# Marine Safety Frequently Asked Questions

## What is the definition of cold water?

Water temperature is critical to an immersed body's ability to stave off the effects of hypothermia. There is disagreement over at what temperature water is considered "cold". Water temperatures near the ocean beaches of Hawaii and the coasts of much of the contiguous U.S. are considered by millions of people to be warm enough to swim in, even with little (or no) clothing. Yet, just offshore these same beaches, water temperatures may be debilitating enough to cause death in just a matter of hours. How cold does water need to be in order to be considered "cold" and thus life threatening?

It is important to consider that the naked human body was not designed to live in much of the world's ambient air temperatures. It can survive in almost none of the world's water temperatures. To make up for this poor design feature, humans devised clothing as insulation that gives the margin needed for survival. The human body will become hypothermic in any water temperature under 91° F (body at rest) and any air temperature under 80° F (body at rest).

So, much of the earth's climate is inherently inhospitable to humans. But we usually make up for it with our primary shelter – clothing. Another way we can compensate for the cold environment is by exercise. The body produces heat by exertion. Thus, if exercising in water, such as swimming or treading water, the human body will not get hypothermic unless the water temperature is less than 72° F (body exercising).

In water temperatures above 72° F, the body can generate enough heat to keep the body warm. The problem with exercise is that the body needs rest and food to keep going. Water will begin to zap the body of heat as soon as a person stops moving. However, swimming or movement can stave off hypothermia for a time in waters between 91° F and 72° F.

Also, factors such as body fat, clothing, activity level, will to survive, etc. can significantly influence survival time in the water.

Nearing 70° F, water begins to have effects on the body that accelerate the risk. Cold water shock (sometimes referred to as the the mammalian diving reflex) occurs in any water temperature less than 70° F.

Trigeminal nerves in the face, when in contact with cold water, can have a profound effect on the body's metabolism. The result can be a lowering of the body's blood pressure and other physiological changes affecting competence in the water. This is why it is so important to keep the head out of cold water, if possible.

In water below 70° F, the use of heat conservation methods such as the H.E.L.P. (Heat Eascape Lessening Position) and Huddle position become critical to extend survival time. Exercise, such as swimming, will hasten the hypothermia process at these temperatures.

Unfortunately, regulatory agencies do not consider the above medically-defined temperatures of cold water when they apply them to survival equipment regulations. For example, the U.S. Coast Guard defines cold water as water at or below 59° F. There is no medical basis for this choice of temperature. However, by choosing a temperature of 59° F, the oil industry in the Gulf of Mexico and in other parts of the U.S. is exempted from having to carry survival equipment that would meet standards for colder water.

The definition of cold water may depend on what you are doing and who you are talking to. But, for the real emergency, consider the real risks poised by the temperature of the water you are operating on. Make decisions accordingly about the type of emergency and survival equipment you should carry!

## How long can a person survive in cold water?

It depends. Factors such as water temperature, body fat, clothing, activity level, will to survive, etc., can significantly influence survival time in the water. You can survive longer in cold water if wearing a PFD and using heat retention techniques like the H.E.L.P. (Heat Eascape Lessening Position) and Huddle position.


Heat Escape Lessening Position – H.E.L.P.


The Huddle Position

## What is the best kind of personal flotation device (PFD)?

There is no one best PFD. Some things to consider: some PFDs have more flotation than others; some protect the body's high heat loss areas; some are comfortable to wear while working; some have inherent flotation; some are inflatable; some are USCG approved and some are not.

There are a variety of types and styles available for a range of situations and users. Make sure your PFD fits you and meets your needs. If you can, try out a variety in an AMSEA pool session. The best kind of PFD is *the one you wear*.

## What kind of immersion suit should I buy?

As with PFDs, there isn't one right answer. Immersion suit manufacturers make suits with a variety of features and in sizes ranging from toddler to jumbo adult. You have a range to pick from. Please see manufacturers' and retailers' websites for additional information.

## What are the safety requirements for my boat?

Requirements differ depending on the vessel's size and propulsion, the area in which it is used, whether it used for recreational or commercial purposes. The best source of information on required safety gear, licenses, and training is your state boating office and the U.S. Coast Guard. (Visit the Links page)

## What kind of clothing is best for preventing hypothermia?

Since half of your body heat can be lost through your head, a warm hat is an effective hypothermia preventer. Clothing insulates by trapping air close to the body. Layering traps more air than single garments.

Since water is an efficient heat conductor, fabrics that keep you dry or insulate when wet are the best all around for people exposed to wet and cold environments.

Insulation values vary with the type of material and the presence of water.

Dressing in layers of clothing made of good insulating materials topped with a wind/water barrier is an effective strategy against hypothermia.

Download a two-page outline about properly Dressing for the Outdoors in a Cold or Wet Climate

## I've completed USCG-accepted Drill Conductor training, but I've lost my card that proves this. What should I do?

We can help! Please see our form, Lost Drill Card.

## How should I dispose of an old EPIRB?

Old EPIRBs – emergency position-indicating radio beacons – require proper disposal.

An EPBIRB is a device that can be automatically or manually activated to transmit a distress signal to a satellite. EPIRBs that activate automatically typically have a hydro-static release mechanism that allows the beacon to release from its bracket should a vessel sink, float to the surface and start transmitting. When EPIRBs need to be disposed of they should be made inoperable and demolished to prevent accidental activation after they are removed from service.

Steps to be taken when disposing of EPIRBs:

- Flag EPIRBs *Out of Service* at www.beaconregistration.noaa.gov or by calling 888-212-7283.
- Turn off or disable EPIRBs at the switch.
- Unscrew or break off external antennas.

- Disassemble units and remove batteries.
- EPIRBs may now be discarded. Dispose of batteries as hazardous material.

Buying a boat with an EPIRB registered to someone else? Selling an EPIRB with a boat? Lending your EPIRB to someone else? Always update EPIRB registration information with NOAA/USMCC at www.beaconregistration.noaa.gov or by calling 888-212-7283.

Need additional information about EPIRBs? Download, a two-page brochure from the USCG explaining requirements, registration, installing and testing, or see "Registration FAQs" at www.beaconregistration.noaa.gov