

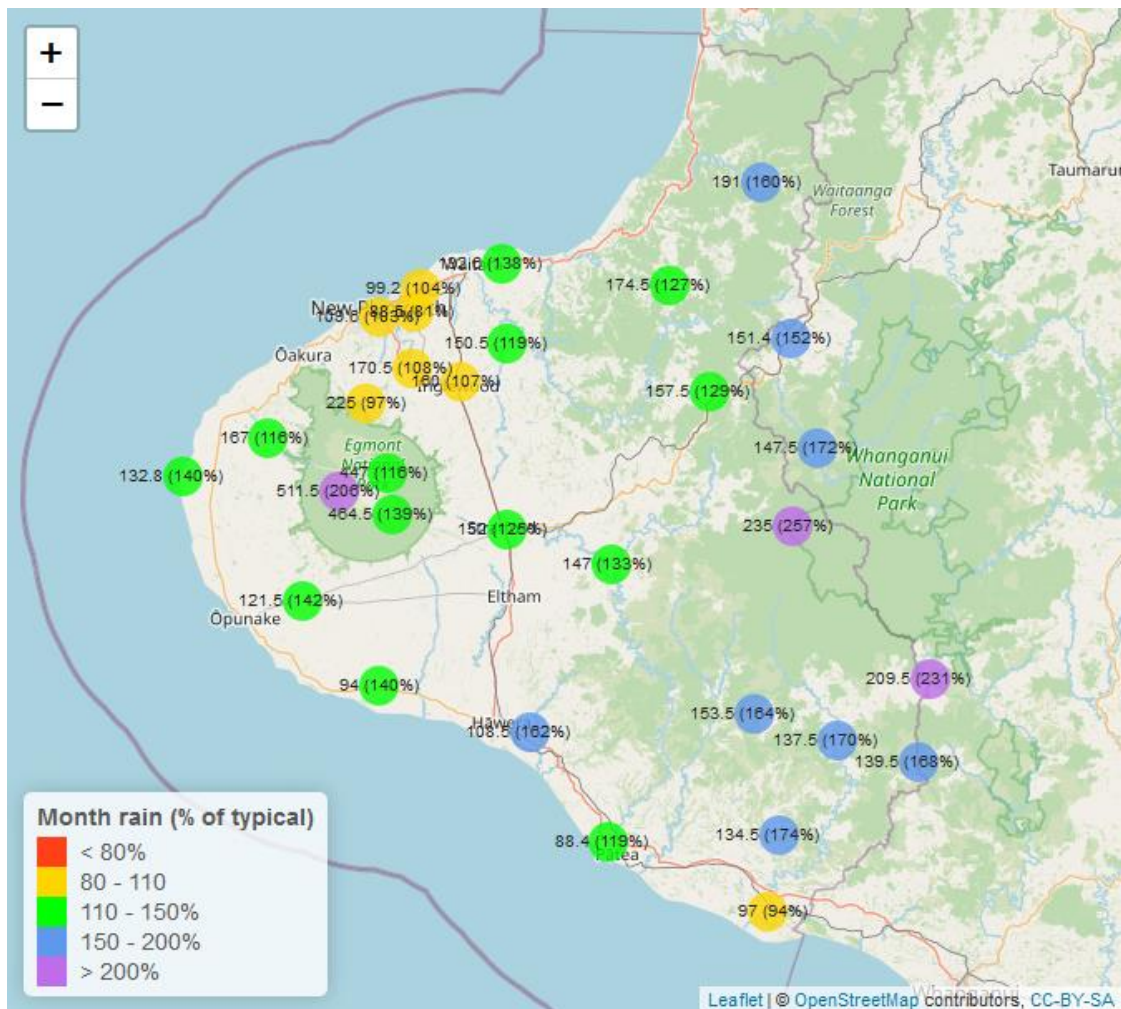
Taranaki Regional Council Monthly Rainfall and Environmental Data Report for February 2023

12 March, 2023

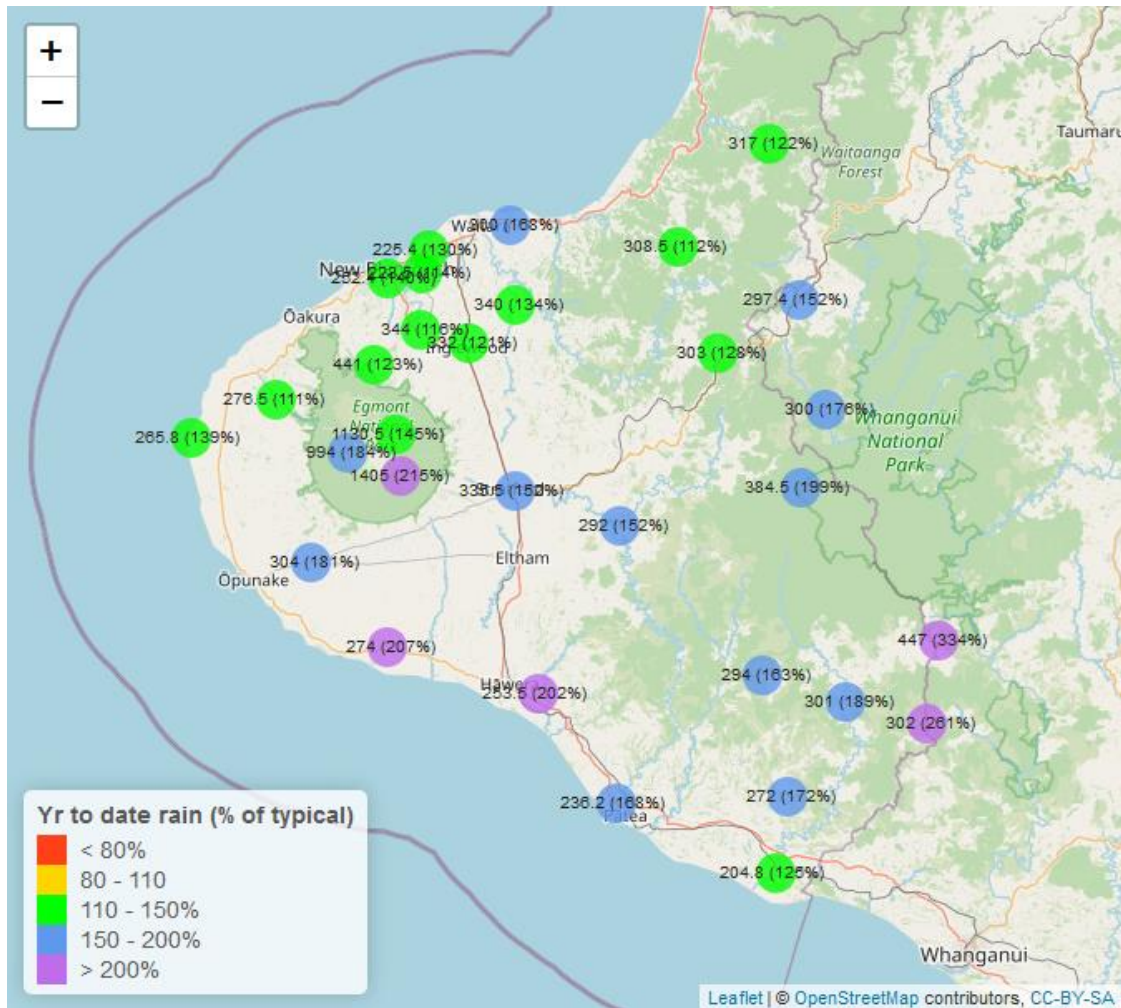
Note: Provisional Data Only.

1. Rain gauge values at 28 sites in Taranaki

The Taranaki Regional Council 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).



Map 1. Monthly total rain (mm) and percentage of long-term mean.



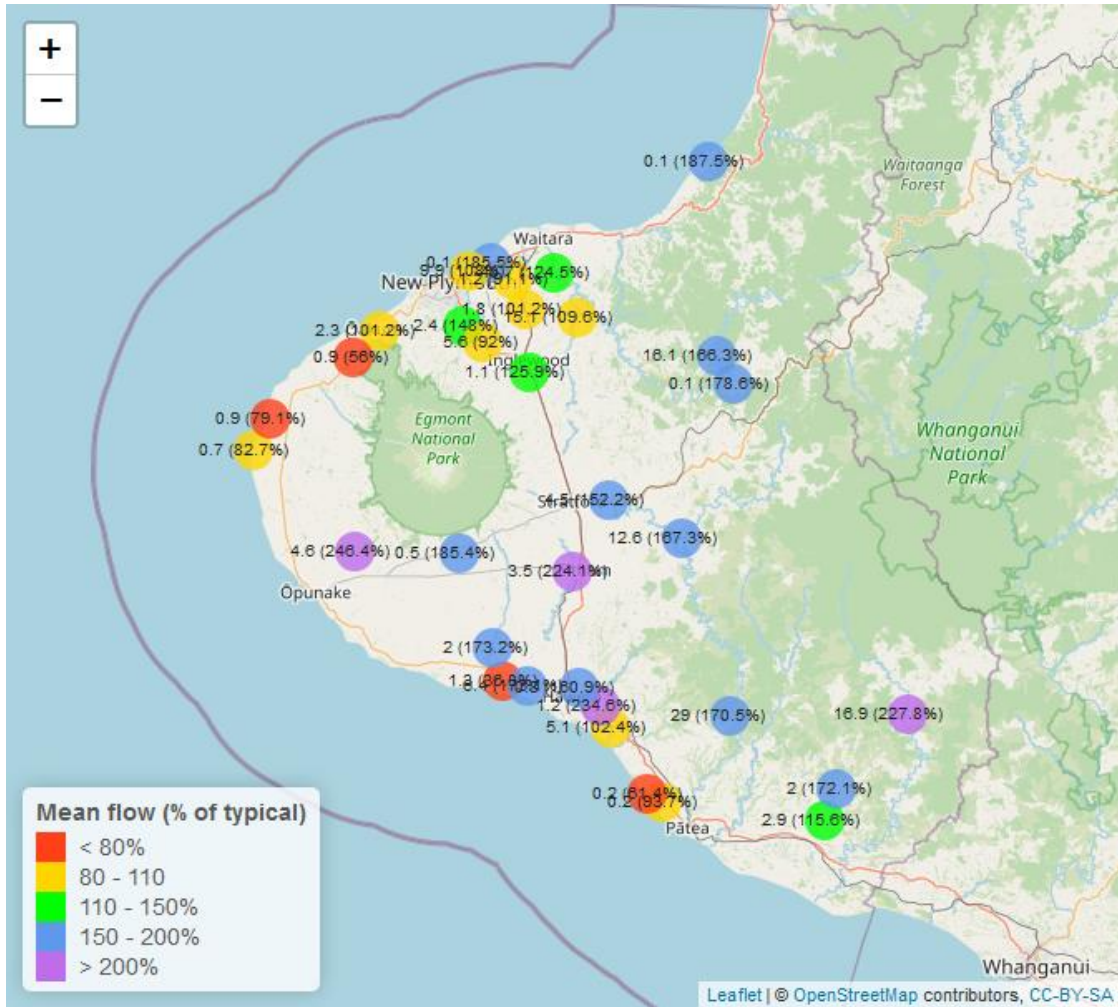
Map 1a. YTD total rain (mm) and percentage of long-term mean.

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

Rain gauge	February			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	17	447.0	116	1130.5	145	16	1991
Dawson Falls	16	464.5	139	1405.0	215	24	1933
Kahui Hut	19	511.5	206	994.0	184	19	2006
Forest Hill	13	225.0	97	441.0	123	12	2017
Hillsborough	8	88.5	81	223.5	114	12	2012
Brooklands Zoo	12	109.6	103	252.4	140	16	2012
Bell Block	8	99.2	104	225.4	130	15	2013
Motunui	14	132.6	138	300.0	168	19	1998
Egmont Vill	13	170.5	108	344.0	116	14	1991
Everett Pk	14	150.5	119	340.0	134	16	1987
Inglewood	13	160.0	107	332.0	121	14	2000
Stony R	16	167.0	116	276.5	111	14	2004
Cape Egmont	9	132.8	140	265.8	139	19	1930
Taungatara	12	121.5	142	304.0	181	19	2005
Kaupokonui	12	94.0	140	274.0	207	23	1998
Stratford	13	152.0	125	335.5	152	17	1999
Mangaehu	15	147.0	133	292.0	152	18	1999
Kotare OSullivans	15	191.0	160	317.0	122	15	1998
Uruti Kaka Rd	13	174.5	127	308.5	112	14	1991
Pohokura Saddle	16	157.5	129	303.0	128	15	1991
Omaru Charlies	20	235.0	257	384.5	199	21	2006
Omahine Moana Trg	17	153.5	164	294.0	163	20	2007
Rimunui Station	16	137.5	170	301.0	189	22	1994
Ngutuwera	12	134.5	174	272.0	172	21	1999
Hawera Tawhiti	13	108.5	162	253.5	202	23	1993
Patea Bore3	14	88.4	119	236.2	168	20	2006
Hawken Rd	12	97.0	94	204.8	125	17	2016
Te Tuhi Jn	18	139.5	168	302.0	261	21	2018
Mataimona Trig	18	209.5	231	447.0	334	25	2018

Rain gauge	February			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	20	151.4	152	297.4	152	15	2018
Br to Somewhere	14	147.5	172	300.0	176	17	2018

2. River Flow at 32 sites in Taranaki



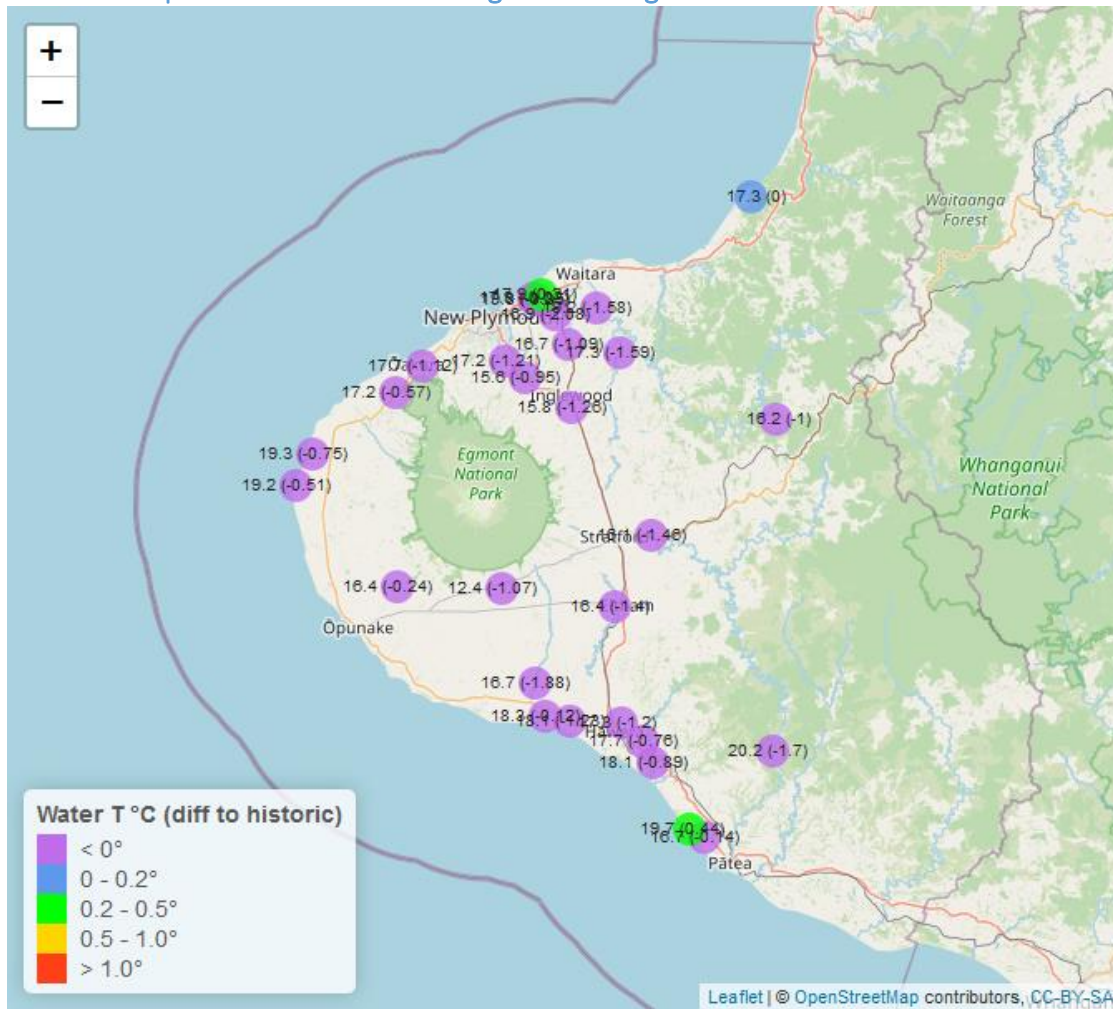
Map 2: Monthly mean river flows (m³/sec), with difference as % of long-term mean.

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

Recorded flows (m3/sec)								
River and Site	Highs		Lows		Mean		Data years	Records began
	February 2023	February Historic	February 2023	February Historic	February 2023	February Historic		
Inaha at Lower Inaha Rd	2.787	20.616	0.760	0.280	1.3	3.585	3	2020
Kaikura below 7346	0.268	0.401	0.117	0.042	0.2	0.191	8	2015
Kapoaiaia at Lighthouse	1.654	2.618	0.160	0.239	0.7	0.902	37	1986
Kapuni at Normanby Rd	3.557	3.074	1.467	0.258	2.0	1.177	23	2000
Mangaehu at Bridge	45.075	26.149	4.237	1.592	12.6	7.504	42	1981
Manganui at Everett Park	45.255	45.255	7.300	3.087	15.1	13.782	30	1992
Mangaoraka at Corbett Rd	2.543	4.921	0.622	0.167	1.2	1.284	39	1982
Mangaroa at Manawapou Rd	0.302	1.121	0.108	0.036	0.2	0.319	4	2019
Mangati at SH3	0.211	0.209	0.065	0.005	0.1	0.055	10	2013
Mangawheroiti Above Intake W.W	0.947	0.443	0.316	0.115	0.5	0.267	10	2013
Mangorei at Pipebridge	7.008	4.103	0.923	0.298	2.4	1.625	13	2010
Matau at Woolshed	0.336	0.180	0.065	0.024	0.1	0.070	5	2018
Moumahaki at Johnston Rd	9.817	5.945	0.690	0.354	2.9	2.494	5	2018
Ngatoro at SH3	3.628	2.024	0.552	0.229	1.1	0.889	27	1982
Oakura at Victoria Rd	7.045	6.226	0.783	0.321	2.3	2.305	4	2019
Patea at McColls Bridge	66.151	55.665	4.023	2.057	29.0	17.003	35	1987
Patea at Skinner Rd	8.594	9.524	2.759	0.599	4.5	2.948	42	1979
Tangahoe below Railway Bridge	13.184	15.796	1.859	0.877	5.1	4.986	5	2018
Tawhiti at Duffys	2.270	1.757	0.959	0.169	1.2	0.532	37	1986
Tawhiti below Meat Plant	1.145	1.429	0.707	0.228	0.8	0.511	12	2010
Timaru at Tataraimaka	2.256	3.186	0.374	0.267	0.9	1.572	9	2014
Waiaua 2 at Barraclough Opua	11.629	3.567	2.820	0.929	4.6	1.858	4	2019

Recorded flows (m3/sec)								
River and Site	Highs		Lows		Mean		Data years	Records began
	February 2023	February Historic	February 2023	February Historic	February 2023	February Historic		
Waikaramarama at Bridge	0.514	0.129	0.019	0.007	0.1	0.056	5	2018
Waingongoro at Eltham Rd	6.478	4.896	2.313	0.331	3.5	1.573	40	1982
Waingongoro at SH45	10.558	11.869	4.246	1.015	6.4	3.693	41	1982
Waiongana at SH3a	4.573	5.991	0.885	0.316	1.8	1.808	41	1982
Waitara at Bertrand Rd	114.849	128.927	15.614	5.273	40.7	32.686	40	1983
Waitara at Purangi Bridge	67.274	39.746	2.115	0.428	16.1	9.710	24	1999
Waitotara at Rimunui Station	73.412	18.807	5.700	2.565	16.9	7.413	18	2005
Waiwhakaiho at Egmont Village	20.570	16.348	2.375	1.901	5.6	6.051	41	1982
Waiwhakaiho at Vickers Rd	34.627	30.939	2.466	1.614	9.9	9.121	3	2020
Warea at Coast	2.144	3.511	0.392	0.270	0.9	1.170	5	2016
Weraweraonga at 749 Mangawhio Rd	6.622	2.676	0.382	0.079	2.0	1.133	5	2018

3. River Temperature at 28 sites throughout the region



Map 3: Monthly mean water temperature with difference to long-term mean (°C).

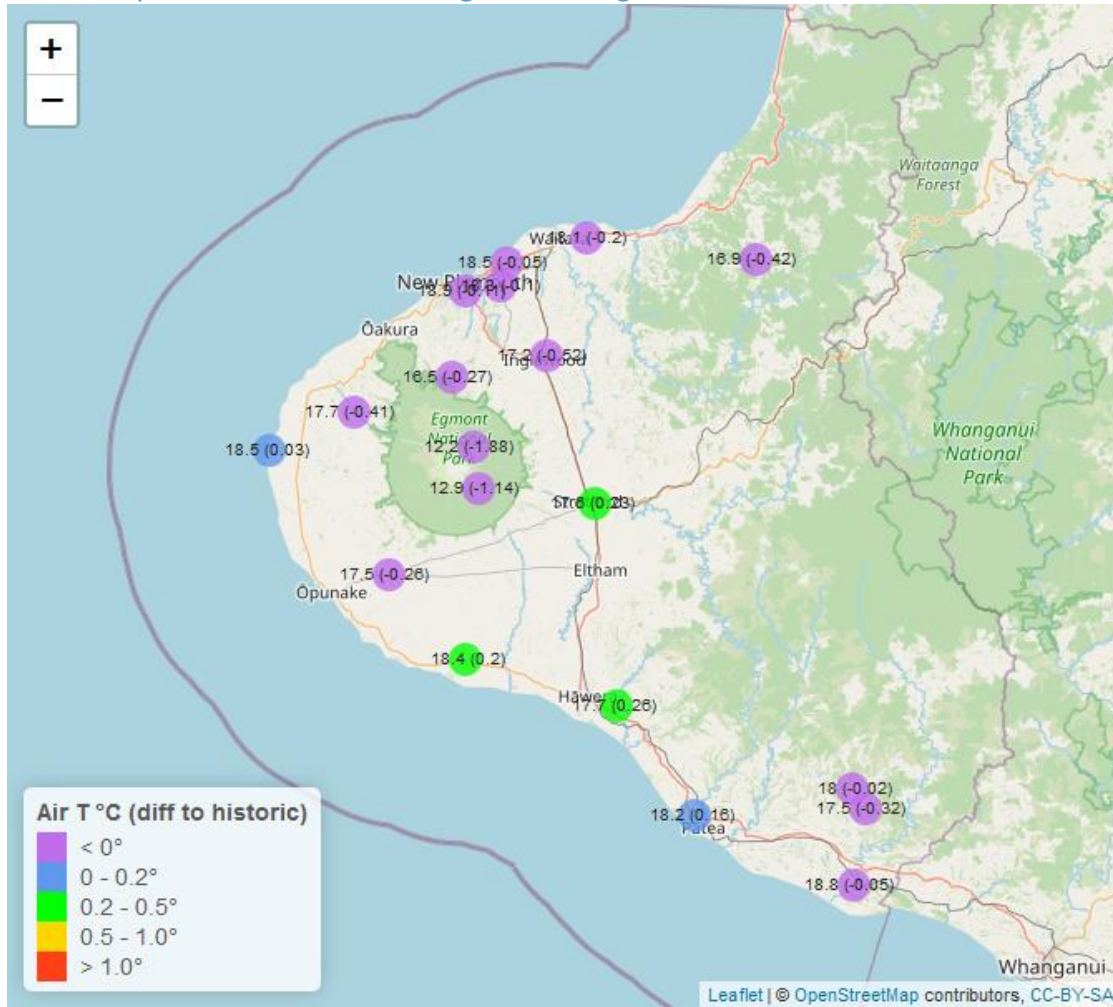
Table 3: Summary of high, low and mean river temperature for the current reporting month and the same month for all preceding years of record.

Monthly River Temperatures (°C)								
Monitoring Site	Highs		Lows		Mean		Data years	Records began
	February 2023	February Historic	February 2023	February Historic	February 2023	February Historic		
Inaha at Lower Inaha Rd	21.562	22.000	15.312	15.250	18.3	18.434	3	2020
Kaikura below 7346	19.375	19.410	14.438	14.125	16.7	16.839	8	2015
Kapoaiaia at Lighthouse	21.895	23.763	14.994	15.820	19.2	19.671	24	1999
Kapuni at Normanby Rd	19.875	23.400	13.625	14.300	16.7	18.542	23	2000
Manganui at Everett Park	20.081	22.225	14.732	15.947	17.3	18.909	14	2009
Mangaoraka at Corbett Rd	20.026	22.800	14.304	15.669	16.9	18.974	19	2004
Mangaroa at Manawapou Rd	23.391	21.688	18.043	16.875	19.7	19.224	4	2019
Mangati at Ponds	22.520	24.191	16.565	17.663	19.8	20.640	4	2019
Mangati at SH3	19.966	20.446	16.074	15.689	17.9	17.950	10	2013
Mangawheroiti Above Intake W.W	14.240	15.993	10.602	11.250	12.4	13.441	10	2013
Mangorei at Pipebridge	19.618	21.998	14.759	15.276	17.2	18.399	9	2014
Matau at Woolshed	18.528	20.906	14.215	13.772	16.2	17.170	5	2018
Ngatoro at SH3	18.353	20.075	13.125	14.200	15.8	17.108	23	1981
Oakura at Victoria Rd	20.716	22.654	15.321	15.482	17.7	18.863	4	2019
Patea at McColls Bridge	22.353	24.312	17.584	19.000	20.2	21.849	8	2015
Patea at Skinner Rd	18.855	20.911	13.836	14.400	16.1	17.533	19	2004
Tangahoe below Railway Bridge	21.353	22.188	15.438	15.938	18.1	18.948	5	2018
Tawhiti at Duffys	20.362	21.345	15.513	15.773	17.7	18.478	19	2004
Tawhiti below Meat Plant	20.100	21.954	14.872	15.420	17.3	18.532	24	1993
Timaru at Tataraimaka	19.935	21.102	14.914	14.952	17.2	17.773	9	2014
Waiaua 2 at Barraclough Opua	20.957	21.477	12.597	12.369	16.4	16.682	4	2019
Waikaramarama at Bridge	18.876	19.516	15.958	14.978	17.3	17.281	5	2018

Monthly River Temperatures (°C)

Monitoring Site	Highs		Lows		Mean		Data years	Records began
	February 2023	February Historic	February 2023	February Historic	February 2023	February Historic		
Waingongoro at Eltham Rd	19.221	21.000	14.022	14.600	16.4	17.785	19	2000
Waingongoro at SH45	21.420	22.400	15.404	16.060	18.1	19.315	19	2004
Waiongana at SH3a	19.438	21.100	14.188	14.800	16.7	17.749	11	2012
Waitaha 1 at SH3	20.103	20.562	16.046	14.938	17.9	17.691	4	2019
Waitara at Bertrand Rd	21.145	24.000	16.920	17.400	19.2	20.754	34	1984
Waiwhakaiho at Egmont Village	17.932	19.635	13.067	13.500	15.6	16.545	31	1991
Warea at Coast	24.037	24.475	14.663	15.875	19.3	20.066	4	2019

4. Air Temperature at 19 sites throughout the region

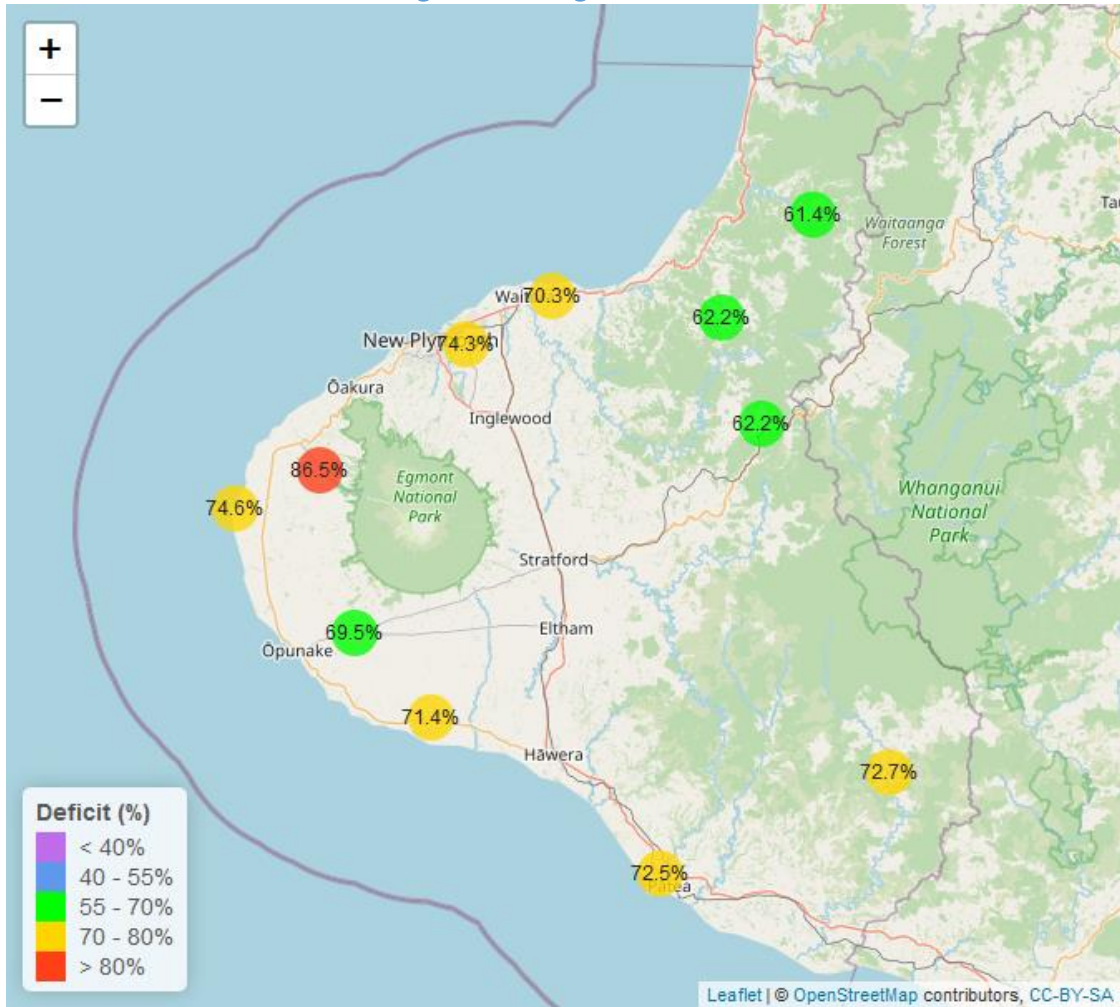


Map 4: Monthly mean air temperature with difference to long-term mean (°C).

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

Monthly Air Temperatures (°C)								
Monitoring Site	Highs		Lows		Mean		Data years	Records Began
	February 2023	February Historic	February 2023	February Historic	February 2023	February Historic		
Brooklands Zoo at New Plymouth	24.473	25.297	13.358	12.800	18.9	19.013	11	2012
Dawson Falls	18.352	19.922	8.190	7.932	12.9	14.049	7	2016
Inglewood at Oxidation Ponds	23.523	25.092	11.046	10.777	17.2	17.719	11	2012
Kapoaiaia at Lighthouse	22.379	22.850	13.605	13.230	18.5	18.463	10	2013
Kaupokonui at Glenn Rd	24.285	24.260	12.244	11.752	18.4	18.204	8	2015
Mangati at SH3	22.837	23.771	13.443	12.458	18.5	18.600	10	2013
Mangorei Upper at Forest Hill	20.672	21.802	12.055	11.083	16.5	16.759	6	2017
Motunui M39 at Weston W3	22.470	23.366	13.072	12.176	18.1	18.270	6	2017
North Egmont at Visitors Centre	17.043	19.717	7.618	8.364	12.2	14.092	8	2015
Patea at Bore 3	23.033	23.890	13.016	12.257	18.2	18.086	11	2012
Patea at Stratford	23.984	24.282	12.104	10.909	17.6	17.339	11	2012
Stony at Mangatete Bridge	21.834	23.600	13.181	12.210	17.7	18.137	7	2016
Taungatara at Eltham Rd	22.796	23.269	11.607	11.675	17.5	17.732	7	2016
Tawhiti at Duffys	23.523	23.708	10.583	9.033	17.7	17.479	9	2014
Uruti at Kaka Rd	21.633	23.181	12.184	11.316	16.9	17.312	4	2019
Waitotara at Hawken Rd	24.280	24.831	13.563	12.493	18.8	18.816	6	2016
Waitotara at Ngutuwera	22.823	24.005	12.519	11.863	17.5	17.859	5	2018
Waiwhakaiho at Hillsborough	22.672	23.711	13.721	12.882	18.3	18.436	11	2012
Weraweraonga at 749 Mangawhio Rd	24.523	25.512	11.895	10.077	18.0	18.054	5	2018

5. Soil Moisture at 11 sites throughout the region

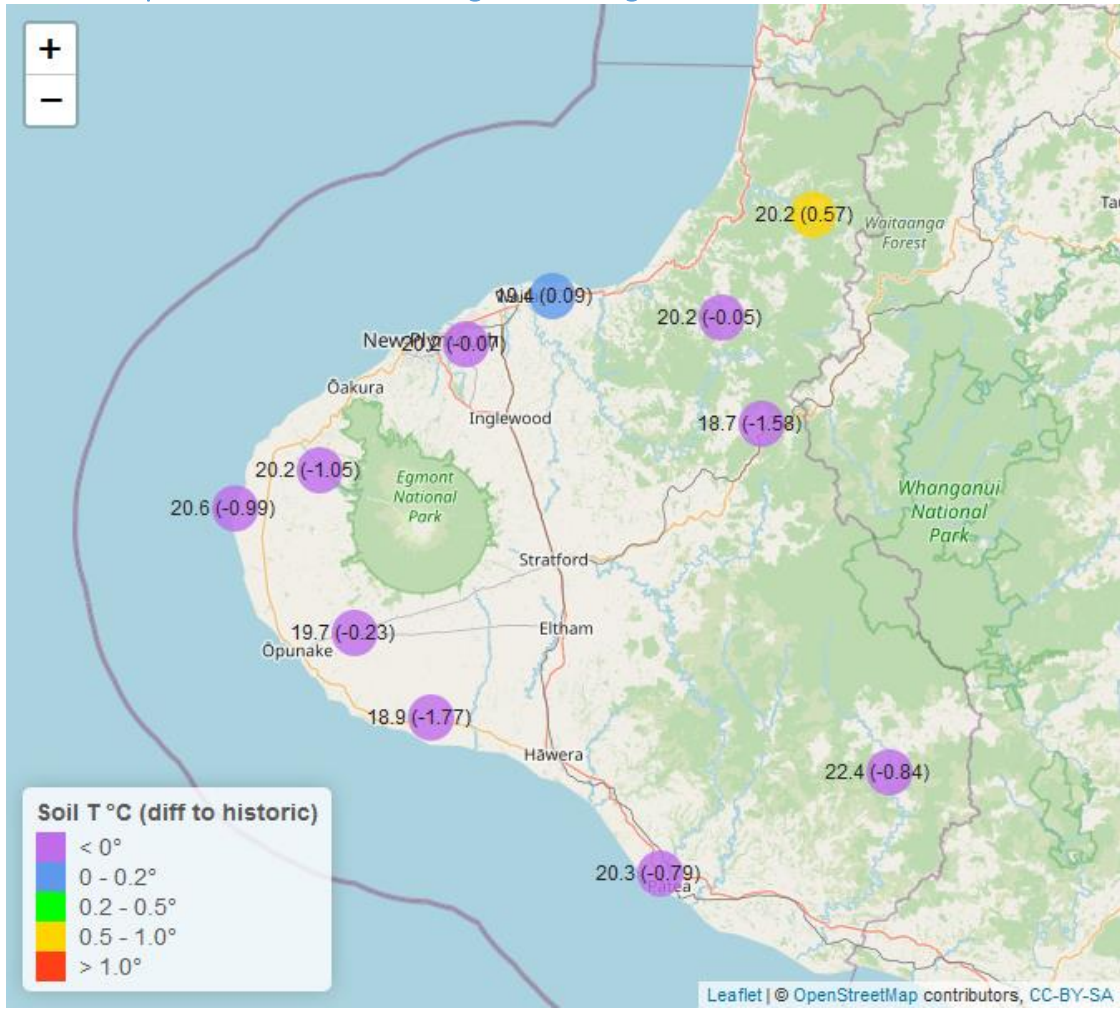


Map 5: Monthly mean soil moisture deficit (100 - soil moisture, %).

Table 5: Summary of high, low and mean soil moisture for the current reporting month and the same month for all preceding years of record.

Monthly Soil Moisture Extremes (%)								
Monitoring Site	Highs		Lows		Mean		Data years	Records began
	February 2023	February Historic	February 2023	February Historic	February 2023	February Historic		
Kapoaiaia at Lighthouse	27.114	28.439	23.386	9.250	25.386	17.152	11	2012
Kaupokonui at Glenn Rd	32.120	32.000	25.190	9.050	28.616	19.188	12	2011
Kotare at OSullivans	44.528	40.770	34.873	20.500	38.615	30.441	11	2012
Motunui M39 at Weston W3	31.573	29.060	28.313	11.350	29.688	20.679	9	2014
Patea at Bore 3	29.196	29.797	26.102	13.934	27.542	22.876	6	2017
Pohokura Saddle	43.473	44.011	34.627	14.986	37.770	31.176	8	2015
Stony at Mangatete Bridge	17.520	17.880	9.880	3.540	13.507	9.876	7	2016
Taungatara at Eltham Rd	35.567	35.243	26.793	12.579	30.505	21.112	9	2014
Uruti at Kaka Rd	40.992	42.300	34.427	16.540	37.752	30.935	11	2012
Waitotara at Rimunui Station	30.457	26.312	25.773	14.351	27.334	20.791	6	2017
Waiwhakaiho at Hillsborough	28.672	27.799	23.722	11.677	25.746	19.053	10	2013

6: Soil Temperature at 11 sites throughout the region



Map 6: Monthly mean soil temperatures with difference to long-term mean (°C.)

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

Monthly Soil Temperatures (°C)								
Monitoring Site	Highs		Lows		Mean		Data years	Records Began
	February 2023	February Historic	February 2023	February Historic	February 2023	February Historic		
Kapoaiaia at Lighthouse	22.538	24.569	18.508	18.993	20.6	21.559	11	2012
Kaupokonui at Glenn Rd	21.100	23.900	16.900	18.400	18.9	20.697	12	2011
Kotare at OSullivans	22.572	22.358	18.643	17.336	20.2	19.661	11	2012
Motunui M39 at Weston W3	21.600	21.714	17.748	17.127	19.4	19.324	9	2014
Patea at Bore 3	23.242	25.520	17.710	17.987	20.3	21.138	6	2017
Pohokura Saddle	20.640	22.095	16.966	18.227	18.7	20.257	8	2015
Stony at Mangatete Bridge	23.800	24.300	17.400	18.400	20.2	21.279	6	2016
Taungatara at Eltham Rd	22.600	22.469	16.800	17.400	19.7	19.937	9	2014
Uruti at Kaka Rd	21.406	22.178	19.142	18.000	20.2	20.226	11	2012
Waitotara at Rimunui Station	25.492	26.070	19.653	20.652	22.4	23.205	5	2018
Waiwhakaiho at Hillsborough	22.301	22.524	18.083	18.117	20.2	20.262	10	2013

Summary of month's conditions

Rainfall

Rainfall for February was on average 140.4% of the long-term average, and ranged from 81% at Waiwhakaiho at Hillsborough to 257% at Omaru at Charlies.

Year to date rainfall is sitting between 111% (Stony at Mangatete Bridge) and 334% (Whanganui at Mataimona Trig) with an average of 160.4% of normal. Compared to typical full year totals, on average sites have already received 17.6% of a typical year's rainfall, with the highest value 25% at Whanganui at Mataimona Trig, whereas Mangorei Upper at Forest Hill, Waiwhakaiho at Hillsborough have only received 12% of the typical year's total.

River Flow

Mean river flows for February were 138.8% of typical values, low flows were 332.5%, and high flows 137.3%, of typical values.

River Water Temperature

Mean river (non-mountain) water temperatures were 17.4°C, an average of -0.9°C different to long-term February values. Nighttime-low water temperatures were on average -0.4°C warmer than historic lows, and day-time high temperatures were on average -1.4°C relative to historic highs.

Air Temperature

The average air temperature for the region (excluding Te Maunga sites) was 18°C, which is -0.3°C relative to long-term February averages. Low air temperatures for February were on average 0.7°C warmer than the February average for previous years. Day-time high temperatures were on average -1°C relative to historic highs.

Soil Moisture

Mean soil moistures for February were 7.2% higher than typical historical values. On average, low soil moistures were 14.1% wetter than previous lows, and the average difference of the highs was 0.7% relative to previous highs for February. The average soil moisture was 29.3%.

Soil Temperature

February soil temperatures were generally -0.6°C relative to the long-term average. Average nighttime low soil temperatures were -0.3°C relative to recorded lows, and upper day-time soil temperatures were on average -0.9°C relative to long-term February highs.

Notes: Above we have referred to low and high values, from the December 2022 onwards, these are the upper and lower 5th percentiles, these values give a better indication of the general upper and lower range of the historic observations against which to compare the current month. In particular, low used to accentuate the difference of the current month's coldest value relative to the historical low, the general difference, however, is not so great.

Report date 12 March, 2023.