



Flood report FAQs

Whanganui Flood Management Review Group

How big was the June 2015 flood?

At Te Rewa, approximately 50km upstream from Whanganui, the flood had a return period of 1 in 85 years, which has a 1.2 per cent probability of happening annually, with a peak flow of 4,755 cubic metres per second.

As much of the rain fell close to the coast, the flood peak increased in size considerably downstream of the Te Rewa recorder. By allowing for significant rainfall and tributary flows in the lower catchment, a larger peak at Whanganui urban area was calculated. At Town Bridge the flood is estimated to have a return period of 1 in 130 years, which has a 0.77 per cent probability of happening annually, with a peak flow of 5,150 cubic metres per second.

Wasn't it bigger than 1 in 130 year?

The 1 in 130 year return period refers to the size of the flood on the Whanganui River. Some of the lower catchment tributaries experienced much larger return periods, reflecting the concentration of rainfall in the lower catchment.

Was it the biggest flood in Whanganui's history?

The Te Rewa site captured the highest flood flow recorded on the Whanganui River. It was also the biggest on record including anecdotal information on floods that occurred in the late 19th Century. Further to this, it is believed to be the second highest flood flow ever recorded in the North Island behind the famous Mohaka Flood flow of 1938 estimated at 6,370 cubic metres per second.

How much rain fell in the catchment?

Almost the entire catchment below Te Rewa (near Parikino) experienced a 1 in 100 year rain event for a storm with a 48 hour duration. In some areas, the rain exceeded this return period significantly.

Why is there no flow recorder at Whanganui urban area?

The recorder at Whanganui urban area measures river levels. Tidal/river mouth effects limit the usefulness of measuring flow at the recorder in Whanganui itself.

How does the flood estimation model work?

The flood estimation model uses a statistical analysis of past flood events to determine the likelihood of future events of a particular size. As the June event was the biggest on record, including it in calculations has impacted the size of predicted flood levels for Whanganui urban area. This means that design levels for river heights within the urban area are now on average 400mm higher than previously assessed and 150mm higher at Balgownie.

What was unusual about the June 2015 flood?

The June event was unusual for the fact that the lower catchment experienced so much rainfall.

Prior to June 2015, extreme flood events had mostly occurred in the upper catchment and by the time river flows wound downstream, the lower catchment peak would largely be out to sea. As this event consisted of significant rainfall in the lower catchment near the end of the storm we now know that this is more likely than previously thought and needs to be considered in future modelling.

A mitigating factor in the lower Whanganui River in this flood event was very significant scour of the river channel near the river mouth. This occurred due to a favourable set of circumstances including the peak flow occurring on an outgoing tide with little or no storm surge, assisting the scouring process. However, this set of circumstances cannot be relied upon and the figure of 150mm higher for flood levels at Balgownie assumes no major scouring of the lower river.

What does this mean for existing flood protection?

Including the June 2015 event in our statistical analysis has resulted in a re-assessment of the return period event that the Kowhai Park stopbanks can contain. Prior to the event we would have anticipated the Kowhai Park stopbanks to contain a 1 in 30 year flood with 300mm free board. However, with the updated model, there will be no freeboard allowance. In other words, while the river flow those defences can contain remains the same, we expect an event of that size to occur a little more frequently than we did in the past.

The Balgownie stopbanks still have a 1 in 200 year protection but not as much freeboard as previously estimated. However, the increase of 150mm in predicted river levels is well within the provision allowed in the freeboard for computational imprecision.

What have we learnt about Taupo Quay?

The report confirms that flooding of the Taupo Quay area will start to occur with a 1 in 20 year event.

What does the re-calibrated model mean for predicting future flood events?

The reality is that no two floods are the same. However, events such as the one in June present an opportunity to re-visit our warning systems, improve our understanding and provide the community with more accurate information to make informed decisions. The flood versus return period relationship for the Whanganui River is constantly evolving and with each new event we learn more about the characteristics of the river.

Using this model to determine the impact of significant rainfall on the lower catchment will also help with emergency response for future events.

Will there be flood protection upgrades for Whanganui?

The community may want to give consideration to the current level of protection in Whanganui. However, that is a complex and involved conversation to be had with the community at a later date. Further work will be required by Horizons and Whanganui District Council to put forward options and what they may cost.

Did a build up of silt in the river increase the flood size?

We understand there may be a perception in the community that an accumulation of sediment in the river intensified the flooding last year. While that may appear to be the case, particularly following the event when there was some localised sedimentation, the 2015 survey found the net

effect (reduction in overall cross-sectional area) to be generally positive. While there is clearly evident deposition of silt on the river margins, the river itself responded by deepening the main channel. The survey comparison shows that the river profile upstream of Cobham Bridge has actually marginally increased since the last survey in 1995. The profile has reduced slightly downstream of the Bridge but further computational work shows that this has a negligible effect on predicted flood levels.

Would dredging the river improve flood risk?

While dredging the river would provide some small increase in the river's flood carrying capacity, this would be extremely expensive. It is also highly possible that the first flood would reverse most, if not all benefit that the dredging provided. Long-term solutions such as erosion control in the upper catchment through the Sustainable Land Use Initiative (SLUI) are going to prove more resilient.

Why has it taken so long for this report to become available?

Directly following the flood event our priority was to ensure the community got back on its feet as soon as possible. This meant focusing first on recovery by aiding in clean up efforts, managing the implementation of \$360,000 Taskforce Green funding from Central Government and granting rates relief of \$100,000. Following this effort went into restoring infrastructure such as roads and bridges so that people's lives could return to normal.

Following this, we turned to identifying key flood management issues and facilitating the initial investigation of these issues by reallocating resources where we could within the current financial year. It has taken approximately six months to undertake the investigations for this report, analyse the information and then write up the findings.

What if members of the community can't understand the report?

Whanganui floods and flood risk are complex issues and the report findings are very technical and may be hard to understand. One of the tasks of the Review Group is to simplify where possible the technical language within the report. It is also very important that people understand the context of the situation, in terms of this flood being unlike anything that Whanganui had experienced before, as misunderstandings may lead to confusion or upset.

We invite any members of the community who have further questions to contact us for more information via free phone 0508 800 800.

What happens now?

The Review Group will be undertaking work in the Ngatarua area to better understand the nature of the flood hazard in the next few months. Initial assessment of the Matarawa Stream and channel congestion has been carried out and the need to clear the channel identified. Consultation on a funding mechanism for this work will be undertaken later this year.

A conversation around existing levels of protection for Putiki, Taupo Quay, Kowhai Park and Anzac Parade will need to be had with the community. The Group aims to get this consultation underway early 2017. Due to the complex nature of this conversation, plus the time it will take to complete other priority work and collate sufficient information for the consultation, the Group can not undertake this activity any sooner.