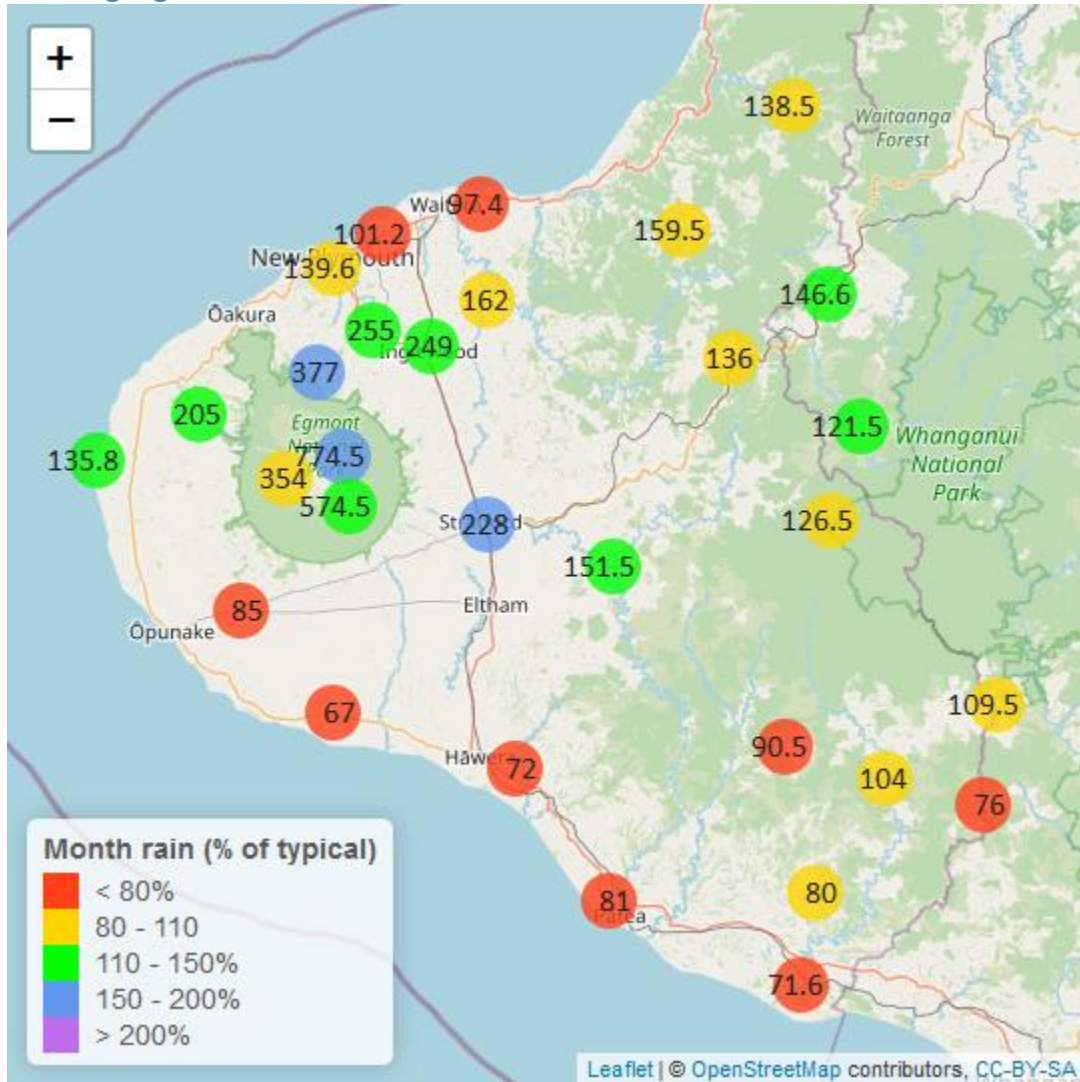


Taranaki Regional Council Monthly Rainfall and Environmental Data Report for April 2023

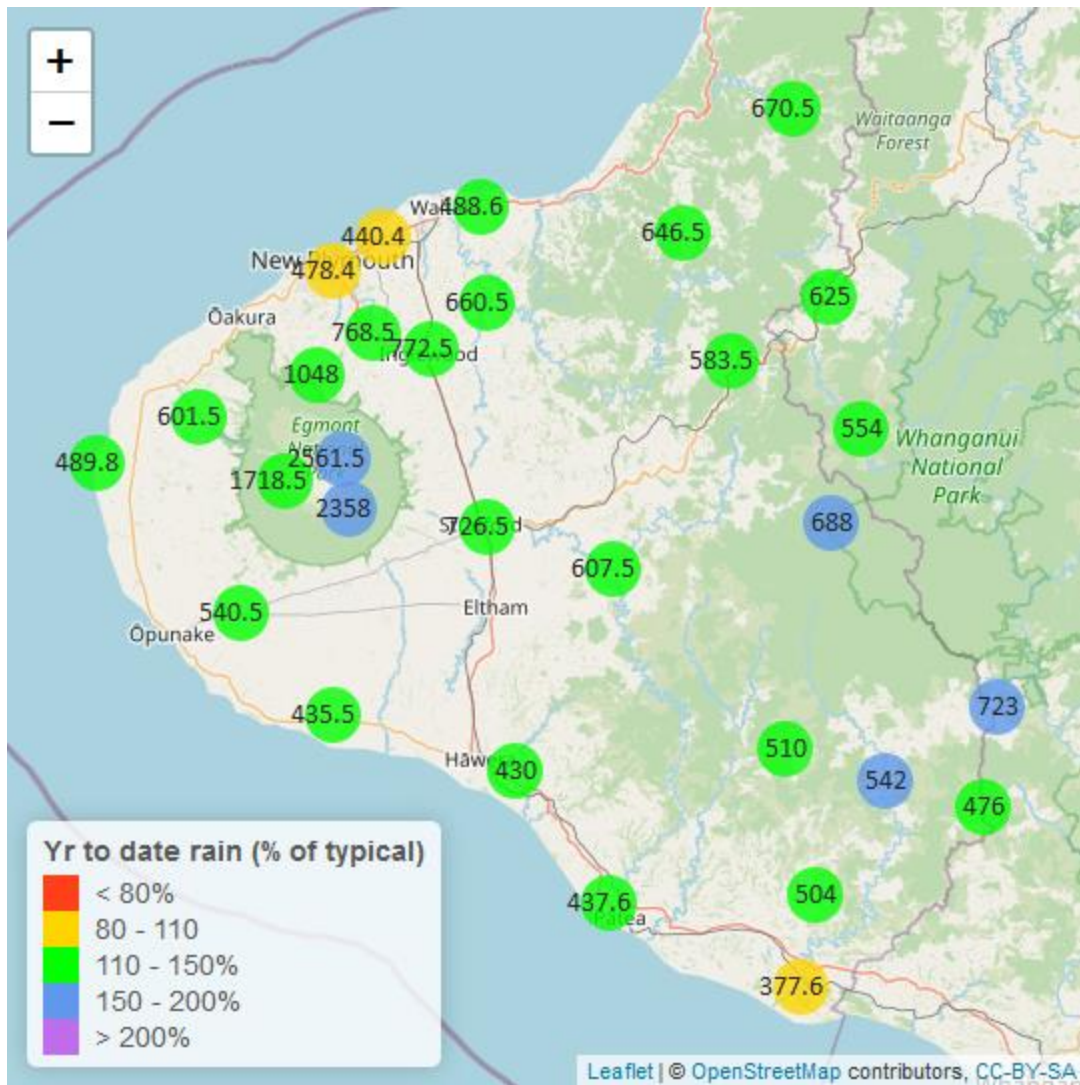
10 May, 2023

Note: Provisional Data Only.

1. Rain gauge values at 28 sites in Taranaki



Map 1: Month 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	April			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	19	774.5	155	2561.5	152	37	1991
Dawson Falls	17	574.5	120	2358.0	157	40	1933
Kahui Hut	20	354.0	87	1718.5	137	33	2006
Forest Hill	18	377.0	156	1048.0	121	28	2017
Hillsborough	13	175.5	114	523.0	106	29	2012
Brooklands Zoo	14	139.6	98	478.4	106	30	2012
Bell Block	13	101.2	69	440.4	103	28	2013
Motunui	15	97.4	74	488.6	120	31	1998
Egmont Vill	17	255.0	139	768.5	120	32	1991
Everett Pk	17	162.0	98	660.5	120	32	1987
Inglewood	17	249.0	148	772.5	132	33	2000
Stony R	18	205.0	127	601.5	112	30	2004
Cape Egmont	16	135.8	116	489.8	124	35	1930
Taungatara	14	85.0	65	540.5	137	34	2005
Kaupokonui	13	67.0	66	435.5	143	37	1998
Stratford	15	228.0	161	726.5	149	38	1999
Mangaehu	17	151.5	122	607.5	146	38	1999
Kotare OSullivans	15	138.5	94	670.5	128	31	1998
Uruti Kaka Rd	14	159.5	92	646.5	111	29	1991
Pohokura Saddle	14	136.0	88	583.5	115	29	1991
Omaru Charlies	16	126.5	87	688.0	152	38	2006
Omahine Moana Trg	14	90.5	72	510.0	127	35	2007
Rimunui Station	14	104.0	94	542.0	156	39	1994
Ngutuwera	14	80.0	80	504.0	149	39	1999
Hawera Tawhiti	13	72.0	71	430.0	145	39	1993
Patea Bore3	15	81.0	74	437.6	138	37	2006
Hawken Rd	12	71.6	73	377.6	107	31	2016
Te Tuhi Jn	13	76.0	70	476.0	146	33	2018

Rain gauge	April			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	
Mataimona Trig	16	109.5	96	723.0	194	41	2018
Marco Road	18	146.6	113	625.0	135	32	2018
Br to Somewhere	12	121.5	113	554.0	137	32	2018
Waitewhena Airstrip	13	133.0	102	663.0	169	33	2019
Ohura Waikaka	14	106.0	90	635.5	182	34	2019
L Retaruke	18	87.0	107	497.8	186	35	2019
Te Rewa	14	60.5	88	388.0	157	37	2019
Matarawa Valley	14	106.5	192	472.0	206	51	2019
Hawera AWS	20	97.6	93	470.0	152	41	2005
Awatuna Wetland	14	57.6	65	581.0	131	33	2021

2. River Flow at 32 sites in Taranaki

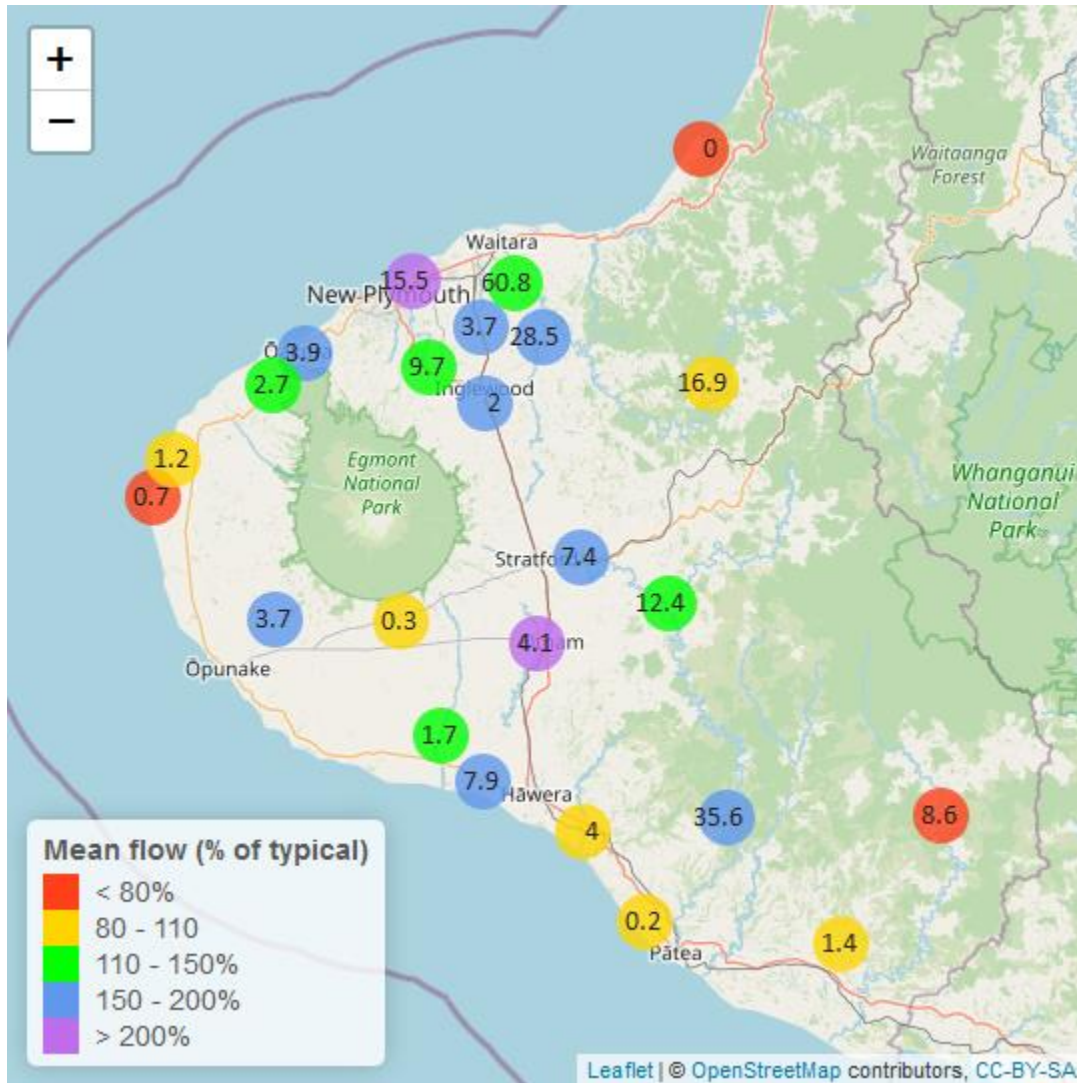


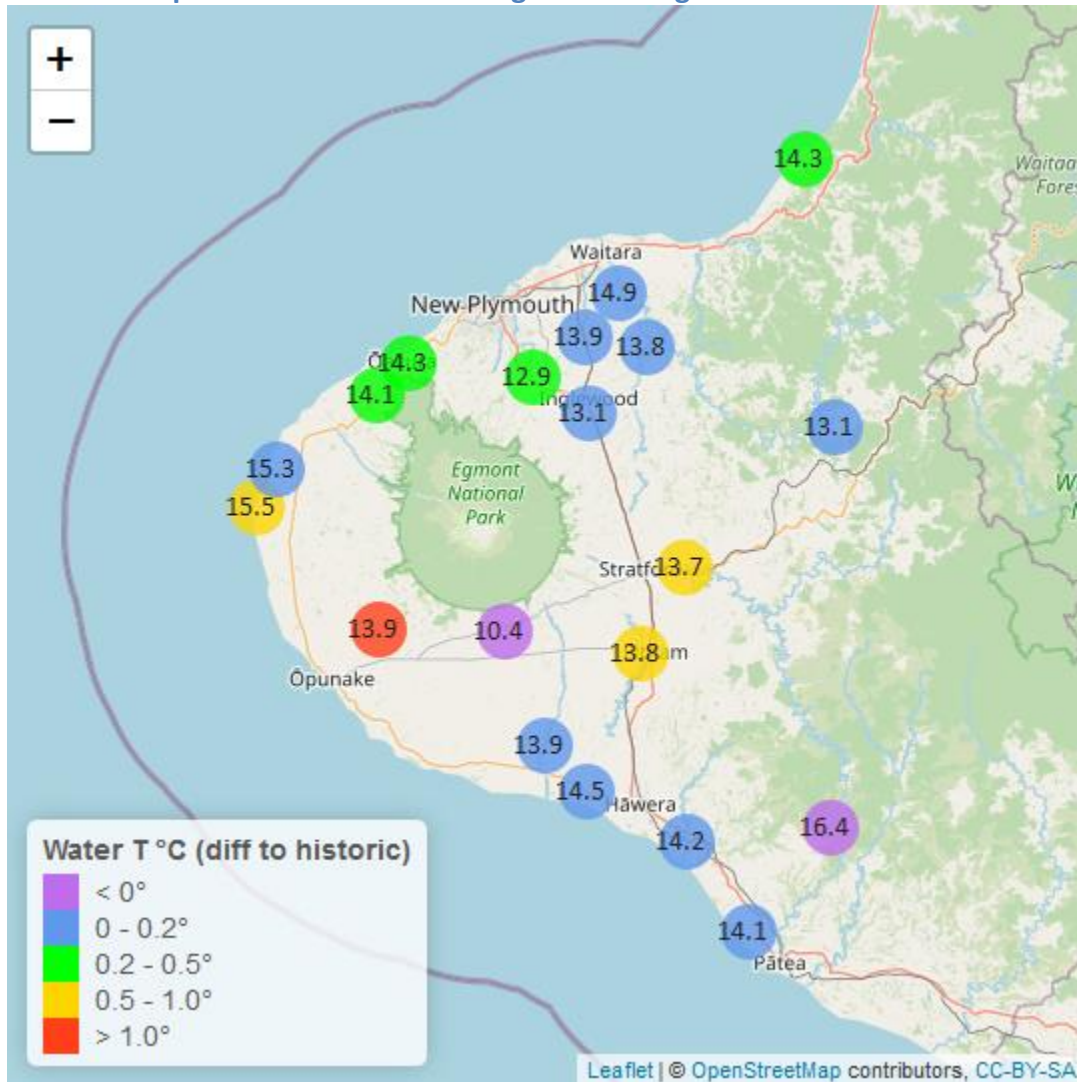
Table 2: Summary of high, low and mean flow for the current reporting month and the same month for all preceding years of record.

River and Site	Recorded flows (m3/sec)						Data years	Records began
	Highs		Lows		Mean			
	April 2023	April Historic	April 2023	April Historic	April 2023	April Historic		
Inaha at Lower Inaha Rd	1.39	1.39	0.46	0.31	0.7	0.82	3	2020
Kaikura below 7346	0.31	0.56	0.13	0.08	0.2	0.25	8	2015
Kapoaiaia at Lighthouse	2.36	3.13	0.22	0.25	0.7	1.03	36	1986
Kapuni at Normanby Rd	3.31	3.09	1.07	0.27	1.7	1.22	24	1999
Mangaehu at Bridge	41.10	43.78	3.84	1.97	12.4	10.53	41	1982

Recorded flows (m3/sec)								
River and Site	Highs		Lows		Mean		Data years	Records began
	April 2023	April Historic	April 2023	April Historic	April 2023	April Historic		
Manganui at Everett Park	87.04	55.35	7.23	3.59	28.5	15.98	31	1992
Mangaoraka at Corbett Rd	7.78	5.55	0.71	0.26	2.6	1.73	40	1982
Mangaroa at Manawapou Rd	0.28	0.66	0.11	0.08	0.2	0.29	4	2019
Mangati at SH3	0.20	0.25	0.06	0.01	0.1	0.08	10	2013
Mangawheroiti Above Intake W.W	0.45	0.99	0.24	0.11	0.3	0.37	10	2013
Mangorei at Pipebridge	14.16	5.94	1.01	0.34	5.0	1.91	13	2010
Moumahaki at Johnston Rd	3.13	4.58	0.73	0.48	1.4	1.58	5	2018
Ngatoro at SH3	5.01	4.13	0.58	0.26	2.0	1.15	27	1982
Oakura at Victoria Rd	12.08	6.25	0.82	0.50	3.9	2.22	4	2019
Patea at McColls Bridge	94.28	69.08	3.72	2.66	35.6	23.16	33	1987
Patea at Skinner Rd	18.32	12.93	2.65	0.69	7.4	4.11	43	1979
Tangahoe below Railway Bridge	13.53	12.68	1.64	1.02	4.0	4.29	5	2018
Tawhiti at Duffys	2.03	1.39	0.74	0.18	1.0	0.56	35	1986
Tawhiti below Meat Plant	1.08	1.19	0.52	0.23	0.7	0.51	12	2010
Timaru at Tataraimaka	7.44	6.06	0.37	0.32	2.7	1.96	10	2013
Waiaua 2 at Barraclough Opuā	6.07	4.66	2.80	0.92	3.7	2.05	4	2019
Waikaramarama at Bridge	0.23	0.22	0.01	0.01	0.0	0.08	4	2018
Waingongoro at Eltham Rd	9.75	6.00	2.04	0.38	4.1	1.98	41	1982
Waingongoro at SH45	16.87	13.66	3.92	1.14	7.9	4.75	41	1982
Waiongana at SH3a	10.42	7.84	1.01	0.41	3.7	2.34	41	1982
Waitara at Bertrand Rd	224.94	191.79	15.53	6.86	60.8	47.11	40	1983
Waitara at Purangi Bridge	64.48	88.71	2.86	0.65	16.9	16.90	24	1999
Waitotara at Rimunui Station	22.64	43.96	4.41	2.56	8.6	11.46	18	2005
Waiwhakaiho at Egmont Village	27.06	24.51	2.35	1.97	9.7	7.20	41	1982
Waiwhakaiho at Vickers Rd	46.77	18.31	2.69	1.66	15.5	6.69	3	2020

Recorded flows (m3/sec)								
River and Site	Highs		Lows		Mean		Data years	Records began
	April 2023	April Historic	April 2023	April Historic	April 2023	April Historic		
Warea at Coast	3.17	3.19	0.46	0.35	1.2	1.21	5	2016
Weraweraonga at 749 Mangawhio Rd	2.19	6.53	0.38	0.12	0.8	1.74	6	2017

3. River Temperature at 28 sites throughout the region



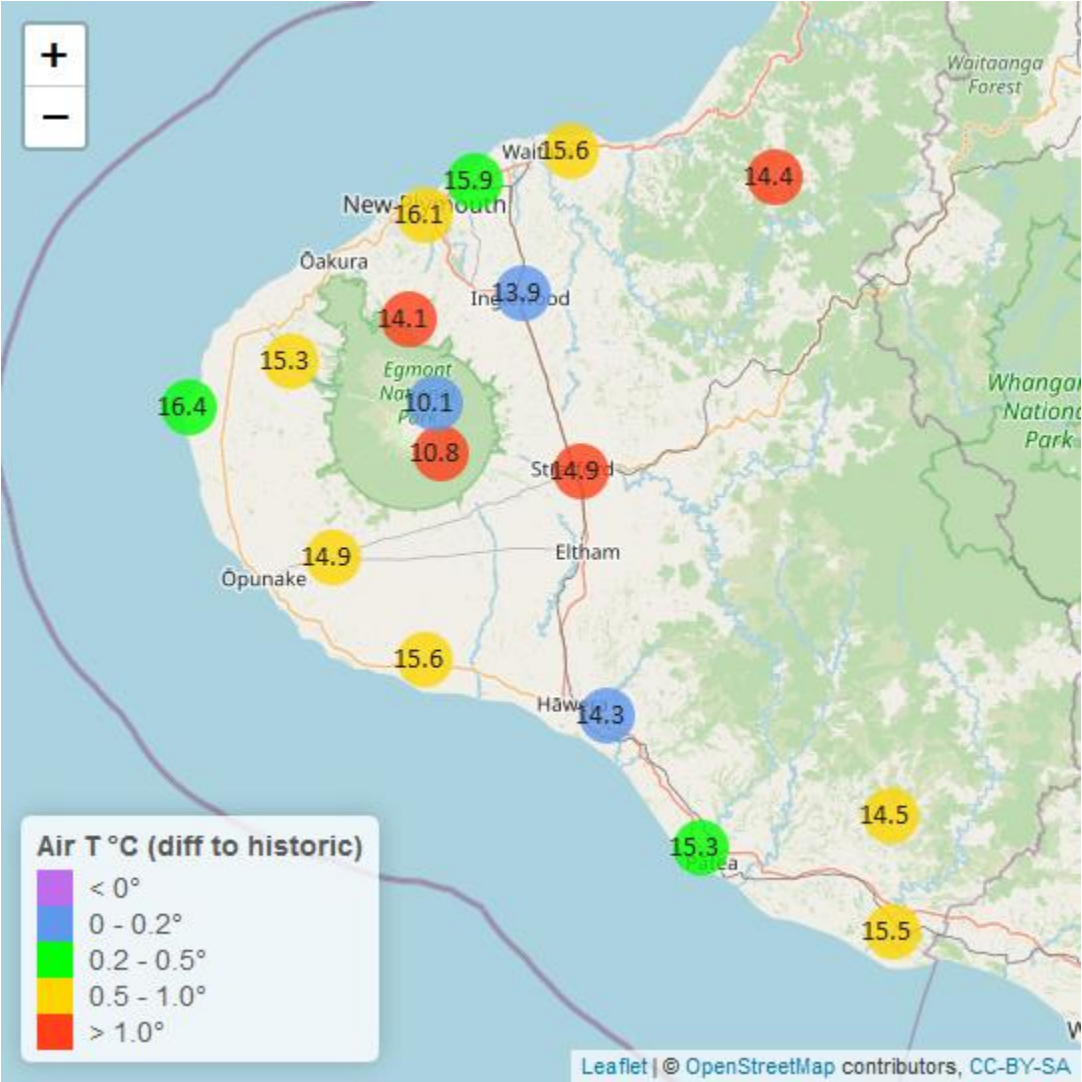
Map 3: Month mean water temperature with difference to long-term mean (°C).

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
	April 2023	April Historic	April 2023	April Historic	April 2023	April Historic		
Inaha at Lower Inaha Rd	17.38	17.19	12.56	12.19	15.2	14.71	3	2020
Kaikura below 7346	15.94	16.38	11.75	11.69	14.1	13.97	8	2015
Kapoaiaia at Lighthouse	17.79	18.01	12.76	11.63	15.5	14.91	24	1999
Kapuni at Normanby Rd	16.25	17.20	11.06	10.45	13.9	13.72	24	1999
Manganui at Everett Park	15.65	16.36	11.90	11.29	13.8	13.76	14	2009
Mangaoraka at Corbett Rd	16.47	17.15	12.82	11.70	14.8	14.53	19	2004
Mangaroa at Manawapou Rd	18.33	18.55	18.05	13.38	18.2	15.67	4	2019
Mangati at Ponds	18.59	18.63	14.90	13.93	16.9	16.08	4	2019
Mangati at SH3	17.73	17.82	14.02	13.56	15.9	15.72	10	2013
Mangawheroiti Above Intake W.W	12.11	12.95	8.53	9.10	10.4	11.02	10	2013
Mangorei at Pipebridge	15.70	16.47	11.91	11.30	14.0	13.74	9	2014
Matau at Woolshed	15.38	15.71	10.30	10.29	13.1	12.95	5	2018
Ngatoro at SH3	14.88	15.45	10.75	10.40	13.1	12.92	18	1986
Oakura at Victoria Rd	16.03	16.57	12.09	11.54	14.3	13.83	4	2019
Patea at McColls Bridge	17.31	19.29	15.44	14.90	16.4	16.99	8	2015
Patea at Skinner Rd	15.39	15.61	11.69	10.30	13.7	12.97	19	2004
Tangahoe below Railway Bridge	16.38	16.75	11.62	11.62	14.2	14.05	5	2018
Tawhiti at Duffys	16.59	16.93	12.55	11.37	14.7	14.28	19	2004
Tawhiti below Meat Plant	16.39	17.52	11.89	11.62	14.3	14.46	24	1993
Timaru at Tataraimaka	15.76	16.21	12.01	11.28	14.1	13.70	10	2013
Waiaua 2 at Barraclough Opuia	16.51	16.07	10.65	9.71	13.9	12.64	4	2019
Waikaramarama at Bridge	16.15	16.19	12.30	11.89	14.3	14.06	5	2018
Waingongoro at Eltham Rd	15.58	15.72	11.85	10.60	13.8	13.14	19	2000
Waingongoro at SH45	16.52	17.37	12.15	11.50	14.5	14.42	19	2004

Monthly River Temperatures (°C)								
Monitoring Site	Highs		Lows		Mean		Data years	Records began
	April 2023	April Historic	April 2023	April Historic	April 2023	April Historic		
Waiongana at SH3a	15.69	16.35	11.69	11.19	13.9	13.81	12	2011
Waitara at Bertrand Rd	16.34	17.60	13.02	12.40	14.9	14.85	35	1984
Waiwhakaiho at Egmont Village	14.78	15.10	10.68	9.80	12.9	12.51	32	1991
Warea at Coast	17.72	18.47	12.48	12.31	15.3	15.21	4	2019

4. Air Temperature at 19 sites throughout the region

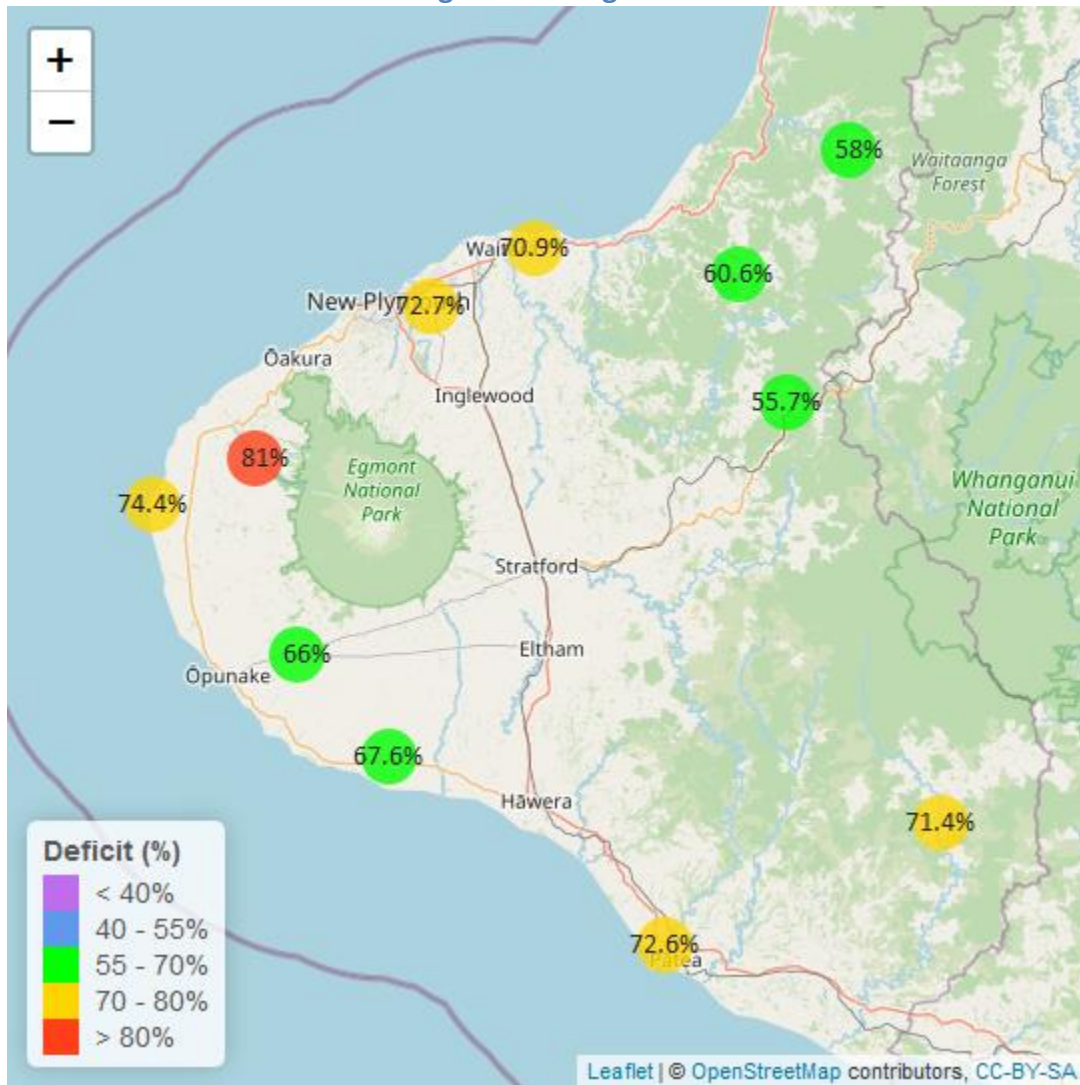


Map 4: Month mean air temperature with difference to long-term mean (°C).

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
	April 2023	April Historic	April 2023	April Historic	April 2023	April Historic		
Brooklands Zoo at New Plymouth	21.65	21.40	9.60	9.49	16.1	15.52	11	2012
Dawson Falls	14.82	14.58	6.04	5.06	10.8	9.71	7	2016
Inglewood at Oxidation Ponds	19.09	19.84	6.75	6.85	13.9	13.78	11	2012
Kapoaiaia at Lighthouse	19.84	19.78	11.00	10.52	16.4	15.96	11	2012
Kaupokonui at Glenn Rd	20.68	19.99	8.65	8.10	15.6	14.84	8	2015
Mangati at SH3	20.55	20.46	9.39	9.22	15.9	15.51	10	2013
Mangorei Upper at Forest Hill	17.32	17.28	9.41	8.30	14.1	13.01	6	2017
Motunui M39 at Weston W3	20.01	19.63	9.46	8.93	15.6	14.82	6	2017
North Egmont at Visitors Centre	13.90	15.04	5.32	4.93	10.1	9.92	8	2015
Patea at Bore 3	20.19	19.85	8.91	9.10	15.3	15.06	11	2012
Patea at Stratford	20.34	19.62	8.57	7.63	14.9	13.73	11	2012
Stony at Mangatete Bridge	19.41	19.76	9.63	9.62	15.3	14.77	7	2016
Taungatara at Eltham Rd	19.59	19.03	8.63	8.57	14.9	14.28	8	2015
Tawhiti at Duffys	20.24	20.08	5.19	5.15	14.3	14.16	10	2013
Uruti at Kaka Rd	18.48	18.29	9.16	8.48	14.4	13.36	5	2018
Waitotara at Hawken Rd	20.90	20.11	8.82	8.48	15.5	14.76	7	2016
Waitotara at Ngutuwera	19.74	19.30	8.75	8.36	14.8	14.10	5	2018
Waiwhakaiho at Hillsborough	19.92	19.94	10.55	9.96	15.8	15.31	11	2012
Weraweraonga at 749 Mangawhio Rd	21.28	20.38	6.59	6.15	14.5	13.52	6	2017

5. Soil Moisture at 11 sites throughout the region

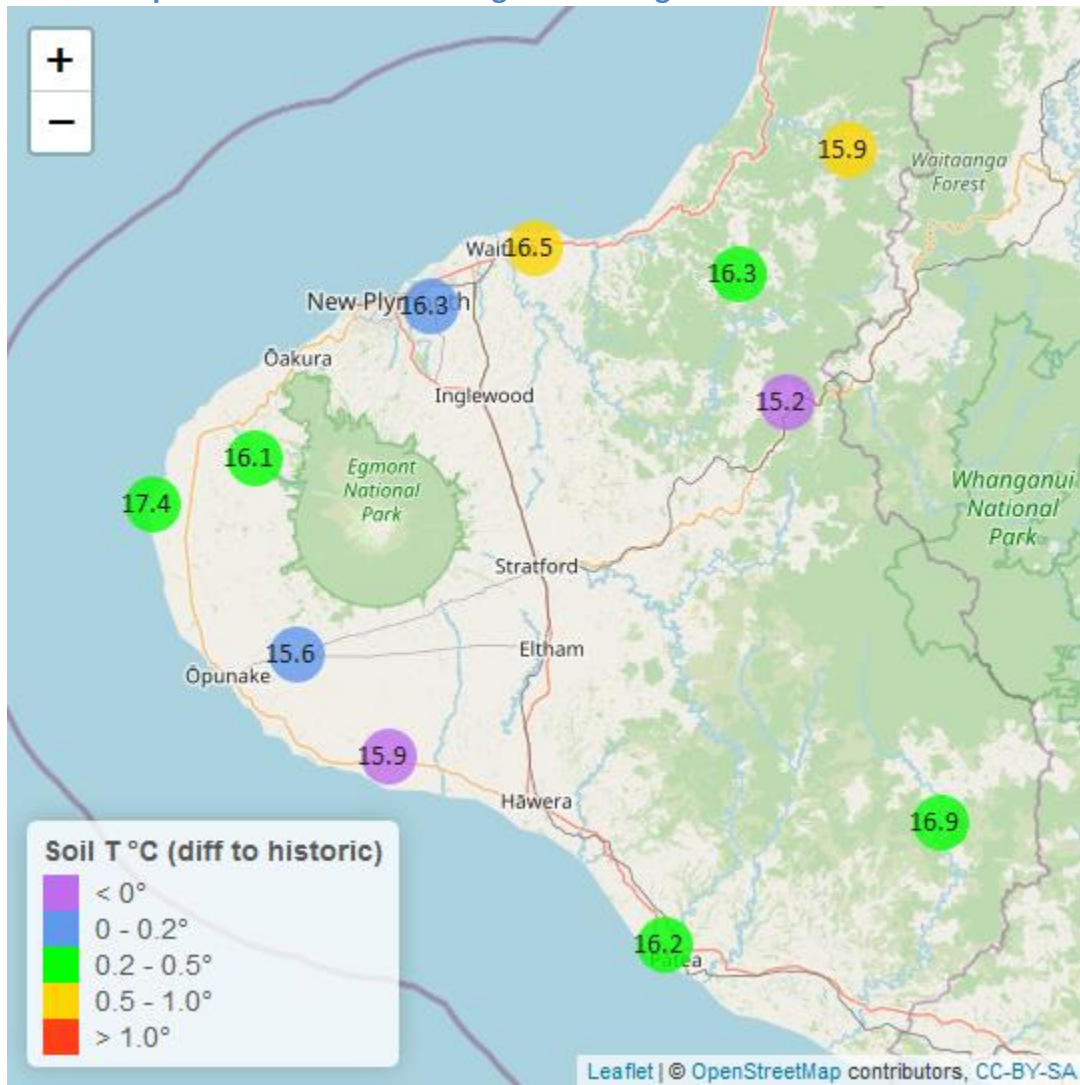


Map 5: Month mean soil moisture deficit (100 - soil moisture, %).

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
	April 2023	April Historic	April 2023	April Historic	April 2023	April Historic		
Kapoaiaia at Lighthouse	27.48	29.77	24.00	7.40	25.55	22.18	11	2012
Kaupokonui at Glenn Rd	33.07	36.16	31.71	11.10	32.44	27.59	12	2011
Kotare at OSullivans	47.02	45.88	38.87	23.60	42.01	35.11	11	2012
Motunui M39 at Weston W3	31.44	30.22	27.37	14.05	29.11	24.56	10	2013
Patea at Bore 3	29.11	30.88	25.83	19.03	27.39	26.29	6	2017
Pohokura Saddle	51.59	49.16	37.11	27.84	44.28	39.53	9	2014
Stony at Mangatete Bridge	23.63	21.80	16.12	6.68	19.00	13.81	7	2016
Taungatara at Eltham Rd	36.47	40.68	32.43	15.52	33.95	30.14	10	2013
Uruti at Kaka Rd	41.61	43.32	38.02	27.14	39.39	37.18	12	2011
Waitotara at Rimunui Station	30.63	29.71	27.33	20.74	28.57	25.49	6	2017
Waiwhakaiho at Hillsborough	28.90	28.53	25.84	17.27	27.27	24.11	11	2012

6: Soil Temperature at 11 sites throughout the region



Map 6: Month 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
	April 2023	April Historic	April 2023	April Historic	April 2023	April Historic		
Kapoaiaia at Lighthouse	18.89	19.54	15.16	15.04	17.4	17.13	11	2012
Kaupokonui at Glenn Rd	17.20	18.40	14.60	14.10	15.9	16.12	12	2011
Kotare at OSullivans	17.34	17.82	14.20	13.00	15.9	15.38	11	2012
Motunui M39 at Weston W3	17.91	17.92	14.91	13.71	16.5	15.73	10	2013
Patea at Bore 3	17.67	18.91	14.78	13.74	16.2	15.97	6	2017
Pohokura Saddle	16.34	18.00	13.97	13.84	15.2	15.66	9	2014
Stony at Mangatete Bridge	18.10	18.70	13.80	13.00	16.1	15.68	6	2016
Taungatara at Eltham Rd	17.60	17.81	13.50	13.72	15.6	15.57	10	2013
Uruti at Kaka Rd	16.94	18.60	15.16	13.80	16.3	16.09	12	2011
Waitotara at Rimunui Station	18.44	19.88	15.02	14.24	16.9	16.57	6	2017
Waiwhakaiho at Hillsborough	17.59	18.44	14.60	14.19	16.3	16.20	11	2012

Summary of month's conditions

Below, we refer to low and high values, these are the upper and lower 5th percentiles of the historic record for each site. These percentile values give a better indication of the general upper and lower range of the historic data against which to compare the current month. For example, minimum air temperature accentuates the difference of the current month's colder conditions relative to the historical data. We include the start year (records began) for each site and variable in the respective tables. This value shows that the length of data used for historic highs, lows, and "typical values", i.e. mean/median, varies from site to site. This means that for short data records differences to current data may be less than for longer historic records. For longer records, warmer temperatures due to climate change may be apparent.

Rainfall

Rainfall for April was on average 101.8% of the long-term average, and ranged from 65% at Taungatara at Eltham Rd and Oeo u/s Awatuna Wetland, to 192% at Matarawa at Matarawa Valley.

Year to date rainfall is sitting between 103% (Mangati at SH3) and 206% (Matarawa at Matarawa Valley) with an average of 139.7% of normal. Compared to typical full year totals, on average sites have already received 34.6% of a typical years rainfall, with the highest value 51% at Matarawa at Matarawa Valley, whereas Mangorei Upper at Forest Hill and Mangati at SH3 sit at 28% of the typical year's total.

River Flow

Mean river flows for April were 133.8% of typical values, low flows were 243.5%, and high flows 114.3%, of typical values.

River Water Temperature

Mean river (non-mountain) water temperatures were 14.4°C, an average of +0.3°C different to long-term April values. Nighttime-low water temperatures were on average 0.7°C warmer than historic lows, and day-time high temperatures were on average -0.5°C relative to historic highs.

Air Temperature

The average air temperature for the region (excluding Te Maunga sites) was 15.2°C, which is +0.6°C relative to long-term April averages. Low air temperatures for April were on average 0.4°C warmer than the April average for previous years. Day-time high temperatures were on average +0.2°C relative to historic highs.

Soil Moisture

Mean soil moistures for April were 3.9% higher than typical historical values. On average, low soil moistures were 12.2% wetter than previous lows, and the average difference of the highs was -0.5% relative to previous highs for April. The average soil moisture was 31.7%.

Soil Temperature

April soil temperatures were generally $+0.2^{\circ}\text{C}$ relative to the long-term average. Average nighttime low soil temperatures were $+0.7^{\circ}\text{C}$ relative to recorded lows, and upper day-time soil temperatures were on average -0.9°C relative to long-term April highs.

Report date 10 May, 2023.