



Seaplane Pilot Egress

by Jackie Helier



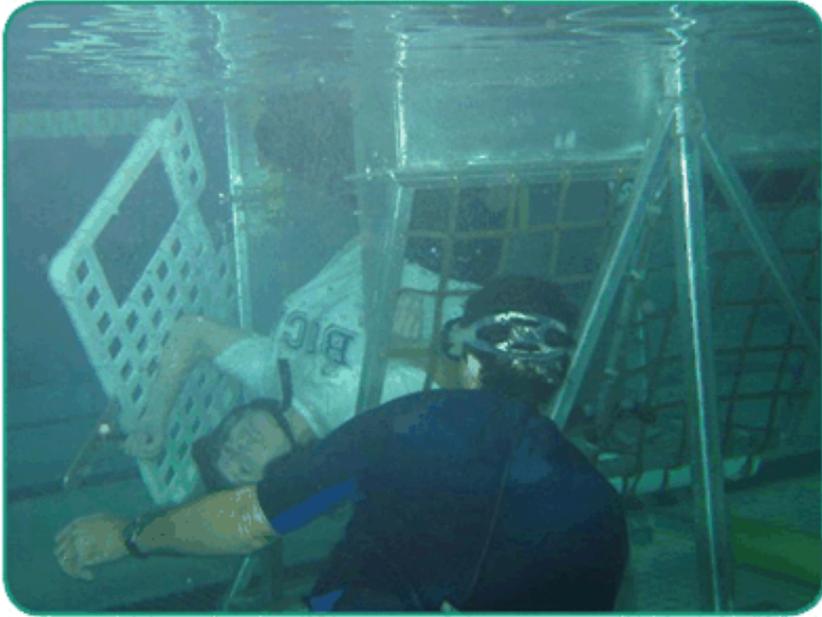
In recent years, Transport Canada and the specialized underwater-egress training industry have made considerable efforts in educating pilots and operators on the importance of underwater-egress procedures and training. Through pamphlets, newsletter articles, posters, videos and brochures, the aviation industry has received the bulk of the information and awareness materials. However, those education efforts have succeeded only partially; while our crews and operators are aware and ready, a very important segment of our industry-the passengers-has not benefited to the same extent from this awareness drive.

The reality is that the majority of passengers will not seek specialized underwater-egress training, and therein lies the challenge. How best to reach them? The aforementioned awareness materials are indeed available on-line for most of us who know how to find them. But then again, how many passengers will seek that specialized information? It is therefore the commercial operators-and their flight crews-who are in the best position to transfer this knowledge to the paying passengers. Other than the formal underwater egress training program, the most effective and traditional way of accomplishing this knowledge transfer is to provide the best, most comprehensive pre-flight briefing possible-supported by a pre-flight video and reading material, such as a brochure or pamphlet.

For passengers, the most difficult part of surviving a ditching accident is the underwater egress. Accident reports indicate that many people survive the initial impact, but needlessly drown because they were unable to extricate themselves from the aircraft. A study on survivability in seaplane accidents conducted by the Transportation Safety Board of Canada(TSB) suggested that fatalities in seaplane accidents terminating in water are frequently the result of post-impact drowning. Most drownings occurred inside the cabin of the aircraft, and occupants who survived often found exiting the aircraft quite difficult. In fact, over two-thirds of the deaths occurred to occupants who were not incapacitated during the impact, but drowned trying to escape the aircraft.

Why do passengers encounter difficulties when trying to get out of an aircraft that has submerged? Panic, disorientation, unfamiliarity with escape hatches, and lack of proper training are some of the major factors that contribute to passenger drowning. During an emergency situation, rather than pause to think, most will react on instinct and as a result of learned behaviours; if people never acquired a learned behaviour that is appropriate for this type of situation-such as the steps to follow in an underwater-egress scenario-then the odds of reacting appropriately are much smaller. For example, when getting out of a car, most of us release our seat belt before opening the door. We do this without even thinking: it is a learned behaviour. If we are strapped into an aircraft that is sinking, a common reaction is to release our seat belt first, then try to get out. We have reverted to the learned behaviour we have acquired every time we get out of a car.

In many accidents, people have hastily and prematurely removed their seat belts and, as a result, have been moved around the inside of the aircraft due to the in-rushing water. With the lack of gravitational reference, disorientation can rapidly overwhelm a person. The end result is panic and the inability to carry out a simple procedure to find a way out of the aircraft.



Typical underwater-egress training exercise, professionally supervised and done with portable equipment in local pools.

Before releasing our seat belt, we need to stay strapped in our seat until the in-rush of water has stopped, our exit is identified, and we have grabbed a reference point. As long as we are strapped in our seated position, we have a reference point relative to our exit, which will combat disorientation. Also, pushing or pulling open our exit will be much easier if we are still strapped in our seat.

All on board must be familiar with the exits and door handles, and know how to use them with their eyes closed. This advice may seem simple, but think about the car example. Opening the door from the inside is not considered a difficult task. However, think back to a time when you were in a friend's sports car, and you could not locate or operate the door handle immediately.

An unfamiliar task, to be executed submerged, quite possibly upside down, in the dark, and in very cold water: what could seem like a simple undertaking suddenly becomes monumental. To help prevent panic and disorientation, we recommend that you brief passengers thoroughly before each flight on the seven steps of underwater egress described below and taken from the brochure entitled [Seaplanes: A Passenger's Guide](#) (TP12365).

Underwater Egress

In water accidents, seaplanes tend to come to rest inverted. The key to your survival is to retain your situational awareness and to expeditiously exit the aircraft. The following actions are recommended once the seaplane momentum subsides:

- 1. Stay calm**-Think about what you are going to do next. Wait for the significant accident motion to stop.
- 2. Grab your life preserver/PFD**-If time permits, put on, or at least, grab your life preserver or PFD. **DO NOT INFLATE IT** until after exiting. It is impossible to swim underwater with an inflated life preserver. You

may get trapped.

3. Open the exit and grab hold-If sitting next to an exit, find and grab the exit handle in relation to your left or right knee as previously established. Open the exit. The exit may not open until the cabin is sufficiently flooded and the inside water pressure has equalized. DO NOT release your seat belt and shoulder harness until you are ready to exit. It is easy to become disoriented if you release your seat belt too early. The body's natural buoyancy will cause you to float upwards, making it more difficult to get to the exit.

4. Release your seat belt/harness-Once the exit is open, and you know your exit path, keep a hold of a fixed part of the seaplane and release your belt with the other hand.

5. Exit-Proceed in the direction of your nearest exit. If this exit is blocked or jammed, immediately go to the nearest alternate exit. Always exit by placing one hand on a fixed part of the aircraft, and not letting go before grabbing another fixed part (hand over hand). Pull yourself through the exit. Do not let go until you are out. Resist the urge to kick, as you may become entangled in loose wires or debris, or you might kick a person exiting right behind you. If you become stuck, back up to disengage, twist your body 90 degrees, and then exit.

6. Get to the surface-Once you have exited the seaplane, follow the bubbles to the surface. If you cannot do so, as a last resort inflate your life preserver. Exhale slowly as you rise.

7. Inflate your life preserver-Only inflate it when you are clear of the wreckage, since life preservers can easily get caught on wreckage, block an exit, or prevent another passenger from exiting.

Remember that a thorough pre-flight briefing can make the difference between life and death for your passengers. Better yet, encourage your regular passengers to enroll in a specialized underwater-egress training program. By practicing the skills for ditching and underwater egress in a pool with professional staff, passengers, too, can acquire the learned behaviour we discussed above and avoid becoming victims of this unforgiving situation.

The author and her husband run an established underwater-egress training program for flight crews and passengers in Surrey, B.C.

Underwater Egress (TP 2228E-18) Transport Canada Publication

Although the odds of experiencing a ditching event are extremely low, pre-flight preparation and knowledge are paramount to survival should it happen.

The following items will enhance your chance of a successful egress.

1. Pre-flight Preparation

Ensure the pilot-in-command demonstrates the location and use of the emergency exits, life preservers, emergency equipment, life raft, and the proper brace position—before the flight. For extended over-water flights, consider wearing your life preserver. Make sure all baggage and cargo is secured so it does not block access to the emergency exits.

2. In-flight Preparation

If you are aware that you are about to ditch, do the following:

Put on your life preserver, but DO NOT INFLATE IT.

Locate all emergency exits, note where they are in relation to your right or left hand, and visualize how to open them.

Assume the proper brace position for your seat, as briefed by the crew.

Follow the instructions given by the pilot-in-command.

3. Underwater Egress Procedure

Try to remain calm!

Take a deep breath prior to being submersed under water.

OPEN YOUR EYES.

Orient yourself in relation to your selected emergency exit.

Get a firm grip on a fixed reference point.

If you are seated next to an emergency exit:

Wait until the water has filled three quarters of the cabin before you fully open the exit, then open it.

Release your safety harness.

Pull yourself free from the cabin.

Inflate your life preserver after exiting the aircraft.

If you are NOT seated right next to the emergency exit:

Release your safety harness and proceed toward your emergency exit.

Wait until the water has filled three quarters of the cabin before you fully open the exit, then open it.

Pull yourself free from the cabin. Inflate your life preserver after exiting the aircraft.

Some of the difficulties during underwater egress include lack of oxygen; disorientation; in-rushing water; obscured vision; and floating debris. Don't panic. You know you can hold your breath, so relax for a moment; open your eyes; find the exit; and egress. These are basic guidelines only, and your best defense is underwater egress training.