RIVER SAFETY

Rivers bring a special beauty to the outdoors but they also pose a special hazard.

Rivers provide natural approach routes to the mountains, with routes often following riverbanks and gorges. It is often necessary to ford sizeable rivers. This risky business requires skill and judgement.

Rivers are Hazardous

Rivers are one of the greatest hazards in the outdoors. Errors of judgement, usually from overconfidence, often have serious consequences. There is an average of about three river-crossing deaths each year. Eighty per cent of these accidents occur in flooded rivers or side-streams.

It's not only the inexperienced who die. Experienced and skilled people have drowned after being tempted to give it a go against their better judgement.

Take all river crossings seriously; the risks are too great. It is important to take particular care with children playing in or near moving water.

Training and practice

Anyone who goes into the outdoors should have training and practice in river crossing. You need to be aware of the variety of problems that can occur. There is a risk of:

1. Being swept away
2. Being swept against rocks
3. Being caught against logs
4. Hypothermia.

Overconfidence

Even with experience, there is still a danger of becoming overconfident. Treat all rivers with respect. If in doubt, err on the side of safety and caution.

The influence of weather
Rivers change with time and weather. Being able to anticipate these changes may influence your decision about when to cross, for example:

- In alpine areas, the heat of the day may cause the river to rise as snow melts, so you may be better to cross early in the day.
- Heavy rain in steep-sided valleys can lead to a dramatic rise in river level as water runs off the land quickly.

Some rivers may be impassable for a few hours only; others may be impassable for days. Understanding the type of river will help your decision-making.

Warning signs
There are some signs which you must never ignore:

1. Discoloured, surging water
2. The sound of rolling stones on the riverbed
3. Trees and debris being carried along.

Decision making
You can avoid many problems by planning a route that uses bridges, wire cages, or cableways. Plan to use recognised crossing places, but don't just plunge in – the riverbed may have changed.

You should ask yourself three questions:

1. Do we cross?
If you decide that you need to cross, you need to assess whether the river is safe to cross, and whether all group members are adequately equipped and capable of crossing safely.

2. Where do we cross?
The choice of the safest place to cross is vital. Try to view the river from a high bank. You may be able to see gravel spits or sandbanks just below the surface and get some idea of the depth and position of channels.

3. How do we cross? Which method do we use?
Even on easy crossings, if the water is any more than knee deep you should use the strength of the group to make the crossing easier and safer. Although some people may feel confident, others may appreciate support.

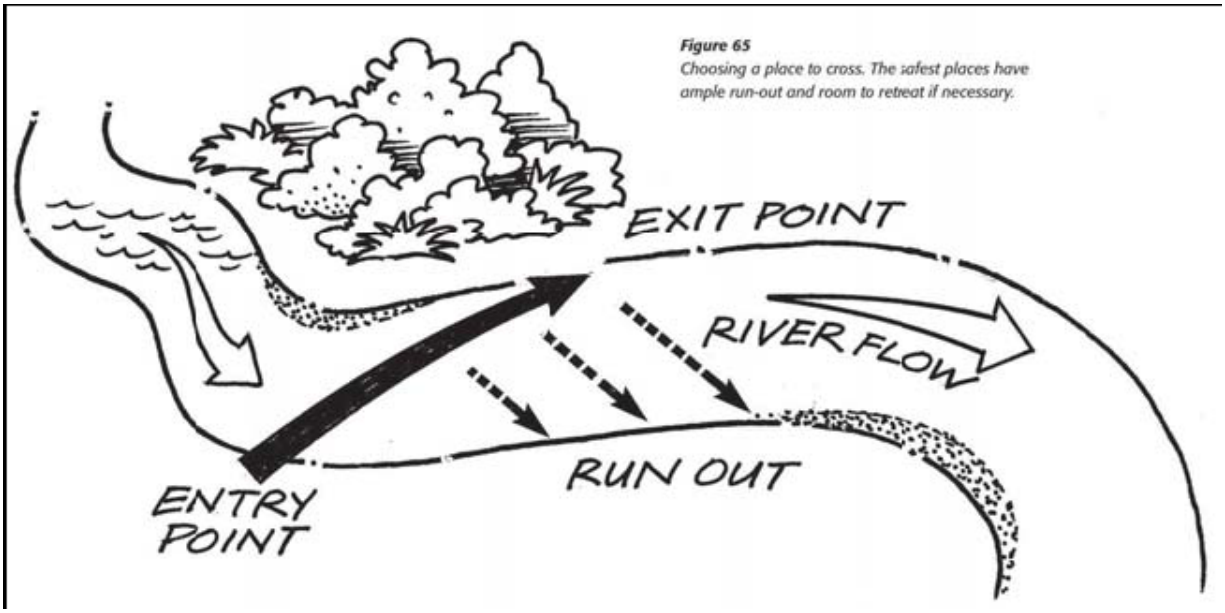


Figure 65
Choosing a place to cross. The safest places have ample run-out and room to retreat if necessary.

Reducing the Risk

Where should you cross?

Look for a bridge. Often tracks have high water bridges that can be used when necessary. These (usually wire bridges) are not always obvious. It may be worth walking a bit further upstream or downstream to where the river is crossed by a bridge.

Assess the river

- Look downstream for runout hazards.
- What would happen if you were swept away?
    - Would the current carry you to safety or into further danger, e.g. rapids, trees in the water, big boulders or undercut banks?
    - Are there good entry and exit points; can you get in, can you get out, can you reverse out?

If just one of these things is a problem (e.g. if you cannot find a good exit point after looking at several sites) then do not cross.

Check out the riverbed type

It is best to cross

- where the riverbed is smooth and
- where the water is smooth and flowing evenly this is often found where the river widens at the calmer area between two bends.

You should avoid crossing

- on a bend
- above a place where another stream joins the river
- where the water is dirty and cloudy
- where there are holes in the riverbed
- where there are large boulders or
- where there is strong flowing water if it is above the knee of your shortest party member.

What is the speed of the river?

- Throw in a stick.
- Can you keep up with the stick by walking along the bank? If not then the river is probably not safe to cross.

Never try to cross a river in flood

80% of people drowned crossing rivers were trying to cross in flood. If you notice any of the following, do not cross.

- The water is discoloured and/or surging.
- Trees or debris being carried by the current.
- The noise of boulders being rolled on the river bed by the current.
- The river is clearly above its normal size, e.g. flowing in trees or on the banks.

- Rivers below snow fields are often safe to cross early in the morning, but are unsafe later in the day when snow and ice melt can create flood-like conditions.

Check your clothing and equipment

- Avoid loose bulky clothes.
- Wear your boots or shoes.
- Store your watch away to stop it getting wet and to avoid it getting caught up in your neighbour's pack straps or clothing (see crossing methods below).
- Try to keep the gear you are carrying in your pack/day pack dry. Make sure that it is all in plastic bags. (You should have planned this before you left on your trip.)

River Crossing Methods

Mutual support method

The mutual support method provides a backup for people who may lose their footing during a crossing. If you slip or lose your grip, your companions can support you.

Using waist belts or pack straps
This is the preferred variation, especially in deep water. It's quick to set up as it only requires normal equipment and it gives good support if anyone stumbles or slips.

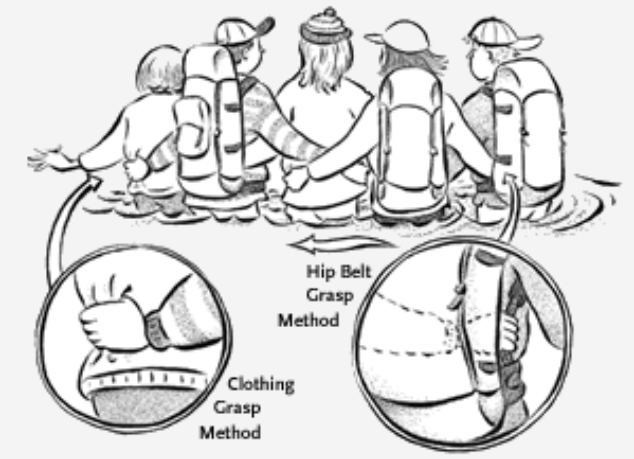
1. Line up people according to their level of strength and experience.
   - a strong person at the upstream end of the line
   - the strongest, most experienced person alongside them for extra support
   - another strong person at the downstream end
   - the rest of the group in between

2. Undo chest straps and loosen shoulder straps.

3. Check that waist belts are done up.

4. Insert arms between each neighbour's pack and their back, and grasp either their waist belt or their pack shoulder strap (down low) on the opposite side.

5. Move into the river as a single unit.



Using a clothing grasp
This is a good variation for straightforward crossings where the river is knee to mid-thigh deep and there is a weak current.

1. Line up people according to their level of strength and experience.
   - a strong person at the upstream end of the line
   - the strongest, most experienced person alongside them for extra support
   - another strong person at the downstream end
   - the rest of the group in between

2. Loosen shoulder straps if wearing day pack.

3. Insert arms between each neighbour's pack and their back, and grasp their pants or shorts on the opposite side at hip level. Ensure the grasp encompasses the belt or waistband that holds up the pants or shorts.

4. Move into the river as a single unit.

For both methods

- keep your body side on to the current
- take small shuffling steps
- avoid clutching at boulders or logs under the water
- move diagonally downstream with the current to conserve your energy
- have a leader to control the crossing make sure that everyone can hear instructions before you get into the river

- have the strongest people at the upstream end to break the flow for the others
- have the upstream person just slightly ahead of the person next downstream and so on down the line.

If you have a larger party (eight or more) you can cross in two groups. Keep one group on the bank to assist should the crossing not go as planned.

Stop and allow everyone to warm up after the crossing. Cold water and exertion can rapidly lead to hypothermia.

Individual method

This is a useful technique for solo bushwalkers. It lacks the strength of the mutual support methods but gives a confident person considerable support and is particularly helpful if the bottom is slippery.

Use a pole, about two metres in length and comfortable to grasp. Ensure that it is strong enough to support your weight.

1. Hold the pole in both hands diagonally across the front of your body.

2. Push the lower end into the riverbed about a metre upstream from your feet.

3. Lean on the prop as a 'third leg' to balance as you move each foot forward.

4. Move the pole through, not over, the water.

5. When both feet are securely placed, move the pole forward and push it into the riverbed again.

6. If you need to retreat then reverse your grip on the pole and turn yourself around (facing upstream) until you are ready to move back the way you came.

Other Methods of Crossing

You may see people using logs and sticks for river crossing; the methods described here are more effective and have replaced these.

Ropes in Rivers

Someone may suggest using a rope to assist the crossing. Unless you are trained and have practiced this many times this is a bad idea. Ropes and rivers can be dangerous because they can

- hold people under the water
- pull people on the bank into the water
- become entangled with people preventing them from being able to swim
- become stuck on the river bed or on an obstacle pinning people in the river.

We do not recommend that you use ropes when crossing rivers.

Recovery

There is always a possibility that you can lose your footing but, if you choose a crossing place with a good run-out, this need not be disastrous. You must be able to rescue yourself, as the current can separate the group quickly and there may be several people swept away at once.

What if the crossing does not go as planned?

- Stay linked up and back up slowly out of the river.
- Do not break the link until everyone is into very shallow water.

What if someone breaks off the group and floats off downstream?

- They should make their way to the nearest side using the river survival swimming technique.
- The group should either back out or finish the crossing as quickly as possible and then assist from the bank.

The River Survival or Defensive Swimming Position

- On your back.
- Facing downstream.
- Your feet up with your toes just at the surface.
- Propelling yourself towards the nearest bank with your arms when you are in rapids.
- Change to side swimming when out of the rapids to get to the side.
- Abandon the survival swimming position if you are heading for a strainer (an obstacle like a branch or log). Swim as fast as you can sideways away from it. If you cannot manage to avoid the strainer, change to facing downstream at the last moment and climb as far up the strainer as you can. Hold on, making sure you keep at least your head out of the water.

The river survival swimming position allows you to

- see where you are going
- push off rocks with your feet
- see waves and take a breath before they hit you in the face and
- move to the side of the river and exit the water.

Regaining strength

A mishap during a river crossing usually drains your strength. It is usually best to stop and make a hot drink, change into dry clothes, and possibly camp early.

Tips on crossing rivers

Before crossing

1. Decide whether or not you should cross – assess the river's depth, colour, speed, catchment area and runout; look for alternatives such as a bridge upstream; consider escape routes along your route; or wait for the river levels to drop. Choose a suitable and safe location. *Never risk crossing a flooded river. If in doubt, do not cross.*

2. Prepare yourself for crossing:

    a. Pack chest straps should be undone.

    b. Place any foam bedrolls on top of the pack.

    c. Slightly loosen shoulder straps.

    d. Use packliners to ensure that gear in your packs is waterproofed.

    e. Remove leggings to reduce drag; leave your boots on.

    f. Have a dry run of your crossing method. Inexperienced or weaker members should be in the middle of the group.

During crossing

1. If crossing alone, make sure you use a pole to support yourself while crossing.
2. If in a group, use the mutual support method. Do not break up the formation until everyone in the crossing group is safely on the bank. Make sure you communicate with all members of the party.
3. Carefully pace your movement, do not hurry. It's better to be delayed but alive.
4. Stay in line with the current.
5. Stay away from boulders.

After crossing

1. Check everyone for coldness, and change into warm or dry clothing. Hypothermia can start after crossing.
2. Have a snack or warm drink.
3. Check with the others if they are OK to continue with the bushwalk.

Source: NZ Mountain Safety Council, www.mountainsafety.org.nz & www.riversafe.org.nz