

The Northland Regional Council monitors rainfall, river, groundwater, tidal and lake water levels through its hydrometric network, which consists of 211 monitoring stations spread across Northland. Of these stations, 81 are on a radio/cellphone telemetry network, which means that the data collected is automatically sent to the Council's computers for processing.

The information gathered allows the Council to make informed decisions about the region's environmental resources, as well as providing valuable information during Civil Defence emergencies, such as severe storms, and also to guide water management, particularly during drought conditions.

The Council is also using information collected through its monitoring programme to develop a water allocation framework for the region, which will ensure the sustainable management of Northland's freshwater resources.

All telemetered rainfall and river information is available on the Council's website www.nrc.govt.nz/environment/riversandrain



The telemetered rain gauge at Tutāmoe (Northland's West Coast).

The hydrometric network

Regional Council monitoring stations have been located to provide region-wide coverage. Telemetered sites provide a 'real-time' picture of the state of Northland's water resources and are particularly important during periods of extreme rainfall, updating both the public and Civil Defence on the potential for flooding, and also drought conditions. In 2009-2010, the hydrometric network consisted of:

- 53 manual rainfall stations and 31 automatic rainfall stations.
- 14 manual lake level monitoring stations.
- 35 automatic water level monitoring stations.
- 7 automatic tidal water level monitoring stations.
- 8 automatic and 63 manual groundwater level monitoring stations.

In addition, the National Institute of Water and Atmospheric Research (NIWA) and the MetService operate their own rainfall and river level stations in the region.

To find out where the telemetry sites are for Northland go to www.nrc.govt.nz/riversandrain

Hydrology performance targets

The Regional Council will continue to implement and improve a prioritised State of the Environment (SoE) monitoring programme and monitor compliance with, and the effects of, the exercise of resource consents and Regional Plans by:

- Operating a region-wide hydrometric network for the measurement, recording and reporting of rainfall, river flows, lake, groundwater and tide levels.
- 90% compliance of data with no more than 7 days of missing record per site annually.
- Relevant information available within three months of collection (due to prioritised drought work).
- Establish water management zones on a prioritised basis for allocation of freshwater resources by 31 December 2009.
- Provide hydrometric information and advice in an accurate and timely way.
- Collecting water use records and measuring stream flows, groundwater and lake levels associated with significant water abstractions.
- Report the results from the SoE monitoring programmes in the annual monitoring report and make available on the Council's website at www.nrc.govt.nz/soe by 31 October each year (loaded six weeks late).



Regional Council Monitoring Officer Allen Temple measuring river flows.

Rainfall

In 2009-2010, the annual rainfall for Northland varied from 51% to 106% of the mean annual rainfall for the region. Average rainfall was recorded in the high altitude areas of western Northland and below average elsewhere. Particularly dry areas included the far north peninsula, Hokianga, and eastern areas. The map opposite shows the annual rainfall recorded for Northland as a percentage of the mean annual rainfall.

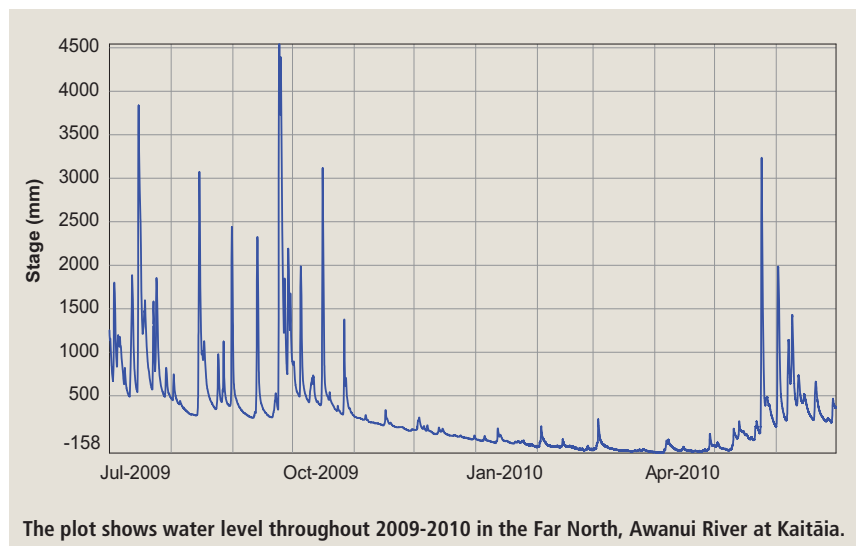
Northland's climate in 2009-2010 was typically variable. Winter included heavy rain, severe winds, storm surges and flooding. Late spring to early autumn saw severe drought conditions with wet conditions returning from late autumn to the end of June.

The MetService provides Regional Councils with frequent warnings of adverse weather systems. During 2009-2010, seven severe weather warnings were issued. Three of these severe weather warnings produced significant flooding in the region. Other climatic events to affect the region during the year included, damaging winds, isolated thunderstorm activity, tsunami waves and a tornado in Kaitiāia.

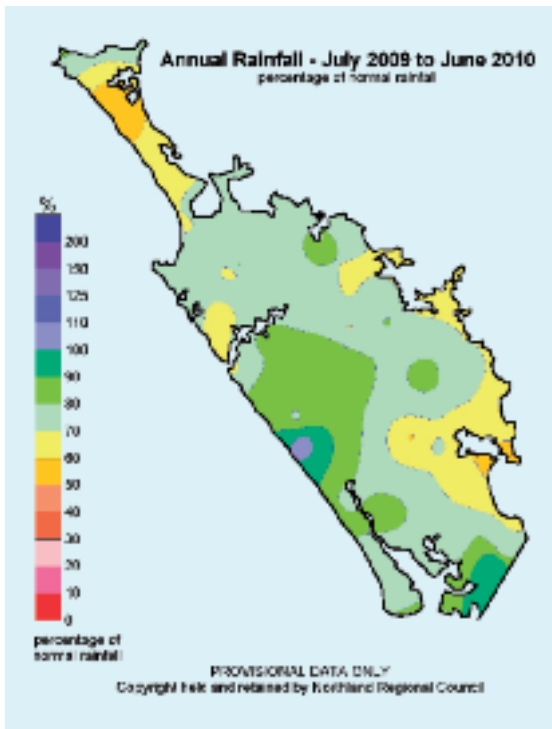
River flows

Northland has a large number of small river catchments and short, meandering streams. Climate and geology influence the flow within these rivers and the seasonal variation in rainfall is reflected in higher flows during winter and lower flows during summer.

During 2009-2010, rivers in Northland had above average monthly flows for four months (July, August, October 2009 and May 2010). As a result of severe drought conditions from November 2009 to May 2010 river flows were significantly below average. There were 563 flow measurements carried out in 2009-2010.



Source: NIWA



Northland Regional Council Hydrology Monitoring Officer Alan Bee conducting monitoring in the Kaihū River.

Water allocation framework

This project aims to update the way water is currently allocated for use in Northland and will ensure that the region's water resources are more sustainably managed in the future.

The first stage of this project, a 'stock take' of Northland's water resources, began in early 2010. The stock take is made up of two parts, firstly finding out how much water is used and secondly how much water there is within the region's aquifers and rivers.

Field investigations over the next three years will increase our understanding of how much water is in Northland's rivers and aquifers and how much water is required to maintain the ecological values of our water bodies.

Consultation with water users and the community will follow with appropriate allocation limits set that will both protect the environment and provide users with a reasonable security of supply.