

COLD WATER SURVIVAL

by Rick Scott

We have now shifted from ice fishing to getting the boat out on the water. Has the water warmed up yet? Are you prepared for a sudden or unexpected dip. Do you know how you will react if you are suddenly immersed in cold water?

You should be thinking about these questions. Boating in early spring or late fall, when the water is cold can present its own special dangers. Most victims do not enter the water intentionally.

A boater who ends up in the water may die from complications of cold water immersion but can survive for a surprising length of time if they are wearing a PFD and take the proper actions. It is important not to panic and make the proper decisions in order to survive.

Boaters, in Canada's typically cold waters, should be aware of the **Three Phases of Cold Immersion**:

1. **Cold Shock Response** causes gasping and intense breathing for 1-3 minutes after falling into the water. Gasping could result in drowning if the mouth slips beneath the water and excessive hyperventilation could result in fainting and then drowning if a PFD is not worn. It is important not to panic, try to enter the water slowly and keep your head above the water and try to control your breathing by consciously relaxing.
2. **Cold Incapacitation** occurs when muscles and nerves become so cold, they fail to work properly and an individual is unable to swim, climb aboard a boat, or complete other tasks required for survival and to prevent drowning. In ice water (0 °) cold incapacitation could occur within 5 -15 minutes but would take longer at higher water temperatures.
3. **Hypothermia** results from prolonged exposure to cold weather, particularly in water-soaked clothing, or from direct cold water immersion. Hypothermia is a drop in body temperature from a normal value of 37° to below 35°. At this lower temperature a person's mental functions are affected. A person exposed to cold water, and becoming hypothermic, can exhibit certain progressive signs and symptoms:
 - shivering and slurred speech, conscious but withdrawn at the early stage;
 - slow and weak pulse, slow respiration, lacks coordination, irrational, confused and sleepy at intermediate stage;
 - weak, irregular or absent pulse or respiration, loss of consciousness at final stage.

If you do end up in the water, it is important to do everything you can to conserve energy and body heat.

How Long can I survive in cold water?

Survival in cold water depends on many factors. The temperature of the water is only one, others include body size, fat, and activity in the water. Large people cool slower than small people, fat people cool slower than thin people. Children cool faster than adults.

By swimming or treading water, a person will cool much faster than if remaining still. An average person, wearing light clothing and a personal floatation device/lifejacket may survive 2 to 3 hours in 10° water by remaining still. This survival time can be increased considerably by getting as far out of the water as possible and putting on any insulation that might be available. Getting into or onto anything that floats can save a life.

You may extend your survival time if you:

1. Wear your PFD or lifejacket. If you are not wearing your PFD valuable energy will be lost keeping your head above water so you can breath.
2. Climb onto a nearby floating object to get as much of the body out of or above the water, if possible.
3. Adopt a “Heat Escape Lessening Position” (H.E.L.P.) by pressing arms tightly against the chest and pressing the legs tightly together. (Crossing arms and drawing knees up adds little thermal protection but makes it much harder to maintain an appropriate position and perform other tasks).
4. It is important to keep a group of survivors together. Either connect each member by some type of tether, or you might try to “HUDDLE” by getting the sides of everyone’s chest close together with arms around mid to lower back and legs intertwined. This position may be difficult to maintain in waves and movement is limited.

What Do I Do If An Accident Occurs?

Remember that water conducts heat away from the body about 25 times faster than air of the same temperature. Most boats will float even when capsized or swamped, so get in or on the boat to get as far out of the water as possible. Wearing a PFD or lifejacket is a must. It will keep you afloat even if you are unconscious. Remaining still and, if possible, assuming the Heat Escape Lessening Posture will increase your survival time.

Should I Swim for Shore?

This is a most difficult decision and depends on many things. Remember distances on the water are very deceptive. Staying with the vessel is usually the best thing to do. This will make it easier for rescuers to spot you. Even a capsized vessel is easier to see than a person in the water. Do not swim unless there is absolutely no chance of rescue and you are absolutely certain you can make it. Swimming in a lifejacket or PFD requires many times the strength and energy otherwise required and you will move much slower through the water but, never remove your PFD or lifejacket, it is your last defense against drowning.

How Can I Avoid Hypothermia?

Because most boaters who die in water-related accidents had no intention of going into the water, the obvious answer is to avoid those behaviors that cause accidental immersions.

- do not stand or move around in a small boat
- do not overload your boat and make sure the load is evenly distributed

- do not decelerate suddenly, allowing the stern wake to overtake and swamp the boat by washing over the transom
- always wear of PFD/lifejacket

Boaters can protect themselves by wearing their PFD or lifejacket with multiple light layers of dry clothing and a water or wind-proof outer layer. Other pieces of equipment that may provide additional protection from hypothermia include:

- a floater suit - a full nose-to-toes PFD
- an anti-exposure work suit - a PFD with a thermal protection rating
- a dry suit - to be used in conjunction with a floatation device and a thermal liner
- a wet suit - traps and heats water against your body
- an immersion suit - to be used in extreme conditions upon abandoning vessel (usually for off-shore use)

Acknowledgements:

Special thanks to Gordon Giesbrecht, Ph.D. Professor of Thermophysiology, University of Manitoba, for his assistance with this article.