

# State of the Environment

Environmental Science Report



## DECEMBER 2024

After what was a dry spring, December brought rainfall, and lots of it! Unfortunately, it was just in time for the holidays... 179% of the average December rainfall fell across the region and totals were particularly high in the north.

The rain was enough to boost soil moisture levels across most of our sites and river flows in Northern Hawke's Bay. However, groundwater levels remained well below normal for December along with river flows in the southern half of the region.

December was also warm, with daytime temperatures 2.1 °C warmer than usual and nighttime temperatures 2.3 °C warmer than usual. Water quality at some of our recreational sites was affected by the rainfall but the beaches remained suitable for swimming.

**Jeremy Kidd**

**Air Quality Scientist**

## Short summary

Above average rain, and warm.

### January to March Forecast

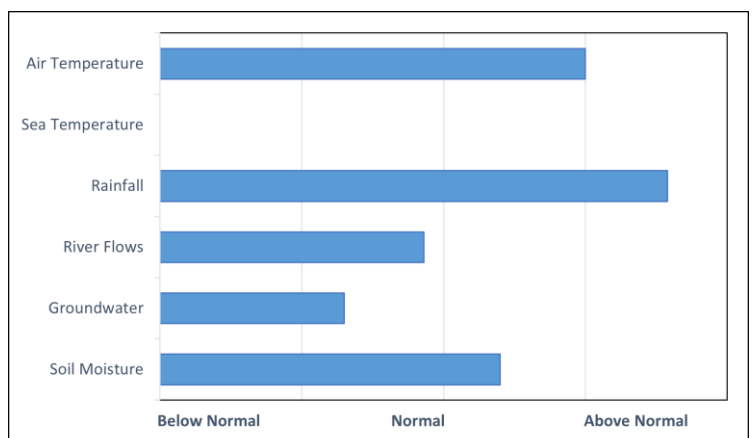
**Temperature** Above average  
**Rain** Near or above normal  
**River flows** Near or below normal  
**Soil moisture** Near or below normal

Source: NIWA

### For more information

[www.hbrc.govt.nz](http://www.hbrc.govt.nz)

Ph: 06 835 9200



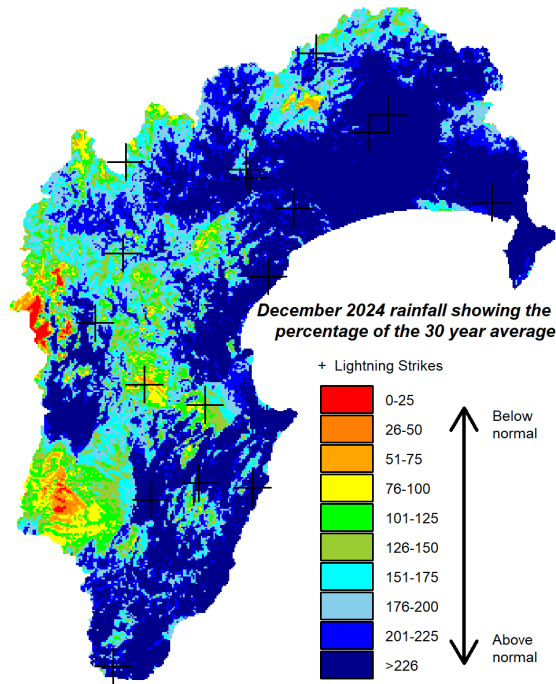
# RAINFALL

Above normal. Seventeen cloud to ground lightning strikes.

Lightning counts come from the Blitzortung.org lightning network to which HBRC contributes.

Percentage of normal December rainfall (30 year average) for areas in the region:

Waikaremoana	229%
Northern HB	301%
Tangoio	152%
Kaweka	104%
Ruahine	137%
Heretaunga Plains	138%
Ruataniwha Plains	170%
Southern HB	200%
Hawke's Bay Region	179%



For a more detailed rainfall report click [here](#).  
and for a five-year monthly summary click [here](#).

# AIR TEMPERATURES

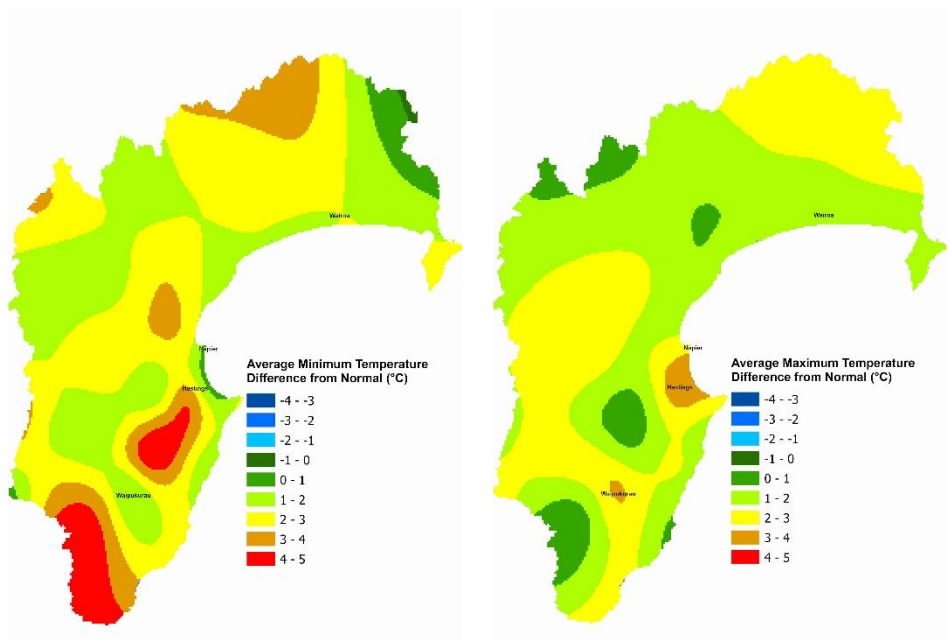
Warm days and nights.

Mean Difference from Normal  
Maximum Temperature: **2.1°C**  
Minimum Temperature: **2.3°C**

Mean Daily Maximum: **23°C**  
Mean Daily Minimum: **13.2°C**

Highest Daily: **33.8°C**  
Location: **Whakatu EWS (NIWA)**

Lowest Daily: **3.3°C**  
Location: **Ngamatea (Horizons Regional Council)**

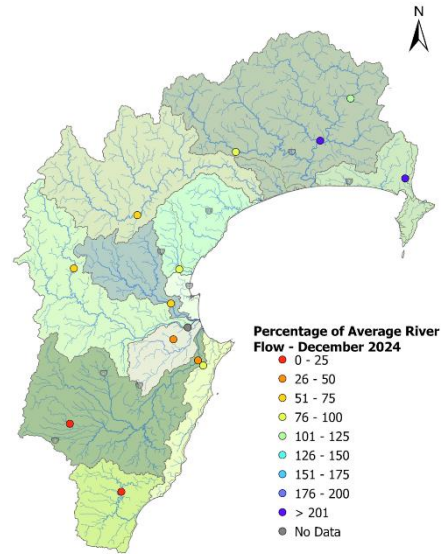


# RIVER FLOW

## Percentage of average December flows for areas in the region:

Northern Coast – Mahia	422%
Northern HB – Hangaroa River	122%
Northern HB – Wairoa River	246%
Northern HB – Waiau River	87%
Mohaka	54%
Esk-Central Coast	94%
Tūtaekuri	60%
Karamu	26%
Ngaruroro – Chesterhope	
Ngaruroro - Kuripapango	54%
Southern Coast	84%
Tukituki – Tukipo River	16%
Tukituki – Red Bridge	34%
Porangahau	2%
<b>Hawke’s Bay Region</b>	<b>93%</b>

For a more detailed river flow report click [here](#).



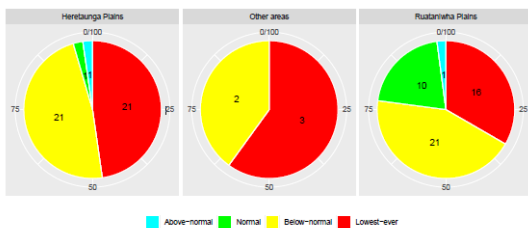
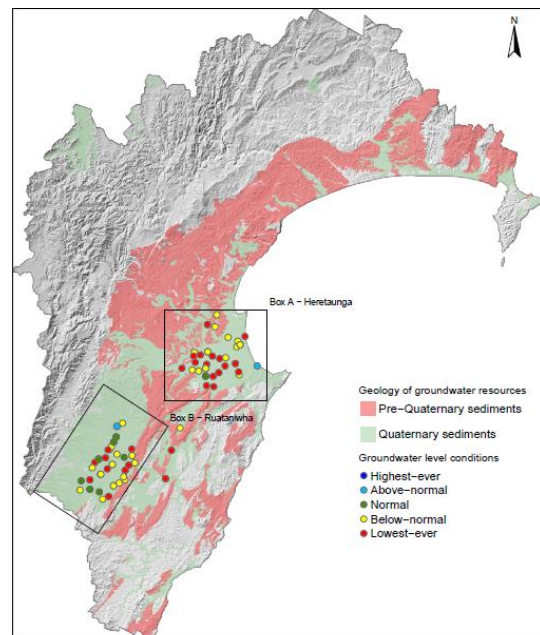
# GROUNDWATER & SOIL MOISTURE

**Soil Moisture:** Above normal for most of the region. For a more detailed soil moisture report click [here](#).

## Current state of Groundwater levels:

This report compares groundwater levels measured in December with historic readings to evaluate current monthly conditions. To assess these conditions, we have grouped groundwater levels at each well relative to their monthly percentiles.

Groundwater levels measuring between their monthly minimum and 25<sup>th</sup> percentile are considered below-normal, groundwater levels measuring between the 25<sup>th</sup> and 75<sup>th</sup> percentiles are classed as normal, and groundwater levels measuring between the 75<sup>th</sup> maximum are considered above-normal. Wells with less than 5 years of record are excluded from the analysis.



## RECREATIONAL WATER QUALITY

An increase in wet weather saw a few of our recreational bathing sites decrease in swimmability during December. The holiday season saw good compliance at our beaches however, bringing in the New Year despite the weather!



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## SEA SURFACE TEMPERATURES

The average sea surface temperature (SST) for Hawke's Bay in December 2024 was unavailable in time for this month's report due to technical difficulties.

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## LONGER FORECAST

The prospect of a La Niña remains possible within the next month but it'll be brief if it limps into existence. Sea surface temperatures across the equatorial Pacific Ocean are not reflecting a classic La Niña pattern with much of the cooling occurring centrally rather than in the east. Closer to home, sea surface temperatures have been warmer than average around all but the north of New Zealand and especially in an area to the east of the country and along the Australian coast.

The Indian Ocean Dipole has returned to neutral mode after being negative for a period. The Madden Julian Oscillation might be active north of Australia late in January or early February to boost the chance of tropical cyclone activity.

Currently we've had a few high-pressure systems west of the country firing southerlies at us along their eastern edge. However, the forecast models still want higher than normal pressure across southern New Zealand and east of the country, with lower-than-normal pressure across the north Tasman Sea. It favours winds with an easterly component. Associated with that pattern and the warmer than usual sea temperatures, is a forecast of near or above normal rainfall and warmer than average temperatures over the next three months. It suggests La Niña type weather but the unusual nature of the equatorial Pacific Ocean sea temperatures may make things a bit more changeable.

**Dr Kathleen Kozyniak**

**Team Leader Air and Land Science**