



Yacht and Powerboat Safety at Sea - Emergency Procedures, Equipment and Actions - Good Practice

Notice to all designers, builders, surveyors, owners, managing agents, skippers, crew and Certifying Authorities of yachts and powerboats including pleasure vessels and small commercial vessels.

This notice should be read with:

The Merchant Shipping (Vessels in Commercial Use for Sport or Pleasure) Regulations 1998 (SI 1998/2771) as amended;*

The Safety of Small Commercial Motor Vessels - A Code of Practice (Yellow)

The Safety of Small Commercial Sailing Vessels - A Code of Practice (Blue)

The Safety of Small Vessels in Commercial Use for Sport or Pleasure Operating from a Nominated Departure Point (NDP) - A Code of Practice (Red)

The Merchant Shipping (Small Workboats and Pilot Boats) Regulations 1998 (SI 1998/1609) as amended;*

*The Safety of Small Workboats and Pilot Boats - A Code of Practice (Brown) ;
and MGN 280*

Summary

- This MGN gives guidance on systems and procedures onboard a vessel which may be deployed in the case of an emergency.
- Owners and skippers of both Small Commercial Vessels and pleasure vessels should consider the scenarios contained in this MGN with respect to their own vessels, crew, and the intended type of voyage and area of operation being considered.
- Mitigation of the risks that are contained within this MGN will increase the likelihood of a vessel being able to safely return to port.
- It is good practice to discuss and document any identified risks, mitigating actions and supporting procedures and drills. It is only through the regular practice of emergency procedures and drills that an owner, operator and their crew will become more comfortable with how to respond in an emergency.

1. Introduction

1.1 This MGN provides guidance on preventative actions and considerations for a number of different incidents which may occur on a voyage. Whilst the desired outcome of any voyage is to arrive safely at the planned destination without incident, it is the case that accidents do occur at sea and great care must be taken, particularly where there is a responsibility for the



safety of others. The actions taken by the skipper and crew once an accident has occurred can de-escalate the severity of the incident and, in most cases, save lives.

1.2 For the purposes of this MGN:

“Small Commercial Vessel” means a vessel which is certificated under one of the Yellow, Blue, Red or Brown Codes.

“Pleasure Vessel” has the meaning given in the Merchant Shipping (Vessels in Commercial use for Sport or Pleasure) Regulations 1998, as amended¹.

1.3 Whilst being at sea is for most a pleasurable activity, being aware of the environment in which a vessel is operating, its limitations and having planned for certain scenarios can help de-escalate life threatening situations.

1.4 The minimum equipment requirements for Small Commercial Vessels are detailed the Code of Practice in accordance with which a vessel is certificated. These requirements should also be considered as good practice for a pleasure vessel undertaking a voyage of similar duration.

1.5 This MGN is not written to cover all scenarios nor are the actions described designed to return a vessel to a safe and seaworthy condition. In some cases, the actions covered within this MGN are simply to allow the vessel to remain afloat and safe until rescue or support can arrive. In all cases, the guidance of preparation, training and back-up systems are all emphasised as being advantageous in saving lives and building up a vessel’s resilience to increase the chance of being able to return safely to port with all on board.

1.6 This MGN does not cover all of the available means for distress alerting but in the majority of the examples detailed, a vessel should consider the means to be able to communicate effectively with a shore-based contact. As an emergency escalates in severity, the need to communicate will increase, as will the need for accurately locating the vessel. Informing a shore-based contact of a planned voyage and estimated time of arrival is good practice and this can be done via a number of means including SafeTrax (<http://www.safetrxapp.com/>), which is the MCA endorsed method of passage communication.

2. Know your Vessel and your Crew

2.1 Knowledge of a vessel in terms of its layout, previous operational history and key design criteria is important prior to undertaking any voyage, the importance of which increase proportionate to the length of the voyage and the distance from any safe haven. The Marine Accident Investigation Branch (MAIB) report into “Ocean Madam” highlights this point and can be found [here](#).

2.2 In preparing for a non-coastal voyage, which for the purpose of this MGN means a journey that is beyond 60 nautical miles from a safe haven, the skipper should ensure that the crew are familiar with the stowage position of all life-saving equipment and brief the crew on the use of the equipment. The skipper should also provide a briefing on a number of different emergency procedures which may include a practical drill of a procedure.

2.3 A skipper should also consider the scenario where they themselves are personally incapacitated and ensure that procedures for this scenario are also considered given the experience of the persons onboard the vessel.

2.4 For all Small Commercial Vessels, there are several procedures that should be completed ahead of any skippered charter as part of the pre-voyage briefing.



- 2.5 As an emergency develops, the normal operation of the vessel will cease, and new procedures will need to be developed. Communication between crew members will need to be adapted to suit the scenario. For example, navigating under emergency steering will require a good chain of communication as the helmsperson will likely not be at their normal position and may not have their visual aids for safe navigation – a communication to a visual lookout may need to be established.
- 2.6 Whilst there are references to non-coastal voyages, every scenario within this document can occur at any time and at any distance from land. Understanding where a vessel is operating is important in decision making during emergency scenarios. A vessel crossing the English Channel will have more support options from other vessels and rescue services compared to a vessel operating close to shore but in a remote part of Scotland where rescue services may not be readily available.

3. Person Overboard

- 3.1 Whilst all precautions may be taken to prevent any person falling overboard from a vessel, this does happen and therefore it is important to consider the scenario and how best to successfully recover a person who has fallen overboard. The efficiency of the crew, its equipment and procedures will vastly increase the chance of a successful recovery. This should include a drill as part of the pre-voyage preparations.
- 3.2 Prior to departure, identifying the likely vessel operations and areas on board a vessel which may result in a person falling overboard will ensure that the risks are appropriately identified and considered. Mitigation of these risks should involve consideration as to whether the operation should be carried out or whether certain areas of a vessel should be considered out of bounds in certain circumstances. Other items such as the wearing of a harness and safety tether on a sailing vessel could also reduce the likelihood of a person falling overboard. For motor vessels, the wearing of a harness and safety tether may be less appropriate.
- 3.3 Consideration should be given to the different scenarios that may occur and the roles and responsibilities of each person onboard in each case. For longer voyages, this should include planning for a watch system where there may be a reduced number of crew on deck and/or at night.
- 3.4 If a person falls overboard, it is important to establish whether that person is connected to or disconnected from the vessel. For both scenarios it is vital to mark the position of the person that has fallen into the water, using equipment such as a dan buoy, and to stop the vessel as safely and quickly as possible. By both of these actions being taken, the vessel will have a greater chance of being in visual, close contact to the person overboard which will in turn increase the chances of a successful recovery. Alerting the remainder of the crew that an incident has occurred is also important to ensure that all procedures for recovery are started as soon as possible.
- 3.5 If the person overboard is tethered or connected to the vessel, it is extremely important to stop the vessel as quickly as possible to minimise the risk of drowning. If on a motor vessel, or if the engine is in use, specific attention should be given to the location of the person overboard to ensure that they are clear of any risk of the propeller gear within the water. The MAIB report into “Lion” highlights this point and can be found [here](#).
- 3.6 If the person overboard is disconnected from the vessel, the method of marking the person should involve, where possible, both an electronic means via GPS plotter or other device as applicable, as well as a visual means which could be a danbuoy deployed in the water. For Small Commercial Vessels, the equipment carriage requirements will vary depending on the



area of operation and type of vessel, for example sailing vessels permitted to operate at night will be required to carry a danbuoy with a working light attached.

- 3.7 For non-coastal voyages or voyages at night, all persons onboard should consider wearing a personal locator beacon (PLB) with GPS, which is correctly registered, and a light (see MSN 1816 (M+F)).
- 3.8 It is recommended that owners consider the safety benefits of at least one crew member wearing a 406 MHz personal locator beacon (PLB) with GPS and a light whilst on the open deck at sea. It is also recommended for one other crew member to wear a Class M VHF MOB (Man Overboard) device equipped with a light (the light may be separate to the device). See below Notes i, ii and iii.

Note i: A Class M VHF MOB (AIS) will only inform the Coastguard if the nearest station is in VHF range. It will alert other vessels within range. Therefore, it is considered unsuitable for use on single-handed vessels and it is prudent for at least one other person on board vessels to have a 406 MHz PLB with GPS to ensure they alert Coastguard if they enter the water alone or with others.

Note ii: When registering a PLB consideration should be made to scheduled crew changes and to providing a 24 hour contact if the vessel operates 24 hours.

Note iii: The MCA has published an information leaflet (entitled 'Personal Emergency Radio Devices') on PLBs giving guidance on attributes of different types of PLB and training, including how to respond if the PLB accidentally goes off.

See link:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/633925/10672-MCGA-Personal-Emergency-Radio-Devices.pdf

- 3.9 Irrespective of whether a person overboard is connected to the vessel or not, those onboard the vessel will need to consider the best method and equipment to use in order to recover a person from the water, who may also be unconscious or incapacitated, and back onto the weather deck of the vessel. The location of recovery on the vessel may also vary dependant on the design of the vessel and the conditions at the time of recovery.
- 3.10 There are a number of different aids which have been specifically designed to aid the recovery of a person overboard. These are either direct mechanical aids to help lift the person from the water or other means which allow those onboard the vessel to safely get to the waterline in order to assist the person back on board. For Small Commercial Vessels, there is a requirement for either a boarding ladder which extends from the weather deck to 600mm below the waterline which will assist or aid the recovery. In all cases, additional equipment may be required to recover an unconscious person from the water and should be demonstrated to the satisfaction of the Certifying Authority.
- 3.11 In recovering a person from the water, depending on the length of time the person has been in the water, it is important to consider the position in which they are recovered. Where practical, recovery of the person should be done in as horizontal a way as possible, especially if the person is unconscious or incapacitated. However, recovery of the person from the water should be carried out as quickly and as safely as possible.
- 3.12 In a person overboard situation, it is important to ensure that the safety of those on board the vessel is not compromised by any recovery. Discussing and communicating the procedure, as well as regular practice of the procedure, will reduce the likelihood of any persons being injured or lost overboard in the execution of the person overboard procedure.



Any person operating over the side in the process of recovery should be tethered to the vessel. The MAIB report into “CV30” highlights this point and can be found [here](#).

4. Emergency Steering

- 4.1 The ability to be able to accurately position and manoeuvre a vessel is important for a vessel to be able to safely navigate its return to port. If the steering systems onboard a vessel fail, a back-up and separate emergency system will enable a vessel to safely return to port or a safe haven.
- 4.2 Depending on the type of the vessel, the emergency steering system could comprise of one of the following;
 - 4.2.1 in the case of a vessel fitted with an outboard, a method of controlling the direction of thrust; or
 - 4.2.2 a tiller to fit the head of a rudder stock; or
 - 4.2.3 a rod attachment which may be fitted to a Z-drive framework; or
 - 4.2.4 a steering oar on the transom; or
 - 4.2.5 in the case of a vessel with twin screws, manipulation of power distribution between the drives – means to lock the drives in the midships position should be considered.
- 4.3 If an owner is unclear as to the best method of providing emergency steering, they should seek the advice of a qualified marine professional to advise on the most appropriate solution for their vessel and its intended operation.
- 4.4 In order to deploy or fit an emergency steering system, it may be necessary to disconnect or disengage parts of the steering system as an override. Instructions on how to fit and use the emergency steering systems, including any overrides, should be documented on board the vessel.
- 4.5 Prior to undertaking a non-coastal voyage, the emergency steering system should be deployed and tested such that the crew are familiar with its arrangements as well as any limitations on the vessel. This may be a reduction in the maximum safe speed or a limitation in actual steerage effectiveness which could have an impact on the nearest safe haven or a requirement for further outside assistance.
- 4.6 For Small Commercial Vessels, there is a requirement to have an emergency steering system and the deployment and practice of any emergency system is strongly advised.

5. Water Ingress

- 5.1 There are various ways in which water may enter the interior of a vessel. Some types of water ingress could be no cause for concern whilst other types could end up being catastrophic, resulting in the failure of the vessel. Determining the source of ingress should be a priority if water is found within the interior of the vessel at any time prior to, during, and after any voyage of any length or duration.
- 5.2 On a non-coastal voyage, a routine inspection of the bilges is considered good practice. An inspection should be carried out at least once a day. However it may be prudent to undertake more frequent inspections (such as after each watch) in heavy weather or rough seas. This should include ensuring that the strum boxes are kept clean and free of debris and that the bilges should be kept as clear as practical to avoid blocking the bilge pump filters.
- 5.3 In order to determine the source of the water, establishing whether the water is fresh or salty will help guide further investigation as to the source of the water ingress. The location of the



water could also provide information as to its source depending on how the bilge of a vessel is designed or inter-connected.

- 5.4 If fresh water is found whilst operating at sea, this could likely be a leak from a water tank or discharge pipe from a shower, sink etc. The skipper should also consider the weather conditions and if heavy rain has occurred whether there is a leak from a window, through hull fitting or whether it has been brought down below by crew members.
- 5.5 If salty water is found whilst operating at sea, even if mildly brackish, then this has the potential to indicate a more serious type of ingress. When investigating a salt water ingress, it will normally be prudent to slow down or stop the vessel until the source has been identified. Areas to consider (but which are not exhaustive) are;
- 5.4.1 any skin fitting or seacock such as a toilet discharge pipe or an echo sounder log; or
 - 5.4.2 propeller shaft or sail drive interface; or
 - 5.4.3 steering gear, rudder bearings and rudder stock; or
 - 5.4.4 keel bolts and surrounding structure; or
 - 5.4.5 windows, hatches and portlights; or
 - 5.4.6 standing rigging attachment points on deck; or
 - 5.4.7 hull and deck joint.

Whilst investigating any water ingress on a voyage, consideration should be given to any crew who may be below decks, the stowage of any safety equipment such as the liferaft, Emergency Position Indicating Radio Beacons (EPIRB) or emergency grab bag and potential notification of a shore contact.

- 5.6 In addition to the points noted in 5.5, a thorough inspection of all internal structural members should be undertaken and should focus on high areas of load/stress such as the inner hull matrix around the keel attachments and bulkheads supporting this area. Additionally, lockers such as the anchor locker should be investigated for structural and watertight integrity.
- 5.7 Identifying the rate of ingress will also indicate the severity of the situation as well as the potential need to escalate any assistance required. It is vital to monitor the rate of ingress against method of egress, i.e. via bailing or bilge pumps and to make sure that the vessel remains a safe platform to operate from. Protection of items such as batteries should also be considered when reviewing the water ingress to ensure the continued operation of electric pumps. Several systems on board are likely to be reliant on electrical security so ensuring that the vessels power is not compromised should be a considered a key action in determining the continued safety of the vessel. In addition, consideration should be given to the vessels stability with regards to the water within the hull and any negative impact this may have.
- 5.8 In all cases of salt water ingress, immediate action should be taken to stop the ingress. If a skin fitting has failed, it is good practice to keep a stopper close to each skin fitting which can be wedged into the fitting to slow or stop the ingress. If the ingress is due to a suspected structural failure then taking as much load out of the hull and rig as quickly as possible to reduce the risk of further failures. This may include changing heading to a more favourable direction with respect to the sea conditions, a reduction in speed or a significant reduction in sail plan.
- 5.9 If the water ingress is manageable, (i.e. egress is greater than ingress) then the skipper should determine the nearest safe haven and detail an appropriate passage plan in order to reach that destination. Close communication with a shore contact and/or rescue services should be maintained throughout including providing regular updates on the location and status of vessel as well as rate of water ingress and all actions taken.



6. Fire Detection and Fire-Fighting Equipment

- 6.1 A fire on board a vessel has the potential to escalate very quickly due to the nature of the materials used in modern vessel construction. This puts emphasis on appropriate fire detection systems as well as effective fire-fighting systems.
- 6.2 A fire on board a vessel may occur in a number of places, including away from the most obvious areas such as the engine or cooker. Modern vessels are complex, have a variety of equipment (such as electrical heaters, portable generators etc.), and multiple electrical systems – all contained within a salt water environment. In addition, human actions can create risk, for example, in the misuse of equipment, manual override of failure warning systems or simply dropping a cigarette on some spare clothing. All have the ability to result in a fire on board a vessel.
- 6.3 Decision making in the event of a fire is time pressured which reinforces the need for clear communications between those on board, sound knowledge of use of the systems on board and for everyone on board to understand their role. Discussion of the procedures which are to be followed in the event of outbreak of a fire should take place prior to undertaking any voyage.
- 6.4 Smoke and heat detectors are designed to alert those on board that a fire has broken out - ensuring the maintenance and good working order of detectors is important and regular checks should be carried out.
- 6.5 Fire fighting systems on board vessels may vary, but all systems should be serviced and maintained in accordance with the manufacturers recommendations.
- 6.6 For Small Commercial Vessels and for pleasure vessels over 13.7m in length, there are fire-fighting equipment requirements that need to be complied with. These are detailed within the relevant Code of Practice and MGN 599 (Pleasure Vessels over 13.7m) respectively.
- 6.7 Understanding the consequences of a fire based on its location and severity will help determine the actions that are required to be followed. An engine fire on a small sailing yacht versus a large motor vessel will be different in severity, will undoubtedly have different consequences and will have different effects on the vessel safety. In preparing a vessel for a voyage, consideration should be given to a means of escape from every accommodation space, location of fire-fighting equipment and location of smoke or heat detectors. Additionally, locating safety equipment such as liferafts over the engine room may make launching of the liferafts safely impossible.

7. Safe Navigation and Communication

- 7.1 Being able to accurately and effectively determine and communicate your location will enable rescue and support services to find and assist your vessel quickly. Understanding the limitations of navigational and communication equipment may help determine mitigating actions that a skipper could take to ensure that these capabilities remain secure. If all navigational and communication equipment are linked to a single power source, having battery operated equipment such as a hand-held GPS or VHF radio should be considered.
- 7.2 For Small Commercial Vessels, the minimum requirements for carriage of navigational and communication equipment are contained within the applicable code that the vessel is certificated against.

8. Additional Emergency considerations



8.1 There are numerous different emergency scenarios which could occur during a voyage for which back-up systems would support the continued operation of the vessel. A proper assessment of the potential risks of the vessel and the voyage and understanding the mitigating actions are important to determine the equipment that may need to be carried, the training that may need to be undertaken and the procedures that may need to be adopted.

8.2 An owner, managing agent or skipper may find that training on emergency procedures and situations may assist in devising an appropriate plan for their vessel. There are a number of different Nationally recognised training courses that would support this.

These include;

- RYA Sea Survival or STCW Personal Survival Techniques
- VHF SRC Course
- RYA First Aid or STCW Elementary First Aid
- RYA Diesel Engine or MCA approved engine course
- Firefighting

Note

* A consolidated copy of an amended statutory instrument can be made available upon request

¹ A Pleasure Vessel is a vessel which is either (a) wholly owned by an individual or individuals and used only for the sport or pleasure of the owner or owners or their immediate family or friends; or (b) owned by a body corporate and used only for sport or pleasure by the employees or officers or the body corporate or their immediate family or friends. In scenarios (a) or (b) the owner or owners must not receive money or any other payment for such use other than as a contribution towards the direct expenses incurred in relation to the operation of the vessel during the voyage or excursion in question. A vessel will also be a pleasure vessel if it is (c) wholly owned by or on behalf of a members' club formed for the purpose of sport or pleasure and used only for the sport or pleasure of members of that club or their immediate family. Any charges levied for such use must be paid into club funds and applied for the general use of the club.

More Information

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