



Chapter 11 Emergency Procedures



The procedures described in this Chapter do not prevent the use, by any vessel, survival craft or person in distress of any means at their disposal to attract attention, make known their position and obtain help.



11.1 Procedure for making distress or urgency calls using VHF voice

11.1.1 Making a distress transmission using VHF voice broadcasting – MAYDAY

In cases where there is grave or imminent danger to either the vessel or persons on board, then a MAYDAY should be broadcast on Channel 16 with the VHF unit set to high power in the following format:

“MAYDAY, MAYDAY, MAYDAY,

This is ‘NAME OF VESSEL’, ‘NAME OF VESSEL’, ‘NAME OF VESSEL’

(State the name of the vessel **three** times)

MAYDAY,

‘NAME OF VESSEL’,

STATE THE POSITION OF THE VESSEL

(If possible give the position from a GPS receiver or bearings from and distance to any known fixed points

e.g. “Position one mile South of Fastnet Lighthouse”)

STATE THE NATURE OF DISTRESS.

(e.g. sinking, man overboard, fire on board, ...)

STATE THE NUMBER OF PERSONS ABOARD.

STATE ANY OTHER USEFUL INFORMATION.

OVER”.

11.1.2 Making an urgency broadcast using VHF – PAN-PAN

In circumstances that are considered to be grave but do not require immediate assistance and where there is no imminent danger to the vessel or persons on board, e.g. mechanical failure, loss of propulsion, a “PAN-PAN” Urgency Broadcast should be made on VHF Channel 16 with the unit set to high power in the following format:

**“PAN-PAN, PAN-PAN, PAN-PAN,
ALL STATIONS, ALL STATIONS,
ALL STATIONS,**

**THIS IS ‘NAME OF VESSEL’,
‘NAME OF VESSEL’, ‘NAME OF
VESSEL’**

(State the vessel's name **three** times)

**STATE THE POSITION OF THE
VESSEL**

(If possible give the position from a GPS receiver or bearings from and distance to any known fixed points e.g. “Position one mile South of Fastnet Lighthouse”)

**STATE THE NATURE OF THE
URGENCY.**

(e.g. Vessel adrift, mechanical failure, ...)

**STATE THE NUMBER OF
PERSONS ABOARD.**

**ASSISTANCE REQUIRED AND
ANY FURTHER RELEVANT
INFORMATION.**

OVER”.

11.2 Types of radio distress calls

The advent of the Global Maritime Distress and Safety System (GMDSS) has brought about a number of changes in the manner and procedure in which distress calls from craft are initiated.

Modern VHF radios are fitted with a Digital Selective Calling (DSC) facility whereby a distress call is activated by pressing a dedicated switch on the radio. This system transmits an all station call on Channel 70.

For non-DSC radios, Channel 16 remains the listening channel for distress calls.

Therefore there are two possible scenarios:

11.2.1 Automated Calling

This only works on DSC radio sets. The operator initiates an all station call by simply uncovering and pushing the red SOS switch on the radio's panel. This will transmit the Maritime Mobile Service Identity (MMSI) code – a series of 9 digits without any further action required by the crew.

In addition to the MMSI code, if interfaced with a GPS, it can also give a boat's position and possibly the type of emergency (depending on settings).

All information will be displayed on any receiving sets' display panel. Transmitting and receiving sets will switch to Channel 16 to allow further information to be transmitted, e.g. spoken MAYDAY message, nature of emergency, etc.

11.2.2 Non-Automated Calling

VHF sets without DSC must rely on the traditional format of broadcast on Channel 16 for making a MAYDAY call. Ensure the set is selected to Channel 16 and that it is transmitting at its full power.

The MAYDAY broadcast format as described above should be used.

11.2.3 Use of Handheld VHF Radios

Portable VHF radio equipment can be used on small boats particularly where it is impracticable to install a fixed VHF radio. This equipment should be licensed and issued with a radio call sign.

The portable VHF will only be licensed for use on a boat for communications with coast stations, harbour authorities, marinas and other boats – **It should not be used on land.**

11.3 Emergency Position Indicating Radio Beacons (EPIRBs)

There is one model of Distress Beacon - the '406 MHz'.

406 beacon

This is a digital signal and covers the entire globe. 406 beacons have a **unique identification code** which is part of its signal. When properly registered, the unique code provides information about the boat carrying

the beacon. This includes the owner's emergency contact and the country of registration. The 406 signal may be received within seconds by geostationary satellites.

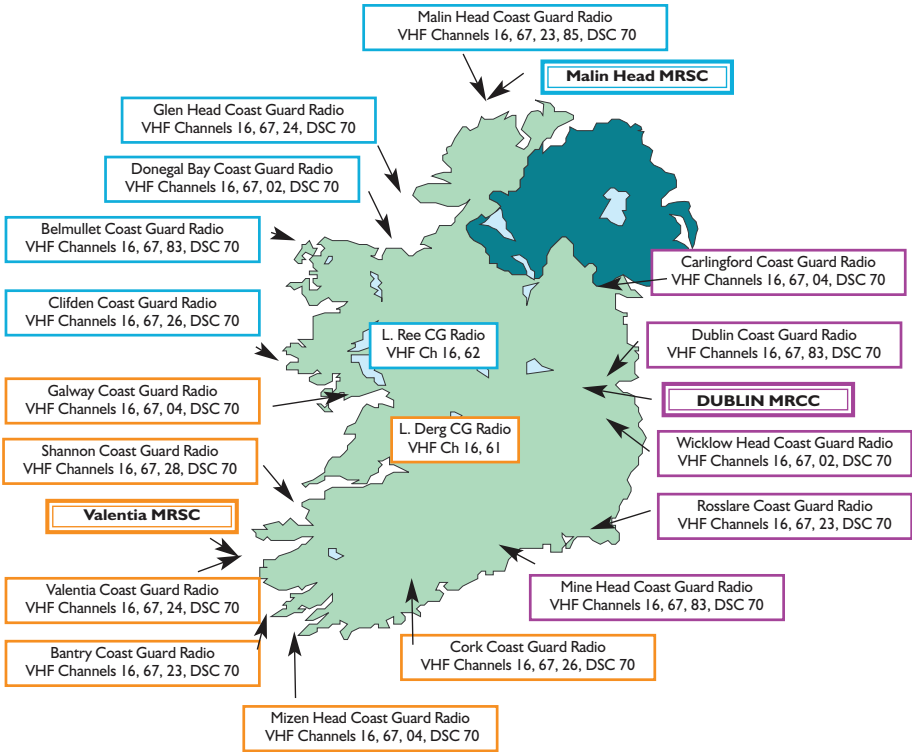
False alarms from digital 406 MHz beacons can be resolved with a phone call as these devices transmit an identity code that can be cross-referenced with an ownership database.



11.4 Marine VHF Communications Network

Irish Coast Guard

Marine VHF Communications Network



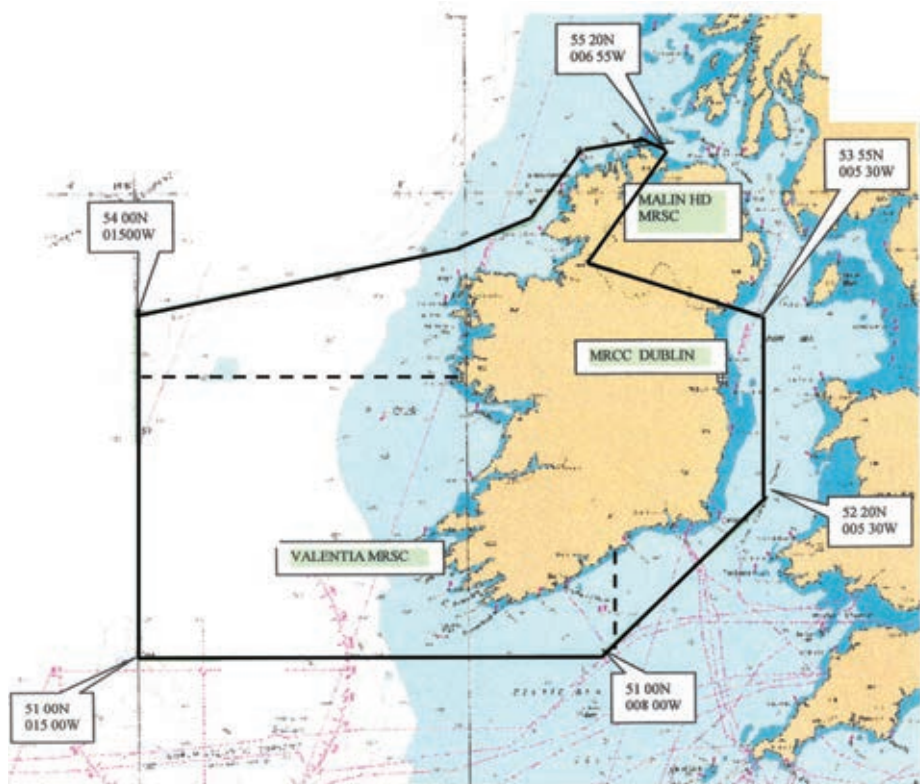
Weather Forecasts at 01:03, 04:03, 07:03, 10:03, 13:03, 16:03, 19:03 and 22:03 on working channels

Malin Head
Controlled Radio Stations

Valentia
Controlled Radio Stations

Dublin
Controlled Radio Stations

Irish Search and Rescue Region



11.5 Automatic Identification System (AIS)

The Automatic Identification System (AIS) is an automatic tracking system used on ships and by vessel traffic services (VTS) for identifying and locating vessels by electronically exchanging data. AIS has been widely adopted and can be a useful tool on board recreational vessels. It can assist in identifying larger vessels as all passenger ships must have AIS. All ships of 300 gross tonnage and upwards engaged on international voyages, as well as cargo ships of 500 gross tonnage and upwards on domestic voyages, must also carry AIS. It is important to note that there may still be a large number of vessels not fitted with AIS. It is a useful identification tool but should not be used as a means of collision avoidance as not all vessels are required to carry AIS. Another useful AIS feature is that navigation aids such as buoys and lighthouses are increasingly being fitted with AIS transponders to assist with identification. AIS Search And Rescue Transponders (SART) are also available that can assist in locating a casualty in a Search and Rescue situation.

11.6 Survival at sea

Death by hypothermia or drowning presents the greatest risk to individuals who are forced to abandon their craft. The ambient



sea temperature can cause people to very quickly become cold and affect their ability to help themselves once in the water.

After boarding a liferaft it is still possible to succumb to hypothermia. Individuals should take the necessary survival precautions.

Survival at sea, even for relatively short periods of time, is dependent on suitable equipment, adequate preparation and knowledge of survival techniques.

A number of recognised course providers offer a **one day Basic Sea Survival Course** (see Appendix 9 for details of course providers) covering both the theoretical and practical aspects of sea survival techniques.

11.6.1 Choosing a Liferaft

When choosing a liferaft, examine what survival equipment is included.

ORC Pack

- Bailer
- Red Handheld Flares (3)
- Sponges (2)
- Torch (with spare batteries and bulb)
- Leak stoppers (set)
- Pump
- Repair kit
- Paddles (2)
- Safety knife
- Instruction leaflet
- Sea anchor
- Rescue quoit and line (30 m floating)

It is recommended that additional equipment is carried in a suitable grab bag.

World Sailing Pack

- Bailer
- Thermal protective aids (survival bags) (2)
- Seasickness pills (min of 6 per person)
- Seasickness bags (min of 1 per person)
- Sea survival instructions
- Red Handheld Flares (3)
- First Aid kit (including water to help take pills)
- Sponges (1 per person)
- Torches (2 sealed for life)
- Leak stoppers (set)
- Signal mirror
- Pump
- Repair kit
- Buoyant paddles (2)
- Signal card

- Whistle
- Safety knife
- Sea anchor
- 'Wet' notebook and pencil
- Rescue quoit and line (30 m floating)

SOLAS B Pack

- Bailer
- Sponges (2)
- Leak stoppers (set)
- Pump
- Repair kit
- Buoyant paddles (2)
- Signal card
- Instruction leaflets
- Torch (with spare batteries and bulb)
- Seasickness tablets (6 per person)
- Rescue line and quoit
- Safety knife
- Sea anchor (2)
- First Aid kit
- Sick bag (1 per person)
- Whistle
- Red parachute flares (2)
- Red handheld flares (3)
- Buoyant orange smoke
- Heliograph
- Radar reflector
- Thermal Protective Aids (survival bags) (2)

SOLAS A Pack

As SOLAS B Pack plus:

- Fishing kit
- Additional red parachute flares (2)
- Additional red handheld flares (3)

- Additional buoyant orange smoke
- Water (0.5 litre per person)
- Graduated drinking vessel
- Rations (10,000 kilojoules per person; non thirst provoking)
- Tin-opener

There are a number of essential points to consider when selecting a liferaft:

- **Two Compartment Buoyancy Chambers** – allows one chamber to be damaged without compromising the buoyancy of the raft.
- **Canopy** – protects the crew from the elements, reduces risk of exposure and improves the chances of the raft avoiding total inversion if capsized by a wave or inflating upside down.
- **Inflatable Floor** – offers improved insulation against the cold.
- **Sea Anchor** – offers relative stability to the raft in the sea.
- **Boarding Aid** – offers essential assistance to a fully clothed person attempting to enter a liferaft from the water.

Liferafts require regular servicing by trained personnel and at intervals laid down by their manufacturer, which should always be adhered to.

Liferafts should be stowed on board



in a location where they can be rapidly deployed. They can be stowed either on deck or in a locker opening directly onto the deck. If stowed on deck, the storage should be able to withstand heavy weather. All liferafts rely on the attachment of their painter to a suitable strong point on board in order to initiate the inflation procedure.

11.6.2 Abandoning Ship

The decision to abandon a ship should only be taken if absolutely necessary. Often a damaged or incapacitated boat will, even in adverse weather conditions, offer greater protection to a crew than entering the water or deploying a liferaft.

The decision to abandon a ship must be made taking into consideration a number of factors:

- Condition of the boat, propulsion and power capabilities.
- Internal flooding.

- Bilge Pumping capacities and capabilities.
- Weather conditions.
- Communications with rescue facilities.
- Physical condition of crew.

If abandoning a craft to a liferaft, the following points should be adhered to:

- Be familiar with the correct method of launching. Read the instructions before departure and ensure other crew are familiar with the location of the liferaft and the means of deployment.
- For offshore cruising: Category A and B should have a suitably equipped grab bag which can be transferred to the liferaft.
- Before launching the liferaft, check the water in the launching area is clear of people and obstructions.
- Wait until the liferaft is fully inflated before attempting to board. Do not jump onto the canopy. Avoid the raft chafing against the craft that is being abandoned.
- If at all possible, board the raft without entering the water in order to reduce the effects of the cold.
- If it is not possible to board the liferaft without entering the water, choose a suitable place to leave the boat while taking account of the sea state and drift of the boat. Remember, liferafts can

drift much faster than most people can swim.

- Wear additional layers of clothing, including head gear, as this prevents heat loss from the body. A suitable PFD/lifejacket should be worn at all times.
- Do not remain in the water longer than is necessary.

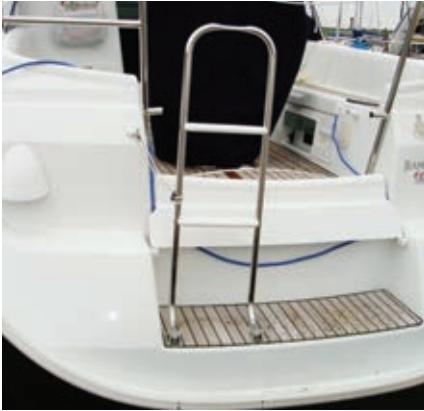
Once all crew are in the liferaft:

- The craft should be cut free.
- Manoeuvre clear of the craft or any obstructions.
- Deploy the sea anchor.
- Close all entrances to conserve heat.
- Issue sea sickness tablets.
- Post a lookout.
- Maintain the liferaft – inflate the floor, bale out any water, check for leaks, ventilate by maintaining a small opening.
- Remain in the vicinity of the last position given prior to abandoning ship.

11.6.3 Survival in the water

In the event of a liferaft not being available, the following applies:

- Ensure additional layers of clothing are worn prior to entering the water.
- Wear a hat and if possible cover the extremities of the body, e.g. fingers, toes and face.
- Do not jump into the sea. Use an overside ladder if available. Avoid obstructions in the water adjacent to the hull. It may be



preferable to abandon from either the bow or stern rather than amidships.

- Avoid unnecessary swimming in order to conserve energy and body heat.
- If possible, form a group with other survivors to increase visibility for rescuers.
- Activate the PFD/lifejacket light and use the whistle attached to attract attention.

11.7 Man overboard and recovery procedures

11.7.1 Recovery of man overboard

The loss of a person overboard presents a serious challenge to those remaining on board who have to safely position the vessel adjacent to the individual in the water and recover the person back on board.

The situation can be even more traumatic if the skipper is lost and



an inexperienced crew are on board.

On losing a crew member overboard, other crew should undertake the following actions:

- Deploy a lifebuoy, throw bag, rescue quoit, etc.
- Appoint a crewmember to maintain visual contact with the individual in the water at all times regardless of the boat's manoeuvres.
- Depending on the type of craft, exercise the required manoeuvre as described in the following section.
- Issue MAYDAY.

Position the person adjacent to the boat and, if the person is physically capable, re-board by means of a suitable boarding ladder or swimming platform.



For an exhausted or injured crewmember, external means of recovery will be required, such as:

- Dedicated recovery sling under the arms of the individual, using halyards/winches, boom, etc. to provide leverage.
- Use of victim's safety harness or PFD/lifejacket fitted with integral harness.
- Use of a sail deployed over the side as a scoop and recovered using the boats running rigging.
- Use of an inflatable tender, partially deflated to recover the individual from the sea.
- Launch the liferaft and have the victim recovered into it.
- On inflatables, one tube may be partially deflated to aid recovery of an injured or unconscious person.

Many boats are equipped with a bathing platform at the stern which facilitates recovery of persons from the water.

On boats with outboard engines, the engine may be used as an impromptu ladder to re-board, provided the engine is shut down.

Falling into cold water will result in a gasp reflex causing uncontrolled breathing, panic and cardiac stress. A lifejacket will keep your head above water, ensuring you breathe in air.

Be aware of the dangers of hypothermia affecting persons who have been immersed in the sea for a period of time. Ensure the casualty is kept dry and warm. Alcohol should not be given to the person.

Treatment for hypothermia consists of drying, sheltering, and gradually warming. Do not rub the patient's body. Warm with blankets and if possible, your own body heat. While blankets help a person retain body heat, they are not sufficient to treat hypothermia. It is vital that you warm the core of the body first or the cold blood will be forced towards the heart and may cause death.

11.7.2 Manoeuvring boat to aid recovery of man overboard

11.7.2.1 Craft without an engine

A simple way to recover is to:

1. Put the craft into an "apparent"

First Gasp or Last Breath?

**SAFETY
ON THE
WATER**

Cold water shock kills

Facts

- Falling into cold water will result in a **gasp reflex** causing uncontrolled breathing, panic and cardiac stress.
- One gasp of water could kill you in **seconds**.
- Irish waters are cold enough to cause cold shock.
- Being a strong swimmer will not save you.
- A lifejacket keeps your head safely above water ensuring you gasp air.
- To work correctly, a lifejacket must be worn correctly.

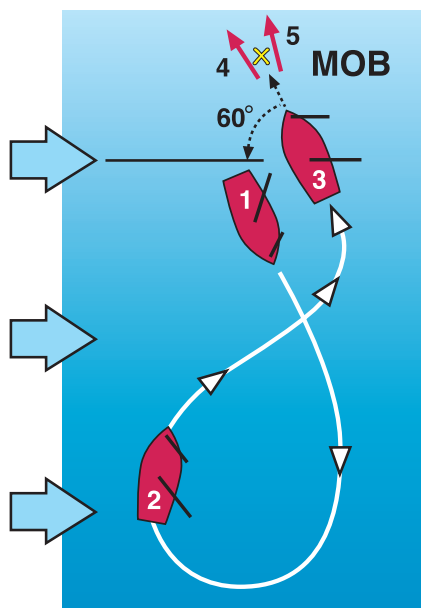
Wear a properly fitted lifejacket and ensure that your first gasp is not your last breath.



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100002

beam reach (burgee across the craft). Allow yourself some sea room to manoeuvre and get yourself organised to recover the person from the water.

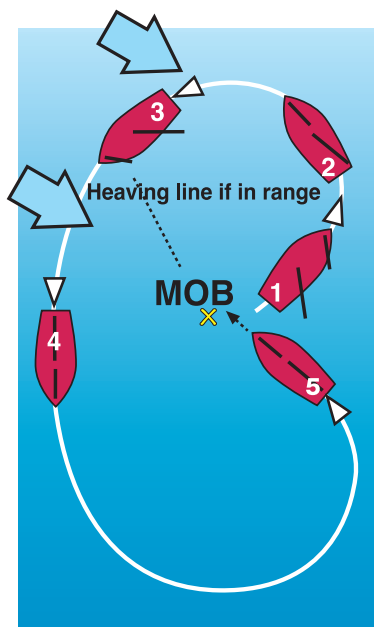
2. Tack and sail on the opposite beam reach (person in water now on weather bow).
3. Approach on a close reach, easing the sheets in the final stages. Leeway will increase as you slow down – allow for this.
4. In a larger craft, it is easier to come alongside to windward of the person in the water and make the recovery over the leeward side.
5. In a dinghy, come alongside to the leeward of the person in the water and make the recovery by the weather shroud.

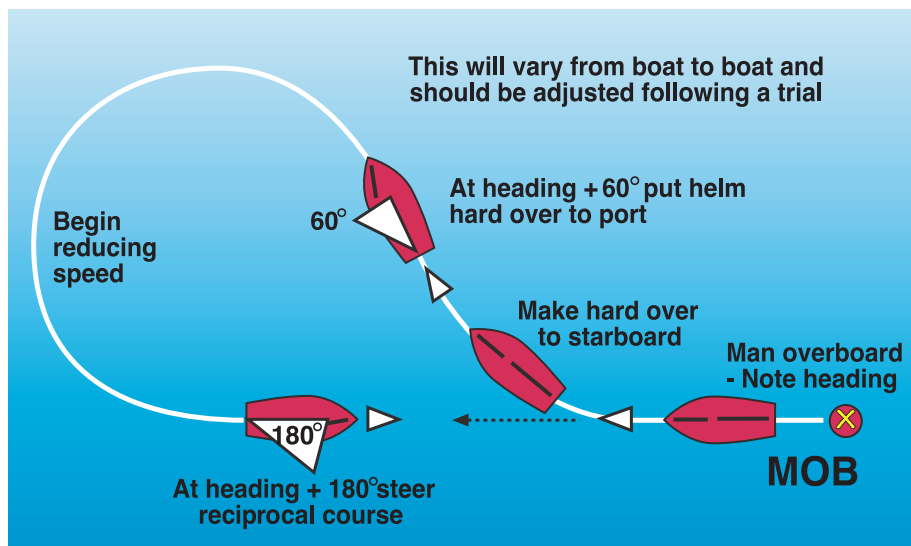


11.7.2.2 Craft with an engine

To stay as close to the person in the water as possible:

1. Come up to wind and tack, leaving headsail cleated so that boat stops hove to (yachts).
 2. Throw a heaving line to the person in the water if in range, and haul alongside.
 3. If not within heaving line range:
 - start the engine
 - lower or furl the headsail
 - sheet the main sail amidships.
- Ensure there are no lines or sheets lying loose on deck or overside that could foul the propeller.**
4. Motor to leeward of the person in the water and approach the person head to wind.





Other turning manoeuvres

1. If you can see the person in the water clearly, a simple sight 180 degree turn is the quickest.
2. If you lose sight of the casualty, due to poor visibility or heavy weather and sea state, the “Williamson Turn” is a good way to get to a reciprocal course which will take you back down your track. From the moment the skipper is aware of a “man overboard” situation, put the helm to starboard and adopt a course of “original course + 60 degrees”. Then put the helm immediately to port until the vessel has completed a turn which brings the compass reading to “original course plus or minus 180 degrees”. This will put you on a reciprocal course where you should proceed slowly with a good lookout as the casualty will be directly ahead of you.
3. In heavy weather, the reciprocal course may bring the sea astern, in which case a short approach head to sea may be more appropriate once the turn has been completed.
4. Do not waste time while the craft is turning to approach the person in the water. Prepare for the recovery as it is too late when the person is alongside.
 - Which side will you approach?
 - Have a heaving line ready.
 - Wear a PFD/lifejacket and lifeline; if you don't, you may get pulled on top of the person in the water.
5. The initial approach to the person in the water will vary

depending on weather/sea conditions and the type of boat. Let the weather help rather than hinder. Stop upwind and drift down.

6. If you are concerned about drifting onto the person in the water, bring your stern into the wind. If you are not confident with your boat handling skills or if it looks likely that the boat could come down on top of the person in the water, throw them the heaving line and pull them alongside to a position that is a safe place for recovery.
7. **Ensure the propeller is not turning when you are alongside the person in the water.**

11.8 Emergency towing – receiving or giving a tow

Towing should be undertaken with preparation and care by all parties involved in the operation. If assistance is being offered by the RNLI lifeboat, always follow the instructions of the coxswain as to how to take the line and secure it on board.

In all other circumstances, the following should be observed:

- All crew working on deck must wear a suitable PFD/lifejacket.
- Consider the use of lifelines and safety harnesses if weather and sea state require them.
- Use the most substantial and longest line available to you. Join several together using a bowline if necessary.
- Use a light heaving line as the first line to be transferred between boats. The heavier towline can be passed across using this line.
- The boat offering the tow must take care not to foul its own propeller when transferring a tow line, or come in contact with the disabled boat.
- A towline can be floated downstream to a disabled craft using a fender.
- Both craft should use a towing bridle to secure the towline. Ensure the load is spread over several cleats or strong points on deck such as winches to distribute the load and allow for efficient steering. Please note that some cleats are not designed for towing and may present a projectile hazard when they come under load, hence the use of several cleats is recommended as shown in picture.
- Ensure an agreed means of communications is established, either by VHF or hand signals.
- The towing boat should slowly commence to get underway. Speed should be adjusted to suit the vessel being towed and local sea conditions.
- In open water, it is generally best to tow in line astern. However in sheltered waters and approaching channels and berths, it is possibly beneficial to change to an



alongside tow to allow ease of berthing etc.

- The towed craft should be positioned slightly forward of amidships of the towing craft and adjusted by means of springs and breast ropes. This allows the towing craft better positioning through the paddlewheel effect of its own propeller, and controllability through its rudder, which is prevented if the towed boat is positioned aft of the tugs rudder position. If the towed boat is too far aft, the combination of tug and tow can become quite unmanoeuvrable with the two only wishing to alter course in the direction upon which the towed vessel is made fast.

11.9 Helicopter rescue procedures

In the event of a helicopter rescue situation, the following points should be noted and followed:

- Prepare well in advance of the arrival of the helicopter; ensure crew are well briefed on correct procedures.
- Clear all obstructions on deck prior to the arrival of the helicopter. Ensure there are no items of loose or moveable gear on deck.
- All operations will be directed by the crew of the helicopter – follow all instructions.
- Do not be distracted by the noise of the helicopter overhead. It may be necessary to have a crewmember positioned inside the boat to maintain radio communications with the helicopter due to the excessive noise on the outside decks.
- The pilot will give specific instructions regarding the course and direction he/she may wish you to steer. Generally boats will maintain a course to give the wind at 30 degree to the Port Bow. The preferred area to conduct winching operations is normally the port quarter. This affords the pilot visual contact with both the boat and the winchman.
- Due to the risk of static build-up from a hovering helicopter, follow the pilot's instructions exactly with regard to the earthing of a static discharge wire prior to placing the winchman on board. The wire is usually dropped into the sea to discharge static prior to commencing the operation.
- Under no circumstances should the winch line be made fast at any time to the boat.
- On arrival of the winchman on board, that person will assume command of all subsequent operations. Follow the instruction given at all times.
- **Do not fire parachute flares when a helicopter is operating in the vicinity.**

11.10 Flares

Flares are an effective way to signal passing aircraft and nearby boats that a vessel is in trouble and requires assistance.

There are three types of flares used as distress signals:



- Rocket parachute flares can reach a height of 300 metres and are used for longer range attention seeking.

Flares will burn for about one minute, so only use when other boats and planes are in the area.

- Red handheld flares are for night-time use and can be seen up to 10 km away.



White flares are available for the purpose of attracting attention or marking a position by a boat.

- Orange smoke flares are for day use only and can be seen up to 4 km away on a clear day. They can be either handheld or buoyant cartridge type.



Flares are explosives and should be treated with care. Store in a waterproof container. They should always be within their expiry date.



Everyone on board should know where the flares are stored and how to use them.

Operating Instructions are printed on all flares – always read them prior to firing!

Do not operate flares when a Rescue Helicopter is in the immediate vicinity – always follow the pilot’s instructions.

11.10.1 Disposal of expired pyrotechnics

Pyrotechnic expiry dates
Flares have clearly marked

instructions for use and expiry dates printed on the packaging. The expiry dates printed on pyrotechnics (flares) are determined by the required performance of the distress signals as set by marine approval bodies.

SOLAS standards are used to regulate the quality and performance of distress signals for use on commercial vessels. Recreational craft are not required by law to carry SOLAS approved flares. However, most products supplied for the leisure market in this country are of SOLAS standard.

Expiry dates are generally 3 years from the date of manufacture. Flares should be replaced prior to the expiry date as the chemical components used in flares degrade over time and variations in temperature and humidity can accelerate this process.

Out of date flares may look acceptable to the naked eye. However:

- they can burn at a lower brightness (candela),
- the colour of the flare can fade,
- the burn time can lengthen which could be a fire hazard,
- for rockets, the ejection height and flight stability may be affected,
- red flares can fade and therefore may not be recognised as a distress signal.

Expiry dates are set to ensure that pyrotechnics will still perform to the stringent specified quality standards at the end of their official lifetime. The life of the product allows for a performance safety margin so that even if storage conditions are not optimum, the distress signals will still meet the approval bodies' performance specifications.

In date flares should be stored on board in a waterproof, buoyant container.

Out of date flares must be disposed of carefully. Marine Notices are issued from time to time in relation to the safe disposal of time expired pyrotechnics.

11.11 Mobile Devices

A mobile phone should not be relied on as the primary method of contacting the emergency services. Having said that, it is recommended that all vessels operating on inland lakes and waterways as well as in coastal waters carry a fully charged mobile phone contained in a watertight storage bag or casing. The mobile phone should at all times be fully charged and the signal strength and the charge indicator of the mobile phone should be regularly checked while the vessel is under way.