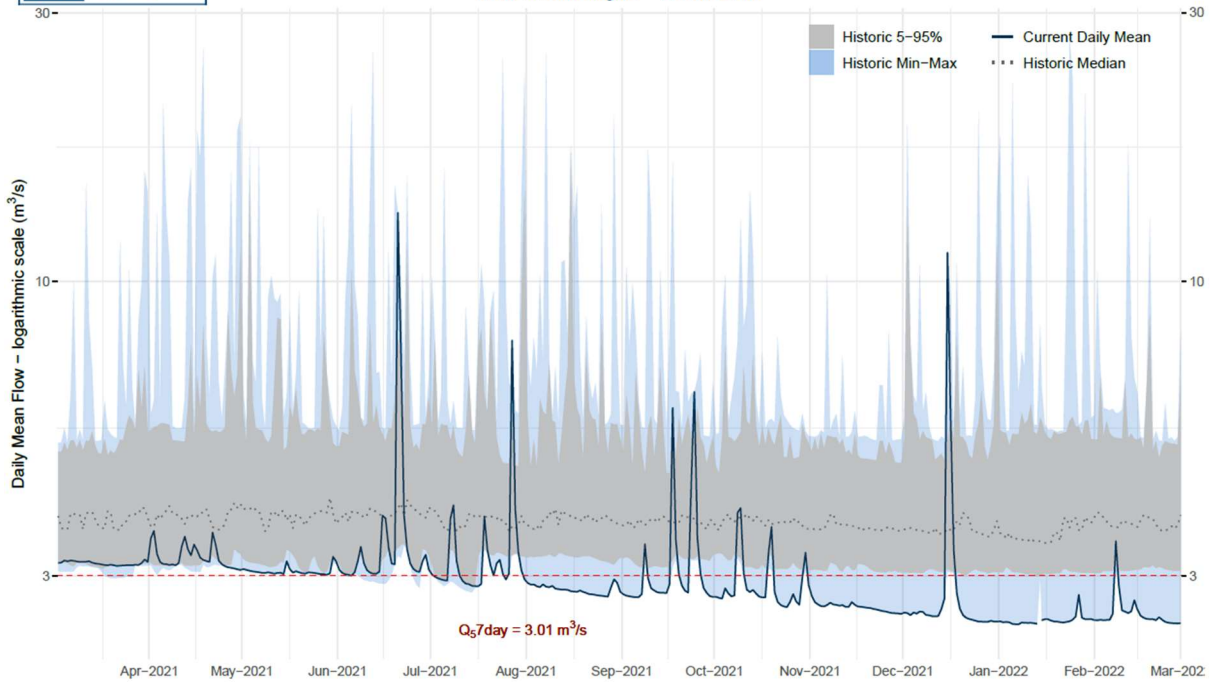


* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Councils telemetry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

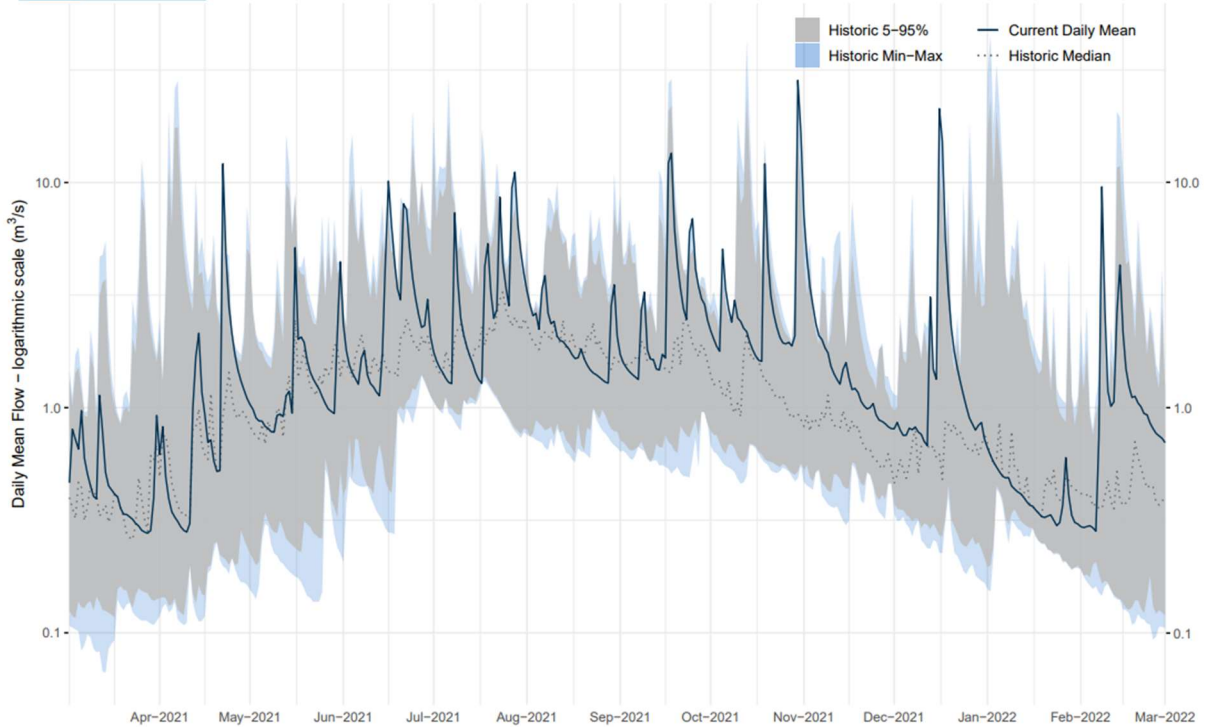


Representative eastern Bay of Plenty rivers



Nukuhou at Glenholme Rd – Current vs Historic Daily Mean Flow

Flow Record Begins – 07 Oct 2011

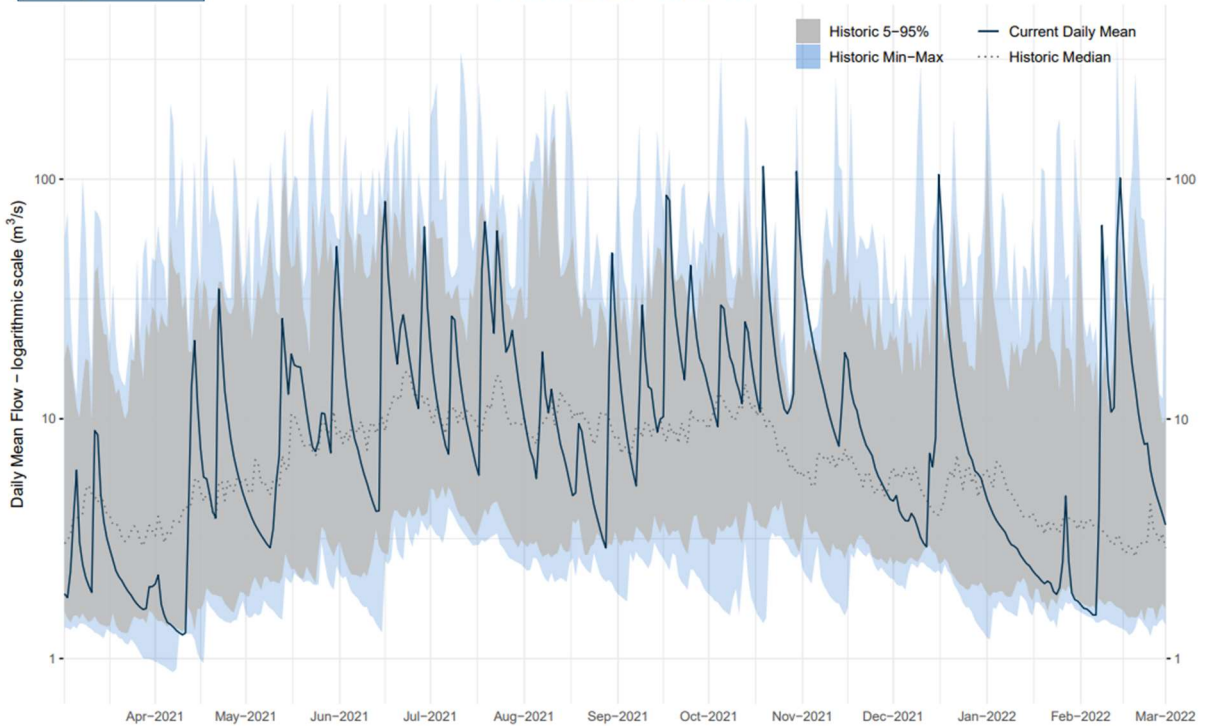


* Solid line shows the daily mean flow at this site over the last 12 months (logarithmic scale). Historic values show the range of flow for the same time period over the entire record. Users should be aware that the most recent discharge data may contain raw data directly from the Councils telemetry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

Groundwater



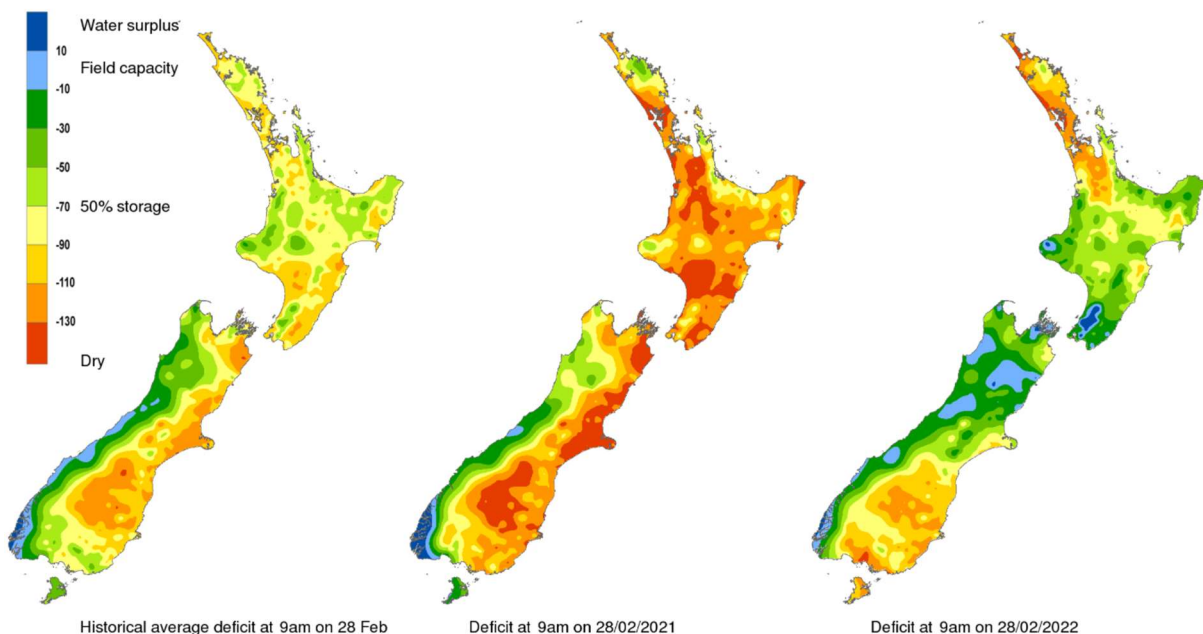
In general, groundwater levels across the Bay of Plenty remain stable when compared to last year. Summer rainfall has resulted in some recharge occurring which is reflected in water levels not being quite as low as last year. The summer rainfall may have also reduced abstraction demand. Recovery of the aquifer systems after several years of dry summers is dependent on the ability of the system to be able to recharge over the upcoming autumn and winter months.

Soil moisture

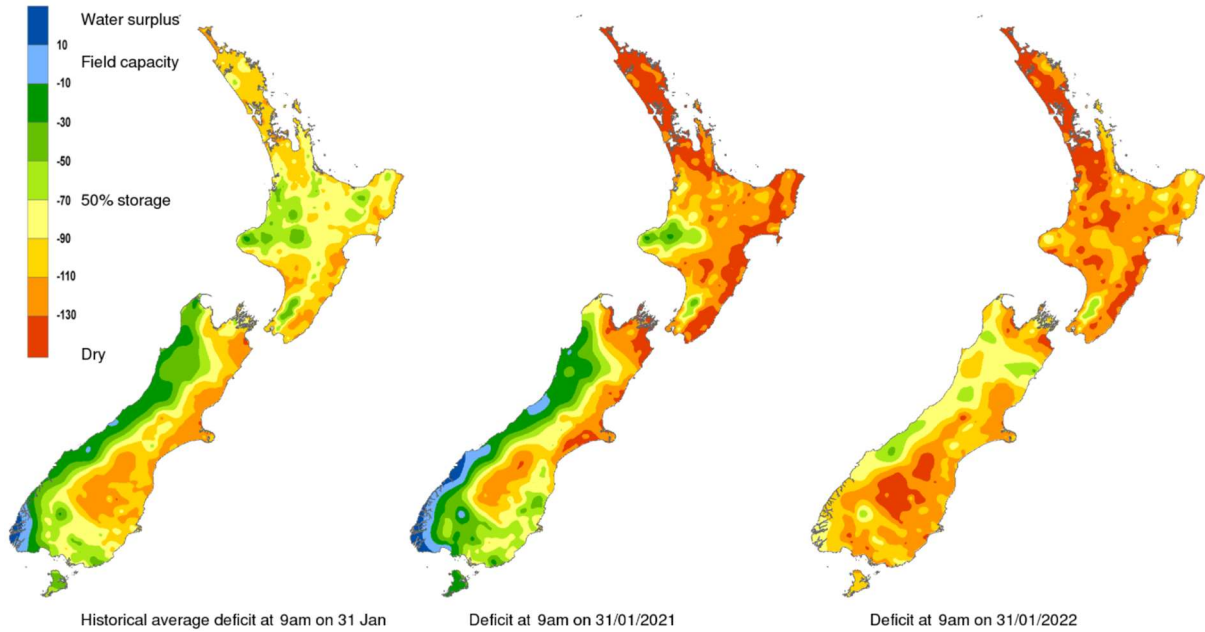


Soil moisture levels have improved considerably over the last month in response to February rainfall (refer maps of NZ to the right below).

Soil moisture deficit (mm) at 9am on 28/02/2022



Soil moisture deficit (mm) at 9am on 31/01/2022



Water Shortage Event Status



There has been no change to the Alert Level status across the Bay of Plenty. The Rotorua Focus Zone (RFZ) waterways are still showing reduced flows however they have not dropped to a level where a raise in Alert Levels is required. There are no immediate concerns for waterways over the rest of the Bay of Plenty.

Therefore, the Alert Level for the RFZ remains at 'Level 1 – Reducing Water Availability'. The rest of the Bay of Plenty will remain at 'Level 0'.

| | |
|--|---|
| <p>Report prepared by: Glenn Ellery, Data Services Manager Raoul Fernandes, TL Science – Water Quantity</p> | <p>Report authorised by: Steve Pickles, Water Shortage Event Manager</p> |
| <p>Next Situation Report will be issued: May 2022</p> | <p>Date of approval: 8 March 2022</p> |

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)