



Emergency
Management Otago
Te Rākau Whakamarumarū Ōtākou

COMMUNITY RESILIENCE GUIDE

TOKO MOUTH



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Introduction

The goal of this Community Resilience Guide is to strengthen the resilience of Otago by managing risks, being ready to respond to and recover from emergencies, then enabling, empowering, and supporting individuals, organisations, and communities to act for themselves and others, for the safety and wellbeing of all.

Communities and hapū

Understand your risk

Seek to build a collective understanding of your risks: the hazards or disruptions you could face, your collective exposure of people, animals, property, and assets, and your vulnerabilities – how these could be adversely affected.

Reduce your risk factors

Consider ways to reduce your community's exposure or vulnerabilities – it needn't cost money, but there may be options if it does.

Keep the long-term in mind

Consider the longer-term changes in your environment, for example, the impact of climate change, and what you can do about them.

Benefit today, benefit tomorrow

Try to find risk reduction, readiness, and resilience solutions that have an everyday benefit to your community. As well as being prepared for tomorrow, you'll have a richer community today.

Learn about response and recovery

Understand how response to and recovery from emergencies will work in your city or district.

Understand your collective resources

Think about what resources you have, now or in an emergency, and how you could put them to work.

Make a plan and practice it

Community response and recovery planning helps communities understand how they can help each other after a disaster. Ask your local emergency management office for help if you need it, and practice any plans, as much as you can.

Organise community events

Communities who know each other are stronger communities – in good times and in bad.

3 THINGS TO MAKE SURE YOU ARE READY

Step 1 - Plan

A household emergency plan will help protect what matters most - you, your loved ones, and your pets. It includes knowing the best way to leave your home in an emergency, where to meet and how to contact one another if separated.



Step 2 - Create

Whether you're just starting out or you're a preparedness pro, gathering your emergency supplies is easy. A good rule of thumb is to have supplies for about seven days. You'll be surprised at how much you already have.



Step 3 - Connect

In an emergency or disaster situation you'll need to know how to get information and how to connect with people around you in your community. Now is a good time to connect so you'll be ready if it occurs.



Household Emergency Plan

Plan to look after yourself and your loved ones for at least seven days or more.

Many emergencies will affect essential services and possibly disrupt your ability to travel or communicate with each other. You may be confined to your home or forced to evacuate your neighbourhood. In the immediate aftermath of an emergency, emergency services will not be able to get help to everyone as quickly as needed. This is when you are likely to be most vulnerable. So, it is important to plan to look after yourself and your loved ones for at least seven days or more in the event of an emergency.

Get your family or household together and agree on a plan. A functional emergency plan helps alleviate fears about potential emergencies and can help you respond safely and quickly when an emergency happens.

IF LIFE OR PROPERTY IS THREATENED, ALWAYS DIAL 111

Your plan will help you work out:

- What you will each do in the event of emergencies such as an earthquake, flood, or storm.
- How and where you will meet up during and after an emergency.
- Where to store emergency survival items and who will be responsible for maintaining supplies.
- What you will each need to have in your getaway kits and where to keep them.
- What you need to do for members of the household, family, or community with a disability or special requirement.
- What you will need to do for your pets, domestic animals, or livestock.
- How and when to turn off the water, electricity, and gas at the main switches in your home or business.
- Turn off gas only if you suspect a leak, or if you are instructed to do so by authorities. If you turn the gas off, you will need a professional to turn it back on and it may take them weeks to respond after an event.
- Which local radio stations to tune in to for information during an event.
- How to contact your local council's emergency management office for assistance during an emergency.

STUCK AT HOME



In most emergencies, it's best to stay in your own home if it is safe to do so. But that may mean being without power and water or any way to get supplies for three days or more.

Do you have enough food? What about family members who need medication? Do you have enough food for pets to get through too?

Light up

Your emergency supplies don't have to be in a kit, but you might have to find them in the dark. Make sure everyone knows where the torches and batteries are.

Fridge first

If the power goes out, eat the food from your fridge first, then your freezer, before you eat the food in the cupboard or your emergency kit.

Know your neighbours

Get to know your neighbours. In an emergency, they may need your help or you may need their help, and you may be able to band together to get through.

Top tip

Keep up to date with emergency information by listening to a radio (get one with batteries) and checking your local council and/or Emergency Management Otago group's websites and social media. Follow the official instructions and emergency services.

CAN'T GET HOME

In an emergency, public transport may not be able to operate, roads may be closed, and streets or neighbourhoods might be blocked off.

If you can't take your normal route home, how will you get there? Who will you go with? Where will you meet up if your street is a no-go zone?

Second meeting place

Agree on a meeting place if you can't get home. It might be the school, a friend's place, or with whānau.

Travel together

If you work away from home, find workmates who live in your area. In an emergency, you could travel together.

Pack a getaway bag

Have a getaway bag at work or in your car, with walking shoes, warm clothes, some snack food and a bottle of water. A torch, batteries and radio are useful too.

Top tip

Give the school or day care a list of three people who can pick the kids up if you can't get there.

What would you do?

HAVE TO EVACUATE



In an emergency, some houses, streets, and neighbourhoods may not be safe to stay in and you may have to leave home in a hurry.

If your street was evacuated, where would you go? What would you take? What about pets? Do you have neighbours who might need your help?

Pack a getaway bag

Have a getaway bag ready for everyone in your family with warm clothes, a bottle of water, snacks, copies of important documents and photo ID. Remember any medications you might need and keep your first aid kit, torch, radio, and batteries somewhere you can grab them in a hurry.

Decide where to go

Decide where you will go (and make sure everyone in your family knows in case you're not all together). Your evacuation place will probably be with friends or family, so make sure they know your plans.

Check your zone

If you live in a tsunami zone, make sure your evacuation place is outside of the zone (check with your council for zone maps).

Top tip

If you must leave home, take your pets with you. If it's not safe for you, it's not safe for them. Make sure your evacuation place will take your pets or have the contact details for kennels, catteries, and pet friendly motels.

What would you do if the power was out for days? How will you see, cook, keep warm?

Power cuts could affect EFTPOS and ATM machines, so make sure you have some cash at home, or enough supplies to see you through three days or more.

Light up

Make sure you have torches and batteries, either in your emergency kit or somewhere everyone can find them in the dark.

Stay tuned in

Have a solar or battery powered radio so you can keep up with the latest news and alerts. Know which radio stations to tune in to for information during an emergency.

Stock up

Have a stock of food that doesn't need to be cooked (canned is good) or something to cook your food on (BBQ, camp stove). Don't forget food for babies and pets.

Fridge first

If the power goes out, eat the food from your fridge first, then your freezer, before you eat the food in the cupboard or your emergency kit.

Top tip

Talk to your neighbours about what they'll do if the power is out. You might find they have a gas BBQ and you have enough food to share (or the other way around).

NO POWER

NO WATER

Imagine having no water for three days or more. How would you wash, cook, clean? What would you drink?

Bottling water

Keep your empty water, juice and fizzy drink bottles, give them a good clean and fill them with water – you need three litres of water for each person for each day that you are without water. Don't forget to store water for babies and pets too.

Long term water storage

You can keep stored drinking water for up to a year if you add non-scented household bleach (half a teaspoon for every ten litres of water and don't drink for at least half an hour after mixing).



Stay fed and washed

Remember to store water for cooking and cleaning as well. You can use the water in your hot water cylinder but store some extra in large plastic containers.

Top tip

You can also fill plastic ice cream containers with water and keep them in the freezer. These can help keep food cool if the power is off and can also be used for drinking.

NO PHONE OR INTERNET

If the phone and internet lines were down, how would you keep in touch, arrange to meet up, keep up with news and weather alerts?

In most emergencies, it's best to stay in your own home, so make your home your meeting place and have an alternative in case you can't get there.

Plan a meeting point

Talk to your family about how you will get in touch and where you will meet up in an emergency if the phone lines and/or internet are down.

If you have kids

If you have kids, make sure you know the school/day care's emergency plans and give the school the names of three people who could pick the kids up if you can't get there.

Stay tuned in

Have a solar or battery powered radio so you can keep up with the latest news and alerts. Know which radio stations to tune in to for information during an emergency.

Out of town contact

Have an out of town contact that everyone knows about (sometimes when local phone lines are down you can still reach people outside your area). Get everyone to check in with your out of town contact by text or online messaging in an emergency if you can.

Keep a list

Keep a written list of important phone numbers.

Top tip

In an emergency phone lines can become overloaded quickly. Keep them clear so emergency calls can be made and, if you can, use text or online messaging to keep in touch.

What would you do?

CARING FOR PETS AND LIVESTOCK

If you have pets, domestic animals, or livestock, include them in your emergency planning.

- Attach a permanent disc to your pet's collar that clearly states your phone number, name and address. Microchip your pets.
- Ensure you have a carry box, towel or blanket, emergency food, a lead and muzzle as part of your pet's emergency getaway kit. Put your name, phone number and address on the box.
- In the event of an evacuation take your pets with you if you can safely do so. Take their vaccination records and essential medications with you as this will help your pet be re-housed if necessary.
- Welfare or evacuation centres generally will not accept pets except for service animals such as guide dogs. Some communities have established sheltering options for pets.
- Make in-case-of-evacuation arrangements with friends or relatives outside your neighbourhood or area.
- Keep a list of "pet-friendly" hotels and motels and their contact details in case you have to evacuate your home or neighbourhood.
- If you have domestic animals (such as horses, pigs or poultry) or livestock, know which paddocks are safe to move livestock away from floodwaters, landslides and power lines. In the event of an evacuation, ensure you have a plan in place so that they will be secure and have food, water and shelter. The responsibility for animal welfare remains with the owner.
- Check with your council about local arrangements for assisting with domestic animal issues.





Who is this plan for?

Household members

Name: Contact Details:

Name: Contact Details:

Name: Contact Details:

Name: Contact Details:

Does anyone have special requirements?

Will anyone in your household need assistance to evacuate, or while stuck at home during an emergency? Does anyone rely on mobility or medical devices or other special equipment? Does anyone rely on prescription medicine? Do they have supplies to last three days or more or alternatives if power is not available?

Any babies or young children?

Do you have nappies, formula, etc. to last three days or more if shops and roads are closed? Do you have supplies in a grab bag in case you need to leave in a hurry as well?

Any pets?

Your animals are your responsibility, so make sure you include them in your emergency planning. Do you have food and water to last three days or more? Do you have cages or carriers to transport them and keep them safe? Do you have someone to collect and look after your animals if you can't get home?

Anyone else who might need help?

Are there any friends, family or neighbours who might need your help to get through an emergency at home or to evacuate?

Name: Contact Details:

Name: Contact Details:

Name: Contact Details:

GET READY

MAKE A PLAN



Useful contacts

Always dial 111 in an emergency. Think about your council's emergency hotline, medical centre/doctor, landlord, insurance company, power company, day care/school, work and family members.

Name: Emergency Services

Contact Details: 111

Name:

Contact Details:

Name:

Contact Details:

If we can't get home

Our meeting place

Where will you meet if you can't contact each other and are separated when an emergency occurs? How will you get there?

Add an address and instructions.

Who will pick up the kids?

If you are not able to pick children up from school, day care, afterschool care, etc., who will? Do they know? Does the school / day care have their details?

Name:

Contact Details:

Name:

Contact Details:

Name:

Contact Details:

If we can't get hold of each other

Who will you check in with (someone out of town in case local phone lines are down)?

Name:

Contact Details:

Name:

Contact Details:

Name:

Contact Details:

We will get updates by

How will you find the latest news/alerts? Which radio stations will you listen to? Which websites and social media pages will you check?

Radio station/website/social media channel:

Radio station/website/social media channel:

Radio station/website/social media channel:



If we are stuck at home

Do we have emergency supplies

Food and drink for three days or more (for everyone including babies and pets)? Torches, a radio, and batteries for both? First aid/medical supplies? They don't all need to be in one big box, but you may have to find them in the dark.

Make detailed notes on where these items are stored

Do we know how to turn off water, power and gas?

Only turn these off if you suspect a leak or damaged lines or if you are instructed to do so by authorities. If you turn the gas off, you will need a professional to turn it back on.

Details on how to turn off the water, power and gas

If we have no power

What will you need to do if there is no power? How will you cook, stay warm, see at night (do not use candles as they are a fire hazard)? Do you have spare cash in case ATMs are not working? Do you have enough fuel in case petrol pumps are not working?)

Make notes on what your household needs to do

If we have no water

What will you need to do if there is no water? Do you have enough drinking water stored (three litres per person per day for three days or more)? Do you have water for your pets? What will you cook and clean with? What will you use for a toilet?

Make notes on what your household needs to do

If we have to leave in a hurry

Do we have grab bags?

Does everyone have grab bags* in case you need to evacuate? At home, at work, in the car?

* A small bag with warm clothes, a torch, radio, first aid kit, snack food and water.

Make detailed notes on where the grab bags are stored

Emergency Kit

In most emergencies you should be able to stay in your home. Plan to be able to look after yourself and your household for at least seven days or more. Assemble and maintain your emergency survival items for your home as well as a portable getaway kit in case you need to leave in a hurry. You should also have essential emergency items in your workplace and in your car.

Getaway Kit

Everyone should have a packed getaway kit in an easily accessible place at home and at work which includes:

- Torch and radio with spare batteries.
- Any special needs such as hearing aids and spare batteries, glasses, or mobility aids.
- Emergency water and easy-to-carry food rations such as energy bars and dried foods.
- First aid kit and essential medicines.
- Essential items for infants or young children such as formula and food, nappies and a favourite toy.
- Change of clothes (wind/waterproof clothing and strong outdoor shoes).
- Toiletries – towel, soap, toothbrush, sanitary items, toilet paper.
- Blankets or sleeping bags.
- Face and dust masks.
- Remember to take all your pets with you including pet supplies.

Top Tip

Keep strong black garbage bags and kitty litter in your response bag. You can put the black bag and some kitty litter in it then place into your toilet or a bucket and use as emergency toilet if you have no flushing toilet available.

EMERGENCY SUPPLIES

In an emergency, you could be stuck at home for seven days or more. You probably have most of these things already, and you don't have to have them all in one place, but you might have to find them in a hurry and/or in the dark. Make a plan (page 9) to work out what you will need to get your family through.

Basic supplies to have at home:

- Water for seven days or more - make sure you have nine litres of water for every person. (Save large fizzy and juice bottles, give them a good clean and overfill them with water from the tap, replace every 6 months.)
- Long lasting food that doesn't need cooking (unless you have a camping stove or BBQ), and food for babies and pets.
- Toilet paper and large plastic buckets for an emergency toilet.
- Dust masks and work gloves.



CONNECT WITH YOUR NEIGHBOURS

Communities that recover best from emergencies are those that have good social networks.

Connect with a few people on your street so in an emergency you can:

- Check on your neighbours if you are evacuating to ensure they are also aware of the situation.
- Remember to take all your pets with you.
- Make sure everyone is looked after, especially those who might need extra help.
- Share resources and skills to help each other – three families cooking on one BBQ uses a lot less gas than three families cooking by themselves.
- Recover faster with less chaos or duplication of effort.
- Even better, you'll be helping build a friendlier, more resilient community every day of the year.

Start with a simple smile and introduction. The first step is always the hardest! Then suggest a few of you exchange contact details in case of an emergency.

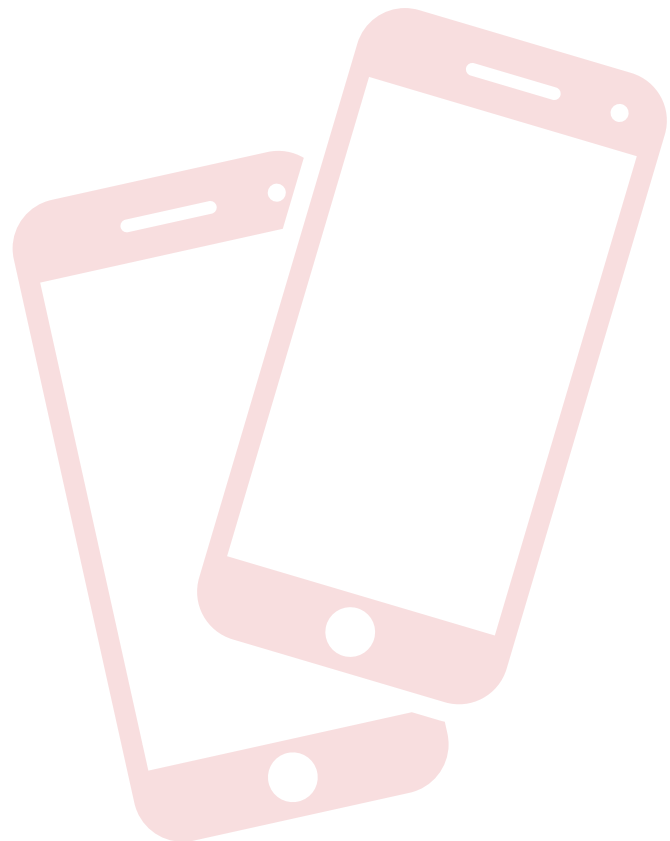


HOW TO STAY IN TOUCH

- **In a power outage**, analogue phones on a copper wire network only will continue to operate (Fibre Optic networks will fail).
- Cell phone communications can become easily overloaded in a crisis. **Texting** is a better way to communicate with friends and family.
- **Use your car** to listen to radio broadcasts if you do not have a battery-operated radio.
- **Use your car** for charging your cell phone/computer. A 12-volt charger is required for this. Make it part of your kit or keep one in the car.

Telephone Tree

- A phone tree is a network of people organised in such a way that they can quickly and easily spread information amongst each other.



KEY HAZARDS - FLOODING

See appendix A for flooding map

General Information:

Floods are the most common Civil Defence emergency in Otago. Our communities often experience flooding from rivers and streams. Floods are usually caused by continuous heavy rain or short, intense thunderstorms. Flooding occurs at any time of the year. During major coastal storms, the sea can cause flooding of low-lying areas all along Otago's coast.

Floods can cause injury and loss of life, damage to property and infrastructure, loss of stock, and contamination of water and land. Treat all flood water as dangerous.

Never try to walk, swim, drive through or play in flood water.

- Many flood deaths are caused by people attempting to drive through water, or people playing in high water.
- Slow-flowing, deep water or fast-flowing, shallow water, can unbalance people and sweep them away. Even water just 15 centimetres deep can sweep you off your feet.
- Keep children away from flood waters. It is not safe for them.
- Do not put yourself at risk to take photos or videos of the flood.
- Always assume that all flood water is contaminated with farm run-off, animal and human sewage and chemicals. Flood water may also be electrically charged from underground or downed power lines.
- If you come in contact with floodwater, thoroughly clean hands, clothes and any property touched.

Potential Local Impacts

During significant flood events some low lying areas of Waihemo can also be subject to flooding. Residents are encouraged to be aware of their local hazard's and incorporate it into their own household plans.

Further information can be obtained from the Otago Regional council:
orc.govt.nz/managing-our-environment/natural-hazards/flooding

For Your Information:

- Cumec = cubic metres per second, that is, how much water is flowing.
- Which side of the river? The right or the left side of the river is as you would see it by looking downstream.

Recommended Actions

- It may not be safe to return home even after floodwaters have receded.
- Help others, if possible, particularly those who require special assistance.
- Do not attempt to drive or walk-through floodwaters unless it is your only escape route.
- Avoid drinking or preparing food with tap water until you are certain it is not contaminated. If in doubt, check with your local council or public health authority.
- Look for and report broken utility lines to appropriate authorities.
- If your property is damaged, take notes and photographs for insurance purposes.
- If you rent your property, contact your landlord and your contents insurance company as soon as possible.

Weather

Check out what the weather is doing in your part of the region by keeping up to date with the latest information from MetService. [metservice.co.nz](https://www.metservice.co.nz)

Rain and river

For up-to-date rainfall and river flow data check out [orc.govt.nz/waterinfo](https://www.orc.govt.nz/waterinfo)

Road Updates

Keep an eye on the latest road information, including road closures, at [nzta.govt.nz](https://www.nzta.govt.nz).

KEY HAZARDS - EARTHQUAKE

See appendix B for fault line map

General Information:

Large earthquakes can injure and sometimes kill people, and damage or destroy property and lifelines utilities.

Earthquake hazards include ground shaking, land deformation, and liquefaction.

Ground shaking is the shaking of the ground during an earthquake, and is one of the main causes of earthquake damage to buildings and critical infrastructure.

Land deformation is changes to the ground surface, such as swelling, sinking, or cracking. Land deformation can damage buildings, structures and lifelines utilities, cause landslides and change the risk of flooding as the ground moves.

Surface fault rupture is the ripping and warping of the ground surface along a fault as the ground on one side moves sideways and/or up relative to ground on the other side. This only happens in moderate to large earthquakes (larger than about magnitude 6.5) where the fault movement is large enough to deform the ground surface.

Liquefaction is a process where loose soils below the groundwater level substantially lose strength and stiffness, in response to earthquake shaking. This causes the soil to behave like a pressurised liquid. In some cases, this soil/water mixture is ejected up to the ground surface.

A large, damaging earthquake could occur at any time, and can be followed by aftershocks that continue for days or weeks.

Check out geonet.org.nz for the latest information on earthquakes in New Zealand.

Recommended Actions

- You can reduce the impacts of earthquakes by making sure objects that can fall, damage and hurt are either placed somewhere else, or fixed and fastened.
- Make and practise your emergency plan, have a grab bag and emergency supplies.
- Drop, Cover and Hold is the right action to take during an earthquake. It stops you being knocked over, makes you a smaller target for falling and flying objects, and protects your head, neck and vital organs.
- Practise Drop, Cover and Hold at least twice a year. You can do this when the clocks change for daylight savings and take part in New Zealand's annual ShakeOut drill.
- In a major earthquake, masonry and glass falls off buildings and into the streets. If you are inside, Drop, Cover and Hold – do not run outside or you risk getting hit by falling bricks or concrete and glass.
- If you are outside, move away from buildings, trees, streetlights, and power lines, then Drop, Cover and Hold. Stay there until the shaking stops.
- It is important to recognise the natural warning signs of a tsunami and remember, if an earthquake is Long or Strong, Get Gone.
- Expect aftershocks. Each time you feel one, drop, cover, and hold.

For more information visit:

eqc.govt.nz

getready.govt.nz



DROP



COVER



HOLD

KEY HAZARDS - TSUNAMI

See appendix C & D for tsunami map

General Information:

A tsunami is a series of waves generated after a large disturbance of the sea caused by earthquakes, volcanic eruptions, or underwater landslides. The source of the disturbance may be close to the New Zealand coastline or across the other side of the Pacific Ocean.

A near-source tsunami is generated close to the coastline. The water level will fall rapidly past the low tide mark and then quickly return. If this happens, there won't be enough time to issue a warning.

An earthquake centred on the Puysegur Trench, off the coast of Southland, could trigger a near-source tsunami which may affect coastal communities south of Otago Peninsula.

A distant source tsunami may start as far away as South America, taking much longer to reach New Zealand and affecting more of the coastline. National warnings will be issued by the National Emergency Management Agency and Emergency Management Otago.

These warnings are sent to the police, Emergency Management and emergency management organisations, and may be broadcast on radio and television. Some communities will have alert sirens.

Distant source tsunami may affect coastal communities in Otago. People living near the mouth of rivers such as the Taieri and Clutha could also be affected as a tsunami wave can travel up a river. Tsunami can threaten lives, property and essential services.

Tsunami Warnings

Warning messages and signals about a possible tsunami can come from several sources – natural, official or unofficial.

Natural Warnings

For a local source tsunami which could arrive in minutes, there won't be time for an official warning. It is important to recognise the natural warning signs and act quickly.

Official Warnings

Official warnings are only possible for distant and regional source tsunami. Official warnings are disseminated by National Emergency Management Agency and Emergency Management Otago to the national media, local authorities and other key response agencies. Your local council may also issue warnings through local media, siren and other local arrangements.

EVACUATION ZONE GUIDE - otagodem.govt.nz/hazards/tsunami

RED: Evacuate if you feel a long or strong earthquake or after an official warning for a beach and marine threat with wave height of 0.2 metres and above.

ORANGE: Evacuate if you feel a long or strong earthquake or after an official warning for a wave height 1-3 metres

YELLOW: Evacuate after an official warning for a wave height more than 3 metres.

Unofficial or informal warnings

You may receive warnings from friends, other members of the public, international media and from the internet. Verify the warning only if you can do so quickly. If official warnings are available, trust their message over informal warnings.

Recommended Actions

- For a local-source tsunami which can arrive in minutes, there is not enough time for an official warning. It is important to recognise the natural warning signs and act quickly.
- Remember, **LONG** or **STRONG**, **GET GONE**: If you are near the coast and experience any of the following:
 - Feel a strong earthquake that makes it hard to stand up, or a weak rolling earthquake that lasts a minute or more.
 - See a sudden rise or fall in water level.
 - Hear loud and unusual noises from the water.
- Move immediately to the nearest high ground or as far inland as you can, out of tsunami evacuation zones. Do not wait for official warnings.
- Walk, run or cycle, if you can. This reduces the chances of getting stuck due to damaged roads or traffic congestion.
- Emergency Management Otago has evacuation zones which you can find here: otagodem.govt.nz/hazards/tsunami
- Make sure you know where to go, whether you are at home, at mahi/work or out and about.
- Plan evacuation routes from your whare/home, farm, kura/school, wāhi mahi/ workplace, or any other place you frequently go, that is in a tsunami evacuation zone.
- Once you have evacuated, follow official advice from your local Civil Defence Emergency Management Group about when it is safe to return to tsunami evacuation zones. Do not return until an official all-clear message is given by Civil Defence Emergency Management. Tsunami activity will continue for several hours and the first wave may not be the largest.

For up to date information, including Tsunami Evacuation Zone maps for all of Otago, please visit: otagodem.govt.nz

KEY HAZARDS - MAJOR STORM/SNOW STORMS

General Information:

A storm is a weather system with strong winds. It will be likely to cause heavy rain and can also bring hail, lightning, tornadoes, heavy swells, coastal inundation and storm surges.

Storms can make driving dangerous. They can also cause road damage, power supply disruption and damage to buildings. As a result, storms can isolate communities and cut off communications and power supply.

Storms can last for days or may be short-lived. Thunderstorms exist for no more than one or two hours.

A **tornado** is a narrow, violently rotating wind column, which extends down to the ground, from the base of a thunderstorm. Every year, a few tornadoes are observed in New Zealand. they can cause severe localised damage, injuries and death. They are usually around a few tens of metres wide, have tracks a few kilometres long, and exist for just a few minutes.

A **cyclone** is a large storm that develops in the tropics. Cyclones are also called hurricanes or typhoons. A cyclone has a wind-speed of more than 120 kilometres per hour. Cyclones usually weaken as they meet the cooler sea temperatures around New Zealand, These “ex-tropical cyclones” remain dangerous storms, and cause major damage in New Zealand.

A **snowstorm** is a very heavy snowfall, sometimes accompanied by strong winds that can create blizzard-like conditions and severe wind chill. Snowstorms can make driving dangerous. On mountains, snowstorms can increase the risk of avalanches, which can fall onto roads and ski fields.

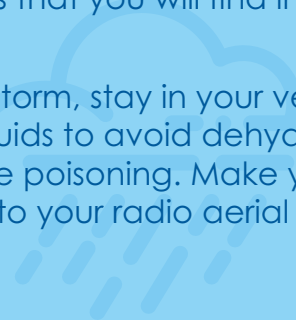
Severe weather warnings are issued by the MetService and available through the broadcast media, by email alerts, and online at [metservice.com](https://www.metservice.com)





Recommended Actions

- Listen to advice provided by Emergency Management Otago and emergency services and follow any instructions.
- Secure your whare/home and critical buildings by closing windows and shutters, if you have them. Pull curtains and blinds over windows. This can prevent injury from flying glass if the window breaks.
- Close all interior and external doors. Closed doors will help prevent damaging winds from entering rooms.
- Take extreme care with items that may conduct electricity if your whare/home is struck by lightning:
 - Using electric lights is safe, but unplug appliances and avoid using the telephone or any other electrical appliance, especially television sets.
 - Turn off air conditioners and heat pumps, which can be damaged by power surges from lightning.
 - If you live in an old house with metal plumbing, avoid using bathtubs, water taps and sinks as these may conduct electricity.
 - Use battery-powered radios and water from your emergency supplies.
- Stay up to date with the latest information and updates from MetService.
- Postpone outdoor activities if a snowstorm is imminent.
- If you are outside, seek shelter.
- Bring pets inside. Move domestic animals and stock to shelter.
 - Make sure there is good ventilation and that your animals can freely move away from any external heat sources. Keep animals from coming into contact with heat sources, such as fires, to reduce the risk of burns.
 - Do not keep your animals in a garage or room with running vehicles or unflued gas heaters. Even small amounts of carbon monoxide will kill them.
- At home, check fuel supplies for heating, wood burners, gas heaters, generators and barbeques.
- If you have to travel, make sure you are well prepared with snow chains, sleeping bags, warm clothing and essential emergency items that you will find in your emergency items.
- If you are caught in your car or truck during a snowstorm, stay in your vehicle. Run the engine every ten minutes to keep warm. Drink fluids to avoid dehydration. Open the window slightly to avoid carbon monoxide poisoning. Make yourself visible to rescuers by tying a brightly coloured cloth to your radio aerial or door and keeping the inside light on.



KEY HAZARDS - LAND INSTABILITY

General Information:

A landslide is the movement of rock, soil and/or vegetation, down a slope. There are many different types, and they can range in size from a single boulder in a rock fall, to a very large avalanche of debris with huge quantities of rock and soil that spreads across many kilometres. They are common in both rural and urban settings.

Landslides are commonly classified by the material involved (e.g., rock, debris, soil or mud) and the way they move (e.g., fall, topple, slide, spread, or flow). All these types of landslides may occur in New Zealand. Listed below are some typical examples of different landslide types.

- Rockfall - individual rocks that detach and rapidly fall from steep slopes and cliffs.
- Debris Avalanche - a shallow flow of rock and debris that detach from steep slopes and cliffs to form an avalanche.
- Debris Flows - rapid surging flows of saturated debris that occur in channels. They are often triggered by heavy rainfall or rapid snowmelt.

Landslides can occur without any trigger but are most commonly associated with heavy rainfall and earthquakes. Human activities including mining, construction, removal of trees and vegetation, steep roadside cuttings or leaking water pipes can also cause or increase the likelihood of landslides.

Some landslides move rapidly, while others are slow and gradual, causing damage to property and infrastructure, but have the potential to injure people.

Landslides can occur without any warning signs. Be aware of the potential for landslides, particularly in the weeks after potential triggering events, such as heavy rainfall, earthquakes, and previous landslides.

Some warning signs before landslides occur:

- Small slips, rock falls, and sinking land, at the bottom of slopes.
- Sticking doors and window frames, which may mean the land is slowly moving under the house.
- Gaps where window frames are not fitting properly.
- Steps, decks, and verandas, moving or tilting away from the rest of the house.
- New cracks or bulges on the ground, road, footpath, retaining walls and other hard surfaces.
- Tilting trees, retaining walls, or fences.

Recommended Actions

If you see a landslide, move quickly out of its path and stay away from it. It is important to recognise the warning signs and act quickly.

If you learn or suspect that a landslide is occurring, or is about to occur in your area:

- Evacuate immediately if it is safe to do so. Seek higher ground outside the path of the landslide. Getting out of the path of a landslide or debris flow path is your best protection.
- If you cannot leave safely, move out of the path of the debris. The side of your house furthest from the landslide is likely to be the safest location within the property.
- Take your pets with you, and move livestock to safe paddocks, if you can do so without endangering yourself.
- Alert your neighbours. They may not be aware of the potential hazard. Advising them of a threat may save their lives. Help neighbours who need assistance to evacuate if you can do so without putting yourself in danger.
- Contact your local council or technical expert. Local council engineers or other

For more information visit: eqc.govt.nz

KEY HAZARDS - PANDEMIC

General Information:

An epidemic occurs when a disease infects many people at the same time. A pandemic is the spread of an epidemic between many countries.

A pandemic can impact all services. People may need to stay away from others and businesses may be temporarily closed by health officials to stop the disease spreading.

Recommended Actions

- Follow instructions and advice of health officials.
- Cover your mouth when coughing or sneezing. Do so into the crook of your elbow rather than your hand. Use tissues, dispose of them properly, and then wash your hands.
- Wash your hands after coughing and sneezing, wiping children's noses, preparing food, and eating, going to the toilet, or looking after sick people. Do so for at least 20 seconds - with soap or alcohol gels and, if possible, warm water, and dry thoroughly before preparing or eating food.
- Maintain a personal space from those who may be ill to avoid infection.
- Stay home if you become ill.
- Make a plan with family and friends that includes:
- Make a plan with family and friends that includes:
 - Who will help with food and supplies if you and your household are ill
 - Who will look after your extended family/whānau if they don't live nearby (for example, who could deliver groceries or meals to sick family members)
 - Who would look after your children/dependents if they need to stay at home and you must go to work.
- Think about whether you could work from home and what you would need to do this.
- Learn more about infectious disease prevention and control.

For more information visit: [health.govt.nz/](https://www.health.govt.nz/)

List key contacts

Have key contact numbers in a place that is easy to find (for example, on the fridge door).

Include the phone numbers of:

- the people living nearby who you could call if you needed help.
- your doctor.
- HealthLine (freephone: 0800 611 116).
- your workplace.

Build up your emergency supplies

- Keep at least a week's supply of food, tissues, and your usual medicines so you don't need to make trips out in public.

If you have an existing medical condition make sure that you:

- don't run out of your regular medications
- take medications to keep any medical condition under control.



KEY HAZARDS - FIRE/WILDFIRE

General Information:

Rural property owners face a higher risk of wildfire than city dwellers.

If a fire starts, it may not be detected as quickly, and emergency services take longer to respond due to the greater travel distances.

For information about fire danger, fire season status, and requirements for fire permits visit: fireandemergency.nz.

During a fire:

- Crawl low and fast to escape smoke. 'Get Down, Get Low, Get Out.'
- Shut doors behind you to slow the spread of fire.
- Meet at the planned meeting place.
- Once out, stay out, never go back inside.
- Phone (111) Fire and Emergency New Zealand from a safe phone.

Tell Fire and Emergency New Zealand:

1. House number.
2. Street.
3. Nearest intersection.
4. Suburb and City.
5. Rapid ID number if you have one.

Recommended Actions

If you see smoke or fire and believe there's a risk to people or property, call 111 and ask for 'Fire' immediately. If you're not sure whether it's a real emergency or not, call 111 and ask.

When in doubt, call 111

Smoke alarms

Install smoke alarms and test them every month.

Escape plan

Design an escape plan for you and your family to get out of the house and off the property. Test it regularly.

Access

Make sure your driveway clearance is at least four metres wide and four meters high. Ensure there is adequate turning space for fire trucks and easy access to water.

Landscaping

Keep the grass near your home green and mown. Select plant species that are more fire resistant.

Home maintenance

Fires can start when embers get on your roof and under your house. Clean your gutters and make sure there is nothing flammable beneath the house.

Signs

Make it easy for emergency services to find you by making sure your RAPID rural property identification number is on your signpost and clearly visible from the road.

Fire extinguishers

Install dry powder extinguishers near heat and fuel sources in your home and out buildings.

Sprinklers

Sprinklers are the fastest way to put out a fire. Consider installing a sprinkler system in your home. Modern sprinklers can be easily installed by a plumber and are less expensive than you might think.

Water source

Ensure there is access to an adequate supply of water for fire trucks. Make sure your garden hose is connected and is long enough to reach around the house.

Firewood

Store your firewood and other flammable material away from the house.

Fuel

Safely handle and store liquid fuels and gas.

Machinery

Make sure your machinery and equipment is properly maintained and in good working order. Check there are no birds' nests in or around your machinery — they are a common cause of machinery fires.

Ash

Dispose of ash in a metal container or wet down with water. Ashes can stay hot enough to start a fire for up to five days.

For more information visit: [fireandemergency.nz](https://www.fireandemergency.nz)

COMMUNITY RESPONSE

GROUPS AND COMMUNITY
EMERGENCY HUBS

In an emergency, it is vital that communities come together to support and help each other.

Community Response Groups are local people who come together, during and after an emergency, to support the community. They may do this by setting up a Community Emergency Hub.

What is a Community Emergency Hub?

A Community Emergency Hub is a place for the community to come for information, reassurance, to have a hot drink, and to meet with each other and talk.

A Community Emergency Hub may be opened by members of the community to support people who have been affected by the event.

Using their discretion, a Community Response Group can open a Community Emergency Hub to meet their local needs.

Community Emergency Hubs are not for overnight stays or delivery of a formal welfare response. If required, the district Emergency Operations Centre will open a Civil Defence Centre to provide for formal emergency welfare support.

| Community Emergency Hubs | Civil Defence Centres |
|---|--|
| <ul style="list-style-type: none">• Entirely owned and led by the local community within guidelines set by Emergency Management Otago.• Community resourced.• Local community focused.• In communication with the local Emergency Operations Centre or Incident Control Point.• Not for overnight stays.• Run by members of the community. | <ul style="list-style-type: none">• Established and run by the Emergency Operation Centre.• Provides government and support agencies a facility to offer services.• Provides the formal and official welfare response.• May be established as an emergency shelter if appropriate for the emergency.• Staffed by trained and vetted personnel. |



Volunteering NZ (volunteeringnz.org.nz)

Volunteer in your community. Volunteering New Zealand is an association of volunteer centres and national organisations with a commitment to volunteering.



Neighbourhood Support (neighbourhoodsupport.co.nz)

Join a Neighbourhood Support Group on the Neighbourhood Support website or calling 0800 463 444.



New Zealand Red Cross (redcross.org.nz)

Joining as a member and volunteering is at the core of the New Zealand Red Cross and has been for over 100 Years.

Through volunteering, you can build valuable skills and assist people in their time of greatest need.



Community Response Groups (otagocdem.govt.nz)

Join a local Community Response Group to support your local community when emergencies happen

Contact Emergency Management Otago to find out more about how to get involved



GET EMERGENCY ALERTS WHEN YOU NEED THEM MOST

JOIN TODAY TO RECEIVE EMERGENCY ALERTS 

otago.getsready.net

KEY INFORMATION SOURCES

Facebook:

- OtagoCDEM
- Clutha District Council

X (formerly Twitter):

- @OtagoCDEM

Websites:

- orc.govt.nz
- metservice.com
- otagocdem.govt.nz

Two-way radio:

- NZ UHF PRS Channel 15

Smart phone applications:

- MetService

Radio:

- Puketapu Radio (756AM)
- The Hits (98.4FM)
- More FM (100FM)
- Radio Live (100.8FM)
- Happy Days (88.3FM)

Emergency Services

New Zealand Police

police.govt.nz

Fire and Emergency New Zealand

fireandemergency.nz

St John Ambulance

stjohn.org.nz

Local Council

Clutha District Council

03 419 0200

wcluthadc.govt.nz

Otago Regional Council

03 474 08217

worc.govt.nz

Emergency Management

Emergency Management Otago

otagocdem.govt.nz

National Emergency Management Agency

civildefence.govt.nz

Be Prepared

getready.govt.nz

In an emergency, if life or property is threatened, call 111.

Only call 111 in an emergency.

Do not call 111 for information and advice.

Calling 111 unnecessarily may put others who are in a genuine emergency situation at risk.

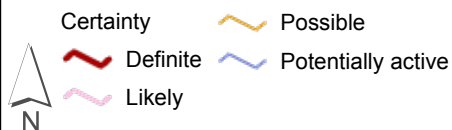
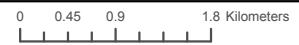
FAULT LINES MAP - TOKO MOUTH

Appendix B



Modified dataset compiled by D.J.A. Barrell. Data described and documented in: Barrell, D.J.A. 2020. General distribution and

Toko Mouth - Active Faults Lines

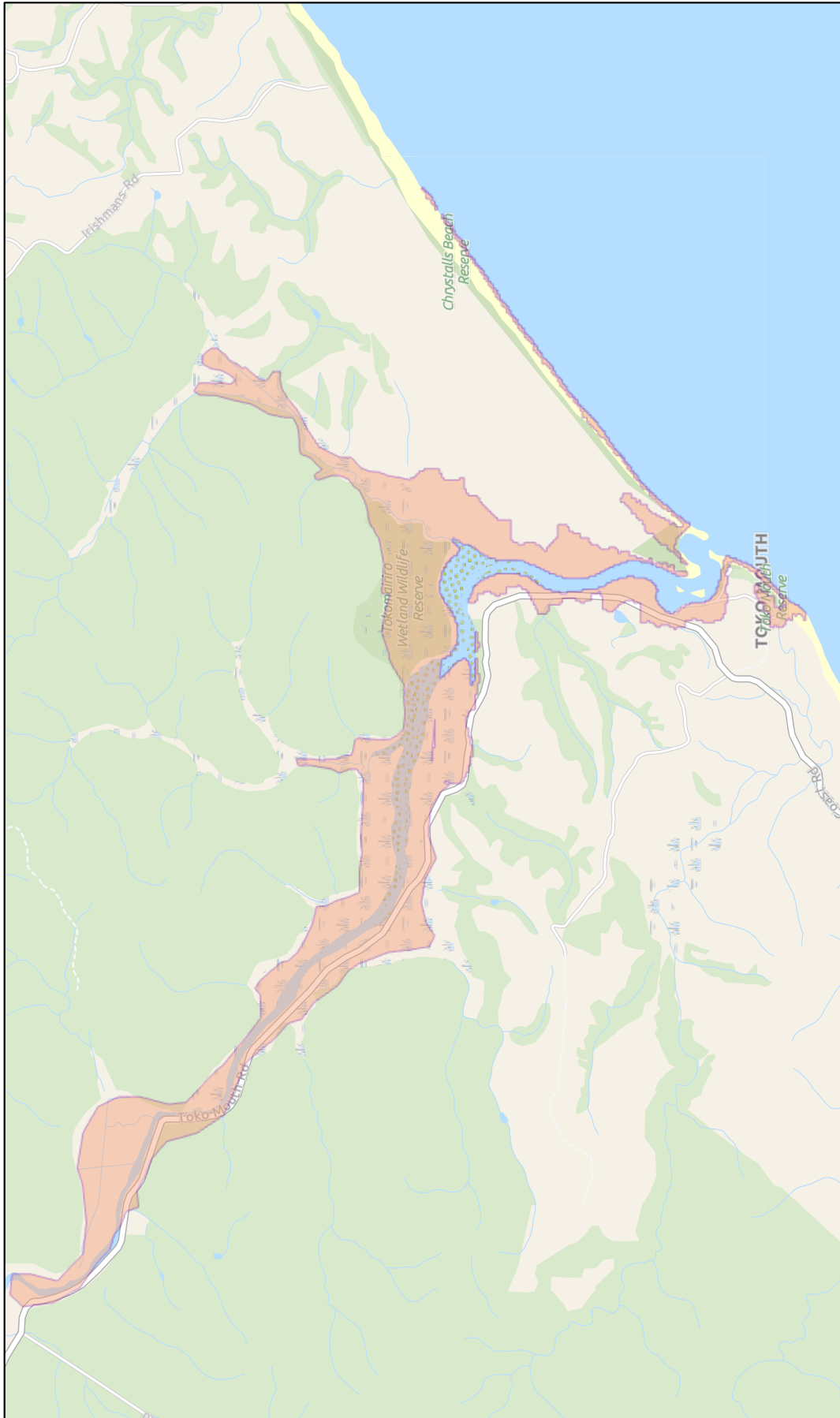


Emergency Management Otago
Te Rākau Whakamarumarū Ōtākou

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TSUNAMI HAZARD MAP - TOKO MOUTH

Appendix C



Eagle Technology, LINZ, StatsNZ, NIWA, Natural Earth, © OpenStreetMap contributors, A. Welsh Jan 2018

Toko Mouth - Tsunami

0 0.38 0.75 1.5 Kilometers



Tsunami - Affected Area - Final

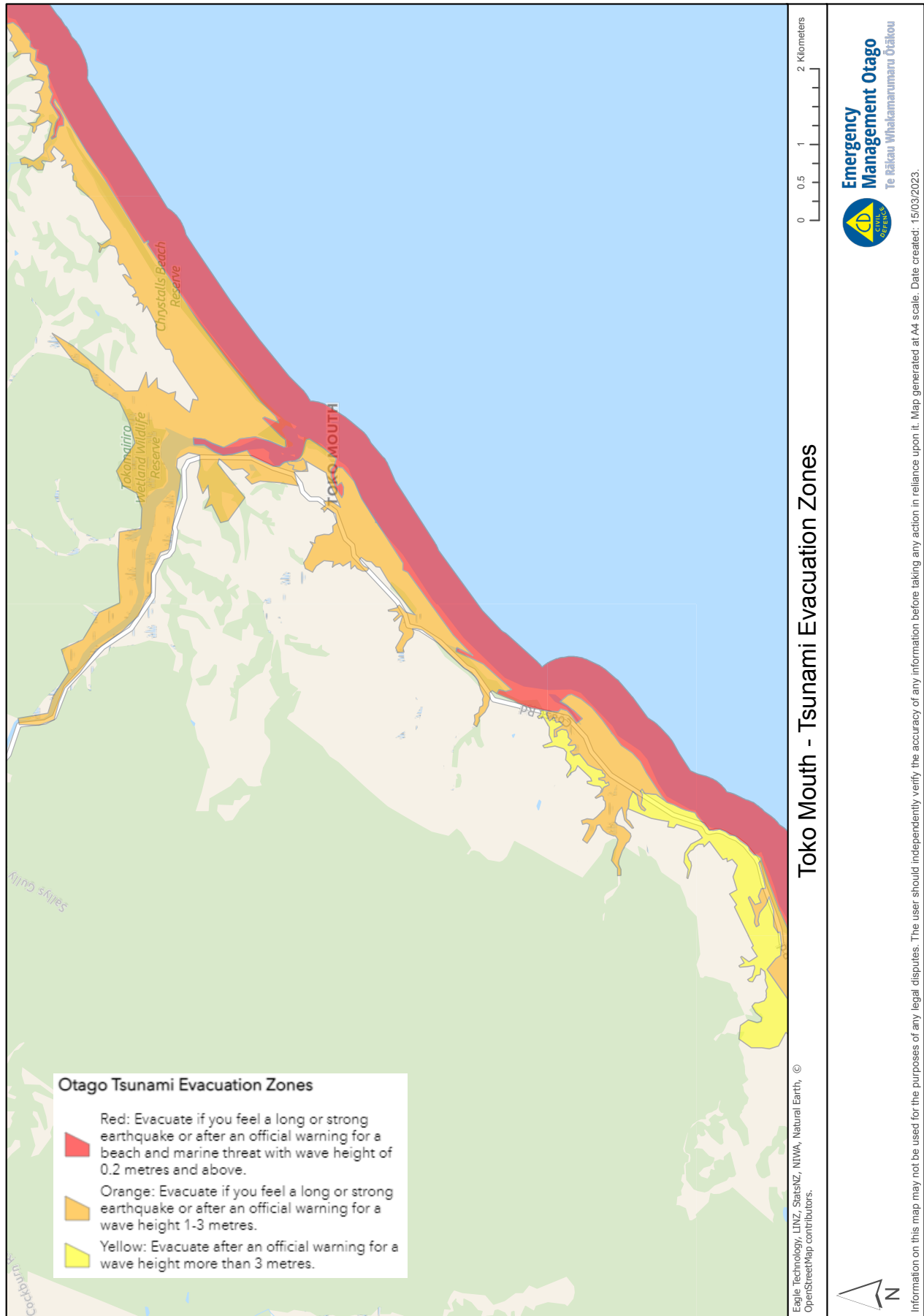


Emergency Otago
Te Kākau Whakamarumaru Ōtagou

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TSUNAMI HAZARD MAP - TOKO MOUTH

Appendix D





**Emergency
Management Otago**
Te Rākau Whakamarumarū Ōtākou

Emergency Management Otago

 Phone **0800 474 082**

 Web **otagocdem.govt.nz**

 Facebook **OtagoCDEM**