The
Combined
Diving Associations

GUIDELINES FOR THE SAFE OPERATION OF MEMBER CLUB DIVE BOATS

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INTRODUCTION

Background

The CDA always aims to provide safety guidance to member Clubs and individual divers and this document is produced as part of this continued guidance. The Maritime and Coastguard Agency's (MCA) Small Commercial Vessels (SCV) Code, sometimes referred to as the 'Harmonised Code', for the operation of small vessels involved in diving operations, is aimed primarily at commercial operators, although the MCA have suggested that club-run boats should make every attempt to comply with this safety code or to guidelines provided by their diving organisation.

This booklet provides that guidance for those involved with Member Club diving, which involves the use of Rigid Inflatable Boats (RIBs), similar craft and hard boats for recreational diving.

The booklet is to be used as a guide to the equipment that should be carried on RIBs that are owned by 'non-commercial' operations, such as BSAC, SAA & SSAC branches, independent diving clubs and individual members providing their boats for member use.

How to use these guidelines

The guidance provided covers the following equipment categories:

- Essential Equipment
- Recommended Equipment
- Ancillary Equipment

Following the guidance outlined in this document is not 'compulsory' but these guidelines do represent appropriate guidance of current best practise in terms of safety. By following the guidance provided in this booklet, you will be doing enough to comply with the minimum suggested safety aspects for 'club members' boats in the view of the MCA.

Where you see the word **'must'** in this guidance, it means that this equipment or action is considered essential for safety purposes. Terms such as **'should', 'need to consider'** and 'it is recommended' indicate good practice.

DEFINITIONS

Members' Club

A "members' club" means an affiliated club under the rules of which –

a) a person may not –
   i) be admitted to membership;
      or
   ii) be admitted, as a candidate for membership, to any of the privileges of membership, without an interval of at least two days between his nomination or application for membership and his admission;
b) a person who becomes a member without prior nomination or application may not be admitted to the privileges of membership without an interval of at least two days between his becoming a member and his admission;
c) any profits of the club may not be distributed to the members of the club.

National governing body of sport

A "national governing body of sport" means a national governing body for a sport or activity conducted on or in water, which is recognised by –

a) the English Sports Council (known as Sport England);
b) the Sports Council for Northern Ireland;
c) the Sports Council for Wales; or
d) the Sports Council for Scotland (known as Sport Scotland).

Commercial operation

Defined as any operation where either of the following apply:

i) where services are being offered for hire or reward;
ii) where someone is deemed to be 'at work'. For example, where a vessel owned by a PADI Chapter club is being used to ferry divers, who are under instruction, then this would be deemed a commercial operation and the vessel used would require to be 'Coded'.

Individual member and syndicate boats

The guidance in this document is intended to provide advice on 'best practice' in the operation of a RIB for recreational diving. As such it is equally applicable to vessels owned and operated by private individuals and small syndicates. This is especially important where places on the vessel are made available to other divers, who have no formal ownership interest in the vessel. It is also applicable, where relevant, to open boats other than RIBs that are used for recreational diving.

Guests

It is considered acceptable to accept guests on diving trips on boats operated either by Member Clubs or Private individuals (or syndicates) providing the following criteria are met:

- Any costs associated with a guest joining a trip on a member club boat will be limited to the actual running costs for that trip only (i.e. fuel and other consumable costs).
- No additional charge or levy must be made above the normal running costs.
- A temporary membership fee is not an acceptable means of imposing a charge or levy. (Membership of a Branch of the BSAC, SAA or SSAC does not allow for temporary membership in this way and so any attempt to do this would be viewed as an attempt to impose a hidden levy).
- The number of visits, as a guest, should normally be restricted to 6 occasions in any calendar year. Any visits in excess of this should be considered as demonstration of a wish to make regular use of the member club's facilities and the guest should take up full membership of the club.

ESSENTIAL EQUIPMENT

Introduction

Essential equipment consists of equipment that MUST be carried at all times that the vessel takes to sea. This equipment must be fully functional and suitable for the job it is supposed to perform.

A careful check of this equipment must be made prior to every trip to sea and the boathandler satisfied that the appropriate equipment is present and fully functional.

Anchor, warp, chain and buoy

An anchor of appropriate weight for the size/type of vessel (5kg approx. for a 5m RIB) with holding characteristics for the seabed nature in the diving location. There should be at least 3m of chain attached to the anchor used and at least 30m of warp. There should be a strong point within the vessel for attaching the anchor warp and a suitable buoy, which allows for the anchor to be abandoned at short notice should the need require. The anchor and warp should not be used as a shot line.

Fixed navigation lights

Planing craft should have fixed navigation lights consisting of a high central all-round white light plus red port and green starboard navigation lights. These lights must comply with the standards laid down in the International Regulations for Preventing Collision at Sea (Collision Regs) and be of an appropriate size for the vessel. A check that these lights function should be made prior to departure. It is a legal requirement that the specifications of the lights comply with the IRPCS requirements.

Diving flag Alpha

For the purposes of diving operations the vessel should also carry a replica of the 'A' flag. This should be capable of being displayed fully extended preferably rigid and should be as large as possible. It should be displayed at all times that divers are in the water. It must not be displayed once all divers have been recovered.

Sound device
Under the Collision Regulations there must be a suitable means of making sound signals in cases of attracting attention or sounding fog signals. (The simplest is a foghorn that operates using by compressed air. The compressed air is provided from a clip-on canister and the foghorn is manually operated by pressing a trigger.)

Emergency steering
A means of steering the boat other than either from a remote console or tiller controls should be available. An oar lashed to the outboard would be deemed a suitable alternative method provided the necessary lashings are also carried.

Kill cord
Any high speed open craft should be fitted with a means of automatically stopping the engine. Checks should be made that this device is working both at annual inspection and whenever taking the boat out. This kill cord should be attached to the boat handler at all times that the boat is underway or the engine is running.

Steering compass
A reliable, magnetic steering compass should be carried. Because of the need to use this for steering whilst under way and for it not to jam, it is unlikely that a diver's compass would be acceptable for this purpose. If the vessel is to be operated at night, the compass should be illuminated.

Tool kit and spares
An appropriate tool kit and set of spares should be carried. This kit and spares should be suitable for the engine(s) being used and for the distance of operation from the departure point. The tool kit should contain an appropriate means of effecting emergency repairs to the inflatable tubes of the vessel, and a pump to re-inflate the tubes.

Buoyancy aids
Boat occupants must be dressed either in protective clothing that has inherent buoyancy or wear a purpose-designed flotation buoyancy device. (See Appendix 1 for guidance)

Hand bailer
A non-mechanical device capable of being used to remove excess water from the vessel must be carried and stowed in an easily accessible location. This could be a purpose-made plastic or canvas bailer or a small bucket of not less than 9 litres (1.2 gals). This device should be in addition to any electrical/mechanical devices that may be fitted to the vessel.

Charts
An appropriate chart of the area being navigated must be carried onboard. This is to provide adequate information concerning the departure point and dive sites being visited plus alternative havens in the event of changes in local weather and sea conditions.

Fuel supply
The fuel is to be carried in the main fuel tank and must be sufficient to cater for the full round trip planned plus a reserve that can be used in the event of unforeseen delays to and deviations from the planned route due to weather, sea conditions and emergencies.

Navigation instruments
These instruments are to be carried in order to ascertain the vessel's position at any time in all likely weather conditions. These instruments can consist of a GPS system but in the event that this system fails there must be other methods available for navigation safely back to the point of departure.

VHF handheld/fixed
A VHF set must be carried at all times the vessel is at sea. The set can be a handheld model or fixed in the console panel. It should be capable of transmission and reception on CH16, CH6 and at least one other channel. Its output power must be suitable for the distance of operation from the departure point or nearest point of likely contact. Portable hand sets that are limited to a maximum output power of 5 watts will not be suitable for diving at distances over 15 miles from shore. In this case a set with 25 watts maximum output will be required.

Note: You are reminded that appropriate licences are required. Mobile phones are not to be considered as a suitable alternative, however, if in range a 999 call to the Coastguard may work if VHF coverage is not sufficient.

Torch
A waterproof torch should be carried as a dedicated item of safety equipment and a check made that it is functioning correctly prior to each departure. It is advisable to carry a set of spare batteries and a spare bulb. Reliance should not be placed on having dive torches onboard.

Pyrotechnics
In the event of an emergency flares are one of the most effective means of attracting attention.

To this end all pyrotechnics must be in good condition, in date and with clear instructions for their safe operation. The type and number to be carried depends on the type of trip and the distance of operation from the point of departure. (See Appendix 2 for guidance)

Fire extinguishers
An appropriate number and type of in-date extinguishers must be carried onboard. Seawater can always be used in an emergency but is quite unsuitable for dealing with electrical or petrol fires. For this type of fire a dry powder or foam extinguisher is recommended. It is essential that at least ONE foam or dry powder extinguisher is carried on any vessel. The positioning of this extinguisher must afford easy access in the event of a fire but not impede the normal operation of the vessel and diving activities.

Clock/Watch
A waterproof watch or clock must be carried to help with dive marshalling recording, distance run timing and tidal stream monitoring. This should be a dedicated device.

Radar reflector
In order to comply with the SOLAS V requirements a radar reflector must be carried. It should be as large as practicable, ideally with at least 10m2 of Radar energy reflecting Cross Sectional area (RCS). It should have a structure that is of a octahedral form. It should be permanently positioned as high as possible above the water level, in order to maximise detection and positioned in the 'rain catching' position. This term means that the horizontal plates are slanted upwards rather than downwards. Small vessels without a radar reflector will be difficult to detect amongst the sea clutter on an approaching vessel's radar in rough seas.

First aid kit
A suitable first aid kit must be carried and maintained to full capacity at all times. The contents of this kit will depend on the distance of operation from the point of departure. (See Appendix 3 for guidance)

Personal protective clothing
Wind chill factor is proportional to the speed of the wind and can reduce body temperature dramatically in a short period of time. All personnel onboard must wear adequate personal protective clothing appropriate for the type and duration of the trip. Wet suits may require additional protective clothing in the form of a wind-cheater while dry-suits may be considered suitable provided they supply adequate protection against wind chill.

Alternative means of propulsion
An effective means of alternative propulsion must be provided such that, in the event of a failure of the main engine, the following situations can be managed:
- Recovery of divers
- Keeping the vessel away from danger

In addition consideration should be given to the ability to return to a safe haven.

RECOMMENDED EQUIPMENT

Introduction

Recommended equipment is equipment that is highly desirable in order to increase the safety factors onboard. Much of this equipment depends on the range of operation, however, all vessels should strive to carry all this recommended equipment.

Oxygen administration kit

An oxygen kit must be regarded as the first aid equipment in the event of any diving injury but especially Decompression Illness (DCI). The kit should be of an approved 'sub-aqua' type and be maintained in a fully functional order. The cylinder(s) pressure should be checked prior to each trip to sea and only full cylinders should be carried. Part empty cylinders must be replaced before departure. **(See Appendix 4 for guidance)**

Knife

A sharp knife capable of cutting through rope up to 12mm diameter, should be carried as a dedicated item and stored in an easily accessible place. Reliance should not be made on a diving knife being available at all times.

Mooring warps and fenders

Most RIBs will be fitted with a painter for temporary mooring purposes, however, it is recommended that two additional mooring lines, or warps, are carried. These should be dedicated to their use and not used for other purposes. They should be at least 10m long and have a diameter of about 10 –12mm. If the vessel is longer than 6m in length additional, similar warps should be carried for use as back springs to ensure a secure mooring in rough weather.

Handheld VHF (if fixed VHF present)

If a fixed VHF radio is already onboard as the main means of communication, an additional hand-held VHF set is recommended. This set can be used as a back up to the main set in the event of a malfunction. It should have the minimum of Ch16, CH6 and at least one other channel. It is recommended that it is kept in a water-proof bag or container and be stored in an easily accessible location.

GMDSS/DSC Radio

GMDSS is a world wide system which specifies communication equipment to be carried by vessels over 300 gross tonnes and became mandatory in July 1991. Distress alerting is achieved by using Digital Selective Calling (DSC). Vessels operating up to 30 miles offshore operate in Area A1, which identifies that VHF DSC is the main form of distress alerting to coast stations.

This equipment consists of a VHF radio and a DSC controller. If a VHF set is being replaced it may be worth considering replacing it with an upgrade to a VHF/DSC unit. Operators must be appropriately qualified to operate any equipment fitted.

EPIRB

Part of the GMDSS equipment that must be carried by vessel's needing to comply with the regulations is an Emergency Position Indicating Radio Beacon (EPIRB). These beacons operate on a fixed frequency of 406MHz using the COSPAS/SARSAT satellite system. It is an automatic transmitting beacon that is easily activated by the operator. If a dive boat is operating away from immediate sources of rescue the carriage is an EPIRB is recommended. Reliance should not be made on members of the dive party bringing personal EPIRBs onboard.

Extra fuel

Extra fuel, stored in purpose-designed containers, should be carried when longer dive trips are planned and the main fuel tank has insufficient capacity. The vessel should have sufficient fuel for the full round trip plus enough to cater for delays due to adverse weather or diversions. This spare fuel must be only carried in purpose designed containers, which cater for expansion and spillage.

Echo sounder

Echo sounders are carried on most dive boats as a useful additional tool to navigation, position fixing and site location. It should be waterproof, have a clear display and provide alarms for both shallow and deep water locations.

Electronic navigational aid

A GPS can be considered an electronic navigational aid as could electronic charts. Both systems will provide the position of the vessel by use of satellite navigation. They should be considered as an 'aid' to navigation and should not be relied upon totally. Additional means of navigating must also be provided in the event of power failure. They are strongly recommended for offshore diving where navigation from land objects is not accurate.

Searchlight

A searchlight, of a fixed or portable type, should to be carried onboard for use in reduced visibility when high illumination is needed over a large area and the light from a small torch would be insufficient.

Hand bearing compass

A hand bearing compass able to provide compass bearings should be available onboard.

This should be a specific item of equipment provided for this purpose and reliance should not be made on diver compasses being available.

Lifeline

Buoyant heavy line and quoit: In the event that an occupant falls overboard or a diver is unable to return safely to the boat, the use of a buoyant heaving line and quoit can quickly increase the likelihood of the diver regaining contact with the vessel. A simple lifeline can be stowed in an accessible position and should consist of a quoit and at least 30m of line, which can be thrown to the casualty in the water. It is important that the inboard end of the line is attached to the boat on a strong point.

Throw bag: An alternative to the buoyant heaving line and quoit is throw bag, which is particularly useful for use in emergencies where a rapid response is required. It consists of a lifeline, stowed in a bag that can be attached to the wrist. When thrown in the direction of a casualty in the water, the line runs out smoothly and untangled from the bag. The bag should be readily accessible to the rescuer and must be in good working order. It should not be used for any other purpose than emergencies.

ANCILLARY EQUIPMENT

Introduction

Ancillary equipment is additional equipment that a dive boat should carry due to the nature of its operation. Diving will involve the location and marking of dive sites using shot lines. These can be simple shots or more complicated lazy shots. Dive boats may on occasions need to tow other dive boats or be towed back themselves to port, so the use of a bridle is advised.

Shot lines, weight and buoy

A simple shot line will consist of a shot weight, a suitable length of line and a marker buoy.

This equipment needs to be versatile for the various depths of water being dived and suitable for the type of diving being undertaken. A shot should be at least 15 kg if the position is to be marked in tidal waters. The line should not be too thin as this results in handling and recovery difficulties. A diameter of at least 10mm is recommended. The marker buoy should be a bright colour and easily visible in the sea conditions expected. It must be of a suitable size for the diving taking place and have sufficient buoyancy to support any divers or equipment that may be used for decompression. A minimum of 20 kg is recommended for this purpose. Under no circumstances should the buoyancy of the marker buoy be less than the shot weight. Sufficient line must be used taking into account tidal variation during the diving operation.

Towing bridle

Cleats and fixing points are not normally readily available, or conveniently positioned, on a RIB.
A towing bridle is therefore recommended as an ideal way of keeping the vessel being towed in a suitable attitude in the water. A bridle also ensures that the stress of the tow is distributed evenly over the vessel's structure rather than concentrated on single point attachments. The bridle must be tailor-made for the vessel and should extend the whole length of the vessel, through lifelines, to strong points on the transom. Once designed it should be stowed in an accessible compartment and used exclusively for towing situations.

Sea anchor

This is a simple wind-sock shaped device that, when deployed in heavy seas from the bow of a disabled vessel, can greatly reduce the drift of the vessel. This is particularly useful when drifting onto the danger of a rocky outcrop or shallow water that is down wind. It should be made of a strong material and have a main opening that keeps its open shape by use of a metal or plastic ring. There should be at least 30 metres of strong line attached to the sea anchor. The sea anchor line, when deployed and working, should be attached to a strong point on the vessel and made to lead from the bow of the vessel for maximum effect.

Diver recall

Consideration should be given to providing an effective means of Diver Recall system should it become necessary to recall divers. If such a system is provided then all divers should be clearly briefed on its use, meaning and the appropriate action should one be used. **(See Appendix 5 for guidance)**

BOATHANDLER REQUIREMENTS

It is essential that the handling of a RIB is carried out under the control of a qualified person at all times.

This includes not only the on-site slow-speed manoeuvring during diving operations but also during the passage from launch point to site and vice versa.

Qualifications

The CDA considers that the most appropriate qualification for a boathandler to have, when operating a RIB involved in recreational diving activities, is the CDA Diver Coxswain award. This award is given after the candidate has passed the boathandling assessment, which includes appropriate diving operational skills and manoeuvring techniques. Other qualifications are available from other training associations but it is paramount that only qualifications that include specific aspects of diving operations, should be accepted for diving operations.

Experience

There are many boathandlers involved in branch diving activities, who have been successfully handling planing craft for many years and have never gained a recognised qualification. They may be members who have been taught by other experienced members during diving activities or gained the experience by owning their own boat. They may also have proved, over a number of years, that they are capable of handling a RIB in all the required circumstances associated with branch/club diving activities.

Their experience may be limited to specific types of boat and/or specific limitations of weather conditions. It is important that these limitations are acknowledged and not exceeded. It is highly recommended that these experienced persons do take the CDA Diver Coxswain Award to formally confirm their skills.

Training

Attending a basic boathandling course does not imply that the person is competent at boathandling. Many of the skills taught may require further practice before that handler becomes competent. For this reason evidence of attending a boathandling course alone should not be considered evidence of the person's competence.

For the new boathandler there needs to be additional evidence, in the form of logged hours, of experience in a variety of sea conditions, using various manoeuvring skills before the training is accepted.

Training on more advanced courses may be considered sufficient evidence of competence since the boathandler would have been required to show competence in their basic skills as a pre-requisite for the course.

It is therefore imperative that, in selecting a boathandler to manage a RIB on a recreational diving operation, all experience and training is taken into account when judging their suitability. The risk assessment associated with the trip must take into account the personal limitations and/or experience of the proposed boathandler.

While it is ideal that every dive boat should be under the direct control of a CDA Diver Coxswain provision must be made for the times when this Diver Coxswain wishes to dive themselves.

For such circumstances there must always be another boathandler, deemed competent by the Coxswain under the conditions that prevail on site at the time, available to manage the boat for the duration of the dive, and in an emergency, recover the divers and boat to a safe haven.

If such a person is not available then the Diver Coxswain should not dive.

OVERLOADING

It is essential that no RIB is loaded with a total weight of equipment and personnel beyond the limits laid down by the manufacturer's guidance.

Manufacturers of RIBs provide guidance on the carrying capacity of their craft, which may be '8 divers and their kit', or, '12 persons'. This is a guide for the owner to use in determining the safe carrying capacity of the boat in 'normal' working conditions. However, due consideration should be taken of the 'type' of kit being used for the proposed diving. The equipment requirements of 8 trimix divers will far exceed that of 8 air divers and therefore the number of divers to be carried safely must be reduced. Where the guide is just for a number of persons, this is usually based upon an assumption of 75kg per person with minimal additional equipment.

If at anytime the boat is loaded with more than this stated amount then it is deemed to be 'overloaded' and the owner is compromising the boat's and occupants' safety. Such actions are irresponsible and are not good, safe diving practises. Poor sea conditions can further compromise safety.

If diving is to take place in conditions other than those considered 'normal', or the distances to be covered required additional equipment, then the number of personnel and diving equipment must be reduced to compensate for this required increase in loading. All of these considerations are part of the Risk Assessment for the diving operation that is being embarked upon.

When coping with an emergency there is considerable additional impact on loading. Having to cater for an unconscious diver in the limited confines of a vessel can prove difficult and may take the vessel into an 'overloaded' condition.

SOLAS V REGULATIONS

On 1 July 2002, additional regulations came into force, which directly affected the pleasure boat user. These regulations are part of Chapter V of the International Convention for the Safety of Life at Sea, otherwise known as SOLAS V. Most of the SOLAS convention only applies to large commercial ships, but parts of Chapter V apply to small, privately-owned pleasure craft.

The regulations described apply to all club/member-owned boats. Anyone involved in a boating accident and it is subsequently shown that the basic principles outlined below have not been applied, prosecution could follow.

The following is an extract from an MCA leaflet, which outlines the areas that need to be taken into account every time a vessel goes to sea.

Voyage planning

Regulation V/34 'Safe Navigation and avoidance of dangerous situations', is a new regulation. It concerns prior-planning for your boating trip, more commonly known as voyage or passage planning. Voyage planning is basically common sense. As a pleasure boat user, you should particularly take into account the following points when planning a boating trip:

- ***weather:*** *before you go boating, check the weather forecast and get regular updates if you are planning to be out for any length of time.*

- ***tides:*** *check the tidal predictions for your trip and ensure that they fit with what you are planning to do.*

- ***limitations of the vessel:*** *consider whether your boat is up to the proposed trip and that you have sufficient safety equipment and stores with you.*

- ***crew:*** *take into account the experience and physical ability of your crew. Crews suffering from cold, tiredness and seasickness won't be able to do their job properly and could even result in an overburdened skipper.*

- ***navigational dangers:*** *make sure you are familiar with any navigational dangers you may encounter during your boating trip. This generally means checking an up-to-date chart and a current pilot book or almanac.*

- ***contingency plan:*** *always have a contingency plan should anything go wrong. Before you go, consider bolt holes and places where you can take refuge should conditions deteriorate or if you suffer an incident or injury. Bear in mind that your GPS set is vulnerable and could fail at the most inconvenient time. It is sensible and good practice to make sure you are not over-reliant on your GPS set and that you can navigate yourself to safety without it, should it fail you.*

- ***information ashore:*** *make sure that someone ashore knows your plans and knows what to do should they become concerned for your well being. The Coastguard Voluntary Safety Identification Scheme (commonly known as CG66) is also free and easy to join. The scheme aims to help the Coastguard to help you quickly should you get into trouble while boating. It could save your life.*

Radar reflectors (see page 6)

Many large ships rely on radar for navigation and for spotting other vessels in their vicinity. So, whatever size your boat is, it is important to make sure that you can be seen by radar. Regulation V/19 requires all small craft to fit a radar reflector 'if practicable'. If your boat is more than 15m in length, you should be able to fit a radar reflector that meets the IMO requirements of 10m2. If your boat is less than 15m in length, you should fit the largest radar reflector you can. Whatever size your boat is, the radar reflector should be fitted according to the manufacturer's instructions and as high as possible to maximise its effectiveness.

Life saving signals

Regulation V/29 requires you to have access to an illustrated table of the recognised life saving signals, so that you can communicate with the search and rescue services or other boats if you get into trouble. You can get a free copy of this table in a leaflet produced by the MCA. You can also find it in various nautical publications. If your boat is not suitable for carrying a copy of the table on board (because it's small or very exposed), make sure you've studied the table before you go boating. Larger boats should keep a copy on board.

Assistance to other craft

Regulations V/31, V/32 and V/33 require you:

– to let the Coastguard and any other vessels in the vicinity know if you encounter anything that could cause a serious hazard to navigation, if it has not already been reported. You can do this by calling the Coastguard on VHF, if you have it on board, or by telephoning them at the earliest opportunity. The Coastguard will then warn other vessels in the area.
– *to respond to any distress signal that you see or hear and help anyone or any boat in distress as best you can*

Misuse of distress signals

Regulation V/35 prohibits misuse of any distress signals. These are critical to safety at sea and by misusing them you could put your or someone else's life at risk.

To obtain leaflets:

The above source leaflets and Lifesaving Symbols card can be obtained free of charge from the MCA information department on 0115 901 3336 or mca@promo-solutions.com. The full SOLAS V text is available on the MCA website at www.mcga.gov.uk/publications/SITE.

SAFETY BRIEFING OF CREW

Prior to the start of each trip, time should be spent delivering a 'Safety Briefing' to all travelling on the boat. The briefing is to be used to explain the safety aspects appertaining to that craft and the equipment carried onboard.

The Dive Marshal/Diver Coxswain should cover each of the following, indicating the location and relative, essential information. The contents of this safety briefing could form the basis of a safety checklist to be used by the Dive Marshal/Diver Coxswain.

- Lifejackets
- VHF radio and emergency use
- First Aid kit
- Oxygen Kit
- Flares
- Tool kit and spares
- Extinguisher(s)
- Kill cord
- Fuel isolation valve
- Any additional safety equipment specific to the craft
- Stowage of diving equipment/kit for safe operation
- Planned route and times
- Expected conditions

Note: Inform the Coastguard of the trip, including information about the number of divers onboard, dive site(s) being used, expected return time back at the departure point. Do not forget to inform the Coastguard upon a safe return to that departure point.

APPENDIX 1

BUOYANCY AIDS

Buoyancy Compensating Devices

Buoyancy Compensating Devices (BCDs), as used by divers, provide the user with sufficient buoyancy and adjustment capabilities while the diver is diving in the water and has a cylinder of compressed gas attached to the device.

It is recommended that all personnel travelling in a RIB, while the vessel is underway and making way, should wear a BCD or an alternative buoyancy device.

Any recommended alternative buoyancy device must provide the user with additional oral inflation capabilities, sufficient buoyancy to support the person on the surface, with their face clear of the water.

Provision should be made to provide buoyancy devices of an appropriate size for any passengers that may be carried (children or people of small stature). Suitable protective clothing should also be provided.

Dry suits

Many dry suits, both membrane and neoprene, are often considered to provide adequate buoyancy for the wearer if they fell into the water. This buoyancy is only provided if the suit's zip has been completely closed, so it is essential that all dry suit zips are closed completely and checked by a buddy prior to moving away from the safety of the mooring location. Suits should not be relied upon to provide suitable flotation in the event of falling overboard and it is highly recommended that a BCD or a lifejacket is worn in addition to a closed dry suit, especially for long sea trips.

Note: Weight belts

Divers should not wear weight belts in the boat unless preparing to dive or wearing an appropriate buoyancy aid that will compensate for the additional weight.

Coxswains

The boat's coxswain should always wear a lifejacket while operating in that role.

APPENDIX 2

PYROTECHNICS

Pyrotechnics, or flares, should be used sparingly and only when they are likely to be seen by a vessel or persons nearby.

It is recommended that the first two flares should be let off close together within two minutes. The direction of release should be the same in both cases, well away from the body and downwind.

Do not use flares unless there is a good chance of them being seen. Keep one red hand flare for night use, or one orange smoke flare for day use, back in reserve for pin-pointing your position to approaching rescuers. Never use parachute flares or mini-flares when helicopters are operating close to your position. Only use smoke flares and red pin-point hand-held flares **when requested** by the helicopter to help identify your position. Use of hand flares at night can disrupt night vision equipment.

White flares

White flares are used for attracting attention. They are nothing to do with distress but may be used in close quarters situations at night to draw attention of your position to any approaching vessel.

If a white flare is used in such a situation, its use should be reported to the Coastguard.

The minimum number of flares to be carried depends on the distance from potential rescue.

The following is a guide as to the minimum flares that should be carried for three offshore distances of operation.

Inshore waters – up to 3 miles:
2 x Red rocket parachute flares
4 x Red hand-held flares
2 x Orange hand-held smoke flares
2 x White hand-held flares

Coastal waters – 3 miles to 15 miles:
4 x Red rocket parachute flares
6 x Red hand-held flares
2 x Orange hand-held smoke flares
4 x White hand-held flares

Offshore waters – in excess of 15 miles:
At distances in excess of 15 miles the use of flares is very limited as a means of attracting attention. Flares and smokes should only be used if another vessel or aircraft can be seen and is heading towards your position. More reliance should be put on the use of the DSC/VHF radio, GMDSS equipment or an EPIRB to identify your position and distress situation, however, the following pack is recommended.

Offshore waters pack:
12 x Red rocket parachute flares
6 x Red hand-held flares
2 x Orange hand-held smoke flares
4 x White hand-held flares

APPENDIX 3

FIRST AID KITS

Introduction

A first aid kit is the prime source of essential medical items that will provide the first-aider with the basics to attend the casualty prior to hospitalisation. The contents of a kit depend on the distance of operation from medical resources ashore and the risks that the boat occupants are likely to be subjected to.

The following kits are the minimum recommended for inshore and offshore diving respectively.

Small boat kit (Inshore use – up to 3 miles):
2 x Large sterile dressings
1 x Large pack of assorted adhesive dressings
2 x Large triangular bandages
1 x Rescue blanket or large polythene bag
6 x Safety pins
Disposable gloves

Items should be individually wrapped and sealed in plastic bags.

Whole kit should be housed in a waterproof container.

Offshore kit (in excess of 3 miles):
1 x First aid instructions
6 x Each small, medium and large standard dressings
1 x Large pack of assorted adhesive dressings
4 x Large triangular bandages
10 x Assorted safety pins
3 x 50mm roller bandages
1 x 50mm crepe bandage
1 x Roll 25mm zinc oxide plaster
1 x Set of scissors
1 x Set of tweezers
1 x Pack of sterile cotton wool
2 x Pairs of disposable gloves
1 x Rescue blanket or large polythene bag
Disposable gloves
Pocket mask, or suitable barrier, for use when giving AV

Items should be individually wrapped and sealed in plastic bags.

Whole kit should be housed in a sturdy weatherproof container.

Additional items may be necessary if the diving is to take place in more remote locations where medical resources are not readily available and the expedition is of a longer duration.

APPENDIX 4

RECOMMENDATIONS FOR TREATMENT OF DIVING RELATED INJURIES

Following a diving related injury, the administration of oxygen is considered an important first aid measure. Oxygen should be administered as early as possible and should be administered continuously until the casualty is handed over to specialist medical care.

A suitable oxygen kit may be:

- Standard medical oxygen cylinder, size D or E. (see Note below)
- Oxygen regulator incorporating a cylinder contents gauge and providing an outlet for at least one demand unit, and an outlet capable of delivering oxygen at a constant flow of 10 litres/minute
- Demand unit, hose and oro-nasal mask
- Pocket mask incorporating an oxygen connection elbow and a suitable hose for the delivery of oxygen at a constant flow of 10 litres/minute

Some demand units incorporate a positive pressure ventilation facility. If incorporated, this should be limited to a flow rate of 40 litres/minute and should also incorporate an overpressure relief valve, which limits the airway overpressure to a maximum of 45cm H2O. In demand mode, the unit should be able to deliver a maximum demanded flow rate in excess of 100 litres/minute.

Note: Oxygen to be carried

The amount of Oxygen actually carried on the boat must reflect the normal operating range and must ensure that there is sufficient to ensure that the oxygen is not exhausted before handing a casualty into the care of the emergency services.

Fluids

The administration of still fluids is believed to be beneficial in the First Aid treatment of DCI. A minimum of 2 litres still fluid should be carried to allow for administration at a rate of 1 litre per hour. When diving more remote areas, additional fluids should be carried.

APPENDIX 5

DIVER RECALL SIGNALS

Consideration should be given on all vessels to provide a suitable means of recalling divers should the need arise. Whatever method is adopted divers must be clearly briefed on what to expect and what action to take in the event of such a signal being deployed.

There are a number of methods of recalling divers, alerting them to abort the dive for safety reasons:

Improvised Methods

- **Tugging on Surface Marker Buoys (SMBs)**
  – Usual practice is four strong tugs

- **Sending disc down an SMB line**
  – Negatively buoyant plastic disc attached to the SMB line by the boat cover to slide down to diver
  – Alternatively to above – dropping a strobe down the line

- **Revving boat engine**
  – If no other method available, go near to divers' position and rev RIB engines repeatedly in neutral

  Note: *Divers might interpret this to mean cover boat getting impatient.*

Manufactured specifically as Diver Recall methods

- **Thunderflash**
  – In emergency, light striker and release into water. Loud underwater bang alerts divers and tells them to surface.

  Note: *Ensure they are of large enough size and that they are weighted before you need to use them. Endeavour to allow divers to experience a thunderflash going off, as a training drill, so that they will recognise it when they experience it in a real situation. Divers are cautioned against taking such devices abroad, particularly when flying.*

- **38mm explosive cartridge**
  – Deployed by boat cover. Detonated by increasing pressure on descent (like a depth charge)

  Note: *This allows several signals to be fired. As above, divers should experience a detonation as a training drill, so that they will recognise it in a real situation. Divers are cautioned against taking such devices abroad, particularly when flying.*

- **Power recall**
  – an underwater sound generator using a four-beat pulse that can be heard at 500m. Manufacturer says the new technology is not only safer than a thunderflash, which can be used for the same purpose, but is more effective. The Power Recall is the size of a heavy underwater torch, emits more than 70 watts of peak acoustic power for more than 30 minutes, and should be simple to operate.

  Note: *As above, divers should experience the sound as a training drill, so that they will recognise it in a real situation.*
  This system is no longer commercially available