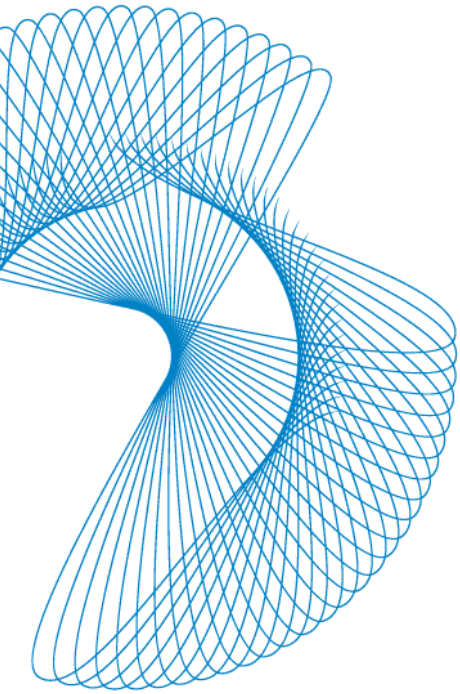
MARITIME NEW ZEALAND



Accident Report

Capsize Resulting in 1 Fatality

Kayak

11 March 2005

Class A

GLOSSARY

TERM	DESCRIPTION
Bank Scouting	When a paddler gets out of his/her kayak and onto a rock or the side of the river in order to view the next section of river. This is often necessary on Class IV and above rivers.
Boat Scouting	When a paddler is able to stay in his/her kayak and view the next section of river. This is often done from an eddy.
International Scale of River Difficulty	A scale from 1 to 6 (including "+" and "-") that gives a rough guide as to the difficulty of the river trip. Pertains to moving water.
Class I – Easy	Peacefully flowing flat water, meandering down.
Class II – Moderate	The river flow is quicker with disturbances from small waves, rapids, eddies and whirlpools. The main channel is always clear and obvious.
Cumecs	Cubic Metres per second. This is the measure of the flow of a river. 30 cumecs means that 30 cubic metres (or 30 000 litres) of water is passing a point on the bank every second.
Eddy	The relatively calm area of water downstream from rocks, protruding walls or other river features. Forms a still area of water, or an area of water moving in the upstream direction. Is used by kayakers to stay stationary, to rest or to scout from.
Eddy Turn	The technique used to exit from an eddy into the current or back again, is generally necessary to avoid capsizing on the eddy-line (where the current from the main river flow and the current in the eddy pass each other in opposite directions).
Ferry Glide	A ferry glide is a manoeuvre that combines paddling and holding the boat on a set angle in order to move the boat across the river.
Put In	Where you put onto a river.
River Right	The right hand side of the river – from the perspective of looking down river.
River Left	The left hand side of the river – from the perspective of looking down river.
Spraydeck	A neoprene cockpit cover that is worn by the paddler and secured around the rim of the cockpit to keep the water out of the kayak.
Strainer	Any obstacle on the river that allows water to pass through, but will entangle or entrap people or kayaks. In this case, a tree branch.
Throwbag	A nylon or canvas bag filled with foam and climbing grade rope that is thrown to rescue paddlers swimming in whitewater.
Wet Exit	The act of getting out of an upside-down kayak (in the water)

References:

Charles, Graham (2002) *New Zealand Whitewater – 125 Great Kayaking Run.* Nelson, New Zealand: Craig Potton Publishing.
Nealy, William (1986) *Kayak*. Birmingham, AL: Menasha Ridge Press.

Note 1
The photos in this report were taken on 12 & 13 March. The flow of the river was, at the time the photographs were taken, between 1% and 4% lower than at the time of the accident. In the context of this accident, this difference in river flow is negligible.

Note 2
The kayak paddle blade which has been used in some of the photographs to represent scale, is approximately 50 centimetres in length.

REPORT NO.: 05 1185

VESSEL NAME: *KAYAK*

Vessel Type:	Minnow Kayak
Construction Material:	Plastic
Accident Investigators:	Ian Logie & Andrew Hayton

Kayak

SUMMARY

Two Finnish tourists put on the Waiau River just beneath the Lake Te Anau control gates on the 11th of March 2005. The river was high and clear. They were both paddling open cockpit kayaks that had been lent to them by the owners of the backpackers at which they were staying. The more experienced kayaker (Kayaker 2), was wearing a personal flotation device (PFD). Despite their best efforts to hire another PFD, Kayaker 1 did not have one to wear.

Given that they did not both have a PFD to wear, they were not initially planning on continuing down the river. After some time of paddling around at the put in below the control gates they decided to continue down Waiau River, knowing that a) the descriptions of the river that they had gathered made it sound within their ability, and b) they could get out at any time if they chose to.

At a point roughly fifty metres above "Black Rock", Kayaker 1 paddled to the side so as to be able to view what was coming up. The eddy that he paddled into was small and was against a tree-lined bank. The high river level meant that a lot of water was flowing through trees on the bank. Kayaker 2 paddled into some slow moving current against the bank at the bottom of Kayaker 1's eddy. In order to hold herself steady she grabbed hold of some trees on the bank. This led her to capsize. She was quickly swept downstream and Kayaker 1 threw her a buoy attached to a rope that was in turn attached to his kayak. In the process of this he too capsized.

Kayaker 2 was swept into a strainer (a Rata tree) protruding from the bank. With great effort she managed to disconnect herself from the rope attached to her kayak and resurface and climb onto the tree. She could not see Kayaker 1 anymore so rushed along the bank looking for him. When she returned to the tree that she had been caught on, she saw Kayaker 1's red jacket submerged on the strainer. She ventured out onto a limb of the tree and touched Kayaker 1's submerged jacket with her foot. She knew then that he was still in the jacket.

Given the unsteadiness of the tree and the volume of water flowing past the strainer it was not possible to rescue Kayaker 1.

NARRATIVE

Kayaker 1 and Kayaker 2 had been in New Zealand for approximately six months. They were experienced outdoors people and had been spending their time climbing, tramping, camping and paddling whilst in New Zealand. Their most enjoyable trips had been the Dusky track and a three day sea kayaking trip on Lake Monowai.

Kayaker 2 had learnt to kayak in Finland whilst gaining a degree in order to become an outdoor instructor. During her degree programme they had paddled on big lakes as well as Class I+ rapids. In the United States, when working at a Summer Camp, she had learnt to canoe and had successfully completed both a White Water Instructor's Course and a White Water Rescue Course. There, she had also paddled a lot of Class II white water. She had two to three hundred days of kayak/canoeing instructing experience, with around eighty percent being on lakes.

In Finland, both Kayakers had previously paddled together for ten days at the most. Before that, Kayaker 1 had done "a wee bit before". His experience included a lot more flat water than moving water. He was very fit and was also a very strong swimmer – evidenced by him comfortably swimming three kilometres in a lake earlier on their trip in New Zealand. Kayaker 1 and Kayaker 2 had known each other since 2003.

The two Kayakers had been staying at the Barnyard Backpackers – where they got to know the owner/managers. They had previously stayed there "seven to eight weeks" prior – both before and after walking the Dusky track. The Barnyard Backpackers do not usually lend outdoors equipment to their guests, however, after getting to know the two Kayakers and knowing Kayaker 2's experience as a kayaking and canoeing instructor, the owner of the Backpackers lent them their two old Current Craft (Perception) Minnow kayaks. The lending of the kayaks was a gift – with nothing asked for in return.

The Minnow kayak is an open cockpit kayak with a wide flat hull most ideally suited for family fun on flat water. They are also popular amongst duck shooters and fishermen on sheltered waters (*See Photograph 1 - Kayak*).

Photograph 1
Kayak

With the kayaks were two paddles and one personal floatation device (PFD) (*See Photograph 2 - PFD*). The two Kayakers also tied a plastic/vinyl blow-up buoy onto each kayak (*See Photograph 3* -). They joined each buoy to its respective kayak with approximately sixteen metres of orange plastic rope. The rationale for this was that if one of them capsized, the other person could throw their buoy to the swimmer in order to assist. The owner recommended that they paddle at the Lake Manapouri (Shallow Bay) end of the Waiau – as the Waiau is very swift. They were keen to paddle the Waiau though and ran along the length of it (on the Kepler track) the day prior to attempting to paddle it. Unfortunately during this run they did not notice the lack of well-defined eddies suitable for a beginner. The owner told them that there was one rapid on it.

Photograph 2
Kayaker 2's PFD

Photograph 3

Buoy attached to ***Kayaker 1's*** kayak

On March 11, Kayaker 1 and Kayaker 2 left the Barnyard Backpackers at approximately midday. They had had a "big breakfast" after a quiet night the evening prior. They took the kayaks to the river and then went into Te Anau, seeking to hire an additional PFD. It was their intention not to paddle unless they both had a PFD. They visited a variety of outfitters and shops where no-one was willing to hire a PFD to them. The usual reason given for this was that a business does not want to hire equipment out when they cannot have a more significant influence over clients' safety.

In seeking to gain more information about the Waiau River – especially regarding rapids and hazards - the two kayakers visited both the local Jetboat operators and the Department of Conservation (DOC) Visitor Centre. A person that they spoke to at one of the Jet boat operators told them that there was a lot of water going down the river, and that at a rock in the middle of the river they should paddle on the river right. The person at DOC told them that there were no rapids and that scouts paddled it. They were also told to check the river levels before getting on. They were not given any guidance however on how to recognise whether the river was high or low or the effects of different flows.

The Kayakers had a wholemeal loaf and muffins for lunch and decided to go paddling despite their initial decision not to – with only one PFD. Kayaker 2 wore the PFD that they did have because she fitted it and Kayaker 1 did not. They put on the river at approximately 1600. This was in the eddy on river right directly beneath the Lake Te Anau control gates (*See Figure 1 – Grid Reference NZMS D43 945132 & Photograph 4 – View of eddy at Put In [river left]*).

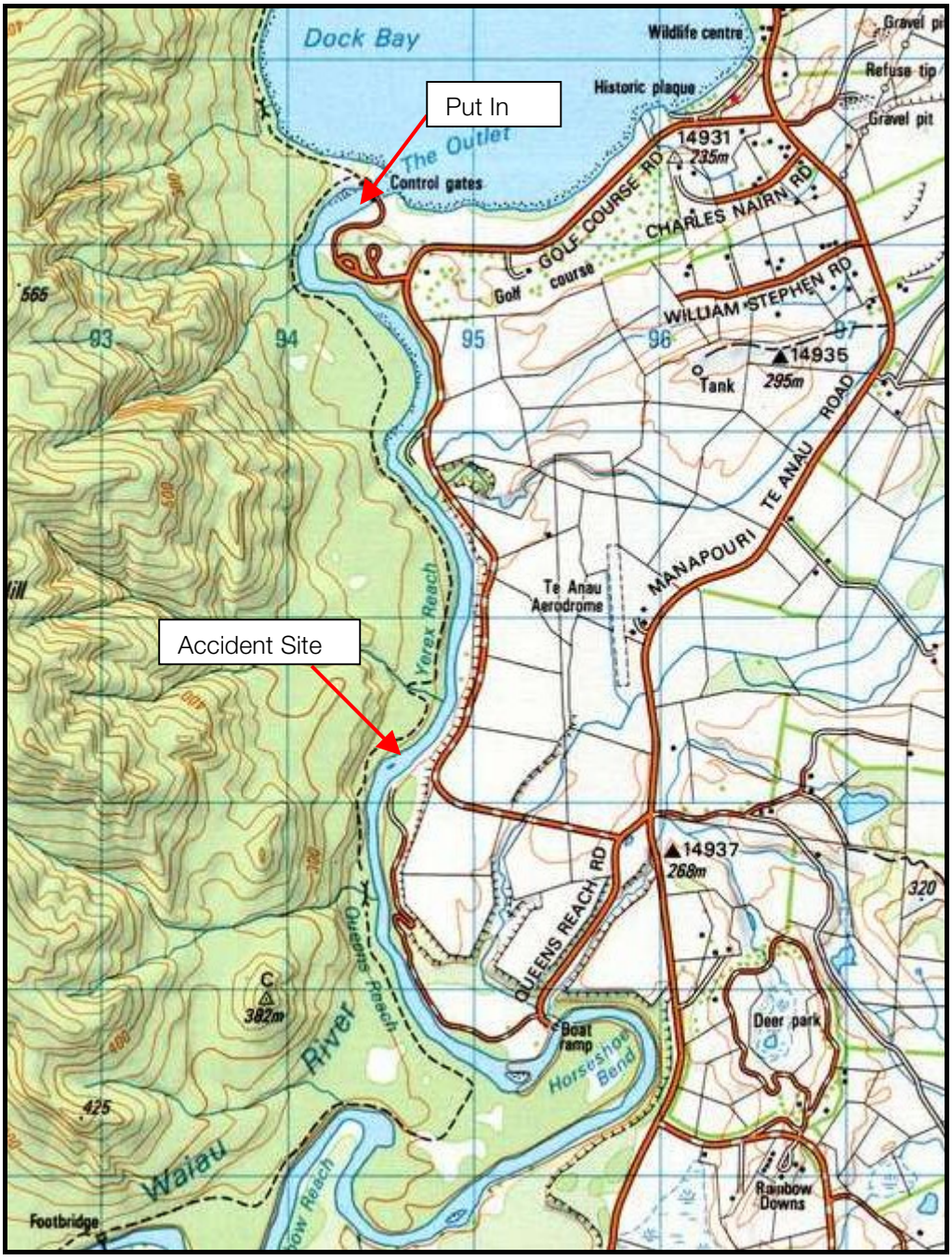


Figure 1

Grid Reference NZMS 260: D43 – Showing Put In Position & Accident Site

Photograph 4

View of eddy at Put In (river left)

The river was flowing at approximately 650 cumecs. In commenting on the draft report, Kayaker 2 advised that they inquired about the water levels on the day and were told that the flow was about 450 cumecs. The banks are heavily forested in native bush. The river is relatively wide by New Zealand standards and was flowing quite swiftly. The Waiau River has become better known since being used in the "*Lord of the Rings"* films.

They paddled around in the eddy below the Lake Te Anau control gates for a while, testing out the kayaks and practising eddy turns. They both felt stable in their kayaks and were comfortable with the amount of freeboard (distance between the waterline and the gunwale of the kayak). There was a lot of discussion about whether they should walk up to the lake and play around on there for a while or continue down the river. Kayaker 1, who did not have a PFD, checked the river downstream and wanted to paddle further down. So too did Kayaker 2.

They ferry glided across the river "a couple of times" (*See Photograph 5 – View of Eddy river right at Put In*) and were in control, paddling straight lines, and making the eddy turns the way they wanted to. They continued their discussions about whether to continue on down river or not as it was "50/50" on should they go or should they not. Factors that they considered included:

- No PFD for Kayaker 1;
- No spray decks for either of them - if the river conditions remained how they were at the put-in, that would be good; according to the information that they had gained there should not "be any rapids or anything";
- Kayaker 2 didn't think that Kayaker 1 was up to paddling any rapids. They decided to continue on down the river.

Photograph 5

View of Eddy river right at Put In

The river was swift but relatively flat. After approximately fifteen minutes the river “began feeling a bit more serious”. The two kayakers eddied out and discussed whether or not to lift their boats up and out of the river. They were both concerned about Kayaker 1 not having a PFD. They had previously eddied out twice before this. They got out of their kayaks and walked downstream in order to have a look at the river. They decided that it looked “pretty rough but do-able”. The river would have been Classed I+ to II at this stage. They decided to continue on paddling down the river.

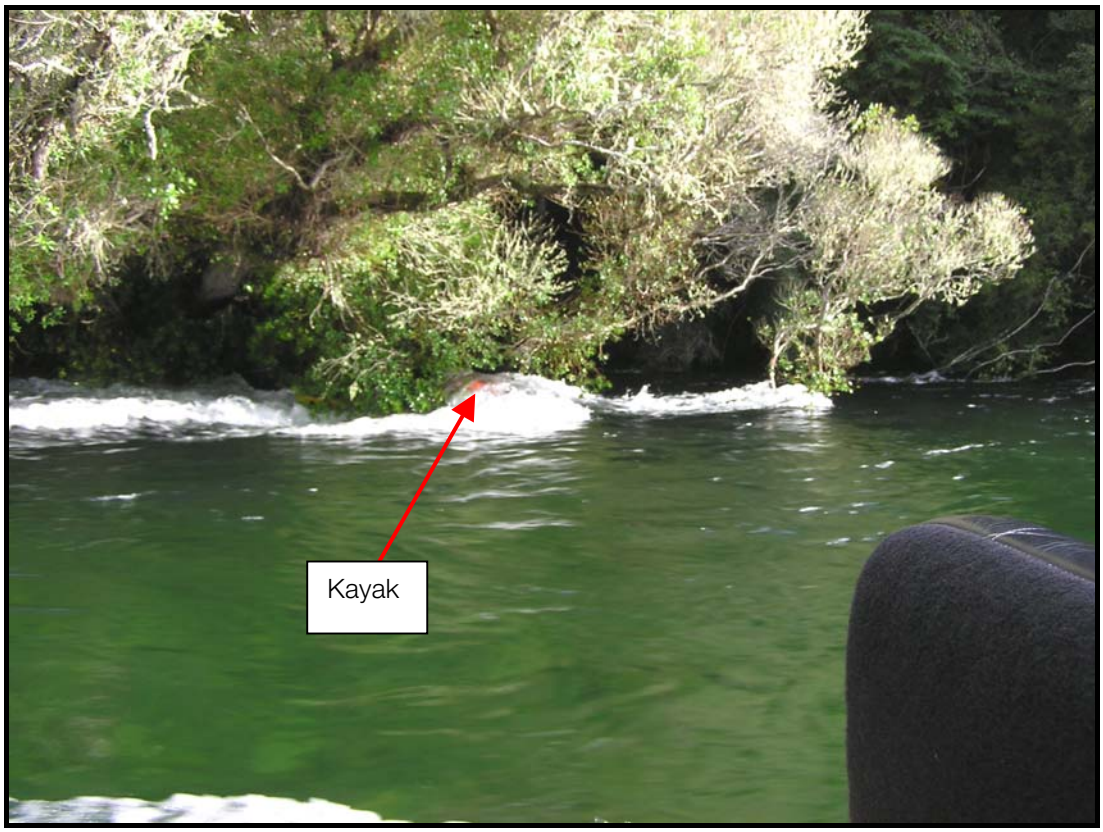
THE ACCIDENT

The next time Kayaker 1 eddied out, he was on the river right side and approximately 50 metres upstream of the accident site (*See Photograph 6 – Overview of Accident Site, Photograph 7 – Eddy which Kayaker 1 parked himself in* & *Figure 1*). It was upstream of "Black Rock" - the rock that the jet boat people had told them about, and they "wanted to scout it". Kayaker 2 followed Kayaker 1 towards the bank. However, she was not in same small eddy – she was still in the moving water. She held onto branches from the trees on the side in order to steady her position. The current however continued taking her kayak downstream and Kayaker 2 capsized. When she came up she attempted to swim herself and her kayak to shore. The river was still moving swiftly and she realized that she was quickly approaching a strainer (*See Photograph 8 – Side on view of Strainer Photograph 9 – Strainer viewed from up river*). She attempted to put her kayak between herself and the strainer.

Photograph 6
Overview of Accident Site

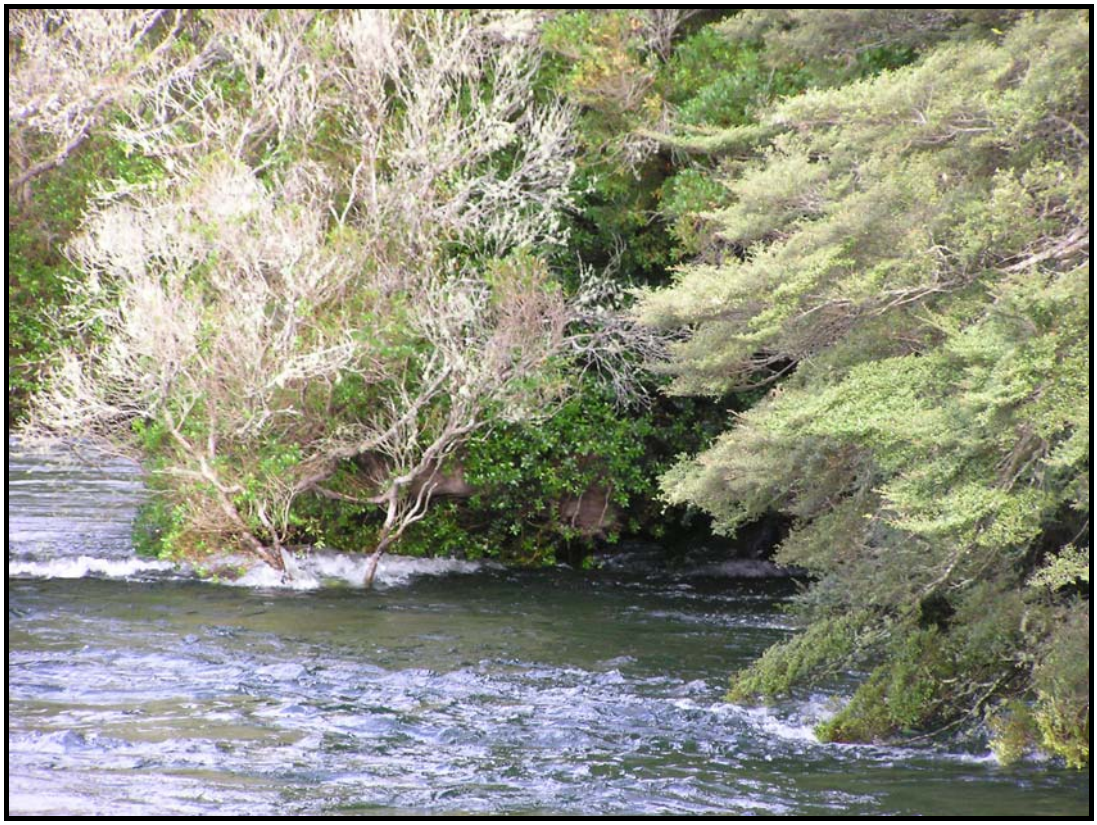
Photograph 7

Eddy which Kayaker 1 parked himself in



Photograph 8

Side on view of Strainer *(Note – Kayaker 2's kayak still pinned)*



Photograph 9

Strainer viewed from up river

The strainer was a limb and branches of a Rata tree extending from the bank. The branch furthest from the bank was extending upstream from the limb. Kayaker 2 was sucked underneath and found that the rope attaching the buoy to her kayak was wrapped around her ankle and pulling her still further onto the strainer. She managed to free her ankle of the rope and with a Herculean effort managed to resurface and climb onto the limb of the tree.

When Kayaker 2 looked around, it was quiet and she could not see Kayaker 1. Both of their kayaks were stuck on branches of the Rata tree and she could see Kayaker 1's red jacket (*See Photograph 10 – Jacket*) beneath the surface, stuck on the branch furthest out into the current. She assumed that he must have got out of his jacket and be drifting downstream.

Photograph 10

Kayaker 1's Red Jacket

When Kayaker 2 initially capsized, she believes that Kayaker 1 panicked. He was shouting and trying to throw the buoy when he saw her in the water.

In order to find Kayaker 1, Kayaker 2 ran downstream. There was no sight of him. On her way back she met a German tourist who had heard her screaming and her whistles. He rang for help (111) at approximately 1722 hours and accompanied her back to the Rata tree to check if Kayaker 1 was still in his kayak. Kayaker 2 edged her way along the limb of tree and felt the submerged jacket with her foot. The jacket was between his kayak and the tree. She then realised that Kayaker 1 was still inside the jacket (*See Figure 2 - Sketch*).

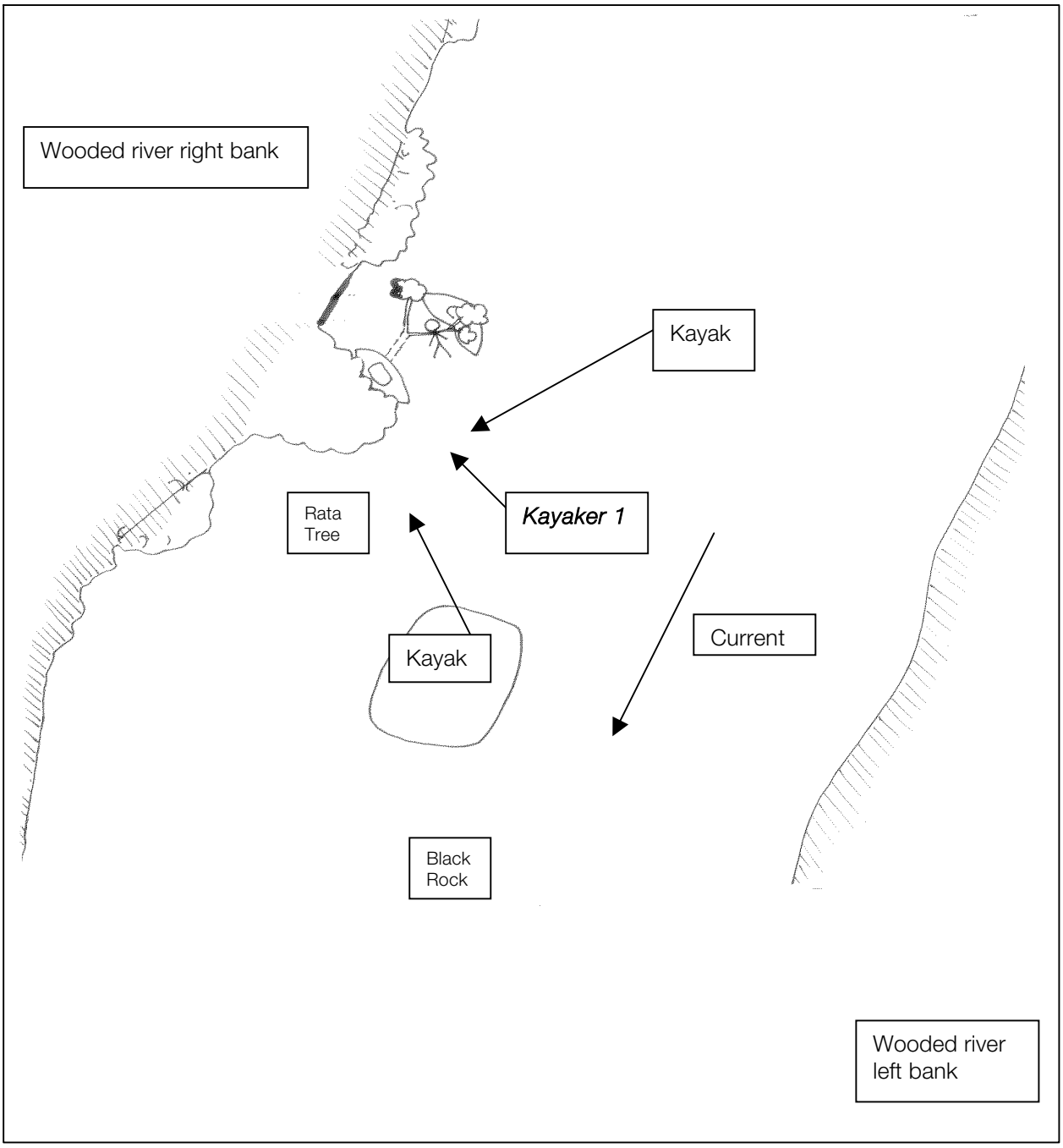


Figure 2

Sketch of Accident Site

Note – Kayak's & ***Kayaker 1*** *mostly submerged*

The hood of the jacket was bouncing to the surface at times with the current. There was a lot of current flowing over the branch that Kayaker 1 was stuck on and this made it far too dangerous to attempt to grab a hold of him. The current was too swift for Kayaker 2 to be able to see where Kayaker 1's jacket was attached to the tree.

In the meantime the German tourist had used his mobile phone in order to dial 111. A helicopter arrived within 15 minutes.

Once Kayaker 2 had been shuttled away from the accident site, a boat from Luxmore Jet was involved in removing Kayaker 1's body from where it was pinned. The jet boat driver estimated the current flowing onto the strainer to be between twenty-five and thirty knots. When he hauled the body of the deceased off the tree, the jet boat was moving at four and a half kilometres per hour. At the same engine revolutions per minute, the boat would usually attain eighty kilometres per hour on the lake with twelve people in it. The rope from the deceased's kayak was wrapped around his neck and his kayak was hauled off the branch with him.

In commenting on the draft report, Kayaker 2 noted after they had put in on the river, and all along the river to the point of the accident, they were about to take their kayaks out several times.

COMMENT & ANALYSIS

Swift flowing rivers with heavily wooded banks are beautiful places to paddle yet are potentially very dangerous. This is especially so when the river is high and the there is a significant amount of water flowing through the trees on the side.

Six hundred and fifty cumecs is considered to be a high flow for the Waiau River. It would not have been immediately obvious to most people that the river was flowing high on the day of the accident. It is dam controlled and lake fed. This means that it will almost always be running clear and this could be happening days after any rain. Even a low lake level will not guarantee a low river level.

Although the paddlers had sought out information from a variety of sources, none of it was good quality paddler information. With Kayaker 2's instructing experience, it was easy for her to dismiss the information supplied by the person who lent them the kayaks. The information from the jet boat company to paddle past the large rock on the river right side may have been appropriate for jet boats, but for a kayaker at that flow, the river left side provided less of hazard – a slower current on the inside of the bend and just some straight forward small waves to contend with. The river left side also provided less chance of later being swept into the trees on the outside of the bend.

DOC provides an excellent and very knowledgeable information service for trampers and mountaineers. They do not usually have the same pool of experience and expertise to call upon when it comes to advice about river paddling. When I asked a frontline staff member about paddling the Waiau River just two days after the accident, the Investigator was told that it could be dangerous when it was high, but that it hadn't rained for a few days and so should be fine. The river flow was still around six hundred and fifty cumecs – the same flow as at the time of the accident.

Given Kayaker 2's professional experience as a kayaking/canoeing instructor she had the most knowledge and experience regarding kayaking out of all the people involved. Further, it was a significant amount of experience that Kayaker 2 had gained. In this context it was reasonable for the owner of the Backpackers to lend the kayaks to her and Kayaker 1. This incident does highlight however the potential dangers involved in lending or hiring kayaks to tourists. More than one commercial sea kayak operator in the Fiordland region believes that there are more accidents waiting to happen with tourists and accommodation-house-provided kayaks.

To paddle a river without a PFD is unwise. Even more so when the river is swift and has heavily wooded sides. This is because it removes the option of happily floating in the middle of the river waiting for an unwooded section of bank before swimming to shore.

Even taking the above paragraph into account, the lack of a PFD does not appear to have been a contributing factor to this incident. Kayaker 1 was caught underneath water on a strainer. Given the nature of the site, this could just as easily have happened if he had been wearing a PFD.

It appears as though Kayaker 2 was methodical in her approach to the problem of not being able to find Kayaker 1. When she did find him, it may have been useful if she had a full kit of river-rescue equipment including a pruning saw. She may have been able to saw off the branch on which Kayaker 1 was stuck. There is no certainty in this though and given the time it would have taken to saw through the branch after checking for him downstream, he most probably would have already drowned.

Kayaker 2 deserves to be commended for not putting herself at further risk when she realised where Kayaker 1 was. If she had pushed further out along the tree limb, she may have become another fatality. As it was she was very lucky to survive after her time trapped beneath the strainer.

Rope and rivers are potentially a very dangerous mix. Although throwbags can be useful in rescuing people and equipment from a wide variety of situations on a river, they should not be carried without a knife. Any rope being carried on a river should be carried in such a way that it remains secure at all times – until a paddler goes to use it.

It appears that Kayaker 2 had a training gap with regards to the above paragraph (whether it was training that she had forgotten, or training that she had not been exposed to). She was not aware of the potential deadly cocktail that rivers and ropes can make.

CONCLUSIONS

Kayaker 1 died as a result of drowning after being entrapped on a tree beneath water.

SAFETY RECOMMENDATIONS

1. The Manager of the DOC visitor centre seek input from a local whitewater kayaking expert in formulating guidelines to help front desk staff give appropriate advice regarding paddling local rivers.

2. That Maritime New Zealand in consultation with the Tourist accommodation industry and the commercial kayaking industry facilitate the development of a Voluntary Code of Practice for hiring/lending small water craft to guests.

3. That the New Zealand Recreational Canoeing Association should take this incident as opportune time to remind its members of the specific dangers associated with:

   (a) paddling rivers with forest down to river level;
   (b) Ropes; and
   (c) the importance of carrying a full rescue kit when paddling close to a forest – even when it is a Class I river.