ST. VINCENT AND THE GRENADINES

MARITIME ADMINISTRATION

CIRCULAR N° SOL 055

RECOVERY OF PERSONS FROM THE WATER – NEW SOLAS REGULATION III/17-1

TO: **SHIPOWNERS, SHIPS' OPERATORS & MANAGERS, MASTERS, FLAG STATE SURVEYORS, RECOGNIZED ORGANIZATIONS**

APPLICABLE TO: **ALL VESSELS**
EFFECTIVE AS FROM: Date of this Circular

12th December 2013

The new regulation requires all ships other than RO-RO passenger ships to have ship-specific plans and procedures for the recovery of persons from the water.

According to SOLAS regulation III/26.4, Ro-Ro passenger ships have been requested to carry means of recovery equipment. Therefore, they should already have complied with the requirements of Regulation III/17-1.

The requirements apply to new ships constructed (having their keel laid) on or after 1st July, 2014, and to existing ships by the first periodical or renewal safety equipment survey after 1st July, 2014.

The recovery plans and procedures should facilitate the transfer of persons from the water to the ship while minimising the risk of injury from impact with ship structure, including by the recovery appliance itself, through a risk assessment taking into account the anticipated conditions and ship-specific characteristics.

Drills should also be carried out to ensure that crew are familiar with the plans, procedures and equipment for recovery of persons from the water. These drills should be part of the routine man-overboard drills.

The above requirements should be a part of Ship's Safety Management System.

Guidance for preparing the plans and procedures is provided in the following documents annexed to this Circular:

MSC.1/Circ.1447 – Guidelines for the Development of Plans and Procedures for Recovery of Persons from the Water
MSC.1/Circ.1182 – Guide to Recovery Techniques
MSC.1/Circ.1185/Rev.1. – Guide for Cold Water Survival

Shipowners/Ships' Operators and Managers of new and existing ships should bring this information to the attention of their designers, shipyards, surveyors and other interested parties.

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MSC.1/Circ.1182
31 May 2006

GUIDE TO RECOVERY TECHNIQUES

1 The Maritime Safety Committee, at its eighty-first session (10 to 19 May 2006), with a view to providing specific guidance to seafarers on recovery techniques, approved the Guide on recovery techniques, prepared by the Sub-Committee on Radiocommunications and Search and Rescue at its tenth session (6 to 10 March 2006), as set out in the annex.

2 Member Governments and international organizations in consultative status are invited to bring the annexed guide to the attention of all concerned, in particular distribution to seafarers.

3 Member Governments, international organizations and others concerned are encouraged to enhance the attached Guide with pictorial and other relevant information, as appropriate.

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ANNEX

GUIDE TO RECOVERY TECHNIQUES

1 INTRODUCTION: YOUR PART IN RECOVERY AT SEA

1.1 As a seafarer, you may suddenly be faced with having to recover people in distress at sea. This might be a person overboard from your own ship – a fellow crew member, or a passenger – or your ship might be responding to someone else's emergency; for example a ship abandoned because of flooding, fire or a ditched aircraft.

1.2 You may have to prepare, with little or no notice, to recover people – maybe very many people. Whoever they are, their lives may be in your hands.

1.3 In many areas of the world, especially when out of range of shore-based search and rescue (SAR) facilities, your ship may be the first, or the only, rescue unit to reach them. Even if you are joined by specialized units, you will still have a vital role to play, especially in a major incident. If you are required to recover people in distress, it is your capability and your ship that matters. You may have to find a unique solution to a unique lifesaving problem. To ensure that you can respond safely and effectively, you need to think about the general issues *beforehand*.

1.4 The recovery process is often far from simple. For example, it may be complicated by:

.1 difference in size between your ship and the survival craft: survivors may have to climb or be lifted considerable distances to get into your ship;

.2 differences in relative movement between your ship and the survival craft alongside: it may be difficult to keep the survival craft alongside and for survivors to get onto ladders etc or in through shell openings; or

.3 physical capability of those to be recovered: if they are incapacitated, they may be able to do little or nothing to help themselves.

1.5 This guide discusses some of these underlying problems, as well as some of the solutions. It suggests some practical recovery techniques which have been used successfully to recover people in distress.

2 AIMS OF THIS GUIDE

2.1 This guide focuses on recovery and the work you may have to do to achieve it. The need for recovery is rare, and your ship may not be designed for the task. However, you may find yourself faced with having to attempt it.

2.2 This guide is intended to be used as a reference document. You should read it now and you should refer to it again while proceeding to the scene of the emergency, as part of your preparation for the recovery operation.

2.3 The guide's principal aims are to help ***you*** – as master or crew of a responding ship – to:

.1 **ASSESS** and decide upon appropriate means of recovery aboard your own vessel;

.2 **TRAIN** in the use of these means of recovery, in general preparation for emergencies; and

.3 **PREPARE** yourselves and your vessel when actually responding to an emergency.

2.4 This guide supports the recovery guidance in Volume III of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual, 'MOBILE FACILITIES', which should be available on board. Additional guidance is also in the Appendix to this guide.

2.5 Recovery – getting people in distress into your ship – is just a part of the overall rescue operation. For guidance on SAR operations as a whole you should refer to the IAMSAR Manual.

2.6 For simplicity, this guide refers to lifeboats, liferafts, etc. as 'survival craft'. It is also possible that you will be recovering people from other small craft such as: small SAR units; directly from small vessels in distress such as yachts or fishing boats; or from the water, etc. In general the same recovery principles apply throughout.

3 THE TASK OF RECOVERY: POSSIBLE PROBLEMS

3.1 When proceeding to the scene of an emergency at sea, it is likely that you will only have limited information about what you will find when you get there. What you may well find are people in survival craft or in the water. You should prepare for their recovery.

3.2 Unless it is properly prepared for, the recovery process may be a difficult and dangerous operation. The following list covers some of the problems which you may have to face.

.1 Recovery from survival craft is not simple – see paragraph 3.3 below.

.2 In a rapid or uncontrolled abandonment, when not everybody has been able to get into survival craft, you may also find people in the water, or clinging to floating wreckage, etc. These people are less likely to be able to help themselves than if they were in survival craft. Nor will they survive so long.

.3 People may still be aboard the craft in distress and direct recovery may be required without the intermediate use of survival craft.

.4 Small craft are especially vulnerable if they are in close proximity to your ship. Their masts, rigging or other gear may become entangled and there is the danger of crushing or other damage as the two vessels move in the seaway.

.5 People may need to be recovered from other places which they have reached before your arrival (rocks, reefs, sandbanks, shorelines only accessible from the sea, navigational marks, moored vessels, etc.).

.6 In addition to recovering people yourself, you may have to receive people from other SAR units such as rescue boats or helicopters. These units may wish to transfer people to your ship rather than take them directly ashore, so that they can return to pick up others more quickly. Many of the problems associated with recovering people from survival craft also apply to the transfer of people from (small) rescue boats into (large) ships.

.7 Transfer from helicopters has its own special requirements, including training and preparation on board – see IAMSAR Volume III Section 2: 'Helicopter operations'.

3.3 There are likely to be further complications, even after a controlled evacuation in which people have entered survival craft successfully.

.1 Types of survival craft vary.

.1 Powered survival craft may be able to manoeuvre themselves alongside the recovering ship (your ship), but those without power cannot do so.

.2 Many survival craft are covered and these covers may not be removable. Covers assist survival while waiting for help to arrive, but they can get in the way during the recovery process. Getting out of enclosed survival craft may be difficult when the craft is in a seaway, particularly if the exit points are small and difficult to negotiate.

.2 Those awaiting recovery may lack the ability to help themselves or to help others to help them. This may be because of injury, illness (including seasickness after a period in a survival craft), the effects of cold or heat, age (whether elderly or very young) or infirmity.

.3 It is likely that people awaiting recovery will have little or no experience of transferring between small craft like their survival craft and larger ones such as your ship. For example, stepping onto a pilot ladder and then climbing it is not difficult for a fit person used to doing so, but this may be effectively impossible for others.

.4 There may be language difficulties. If instructions are not properly understood, the consequences may be dangerous. You may not have a language in common with the person to be recovered and, even when you do, they may not understand your instructions.

.5 There may be a large number of people to recover. In the case of a passenger ship, this number may amount to hundreds or even thousands of people. This possibility brings additional problems with it, including:

.1 **SCALE**: the sheer size of the problem can be daunting and the stress of the situation may lead you to lose focus and efficiency.

.2 **PRIORITY**: who should be recovered first? It is clear that people in the water should take priority over those in survival craft. It is less clear whether the injured or infirm should take priority over the more capable, who can be recovered more quickly.

.3 **RESOURCES**: facilities aboard your ship may become overwhelmed. Survivors will need shelter and, subsequently, warmth, water, food and, probably, some medical attention.

.4 **PEOPLE**: you will need sufficient numbers of people to navigate your ship, operate the means of recovery and escort those recovered to shelter.

4 PLANNING FOR RECOVERY

4.1 The circumstances you find when you arrive at the scene will differ from incident to incident; but general planning can, and should, be done.

4.2 In planning how best to bring people aboard your ship, you should consider:

.1 who will be required for the recovery process;

.2 who will manage the ship in the meantime;

.3 what can be done to help people prior to recovery;

.4 the means of recovery available to you;

.5 where on the ship the survivors should be taken after recovery;

.6 how they will be looked after once they are aboard; and

.7 how you will keep your own crew and passengers informed of what's going on.

4.3 Effective recovery of survivors will only occur through planning and preparation:

.1 have a plan;

.2 make sure everyone understands the plan and their own place in it;

.3 be prepared; and

.4 have everyone ready, with all the equipment they need, before commencing the recovery operation.

4.4 You may not have much time to think about details when the emergency happens; but if you have thought about your capabilities beforehand and you have trained to use them effectively – in short, if you are *prepared* – you will not need much time.

4.5 Remember that plans are of no use unless you know how to put them into effect. This requires training, and the testing of both plans and training by exercise.

5 PROVIDING ASSISTANCE PRIOR TO RECOVERY

5.1 People can still die after you have found them but before you can get them on board. Recovery takes time – and those in distress may not have much time, especially if they are in the water, unprotected and/or unsupported. You should be ready to help them stay alive until you are able to recover them.

5.2 Depending on how long the recovery is likely to take, they may need:

.1 buoyancy aids such as lifebuoys, lifejackets and liferafts;

.2 detection aids such as high-visibility/retro-reflective material, lights, a SART and an EPIRB;

.3 survival aids such as shelter, clothing, drink, food and first aid supplies; and

.4 communications equipment such as a handheld radio, for example.

5.3 The simpler buoyant items – lifebuoys in particular – can be dropped or thrown to those in distress on an early pass by the ship. If possible, contact should be established by messenger (e.g. rocket line, rescue throw-line or heaving line) and the items passed under control. Remember that not all lines are buoyant, and that you will need to get them very close to those in distress if they are to have a chance of seeing and getting hold of them.

5.4 Buoyant items may be veered down to those in distress while the ship stands clear, by drifting them down on lines made fast to a lifebuoy, for example, or by towing them into a position where those in distress can get hold of them.

5.5 If the recovery operation looks like it might be protracted, one or more of your own liferafts can be deployed. Remember, however, that a liferaft might drift faster than those in distress can swim. You will need to guide it to the people you are assisting, and this means making a line fast to the raft before deploying it: do not rely on the raft's own painter, which may tear away.

5.6 You can also help those in distress while you ready your ship for the recovery operation by making a lee for them or, if contact can be established by line, by towing them out of immediate danger such as that posed by the wreck itself or by spilt hazardous cargo, or by a lee shore.

6 THE RECOVERY PROCESS

6.1 During the recovery process itself, there will be three basic tasks to complete:

.1 bringing people to the side of the ship so that they can be recovered;

.2 getting people into the ship; and

.3 dealing with them once they are aboard.

6.2 Some information on each of the above tasks is given below. Think carefully about each of them in your planning and preparation. If you have done so, the recovery process should be easier when you have to carry it out.

.1 **PREPARE** your means of recovery before you arrive at the scene;

.2 **PREPARE** yourself and your crew before you arrive at the scene. Everyone should know their duties and stick to them as much as possible;

.3 **PREPARE** on-board communications, so that lookouts and the recovery team will be able to communicate readily with the Bridge team;

.4 **THINK** about the approach before making it:

.1 **DETERMINE** what will be the most significant factor in creating a lee for the casualty – wind, sea or swell;

.2 **ASSESS** navigational hazards on scene;

.3 **DECIDE** on which side you want to make the lee, bearing in mind your own ship's manoeuvring characteristics;

.4 **CONSIDER** running by the casualty first, if time permits, to help you make your assessment;

.5 **CONSIDER** stopping well short of the casualty during the final approach, to get the way off your vessel and to assess the effects of wind, sea and swell when stopped/at slow speeds;

.6 **APPROACH** with the significant element (wind, sea or swell) fine on the weather bow and your recovery target fine on the lee bow; and

.7 as you come up to the craft or person in the water, **TURN AWAY** from the weather and stop to create the lee, with your recovery target close on your lee side;

.5 **ENSURE** that you have sufficient lookouts who can communicate with the Bridge. Remember that during the final approach to a survival craft or a person in the water they may not be visible from the Bridge;

.6 **ENSURE** that the lookouts know their duties; and

.7 **BE READY** to receive craft and/or people alongside, with boat ropes rigged and other equipment (including safety lines and buoyant equipment) ready to hand.

7 BRINGING PEOPLE TO THE SIDE OF THE SHIP

7.1 If people in survival craft or in the water cannot put themselves in a position from which they can be brought safely aboard the recovering ship, someone (or something) has to go and get them.

7.2 Manoeuvring a large ship in a seaway to come alongside, and then remain alongside, a small target like a survival craft or a person in the water will be difficult.

.1 The main danger in this case is that of running over and/or crushing the target.

.2 It is also possible to over-compensate for that risk, so that the survival craft or person will be missed because still too far away.

.3 Both your ship and the target are likely to be affected, unequally, by wind, sea state, and water currents.

7.3 There may be other factors which make this task more difficult still. Be prepared for them. For example:

.1 Room to manoeuvre may be limited by nearby navigational hazards, or there may be more than one survival craft in the area: you may have to avoid some while manoeuvring alongside another.

.2 Beware of running down people in the water (who may be very hard to see) while making your approach to your chosen target. Post good lookouts with direct communications to the Bridge while in the incident area.

.3 Although powered survival craft may be able to get themselves (and other units they are towing) alongside your ship and keep themselves there, this can be difficult in a seaway. In rough seas, the survival craft or the people aboard them may be damaged if thrown against the ship's side. Have boat ropes ready, and fenders if you have them.

.4 People in the water may be able to swim (over short distances) to get to the ship's side. It is possible that people will enter the water from survival craft in order to do so as you approach, although they should be told not to if possible – at least until you are ready to recover them.

7.4 Overcoming the problems of manoeuvring is a matter of seamanship – and of preparation. Manoeuvring your own ship at slow speed, judging its movement and that of the survival craft or person in the water, is a skill. Appropriate training should be encouraged by owners and operators of all ships.

7.5 However, it may be unsafe – or simply impossible – to bring the survival craft or the people in the water alongside your ship directly. You may have to find another way of reaching them. One way to do this is to launch a rescue craft from your own ship, *if this can be achieved safely*.

7.6 Launching a rescue craft will serve three purposes:

.1 it will make the final approach to the target easier;

.2 primary recovery (into the rescue craft) will be easier, because of the rescue craft's lower freeboard and similar motion to that of the target; and

.3 completing the recovery by returning to the ship and being lifted back aboard using the rescue craft's own recovery system should also be easier – always provided that it can be done safely.

7.7 Only limited numbers of people can be brought aboard on each occasion, but this may be a safer option than direct recovery. It also introduces a number of control measures, allowing more time for dealing with those who have been recovered once they are aboard the ship.

7.8 The best lee for launching and recovery of rescue craft is likely to be obtained by putting the sea on a quarter, steaming slowly ahead, and doing the boat work on the opposite side.

7.9 For most ships, however, launching rescue craft may only be an option in reasonably good weather conditions. In moderate sea conditions or worse, launch and recovery may be too hazardous, putting your own crew into danger and making an already difficult situation worse.

7.10 The use of your own rescue craft must be for the master to decide, depending on the particular circumstances of the incident. Factors to consider include:

.1 **the severity of the risk to those in distress**: can they be left where they are until more suitable help arrives (supported in other ways by the assisting ship in the meantime – see below) or are alternative means of recovery available;

.2 **on scene weather conditions**: particularly sea state, but also wind strength and direction, ambient temperatures and visibility;

.3 **the capability of the rescue craft**:

.1 the efficiency of the rescue craft launch and recovery equipment;

.2 the competence and experience of the rescue craft's crew;

.3 the availability of personal protective equipment for the rescue craft's crew;

.4 the effectiveness of communications between the rescue craft and the recovery ship;

.5 the proximity of navigational hazards to the rescue craft; and

.6 the rescue craft's ability to navigate, whether independently or conned from the ship, so as to avoid hazards and to locate the person(s) in distress;

.4 **the manoeuvrability of the recovering ship**: can you get into a position to launch and recover the rescue craft safely; and

.5 **the proximity of navigational hazards**: limiting your ability to manoeuvre or to provide alternative help to those in distress.

7.11 An alternative to sending out a rescue craft is to pass lines to those needing recovery, so that they may be pulled alongside the ship. Rocket lines, rescue throw-lines and heaving lines may be used for this purpose, and all should be made available for use: lines will be needed in any event for securing survival craft alongside, etc.

7.12 Buoyant appliances such as lifebuoys or an inflated liferaft may be veered down to those in distress on secure lines, and then pulled back to the ship.

7.13 Streaming lines astern is another option, preferably with buoyancy and means of attracting attention to them attached – lifebuoys, for example, with lights at night. The ship should then be manoeuvred around those in distress so that they may take hold of the streamed line. Once this is done the ship may stop and those in need of recovery pulled alongside.

8 GETTING PEOPLE ABOARD THE SHIP: FACTORS TO CONSIDER

8.1 Once people are in a position from which they can be recovered, the next part of the task is to get them aboard the ship. This will depend on:

.1 the prevailing weather and sea conditions;

.2 the condition of the people to be recovered;

.3 the size of your ship;

.4 your ship's design;

.5 the equipment available; and

.6 the competency of those using it.

8.2 Weather and sea conditions on scene will be important, particularly the sea state.

.1 How is the recovery target moving in relation to your ship?

.1 In a seaway a large ship moves very differently to a small craft (or person) alongside her. The smaller target tends to react to every sea and swell wave, while the large ship does not.

.2 The recovery target in the water may be run down, crushed, capsized or swamped by your ship, or it may be left behind.

.3 It may be very difficult to transfer from a small craft onto your ship as the two move vertically relative to each other.

.4 Your ship and the recovery target will be subject to leeway in different ways. Ship and target may be blown together or apart. Water currents may also have different effects on your ship and the target.

.2 Your ship's own movements will also be a factor.

.1 As the ship moves in sea and swell, people may be swung against the ship's side as they climb or are lifted to an embarkation point.

.2 As people climb or are lifted into your ship, the craft they have just left may rise on a wave, striking or trapping them against the ship's side.

.3 People may swing away from the side and collide with another hazard, including the craft they have just left.

8.3 You should attempt to minimize the difficulties caused by rough seas. Consider the following when planning recovery operations:

.1 Try to keep sufficiently off the wind to reduce the ship's roll and pitch and to create a lee. Find by experiment (if time permits) the position in which the recovery target lies most easily alongside.

.2 Steaming slowly ahead with the recovery target secured alongside and the weather on the opposite quarter should ease differential movement, although it does introduce other risks. Craft may be damaged, lines may part, or people may fall into the water during the recovery operation, and drift astern.

.3 Try to secure survival craft alongside if possible, to prevent them being blown away or left behind.

.4 When lifting people, control lines should be rigged to the hoist and tended in an effort to minimize swinging.

.5 Safety lines should always be used to secure the casualty in case he/she is injured and/or falls.

.6 If the differential movement is too violent, you will need to consider other options.

.7 It may be possible to transfer those to be recovered to an intermediate platform such as a liferaft veered down to them, or acting as a fender against the ship's side.

.8 It may be necessary to have them enter the water, suitably equipped with flotation aids and safety lines from the ship, to be pulled across a safety gap between the ship and the survival craft.

.9 Ultimately, however, the only option may be to abandon the attempt at recovery and to stand by the target, supplying whatever assistance you can until a more capable recovery unit arrives or conditions ease.

8.4 The condition of the people to be recovered is another critical factor. When responding to an emergency, you will usually not know the condition of those needing recovery until you arrive.

.1 People's condition at recovery can range from the fit and healthy to the entirely helpless who, through injury, infirmity, hypothermia, or fear can do nothing to assist in their own recovery.

.2 This wide range of capability may be found across a group of people to be recovered, so that some of the group will be able to climb unaided into the recovering ship while others will need assistance. It may be found in an individual: even the fit and experienced seafarer's capability will erode over time, and may erode quickly. Weather conditions – ambient temperatures in particular – and the level of protection available prior to recovery are critical.

.3 You may find that people in distress are able to help themselves (and others). You may find that you will have to do all the work yourself because they cannot, or can no longer, help themselves. You are likely to find a mix of these conditions.

.4 Fear is a factor deserving attention. Many of those awaiting recovery will be able to deal with it; others may not. The latter may try to be recovered first or (if afraid for missing friends or family members, for example, or if simply afraid of the recovery process itself) they may *resist* recovery. In either case they may act dangerously. Be as ready as you can for such unpredictable behaviour, including having extra lifesaving equipment to hand in case someone ends up in the water. The aim is to retain control of the recovery process overall: loss of control by individuals can be tolerated unless it directly affects others' safety.

8.5 Be ready to deal with each of these possibilities. You should plan ahead, so far as is practicable.

.1 It may be best to bring at least some of the more capable survivors aboard first. You will probably be able to recover more capable people more quickly than you can recover the incapable, and, once aboard, they may be able to help you, by looking after other survivors for example. On the other hand, some of the most capable should also be among the last to be recovered, as you will need them to help prepare the incapable for recovery.

.2 Communications with those awaiting recovery are therefore very important. A controlled and correctly prioritized recovery process should be established and maintained.

8.6 The size of your ship, relative to your recovery target, will affect differential movement, as discussed above.

8.7 It will also determine how far those being recovered have to climb or be lifted; which, in turn, may affect:

.1 how long recovery takes;

.2 how many people can be recovered;

.3 whether they are exposed to additional risks such as swinging against the ship's side; and

.4 how anxious they are about the operation.

8.8 The ship's design may make recovery simpler. A high-sided ship may be able to use low freeboard areas or openings in her hull such as pilot, bunkering, or cargo doors.

8.9 The best point of entry into the ship should be assessed with the prevailing conditions in mind. The questions to be considered include:

.1 Where can ladders or other climbing devices be rigged?

.2 Where can lifting devices be used? What are the power sources and leads for such devices?

.3 Are there any low freeboard areas? Can they be safely accessed in bad weather or difficult sea conditions? Can the means of recovery be rigged there? Can those recovered be safely removed from there to shelter?

.4 Are there any hull openings? Can they be safely accessed and opened in bad weather or difficult sea conditions? Can the means of recovery be rigged there? Can those recovered be safely removed from there to shelter?

.5 If thinking of using accommodation ladders sited aft, is there a danger of survivors or craft near the foot of the ladder being trapped under the hull as it tapers to the stern?

.6 Is there belting along the ship's sides? If so this is a particular hazard to small craft, with significant danger of the craft being trapped beneath it. Recovery points should be at any breaks in the belting.

8.10 The equipment available and the number of people competent to operate it are also key factors. If there aren't enough people trained to operate all available means of recovery, or if the recovering ship has plenty of people but hasn't prepared adequate recovery equipment, efficiency of recovery will obviously be impaired.

.1 **ASSESS** your equipment.

.2 **PLAN** its use.

.3 **ASSIGN** people to operate it.

.4 **ENSURE** that they know how to operate it.

9 GETTING PEOPLE ABOARD THE SHIP: CLIMBING AND LIFTING

9.1 The methods of recovery discussed in this guide are *in addition to* purpose-built means of recovery carried aboard the ship. They are methods that seafarers have used successfully in the past. Consider which ones can be used aboard your ship; or whether you can devise others.

9.2 You may have to use these methods in the absence of purpose-built means of recovery; or in their place if they cannot be deployed in the prevailing circumstances. You may also need to use these methods as extra means of recovery if there are many people needing to be picked up – especially if recovery time is limited by likely survival times, or by the onset of darkness or bad weather, for example.

9.3 The following climbing devices should be considered:

.1 pilot ladders and lifts;

.2 accommodation ladders;

.3 your own survival craft embarkation ladders; and

.4 other ladders and nets.

9.4 Some or all of these may be rigged, in most cases whatever the conditions. The following points should be borne in mind:

.1 Lifting survivors is preferable to having them climb a ladder or net – see below.

.2 Ladders and nets should be so rigged as to minimize the climb; that is, where the freeboard is lowest or at suitable openings in the ship's side.

.3 They should be rigged on the flat sides of the ship, away from bow and stern.

.4 Their lower ends should be weighted so as to hang about two metres below the water level, enabling people in the water to get onto them.

.5 If possible, rig nets and Jacob's ladders so that they hang clear of the ship's side, to enable people to grasp the rungs or cross-ropes more readily.

.6 Pilot ladders – or, if they can be rigged safely in the prevailing conditions, accommodation ladders – are preferable to nets and Jacob's ladders.

.7 All ladders and nets should be tended.

.8 Safety lines should be deployed alongside them, with rescue strops or loops in the end for the casualty's use. These safety lines should be correctly secured and tended.

.9 A liferaft can be deployed at the foot of the ladder or net, to act as a transfer platform.

.10 People may not be able to make the climb. In such circumstances a crew member from the recovering ship, wearing personal protective equipment and a safety line, may have to go down to assist.

.11 If people are incapable of making the climb, the ladder or net may have to be recovered with them secured to it. For individual survivors, this may be possible manually. Alternatively a winch or other power source will have to be used.

9.5 In general, lifting survivors is preferable to having them try to climb ladders or nets. The following lifting devices should be considered:

.1 cranes (including stores cranes, etc.), gantries, derricks;

.2 davits;

.3 windlass, winches; and

.4 proprietary recovery devices.

9.6 The following points should be borne in mind:

.1 Lifting devices should be rigged so that those recovered can be lifted clear of hazards and landed on deck in a safe area.

.2 So far as possible, lines led from windlass or winches should be rigged so that the casualty can be lifted above the deck edge.

.3 Control lines should be rigged to the lower end of the lift, so that swinging against the ship's side can be limited.

.4 The lower end of the lift should be equipped with at least a rescue strop or a secure loop.

.5 A purpose-built or improvised rescue basket, or a proprietary recovery device, is usually better than strops and loops.

.6 People who have been in the water, the injured and the incapable, should be lifted in a horizontal or near-horizontal position if possible (for example, in a basket, or in two strops; one under the arms, the other under the knees). This minimizes the risk of shock induced by sudden transfer from the water and possible hypothermia.

.7 A crew member from the recovering ship, wearing personal protective equipment and a safety line, may be able to go down with the lift to assist those incapable of helping themselves into the strop, loop, basket or other device.

9.7 The rescue basket mentioned above is a particularly useful recovery tool. It may be possible to improvise such a basket; but it is not an expensive piece of equipment and it is recommended that a purpose-built unit be carried on board.

9.8 The rescue basket usually takes the form of a metal frame with floats/fenders around its perimeter and the lifting hook made fast to the top of the frame, clear of people inside. The basket floats partially submerged, so that people can easily enter it or be pulled into it. The floats double as fenders during the lift, should the basket swing against the ship's side. Some baskets are designed to fold for ease of stowage. The size of the basket, and how many people it can lift at once, largely depends on the ship's lifting capability.

9.9 The control lines mentioned above – usually rigged fore and aft along the ship's side, and tended during the lift in order to steady the lift and minimize swinging – may be supplemented by a line to the survival craft. This line serves two functions. It may be tended by those still aboard the survival craft as an additional means of controlling the hoist's lateral movements. It also serves to maintain contact with the survival craft throughout, so that the hoist may be brought back more easily to the survival craft for the next lift.

9.10 Your own ship's Survival Equipment may be used for recovery purposes.

.1 Liferafts and lifeboats, left on the falls, may be used as lifts in relatively good conditions. Lowering these units to water level enables people to be transferred from survival craft and lifted to the recovering ship's embarkation deck. It should be noted that:

.1 Any quick-release gear should be disabled.

.2 Care will be needed not to overload davit winches not normally designed to recover craft with more than their own crew aboard: people can usually only be recovered in small numbers by this method.

.2 Ships fitted with marine evacuation systems of the slide type can deploy them and recover people by pulling them up the slide.

.1 Light ladders may be carried for deployment down the slide, to enable people to climb it unaided: this will usually be easier than climbing a ladder up the vertical ship's side.

.2 Winches can be rigged so that people may be hauled up the slide on lines, secured by rescue strops or loops.

9.11 A further option to consider, if winch-fitted Helicopters are on scene, is to use them as transfer lifts. People can be winched from survival craft directly onto the recovering ship – which is a quicker operation than taking them into the helicopter's cabin first. The helicopter is effectively used as a crane.

10 STANDING BY WHEN PEOPLE CANNOT BE RECOVERED

10.1 There will be times when recovery cannot be attempted or completed without unduly endangering the ship, her crew or those needing recovery. Only the assisting ship's master can decide when this is the case.

10.2 Assistance can still be given to those in distress, even if you cannot recover them. Standing by until other help arrives or conditions improve will:

.1 give comfort to the survivors, especially if communications can be established;

.2 assist the Rescue Co-ordination Centre, as you will be able to provide updated and detailed reports on the situation; and

.3 assist other SAR facilities:

.1 your ship is easier for them to locate than a survival craft;

.2 you can provide updated and detailed reports; and

.3 units such as helicopters will be able to transfer casualties to you even when you cannot recover them directly.

10.3 But, as discussed above, more direct help can also be given.

.1 Your own lifesaving appliances – liferafts in particular – can be deployed so that those in distress, particularly people in the water, can use them.

.2 If lines can be passed to survival craft, they may be kept out of immediate danger; towed to a position where conditions are easier and recovery may be attempted; or even towed to a nearby place of safety.

.3 You can provide a lee for survival craft, protecting them from the worst of the conditions, and making life a little easier for those aboard.

.4 You may be able to supply more direct aid, passing supplies, including medical supplies, to the survival craft – by floating them down on lines fast to a lifebuoy, for example, or by towing them into a position where those in distress can get hold of them.

11 IMMEDIATE CARE OF PEOPLE RECOVERED

11.1 Recovery does not end when the survivor sets foot on your deck. He or she still needs immediate help – and is still at some risk, in a strange environment and having been under great stress.

11.2 People recovered will need simple directions, and preferably an escort, to shelter, out of harm's way. You should decide beforehand where you wish survivors to go aboard your ship, how they are going to get there, who will take them, and who will look after them once they arrive. This should include provision for people who are disorientated and perhaps unable to understand instructions. It should also include provision for those who are physically incapable of moving about the ship.

11.3 Remember in particular the risk of shock induced by sudden transfer from the water and possible hypothermia. People, who have been in the water, the injured and the incapable, should, if possible, be taken from the water horizontally and should be carried in a horizontal or near-horizontal position. They should be placed in the unconscious position as quickly as possible and kept this way. Refer to guidance on the treatment of hypothermia.

11.4 You should also decide what you are going to do with the dead. Bodies may be recovered, or people recovered alive may die aboard your ship. Some immediate action should be taken, if it is only to remove them from the place where you are sheltering the living. Attention is drawn to guidance on the treatment of hypothermia and, in particular, to the advice that people suffering from hypothermia may *appear* to be dead, yet can still be resuscitated. Ask for medical advice.

11.5 Further guidance on the care of people recovered may be found in IAMSAR Volume III ('Mobile Facilities') Section 2 'Care of Survivors'. As this further care is post-recovery, it is beyond the scope of this guide. You are recommended to refer to the IAMSAR Manual for help with the next stage of the rescue operation (see also appendix).

12 CONCLUSIONS

12.1 If you find yourself answering a distress call and faced with the prospect of recovering people at sea, it is certain that the circumstances will be unique – and it is possible that your response will have to be so too.

12.2 It helps to consider the possibilities beforehand: possible problems and possible solutions. It helps to plan and to prepare – and preparation means assessing the recovery options aboard your ship, and training in their use.

12.3 It could save a life (even yours!). It could save many lives.

.1 **ASSESS** the recovery options aboard your ship;

.2 **TRAIN** in their use; and

.3 **PREPARE** to save lives.

APPENDIX

ADDITIONAL INFORMATION BASED ON VOLUME III OF THE IAMSAR MANUAL

GENERAL

1 The following is an extract from Volume III of the IAMSAR Manual: Mobile Facilities Volume. Volume III should be referred to for further guidance, for example on the transfer of survivors from helicopters and on the immediate care of survivors once successfully recovered.

RECOVERY OF SURVIVORS BY ASSISTING VESSELS

2 Seafarers should consider how to recover survivors into their own vessels under various environmental conditions. Recovery methods include:

.1 using throwing rockets or heaving lines to pass lifebuoys and/or lines to survivors;

.2 streaming a rope, with lifebuoys or other flotation attached;

.3 rigging pilot ladders, Jacob's ladders or nets, preferably clear of the ship's side, with safety lines. If survivors are unable to climb, ladders or nets may have to be recovered with the survivors secured to them. Where practicable:

.1 rig ladders or nets from pilot doors or other low openings;

.2 deploy safety lines with rescue strops or loops;

.3 use suitably equipped crew members to assist survivors directly; and

.4 deploy a liferaft with the ladder or net to act as a transfer platform;

.4 pulling survivors up suitable marine evacuation systems;

.5 deploying liferafts or lifeboats for survivors to hold onto, or climb into;

.6 using rafts or boats as lifts, leaving them on the falls if conditions permit;

.7 lifting survivors using gantries, cranes, davits or derricks, with lines rigged to minimize swinging against the ship's side;

.8 deploying purpose-built or improvised recovery baskets;

.9 rigging a boat rope for boats and survival craft to secure alongside; and

.10 lowering embarkation ladders.

3 Any lights in use must not be directed towards helicopters operating in the area.

4 Survivors in the water should be lifted in a horizontal or near-horizontal position if possible (for example, in two strops; one under the arms, the other under the knees) to minimize the risk of shock induced by sudden transfer from the water and possible hypothermia.

5 Assisting vessels should also be prepared to receive survivors from helicopters.*

6 When the risks involved in recovery operations outweigh the risks of leaving the survivors in life saving appliances, consider the following actions:

.1 using the ship to provide a lee for the survivors;

.2 deploying life-saving appliances from the assisting vessel;

.3 maintaining visual and communications contact with the survivors;

.4 updating the co-ordinating authority; and

.5 transferring essential survival and medical supplies.

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* Refer to IAMSAR Volume III Section 2: 'Helicopter Operations'.

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MSC.1/Circ.1447
14 December 2012

GUIDELINES FOR THE DEVELOPMENT OF PLANS AND PROCEDURES FOR RECOVERY OF PERSONS FROM THE WATER

1 The Maritime Safety Committee, at its ninety-first session (26 to 30 November 2012), approved the *Guidelines for the development of plans and procedures for recovery of persons from the water*, set out in the annex, aiming at providing additional guidance on the application of the requirements in SOLAS regulation III/17-1.

2 Member Governments are invited to bring the annexed Guidelines to the attention of all interested parties.

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ANNEX

GUIDELINES FOR THE DEVELOPMENT OF PLANS AND PROCEDURES FOR RECOVERY OF PERSONS FROM THE WATER

1 General

1.1 Life-saving and other equipment carried on board may be used to recover persons from the water, even though this may require using such equipment in unconventional ways.

1.2 These Guidelines should be read in conjunction with the *Guide to recovery techniques* (MSC.1/Circ.1182) and the *Guide for cold water survival* (MSC.1/Circ.1185/Rev.1).

1.3 In particular, the *Guide to recovery techniques* (MSC.1/Circ.1182) provides a number of examples of how certain types of equipment can be used to recover persons from the water; and can also be used for the development of plans and procedures for recovery of persons from the water.

1.4 The initiation or continuation of recovery operations should be at the discretion of the master of the recovering ship, in accordance with the provisions of SOLAS regulation III/17-1.

1.5 The plans and procedures should be considered as a part of the emergency preparedness plan required by paragraph 8 of part A of the International Safety Management (ISM) Code.

2 Matters to be considered when developing plans and procedures

2.1 A risk assessment should be conducted and documented when developing plans and procedures for recovery of persons from the water, including equipment intended to be used, taking into account the anticipated conditions and ship-specific characteristics.

2.2 The recovery plans and procedures should facilitate the transfer of persons from the water to the ship while minimizing the risk of injury from impact with the ship's side or other structures, including the recovery appliance itself.

2.3 To the extent practicable, recovery procedures should provide for recovery of persons in a horizontal or near-horizontal ("deck-chair") position. Recovery in a vertical position should be avoided whenever possible as it risks cardiac arrest in hypothermic casualties (refer to the *Guide for cold water survival* (MSC.1/Circ.1185/Rev.1)).

2.4 If carried, dedicated recovery equipment should be clearly marked with the maximum number of persons it can accommodate, based on a weight of 82.5 kg per person.

2.5 Recovery operations should be conducted at a position clear of the ship's propellers and, as far as practicable, within the ship's parallel mid-body section.

2.6 A source of illumination and, where required, a source of power should be available for the area where the recovery operation is conducted.

2.7 Ship-specific procedures for the recovery of persons from the water should specify the anticipated conditions under which a recovery operation may be conducted without causing undue hazard to the ship and the ship's crew, taking into account, but not limited to:

.1 manoeuvrability of the ship;

.2 freeboard of the ship;

.3 points on the ship to which casualties may be recovered;

.4 characteristics and limitations of equipment intended to be used for recovery operations;

.5 available crew and personal protective equipment (PPE);

.6 wind force, direction and spray;

.7 significant wave height (H_s);

.8 period of waves;

.9 swell; and

.10 safety of navigation.

3 Competence and familiarization

Drills should ensure that crew are familiar with the plans, procedures and equipment for recovery of persons from the water. Such drills may be conducted in conjunction with routine man-overboard drills.

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MSC.1/Circ.1185/Rev.1
30 November 2012

GUIDE FOR COLD WATER SURVIVAL

1 The Maritime Safety Committee, at its ninety-first session (26 to 30 November 2012), taking into account the considerable medical progress which has been made in recent years, approved the revision of MSC.1/Circ.1185 on the Guide for cold water survival, prepared by the Sub-Committee on Radiocommunications and Search and Rescue, at its sixteenth session (12 to 16 March 2012), as set out in the annex.

2 Member Governments and international organizations are invited to bring the annexed Guide to the attention of all concerned.

3 This circular supersedes MSC.1/Circ.1185.

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ANNEX

GUIDE FOR COLD WATER SURVIVAL

1 Introduction

This guidance is intended primarily for seafarers. It provides information which will help you if you are unlucky enough to fall into cold water, or have to enter it in an emergency, or have to use survival craft in cold conditions. It also provides information which will help seafarers, trained as first-aid providers, to treat those rescued from cold conditions.

This guide briefly examines the hazards of exposure to the cold that may endanger life, and provides advice based on the latest medical and scientific opinion on how to prevent or minimize those dangers. It is a sad fact that people continue to die at sea through a lack of this knowledge. Knowing what is likely to happen if you are exposed to cold water is a survival aid in itself. A thorough understanding of the information contained in this booklet may some day save your life – or someone else's.

It is most important to realize that you are not helpless to affect your own survival in cold water. Understanding your body's response and simple self-help techniques can extend your survival time, particularly if you are wearing a lifejacket. *You* can make a difference; this guide is intended to show you how.

The guidance is laid out as follows:

- an explanation of *cold water hazards and their effects*

  followed by sections on:

- actions to be taken *prior to abandoning* your ship that will improve your chances of survival

- actions to be taken during *the survival phase*, whether in survival craft or in the water

- *the rescue phase*

- *treatment of people recovered* from cold water or from survival craft in cold conditions

- *treatment of the apparently dead*.

2 Cold water hazards and their effects: knowledge that can improve survival chances

An understanding of how your body reacts to cold air or water exposure, and knowing the steps you can take to help your body delay the damaging effects of cold stress, will help you stay alive.

If you need to abandon your ship you should, if possible, avoid going into cold water at all. Cold water represents a much greater risk than cold air, partly because water takes heat away from the body much faster than air. Human beings cool four to five times faster in water than in air at the same temperature – and the colder the water is the more likely it is that you will suffer the physical reactions and medical problems described below. Therefore, you should try to enter survival or rescue craft directly, without entering the water.

The major threats of cold water immersion are:

- drowning
- hypothermia[1]
- collapse just before, during, or after rescue.

Four stages of immersion have been identified. Each is associated with particular risks, and it helps to understand these and so be better able to deal with them.

Initial responses to immersion in cold water may include:

- inability to hold your breath
- an involuntary gasp, followed by uncontrollable breathing
- increased stress placed on your heart.

These responses are caused by the sudden fall in skin temperature. *It is important to remember that they will last only about three minutes and will then ease.* Remember too that, at this stage:

- the fitter you are, the smaller the initial responses to cold water immersion and the smaller the chance of you experiencing heart problems
- wearing an appropriate lifejacket, properly fitted, will decrease the risk by helping to keep your airway clear of the water and reducing the need for you to exercise during this critical period
- wearing appropriate protective clothing will also decrease the risk by slowing the rate of skin cooling and thereby the size of the initial responses
- if you experience initial responses you should stay still for the first few minutes of immersion, doing as little as possible until you have regained control of your breathing: a lifejacket or other source of buoyancy will help you do this
- the period of possible self-rescue starts immediately after the initial responses (if experienced), and before hypothermia sets in.

Short term immersion effects follow the initial responses. During this phase cooling of the muscles and nerves close to the surface of the skin – particularly in the limbs – can lead to inability to perform physical tasks. Swimming ability will be significantly impaired. (Swimming accelerates the rate of cooling in any event.) It follows that:

- essential survival action that requires grip strength and/or manual dexterity – such as adjusting clothing or your lifejacket, or locating a lifejacket whistle or turning on a light, for example – should be taken as soon as possible after the initial responses to cold water immersion have passed
- you should not attempt to swim unless it is to reach a fellow survivor or a nearby shore, craft, or other floating object onto which you can hold or climb.

[1] By medical convention clinical hypothermia is considered present when the "deep", or "core", body temperature falls below 35°C (95°F): that is, when about 2°C (3.5°F) has been lost. With continued cooling consciousness will be progressively impaired and then lost; eventually death will follow. However, in cold water death from

Stay calm. Evaluate your options. Can you reach a shore or floating object – knowing that your swimming ability will be less than normal? If not, stay where you are, conserve body heat (see below), and await rescue.

Long-term immersion effects include a fall in deep body temperature (a cooling of your vital organs such as your heart, lungs and brain) to hypothermic levels. However, the rate at which your deep body temperature falls depends on many factors, including the clothing you are wearing, your physique, and whether or not you exercise in the water – by swimming, for example. Your temperature will fall more slowly if you:

- wear several layers of clothing, including head covering – especially under a waterproof outer layer such as an immersion suit
- keep still – this is greatly facilitated by wearing a lifejacket.

The rescue phase is the fourth stage of immersion you should focus on. A significant percentage of people die just before they are rescued; during their rescue; or just after it. This may be because of:

- the way in which they are rescued
- relaxing too soon
- loss of buoyancy – actions such as waving, etc. may release air trapped in clothing. Again, wearing a lifejacket removes this threat.

It follows that:

- you should stay still in the water: blow a whistle or shout to attract attention – but do not wave unless you are wearing a lifejacket or have some other aid to flotation
- the rescue itself should be carried out appropriately (see *the rescue phase*, below)
- you should maintain your determination to survive throughout: do not relax too soon.

3 Actions prior to abandoning the ship

Avoid abandoning for as long as safely possible: "*the ship is the best survival craft*".

When abandonment is necessary there may be little time to formulate a plan, so careful planning beforehand is essential. Here are some things to remember should you ever have to abandon a ship:

- Ensure distress alerts have been sent. If you have emergency location beacons – including personal beacons – switch them on, and leave them on.
- If possible keep the emergency location beacon with you. Rescue units are most likely to find the emergency location beacon first.
- Put on as many layers of warm clothing as possible, including your feet. Make sure to cover your head, neck, and hands. The outer layer should be as watertight as possible. Fasten clothing to improve insulation and to minimize cold water flushing in and out beneath the clothing.

- If an immersion suit is available put it on over the warm clothing.

- Put on a suitable lifejacket and secure it correctly. If in cold water you will quickly lose full use of your fingers. If the lifejacket is fitted with crotch and/or other retaining straps, make sure that they are pulled tight. They will hold the lifejacket in the right position, increasing buoyancy – you may not be able to tighten them once in the water. If the lifejacket is of the automatic inflation type, inflate it manually *after* leaving the interior of the ship but *before* entering the water.

- If time permits drink a lot before leaving the ship: warm sweet drinks are best – but no alcohol: it can reduce the chances of survival in cold water. Take extra water with you if possible.

- Before leaving the ship, or immediately after boarding the survival craft, take anti-seasickness medicine.

- Avoid entering the water at all if possible. If you must go into the water, avoid jumping in. If davit-launched survival craft, a marine escape system or other means of dry-shod embarkation are not available use over-side ladders if you can, or lower yourself slowly, by means of a rope or fire hose, for example.

- If jumping into the water is unavoidable, you should try to keep your elbows to your side and cover your nose and mouth with one hand while holding the wrist or elbow firmly with the other hand. Just before you jump look down to ensure the area beneath is clear of obstruction, and then jump with eyes fixed on the horizon to ensure you stay in a vertical position as you fall. Avoid jumping onto a liferaft canopy (you may injure yourself or people inside) and avoid jumping into the water astern of a liferaft still secured to the ship, in case the ship has some remaining headway.

4 The survival phase: in a survival craft

You should try to enter the survival craft "dry". But this may not be possible, and the craft is unlikely to be dry itself. You can still cool to dangerous levels – especially if wet to begin with, partly because of the evaporation of water in your clothing. Even if wearing an immersion suit, or a so-called "dry" suit, you may still be wet. But stay calm: there are things you can do to improve your situation:

- In survival craft without covers, try to give yourself a waterproof and windproof covering – plastic sheeting or bags, for example, if suitable clothing is not available.

- Enclosed survival craft give you better protection from the elements, but may still become wet inside. Having checked that there are no other survivors able to reach the raft, close the covers as soon as you can, before your hands get too cold.

- Try to avoid sitting in water: sit on your lifejacket if there is nothing else available.

- Squeeze as much water as you can out of sodden clothing before replacing it, to reduce body heat loss through evaporation.

- Huddling close to the other occupants of the survival craft will also conserve body heat – but ensure craft stability is not compromised.

- Follow your survival craft training (water and food rationing, etc.).

- Keep a positive attitude of mind about your survival and rescue: your will to live *does* make a difference! While you wait "*Stay warm; stay alive*" should be your motto.

5 The survival phase: in the water

Because of the greater body heat loss in water, you are always better off out of the water than in it – despite how this may feel at first – and you are better off partially out of the water if you cannot get out of it entirely.

After the initial responses have passed and you have regained control of your breathing, you should:

- Orientate yourself and try to locate the ship, survival craft, other survivors, or other floating objects. If you were unable to prepare yourself before entering the water, button up clothing now. In cold water you may experience violent and distressing shivering and numbness. These are natural body responses that are not dangerous. You do, however, need to take action as quickly as possible before you lose full use of your hands.

- Do not attempt to swim unless it is to reach a fellow survivor or a nearby shore, craft, or other floating object onto which you can hold or climb. Staying calm and still conserves heat.

- If swimming, swim on your back, using only your legs if possible. The arms are critical to heat loss. Not using your arms to swim means that you can keep them folded over your torso to assist in insulation.

- Swim downwind of a floating object if you are trying to reach it, rather than straight towards it. The wind will bring it in your direction. Once upwind of a liferaft, for example, you are unlikely to be able to reach it. Keep checking the object's location and your progress towards it. If you decide that you cannot reach it, stop swimming, stay calm and stay still.
- The body position you assume in the water is very important in conserving heat. Try to float as still as possible, with your legs together, elbows close to your side, and arms folded across your chest. This position – which may only be fully achievable if you are wearing a lifejacket or dry suit – minimizes the exposure of the body surface to the cold water.

- If the lifejacket is fitted with a spray hood, put it on. The hood protects the airways against spray while drifting in the water.

- The floating body tends to turn towards on-coming waves, with the legs acting like a sea anchor. If you have to, paddle gently to maintain a back-to-wave position. Although this may increase heat loss, you need to protect your airway from wave splash.
- Link up with other survivors if you can: it helps location and rescue.

- Keep a positive attitude of mind about your survival and rescue. This will extend your survival time. Your will to live *does* make a difference!

6 The rescue phase: guidance for those engaged in search and rescue

Search may have to come before rescue.

Remember to:

- Search long enough! Survival is possible, even after many hours in cold water.
- Ask the Rescue Coordination Centre for advice; including on how long to keep searching.
- Plan and prepare recovery methods for a variety of possible scenarios while searching. See the IMO's guidance on recovery, *A Pocket Guide to Recovery Techniques*.

Rescue

Recovery from the water:

- Be aware of the dangers to people in the water of vessel drift, including side-splash – waves generated or reflected by the hull.
- Try to ensure that the survivor does not attempt to assist: full and coordinated use of their fingers and arms may not be possible, and lifting an arm to take hold of a rope can induce sinking and drowning unless they are wearing a lifejacket.
- Encourage the survivor to keep "fighting for survival". Do not let them relax too soon.
- Ideally, the survivor should be recovered in a horizontal or near-horizontal body position. Lifting a hypothermic person vertically can induce cardiac arrest. In a relatively high lift – up to the deck of a ship or into a helicopter, for example – use two strops or loops (one under the arms, the other under the knees) or other means of near-horizontal recovery: see the *Pocket Guide to Recovery Techniques*.
- However, if the survivor's airway is under threat – as it may be if alongside a vessel of any size, even in calm conditions, because of side-splash – recover by the quickest method possible.
- Keep the survivor slightly head-down during transport to a place of safety. In a fast rescue craft, for example, this will mean laying the survivor with his feet towards the bows.
- If a rescue craft has been deployed, survivors recovered should if possible remain in the craft during its recovery.

Recovery from survival craft:

- In high seas beware of swamping of enclosed craft on opening the hatch.

- Beware of the possibility of rescue collapse on recovery. This is especially likely in survivors who have been adrift for a long time.

- To avoid collapse employ the horizontal rescue procedures outlined above.

7 Treatment of people recovered from cold water

Check for vital signs. Is the casualty breathing? Are they unconscious (unresponsive) or conscious?

Begin appropriate First Aid as described below. See also the flow diagram in the appendix.

Always obtain medical advice as soon as possible, even if the casualty has not been in cold water for long, and is conscious. Free advice may be obtained from a Telemedical Assistance Service (TMAS), which can be contacted via a Rescue Coordination Centre (RCC).

Unconscious casualty

Adopt standard First Aid procedures.

<u>If not breathing:</u>

- Check/clear airway; if still not breathing give two full rescue breaths.

- Commence cardiopulmonary resuscitation (CPR) in accordance with First Aid training.

- While awaiting medical advice continue CPR at a compression rate of 100 per minute, with two rescue breaths every 30 compressions.

- Continue until exhausted if acting alone. If assistance is available, interchange every two minutes to avoid exhaustion.

- If the cardiac arrest was not witnessed; if medical advice is still not available and none is imminent; and if there are still no signs of life after 30 minutes, stop CPR but treat the casualty in accordance with the advice in section 9 below.

- If the cardiac arrest was witnessed, maintain CPR until you are either exhausted or receive medical advice.

<u>If breathing but unconscious:</u>

- Transfer to a sheltered location.

- Check for other injuries.

- Place in the recovery position.

- Beware of vomiting which is very common in seawater drowning.

- Seek medical advice.

- Monitor and record breathing and heart rate (neck/carotid pulse). An increasing breathing and/or heart rate may indicate the onset of drowning complications – and in a severely hypothermic person cardiac arrest can occur at any time.

- Provide oxygen by mask, if available.

- Provide additional insulation to prevent continued cooling. To provide protection against evaporative heat loss enclose in a large waterproof bag or sheeting.

Conscious casualty

Short exposure (less than about 30 minutes): survivor is shivering

- Survivors who are fully alert, rational and capable of recounting their experiences, although shivering dramatically, will recover fully if they remove their wet clothing and are insulated with blankets, etc. If their exposure has been relatively short, 30 minutes or so, they can be re-warmed in a hot bath, or seated in a shower[2] – but only if shivering and while being supervised for early signs of dizziness or collapse associated with overheating.

- Alternatively, for survivors who are shivering and alert, physical exercise will speed up re-warming.

- Seek medical advice.

Long exposure (more than 30 minutes) and/or survivor is not shivering

- Insulate to prevent further heat loss through evaporation and exposure to wind.

- Avoid unnecessary manhandling – enclose in blankets and/or plastic, including head (but not face), neck, hands and feet.

- Move to a warm, sheltered location.

- Lay down in a semi-horizontal or half-sitting position (unless dizziness develops, when a horizontal attitude would be best).

- Oxygen should be given if available.

- If water was inhaled, encourage deep breathing and coughing.

- Monitor and record breathing and heart rate (neck/carotid pulse) at 5-minute intervals for the first 15 minutes and then, if no change, at 15-minute intervals. (An increasing breathing and/or heart rate may indicate the onset of drowning complications – and remember that in a severely hypothermic person cardiac arrest can occur at any time.)

[2] The bath or shower should be at a temperature of 39-41°C (102-106°F). Much less than this and the survivor's body will continue cooling, even if the water feels "warm". If you do not have a thermometer, dip your bare elbow in the water: the heat will be tolerable at about the correct temperature, but not above it.

- Seek medical advice.

- When alert and warm it is no longer necessary to maintain a semi-horizontal or horizontal position.

- Give warm sweet drinks – but no alcohol.

If the survivor's condition deteriorates, refer to the treatment procedure for the unconscious patient, above.

8 Treatment of people recovered from survival craft

Occupants who were exposed and dry for short durations (2 to 3 days), and are fully alert, may require treatment for mild hypothermia as described above for conscious immersion survivors.

Occupants who are wet and cold and less alert will require to be recovered in a semi-horizontal position and should be treated in the same way as immersion casualties at the same level of alertness.

Warm sweet drinks should be provided.

Obtain medical advice. Free advice may be obtained from a Telemedical Assistance Service (TMAS), which can be contacted via a Rescue Coordination Centre.

9 The apparently dead

What to do with people recovered apparently dead, showing no signs of life and extremely cold to the touch, is a very difficult question.

In all probability they will indeed be dead, especially if there are witness reports from other survivors that they have been in that state for many hours.

If, however, there are no such witness reports, the assumption must be that they may be alive but suffering from extreme hypothermia; that is, the heart may still be working but at a very reduced level of activity such that the pulse cannot be felt and the eye pupils are widely dilated.

Always obtain medical advice as soon as possible. Free advice may be obtained from a Telemedical Assistance Service (TMAS), which can be contacted via a Rescue Coordination Centre.

The apparently dead should be:

- Recovered horizontally if possible and handled as if seriously ill.

- The body should be gently placed in the recovery position in a warm sheltered compartment, and well insulated.

- If still alive, the body can rewarm very slowly at an optimal rate to allow it to compensate, by itself, for the major internal fluid changes that occurred during the slow protracted cooling it endured.

- Monitor and record pupil size and rectal temperature at hourly intervals for 12 hours. If there is no change and there are still no other signs of life, then it can be assumed that the casualty is dead.

- If, however, pupil size decreases then, possibly, the casualty is alive: commence monitoring and recording at 15-minute intervals, including checking for pulse and breathing.

- If any sign of life is detected treat as for the unconscious immersion casualty. See section 7 above.

10 Summing up

This guide has briefly explained how your body responds to cold, what you can do to help ward off its harmful effects and, finally, how to aid people recovered from the water or from survival craft.

Let's sum up with some important reminders about survival. Follow them, for your life may one day depend on them.

- **Plan your emergency moves in advance**. Ask yourself what you would do if an emergency arose. Where is your nearest exit to the deck for escape? Where is the nearest available immersion suit, lifejacket, SART, emergency location beacon and survival craft? How would you quickly get to your foul weather gear, insulated clothing, gloves, etc.?

- **Know how your survival equipment works**. The time of the emergency is not the time to learn.

- Even in the tropics, before abandoning ship **put on many layers of clothing** to offset the effects of cold. **Wear an immersion suit** if available.

- **Put on a lifejacket** as soon as possible in an emergency situation – and adjust it correctly.

- When abandoning ship, **try to board the survival craft dry** without entering the water.

- **Take anti-seasickness medicine** as soon as possible.

- If immersion in water is necessary, **try to enter the water gradually**.

- The **initial response** to immersion in cold water **will only last a few minutes**: rest until you regain control of your breathing. (This initial response will not always occur, but is more likely with lower water temperatures/less protection.)

- **Try to get as much of your body as you can out of the water**.

- Swimming increases body heat loss. **Only swim to a safe refuge nearby** if the likelihood of early rescue is low and you are confident that you can reach it. **Swim on your back, using only your legs** if you can.

- **If trying to reach a floating object swim downwind of it**, letting the wind bring the object to you.

- If not swimming to a refuge, try to reduce your body heat loss: **float in the water with your legs together, elbows to your side, and arms across your chest**.

- **If you are not wearing a lifejacket, do not wave to attract attention**. You will lose buoyancy if you have no lifejacket.

- **Force yourself to have the will to survive**. This can make the difference between life and death. Keep your mind occupied and focus on short-term objectives.

- **Do not over-exert yourself during the rescue process**: let the rescuers do the work – they are in a better condition than you.

- Even while being rescued, **do not relax too soon**.

Advance knowledge, planning, preparation and thought on your part can be the most significant factors in your survival – or in treating others who have been exposed to the cold.

Familiarize yourself with the contents of this guide.

APPENDIX

Treatment of people recovered from cold water

Always obtain medical advice as soon as possible. Free advice may be obtained from a Telemedical Maritime Assistance Service (TMAS), which can be contacted via a Rescue Coordination Centre.