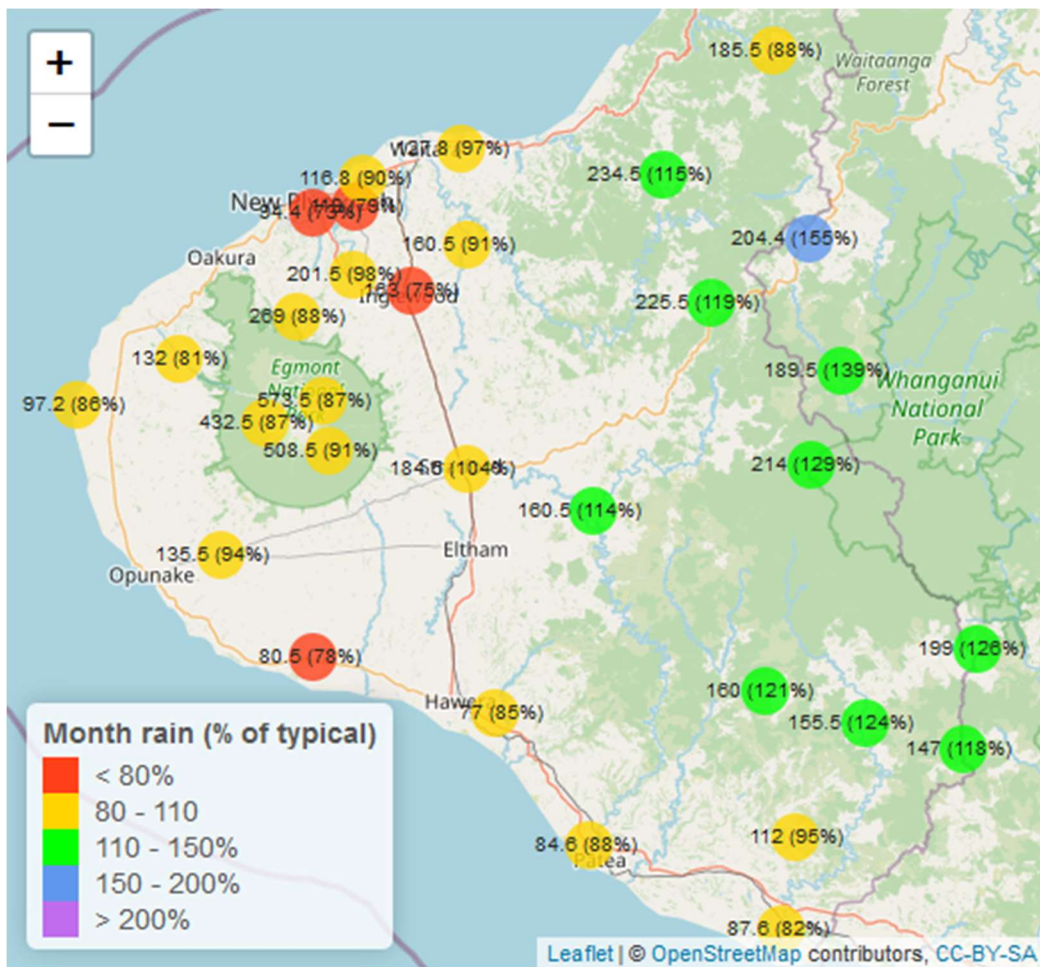


# Taranaki Regional Council Monthly Rainfall and Environmental Data Report for September 2022

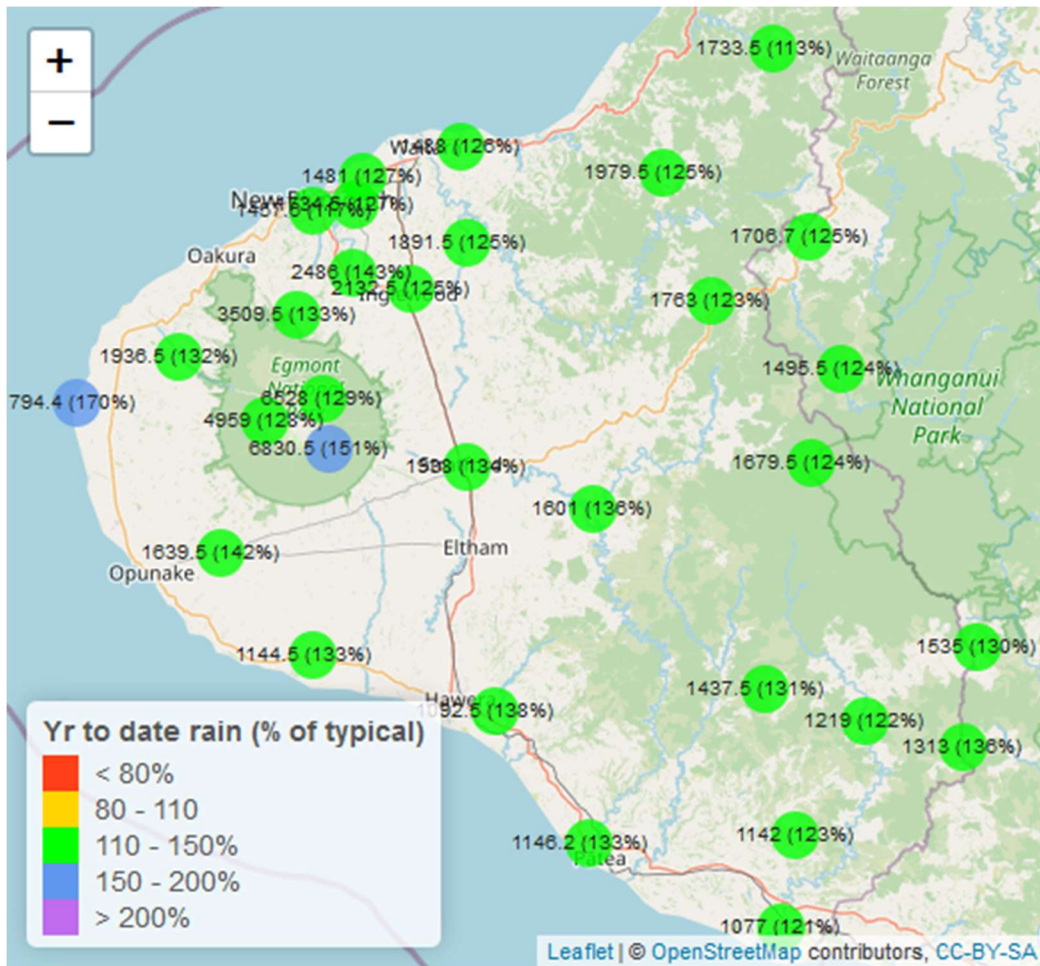
Note: Provisional Data Only.

## 1. Rain gauge values at 28 sites in Taranaki

Taranaki Region co-owns rain-gauges with Horizons, so we can assess rainfalls right over the Eastern Hill Country (these are included in our reporting since August 2022).



Map1. Month total rain (mm) and percentage of long-term mean.



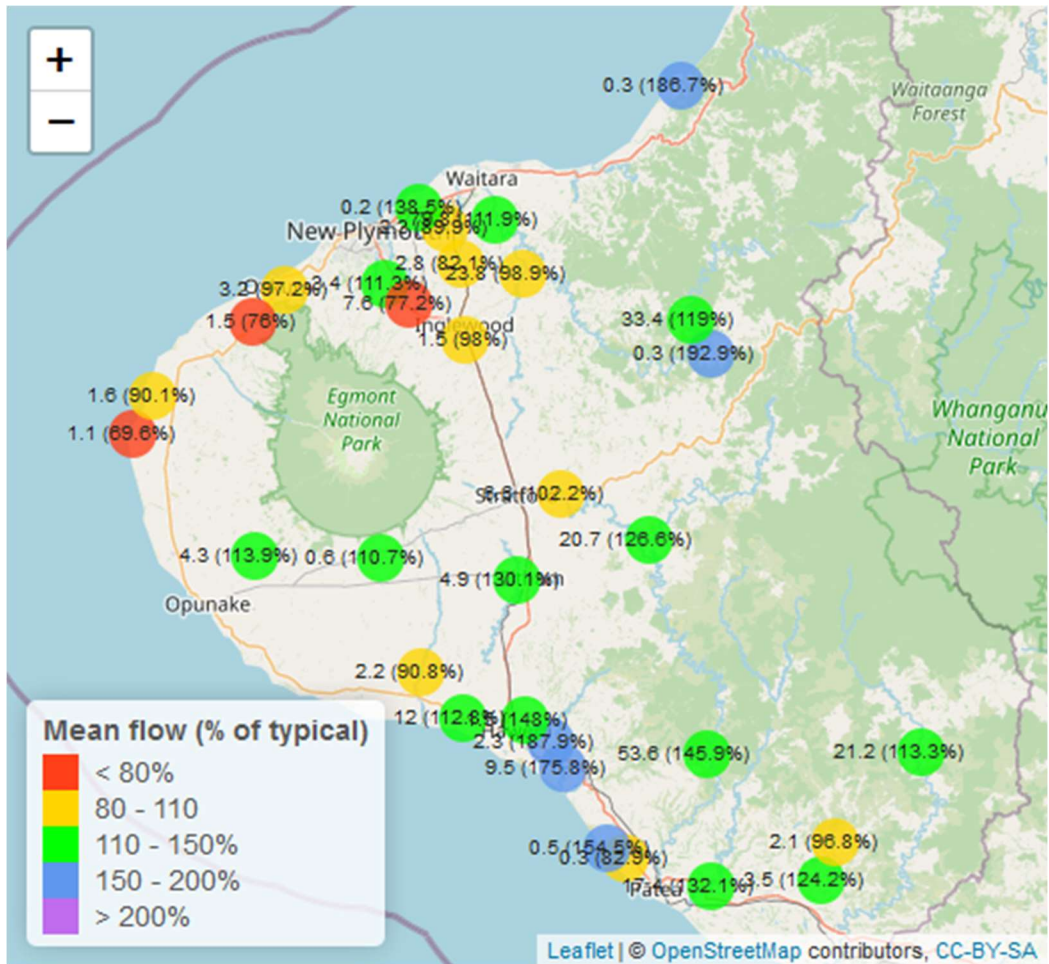
Map1a. YTD total rain (mm) and percentage of long-term mean.

**Table 1:** Rainfall monthly and year to date totals at 27 rain gauge sites in Taranaki.

Hydro_Sites	September			Year to Date			Records Began
	# days with rain	Total rain (mm)	% of typical month	Total to date (mm)	% of typical year to date	% of typical full year	
N Egmont VC	22	573.5	87	6528.0	129	95	1991
Dawson Falls	24	508.5	91	6830.5	151	116	1933
Kahui Hut	24	432.5	87	4959.0	128	96	2006
Forest Hill	21	269.0	88	3509.5	133	98	2017
Hillsborough	19	119.0	79	1734.5	127	98	2012
Brooklands Zoo	19	94.4	73	1457.6	117	92	2012
Bell Block	18	116.8	90	1481.0	127	99	2013
Motunui	21	127.8	97	1488.0	126	94	1998
Egmont Vill	17	201.5	98	2486.0	143	104	1991
Everett Pk	18	160.5	91	1891.5	125	92	1987
Inglewood	18	163.0	75	2132.5	125	91	2000
Stony R	19	132.0	81	1936.5	132	98	2004
Cape Egmont	19	97.2	86	1794.4	170	130	1930
Taungatara	21	135.5	94	1639.5	142	105	2005
Kaupokonui	22	80.5	78	1144.5	133	99	1998
Stratford	22	184.5	104	1938.0	134	102	1999
Mangaehu	21	160.5	114	1601.0	136	102	1999
Kotare OSullivans	21	185.5	88	1733.5	113	81	1998
Uruti Kaka Rd	22	234.5	115	1979.5	125	89	1991
Pohokura Saddle	22	225.5	119	1763.0	123	89	1991
Omaru Charlies	23	214.0	129	1679.5	124	94	2006
Omahine Moana Trg	24	160.0	121	1437.5	131	101	2007
Rimunui Station	21	155.5	124	1219.0	122	89	1994
Ngutuwera	22	112.0	95	1142.0	123	90	1999
Hawera Tawhiti	19	77.0	85	1092.5	138	100	1993
Patea Bore3	21	84.6	88	1146.2	133	99	2006
Hawken Rd	19	87.6	82	1077.0	121	92	2016
Te Tuhi Jn	21	147.0	118	1313.0	136	98	2018
Mataimona Trig	23	199.0	126	1535.0	130	92	2018

Hydro_Sites	September			Year to Date			Records Began
	# days with rain	Total rain (mm)	% of typical month	Total to date (mm)	% of typical year to date	% of typical full year	
Marco Road	16	204.4	155	1706.7	125	91	2018
Br to Somewhere	16	189.5	139	1495.5	124	90	2018

## 2. River Flow at 32 sites in Taranaki



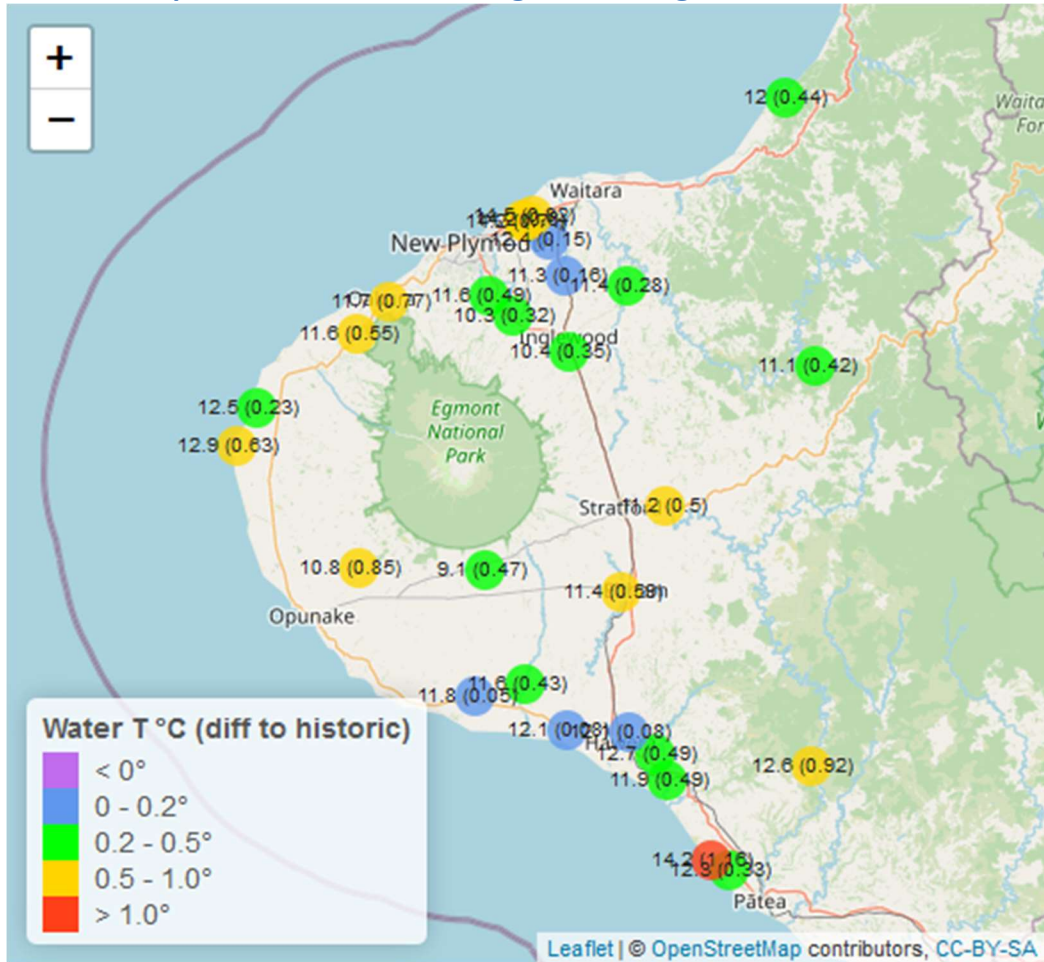
Map2: Month mean river flows (m³/sec), with difference as % of long-term mean.

**Table 2:** Summary of maximum, minimum and mean flow for the current reporting month and the same month for all preceding years of record.

Hilltop	Recorded flows (m3/sec)						Data years	Records began
	Maximum		Minimum		Mean			
	September 2022	September archive	September 2022	September archive	September 2022	September archive		
Kaikura below 7346	0.51	4.26	0.24	0.09	0.3	0.35	7	2014
Kapoiaia at Lighthouse	23.01	39.77	0.30	0.28	1.1	1.58	36	1986
Kapuni at Normanby Rd	6.57	93.25	1.55	0.65	2.2	2.40	23	1999
Mangaehu at Bridge	152.79	412.56	7.42	3.08	20.7	16.33	42	1978
Manganui at Everett Park	248.51	708.05	10.25	4.09	23.8	24.08	31	1991
Mangaoraka at Corbett Rd	15.05	64.15	1.13	0.43	2.3	2.57	42	1975
Mangaroa at Manawapou Rd	0.82	1.13	0.20	0.16	0.5	0.33	3	2019
Mangati at SH3	1.50	2.04	0.13	0.03	0.2	0.13	9	2013
Mangawheroiti Above Intake W.W	2.23	6.29	0.44	0.21	0.6	0.56	10	2012
Mangorei at Pipebridge	72.27	156.06	1.32	0.21	3.4	3.01	13	2009
Matau at Woolshed	2.97	2.53	0.10	0.04	0.3	0.14	5	2017
Moumahaki at Johnston Rd	18.44	34.94	1.66	0.70	3.5	2.81	5	2017
Ngatoro at SH3	29.68	66.94	0.60	0.30	1.5	1.52	28	1981
Oakura at Victoria Rd	51.56	94.84	1.15	0.98	3.2	3.25	3	2019
Patea at McColls Bridge	145.34	641.76	3.56	1.17	53.6	36.72	34	1984
Patea at Skinner Rd	46.51	157.22	3.68	1.29	6.6	6.42	44	1978
Tangahoe below Railway Bridge	70.59	41.24	5.30	2.39	9.5	5.41	4	2018
Tawhiti at Duffys	14.08	21.76	1.60	0.23	2.3	1.24	37	1985
Tawhiti below Meat Plant	2.01	28.09	1.31	0.34	1.5	1.02	12	2010
Timaru at Tataraimaka	40.93	54.10	0.59	0.33	1.5	1.96	9	2013

Recorded flows (m3/sec)								
Hilltop	Maximum		Minimum		Mean		Data years	Records began
	September 2022	September archive	September 2022	September archive	September 2022	September archive		
Waiaua 2 at Barraclough Opuā	33.94	27.31	0.91	1.52	4.3	3.81	4	2018
Waikaramarama at Bridge	11.39	6.07	0.07	0.02	0.3	0.15	5	2017
Waingongoro at Eltham Rd	27.13	107.74	2.31	0.78	4.9	3.75	41	1981
Waingongoro at SH45	34.89	139.25	8.37	2.98	12.0	10.62	40	1982
Waiongana at SH3a	34.97	112.74	1.29	0.51	2.8	3.36	41	1981
Waitara at Bertrand Rd	405.36	980.95	29.54	8.93	79.8	71.29	39	1983
Waitara at Purangi Bridge	289.06	885.13	5.60	0.21	33.4	28.06	23	1999
Waitotara at Rimunui Station	142.39	274.83	7.92	3.70	21.2	18.74	17	2005
Waiwhakaiho at Egmont Village	134.37	349.65	2.87	2.02	7.6	9.88	41	1981
Warea at Coast	20.90	26.26	0.84	0.41	1.6	1.82	4	2016
Weraweraonga at 749 Mangawhio Rd	10.91	32.01	0.72	0.30	2.1	2.22	5	2017
Whenuakura at Nicholson Rd	82.72	249.88	7.97	2.12	17.4	13.13	39	1983

### 3. River Temperature at 28 sites throughout the region



Map3: Month mean water temperature with difference to long-term mean (°C).

**Table 3:** Summary of maximum, minimum and mean river temperature for the current reporting month and the same month for all preceding years of record.

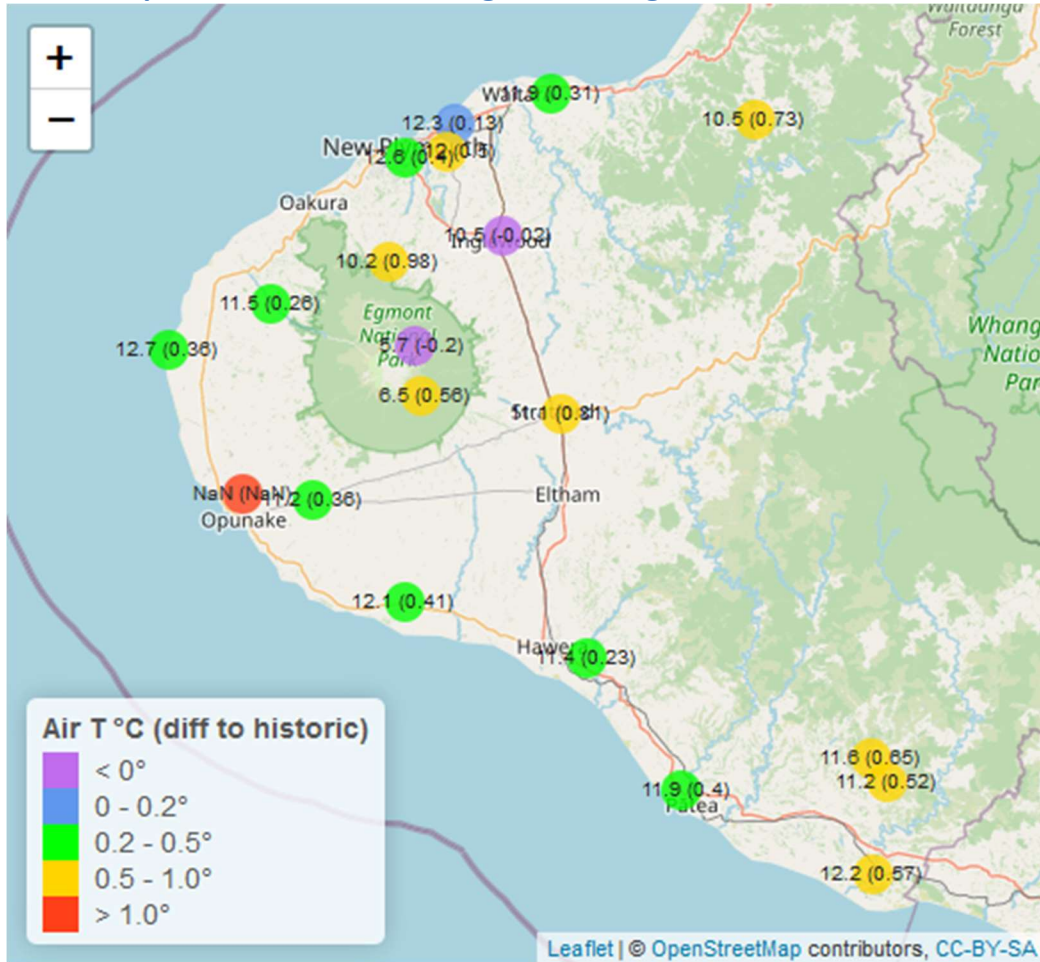


Monthly River Temperatures (°C)								
Hilltop	Maximum		Minimum		Mean		Data years	Records began
	September 2022	September archive	September 2022	September archive	September 2022	September archive		
Kaikura below 7346	15.25	15.97	9.00	7.75	12.3	11.95	7	2014
Kapoiaia at Lighthouse	16.90	20.10	8.08	5.96	12.9	12.25	24	1998
Kapuni at Normanby Rd	15.44	19.20	7.94	5.80	11.6	11.20	23	1999
Kaupokonui Glenn Rd Combined	15.48	18.90	7.32	5.90	11.8	11.75	27	1985
Manganui at Everett Park	16.18	15.09	5.78	6.55	11.4	11.15	14	2008
Mangaoraka at Corbett Rd	14.91	17.50	9.15	7.86	12.4	12.27	18	2004
Mangaroa at Manawapou Rd	16.55	15.94	11.17	9.75	14.2	13.09	3	2019
Mangati at Ponds	17.69	17.70	9.47	8.82	14.2	13.49	3	2019
Mangati at SH3	16.63	17.84	4.72	5.84	14.2	13.60	9	2013
Mangawheroiti Above Intake W.W	17.71	11.80	6.62	5.19	9.1	8.63	10	2012
Mangorei at Pipebridge	15.11	15.95	8.04	7.30	11.6	11.10	8	2014
Matau at Woolshed	14.60	16.54	8.35	7.14	11.1	10.72	5	2017
Ngatoro at SH3	13.62	16.50	6.94	5.13	10.4	10.04	19	1981
Oakura at Victoria Rd	15.41	14.28	8.42	7.79	11.7	10.93	3	2019
Patea at McColls Bridge	13.75	14.75	11.62	9.27	12.6	11.64	8	2014
Patea at Skinner Rd	13.81	16.73	8.43	6.54	11.2	10.75	18	2004
Tangahoe below Railway Bridge	14.62	15.06	9.06	8.06	11.9	11.45	4	2018
Tawhiti at Duffys	14.96	16.60	9.46	7.50	12.7	12.17	18	2004
Tawhiti below Meat Plant	15.46	16.71	9.18	6.40	12.1	12.05	24	1993
Timaru at Tataraimaka	14.86	15.25	8.69	6.60	11.6	11.08	9	2013

**Monthly River Temperatures (°C)**

Hilltop	Maximum		Minimum		Mean		Data years	Records began
	September 2022	September archive	September 2022	September archive	September 2022	September archive		
Waiaua 2 at Barraclough Opuā	17.10	15.63	6.38	5.75	10.8	9.90	4	2018
Waikaramarama at Bridge	14.60	14.51	9.12	7.49	12.0	11.52	5	2017
Waingongoro at Eltham Rd	13.33	16.10	8.62	6.39	11.4	10.82	17	2000
Waingongoro at SH45	14.54	17.19	9.62	8.00	12.1	11.97	17	2004
Waiongana at SH3a	14.62	15.50	7.88	6.79	11.3	11.13	11	2011
Waitaha 1 at SH3	16.70	17.12	0.00	6.94	14.5	13.68	4	2018
Waiwhakaiho at Egmont Village	13.88	15.20	6.95	4.70	10.3	10.03	31	1991
Warea at Coast	16.66	18.00	7.60	7.88	12.5	12.31	3	2018

#### 4. Air Temperature at 19 sites throughout the region

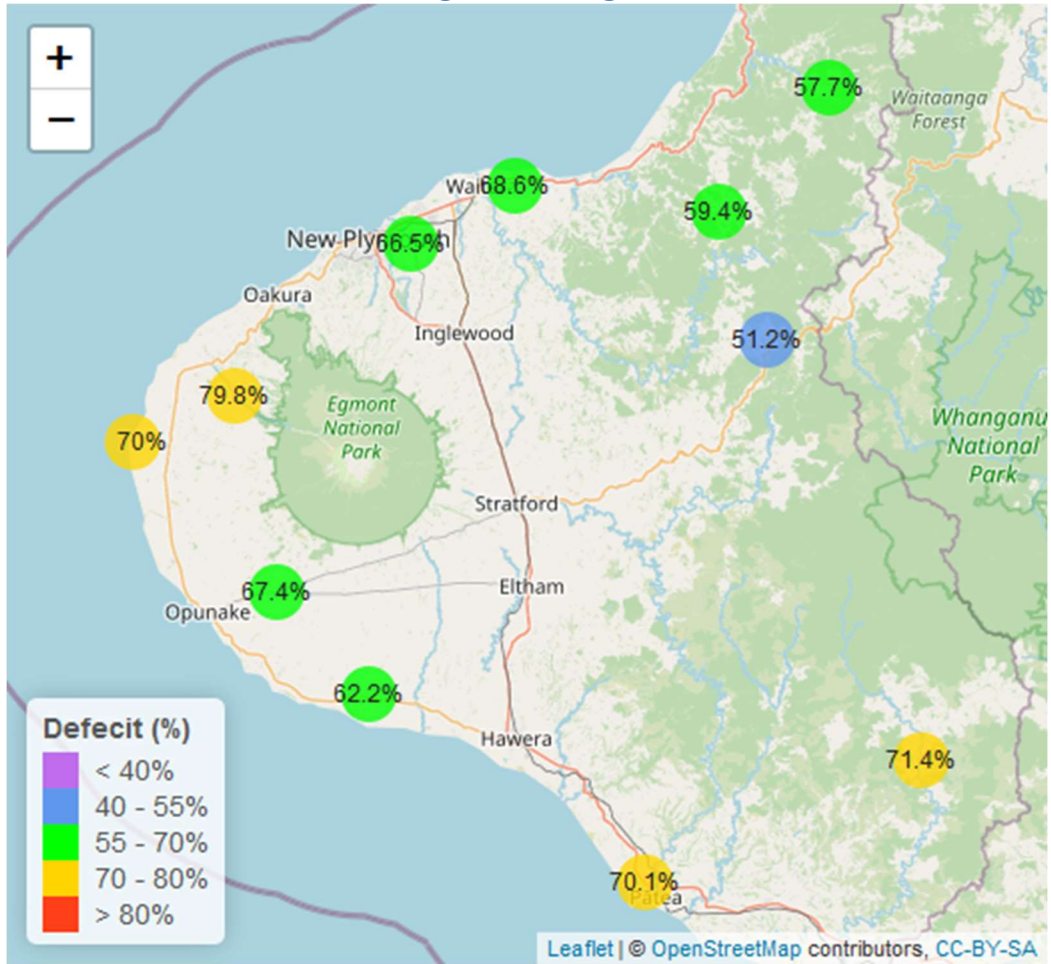


Map4: Month mean air temperature with difference to long-term mean (°C).

**Table 4:** Summary of maximum, minimum and mean air temperature for the current reporting month and the same month for all preceding years of record.

Monthly Air Temperatures (°C)								
Hilltop	Maximum		Minimum		Mean		Data years	Records Began
	September 2022	September archive	September 2022	September archive	September 2022	September archive		
Brooklands Zoo at New Plymouth	19.88	25.19	4.40	0.06	12.6	12.16	10	2012
Dawson Falls	14.44	18.07	-0.81	-1.38	6.5	5.97	7	2015
Heimama at Golf Course	-Inf	-Inf	Inf	Inf			0	Inf
Inglewood at Oxidation Ponds	18.41	22.02	1.05	-1.02	10.5	10.48	11	2011
Kapoaiaia at Lighthouse	17.86	19.33	2.97	2.20	12.7	12.37	10	2012
Kaupokonui at Glenn Rd	19.68	20.69	1.35	0.33	12.1	11.72	7	2015
Mangati at SH3	18.88	21.55	4.60	1.35	12.3	12.20	9	2013
Mangorei Upper at Forest Hill	16.40	19.16	2.98	0.17	10.2	9.17	5	2017
Motunui M39 at Weston W3	18.03	21.17	4.13	1.19	11.9	11.61	6	2016
North Egmont at Visitors Centre	13.71	15.98	-2.10	-1.48	5.7	5.90	7	2015
Patea at Bore 3	18.72	20.77	2.40	1.25	11.9	11.46	11	2011
Patea at Stratford	19.03	21.16	1.30	-0.51	11.1	10.31	11	2011
Stony at Mangatete Bridge	18.87	20.60	4.33	1.80	11.5	11.24	6	2016
Taungatara at Eltham Rd	17.52	18.13	1.47	0.76	11.2	10.82	7	2015
Tawhiti at Duffys	19.36	20.43	0.16	-2.28	11.4	11.20	9	2013
Uruti at Kaka Rd	19.15	19.65	3.48	1.66	10.5	9.80	4	2018
Waitotara at Hawken Rd	20.41	21.53	4.89	0.73	12.2	11.64	7	2015
Waitotara at Ngutuwera	18.76	20.25	4.12	0.72	11.2	10.72	4	2018
Waiwhakaiho at Hillsborough	18.01	21.28	5.39	0.63	12.0	11.54	10	2012
Weraweraonga at 749 Mangawhio Rd	21.07	21.10	3.36	-0.03	11.6	10.99	5	2017

### 5. Soil Moisture at 11 sites throughout the region

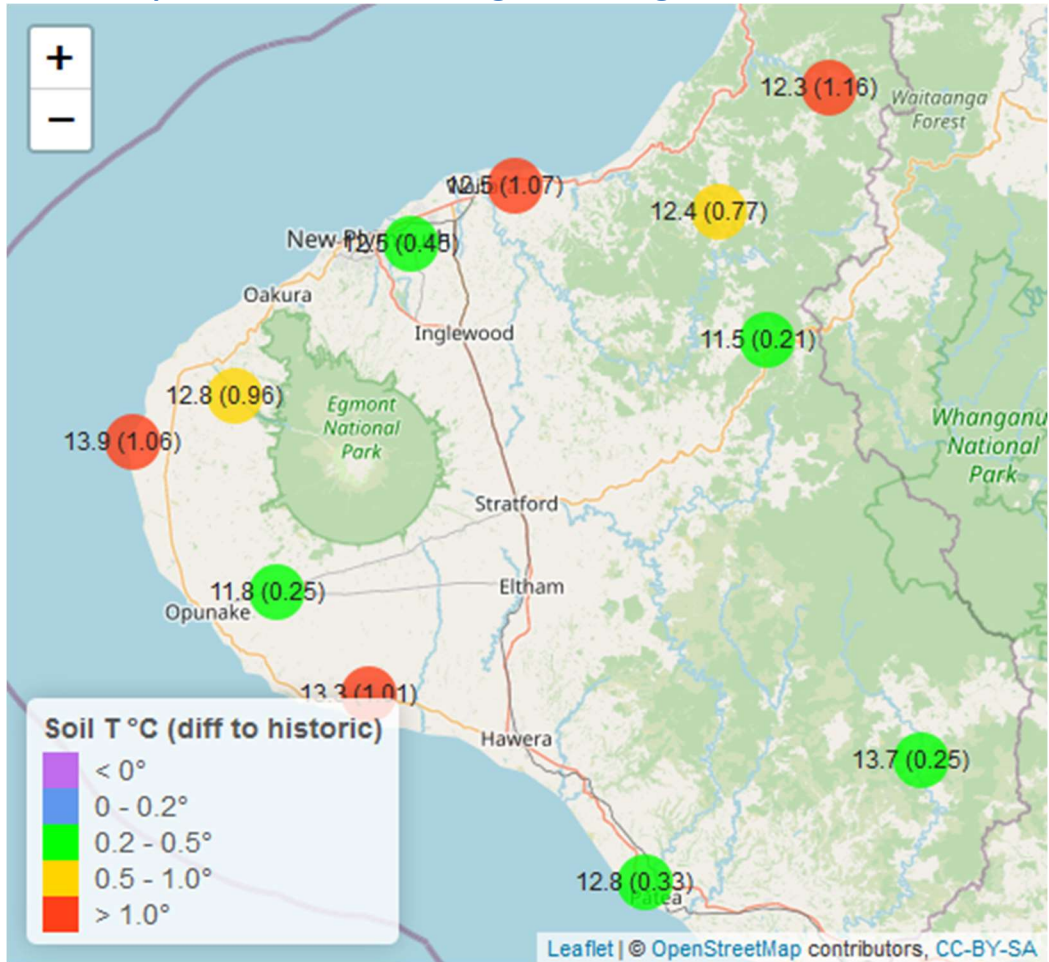


Map5: Month mean soil moisture deficit (100 - soil moisture, %).

**Table 1:** Table 5: Summary of maximum, minimum and mean soil moisture for the current reporting month and the same month for all preceding years of record.

Monthly Soil Moisture Extremes (%)								
Hilltop	Maximum		Minimum		Mean		Data years	Records began
	September 2022	September archive	September 2022	September archive	September 2022	September archive		
Kapoaiaia at Lighthouse	31.80	39.69	28.53	20.56	30.04	27.14	11	2011
Kaupokonui at Glenn Rd	43.69	50.60	34.18	30.97	37.76	36.24	11	2011
Kotare at OSullivans	54.67	59.87	36.71	32.30	42.34	43.43	10	2012
Motunui M39 at Weston W3	34.22	37.17	29.07	28.46	31.41	31.33	9	2013
Patea at Bore 3	36.80	43.00	28.65	23.80	29.93	30.09	6	2016
Pohokura Saddle	55.25	57.46	42.42	34.92	48.77	45.32	8	2014
Stony at Mangatete Bridge	31.31	33.93	16.84	13.56	20.15	19.63	6	2016
Taungatara at Eltham Rd	41.47	59.70	29.78	28.51	32.55	39.09	9	2013
Uruti at Kaka Rd	45.63	50.84	37.91	37.05	40.62	42.98	11	2011
Waitotara at Rimunui Station	32.81	33.58	26.42	25.35	28.64	28.04	5	2017
Waiwhakaiho at Hillsborough	38.07	39.03	30.67	23.27	33.54	30.86	10	2012

### 6: Soil Temperature at 11 sites throughout the region



Map3: Month mean soil temperatures with difference to long-term mean (°C).

**Table 6:** Summary of maximum, minimum and mean soil temperature for the current reporting month and the same month for all preceding years of record.

Monthly Soil Temperatures (°C)								
Hilltop	Maximum		Minimum		Mean		Data years	Records Began
	September 2022	September archive	September 2022	September archive	September 2022	September archive		
Kapoaiaia at Lighthouse	17.61	17.09	9.60	9.60	13.9	12.87	11	2011
Kaupokonui at Glenn Rd	16.10	16.39	10.40	9.10	13.3	12.25	11	2011
Kotare at OSullivans	14.58	17.75	10.19	5.75	12.3	11.12	10	2012
Motunui M39 at Weston W3	15.15	14.69	10.08	8.64	12.5	11.46	9	2013
Patea at Bore 3	15.10	16.87	9.92	7.86	12.8	12.44	6	2016
Pohokura Saddle	14.58	14.43	8.86	8.15	11.5	11.27	8	2014
Stony at Mangatete Bridge	16.70	16.00	9.80	8.40	12.8	11.85	6	2016
Taungatara at Eltham Rd	14.10	14.80	9.40	7.40	11.8	11.58	9	2013
Uruti at Kaka Rd	14.44	15.52	10.74	7.40	12.4	11.61	11	2011
Waitotara at Rimunui Station	17.83	17.42	10.06	9.93	13.7	13.48	5	2017
Waiwhakaiho at Hillsborough	14.56	15.50	10.52	9.16	12.5	12.04	10	2012



## Summary of month's conditions

### Rainfall

Rainfall for September was on average 101.1% of the long-term average, and ranged from 73% at Brooklands Zoo at New Plymouth to 155% at Whangamomona at Marco Road. Rainfall was elevated, relative to typical monthly values, in the south and eastern side of the hill country, and somewhat below typical values north and south of the Maunga, and also in northern end of the hill country.

Year to date rainfall is sitting between 113% (Kotare at OSullivans) and 170% (Kapoaiaia at Lighthouse) with an average of 129.9% of normal. North and eastern hill country rain gauges are showing rain below normal, while most other locations are close to or above normal. On average sites have already received 96.4% of a typical years rainfall, with the highest value 130% at Kapoaiaia at Lighthouse, whereas Kotare at OSullivans sits at 81% of the typical year's total rain.

### River Flow

Mean river flows for September were generally above typical September averages at around 117%. The minimum flows were all well above typical September lows (at 273.9%). Maximum flows at the 8 sites were well below (on average 37.3% of) historic September values.

### River Water Temperature

Mean river water temperatures were 12.2°C, an average of 0.5°C above long-term September values. Nighttime-low water temperatures were on average 1°C above historic lows, this fits a general trend to warmer nighttime temperatures throughout the region. Peak temperatures were on average -1°C below historic highs.

### Air Temperature

The average air temperature for the region, excluding Te Maunga, was 11.7°C, which is NaN°C higher than the long term September average. Minimum air temperatures for September were on average NaN°C above previously recorded lows.

### Soil Moisture

Mean soil moistures for September were close to typical values. On average, minimum soil moistures were 0.15% above previous lows, and the maxima well below previous highs. The average soil moisture was 34.2%.

### Soil Temperature

Like August, September soil temperatures were generally 0.7°C above the long-term average. Nighttime minimum soil temperatures were on average 1.7°C above recorded minima, and maximum September soil temperatures were on average -0.5°C below long-term maximum September values.