



Bord Iascaigh Mhara
Irish Sea Fisheries Board

BIM Guide to Personal Survival Techniques ('PST')



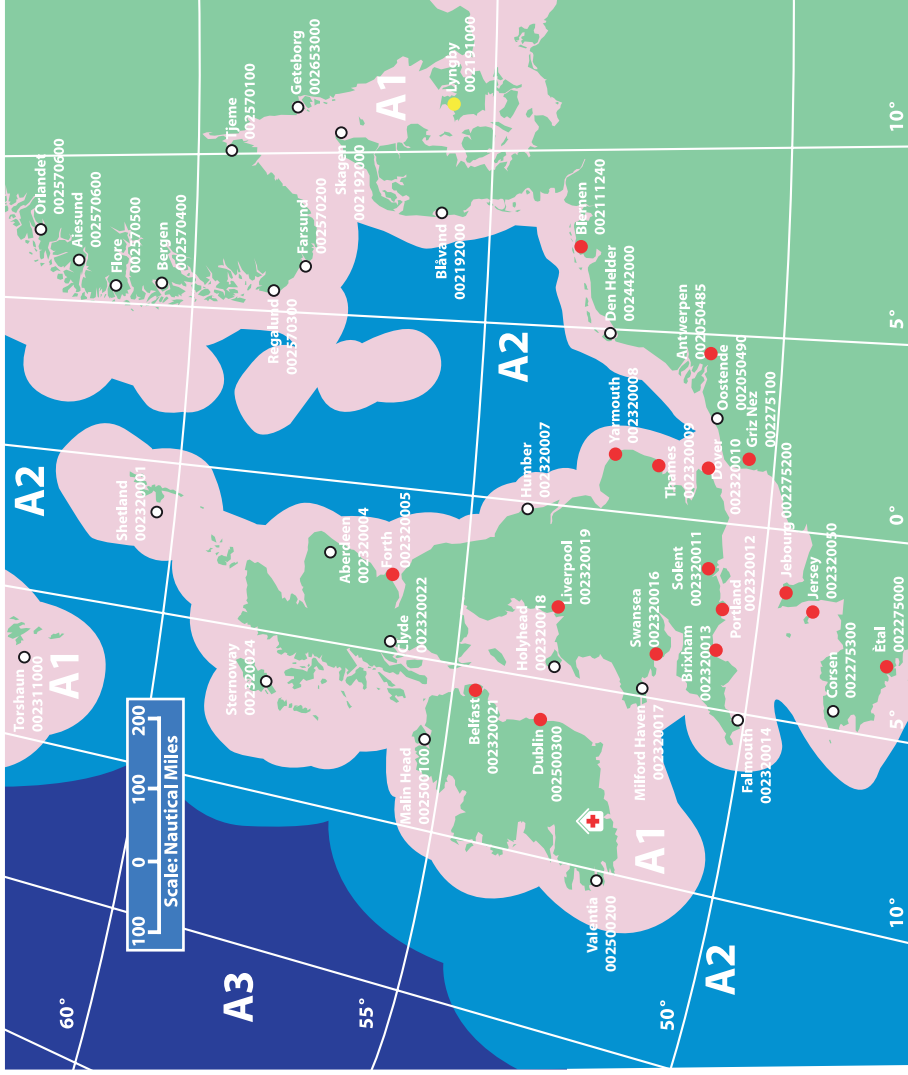
An Roinn Iompar
Tascaireachta agus Spóirt
Department of Transport,
Tourism and Sport



medico cork
24 hour Emergency
Telemedical Support Unit

GMDSS Sea Areas

- Medium Frequency (MF), High Frequency (HF), and Very High Frequency (VHF) Coast Radio Station.
 - Medium Frequency (MF) and Very High Frequency (VHF) Coast Radio Station.
 - Very High Frequency (VHF) Coast Radio Station.
- Sea Area A1**
The radiotelephone coverage of VHF coast stations in which continuous alerting by Digital Selective Calling (DSC) is available.
- Sea Area A2**
The radiotelephone coverage of MF coast stations in which continuous alerting by Digital Selective Calling is available.
- Sea Area A3**
The coverage of Inmarsat geostationary satellites.



 MEDICO Cork is the designated Irish emergency radio medical consultation centre for medical advice for vessels at sea

PST Course Introduction

Welcome to this course on Personal Survival Techniques. We hope that you will never have to put into practice what you learn here today.

Today's course will demonstrate what an unforgiving workplace the sea can be and how lack of knowledge and understanding has led to so many tragedies in the past.

During the course we aim to give you the knowledge that will help you to survive if the worst happens.

The course is split into two parts: the theory part is in the morning and there is a wet drill in the afternoon so you can put into practice what you learned earlier.

Please inform the instructor of any medical problems you may have or any medication you are currently taking. Don't forget to bring your swimming kit with you. Overalls are supplied for the pool drill.

Remember – never take a chance while at sea or working in or around water. All too many accidents happen because people become complacent and believe nothing will ever happen to them.



Boarding a life raft is part of the wet drill on the course

Suggested Course Timetable

09.30-10.45 hrs - Course Introduction and Lifejackets

10.45-11.00 hrs - Tea break

11.00-12.30 hrs - The Inflatable Life Raft

12.30-13.30 hrs - Lunch

13.30-14.30 hrs - Helicopter Rescue and Hypothermia

14.30-17.00 hrs - Travel to Pool and Wet Drill

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It is a requirement that all crew attend a relevant training course. Please use these notes with the BIM STCW-95 Personal Survival Techniques ('PST') course. This booklet is not intended as stand alone personal sea survival advice. This Personal Survival Techniques ('PST') course is part of a three day training course leading to a BIM Safety Card.

Acknowledgements:

BIM wish to acknowledge the medical advice we received in preparing this manual from Dr. Jason van der Velde, MEDICO Cork at Cork University Hospital (CUH). The editors are grateful for the valuable input from all BIM personal survival techniques instructors.

What is Survival?

‘The very core of this course is **DO NOT GET WET**. Try to board your life raft or lifeboat dry. If you get wet, your chances of survival are greatly reduced.’

Survival is defined as the ability to stay alive when life is threatened after shipwreck by:

- fire;
- explosion;
- collision;
- grounding; or
- Man overboard (‘MOB’).



A SOLAS Lifejacket will keep you afloat



Seven saved more than 100 miles off the south coast of Ireland

The Marine Casualty Investigation Board (MCIB) was established in law in 2002. The function of the MCIB (see www.mcib.ie) is to carry out investigations into marine casualties that take place in Irish waters or involve Irish registered vessels.

The main purpose of the Board's investigations is to establish the cause or causes of a marine casualty with a view to making recommendations to the Minister for Transport, Sport and Tourism for the avoidance of similar marine casualties. BIM recommends that you visit the site and review some of the incidents involving fishing vessels. Please read the recommendations arising from the incident in the reports.

The key to survival is knowledge and training. It may be too late to learn how to use a lifejacket when your vessel is flooding. Let us look at the past to see what we have learned from other tragedies.

Case Histories

The most famous maritime disaster was the sinking of the RMS Titanic on 15 April 1912 which resulted in the Safety of Life at Sea (SOLAS) Convention being set up. This ensured that all vessels were obliged to carry the required lifesaving equipment. However, the lessons from this disaster were not learned as the plight of MV “Lovat” clearly demonstrated.

In January 1975 in a southwest gale the **MV Lovat** took on a severe list to starboard 18 miles off southwest England. A **MAYDAY** was transmitted. At 06:30 the order to abandon was given. The 13 crew members took to the 10-man inflatable life raft. Unfortunately, in the 15 or so minutes that it took to board the raft, the lower buoyancy tube was damaged so that by the time all 13 had boarded the raft, the tube was no longer fully inflated. The crowded occupants were soon sitting waist deep in cold water (about 8 degrees Celsius) in ordinary clothing.

None of the occupants appeared to have experience or training on how to optimise the use of their raft. The sea anchor was not streamed, and although an attempt was made to close the canopy, a combination of cold hands and unfamiliarity prevented it from being achieved. The water was washing in faster than they could bail. They agreed to lighten the load by taking it in turns to enter the sea.

The container ship **Discoverer** arrived alongside the heavily listing ship at 07:05. The **Lovat** eventually sank 45 minutes after the crew had abandoned.

The raft occupants sighted **Discoverer** close by (“within shouting distance”). Their numbed, cold hands could not open the life raft survival pack to get the flares.

None were aware of the knife on one of the canopy support arches. By now many were semiconscious from the cold. A high-sided car ferry located them but could do no more than keep them in its lee and act as the on-site rescue co-ordinator. Fifteen minutes later (08:30), a small rescue helicopter arrived. The raft was partially submerged with the four remaining conscious survivors standing, two to each entrance. Two dead bodies were floating inside the partially flooded raft; the sea had washed out the others.

In strong wind and high seas the helicopter began to rescue the first survivor. This rescue attempt was unsuccessful. About 40 minutes later a larger helicopter arrived, by now only 2 of the original 13 had survived the two and a half hour ordeal.

After this incident the British government’s Department of Trade instituted an obligatory sea-survival training program that all seafarers must complete before being certified for a seagoing job.



The STCW Convention and Code sets out the standards of training, certification and watch keeping for seafarers

In both of these cases, lack of equipment and training were factors which led to loss of life.

The real killer here was the cold. The very core of this course is DO NOT GET WET. If you can, board your raft or lifeboat dry. If you get wet, your chances of survival are greatly reduced.

Survival Factors

Survival Difficulties

The three main dangers to cope with in sea survival are:

- Exposure (cold shock)
- Drowning
- Lack of Water and Nourishment (to a lesser extent)

You can drown, very quickly, in a small amount of water - not even a lung full is required. If your mouth and nose is not clear of the water then you may breathe in small amounts which make you cough and thus inhale more. When you fall into cold water or choppy seas, you are at most risk of drowning...however; **a properly adjusted SOLAS lifejacket** will provide some invaluable protection at this stage by helping to keep your airway clear of the water while getting over your initial breathing difficulties. When you survive the initial immersion in water, the next problem is general body cooling (hypothermia). There are ways that you can protect yourself against these dangers. You will be taught these techniques during this course.

Survival Factors

Your survival will depend on a number of factors, but the three key factors are:

1. Equipment - Do you know where to find all the survival equipment on your vessel? Rough weather and darkness can be very disorientating. This makes it difficult to find your way around, so make a mental note of where the equipment is and where the exits are.

Make sure you check the muster list on your vessel so that you know what your duties are in an emergency situation.

2. Knowledge - Know where your lifejacket is and know how to put it on. You should also know how to launch and board an inflatable life raft and know what type of equipment is available in the life raft.



Know how to put on your Personal Flotation Device ('PFD') correctly - it can save your life

3. Will to survive - This is very important. Without the right mental attitude to face up to the situation you find yourself in, you will not survive. You must stay calm and help others. You must maintain your will to survive at all times.

Never give up

During disaster situations the following generally happens:

- 25% of people will panic
- 25% of people will immediately take active measures to survive
- 50% of people will be paralysed to inactivity

(Reference: "Survival Psychology" 1994 by Dr. John Leach)

Survival Factors

Loss of Life at Sea

During World War II, of the 45,000 Royal Navy personnel lost at sea, about 30,000 successfully escaped the sinking ship only to die from drowning or hypothermia. Cold water was the main killer. Water takes away body heat 25 times faster than air at the same temperature. You are not totally helpless if you have knowledge of survival techniques and the will to survive.

Check list for vessel

When you are joining a vessel for the first time check the following:

- Check locations of SOLAS lifejackets and survival suits
- Try on your lifejacket; there are many different types
- Check the muster list and find your station for an emergency situation
- Examine the inflatable life rafts to see if they have been serviced
- Check that the life rafts have Hydrostatic Release Units (HRUs) fitted and that they are in date
- Know where the EPIRB is stowed
- Know where the SARTs and Flares are kept
- Ask a question if you are unsure of anything

Remember it's your life. Never go to sea unless you are happy with your vessel's lifesaving equipment.



Stay insulated in your life raft to conserve energy

Lifejackets

Ships Drills

All vessels are required by law to hold Abandon Ship and Fire Drills. This helps everyone on board to know what their role is if an emergency situation arises. It is your right and the Skipper's duty to see that these drills are held and that the crew participates.

During the drills, all crew should be mustered and survival equipment checked to make sure everything is in good working order. New crew members should be briefed on launching the life rafts and told what their duties are in an emergency situation.

Organisation is very important. All crew members should understand their duties and muster lists should be posted in the living accommodation and public areas on the vessel, for example, the galley.



The new manufacturing standard EN ISO 12402 Personal Flotation Device ('PFD')

Make sure that all equipment on board is in good working order and that rafts and HRUs (Hydrostatic Release Unit) are within their services dates.

If there are any faults or deficiencies, report them to the Skipper immediately.



Students on a PST course swim in a 'crocodile tail' formation

The term “Personal Flotation Device” (‘PFD’) is used for many kinds of emergency buoyancy aids; however there are considerable differences between a SOLAS Lifejacket and a Personal Flotation Device.

SOLAS Lifejackets

A SOLAS Lifejacket must be worn when abandoning ship. They are not intended for everyday use. It must be fitted with a signalling whistle, light, towing strap and retro-reflective tape.



A lifejacket like the one above, is approved by SOLAS, and will keep a person afloat with their airway well clear of the water if properly fitted and tightly secured to the body.

Why a SOLAS Lifejacket?

Because of their design these Lifejackets are less likely to be damaged and are not dependent on any mechanical operation in order to function. They cannot be worn while working on board as they are too bulky.

Standard?

SOLAS approved 150 Newtons

Personal Flotation Device (‘PFD’)

A Personal Flotation Device (‘PFD’) must be worn at all times by every person working on board a fishing vessel.



From March 2002 under S.I.586 of 2001 all crew members have to wear Personal Flotation Devices and under S.I.587 of 2001 are required to have appropriate training.

Why an EN ISO 12402 Lifejacket?

The PFDs design and size make it ideal for daily use for crew members on board a fishing vessel. Its purpose is to keep a crew member that has accidentally fallen overboard afloat until help arrives.

Standard?

The 150 Newton is the minimum buoyancy required for fishers working offshore.

Abandon ship

Checklist for Abandon ship

- Put on warm clothing
- Put on your SOLAS lifejacket, making sure it is on tight and has no loose ends
- Before abandoning ship, ensure that flares, EPIRB, SART and VHF emergency transceiver with spare lithium batteries are gathered for use on the life raft
- Check that a Mayday call has been sent and acknowledged
- Get off the vessel dry if possible
- If it is necessary to jump, stand at the deck edge
 - 'Lock and Block' (see page 8)
 - Check below
 - Look straight ahead, keep feet together and step off
 - Do not unblock your mouth and nose until on the surface

The signal for muster stations on any ship should be seven or more short, rapid blasts followed by one prolonged blast on the ship's whistle. The order to abandon ship is given verbally by the Skipper.

When you hear the alarm you should put on as much extra warm clothing as possible and then put on your SOLAS lifejacket. You should be able to put on your lifejacket in no more than 30 seconds in the dark. The more layers of clothes you wear the better. If you do end up in the water, the extra clothing will trap a layer of water between your skin and the clothing. This will help conserve your body heat.

When you arrive on the boat deck, carry out your duties as assigned by the muster list. Remember that you never abandon ship until you get the order from the



The new TAMAR Class Lifeboat RNLB Killarney at Kilmore Quay, Co Wexford

Abandon ship



The 'Lock and block' technique is practised during pool drill

Skipper and only leave your vessel as a very last resort. Your vessel is the best life raft. Many people have left their vessel believing it to be unsafe only to perish in the sea when the vessel remained afloat.

There are many dangers to be aware of when jumping into the sea, such as cold shock and physical injury from hitting the water. It is important to keep your feet together and stand at the deck edge when jumping. Cover your mouth and nose with one hand and use your other hand to hold down your lifejacket - this is what is called 'lock and block'. You are pushing your lifejacket down, locking it when you hit the water to prevent it riding up to injure you; and you are blocking your mouth and nose to avoid taking in water. Before you jump, look down to see that all is clear below; then look straight ahead and step off. Keep your nose and mouth blocked until you float to the surface.



"Your vessel is the best life raft"

Image courtesy of www.RFDBeaufortMarine.com

Inflatable life rafts

Marine life rafts are made of rubber material and are designed to support survivors and to keep them dry and clear of the water. This is achieved by two buoyancy chambers - one on top of the other and connected by non return valves. The life raft is designed to keep its full load afloat even if one of these chambers is deflated.

The life raft offers protection from the sea by having a floor which can be manually inflated in cold climates and a canopy which covers the occupants. The canopy is double-sheeted which traps a layer of air between the sheets. This layer of air heats up and helps to keep the survivors warm. The entrance can also be closed.

The life raft can help make you visible to rescuers because it has a bright orange canopy with strips of retro-reflective tape.



Manually launch a Life raft in the swimming pool

A SART should also be deployed. There is also a light on the top of the life raft which is powered by a saltwater battery or normal battery built into the light unit. Life support on the life raft is provided by a survival pack which contains food and water, location aids and other equipment. (See life raft equipment for a full list).

On board the ship, the inflatable life rafts are stored in reinforced plastic containers. Each raft is fitted with a quick release known as a Stenhouse Slip and a Hydrostatic Release Unit (HRU). On the top of the container, important life raft information will be displayed such as the number of people the raft will hold, the date of last service and next service due date.

Launching the inflatable life raft

There are two ways to launch the life raft: manually or automatically.

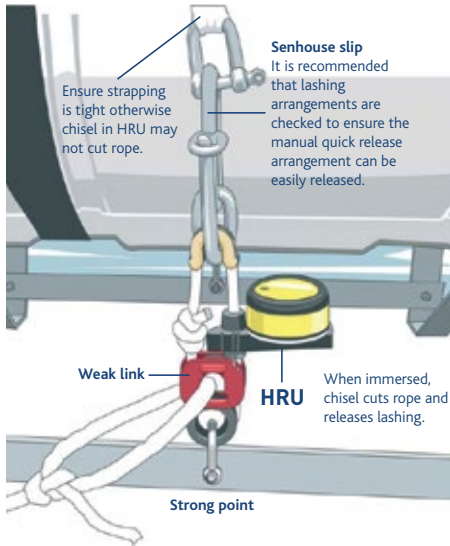
Inflating Manually

- Make the painter fast. (This is the rope coming out of the container.)
- Release the securing arrangement.
- Never roll the life raft container across the deck as you may damage the raft. Always slide or carry it.
- Double check that the painter is secured.
- Launch the life raft into the water.
- Pull the painter until the life raft inflates. (There will be at least 15 metres of painter line.)
- Once the life raft is inflated, try to prevent it from rubbing alongside if possible.

Inflatable life rafts

Alternatively, a life raft can be launched automatically using the Hydrostatic Release Unit (HRU).

Inflating Automatically



A Hydrostatic Release Unit ('HRU') with weak link

The HRU is made fast to the securing arrangement of the life raft and to a strong point on the vessel and will work when immersed in water between 1.5 and 4 metres deep.

Once the life raft container is clear of the cradle, the painter tightens and inflates the life raft. After inflation, the buoyancy of the life raft is too great for the weak link on the HRU and this breaks allowing the raft to come to the surface. In shallow water it may be necessary to pull out the excess painter from the cannister in order to inflate the raft.

It is very important to make sure that the HRU is fitted correctly and that it is replaced or serviced on a regular basis. It should also be noted that the HRU should not be painted over as this will prevent the unit from working effectively.

Boarding the life raft and action to take after boarding

Once the life raft has been launched it is then time to start boarding. If at all possible, board the raft dry. Once you make contact with the life raft, do not let go as the wind can drive the raft away quicker than you can swim. If you let go, you may not get a chance to grab it again.

If you get wet you will get cold and hypothermia will set in. A life raft is very difficult to board from the water. Get in while it is alongside the vessel. If you do find yourself in the water and have to board the raft, then enter from the side with the step. Find the ladder, (the step); get your feet onto the top step of the ladder and reach up as far as possible to the hand holds at the entrance; then pull yourself in.

Do not jump into the life raft or jump on top of it as this may cause injury to yourself or other survivors already inside. Jumping on the life raft may also cause you to bounce off and land in the water.

Inflatable life rafts

There are very important steps to take once everyone is on board the life raft

Boarding procedures:

- Cut the painter
- Stream the drogue
- Close the canopy
- Maintain the environment
- Treat injuries
- Take anti-seasickness tablets
- Do not eat or drink anything for the first 24 hours
- Get a routine going to maintain a look out
- Do not give up the will to survive
- Close the canopy opening to keep the heat in and water out. Of course, if conditions are very hot, this can be left open
- Maintain the environment within the life raft. Pump the floor up, treat injuries, dry up the life raft and keep everyone busy.
- Have the flares ready in case a passing ship or rescue craft passes by.
- Be careful how you use the pyrotechnics and make sure to use them discriminately.

The following equipment is in your survival pack:

- rescue quoit + 30 metres line
- floating knife
- sea anchor + line
- paddles
- sponges
- bailer
- repair kit
- hand pump
- raft operating instructions
- fishing kit
- waterproof signalling torch, spare batteries and bulb
- signalling mirror
- first aid kit
- anti-seasickness pills
- emergency rations, water in shrink-wrapped bags, graduated plastic drinking cup

The survival pack will also contain pyrotechnics (flares), smoke canisters and a RADAR reflector.

Find out what equipment your life raft contains.

Emergency Aids for Distress Alerts



A selection of flares are carried on board in a safe place

Flares

There should be 12 of these on board your vessel stored in a watertight container. Your life raft will also contain flares.

The red rocket is used to signal a distress to vessels far away. It will reach a height of 300 metres and burn for about 40 seconds. It can be seen from about 25 miles away.

The firing instructions will be clearly marked on the side of the flare and also the expiry date. Do not use flares that are out of date. (Flares should be replaced every three years).

To fire the flare, hold upright and fire downwind.

Never use a rocket parachute flare near a rescue aircraft.

Hand-held Flares are used to attract the attention of vessels that are close and homing in on your position.

There should be six of these flares on board your vessel, stored in the same container as the parachute flares.

The firing instructions should be clearly marked on the side of the flare along with the expiry date.

Once activated, it should burn for 60 seconds. The cylinder of the flare will become white hot so hold it by the handle and well away from your body. Keep it pointed downwind.

If the flare doesn't work when you activate it, drop it into the water. Do not attempt to fix it.

A line-throwing apparatus is used to fire a line by means of a rocket. The housing contains 250 metres of line which is propelled by a solid fuel rocket. As with flares, this should be replaced or serviced every three years. Instructions for firing are clearly marked on the side of the housing. Make sure that the end of the line is secured to a strong point before firing.

Flares - Main Points

- Make sure they are in date
- Follow firing instructions
- Point away from your body and downwind
- If they do not fire when activated, drop in water
- Do not use parachute flares near helicopters or aircraft
- Hand-held flares get very hot so hold by the handle

Emergency Aids for Distress Alerts

Emergency Position Indicating Radio Beacons (EPIRBs)

An EPIRB is a distress alerting device. Once activated, in association with satellites, it determines the position of the casualty. An EPIRB provides the simplest means of alerting the Rescue authorities. The EPIRB system is operated on 406MHz by the COSPAS/SARSAT organisation which uses polar orbiting satellites. The operation, testing and registration of EPIRBs must be clearly understood by all crew members.



An EPIRB is a distress alerting device

Search and Rescue Radar Transponder (SARTs)

SARTs provide a homing signal by transmitting a specific response to a radar signal. These signals are displayed on the rescue vessel's radar screen.



SARTs provide a homing signal on a radar screen

Personal Locator Beacons (PLBs)

PLBs are new on the market.

To get the most from your PLB, each PLB should be registered so that owner details as well as location details can be communicated to the emergency services, which, in many cases, assists in speeding up rescue operations.



PLBs must be registered with owner and location details

PLB owners can register their PLB in Ireland using ComReg's new web portal. For more information on how to register your PLB please go to www.comreg.ie and follow the path: Licensing and Services – Personal Locator Beacons.

There is a requirement under Ship Radio Licensing law for any updates of information to be given to the Maritime Radio Affairs Unit (MRAU) of the Department of Transport, Tourism and Sport to assist in a fast response to incidents.

Please read the relevant Marine Notices at the following link:

http://www.dttas.ie/upload/general/13478-MN130F2012_SHIPRADIOLICENCE_EPIRB_DATABASES-1.PDF

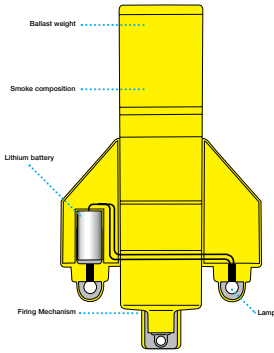
Man Overboard

MOB Procedure:

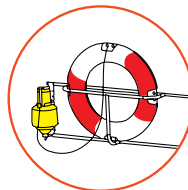
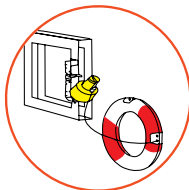
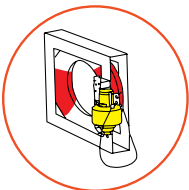
- Raise the alarm
- Keep sight of the person in the water
- Launch the MOB smoke buoy
- Get ready to recover the person as they come alongside

Man overboard (MOB)

Man overboard situations happen often on fishing vessels and often lead to loss of life. It is important to be ready for such a situation by knowing what to do and how to work together as a crew to recover your MOB. Again, drills and discussions on how to deal with this are the best means of preparation.



A Man Overboard ('MOB') is located on each side of the wheelhouse



Do not be complacent and think that this will never happen on your boat.

MOB smoke and light buoy

The vessel should also be fitted with an MOB smoke and light buoy. This can be quickly launched by pulling a pin. Once it's in the water, it will mark the MOB position by emitting smoke and light. A person in the water can be very difficult to see so keep your eyes on them.



Save your present position as a waypoint

Man Overboard Procedures

When the crew has raised the alarm that there is a Man Overboard (MOB) situation the skipper or watch keeper should:

- Press the MOB button on the GPS navigator to give a starting point if a search is needed. This will install the current latitude and longitude of the vessel and the time into the memory of the GPS navigator.
- Launch the MOB smoke floats on each side of the wheelhouse by pulling the quick release pin or throw the life ring over the side.

Man Overboard

Williamson Turn

The skipper should then, if possible, carry out a Williamson Turn; this will bring the vessel back to the same position where the crewmember fell over the side. The Williamson turn is achieved by using full helm to turn the vessel 60° towards the side from which the crewmember fell over, then, the rudder is put hard over in the opposite direction until on reciprocal (or opposite) course.

If you lose sight of the person in the water, the skipper should transmit a designated Distress Alert on the vessel's Digital Selective Calling (DSC) unit indicating a MOB. The nearest Coast Guard Station will acknowledge this.

Recovery of Man Overboard

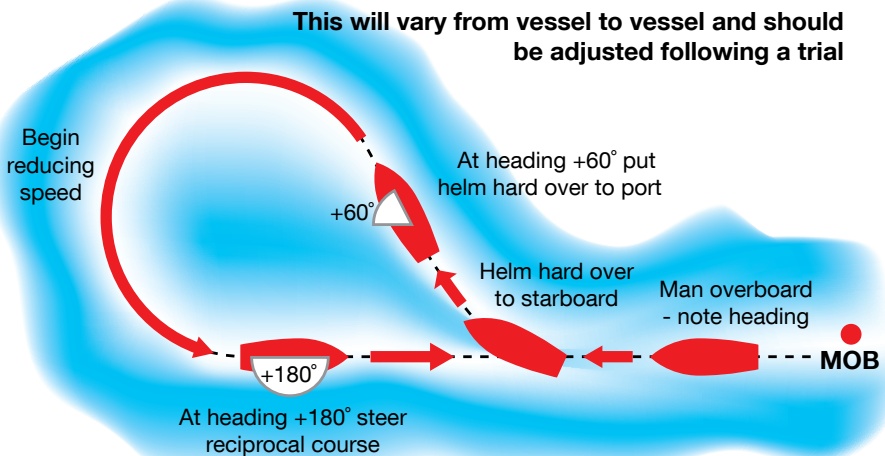
How the person is recovered from the water will depend on the type of vessel.

Each vessel will have its own recovery problems. You will only discover the best recovery method for your vessel by conducting regular drills. Pilot ladders, scramble nets, crew savers, fenders and specialist equipment like Jason's cradle and DACON (www.dacon.no) scoops can be used for man overboard recovery.

Check List for Skipper in the event of MOB

- Hit MOB on GPS
- Release MOB lifebuoy
- Make visual contact with MOB
- Commence Williamson Turn
- If visual contact is lost, transmit a mayday
- Standby to recover MOB as they come along side

For many small vessels a simple round turn is as effective as the Williamson manoeuvre, particularly when visibility and weather conditions are good and the casualty is in full view.



The 'Williamson turn' brings a vessel back to the same position

Helicopter Rescue



The Irish Coast Guard deploys the S92 helicopter for Search and Rescue ('SAR')

- All persons on deck must be wearing SOLAS approved lifejackets and gloves.
- Steer a course towards the helicopter departure point. This will shorten their 'Estimated Time of Arrival (ETA)' to you and save fuel.
- Clear the deck of any obstructions that may hinder the winch operator or damage the helicopter.
- Have an empty fish box ready in which to coil the high line. **(ON NO ACCOUNT MAKE THIS LINE FAST)**.
- Before winching starts put radar on standby and monitor a watch on Ch 16 VHF.

Helicopter rescue is the most practical and rapid way to recover survivors off our coast. They are however slowed down by range and fuel load. Also, they may not be

able to spend a long time on the scene. To help make the rescue as safe as possible for the flight crew:

- Do not have any lights shining towards the helicopter.
- Steer a course, as directed by the helicopter crew.

This will allow the helicopter to hover into the wind giving the pilot a good view of the vessel.

Always keep in radio contact with the helicopter and follow instructions. When being winched into the helicopter, keep your hands by your sides. When at the door of the helicopter do not reach out or upwards - the winch operator will swing you around to face away from the door and pull you in. You will then end up sitting on the helicopter floor.

Hypothermia

Falling overboard or getting wet while abandoning ship can lead to hypothermia, sometimes with fatal results.

Our normal body temperature is about 37°C. When our inner core temperature falls to 35°C, then hypothermia sets in.

How quickly you lose body heat will depend on a number of factors:

- water temperature;
- type of clothes worn;
- relative water movement;
- survival equipment; and
- your metabolism (the rate at which your body uses energy).

Some people will cool quicker than others.

Humans are warm-blooded and when you fall into cold water, your body goes through a number of changes. The initial response when you're suddenly immersed in cold water is called cold water shock. If you lose control or panic at the cold shock stage of immersion, you can drown. The most common response to cold shock is the loss of ability to control breathing. If you take deep breaths, the water intake may lead to drowning. The colder the water, the worse the affects of cold shock.

After about five minutes, your breathing should settle down as your body adjusts to the cold water. Shivering will be violent as your body tries to keep the inner core warm. Hands and toes become very cold because the blood vessels constrict to keep the warm blood around the vital organs such as the heart and lungs.

As body temperature falls, you will become tired, confused and disorientated.

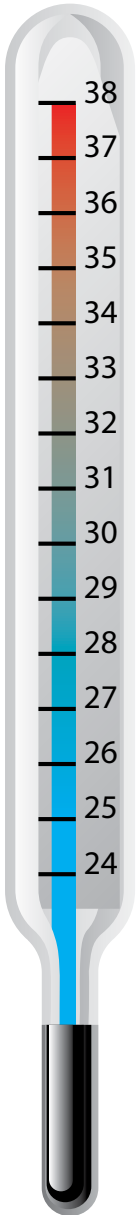
When your core temperature reaches about 31°C, the shivering might stop and be replaced by muscle stiffness. By the time your core temperature drops to 30°C, you might lose consciousness. Again this will depend on your metabolism. At this stage, it is very difficult to determine if a person is dead or alive as death is defined as 'failure to revive on re-warming.'

To slow down body cooling, it is best not to swim unless you are very close to a place of safety. Float in the water with your knees raised up into your chest and your hands tucked under you lifejacket. This is known as the Heat Escape Lessening Position (HELP).



Slowly re-warm a hypothermic casualty

Hypothermia



Hypothermia What Happens

- 38 Normal body temperature
- 37 May complain of cold
- 36 Looks and feels cold, shivering
- 35 Acts strangely, withdrawn/"switched off"
- 34 Drowsy or confused, shivering stops
- 33 Jerky limb movements, limbs stiffen up
- 32 Unresponsive
- 31 Fixed pupils, looks dead
- 30 Irregular pulse
- 29 Death

FALLING INTO COLD WATER

Cold Shock is the bodies immediate response to falling into cold water.

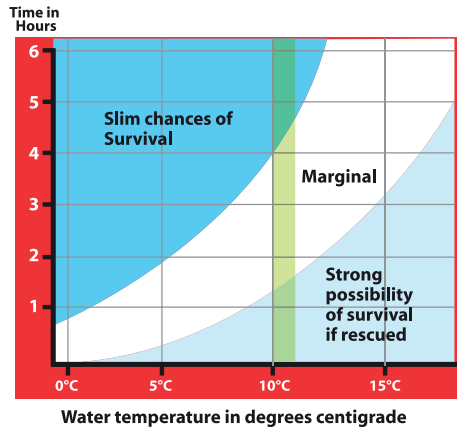
For a few minutes, a person will have NO control over...

- Extremely rapid, gasping-breathing
- Dizziness with pins & needles
- Panic
- Racing heart rate
- High Blood Pressure

The problem...

- Inhalation of water
- Drowning
- Stroke or heart attack

Try to Stay Calm. Symptoms will improve after 2-3 minutes.



The Barnett survival curve shows the theoretical survival times in seawater if properly attired and wearing an approved Lifejacket. Without PPE, hypothermia in Irish waters will be established in about 30 minutes.

Hypothermia



BIM training routine of the crocodile / line astern position

HOW TO AVOID DROWNING

- Wear layers of clothing
- Wear Immersion suit
- Wear SOLAS approved lifejackets
- Immediately inflate your lifejacket
- Immediately pull over spray-hood
- Try to stay calm knowing that the symptoms of Cold Shock will improve relatively quickly.
- Try to hold onto something and do not attempt to swim if possible until breathing slows down.
- Look for others in the water
- Link into a 'crocodile tail' formation
- Follow Man Overboard Procedures
- Use Man Overboard Equipment
- Use PLBs

WEAR SOLAS APPROVED LIFEJACKETS

Hypothermia What to do

If body temperature above 34°C

Move out of wind to warm dry place

Remove all wet outer layers

Put on layers of dry clothes and/or place in a good sleeping bag

If conscious, give warm food and sweet drink

NO alcohol

If body temperature below 34°C

Alert coast guard

Talk to MEDICO Cork

As above but NO food or drink

No hot shower or bath unless fully conscious and monitored throughout

Move patient VERY gently



BIM (PST): Glossary of terms

DTTAS	Department of Transport, Tourism and Sport
EPIRB	Emergency Position Indicating Radio Beacon
GPS	Global Positioning Satellite
Heliograph	A daylight signalling mirror.
HRU	Hydrostatic Release Unit
IMO	International Maritime Organisation
MEDICO CORK	The national 24/7 emergency tele-medical support service in Ireland for ships at sea
MES	Marine Evacuation System
MSI	Maritime Safety Information
Muster list	This is a list showing where people on board should assemble if there is an emergency. It also states what people's duties are in the event of an emergency.
Painter	A length of rope. A painter line is a length of rope attached to the life raft and secured to the vessel before throwing the life raft overboard.

PFD	Personal Flotation Device (this is a general term for buoyancy aids and lifejackets. Please note that all lifejackets are PFDs but all PFDs are not lifejackets)
PPE	Personal Protective Equipment
Quoit	A small rubber ring with a rescue line attached
Radar Reflector	A geometric shaped (cube or diamond) metal device that reflects radar transmissions well and helps ships to spot a rescue target – for example, a life raft.
SART	Search and Rescue Radar Transponder
S.I.	Statutory Instrument – a law
SOLAS	Safety of Life at Sea Convention Regulations
Stations	A Muster Station is a space where crew will assemble in the event of an emergency.
STCW-95	International Standards of Training, Certification and Watchkeeping Convention
Stenhouse Slip	A quick release mechanism, -the life raft from its cradle.
T P A	A Thermal Protective Aid is a plastic bag used to slowly re-warm a hypothermic casualty



Bord Iascaigh Mhara
Irish Sea Fisheries Board



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ISBN 1-903412-39-8



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01/2013