

# Helicopter Over Water

As tourism increases, so do helicopter flights over water. Can more be done to protect passengers and crew?

**A**ny time a helicopter operates beyond autorotational distance from shore, the risk of ditching in water needs to be given particular consideration.

If there's just no opportunity to divert around that lake, or if your route takes you off the coast, you must take all practicable steps to manage the extra risks involved.

Health and safety legislation requires it, passengers expect it, and operators should demand it of themselves.

## When It Goes Wrong

A couple of locals have arrived for a lunchtime flight to the island. You've done this a thousand times, but it's still a pleasure. The scenery is worth it, and the sun has turned out.

You sneak a bun from the picnic hamper and make final preparations while the passengers are briefed.

They're told how to approach the helicopter, what to do during flight, and how to operate the door in an emergency situation.

It's only a quick trip across water, but the rules require life jackets to be carried. They can be hard to find and fit in a panic, so you've made sure everybody is wearing theirs.

If the worst should happen, you know you'll all be kept afloat long enough for the local rescue service to pick you up.

Nothing seems unusual about the flight until you notice a subtle tapping noise. Seconds later, without warning, the engine dies and you're heading for the drink.

Your training kicks in and you autorotate to a perfect landing, but without airframe flotation, you know it's going to get messy.

The helicopter rolls over and fills with water in seconds. Amid the chaos and disorientation, you somehow manage to get yourself unbuckled and out the door. The passengers, thankfully, also find their way out and inflate their life jackets.

You hadn't left yourself enough of a height buffer to allow time to activate the ELT. You can only hope it went off automatically.

You're too far offshore to swim anywhere, and the cold coastal water is leaving you breathless. Your muscles start to cramp as you huddle with the passengers.

The wait begins.

## Into the Cold

Many people assume that the worst part of ditching in water will be the impact. Survive that, and life jackets will keep everybody safe until help arrives. Right?

If a passenger or pilot isn't already wearing their life jacket, it may be impossible for them to find and fit one during a ditching.

Wearing a life jacket alone also does nothing to reduce the effect of cold water on the human body, particularly when help could be some time away.

The initial effects of 'cold shock' can last for several minutes and leave a person uncontrollably gasping for air. This greatly increases their chance of taking in water and drowning.

Their rapid breathing also flushes carbon dioxide out of the body, causing muscle cramps. Blood pressure increases, bringing with it a greater risk of heart failure and brain haemorrhage.

Hypothermia is by far the biggest killer in water survival situations.

Professor Michael Tipton, author of *Essentials of Sea Survival*, conducted an experiment at the British Institute of Naval Medicine; placing competitive swimmers in a ten degree Celsius pool.

Olympic gold medallist Duncan Goodhew was submerged for just eleven seconds. Despite the brief exposure, he went into cold shock, and gasped uncontrollably after surfacing.

The other participant, Commonwealth Games gold medallist Sharron Davies, wasn't subjected to full immersion but could swim for only 10 minutes in the cold water before starting to lose control.

## HUET Training

Helicopter Underwater Escape Training (HUET) teaches people how to escape a helicopter following a water ditching.

Knowing what to do reduces the chance of panic during the real event. It reduces the chance of confusion and disorientation.

Daniel Stevenson, from Kaikoura-based South Pacific Helicopters, has chosen to go beyond minimum compliance levels and all his pilots have completed HUET courses.

"It's a workplace, so risk must be mitigated for staff. You have to do the best for them, and for the travelling public," he says.

"HUET courses are valuable because passengers may depend on you if you ditch in the ocean. You could be the only one there to drag them out of the aircraft."

Pilots with HUET training often find they can give passengers a better briefing, having been through a simulated ditching.

Briefings can, for example, include asking passengers to close their eyes and find the door handle. They should also be told the importance of removing a headset before a ditching, because, in a panic, the cord can easily get tangled.



## Life Rafts

One person with first-hand experience of a water ditching is CAA Flight Operations Inspector, Richard Martin.

During the mid-90s, he was involved in a helicopter ditching, while operating off a ship in the Pacific. The engine failed climbing through 800 feet to cruise.

“One of the most compelling arguments for carrying life rafts in New Zealand is that they allow people to get out of the cold water.”

“To do the best for passengers, life rafts should be a minimum if the aircraft doesn’t have flotation,” he says.

“A life jacket isn’t going to keep people warm. A raft keeps their body out of the water, and offers greater visibility. They are much easier for rescuers to find than a few heads bobbing up and down.”

As with any equipment in an aircraft, it’s important that life rafts are inspected and maintained to the standards set by their manufacturer.

## Flotation

The use of airframe flotation devices can offer an even greater chance of survival.

When Richard’s helicopter came down, he was fortunate in two ways.

“Trying to land on glassy water is extremely difficult, but we had enough of a breeze that day,” he said.

His helicopter also had floats, leaving both Richard and his passenger dry and comfortable while they waited for rescue.

Daniel Stevenson equips his EC120 and Jet Ranger with pop-out floats, life rafts and PLBs for offshore work.

“You have to give yourself as much chance as you can in a hostile environment.

“The costs could be seen as prohibitive by some operators,” he says, “but at the end of the day, what’s the cost of ditching into water and losing lives?”

## More Information

Email [info@caa.govt.nz](mailto:info@caa.govt.nz) for a free copy of the *Survival GAP* booklet, or view it online at [www.caa.govt.nz](http://www.caa.govt.nz), “Quick Links > Publications > *Good Aviation Practice* booklets.”

Also see the recent NTSB Safety Alert on flight helmet cords at [www.nts.gov/air](http://www.nts.gov/air). ■