

What are some of the options?

The Options

New developments

Much of the Wairarapa coast is undeveloped. This gives us a 'clean slate' for planning new investments. The options for planning for hazards in these areas can be summarised as:

Allow development

Place no restrictions on developing in hazard prone areas and either protect them or leave them to be destroyed when hazards affect them. This option is the least restrictive, but will require choosing one of the options below (a large loss of property, or large investment in protection) in the future.

Avoid or place restrictions on development

Restrict development in areas prone to hazards. This involves identifying the areas at risk from hazards, and restricting development in these areas. This avoids future losses of property and life, and the need for expensive protection measures. This option requires further research into the nature of the Wairarapa coast and mapping of the land contours.

Existing developments.

Most of the coastal developments in the Wairarapa are at risk from coastal hazards. In some cases considerable infrastructure and investment is vulnerable. What do we do about this risk?

Do nothing.

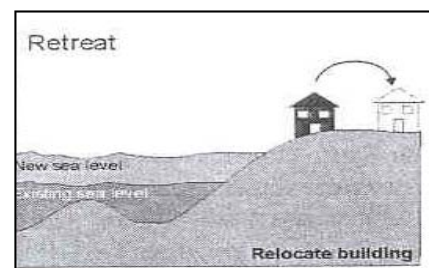
Allow natural hazards to proceed naturally, accept that infrastructure will be lost and don't replace damaged structures.

Do something.

If we choose to preserve our investments on the coast, there are two basic options: retreat or protect.

Retreat

Relocate houses, roads, infrastructure etc out of hazard prone areas. This can be planned to happen progressively over a number of years. In some cases the lay of the land may not make it easy to move directly inland.



(From Bell et al 2001a).

Protect

Existing infrastructure and investments can be protected from hazards in a number of ways. Sea walls and boulder beaches are used in a number of places along the Wairarapa coast. These are expensive to build and maintain and can affect nearby areas of coast (for example increased erosion).

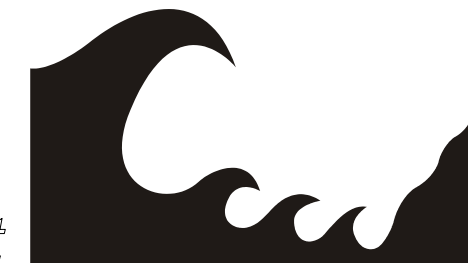


Some areas may be protected from the effects of erosion by 'softer' options such as dune restoration, which is working well at Riversdale Beach.



Hazards

Theme sheet



The Wairarapa Coast is noted for its rugged beauty and isolation and is largely undeveloped; but it may not stay this way forever. You may have noticed that coastal sections are becoming sought after and property values are soaring. This development may have some positive spin-offs for the Wairarapa but could equally have negative implications for the character of our coast and how we enjoy it if not managed well.

The development of a Wairarapa Coastal Strategy will enable our community to come up with a management approach to retain the special qualities of the coast we value.

This theme sheet contains information on some of the issues facing our coast, and outlines some of the options for dealing with those issues. The issues and options are a mixture of technical information and views of the community. We want to know what you think the important issues are, and how you think they should be managed.

Your comments will be used to help develop a draft strategy that will be released for further comment mid-year.

This theme sheet contains a summary of some of the information contained in the 'Hazards' technical report.

If you are interested in finding out more information about the Wairarapa Coastal environment, this report can be read at all Wairarapa councils, Iwi offices and libraries.

Coastal Hazards in the Wairarapa

The Wairarapa coast is at risk from sea level rise, storm surge, tsunami, coastal erosion, maritime and recreational hazards and on shore hazards such as erosion and flooding. A large destructive tsunami (5-10 m or possibly greater) is likely to impact somewhere on the Wairarapa coast in the next 150 years. Storm surges causing accelerated erosion of dune material and inundation of low lying land can be expected approximately once every 50 years at Castlepoint or Riversdale.



The majority of the Wairarapa coast is in a state of natural erosion and rates of cliff recession have been measured at over 1 m per year along several eastern Palliser Bay sites. Sea level in New Zealand is projected to rise along the New Zealand coast by between 0.3 and 0.5 m in the next 50 to 100 years. This will worsen the storm surge, tsunami and coastal erosion hazards.

Due to the Wairarapa coast being mostly undeveloped, and the gradual nature of the sea level rise hazard, there is still time to plan to help protect land, infrastructure and people from coastal hazards.

What are the coastal hazards in the Wairarapa?

The Issues

Tsunami

Tsunami can be generated in a number of ways including earthquakes or undersea landslides. Tsunami can be generated locally, for which there is not much warning before they strike the coast, or further afield, such as Alaska or South America. Damage is caused by the breaking of waves on shore and the run up and wash back of water and debris.



Some of the destruction caused by the 1993 tsunami which hit Okushiri Island and southwest Hokkaido, Japan on July 12, 1993, killing 120 people. The tsunami was generated by a magnitude 7.8 earthquake close to the island. Photograph taken by George Butcher.

A 5-10 metre wave is likely to strike somewhere on the Wairarapa coast within the next 100 – 250 years. Land below the 10m contour line is most at risk, but damage can occur further inland as the wave travels up rivers and streams.

Maritime and recreational hazards

Maritime and recreational hazards include the hazards associated with navigation, commercial fishing, search and rescue operations, and recreational use of the surf zone. While these types of coastal hazards are often not considered in normal coastal hazard management plans, they have caused far more deaths and injuries than any of the other coastal hazards in New Zealand. An increasing number of people accessing the beach may worsen this hazard. Public education and warning signs are often the best way of making sure people avoid some of these hazards.

Killer reef has traps for the unwary

THERE'S a cruel sea and a sinister side to those lazy, hazy days of summer at Castlepoint Beach. Since 1988, seven people have drowned there, which makes it the eighth worst beach for drownings on a list of 10 issued by the Water Safety Council. Pita was the worst with 31 drownings, followed by Mt Maungarei-Oroua with 19, Muriwai (15), Raglan, Karekare and Hot Water beaches (11), Castlepoint and Opotiki (7), and six drownings at Bethells Beach and Port Waikato.

A WILD day at Castlepoint ... but calm weather can be more dangerous. Masterton, was swept from the reef as he was walking across the rocks. November 1986: Wayne Toms, 26, of Felding, drowned while snorkelling on the coast near Waimimi. In 1978 the then Wairarapa water safety committee put up a commemorative plaque as a memorial to the 26 people known to have lost their lives on the reef since 1945. It was hoped the plaque would also serve as a lifesaver, to succeed where notices and chains had failed in warning people of the danger. But at an inquest into an 1980s drowning, Masterton coroner David

Letich summed up, "I don't know what else can be done to make people aware of the dangers of fishing from or walking on the Castlepoint reef - the risks are like walking down the main street at night in a black raincoat. A long-time Castlepoint resident says the danger is always there because large waves come 'out of the blue' over the reef and sweep people into the sea. And that danger is at its greatest when the sea looks calm. Reef victims are generally lucky to escape with severe grazing from being tumbled over the reef's razor-sharp edges. She said the message is clear to everyone heading for Castlepoint - heed the warnings and steer clear of the reef."

Wairarapa Times Age, Saturday 4 January 2003

Erosion

Much of the Wairarapa Coast is eroding. Eastern Paliser Bay has experienced several severe erosion episodes, and some places are losing up to 1 metre per year to erosion. The Eastern Wairarapa Coast is also eroding at rates from 0.1 – 3.0 metres per year, although there is very little information for many areas of the coast. In some cases erosion provides the material for other areas of the coast, such as Riversdale, to build up.



This photograph, taken in February 2000, shows houses under threat at Whatarangi. Several buildings have been lost to the sea in this area. Over 10 metres were lost between 1996 and 2001.

Storm surge

A storm surge is an abnormal, temporary rise in sea level caused by an extreme drop in air pressure and the action of wind blowing across the sea's surface – as is often experienced during storm events. This can lead to flooding of very low lying land, and increased erosion as waves break further inshore. The effects can be greater if compounded by a high tide or flooding of rivers and estuaries. In New Zealand, storm surge is probably the second most common natural hazard after flooding. Coastal erosion is worsened during storm surge events.

Land based hazards

Coastal properties are also exposed to hazards that are based on the land, rather than off shore. Strong winds are experienced in many places and can damage houses, blow down trees, and destroy unsecured caravans and signage. During high rainfall streams can leave their course and carry debris over wide areas. This hazard is worsened on the Wairarapa Coast because of the unstable and very steep hills in the catchments of these streams.

Sea level rise

Sea levels naturally fluctuate, however it is now accepted that the climate changes and sea level rise observed over the last 50 years are human induced, and that sea level will continue to rise. It is predicted that New Zealand will experience a sea level rise of between 0.3 and 0.5 metres by the year 2100. In the Wairarapa this will cause:

- Inundation of very low lying land.
- More frequent coastal flooding from storm surges, and the worsening of tsunami hazard.
- Increased coastal erosion

This means that when planning for hazards on the coast, we must take into account the effects of future sea level rise, as this will increase the severity of existing hazards.

What are some of the options ?

The Options

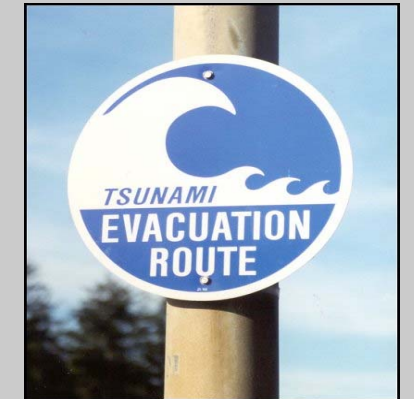
These non-regulatory methods of reducing the effects of coastal hazards could be used in conjunction with the methods listed on the following page.

Developing preparedness plans

Many hazards are unavoidable and existing settlements are already at risk. In these cases it is important to have a plan to avoid loss (for example how to avoid a tsunami area) and how to recover after an event.

Raising awareness of hazards

If people are aware of what hazards may affect them, they can take steps of their own to reduce the risk, reducing the need for regulation or enforcement. They may also be more accepting of any regulation that is necessary to protect them or their property.



Further research

Many of the options mentioned on the next page require more information before they can be implemented. For example we need more information about erosion rates on the eastern Wairarapa Coast before we can have a clear idea of how far back development needs to be placed.