

# Coastal inundation mapping

## Frequently asked questions (FAQs)

### **The continuation of our engagement on coastal management**

In November 2020 we are writing to landowners whose properties are included in the extent of the coastal inundation mapping. For some properties, the house is not included in the maps, only an area of the driveway, garden or land. In many cases, affected properties are outside of present day coastal inundation areas, and will only be affected with sea level rise. So, please refer to the [maps](#) to assess whether the risk to your property is an existing or possible future risk. We have produced maps for 0.5m, 1m, 1.5m and 2m sea level rise so you can see how the risk will change with future sea level rise. On the basis of existing government guidance, we are expecting sea level rise somewhere between 0.5-1.5m over the next 100 years (the actual rise depending on how well humans manage emissions). The 2m sea level rise map is more likely to occur beyond the next 100 years.

We've made this information and maps available to help us continue our conversation with our communities on coastal management.

### **Have the assessments been peer-reviewed?**

The methods used for the Tonkin + Taylor Ltd coastal inundation mapping have been peer-reviewed by coastal expert Jim Dahm of Eco Nomos Ltd to make sure they are in line with best practice. The reports associated with the mapping assessment and peer review can be viewed on Council's website <https://shape.nelson.govt.nz/coastal-hazards>

### **How accurate are the coastal inundation maps?**

The coastal inundation maps have been produced in line with best practice and modern techniques, using the best information available, and they should give a good indication of the areas that are currently vulnerable and the areas that could potentially be exposed to risk over the next 100 years and beyond.

Coastal mapping is a complex and detailed process which relies on the best available data and various assumptions, so it can never be completely accurate. The maps are projections which could change over time. We will continue to refine the maps as we receive new or improved information.

We are also seeking information from the community that may help refine and improve existing knowledge. So, if you have information on coastal flooding please share it with us ([link to online submission form](#)).

### **How have climate change and sea level rise been factored into the models?**

Records indicate that sea levels are rising in many areas across the earth. One of the key influences on future sea level rise and the frequency and magnitude of coastal inundation will be changes to the temperature and volume of the earth's oceans, which are strongly influenced by global greenhouse gas emissions.

Scientists predict that sea level will continue to rise in the future. We can't predict exactly when and how these events will occur, how big they will be and what effect they will have on our community, environment and landscapes, so any future planning has to take this uncertainty into account.

For this reason, the Ministry for the Environment has adopted four different sea level rise projections for New Zealand to guide planning and decision making today. These projections are based on four scenarios of possible future greenhouse gas emissions (referred to as "Representative Concentration Pathways" or RCPs). Depending on which RCP we follow, the projected sea level rise is between 0.6m to 1.5m by 2130, and between 0.7m and 1.9m by 2150. Which of these projections becomes a reality is linked to how successful humans are in reducing global greenhouse gas emissions and the associated rise in the earth's surface temperatures. The RCP table can be viewed via the *coastal inundation map viewer* or on the [Shape Nelson](#) web page.

**My property is identified on the coastal inundation maps, does that mean my property will be impacted?**

If your property is located within an area identified as being vulnerable to inundation, there is a risk that it might be affected by this hazard either now or in the future. To put this in context the future scenarios range from the years 2060 to after 2200. Please come and talk with us to understand more.

**My property is not shown on the maps even though I live near the coast.**

There are some properties close to the coast that are not included in the extent of the mapping because their land elevation is higher than the coastal flood levels (sea level rise and extreme storm-tide elevations) that we've mapped.

Rising sea levels will have increasing implications for 'everyday life' activities in our coastal communities, for example road access to individual properties, delivery of services such as telecommunications, and access to coastal recreation reserves.

There may also be other natural hazards that should be taken into consideration, such as wave run up, stormwater flows, river and stream flooding or elevated groundwater levels that may become more prevalent as sea levels rise.

As part of developing a long-term adaptive approach we will need to consider the wider implications and a 'whole of community' response. Council would like to know what you have seen and experienced in relation to coastal inundation and erosion and to draw on community knowledge. The information will help inform how we proceed with our response to rising sea levels.

**Why is my property shown as being potentially affected when it's not directly connected to the coast?**

The maps simply show land at or below the elevation of the particular scenario being viewed. The actual extent of the land flooded will be dependent on its connectivity and distance to the coast.

Low lying land not directly connected to the coast may appear on the maps due to its low elevation. These areas are not expected to be subject to seawater flooding as a result of overland

tidal flow, but may be subject to ponding due to inflow of seawater through stormwater pipes, elevated groundwater levels or river flooding that may become more prevalent as sea levels rise.

### **What can I do?**

We will be working through options with the community and encourage you to become actively involved in this conversation on coastal hazards and the development of an adaptation approach for the region. To find out where we are in the process, visit [shape.nelson.govt.nz](http://shape.nelson.govt.nz).

### **What is a 1% AEP / 1-in-a-100-year event?**

AEP stands for Annual Exceedance Probability. It expresses the likelihood or probability of a flood of a given size or larger occurring in any year; usually expressed as a percentage.

A 1% AEP flood event is likely to occur during a single lifetime. A flood of this size or larger has a 1% chance of occurring in any year. Over a very long period of time, an event of similar size may occur, on average, once every 100 years; however, sea level rise will increase the frequency of coastal flooding over time.

### **My property hasn't flooded or had erosion, so this is not relevant to me.**

Coastal hazards do not only affect individual coastal properties but will become increasingly relevant to areas that are important to the whole community, like beaches, coastal infrastructure, low-lying coastal settlements, coastal ecology, etc. Additionally, although a coastal property may not have flooded in the past, sea level rise may make it more likely to happen in the future. We need to have conversations about where and how we want to grow and about what we can and want to do along our coasts in the future – and everyone needs to have a chance to be involved in that. If you enjoy and value the coast, it is relevant to you!

### **What will you do with the information you collect?**

The information collected will assist the community and Council develop a good understanding of coastal inundation and its potential impacts. This will help us analyse the risk and develop management options for further discussion.

### **What if I want to sell my property?**

Under the Local Government Official Information and Meetings Act 1987, councils have an obligation to make natural hazards information available.

When you're selling a property, you and your agent are legally obliged to share all relevant information about it to buyers. It's also important that potential buyers do their own due diligence on any property they wish to buy.

District and unitary councils also have specific obligations under the Building Act 2004. This allows people to access information held by council about their property or any property they are interested in.

The data used to prepare the maps will be applied on Land Information Memorandum (LIMs) and Project Information Memorandum (PIMs). Please see further information below on the legal requirements for LIMs.

### **How will this information be used by Council?**

Council already uses information about hazards. The further coastal inundation information informs Council processes and our statutory obligations, including LIM notations, processing of resource consents and consideration in building consents.

### **LIMS**

The Council is required by the Local Government Official Information and Meetings Act to include natural hazard information on a LIM if it is known to us. It has been confirmed by the High Court that a Council has no discretion over including such information in its LIMs – only discretion in the wording that it uses.

Property owners with properties shown as being affected by council's coastal inundation mapping have been contacted.

Information on LIMs may change over time as Council receives more information.

### **Resource Management**

*Under the RMA 1991, councils are required to recognise and provide for the management of significant risks from natural hazards as a matter of national importance (s6(h)) and to have particular regard to the effects of climate change (s7(i)).*

*National instruments prepared under the RMA 1991 also place requirements on councils. The New Zealand Coastal Policy Statement 2010 (NZCPS) details existing national objectives and policies for coastal natural hazards. Policy 24 requires councils to identify coastal areas that will be potentially affected by coastal hazards over at least 100 years. Policy 25 sets the policy framework for planning decisions for land use and development in areas potentially affected by coastal hazards, with an emphasis on avoidance and reduction of risks.*

*Councils must give effect to the NZCPS and other national direction through their regional policy statement, regional plans and district plans. The operative suites of resource management plans for the two districts set out the [current] management regimes for dealing with risks from natural hazards and include controls on the use of land for the purpose of the avoidance or mitigation of natural hazards (Inundation Practice Note: Calculating minimum ground and/or floor levels for subdivision, new buildings and major alterations' NCC and TDC, 2019).*

For Nelson City Council, there is a review of the planning documents currently underway. The broad approach to coastal inundation will be developed through that process, and involve engagement and consultation with the community as recommended via the Ministry for the Environment's Coastal Hazard and Climate Change, Guidance for Local Government, 2017 document.

### **Resource consents**

Both Nelson City Council and Tasman District Council already account for sea level rise and inundation when issuing resource consents. The approach taken for managing risks from inundation is explained in the 'Inundation Practice Note: Calculating minimum ground and/or floor levels for subdivision, new buildings and major alterations' (NCC and TDC, 2019).

*When considering an application for resource consent, Council must have regard to any actual and potential effects on the environment of allowing the activity, including the effects arising from natural hazards (s104).*

*Council may refuse or grant a subdivision consent subject to conditions if there is a significant risk from natural hazards (s106). Any assessment of the risk from natural hazards requires a combined assessment of:*

*(a) the likelihood of natural hazards occurring (whether individually or in combination); and*

*(b) the material damage to land in respect of which the consent is sought, other land, or structures that would result from natural hazards; and*

*(c) any likely subsequent use of the land in respect of which the consent is sought that would accelerate, worsen, or result in material damage of the kind referred to in (b) above.*

*Conditions attached to subdivision consents granted may include the protection of the land and any adjacent land against natural hazards including inundation (s220). For any new subdivision and development, an applicant will need to demonstrate that newly formed allotments contain adequate space for buildings which are not subject to material damage from inundation in response to a 1% AEP design event (refer to Section 2.3). Furthermore, it will need to be demonstrated that in achieving this there are no adverse effects (raised flood levels, diversion of flood flows and/or secondary flood routes) that occur on adjacent or surrounding property in response to this design flood event. Other resource management plan considerations such as amenity and servicing also need to be incorporated into design and decision making processes. For other development (on existing titles) subject to the RMA 1991, the practice note process will be the same as for subdivision and development as described above. However, the full application of this process may be modified on a case by case basis where the development is of a limited duration and consequently will not be subject to long term projected climate change effects (Inundation Practice Note, TDC and NCC, 2019, pg7-8).*

### **Building Consents**

As for the Resource Consent process above, both Nelson City Council and Tasman District Council already account for sea level rise and inundation when issuing building consents. In March 2019, both Council's adopted the 'Inundation Practice Note: Calculating minimum ground and/or floor levels for subdivision, new buildings and major alterations'. The Inundation Practice Note will continue to apply, and be subject to regular reviews.

The Inundation Practice note sets out a standard approach for industrial professionals (e.g. surveyors and engineers) and Council to calculate acceptable floor and ground levels, given the Ministry for the Environment's predicted increase to sea levels. The document also explains Councils approach under the Building Act 2004 in more detail.

*The Building Act 2004 manages natural hazards in relation to the construction and modification of buildings. Council is required to take into account certain natural hazards, including inundation, when determining whether to grant building consents on land subject to specified natural hazards, with certain exceptions (under s.71-74). The emphasis in the management of natural hazards is to encourage people to avoid situations in which they or their property could be at risk....*

*E1 of the Building Code requires buildings and site work to be constructed to protect people and other property from the adverse effects of surface water. Performance E1.3.2 requires that surface water, resulting from an event having a 2% AEP [i.e. 1 in 50 year*

*event], shall not enter housing, communal residential and communal non-residential buildings (Inundation Practice Note, TDC and NCC, 2019, p8).*

The Inundation Practice Note also sets out Council's approach to Hazard Notices under the Building Act 2004 (refer pages 31-32).