

## **SOUTH NEW BRIGHTON AND SOUTHSHORE FACT SHEET**

# **2018 NEW HIGH TIDE STATISTICS**

This Fact Sheet is about the record high tides experienced in Christchurch coastal areas and the 2018 review and update of tidal statistics which has occurred following these events. This Fact Sheet has been produced to provide supporting information for the Southshore and South New Brighton Earthquake Legacy Project.

### **2018 new high tide statistics explained**

High tide statistics for various locations around our coast are periodically reviewed, as required and updated. The high tide statistics for Christchurch coastal areas were last updated in 2011.

Record high tides since 2014 in Christchurch (as also seen around the country) have prompted a review and update of tidal statistics for Christchurch coastal areas. Three of these tide events have been higher than ever recorded at Bridge Street (Tide levels have been recorded in this location since 1997, and in other parts of Christchurch since 1974).

In terms of the 2011 Bridge St high tide statistics, the high tide event on 4 March 2014 would have been described as a 1 in 40 year event, the high tide on 21 July 2017 as a 1 in 200 year event, and the high tide on 2 February 2018 as about a 1 in 10,000 year event. These figures were considered to be too high to be credible which triggered the tide statistics review.

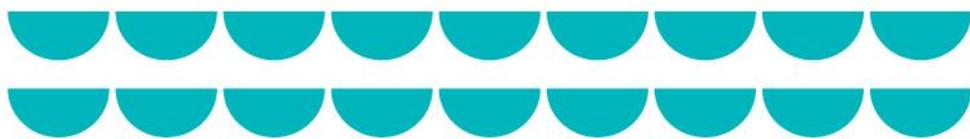
In 2018 Christchurch City Council commissioned a review of the high tide statistics which has been peer reviewed by Environment Canterbury and NIWA.

The change in the statistics is considered to be partly a result of the longer period of data that is now available (over time you get a larger sample of data and wider range of events which improves the reliability of the statistics) and partly due to climate change and sea level rise over the period of record.

### **The impact of the record high tide events and 2018 new high tide statistics on Southshore and South New Brighton**

The occurrence of three record high tides since the earthquakes which have been higher than ever recorded at Bridge Street have meant that existing or earthquake-related flooding, stormwater and possibly erosion issues have been more noticeable.

The 2018 new high tide statistics now provide better information about flood risk in the area to help inform planning and infrastructure decisions.



The Council is already using this information for all new building consent applications in the area and for advice on resource consent applications in Flood Management Areas and High Flood Hazard Management Areas affected by tides. This has led to an increase in recommended floor levels from approximately 150mm (for a 1 in 50 year event as required under the building act) to 360mm (for a 1 in 500 year event to be considered in High Flood Hazard Management Areas).

This information also impacts how the Council thinks about infrastructure. Stopbanks and bunds in the area were previously built to a RL of 11.2m. This is based on the height of the water in a 1 in 50 year event (previously estimated to be about 10.9m) and an additional approximately 300mm of freeboard. Freeboard is the term given for an additional allowance or safety factor above the design flood level to account for uncertainties. Based on the 2018 new high tide statistics the recommended stopbank or bund height based on a 1 in 50 year event is now 11.4m.

### **What the Council is doing about the 2018 new high tide statistics in Southshore and South New Brighton**

The options proposed in the Southshore and South New Brighton Earthquake Legacy Project take into account and use the 2018 new high tide statistics. Where erosion and flood management options are proposed, instead of pre-earthquake levels, we have proposed any new infrastructure reflect this latest information. For example any new bunds proposed are proposed to be constructed to a height of 11.4m, as opposed to 11.2m. We have also suggested additional modelling of flood risk in some instances to ensure the extent and nature of the risk is fully understood based on the 2018 new high tide statistics.



## Southshore and South New Brighton Fact Sheets

The Southshore and South New Brighton Fact Sheet series cover a range of issues:

Fact Sheet title	What it covers
Flooding	Why the Canterbury earthquakes have led to increased flooding risk in Southshore and South New Brighton.
Groundwater	What groundwater is and why it causes issues in Southshore and South New Brighton.
Stormwater	What stormwater is and why it causes issues in Southshore and South New Brighton.
Planning and approvals	How the planning and approvals process can impact the timing, cost and requirements for options in this area.
Christchurch drainage datum and levels	What the Christchurch drainage datum is, and how we use it and other levels in our planning.
2018 new high tide statistics	Information on the record high tides experienced in Christchurch coastal areas and the 2018 review and update of tidal statistics which has occurred following these events.
Stopbanks, bunds and other structures	Explanations of some of the different structures that can be used for flood and erosion mitigation.
What is a 1 in 100 year flood?	How we describe the probability of flooding.