INTERNATIONAL
MARITIME RESCUE
FEDERATION

Rescue Boat Service Implementation Guide

April 2024

About this guide

The primary aim of the *Rescue Boat Service Implementation Guide* is to give organisations the background and knowledge to assist them with developing a Rescue Boat Search and Rescue Service.

This resource has been designed as a guidance document and can be adapted to suit the local environment.

This manual will be reviewed after 3 years.

Please send any comments and feedback to: **info@imrf.org.uk**.

https://www.international-maritime-rescue.org/contact-the-imrf

April 2024

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Our Members

The IMRF now has more than 130 members in over 50 countries around the world. IMRF member organisations may be large or small, newly-formed or long established, charities, governmental organisations, or supporting organisations and industries.

Our Membership covers maritime SAR organisations, coastguards, life-saving agencies, government departments, as well as industry suppliers and commercial companies, and more. We are always looking to reach out to SAR organisations, no matter where they are in the world, to join the IMRF community so we can continue to help more people save lives at sea.

SAR Membership (Full Membership)

For national SAR coordination centres, lifeboat operators, coastguards, navies, lifeguard services and any relevant organisations involved in operational maritime SAR.

Corporate Membership (Associate Membership)

For commercial companies, training centres, service providers and manufacturers across the maritime, naval and other relevant sectors with an interest in supporting international SAR operations as well as commercial companies that have SAR capabilities e.g. oil and gas companies and offshore windfarms and other renewable energy installations at sea.

Affiliate Membership

This is available to the following organisations: subsidiaries of Full Member organisations, organisations whose prime purpose is the promotion of water safety through education and public awareness, and other NGOs that are not involved in operational maritime SAR; or organisations that are planning to provide a maritime SAR service or function in the future.

A few quotes from some of our members:

"Being an IMRF member means for our organization being a part of a united maritime family in which trust relations and sharing experience are fundamental basis. For instance the IMRF through it's regular and various programes both periodical (lifeboat crew exchange) and occasional (#SARyouOK, #WomeninSAR, #SaferSAR…) prompt us to focus on major topics for our crew and casualties. For that purpose the IMRF staff by it's unfailing support and other members by their precious own experience contribute to an oustanding melting pot for our SAR community!"

SNSM

"The importance of building professional relationships with other SAR organisations is critical. It allows everyone to share stories, ideas, best practices and advances in training, development and technology. The rollout of the Basic Rescue Boat Operator Course on the IMRF's E-Learning platform has also been very beneficial to our volunteers, complimenting their theoretical learning."

Herby Meth – Ascension Island Sea & Land Rescue Service

"IMRF is a reliable source of support and guidance, equipping its members with the tools and knowledge needed to navigate complex maritime situations. Joining the IMRF has undoubtedly opened doors to a better understanding of the challenges the end users are facing, valuable connections, continuous learning, and a sense of belonging to a global alliance committed to making our seas safer for everyone."

Hammar

For further details on the benefits and support we offer, please go to Join the IMRF.

To complete our membership application form go to IMRF Membership Application Form.

You can also find out more about our current list of Members here.

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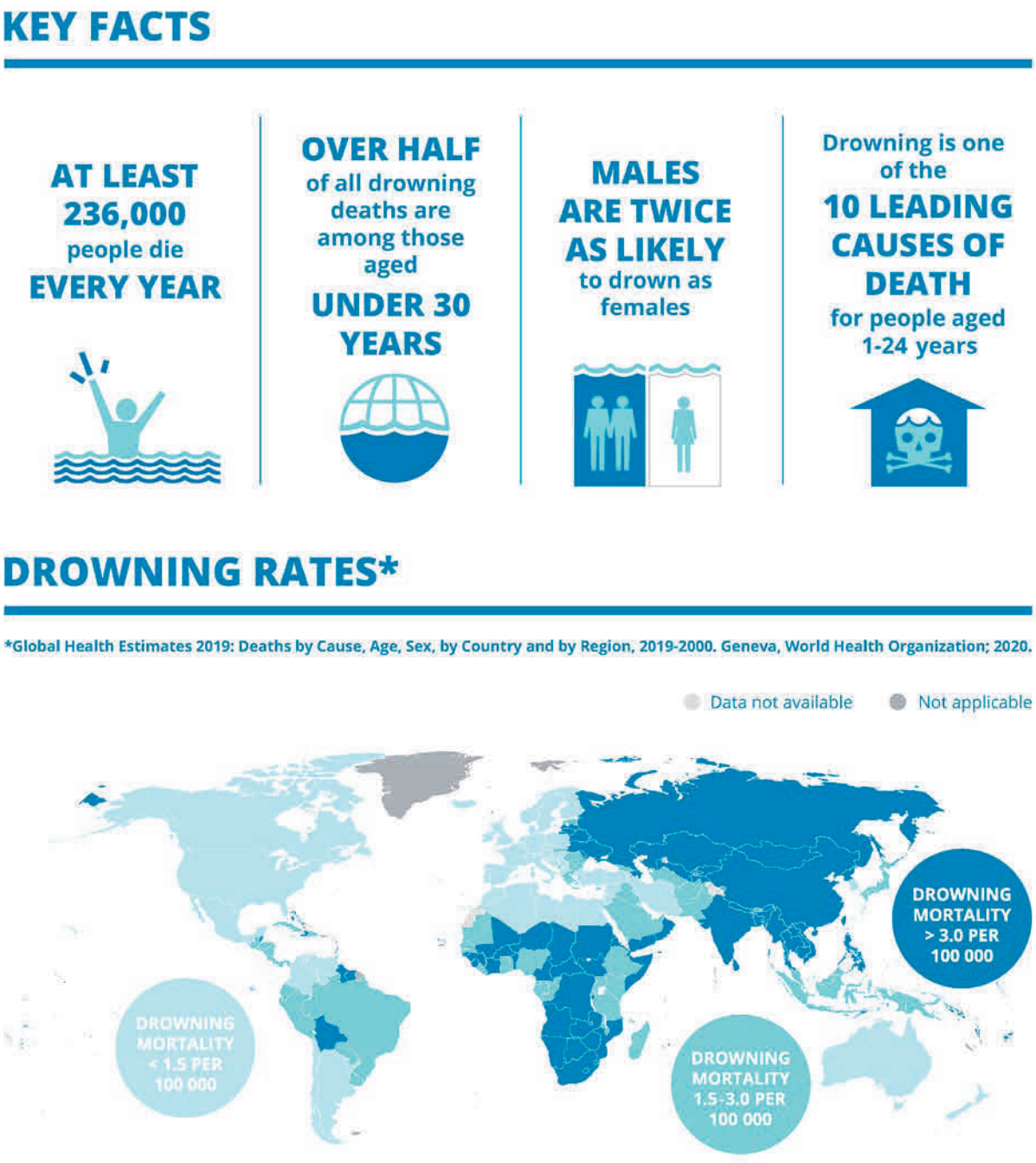
1.1 The international drowning problem

The World Health Organization (WHO) estimated that drowning is responsible for the loss of an around 236,000 lives each year (2020). This figure is likely to be a significant underestimation as it excludes drowning deaths due to flooding, transportation, and intentional drowning.

The WHO estimation also relies on data collected from poor reporting systems, which often under-represent or misrepresent drowning deaths.

Despite the scale of the problem, drowning is barely recognised as a public health problem – a silent epidemic that is significantly under-resourced.

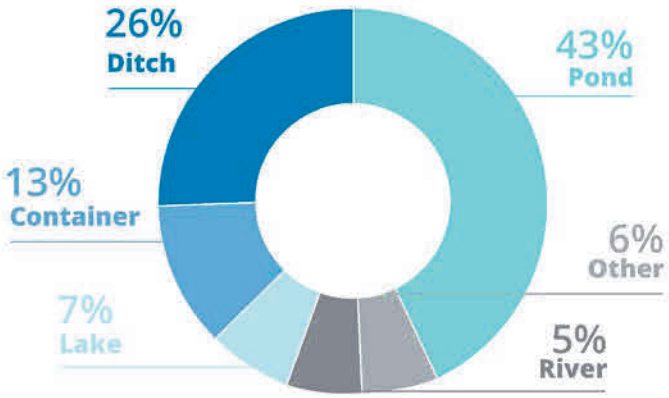
The WHO created the following information in 2021 on global drowning:



RISK FACTORS

LIVING AROUND WATER

Wherever there is water, there is the threat of drowning



Place of drowning of Bangladeshi children under 5 years

YOUNG CHILDREN

the highest drowning rates are among children aged 1-4 years

FLOOD DISASTERS

extreme rain fall, storm surges, tsunamis or cyclones

TRANSPORT ON WATER

especially on overcrowded or poorly maintained vessels

GLOBAL AGREEMENT FOR ACTION*

*https://undocs.org/A/RES/75/273

UN passes **HISTORIC RESOLUTION** for drowning prevention

81
countries sponsor
RESOLUTION

Resolution calls for **MULTISECTORAL** response

Asks WHO to coordinate **DROWNING PREVENTION** within UN system

Declares July 25 **WORLD DROWNING PREVENTION** Day

Encourages all countries to **IMPLEMENT DROWNING PREVENTION PROGRAMMING** in line with WHO-recommended interventions

Install **barriers** controlling access to water

Provide **safe places** away from water for pre-school children, with capable child care

Teach school-age children basic **swimming, water safety and safe rescue skills**

Train bystanders in **safe rescue and resuscitation**

Set and enforce safe **boating, shipping and ferry regulations**

Improve flood risk management locally and nationally

Historical case studies

MV *Le Joola*

This Senegalese government-owned ferry capsized off the coast of The Gambia on 26 September 2002 and resulted in the deaths of at least 1,863 people. The sinking of the ferry *Le Joola* is thought to be the second-worst non-military maritime disaster in number of lives lost, after the Philippine-registered passenger ferry, the *Doña Paz*.

The ferry was reportedly loaded to overcapacity, so when it ran into a storm it quickly capsized within 5 minutes of hitting rough weather. Of the estimated 2,000 passengers onboard, only around 64 survived.

The MV *Spice Islander I* ferry disaster

On 10 September 2011, the MV *Spice Islander I*, a passenger ferry carrying over 2,000 passengers, sank off the coast of Zanzibar. The ferry was travelling between Unguja and Pemba, two islands off the coast of mainland Tanzania, when it capsized. Early estimates put the death toll at around 200, but a report published by the Tanzanian government in January 2012 claimed that over 1,500 people had been killed.

All survivors from the ship flood onto one raft, in an attempt to stay afloat as they wait to be rescued.

Disasters such as these can often be catalysts for governments or other non-governmental organisations (NGOs) to set up more adequate SAR capabilities.

1.2 The role of a maritime search and rescue service

Search and rescue (SAR) is the search for and provision of aid to people who are in distress or imminent danger. The general field of search and rescue includes many specialty sub-fields, typically determined by the type of terrain the search is conducted over.

Maritime search and rescue services exist to respond to and rescue people in danger at sea or on rivers or lakes, this can also include aircraft incidents.

Many countries worldwide are now realising the benefits of having a rescue boat service as they can provide a capability to rescue people in danger on the water. This can have a beneficial effect on tourism, commercial shipping, oil and gas exploration and exploitation, etc. because of the confidence it provides that rescue is available when needed.

The management of a Rescue Boat Service requires an advanced understanding of the offshore and coastal environment, and skills in a range of disciplines. This includes risk assessment, recruitment, training and logistical management. This guide aims to provide information on the steps required to implement a rescue boat service and provides example documentation templates, which can be adapted to assist a SAR organisational set up.

ADES SAR Unit in Colonia, Uruguay

1.3 The IMRF

The International Maritime Rescue Federation (IMRF) is the international non-governmental organisation (NGO) working to develop and improve maritime search and rescue (SAR) capacity around the world.

The IMRF brings together the world's maritime SAR organisations and has both voluntary and governmental organisations as members. As well as capacity building, the IMRF also has an advocacy role, providing an international voice for its members.

It is the only maritime SAR NGO with consultative status at the United Nations' International Maritime Organization (IMO).

Much has happened in maritime SAR over the last 100 years. During that time, the IMRF and its predecessor organisation, the International Life-boat Federation (ILF), and their members have been at the centre of the development and sharing of knowledge relating to rescue craft design, life-saving technologies and SAR training, as well as promoting the establishment of new maritime lifesaving organisations worldwide.

Our members remain our strongest asset and each year we welcome more SAR organisations, technology and equipment suppliers, and other organisations, each of which support one another by sharing knowledge, experience, expertise and innovations through our programme of webinars, conferences, events, forums and other activities. By cooperating in this manner, the IMRF members can cost-effectively share the burden of developing rescue capabilities to meet ever-growing challenges by learning from the ideas and experiences of others.

The IMRF continues to be at the forefront of the maritime SAR sector, offering a vital support network to the sector worldwide, regardless of the size and scope of the member.

The International Life-boat Conference, Holland, 1932

The G5 Mass Rescue Conference, Sweden, 2022

1.4 International standards and governing bodies

As a maritime search and rescue organisation, it is important to understand the background to the different standards and governing bodies relating to maritime search and rescue.

The International Maritime Organization (IMO) and the SAR regions of the world

The importance of international cooperation in shipping has been recognised for centuries. It has long been manifested in maritime traditions such as ships taking refuge in foreign ports in the event of bad weather and going to the aid of others in distress, irrespective of their nationality.

International Geneva conference, 1948

The International Geneva conference opened in February 1948 and following this the Inter-Governmental Maritime Consultative Organization (IMCO) was established. The name was changed in 1982 to International Maritime Organization (IMO).

IMO's mission statement

'The mission of the International Maritime Organization (IMO), as a United Nations specialized agency is to promote safe, secure, environmentally sound, efficient and sustainable shipping through cooperation. This will be accomplished by adopting the highest practicable standards of maritime safety and security, efficiency of navigation and prevention and control of pollution from ships, as well as through consideration of the related legal matters and effective implementation of IMO instruments, with a view to their universal and uniform application.'

SAR Convention

Although the obligation of ships to go to the assistance of vessels in distress was enshrined both in tradition and international treaties, such as the International Convention for the Safety of Life at Sea (SOLAS), until the adoption of the SAR Convention, there was no international system covering search and rescue operations.

In some areas there were well-established organisations able to provide assistance promptly and efficiently; in others there was nothing at all.

The International Convention on Maritime Search and Rescue (SAR) in 1979 in Hamburg was aimed at developing an international SAR plan. It stated that, no matter where an accident occurred, the rescue of persons in distress at sea would be coordinated by a SAR organisation and, when necessary, by cooperation between neighbouring SAR organisations.

The technical requirements of the SAR Convention are contained in an annex to the SAR Convention and is divided into five chapters. Parties to the Convention are required to ensure the arrangements are made.

There should be provision of adequate SAR services in the declared SAR Region of a contracting state and this should also include appropriate rescue facilities for aircraft in danger over or on the sea.

Parties are encouraged to enter into SAR agreements with neighbouring states involving the establishment of:

- SAR regions
- the pooling of facilities
- common procedures
- training and liaison visits.

The agreements state that countries should allow entry into their territorial waters for rescue units from other countries in the event of a maritime emergency.

The Convention then goes on to establish preparatory measures that should be taken, including:

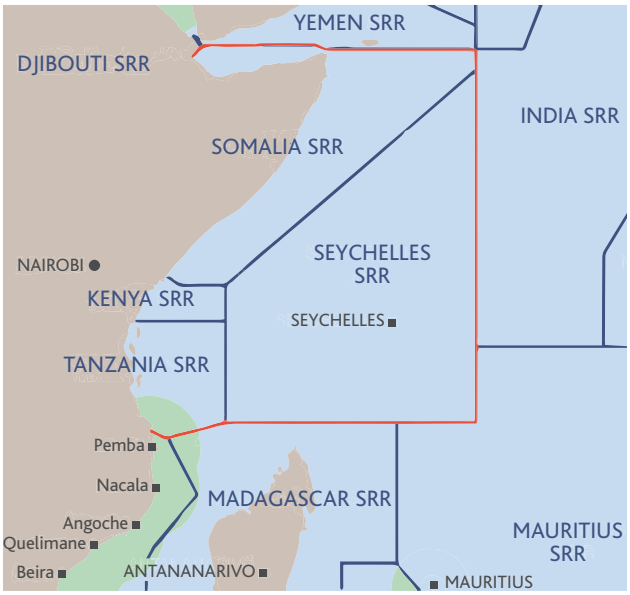
- the establishment of rescue coordination centres and sub centres
- operating procedures to be followed in the event of emergencies or alerts and during SAR operations
- designation of an on-scene coordinator and their duties.

The IMO currently divides the world into 13 SAR Regions, these are currently in the process of being reviewed. Visit the IMO website for the latest information.

IMO search and rescue regions

Following the adoption of the 1979 SAR Convention, IMO's Maritime Safety Committee divided the world's oceans into 13 search and rescue areas, in each of which the countries concerned have delimited search and rescue regions for which they are responsible.

Each region is then divided into a sub-region with each country having their own areas of responsibility.



R-MRCC Mombasa – Area of operation and adjacent search and rescue regions.

International Aeronautical and Maritime Search and Rescue (IAMSAR) manuals

IMO and the International Civil Aviation Organization (ICAO) jointly developed the International Aeronautical and Maritime Search and Rescue (IAMSAR) manual, published over three volumes covering Organization and Management, Mission Co-ordination and Mobile Facilities.

These volumes provide guidelines for a common aviation and maritime approach to organising and providing SAR services.

Volume I

The Organization and Management volume discusses the global SAR system concept, establishment and improvement of national and regional SAR systems, and cooperation with neighbouring states to provide effective and economical SAR services.

Volume II

The Mission Co-ordination volume assists personnel who plan and coordinate SAR operations and exercises.

Volume III

The Mobile Facilities volume is intended to be carried aboard rescue units, aircraft and vessels to help with performance of a search, rescue, or on-scene coordinator function, and with aspects of SAR that relate to their own emergencies.

International Convention for Standards of Training, Certification and Watchkeeping (STCW) for Seafarers

The International Convention on STCW for Seafarers was adopted in 1978. The main purpose of the Convention is to promote safety of life and property at sea, and the protection of the marine environment by establishing in common agreement international standards of training, certification and watchkeeping for seafarers.

This Convention was the first to establish basic requirements on training, certification and watchkeeping for seafarers at an international level. Previously the standards of training, certification and watchkeeping of officers and ratings were established by individual governments, usually without reference to practices in other countries. As a result, standards and procedures varied widely, even though shipping is extremely international by nature.

The STCW Convention prescribes minimum standards relating to:

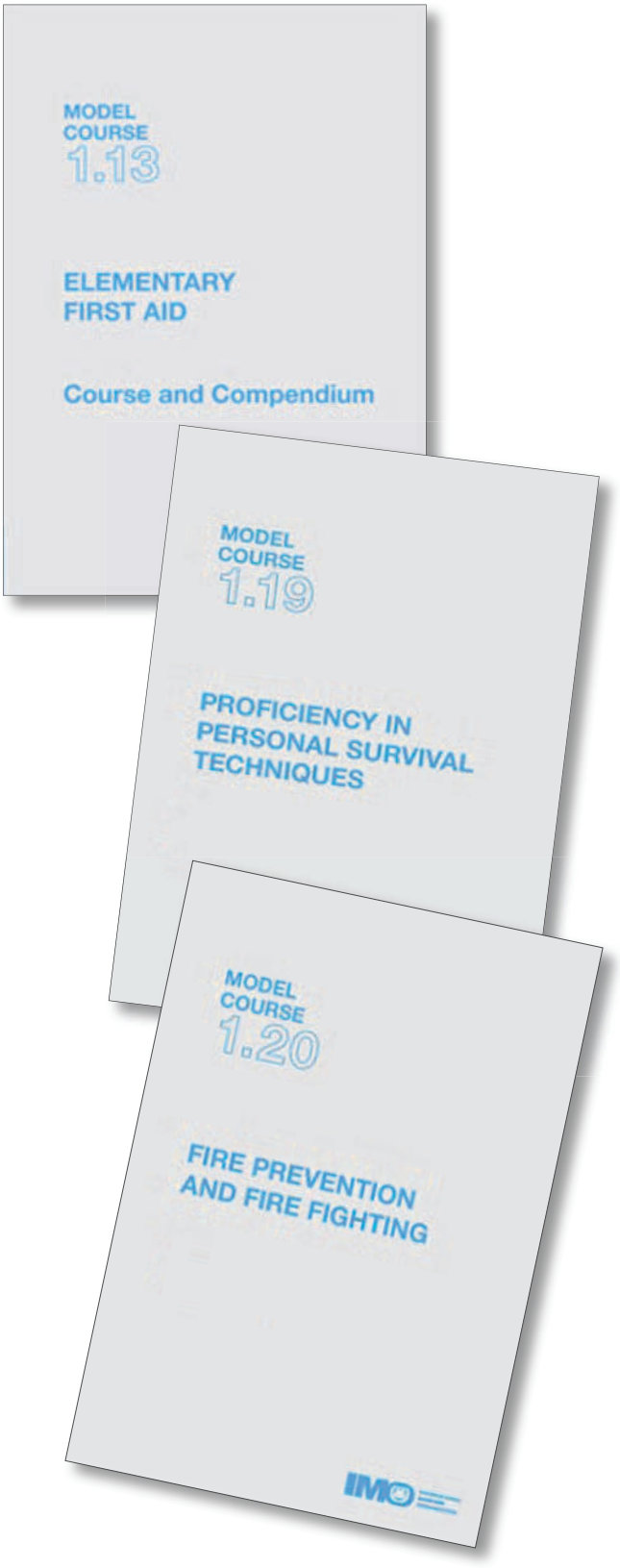
- training
- certification
- watchkeeping

for seafarers that countries are obliged to meet or exceed.

The STCW Convention and Code (2010) Manila Amendments

The Manila amendments to the STCW Convention and Code were adopted on 25 June 2010, marking a major revision to the STCW Convention and Code. The 2010 amendment aimed to bring the Convention and Code up to date with developments since they were initially adopted, and to enable them to address issues that were anticipated to emerge in the foreseeable future.

There are a number of model courses that are mandatory for seafarers, a rescue boat service may want to consider implementing some of the following courses for their crews:



International regulations governing maritime safety

The following are the major international shipping conventions, adopted by the International Maritime Organization (and the International Labour Organization) concerning safety and pollution prevention. However, many other maritime regulations concerning more specific issues are also in force worldwide. As a rescue boat service, you may want to consider some of the following conventions.

Dealing with the ship

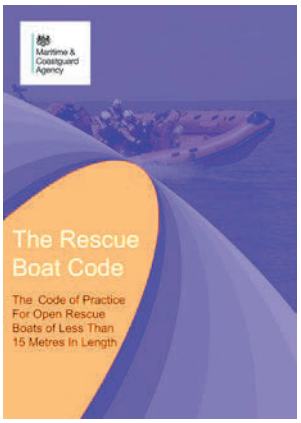
- **SOLAS** (International Convention for the Safety of Life at Sea, 1974) laid down a comprehensive range of minimum standards for the safe construction of ships and the basic safety equipment (for example fire protection, navigation, lifesaving and radio) that should be carried onboard. SOLAS also requires regular ship surveys and the issue by flag states of certificates of compliance.
- **MARPOL** (International Convention for the Prevention of Pollution from Ships) contains requirements to prevent pollution that may be caused both accidentally and in the course of routine operations. MARPOL focuses on the prevention of pollution from oil, bulk chemicals, dangerous goods, sewage, garbage and atmospheric pollution, and includes provisions such as those that require certain oil tankers to have double hulls.
- **COLREGS** (Convention on the International Regulations for Preventing Collisions at Sea, 1972) laid down the basic rules of the road, such as rights of way and actions to avoid collisions.
- **LOADLINE** (International Convention on Loadlines, 1966) set the minimum permissible free board, according to the season of the year and the ship's trading pattern.
- **ISPS** (International Ship and Port Facility Security Code, 2002) includes mandatory requirements to ensure ships and port facilities are secure at all stages during a voyage.

Dealing with the shipping company

- **ISM Code** (International Safety Management Code, 1993) effectively requires shipping companies to have a licence to operate. Companies and their ships must undergo regular audits to ensure that a safety management system is in place, including adequate procedures and lines of communication between ships and their managers ashore.

Dealing with the seafarer

- **STCW** (International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978/1995/2010) establishes uniform standards of competence for seafarers.
- **ILO 147** (ILO Merchant Shipping (Minimum Standards) Convention) requires national administrations to have effective legislation on labour issues such as hours of work, medical fitness and seafarers' working conditions. This was superseded by the ILO Maritime Labour Convention.
- **The Rescue Boat Code** (UK Maritime Coastguard Agency (MCA) is an example of a code of practice for open rescue boats of less than 15 metres in length, aimed at the safety of rescue boat organisations and those they assist through guidance on equipment, safety procedures, training and maintenance.



Examples of National Governing Bodies - Water activities

There are a number of national bodies that deal with water activities. Some examples are:

- **World Sailing** (WS, formerly ISAF)
- **United States Coast Guard**
- **RYA** (Royal Yachting Association)

As a rescue boat service, you should consider national maritime regulations, and seek guidance from your national governing bodies relating to any certification required to operate in local waters.

1.5 The process of service implementation

The flowchart below details the main steps in implementing a maritime SAR service. Each organisation will have slightly different requirements, and some of these steps may not apply to yours. This manual is designed to be a guide for you to adapt to your own needs and circumstances.

Identify the need
- Risk mapping.
- Meet with key stakeholders.
- Risk assess specific maritime areas.

Initial stages
- Set service levels.
- Source appropriate funding.
- Identify and meet with key community stakeholders.

Logistics
- Decide on facilities.
- Write job profiles and begin recruitment.
- Source appropriate rescue equipment.

Administration
- Write standard and local operating procedures, and other relevant documentation.
- Train crew and personnel to operate the SAR service.

Publicity
- Publicise service and continue to engage with stakeholders.
- Open service.

Manage and review
- Implement complementary measures, such as signage and education programmes.
- Monitor and review project effectiveness.
- Ongoing management and fundraising (if applicable).

Unit 2: Researching the need for a Maritime SAR Service

Learning outcomes

2.1 Understand the importance of risk mapping and how it helps decide the location of the service.

2.2 Understand how to use incident data to inform the decision on maritime SAR service levels.

2.1 Risk mapping

When setting up a rescue boat service, risk mapping is an important tool to help visualise the risks. It is a drawing or model of the water region and highlights where regular incidents have occurred, historical drowning incidents, who it happens to and common causes.

It helps identify what type of rescue boat service you may need to provide and the type of vessel training and equipment you may need to put in place.

Risk mapping works best when working closely with members of the local community. They will have a good knowledge of local water bodies and their associated hazards, and will be keen to help find a possible solutions.

You may want to consider the following points when doing your risk mapping:

1. Work with the local community to draw a map of the local area. Mark on any key roads, schools, residential areas and all water bodies.
2. Mark on the map the key activities that take place in and around the water bodies.
3. Discuss the hazards associated with these activities and mark on the map where the hazards are.
4. For each hazard discuss who is at risk and mark on the map the best place to reach these people.
5. For each hazard discuss a suitable solution to the problem. Think about how you will target those at risk and the resources you will need.
6. You may want to condsider risk mapping the wider SAR Region (SRR) e.g. shipping, small boat and aviation activity that is conducted throughout the SRR.

2.2 Historical incident data

The collection of incident data is essential to having an understanding of SAR requirements. Looking at the number and types of incidents that have occurred at a specific river, coastal or maritime area will give an indication as to the kind of activity that is/was going on there and will help establish what level of service might be needed. This information is gained from a number of different sources.

Historical data can also be researched through the internet, local knowledge and different sea users, (such as fishing communities, recreational leisure craft users and maritime authorities). It is important to try and build up as clear a picture as possible to ensure whether there is a need and what type of service should be provided.

Case study: The *Marchioness* ferry disaster

The *Marchioness* disaster was a fatal collision between two river craft on the River Thames in London on 20 August 1989, drowning 51 people. The pleasureboat *Marchioness* sank after being pushed under by the dredger *Bowbelle*, late at night near Cannon Street Railway Bridge. A formal inquiry blamed poor lookouts on both vessels, and inadequate instruction of both crews.

Subsequent to recommendations made in the Clarke report relating to the improvement of river safety, the Government asked the Maritime and Coastguard Agency, the Port of London Authority and the RNLI to work together to set up a dedicated search and rescue service for the tidal River Thames. Consequently, on 2 January 2002, the RNLI set up four lifeboat stations, at Gravesend, Tower Pier, Chiswick Pier and Teddington.

Unit 3: Risk assessment

Learning outcomes

3.1 Understand what a risk assessment is.

3.2 Understand how risk assessment relates to SAR service implementation.

3.3 Understand how to identify hazards and risk levels.

3.4 Understand how to begin implementing suitable control measures resulting from a risk assessment.

3.1 What is risk assessment?

Risk assessment is a systematic process of evaluating the hazards and risks involved in an activity. From this, suitable control measures can be implemented to try to mitigate/reduce the risk.

A hazard is something that has the potential to cause harm.

Risk is the probability and severity that somebody could be harmed by a hazard. Risk can be calculated as: severity x probability, i.e. the severity of the hazard multiplied by the probability that it will cause somebody harm.

Control measures are steps taken to guard people against a hazard or hazards and therefore lower the levels of risk.

A risk assessment should not be a complex or difficult process. It should be a sensible approach to managing safety for SAR organisations and members of the public using the coast.

3.2 SAR risk assessment

Conducting a risk assessment is one of the first steps in managing safety. It allows you to formally evaluate the hazards in your area of operation, determine the level of risk to identified users, and decide on suitable control measures. It helps to inform your decisions on the level of service that you need, how you will determine the level of service the SAR organisation will provide, what boats and equipment they will use, and what other complementary services you might wish to employ (such as signage, education and public rescue equipment).

A SAR risk assessment focuses on hazards within a defined geographical area.

Risk assessments should also be completed for tasks being undertaken by your employees, especially tasks considered to have an element of risk. For example: SAR operators are required to work at sea and could potentially end up in the water. A risk assessment is necessary to determine what control measures need to be put into place in order to minimise that risk. Examples of control measures for this could be:

- wearing a lifejacket
- wearing appropriate thermal protection
- having a means to attract attention
- see unit 6 on GMDSS.

Conducting a risk assessment

3.3 Hazard, risk and control measures

The first stage of a risk assessment is to identify any hazards. There are different ways of doing this, but for a SAR risk assessment one of the most important is to visit the proposed area of operation and look at the hazards yourself. While in the area, you should also be able to see how different users are interacting with the area and how this affects the risk levels.

Examples of the sorts of hazards you should look for are:

- rocks
- cliffs
- unstable sand dunes
- rip currents
- use of personal watercraft, power boats or other motorised water craft.

The level of risk is influenced by how many people are being exposed to the hazards, and how frequently. For example, a large number of people swimming close to a rip current on a regular basis would equal a high level of risk. Very few people infrequently entering the water near the same rip current would equal a lower level of risk.

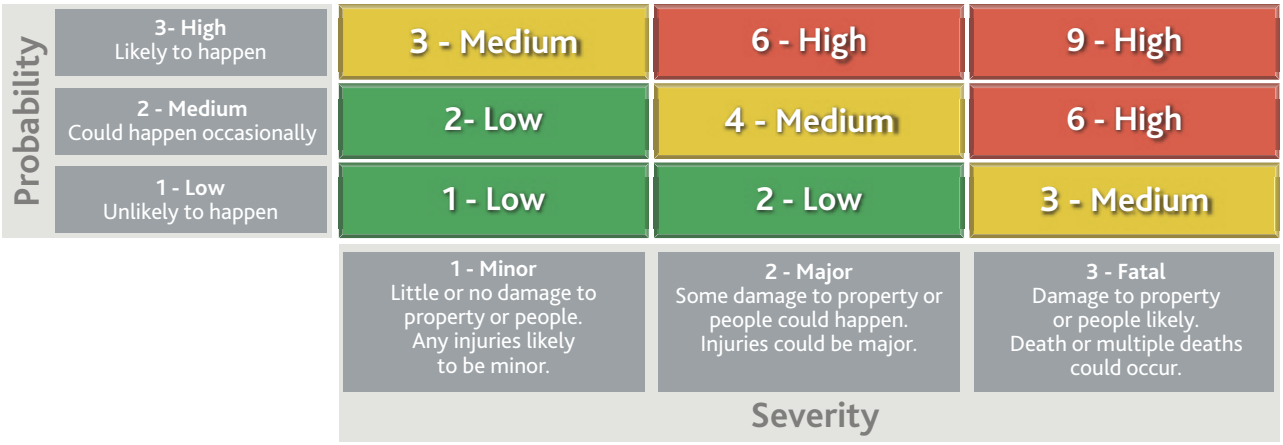
When conducting your risk assessment visit, always try and meet a stakeholder or somebody with a good level of operational knowledge, who is familiar with the area and the way in which it is used.

See the supporting forms and documents section at the end of this book, for an example of a completed risk assessment and template.

Examples of hazards, risks and control measures

	Description	SAR example	Office example
Hazard	Something that can cause harm.	Drowning.	A broken step on a staircase.
Risk	Risk is the combination of the severity of the harm and the possibility (or probability) that it will happen.	Probability: Crew could fall overboard while conducting SAR operations, vessel could sink or capsize due to adverse weather. Severity: As a result, they could drown.	Probability: It is possible that someone will trip on the broken stair and fall over. Severity: Somebody could sustain a serious injury by falling down the stairs.
Control measure	Something that is put in place to reduce the level of risk.	Lifejackets to be worn afloat at all times. Personnel to be qualified in first aid. Carry suitable first aid kit aboard the vessel. Ensure all crews know how to wear their lifejackets and what to do should they end up in the water.	Get the stair repaired at the earliest opportunity. Restrict access to the stair while it is being repaired. Offer an alternative route until the stair is repaired.

Risk matrix



A risk matrix is shown above. This is a tool to help you decide on the level of control measures to put in place. If the hazards you are assessing fall into the 'low' category, then you might not need any new control measures. If a hazard falls into the 'medium' category then control measures should be considered. If a hazard falls into the 'high' category then you must put control measures in place, or stop activities altogether.

Some things to consider when deciding on control measures are:

- What control measures are already in place and are they appropriate?
- Can I remove the hazard altogether?
- Could access to the hazard be controlled in some way?
- Would improved signage or training help?
- Do the SAR operatives need personal protective equipment?
- Have I consulted the right people in identifying the risk levels?
- What money, resources or time do I have available to control this risk?

Providing answers to these questions will help as a starting point.

The kind of control measures you might want to consider for a SAR environment could be:

- improved safety signage
- public rescue equipment
- deliver water safety lessons in local schools
- give water safety leaflets to local hotels and businesses
- train local volunteers in lifesaving and first aid
- implement a maritime SAR service.

All the findings and recommendations from your risk assessments should be recorded on a risk assessment template. This document should be reviewed at regular intervals, usually each year and/or after a significant incident, for example, following a major change in the topography of the beach or a drowning incident.

Having an organised filing system for your risk assessments will greatly aid this review process. This can be organised online, on your computer (providing it is backed up) or in a paper format if you do not have access to digital resources.

It is worth remembering that you can only do what is reasonable to control risks. This means balancing the level of risk against the time, trouble and/or money it would take in order to implement control measures. You can only work on the information that is available to you at the time of completing your risk assessment and you cannot be expected to account for unforeseeable risks.

3.4 Implementing control measures

Risk assessments are only useful if you implement the control measures that you have identified. Developing a plan or timetable will assist greatly.

It may be that not all of the responsibility for implementing the control measures sits with you or your organisation. In this case, it is important to work closely with the stakeholders involved and assist them wherever necessary to ensure that identified work is carried out.

Information, cautions and warning signs

Tidal overfall - an example of a potential risk area

Unit 4: Stakeholder engagement

Learning outcomes

4.1 Understand the difference between an internal and external stakeholder.

4.2 Understand the benefits of working in collaboration with other lifesaving organisations.

4.3 Understand how to work local and national Government.

4.4 Understand how to work with both local and national organisations when implementing a maritime SAR organisation.

4.5 Know how to prioritise which stakeholders need the most engagement

4.6 Understand the benefits of having a memorandum of understanding between the maritime rescue coordination centre and the SAR organisation.

4.1 Internal and external stakeholders

Stakeholders can be engaged through both formal and informal processes. A formal relationship might involve regular, documented meetings to record the progress of your working relationships. Informal processes might be better suited to external community stakeholders who prefer a more relaxed approach.

Different examples of stakeholders in a maritime SAR environment and how to work with them are discussed in this section.

Tanzania sea rescue stakeholder meeting, 2016

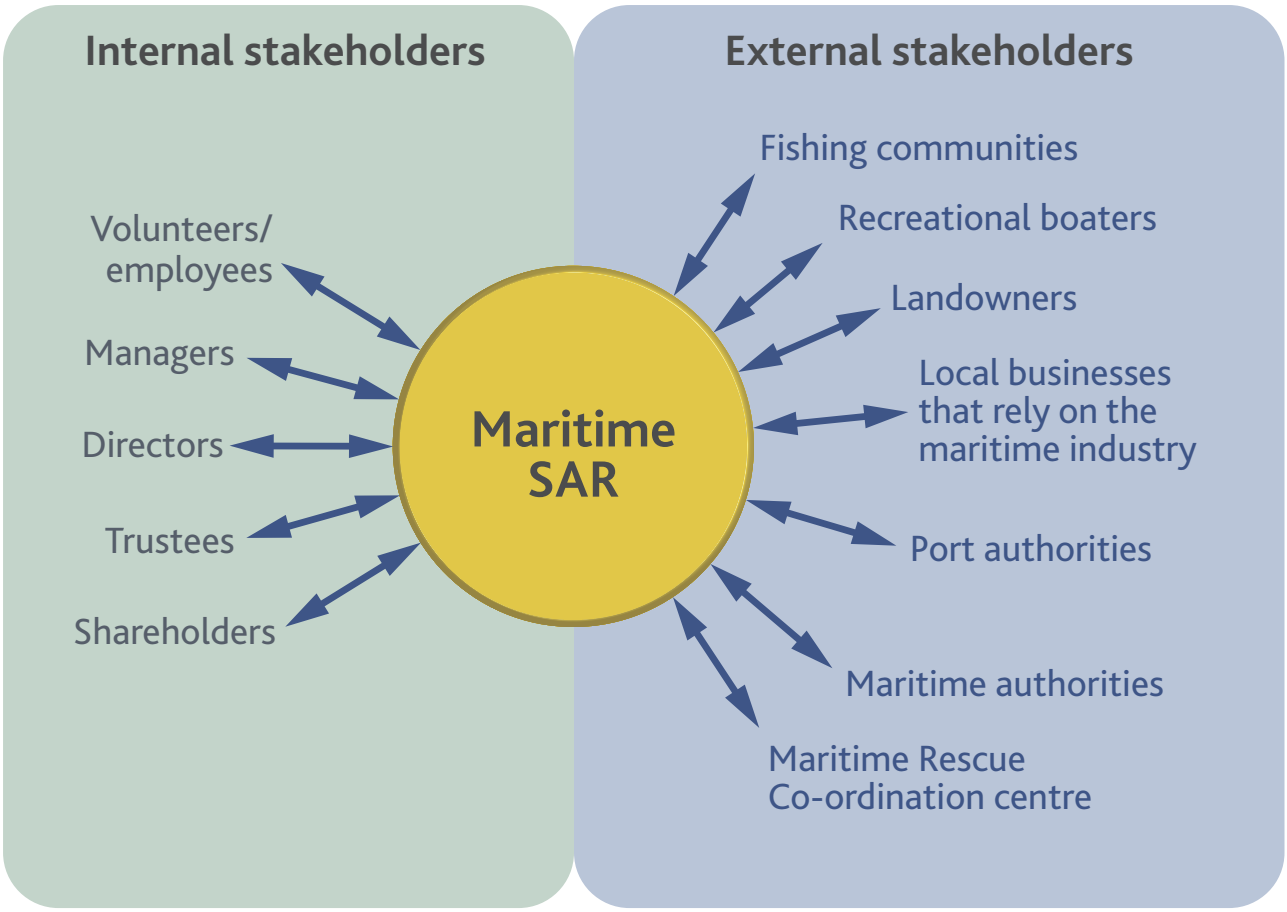
Internal stakeholders are groups within your organisation, for example, employees, volunteers, directors, trustees or donors.

External stakeholders are groups or individuals that are outside of your organisation but have an impact on your activities. They might be fishing communities, recreational boaters, land owners, port authorities or maritime authorities.

Local businesses

Local business owners may have an important role to play in supporting the introduction of a new service in terms of logistical support or advocacy. They could also help to provide background information to your SAR risk assessment. In some instances, local businesses might be interested in contributing financially to the introduction of a maritime SAR service.

Some business owners will want to see the new service introduced as they could benefit financially from the potential rise in tourist visitors.



The Maritime Rescue Co-ordination Centre (MRCC)

The MRCC is generally responsible for the initiation and coordination of maritime SAR within the Search and Rescue region of a country, in accordance with international procedures outlined in the IAMSAR manuals and the SAR convention. National procedures and duties may vary.

In some countries inshore and coastal areas, it may be the police, fire services or a voluntary organisation who are responsible for coordinating rescue operations.

The MRCC can act as national coordinator of all civil maritime search and rescue (SAR). In responding to reports of casualties at sea or on the coast, the MRCC can call upon a wide range of facilities made available by other organisations. These are known as declared assets, which are facilities designated as being available for civil maritime SAR according to a specific standard or set criteria.

Some other responsibilities of the MRCC can include:

- initiate and coordinate civil maritime SAR
- maintain an electronic radio watch on VHF DSC Ch70 (156.525MHz)
- maintain a continuous loudspeaker, listening radio watch on VHF Ch16 (156.8MHz), the international distress, urgency, safety and calling frequency
- broadcast maritime safety information (MSI) to set schedules.

The SAR organisation

There are a number of critical roles a maritime SAR organisation can provide, including:

- reduction of loss of life and suffering
- a safer and more secure environment for maritime-related industries, commerce, recreation and travel
- initial response and relief capabilities to saving lives in early stages of natural and man-made disasters
- an integral part of any local, national or regional emergency management system
- SAR promotes communication and cooperation among regions because it is a relatively non-controversial, humanitarian mission
- SAR is an excellent tool leading to cooperation in other areas such as:
  - a well-performed SAR operation can provide positive publicity. Poor or ineffective response to a major accident or disaster can adversely affect sensitive industries such as tourism and transportation
  - increasing safety and promoting economic development
  - possible savings of valuable property in association with SAR activities can be high.

Protecting the environment and saving lives is a global economic investment of growing importance.

Tanzania Sea Rescue

Virgin Islands Search and Rescue

4.2 Other lifesaving services

There are a number of different lifesaving services in the international arena. It is worth working in collaboration with other services, as they can help with training, skills and expertise in other areas.

Some examples of organisations are:

- International Federation of Red Cross and Red Crescent Societies (IFRC)

- Samaritans

- The Salvation Army

- St John's Ambulance.

- International Surf Lifesaving Association (ISLA)

4.3 Local and national government

It is important that the SAR organisation works alongside other organisations that can provide different roles and levels of support during a SAR operation.

National government will provide policies and mandates for other organisations to work inside. This may have an effect on your organisation.

These authorities and organisations are committed to a cohesive and cooperative partnership, the aim of which is the continued provision of an effective national SAR capability.

Some SAR incidents require a fully integrated emergency response.

4.4 Who could work with a SAR organisation?

Military defence

In some countries, military defence has responsibility for providing SAR facilities for military operations and, by agreement, exercises responsibility for the coordination of civil aeronautical SAR. Where the coverage provided by military SAR assets meets the civil SAR coverage requirements, they may be made available for civil maritime and land-based SAR operations. In some countries, the military maintains an aeronautical rescue coordination centre for the operation and coordination of civil and military aeronautical SAR assets.

Fire and rescue services

Fire and rescue services have a statutory responsibility to deal with fires and road traffic collisions. Each fire authority has the power to use the resources primarily provided for firefighting to deal with non-fire incidents. These may include maritime, aeronautical and land-based SAR operations. It is for each fire authority to set its own policy in regard to SAR operations and these will vary around the world.

Ambulance services

Ambulance services have a statutory responsibility to respond to traumatic and medical emergencies. Land ambulances may in some areas be complemented by a helicopter emergency medical service, assets that may assist in SAR tasks in circumstances compatible with the type and operating limitations of the aircraft.

Civil defence

Many countries still maintain a national Civil Defence Corps, usually having a wide brief for assisting in large-scale civil emergencies such as flood, earthquake, invasion or civil disorder.

Mountain rescue services

Mountain rescue offers support to activities that occur in a mountainous environment. The term is sometimes used to apply to search and rescue in other wilderness environments. This tends to include mountains with technical rope access issues, snow, avalanches, ice, crevasses, glaciers, alpine environments and high altitudes.

Cave rescue services

Cave rescue is a very specialised skill. Normal emergency staff are rarely employed in the underground elements of the rescue. Instead, this is usually undertaken by other experienced cavers who undergo regular training through their organisations and are called up when needed.

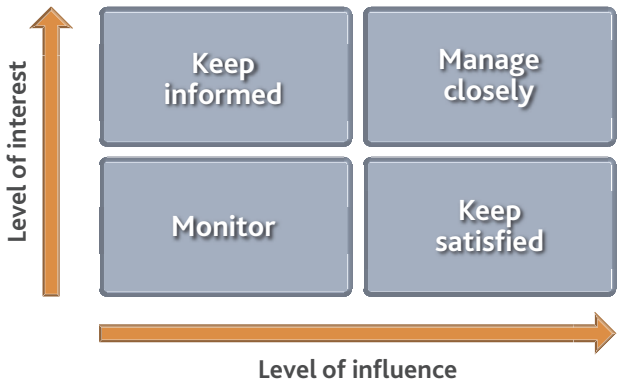
Coast guard or Coastguard

A coast guard or coastguard is a maritime security organisation of a particular country. The term embraces wide range of responsibilities in different countries, from being a heavily armed military force with customs and security duties, to being a volunteer organisation tasked with search and rescue without law enforcement authority. In most countries, a typical coast guard's functions are distinct from those of the navy (a military service) and the transit police (a law enforcement agency), while in certain countries they have similarities to both.

Summary

It is vital that all SAR organisations train and exercise together. This is invaluable to test out operating procedures and communication systems. It is also vital for working in collaboration and developing personal relationships in order to have a positive working ethos when responding to emergency situations.

4.5 Stakeholder matrix



The stakeholder matrix shown above will help you prioritise which stakeholders need the most engagement.

Try this activity: Draw out the matrix above on a sheet of paper, and then write down each of your stakeholders on smaller, separate pieces of paper. Decide how much influence your different stakeholders have on your service (how much they affect you), and how much interest they have in your service (how much you affect them). Now, based on this, place each stakeholder in the appropriate box.

Once you have mapped the interests of the stakeholders you can then prioritise how much engagement you need to have with them.

If your stakeholder has a high level of interest and a high level of influence, it is important to maintain a good relationship with them and manage them closely. This usually means regular meetings, phone calls, reports and emails to keep them well informed. The type of stakeholder that might fall into this category could be a landowner.

If your stakeholder has a high level of influence but only limited interest, then maintain a good relationship with them to keep them satisfied, but they may not need regular information from you.

If the stakeholder has a high level of interest but only limited influence, then keep them informed, which could be with written reports or emails.

Stakeholders who have limited influence and interest require less communication but monitor their activity and contact them when you need to.

4.6 Collaboration agreements

When working with external stakeholders, it is worth having some form of agreement. This can be achieved by establishing a collaboration agreement.

A collaboration agreement is a legally binding agreement between different parties that want to co-operate together or work collaboratively on a project. In most cases a collaboration agreement will record what the collaboration is about and how the parties will work together.

It is vital to ensure that both organisations agree on set standards, ways of communicating and working in collaboration in order to carry out effective SAR operations.

Some key points to consider when tasking any rescue boat to carry out SAR operations are:

- confirm SAR terminology
- promote good communication between MRCCs, SAR units and rescue boats
- confirm understanding of search models and patterns.

Unit 5: People

Learning outcomes

5.1 Understand the importance of having a suitable staffing structure in order to have the right people to provide a SAR service.

5.2 Understand the different roles and responsibilities that make up a SAR organisation.

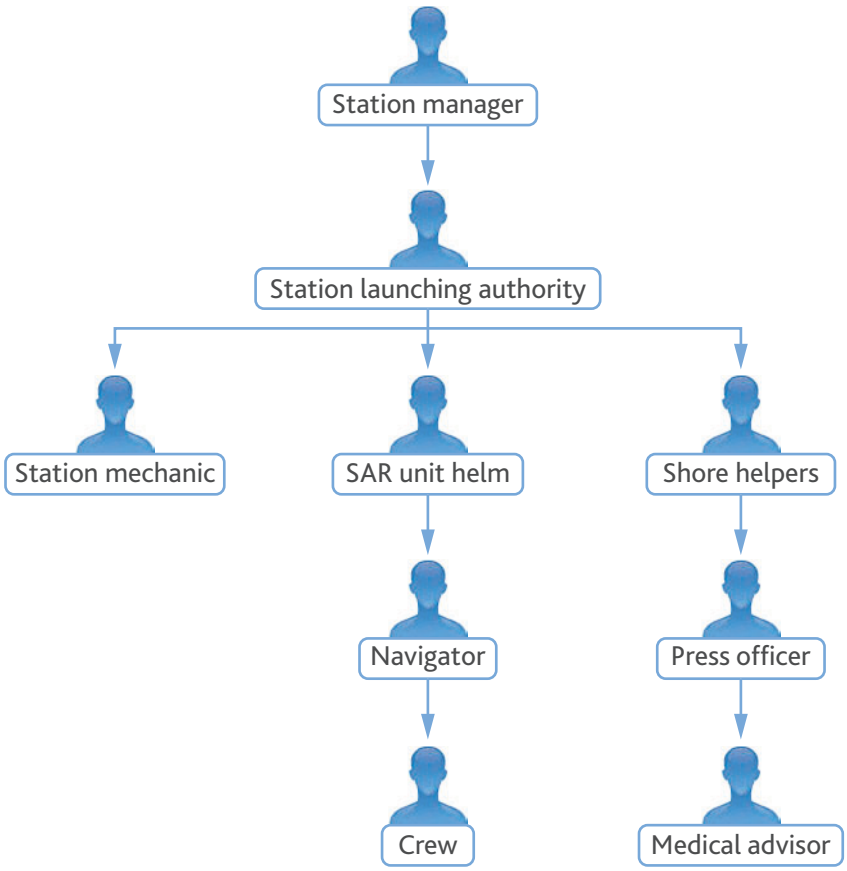
5.3 Understand the importance of having the correct service levels to operate a SAR service.

5.4 Understand the importance of training.

5.1 Staffing structure

In order for a rescue boat service to carry out its role, it is vital that it has the right competent people in place.

An organisation needs to quantify how many people it needs in order to provide its service. This can be laid out in a formal staffing structures as shown in this example for a rescue boat station. Depending on the size of the organisation, the appropriate leadership and management structures should also be put in place.



5.2 Roles and responsibilities

In order to provide a response to an incident the SAR organisation must have a number of key roles and responsibilities to allow the service to be carried out. These responsibilities can be formalised in job profile documents.

It is also recommended that there is a management group that can coordinate any administration and decision-making processes. This group should meet on a regular basis to ensure the smooth running of the service.

Some of the vital roles that should be put in place are as follows:

- **Station manager**: This role is vital for the day-to-day running of the service and requires somebody who is good at administration and can respond to any issues that arise with maintaining the station ready for service.
- **Station launching authority**: This is somebody who will give the order for the assembly of the crew and the launching of the lifeboat when an incident occurs and there has been a request for assistance. This is a key role as they must use their discretion whether to launch based on the information received, weather conditions, boat and crew capabilities. Protocol and procedures should be in place to make this decision process easy to follow. They should also be able to be contacted 24 hours a day. Therefore it would be useful to have a number of people that could carry out this role that could be placed on a rota system.
- **Station mechanic**: This role is crucial for maintaining the lifeboat and associated equipment, ensuring it is operational and ready for use. The mechanic can provide planned maintenance and fix any mechanical issues and also be on hand to provide training, where necessary.

- **SAR unit helm**: This person should be in overall command of the rescue boat and endeavour to safeguard and rescue the lives of those in danger, and be responsible for the safety of the crew and the boat. They should also remain in command of all operations connected with launching, service and the recovery of the lifeboat. It is also important that they have strong leadership and team working skills, be able to provide support to the crew and act as a role model.
- **Navigator**: Directed by the helm, the navigator is part of the crew team, ensuring safe navigation of the boat. They can also assist with other tasks on the boat and help to ensure the smooth running of the station.
- **Crew**: Directed by the helm, the crew team ensures that the boat and associated equipment are safe and effectively operated at sea. They also assist in the smooth running of the station.
- **Shore helpers**: These can be vital in getting the boat launched. It is up to the organisation's requirements to identify in what capacity these roles can be used.
- **Press officer**: A SAR organisation can rely heavily on public relations in order for raising awareness and publicity. Having a person dedicated to this role can be vital in raising the service's profile. Also, they can build and maintain a friendly relationship with the local press, media and television in order to get maximum exposure if a call out has been provided.
- **Medical adviser**: This will be somebody who can advise on any medical issues and best current practice.

Some other considerations when selecting personnel are fitness levels, age and medical conditions. The criteria relating to these matters should be put into place and documented to give clear guidelines.

It is also important for the SAR organisation to have pre-set minimum manning levels when launching on service.

For example, in the RNLI the minimum number for an all-weather lifeboat to launch is five. The roles needed are coxswain, mechanic, navigator and two crew.

For an inshore lifeboat to launch, a minimum of three is required – helm, navigator and one crew member.

A rescue boat service team made up of volunteers provided by the RNLI in the UK and Ireland

5.3 Service levels

Ideally, a SAR organisation should operate a scheme of complement, which is a list of all the roles within an area/location/team and the recommended number of competent people required in each of those roles to remain operationally capable at all times.

All Weather Lifeboat Stations - Generic Scheme of Complement:

Lifeboat Crew	
Helm	3
ALB Mechanics	3
ALB Navigators	4
Crew	6
Sea going Casualty Carers	10
Shorecrew	Agreed with Operational Management
Shorecrew Casualty Carers	2*
Lifeboat Press Officer	1
Launch Authority	4***

Inshore Lifeboat Stations - Generic Scheme of Complement:

Lifeboat Crew	
Helms	5
Crew	8
Sea going Casualty Carers	10
ILB Mechanic	1
Shorecrew	Agreed with Operational Management
Shorecrew Casualty Carers	2*
Lifeboat Press Officer	1
Launch Authority	4***

An example of a scheme of complement (personnel needed to operate the service)

The number of people in each role is determined by discussion with the area, team, operational unit, people available and the management group that oversee it.

The recruitment and training of people is based around each area's scheme of complement. By regularly updating and checking the scheme of complement, shortfalls, or anticipated shortfalls in personnel, can be easily identified. This allows existing people to be trained as replacements in advance of the shortfall, or for new recruits to be enrolled.

To aid in succession planning and identifying training requirements, the target number and actual number of individuals can be identified on a suitable database system.

5.4 Training

Developing a competence framework

Competence is the ability of an individual to do a job properly. A competency is a set of defined behaviours and skills that provide a structured guide enabling the identification, evaluation and development of the behaviours in individual employees.

A competence framework has many advantages to both the organisation and to the individual, whether they are staff or a volunteer.

For the organisation it:

- ensures that it established what qualities are required in its people
- can help to identify the total number of people with certain skills and knowledge needed to do get a task done (known as scheme of complement)
- can help to recruit the right people with the right skills in the first place
- It provides standardisation, making skills and knowledge transferable across groups and locations
- provides quality assurance
- ensures that training is targeted and cost effective (competence-based training).

For the individual it:

- provides a guide as to what they need to be able to do or know right from the start
- ensures what they need to know is the same as their peers (shared skill and knowledge)
- gives them a tool to see their development and assess their progress.

A competent individual is one that 'has the required skills, knowledge, attitude and qualifications to complete a required task safely and appropriately or meet a required standard' – an important thing for any organisation to know about its people. This is why competence frameworks are such a useful tool in managing people.

See the supporting forms and documents section at the end of this book, for an example of a development plan.

Any internet search will give many different examples of how to lay out a competence framework, which is often dependent on the type of competencies you are focused on. Some are more focused towards behaviours and soft skills, others are known as competent-to-operate frameworks where they are more functional competencies.

The most important thing is that a competence framework is easy to use for the organisation, those training and assessing against it, and the individuals themselves. In its simplest form it can be a list of all the things that are needed to be completed.

In all cases a competence framework has the following:

- **Titles** – Clear headings stating the topic/area/activity it covers.
- **Sub-titles/Sections** – Often the title is a large topic or activity that requires it to be broken down further to see the steps involved.
- **Assessment criteria** – These show the specific level of detail or ability required, also known as learning outcomes.
- **Associated roles** – In cases where more than one role may be covered by a framework, it will state which roles are required to operate to this standard.
- **Activity log** – It must have some way of recording when someone has been trained or assessed and who it was that did this.
- **Revalidation period** – Include how long they are considered competent before they need to be rechecked.

While all of the above are critical, the most important element is to establish the assessment criteria. These give the framework the level of standardisation to the organisation, and the clear direction required for the individual. The assessment criteria simply tells everyone the level of knowledge/ability/standard that is required. An example is that someone may need to 'identify' a VHF radio, which means they need to be able to recognise a radio versus 'demonstrate' using a VHF radio where you would expect someone to be able to operate it and all its associated functions.

See the supporting forms and documents section at the end of this book, for an example of an assessment unit and assessment criteria.

The assessment criteria provide an important element for the individual, which is critical if you wish all training and assessment to be standard across the organisation and those training and assessing your people.

Competence and staying current and in date

Competence is assessed at any one moment in time. It is important once assessed, they maintain their level of competency and stay in date. Things that can affect their level of competency are:

- **skill fade** – the process of unlearning (forgetting) or becoming unfamiliar with skills and knowledge
- **equipment changes** – the changing of equipment used organisationally means they are no longer competent and familiar with using it
- **procedure/legal/policy changes** – when there is a change in the law or a way of working internally. Competence will need to be rechecked after any change.

Sometimes there is also a legal requirement to reconfirm competence such as rechecking an individual's driving licence or sea survival skills. In these cases, follow the law of the country or state.

The importance of regular training to avoid skill fade

The advantage of skilled trainers and assessors

Whether the organisation has a competence framework or not, there are still many advantages of having a group of trainers and assessors in any organisation.

Put simply, if you can train five trainers a skill, how many people can they then teach over the coming year? **Train one, save many.**

Trainers are key personnel in any organisation in passing on knowledge and skills. They can also pass on key organisational messages and new safety information quickly. Often they are already part of a group or team.

Many organisations use known competent operators to lead training sessions rather than having full-time training teams. The key is to ensure that the group of trainers keep talking to each other, and that they use the same techniques, follow the same procedures, and require the same from the people they train.

Any organisation that has a competence framework for new and existing roles should also aspire to having the same for those that are training and assessing it.

It is also key that the trainer/assessors are checked on a regular basis themselves to ensure standardisation. This can be done in a number of ways including:

- peer verification – one trainer checking another's work
- internal verification – someone who is allocated the role of formally checking the work of the trainer/assessors in the organisation
- external verification – somebody coming in and reviewing the work of a trainer against the standards from outside the organisation.

In all cases, like recording of the training and assessing itself, this should be recorded as a means of quality assuring the work they undertake.

Dedicated trainers can ensure standardised teaching

Unit 6: Equipment

Learning outcomes

6.1 Understand the different types of SAR units.

6.2 Understand the importance and use of personal protective equipment (PPE).

6.3 Understand how first aid relates to SAR.

6.4 Understand the main components of the global maritime distress and safety system (GMDSS).

6.1 SAR units

For an organisation to be a successful SAR provider, a number of resources need to be in place. We have already discussed the human element but there are a number of other areas that need to be suitably resourced.

Having the appropriate SAR units is vital in order to provide the service. The organisation should do a thorough need analysis based on the areas of operation, limitations of service, capability of the boats, prevailing weather conditions and types of incidents that the SAR units will be used for.

This should also be in line with the organisation's concept of operations and strategic performance standards.

The boat you choose will depend on its intended use and location. This will also have an influence on the associated equipment you will need to launch and recover the boat.

The International Maritime Rescue Federation (IMRF) has developed a set of rescue boat guidelines. This is a good reference document when deciding what type of boat would be suited for a SAR service. These can be found at: international-maritime-rescue.org/homerbg.

There are number of suitable rescue craft for different types of rescues, examples are shown below.

All-weather lifeboats (ALBs) are capable of high speed and can be operated safely in all weather. They are inherently self-righting after a capsize and fitted with navigation, location and communication equipment.

Inshore lifeboats (ILBs) usually operate closer to shore than ALBs, in shallower water, close to cliffs, among rocks or even in caves.

Hovercraft can operate in areas such as mudflats or river estuaries that are inaccessible to conventional lifeboats.

Rescue watercraft (RWC) are very versatile for rescue close to the beach and in surf conditions.

6.2 Personal protective equipment (PPE)

What is PPE?

Personal protective equipment, or PPE, is equipment or clothing provided to ensure that a person can carry out their own particular role in comparative safety when it is used or worn correctly.

PPE is only useful when correctly fitted and adjusted. Training is essential. It is the user's responsibility to check that PPE is maintained, cleaned, serviceable for use and is stored correctly.

Maritime PPE

PPE for going to sea is primarily concerned with three main areas of personal safety. They are to keep a person:

- dry
- warm
- afloat.

The organisation should establish procedures to ensure that all equipment being utilised for SAR operations meets the needs of the rescue personnel and those in distress, relevant standards and legislative requirements. The development of equipment should be based on risk assessments that should address potential foreseeable failures.

Safety Helmet

- Provides warmth.
- Provides impact protection.
- The face shield protects from the elements (and from blood during first aid).

Lifejacket

- Provides buoyancy.
- Ensures correct body orientation in the water.
- Offers some impact protection.

Drysuits

- Designed for more extreme conditions.
- User is more likely to enter the water.

Foul-weather clothing

- Usually made up of a waterproof jacket and trousers.
- Not designed for entering the water.

6.3 First aid

Maritime SAR organisations are often the first people on scene to help people in trouble during an incident. This can result in somebody becoming ill or injured.

First Aid is basic medical care which can be administered by trained people with limited equipment. The aims of first aid are to preserve life, prevent worsening of the condition, and promote recovery of the casualty.

SAR personnel should be trained in first aid techniques and be provided with first aid equipment to use in order to deal with these situations when they arise.

Examples of first aid equipment

6.4 Maintenance and care of equipment

The organisation should endeavour to establish a system of maintenance routines for all equipment including:

- identification of safety critical elements and potential operational failures, with specific control measures
- inspection and testing protocols
- maintenance programmes and maintenance records – the crews should be equipped to suit their tasks, roles and responsibilities
- suitable training in order to ensure correct use of the equipment.

6.5 Weather forecasting

Having a means to obtain meteorological information is vital when carrying out rescue boat operations.

Weather station

6.6 Global maritime distress and safety system (GMDSS)

It is important as a maritime SAR organisation that you have an understanding of GMDSS. GMDSS is an internationally agreed set of safety procedures, types of equipment and communication protocols used to increase safety and make it easier to rescue distressed ships, boats and aircraft.

The full implementation of GMDSS on 1st February 1999 marked an important date in maritime history, following on almost 100 years after the first use of wireless technology to aid a ship in distress.

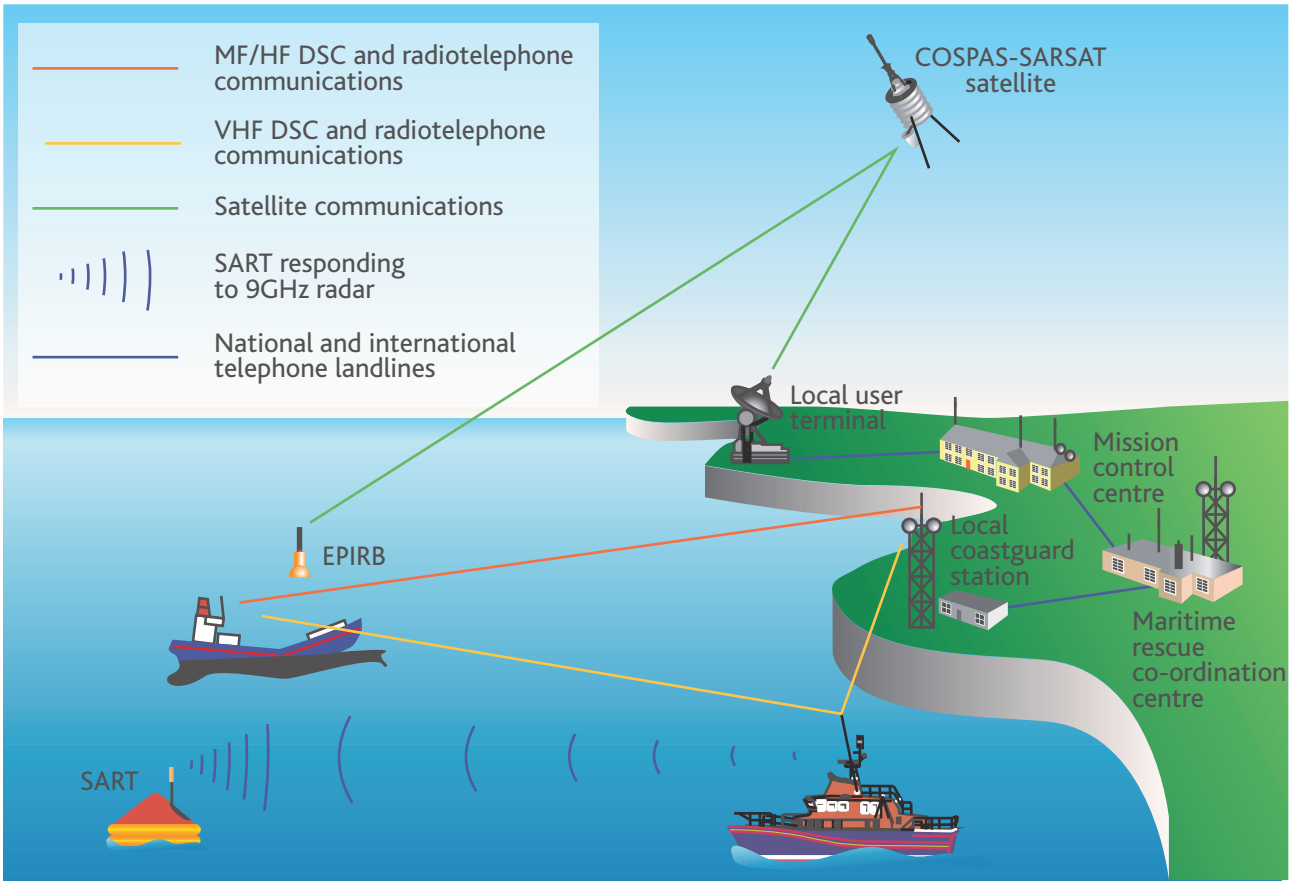
The GMDSS communications system under SOLAS complements the International Convention on Maritime Search and Rescue 1979, which was adopted to develop a global SAR plan. No matter where an incident occurs, the rescue of persons in distress will be coordinated by a SAR organisation and, where necessary, by coordination between neighbouring SAR countries.

With the completion of the SAR plans and the full implementation of GMDSS, ships' passengers now have better safety provisions for incidents at sea.

GMDSS consists of several systems, many of which have been in operation for many years.. The system is intended to perform the following functions:

- alerting, including position determination of the unit in distress
- search and rescue coordination
- maritime safety information broadcasts
- general communications, and bridge-to-bridge communications
- a backup means of distress alerting, and emergency sources of power.

The type of radio required depends upon the ship's area of operation, rather than its tonnage.



Equipment used in GMDSS

There are many types of equipment used as part of GMDSS. The SAR organisation should identify which items are suitable for their requirements. Here are some examples of potential equipment:

Emergency position indicating radio beacon (EPIRB)

These are designed to transmit an alert to rescue coordination centres via the satellite system from anywhere in the world. The original Cospas-Sarsat system used polar orbiting satellites but in recent years the system has been expanded to also include four geostationary satellites. Newest designs incorporate GPS receivers to transmit highly accurate positions, within about 20 metres of the distress position.

Uses: 406MHz EPIRBs transmit a registration number that is linked to a database of information about the vessel via satellite and this will notify the authorities of the distress.

Checks: The serviceability of these items is checked monthly and annually. It has a limited battery shelf life between 2 and 5 years using mostly lithium-type batteries.

Development: Cospas-Sarsat is an international satellite-based search and rescue system, established by Canada, France, the United States and Russia. These four countries jointly helped develop the 406MHz emergency position indicating radio beacon (EPIRB), an element of GMDSS designed to operate with Cospas-Sarsat system. These automatic-activating EPIRBs are now required on:

- ships complying with SOLAS regulations
- commercial fishing vessels
- all passenger ships.

Navtex

Navtex is a small, low-cost and self-contained radio receiver, usually installed on the bridge or the place from where the ship is navigated from. Some units have a printing capability.

Uses: Navtex is an international automated system for instantly distributing maritime safety information (MSI), which includes navigational warnings, weather forecasts and weather warnings, search and rescue notices and similar information to ships.

Checks: A Navtex set should be installed as specified by the manufacturer.

Development: Navtex was developed to provide a low-cost, simple and automated means of receiving this information aboard ships at sea within approximately 370km (200 nautical miles) offshore.

Search and rescue transponder (SART)

Radar SARTs are location beacons that send a homing signal when interrogated by a radar (also referred to as a radar SART). They work on S Band (2.4Ghz) and X band (9Ghz) depending on manufacturer.

Uses: SARTs are normally carried on the ship's bridge or similar convenient place where they are readily accessible.

Checks: SARTs are checked on a monthly basis to ensure correct operation by activating the test facility (the test is a low power transmission). A SART can be checked by briefly activating it using the test facility and subjecting it to one or two passes of the ship's radar. However it is important that the local shore authority and vessels are informed before this takes place. The transmissions from a SART are considered to be a distress call.

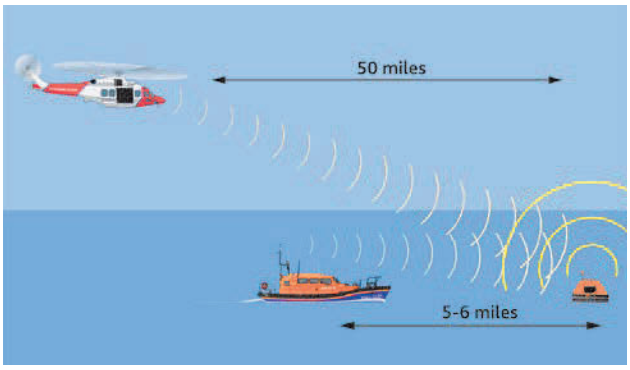
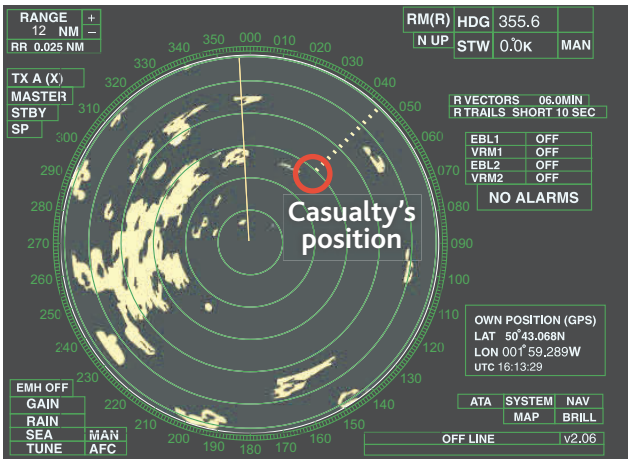


Image showing radar pulses

Developments: When deploying a SART, read the manufacturer's instructions carefully. Once the SART has been switched on it should be attached to the highest available point. Normally this will be achieved by fixing it to a supplied, 1-metre long telescopic pole and positioning it through the liferaft's antenna opening.

If a radar reflector is in place on the liferaft, it must be removed when the SART is deployed as it can reflect radar signals from a search vessel before they cause the SART to react. When abandoning a vessel fitted with its own radar, the radar must be switched off before deploying the SART or the SART will be prematurely activated.

Once a SART has been activated, it will react to a 2.4GHz or 9GHz radar signal, sending back its own transmission. This transmission will be displayed on the radar screen of the rescue vessel as a line of up to twelve 'blips' along the bearing of the SART, with the first echo as the target. The detection range of a SART varies depending upon the height of the radar and the height of the SART. A SAR unit searching for a liferaft can expect to make contact at about 5–6 miles. An aircraft at 915 metres could detect the same SART from about 50 miles.



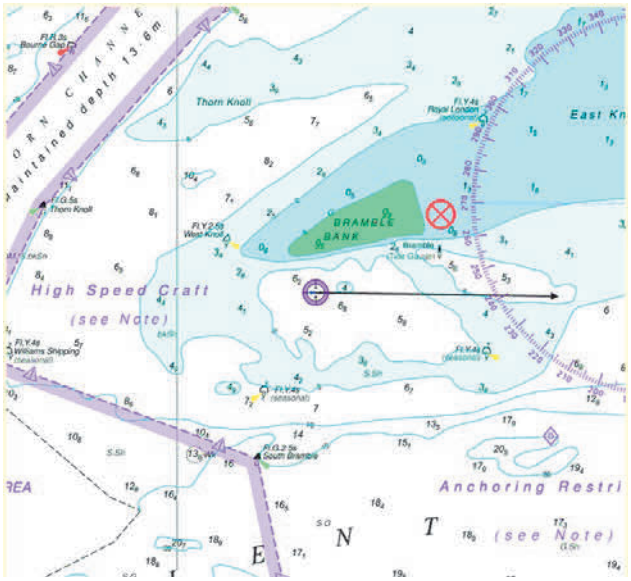
How the SART will show up on radar

Automatic identification system (AIS)

AIS is primarily for identification and tracking of vessels.
The automated identification system transmits data on VHF channels 87 and 88. An AIS SART is able to float and incorporates an onboard GPS that will transmit positional data every minute. Only vessels and shore stations fitted with an AIS receiver will be able to detect an AIS SART.

AIS SART is not a recognised distress signal but a locating aid only.

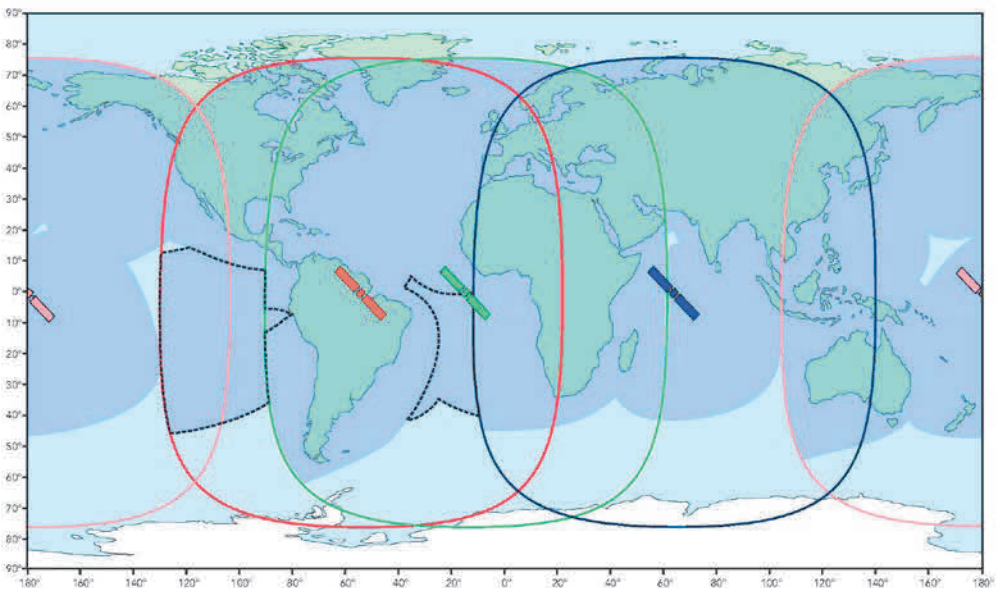
Checks: AIS transponders should be installed as specified by the manufacturer.



An AIS receiver will display a red circle with a cross in it when the AIS transponder is activated.

Inmarsat

Satellite systems operated by the Inmarsat company, overseen by the International Mobile Satellite Organization (IMSO) are also important elements of GMDSS.



Different satellite coverage around the globe.

The types of Inmarsat ship earth station terminals recognised by GMDSS are:

- Inmarsat B, C and F77.
- An updated version of the now redundant Inmarsat A provides ship-to-shore, ship-to-ship and shore-to-ship telephone, telex and high-speed data services, including a distress priority telephone and telex service to and from rescue coordination centres.

SOLAS now requires that Inmarsat C equipment has an integral satellite navigation receiver, or be externally connected to a satellite navigation receiver. That connection will ensure accurate location information to be sent to a rescue coordination centre if a distress alert is ever transmitted.

If you are using satellite technology for communication, such as Iridium, ensure you are up to date with the latest systems and their uses.

Radio communications

Communication equipment is going to be a vital part of providing the service. It should be able to provide two-way communication between the MRCC, SAR unit, any other vessels involved and also with the person(s) in distress.

VHF DF and UHF DF (direction finding) equipment can also be fitted to the SAR unit and can be an asset to locating the person in distress.

Digital selective calling (DSC)

The cornerstone of GMDSS is the technique known as digital selective calling, usually referred to as DSC. Before the introduction of DSC, an operator using VHF would have to call another radio station using the distress, safety and calling channel (Channel 16). On hearing their name, the called station would acknowledge the call and both parties would agree to move to a working channel. This method of communication relies on everyone constantly listening to Channel 16 in case someone wishes to speak to them.

DSC acts more like a telephone pager. Using DSC, a radio operator can now send a digital signal (known as an alert), to a selected radio station before starting any voice transmission. This alert will automatically sound an alarm on the selected radio station's DSC receiver.

Under the SOLAS agreement, GMDSS compulsory-fit ships must be able to:

- transmit ship-to-shore alerts by two separate and independent systems, each using a different radio-communication service
- receive shore-to-ship distress alerts
- transmit and receive ship-to-ship distress alerts and bridge-to-bridge communications
- transmit and receive SAR coordinating communications and on-scene communications
- transmit and receive homing or locating signals
- transmit and receive maritime safety information
- transmit and receive general shore-based radio communications.

MMSI numbers

Transmission via DSC is achieved by giving every radio station a unique nine-digit identification number, known as its maritime mobile service identity number, or MMSI, which works in the same way as a telephone number. By including a station's MMSI number in the alert, only that station's receiver will sound an alarm. All other DSC receivers within range will remain silent.

DSC distress alerts

If the alert is sent to 'all stations' (as in a distress alert), then all DSC receivers within range will sound an alarm and store the details of the alert in the receiver's memory. On hearing a DSC distress alert the VHF will automatically go to Ch16, and the operator doesn't have to do anything.

GMDSS telecommunications equipment should not be reserved for emergency use only. The International Maritime Organization encourages mariners to use GMDSS equipment for routine as well as safety telecommunications.

Electronic navigation

SAR units can be fitted with numerous electronic aids to navigation. They can work separately or can be combined to give us a host of tools to aid safe navigation.

Global positioning system (GPS) or Global navigation satellite system (GNSS)

The most common way for the modern navigator to fix a position will be with GPS/GNSS.
The GPS/GNSS uses satellites in space to triangulate, as long as it can receive the signals, it will give a very accurate position.

Chart plotter

A chart plotter is simply an electronic form of the paper charts. The plotter has taken this information and displays it on a monitor. The chart plotter is linked to a GPS receiver, either internally or remote. Once your location is detected by the GPS, your current position will be shown on the screen. When moving, your position will be constantly updated indicating your direction and speed.

Electronic charts are used more and more frequently onboard SAR units, however care should be taken as they are not infallible and errors can happen. For this reason paper charts and other means of cross-checking the navigational data must still be utilised to confirm navigational accuracy.

Depth sounder

When navigating, it is imperative that we know the depth of water below the SAR unit. Depth sounders can be used to monitor depth. They work by using pulses of sound waves directed downwards to measure the distance to the bottom. The depth sounders system consists of a transmitter and receiver on the hull of the boat, and a display to indicate the received information.

Radar

Radar on SAR Units is used for navigation, collision avoidance and casualty detection. Radar detects boats, buoys and land masses and displays this to the operator. When linked to a GPS receiver this allow ranges and bearings of targets to be monitored and possible collisions detected.

As with any computer the more familiar you are with it, the more you can achieve. All this equipment gives us large amounts of information. If fitted, it is imperative that the SAR organisations ensures that this equipment is properly fitted, maintained and appropriate training is given to the operatives.

Unit 7: Facilities

Learning outcomes

7.1 Understand some of the factors to consider when establishing an operating base.

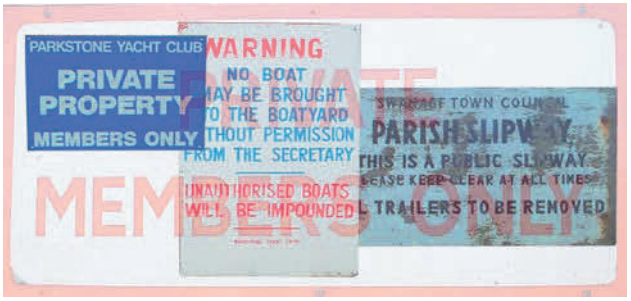
7.2 Understand some of the requirements for launch and recovery of the SAR unit.

7.1 Operational facilities

The location of the SAR base and services should be considered as part of the concept of operations and in line with the strategic performance standards. There are a number of considerations that will determine where the service will be located:

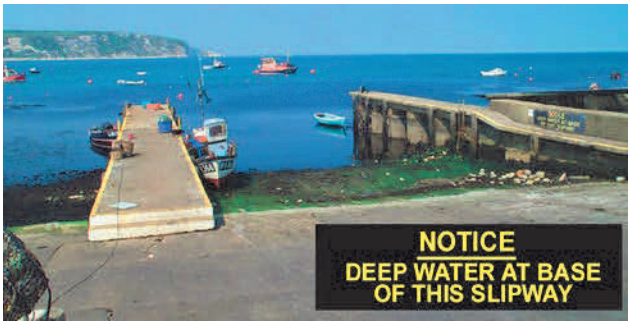
Anjos do mar (Brazil)

- ease of launch and recovery of the SAR unit
- existing facilities
- cost-effective solutions
- site security
- access and egress to the land
- long-term availability of land
- storage facilities
- site ownership



- slipway construction

- slipway size



- tidal effects on launch site

- pontoon construction

- other users.

7.2 Launch and recovery

Depending on the type of SAR unit, there can be a number of associated launch and recovery methods.

It is recommended that the SAR organisation identifies the requirements for launching and recovering their SAR unit and carries out any necessary training for personnel operating this equipment.

Be aware that launch sites can change depending on a number of factors. It is recommendend that suitable alternative sites to launch and recover are identified.

When identifying suitable alternative launch and recovery sites, the following should be taken into consideration:

- access
- tide constraints
- weather/sea state
- ground (such as mud, pebbled or sandy beaches).

Different examples of launch and recovery methods

Unit 8: Operating procedures

Learning outcomes

8.1 Understand the importance of having procedures.

8.2 Understand what type of information should be contained in a standard operating procedure (SOP).

8.3 Understand the use of SMEAC (situation, mission, execution, administration, command and communication) for briefing.

8.4 Understand what a rota is.

8.5 Understand some of the limiting factors that can affect an ability to provide a SAR service.

8.1 Why have procedures?

Having set procedures in place for your organisation helps to ensure consistency, both in the delivery of your service and the expectations of your employees. These procedures should be set before the delivery of your service begins, and reviewed and updated on a regular basis. Most organisations will aim to review them yearly.

In order for procedures to be effective, they must be sensible and easy to understand. Personnel should be given access to the procedures and trained on the most important aspects of them.

8.2 Standard operating procedures (SOPs)

SOPs give guidance on process actions and protocol. Some of the procedures that need to be considered are:

- launch and recovery procedures
- navigational policy
- operation of machinery
- any seamanship tasks.

Emergency action plans

By the nature of responding to SAR incidents, things do not always go to plan. It is recommended that there are contingency plans for various possible situations.

These could include:

- alternative recovery sites
- identified casualty drop-off points
- dealing with loss of communication
- machinery or equipment failure
- injury or illness to a crew member.

See the supporting forms and documents section at the end of this book, for an example of a completed SOP and an SOP template.

Use of check cards

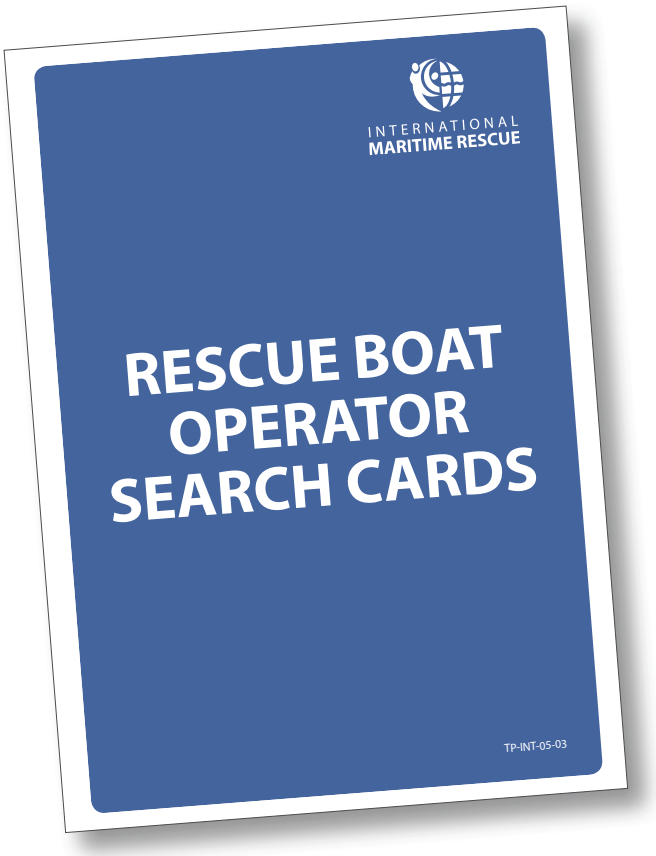
In order to develop an effective and standardised approach to responding to SAR situations, the use of check cards as aide memoirs can really help with following set procedures. This can ensure that every member of the team and organisation understands the protocols to follow.

It is not intended that these are a substitute for regular training and exercising, but they can be used during training and operations to familiarise themselves with the procedures required.

Some of the check cards that can be covered include:

- SAR cards
- casualty care cards
- briefing cards
- basic operators' manuals (radio/GPS/direction finding).

It is important that the check cards are regularly reviewed and updated as information changes.



8.3 Briefing and debriefing models

Briefings must provide the essential items of information, including what is to be done, who is to do it, how it will be done, where and when it will be done. Bear in mind this briefing may have the luxury of a boathouse and well-prepared briefing board, but it can equally be delivered in a wheelhouse or open beach site.

Giving a SMEAC Briefing

A briefing must be given concisely, clearly, confidently and in the correct sequence. It must provide the essential items of information including:

- what is to be done
- who is to do it
- how/where/when it will be done.

SMEAC is an acronym which breaks into the following headings:

S **Situation**

A brief description of what is happening/happened:

• Ground • Hazards • Weather • Other agencies
• Event

M **Mission**

What is the actual objective of the task?
The mission brief should be short, using simple language that everyone can understand:

• Our mission is ... • In order to ...

E **Execution**

Tasking: Assign jobs/roles and team allocation.

Equipment: The equipment required and allocated.

Limitations: The factors that may restrict options.

Emergency plan: The plan in the event of an emergency or non-standard operation:

• General outline • Grouping/tasks

A **Administration**

What administrative arrangements and logistic support have been put in place:

• Dress/PPE • Equipment • Food/Water
• Medical • Transport
• Casualty routine/Evacuation

C **Command and communications**

Issue and clarify call signs and radio frequencies and identify the chain of command and communication:

• Type • Call signs • Lost comms • Ops normal
• Confirmation of understanding • Questions

Post-incident assessment

A key element of organisational risk management is the timely and effective assessment of incidents and accidents. Incidents and accidents should be investigated to determine causality. Organisations should employ structured methods to identify the causes of failures and to implement lessons and changes that may prevent reoccurrences, such as:

- near misses
- accident reports
- lessons learned.

Incident debriefing

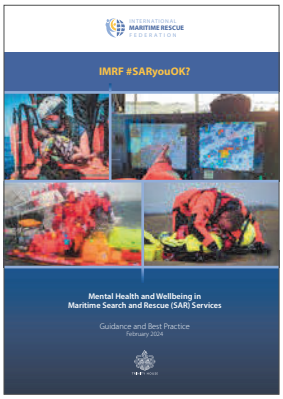
The power of any debrief should never be, but often is, underestimated.

Debriefing helps us to:

- ensure the welfare of our team at the end of any service, training or exercise
- ensure the equipment is accounted for, operationally ready or defect reported
- ensure any lessons learnt from the event are captured
- develop the team involved to perform even better next time.

Personnel welfare

Maritime SAR personnel can face many psychological challenges. The IMRF have developed the #SARyouOK? initiative to support the mental wellbeing of personnel in the Martime SAR space.



For more information and resources, see the following link: https://www.international-maritime-rescue.org/saryouok.

8.4 Rotas

In order to provide an efficient SAR service it is vital that there is availability of personnel to respond to an incident at short notice during different times of the day and that the SAR service has adequate and trained personnel.

It is up to the organisation to have an appropriate system in place to identify this availability.

The best way to manage this is through a rota system. This rota could be filled in on a weekly basis to identify any short-comings and provide any necessary contingency plans.

8.5 Service limitations

It is vital that there is an understanding of the limitations of lifeboats to provide a search and rescue service. This can be based on a number of factors. Some of the factors to take into consideration are:

- capabilities of the boat
- sea state
- weather
- likely duration of service
- distance to casualty from lifeboat station
- visibility and onset of darkness
- competencies of crews
- most likely type of casualty.

It is recommend that guidelines are put in place that can be used for reference if there is any doubt as to whether the service should be launched and, likewise, if there are technical limitations due to machinery failure or availability of personnel to crew to lifeboat.

Welfare of the crews should also be considered and arrangements should be made available depending on expected duration of the service and impact on resources.

Unit 9: Service administration

Learning outcomes

9.1 Understand the importance of adequate service administration.

9.2 Understand the role of service paperwork.

9.3 Understand why lessons learned help develop a service.

9.1 What is service administration

The delivery of a Maritime SAR service will require a certain amount of administration. From an operational perspective, it is important to collect data on the amount of incidents that your organisation will deal with, and what type they are.

This is to gain an understanding of the kind of work you can expect to be involved in and enable you to make sure they have the appropriate equipment, training and procedures in place to assist them.

It is also important to know roughly how many incidents you are dealing with, so that you can make sure you have the correct amount of assets in the right areas. The way which people use the sea can change over time, and collecting data can help you monitor this.

The information you collect can also be used for publicity purposes. You may wish to inform the public of specific dangers which you find your organisation deals with on a regular basis, or publicise the fact that you have dealt with a certain number of incidents this year. Collecting data will allow you to do this.

9.2 Information and incident logs

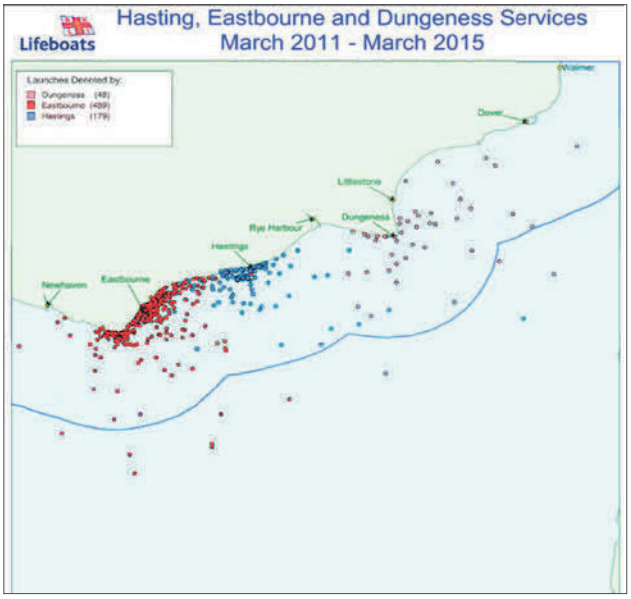
Incident information

Incident data could be collected from rescue boat crews. This could be done either through an electronic return or on paper incident forms. The returns are entered, processed, checked to provide vital statistics. This incident data can provide the basis for the statistics for an annual review.

Key statistics by rescue boat stations should include launches, lives saved, people rescued, crew hours at sea and any other relevant information.

Informing the service

By using the data within an incident information form, we can extract the locational information and plot it onto a map/chart. The example below shows various stations and all their casualty locations.



As well as creating maps, the data can provide the organisation with operational statistics to ensure thay have the right services in place.

Monitoring key performance indicators

We are able to work out whether or not we are meeting our key performance indicators using the data we collect.

By collecting data and reviewing it on a regular basis this can allow an organisation to verify how they are performing against their preset strategic performance standards.

See the supporting forms and documents section at the end of this book, for an example of an incident report.

Strategic performance standards

It is vital for an organisation to have some strategic performance standards to aim for. These allow the organisation to measure their performance in order to show progress towards a desirable outcome. The strategies determine the organisation's effectiveness and operational efficiency.

Strategic performance standards should:

- provide an objective way to see if the strategy is working
- offer a comparison that gauges the degree of performance change over time
- focus personnel's attention on what matters most to success
- allow measurement of accomplishments
- provide a common language for communication
- be valid, to ensure measurement of the right things
- be verifiable, to ensure data collection accuracy.

Strategic performance standards are invaluable when working towards a desired outcome. It is important for the organisation to select the indicators wisely to make sure they are meeting the required standards. Here are some steps to think about when setting out some strategic performance targets:

- describe the intended results
- understand alternative measures
- select the right measurements for each goal/objective
- set targets and thresholds
- define and document selected performance measures
- collect and monitor performance
- analyse and draw conclusions
- improve performance.

9.3 Lessons learned

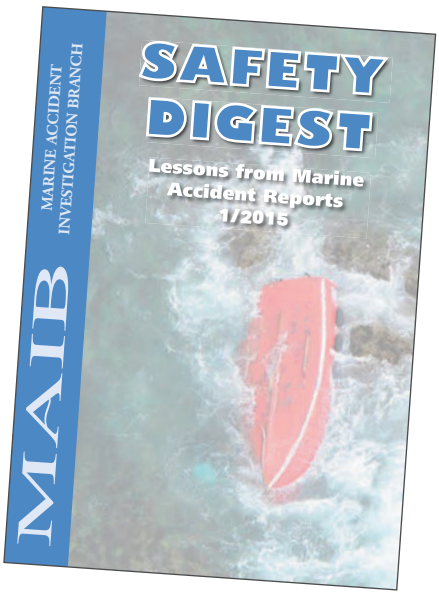
It is important that a SAR organisation is continually looking for ways to improve its safety and ways of operating. One way of doing this is regularly keeping people informed of any safety issues or lessons learned.

A lesson learned is knowledge or understanding gained by experience. The experience may be positive, as in a successful test or mission, or negative, as in a mishap or failure.

A lesson must be:

- **significant** – it has a real or assumed impact on operations
- **valid** – it is factually and technically correct
- **applicable** – it identifies a specific design, process, or decision that reduces or eliminates the potential for failures and mishaps, or reinforces a positive result.

As an example, in the UK, the Marine Accident Investigation Branch (MAIB) regularly publishes lessons learned in the marine industry.



Example of MAIB publication

Conclusion

This guide has been designed as an aid to the implementation of a maritime search and rescue service.

Every organisation is different in terms of needs, resources and goals. The guide can be adapted to suit individual needs as required.

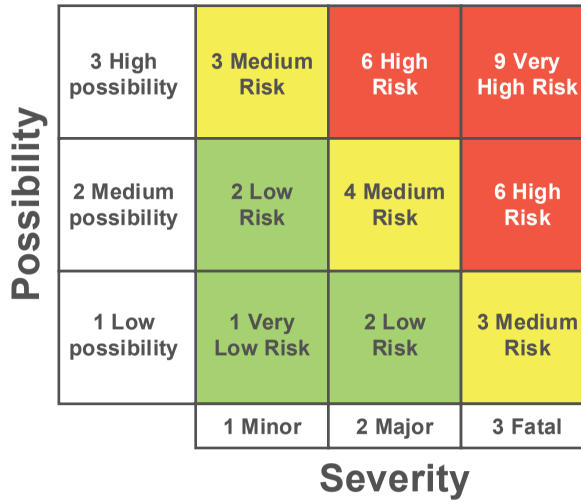
Supporting forms and documentation

The blank templates on the following pages can be supplied as electronic files.

Maritime SAR Service Implementation
Risk Assessment

Key terms explained	
Hazard	Something that can cause harm
Risk	Possibility of the hazard causing injury multiplied by the severity of the injury
Control measure	A safety system that is put in place to reduce the risk of injury

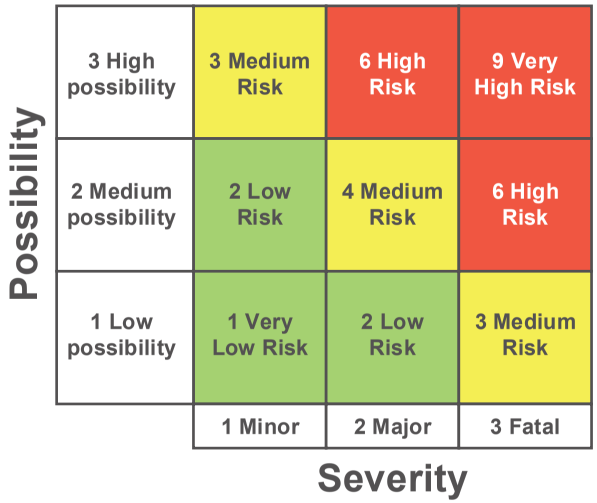
Risk assessment details			
Location			
Type of risk assessment			
Name of risk assessor(s)			
Date of risk assessment		**Suggested review date**	



Hazard	Who is at risk	Initial risk (before control measures)		Control measures already in place	Additional Control Measures	Remaining risk (after control measures)	
		Possibility / Severity	Risk			Possibility / Severity	Risk
		Possibility / Severity	Risk			Possibility / Severity	Risk
		Possibility / Severity	Risk			Possibility / Severity	Risk
		Possibility / Severity	Risk			Possibility / Severity	Risk

Maritime SAR Service Implementation
Risk Assessment

Key terms explained			
Hazard	Something that can cause harm		
Risk	Possibility of the hazard causing injury multiplied by the severity of the injury		
Control measure	A safety system that is put in place to reduce the risk of injury		
Risk assessment details			
Location	Poole Harbour		
Type of risk assessment	Inshore Lifeboat Service Implementation		
Name of risk assessor(s)	John Smith		
Date of risk assessment	15/01/16	**Suggested review date**	15/01/17



Hazard	Who is at risk	Initial risk (before control measures)		Control measures already in place	Additional Control Measures	Remaining risk (after control measures)	
Drowning	**All crew**	Possibility 3 / Severity 3	Risk 9	Lifejackets to be worn afloat at all times. Carry suitable first aid kit aboard the vessel.	First aid trained personnel to be on board.	Possibility 2 / Severity 2	Risk 4
Fire on board	**All crew**	Possibility 3 / Severity 2	Risk 6	Ensure all firefighting equipment on board is in good condition and in a usable condition. Ensure flammable liquids and substances are stored in appropriate storages and containers. No smoking is permitted on board.	Ensure all personnel on board are trained and briefed in fire emergency procedures.	Possibility 1 / Severity 2	Risk 2
Collision with Submerged objects/uncharted objects/other vessels/grounding	**All crew**	Possibility 3 / Severity 3	Risk 9	All crew to keep a proper look out (According to IRPCS rule 5), to be briefed on identifying hazards and appropriate actions. The vessel must be driven at a safe speed at all times. (According to IRPCS rule 6) The helm is to ensure all crew / passengers should be holding on and in a stable and safe position before power is applied.	Ensure all charts have appropriate updates. (Notice to mariners)	Possibility 2 / Severity 2	Risk 4

Competence training (CoBT) development plan example

ALB Helm Development Plan

		sub-units	intervals
ACTIVITY 1	Safety, Health and Environment		
Unit 1.1	Personal Protective Equipment (PPE)	-1	3 yr
Unit 1.2	Manual Handling	-1	3 yr
Unit 1.3	Hazardous Substances	-1	3 yr
Unit 1.5	Personal Safety and Wellbeing	-1 -2	Current
Unit 1.6	Incident Reporting	-1	Current
Unit 1.7	Risk Assessment	-1	Current
Unit 1.8	Noise & Vibration	-1	3 yr
Unit 1.10	Fire Safety	-1	3 yr
ACTIVITY 2	Personal Competencies		
Unit 2.1	Roles and Responsibilities	-1 -2	3 yr
Unit 2.2	SAR Unit Fire Fighting	-1 -2	3 yr
Unit 2.3	Emergency and Survival Procedures	-1 -2	3 yr
Unit 2.4	Pyrotechnics	-1	3 yr
Unit 2.5	SAR Unit Layout and Equipment	-1 -2	3 yr
ACTIVITY 3	Launch and Recovery		
Unit 3.4	Manage Launch and Recovery	-1	3 yr
ACTIVITY 4	SAR Unit Handling & Seamanship		
Unit 4.1	Watchkeeping	-1 -2 -3	3 yr
Unit 4.2	Rope Handling	-1	3 yr
Unit 4.4	Manage Anchoring	-1	3 yr
Unit 4.6	Manage Towing	-1	3 yr
Unit 4.9	SAR Unit Handling	-1 -2	3 yr
Unit 4.12	Helicopter Operations	-1 -2	3 yr
ACTIVITY 5	Search and Rescue		
Unit 5.3	Manage Search and Rescue	-1	3 yr
ACTIVITY 6	Operational Communications		
Unit 6.1	Short Range Communications	-1 -2	Current
Unit 6.2	Long Range Communications	-1	Current

*__Non-essential criteria.__ These units are attached to certain development plans and do not count towards overall competence and SoC. They are added skill sets that the RNLI wishes to record or may be required by the location. Either the whole unit or specific sub-unit will be identified.

		sub-units	intervals
ACTIVITY 7	Navigation		
Unit 7.1	Navigation	-1 -2 -3 -4	3 yr
Unit 7.2	Electronic Navigation	-1 -2 -3	3 yr
Unit 7.3	RADAR	-1 -2	3 yr
Unit 7.4	Navigation Command	-1	3 yr
Unit 7.5	Local Knowledge	-3	3 yr
ACTIVITY 9	Propulsion and Auxiliary Systems		
Unit 9.1	Operate Main Machinery	-1 -2	3 yr
ACTIVITY 13	Fitness Standards		
Unit 13.1	Lifeboat Aerobic test	-1	5 yr
Unit 13.2	Lifeboat Strength test	-1	5 yr
ACTIVITY 14	Behaviour, Commitment & Currency		
Unit 14.1	Behaviour & Commitment	-1	Current
Unit 14.2	Lifeboat Competence Currency	-4	5 yr
ACTIVITY 15	The Media		
Unit 15.1	Media Awareness	-1	3 yr
Unit 15.2	Camera Operations	-1	3 yr
ACTIVITY 17	Command Passouts		
Unit 17.1	Command Operational Passout	-1	5 yr
Unit 17.2	Severn - Coxswain & Mechanic Passouts	-1 -2	5 yr
Unit 17.3	Tamar - Coxswain & Mechanic Passouts	-1 -2	5 yr
Unit 17.4	Shannon -Coxswain & Mechanic Passouts	-1 -2	5 yr
Unit 17.5	Trent -Coxswain & Mechanic Passouts	-1 -2	5 yr
Unit 17.6	Mersey -Coxswain & Mechanic Passouts	-1 -2	5 yr
Unit 17.7	Tyne -Coxswain & Mechanic Passouts	-1 -2	5 yr
Unit 17.8*	Passage Coxwain Passouts	-1	5 yr
Unit 17.9*	Relief Coxswain - Carriage Ops Passouts	-1	5 yr
Unit 17.10*	Relief Coxswain - Slipway Ops Passouts	-1	5 yr
ACTIVITY 19	Qualifications for Audit		
Unit 19.2*	Commercial Vessel Qualifications	-1 -2	5 yr
Unit 19.3*	External Medical Certificates	-1	5 yr
Unit 19.3*	External Medical Certificates	-2	2 yr

Unit 5.2-1 Plan Search and Rescue

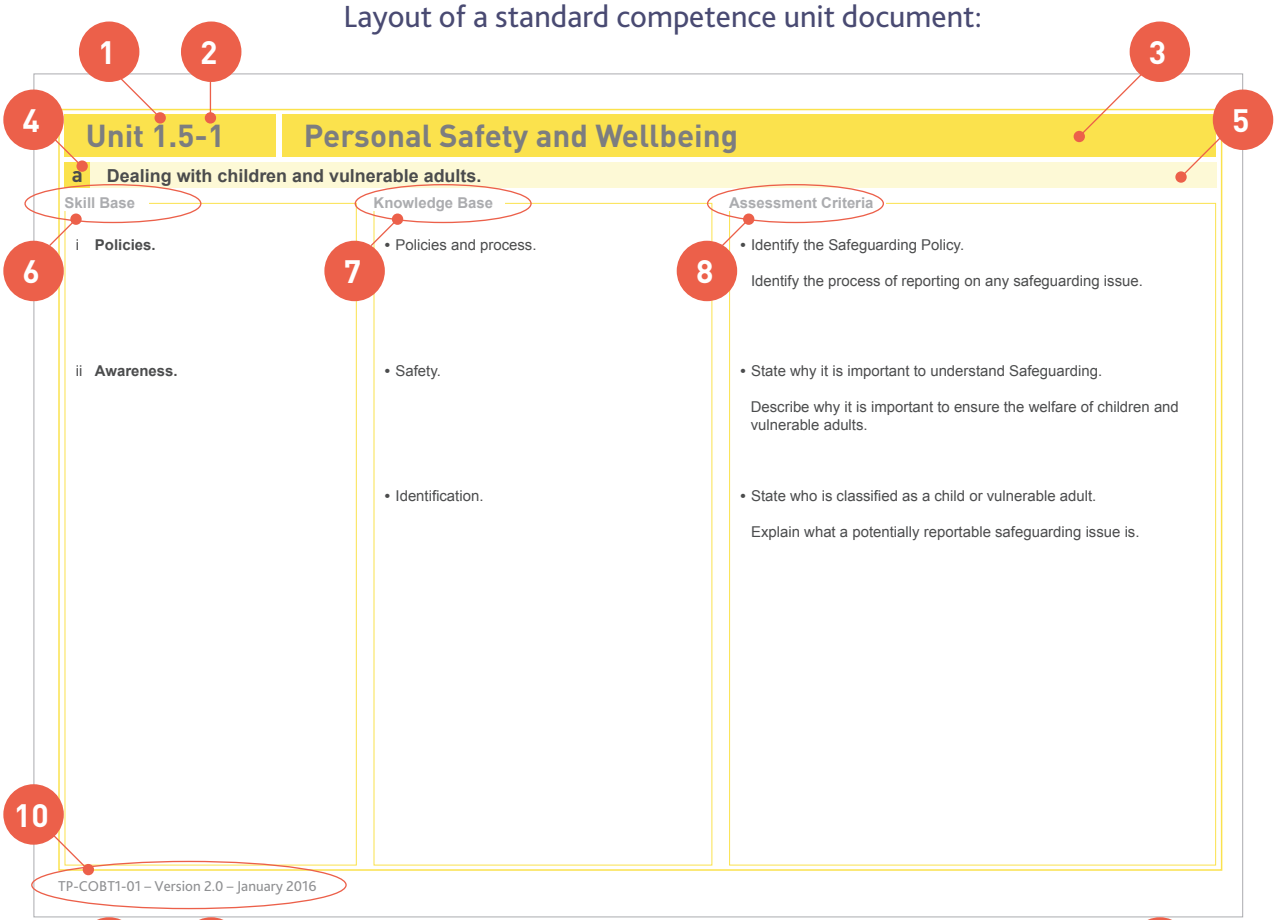
b Plan search and rescue.

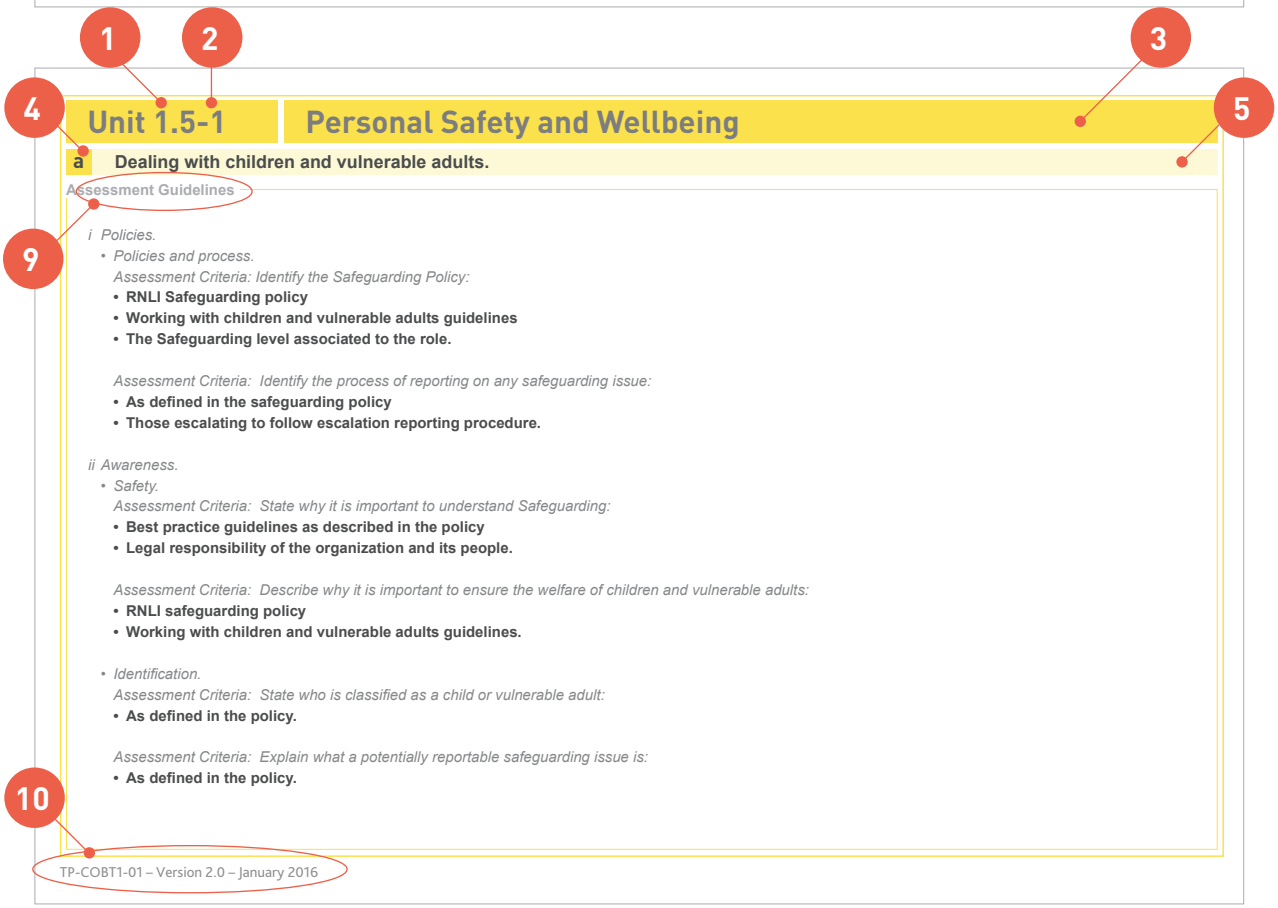
Skill Base	Knowledge Base	Assessment Criteria
i **SAR planning skills.**	• Plotting the position of a casualty.	• Demonstrate the ability to plot a drift start position and commence search position on charts and electronic navigation systems.
	• Plotting the datum position.	• Demonstrate the plotting of a datum position on paper / electronic charts.
	• Choosing a search pattern.	• State the factors that determine the choice of search pattern. State further factors that might affect a successful search.
	• Plotting / Setting-up a search pattern.	• Demonstrate how to plot/set-up a search pattern on paper/electronic charts using information from the SAR check cards.
	• Planning a search pattern.	• Explain the checks that should be made prior to starting a search.

CoBT assessment criteria example

Example of lifesaving competence standards

Layout of a standard competence unit document:





Format and Contents of a unit:

All Competence unit files contain the same fields, the items listed below are a reference to those highlighted on the example of the document for Unit 1.5-1, task 'a' shown on the previous page.

1. **Unit number:**

   This is the number identified in the development plan for operational roles. The number may be unique to one role or be listed in a number of development plans. The first number will always correspond to the number of the associated activity, the example shown indicates that the unit is associated with Activity 1; Safety, Health and Environment.

2. **Sub-unit number:**

   This is also the number identified in the development plan. In the example, the numeral 1 indicates that the information contained in the displayed unit is generic and is required by everyone needing the unit for their role. This number will appear on all unit files even when there are no additional sub-units.

3. **Unit name:**

   This is the specific unit of competency. The example indicates 'Personal Safety and Wellbeing'.

4. **Task reference:**

   Task references will always be a letter and they will always appear in alphabetic order. In the example 'a' is shown. Unit 1.5-1 also has additional tasks labelled b, c and d.

5. **Task sub-title:**

   The task sub-title indicates the specific topic within the context of the full unit. In the example this is 'Dealing with children and vulnerable adults'. Other topics within the sub unit relate to dealing with violence and conflict, mental health and wellbeing as well as personal protection.

6. **Skill base:**

   This identifies the actual skills required. In the example, the skills requested relate to the understanding of policies and awareness relating to children and vulnerable adults. Each skill base statement is identified by a Roman Numeral, i, ii, iii, iv, v etc.

7. **Knowledge base:**

   A specific sub-portion of the unit that details the knowledge required to achieve the skill. Generally actions or procedures. In the example, specific knowledge of policies and processes, safety and identification will be required to achieve competence.

8 Assessment criteria:

This details how the unit will be trained and assessed for competence. Individuals will be required to meet one of the following five states of competence.

Identify:	The process of recognising something and understanding its existence / location.
State:	List what is requested, a definitive and concise answer, generally objective.
Describe:	To give a simple overview of the defined item / process.
Explain:	To give a clear account including causes and reasons.
Demonstrate:	To practically complete the skill or method using an object, (Competence shown through knowledge, attitude, ability and appreciation of the risks and benefits).

9 Assessment guidelines:

In terms of document structure, those that have access to the assessor guidelines will always find these contained on the page following the page containing the Skill, Knowledge and Assessment Criteria fields and will display only the guidelines relating to the previous page.

The skill and knowledge statements along with the assessment criteria will be used as a reference for the Assessor. They are displayed in grey italisied print and will be followed immediately by the associated guidelines.

The assessor guidelines, whilst not always stating the answer, gives the trainer and or assessor guidance on what to measure success by or reference to.

10 Version control:

Version control is done centrally. The most current and approved published document will be available on the database and published with the version data here.

Specialist Criteria:

Criteria that is note worthy due to its specific nature, such as fitness testing or location / equipment specific criteria, will be identified in green italic writing and will only apply to roles identified in the document and as such applied as a competence standard.

Standard operating procedure template

STANDARD OPERATING PROCEDURE	
(Insert photo here)	**SOP Title**

Validation	
Prepared by	
Validated by	
ID Number	
Last updated	
Review date	
Pages	

Objective

Reference Documentation

Checklist	

Hazards	

Safety, Health and Environment					


Caution


Caution

Standard operating procedure example

RNLI STANDARD OPERATING PROCEDURE

Post Capsize

Validation	
Prepared by	Operations Manager (Lifeboats)
Validated by	Lifesaving Services Manager
ID Number	85-SOP-2.3-02
Last updated	April 2016
Review date	Annually
Pages	2

Objective

To ensure the correct operation of the righting system and restarting of the Atlantic 85 Lifeboat after capsize.

Reference Documentation
Crew Members Handbook
Atlantic 85 Manual

Checklist	☒
SOP communicated and understood by all?	
Appropriate PPE identified /specified?	

Hazards

Weather and sea conditions	
Entrapment	

Safety, Health and Environment

Righting Procedure

- Account for all personnel
- Assist any persons trapped underneath the Lifeboat to a safe exit; this will usually be easiest from the bow area
- If underneath the Lifeboat, and it is safe to do so, deploy the sea anchor using the release attached to the sea anchor bucket and then exit from underneath the Lifeboat
- Group all personnel together at the stern of the Lifeboat
- If not already released, use the remote release located on the starboard sponson (this is now on the left hand side as the Lifeboat is inverted) to deploy the sea anchor
- Release either of the two orange swim lines and swim them out to their full length directly astern of the Lifeboat, positioning the crew at the extreme end of the line away from the boat
- Operate **ONE** of the two righting rings located on the transom
- Maintain position at the end of the swim line and wait for the Lifeboat to right
- In the event of the Lifeboat not righting after **1 minute** activate the second righting bottle using the remaining ring
- Once righted the crew should regain access to the boat using the handles on the aft legs of the bag frame and make their way round the outside of the frame to the after deck. The engine hoods should not be used as they may be loose, and access over the engines is very difficult due to their size
- The last crew to board should bring with them the swim line; this should be secured to the cleat on the bag frame

Note: The righting bag should be left inflated until the Lifeboat has been safely recovered at station.

Engine Starting Procedure

- Leave the fast/idle warm up levers fully down – the engine management system will control the start-up RPM and idle speed
- Prime both engines using the fuel primer bulbs
- Check both engine hoods are secure
- Attempt to start ONE engine. If not successful try starting OTHER engine
- The trim and tilt system can now be reset after righting post capsize by pushing the trim reset button located on the forward end of the breaker box
- Using some forward movement recover the sea anchor
- Inform HMCG of the Lifeboat's situation. If difficulty is experienced or the VHF aerial is broken then the emergency aerial should be rigged

SAR incident report form

Search and Rescue Incident Report Form

General Information			
Day (Circle): Monday / Tuesday / Wednesday / Thursday / Friday / Saturday / Sunday			
Date: Day / Month / Year	**Time**: ……	**Special Holiday:** Yes / No	
Location:	☐ Coast/shore/beach	☐ At sea ☐ Inshore	☐Harbour/dock/marina/port
Coordinates: (longitude & latitude or description ……			

Wind	Visibility	Water Depth
Beaufort scale: (see guidance): ……	☐ Very poor ☐ Moderate ☐ Poor ☐ Good	☐ Under 1.5m ☐ 11 to 100m ☐ 1.6 to 10m ☐ Over 100m

Type of Rescue/Search		Activity		
☐ Rescue	☐ Recovery	☐ Ferry transport	☐ Swimming	☐ Fishing
☐ Datum search	☐ Area search	☐ Commercial shipping	☐ Recreational boating	
☐ Shore search	☐ Towing	Other……....		

Injuries		Cause of Incident	
☐ Fatal	☐ Serious	☐ Not trained/inexperienced	☐ Vessel not fit for purpose
☐ Minor	☐ No injuries	☐ Adverse weather/sea conditions	☐ Machine/equipment problems
Number of casualties: ……..			Other……..

Incident Details - Please explain what happened:

Casualty Details 1: (Complete for each casualty – if more than one complete on the 2nd page)				
Name: …….....			**Gender:**	☐ Female ☐ Male
Home Town:……			**Age**:……	☐ Conscious ☐ Unconscious
Outcome	☐Conscious walking	☐Conscious hospital	**CPR given?**	☐ Yes ☐ No
	☐ Dead at scene	☐Unconscious hospital		

Casualty 2 Details

Name: ……..... **Gender:** ☐ Female ☐ Male

Home Town:…… **Age**:…… ☐ Conscious ☐ Unconscious

Outcome ☐Conscious walking ☐Conscious hospital **CPR given?** ☐ Yes ☐ No

☐ Dead at scene ☐Unconscious hospital

Casualty 3 Details

Name: ……..... **Gender:** ☐ Female ☐ Male

Home Town:…… **Age**:…… ☐ Conscious ☐ Unconscious

Outcome ☐Conscious walking ☐Conscious hospital **CPR given?** ☐ Yes ☐ No

☐ Dead at scene ☐Unconscious hospital

Casualty 4 Details

Name: ……..... **Gender:** ☐ Female ☐ Male

Home Town:…… **Age**:…… ☐ Conscious ☐ Unconscious

Outcome ☐Conscious walking ☐Conscious hospital **CPR given?** ☐ Yes ☐ No

☐ Dead at scene ☐Unconscious hospital

Casualty Details 5

Name: ……..... **Gender:** ☐ Female ☐ Male

Home Town:…… **Age**:…… ☐ Conscious ☐ Unconscious

Outcome ☐Conscious walking ☐Conscious hospital **CPR given?** ☐ Yes ☐ No

☐ Dead at scene ☐Unconscious hospital

Casualty Details 6

Name: ……..... **Gender:** ☐ Female ☐ Male

Home Town:…… **Age**:…… ☐ Conscious ☐ Unconscious

Outcome ☐Conscious walking ☐Conscious hospital **CPR given?** ☐ Yes ☐ No

☐ Dead at scene ☐Unconscious hospital

Casualty Details 7

Name: ……..... **Gender:** ☐ Female ☐ Male

Home Town:…… **Age**:…… ☐ Conscious ☐ Unconscious

Outcome ☐Conscious walking ☐Conscious hospital **CPR given?** ☐ Yes ☐ No

☐ Dead at scene ☐Unconscious hospital

SAR incident report guidance notes

The incident report form should be used to record any incidents that the SAR organisation responds to.
The following information needs to be recorded:

- day, date and time, and write down if it is a special holiday (write the time in 24-hour format)
- location of incident
- weather
- cause of incident – provide grid reference if available and name of location
- what activity the casualty was doing prior to the incident
- cause of the incident and method of rescue
- any injuries
- a summary of the incident detail
- all casualties' details – including any treatment given.

For each incident, fill in a new form (please complete in pen).

The form is only intended as a guide and the organisation can adapt it to individual requirements. The following website gives some guidance on some of the information that could be included:

nationalwatersafety.org.uk/member/projects/info/wg0510_waid3.pdf

SMEAC briefing template

SITUATION: S

- Ground:
- Hazards:
- Weather:
- Other agencies:
- Event:

MISSION: M

- Our mission is:
- In order to:

EXECUTION: E

- General outline:
- Grouping / Tasks:
- Emergency Plan:

ADMINISTRATION: A

- Dress:
- Equipment:
- Food / Water:
- Medical:
- Transport:
- Casualty routine / Evacuation:

COMMAND, COMMUNICATION & CONFIRMATION: C

- Type:
- Call signs:
- Lost comms:
- Frequency/Talkgroup:
- Ops normal:
- Confirmation of understanding:
- Questions?

RNLI lessons learned example

Safety Digest

January/February/March 2015 **SAFETY –** GET ONBOARD

RNLI Safety Priorities

We have a fantastic reputation for keeping people safe when they are at sea. We are not quite as good at keeping our own people safe as they go about their duties. We want to change that and create a **world class proactive safety culture** within the RNLI. This means, instead of reacting after something's already happened, being proactive and looking for things before they happen; with the aim of preventing people from getting hurt in the first place. Everyone has a part to play in making that happen.

- Our aims are:
  - Make sure we keep every individual safe.
  - Reduce the number of accidents and incidents happening within the RNLI.
  - Ensure that all near misses and accidents are reported and investigated, so we can learn lessons for the future.
  - Increase the safety competency of everyone in the RNLI, so that they are able to carry out their role safely.

Safety in a Box – Let's talk about safety

- During the last few months we have been encouraging teams to think about safety where they work or volunteer.
- To help with these discussions, we have provided a Safety in a Box toolkit, to help inspire you to think about safety, share your stories and experiences and create team action plans.
- A key part of the toolkit is a new safety film which aims to show the impact that accidents can have on people and their families; this is a really thought-provoking look at safety. The film features real people who are our colleagues.
- From now until the end of June, you will be invited to take part in a team session to use the toolkit and to talk about safety in the RNLI and the part we can all play in making a difference.
- Please get involved because everyone contributes to making this a safe organisation.

To stay up to date visit the Safety Get Onboard Porthole page, the Safety Get Onboard Yammer group, Volunteer Zone or the Volunteer Facebook page.

RNLI SAFETY STATISICS

Over
400 people
Were **injured in 2014**
Carrying out
RNLI activities

Slips, trips, striking against objects and manual lifting
account for
52% of injuries
that resulted in
time off during 2014

People were **not able to**
Come to **work**
for **503 days** in
2014 due to accidents

Please don't become a statistic!

Case study 1

Plan, brief and be prepared consider the …. What if? scenario

2015 has already seen 5 capsizes: 3 D-class in training and 1 on-service and 1 B-class capsize in training.

This is a reminder that every time we launch on exercise or service the upmost due care and attention must be paid to the activity we are conducting.

On these occasions crews were well aware of their purpose and the environment they were launching into.

While there have been no reports of serious injury, and the boats were able to be righted following standard protocols, any capsize could have much worse consequences.

Whist it is accepted that training should include a variety of sea states, Helmsmen should be extra vigilant when exercising in challenging sea states and be prepared to alter their plan if on-scene conditions are not favourable or there is a mismatch in crew capability and the conditions for the planned exercise.

It is important to avoid any lapse in concentration, as even in relatively benign conditions, a lack of situational awareness can quickly become critical.

Further information can be found in the crew manual and SOPs.

LL 01-15

Case study 2

Staying dry sometimes takes some planning

Think! Don't sink … Your place is on the boat, not in the water.

In 2014 alone there were 8 recorded incidents of crew members accidentally falling overboard from, or whilst boarding, RNLI Lifeboats.

Two involved lost footings when in rough seas, and four were as a result of leaning against guard rails which were not supporting, resulting in a fall.

The common theme throughout, however, is having good all-round situational awareness, ensuring that an appropriate point of the boat is held at all times and remaining cautious when transitioning to and from the boat.

The old seafarers' idiom is very relevant here, and could have prevented the majority, if not all of these incidents. Remember – "One hand for the boat, and one for yourself".

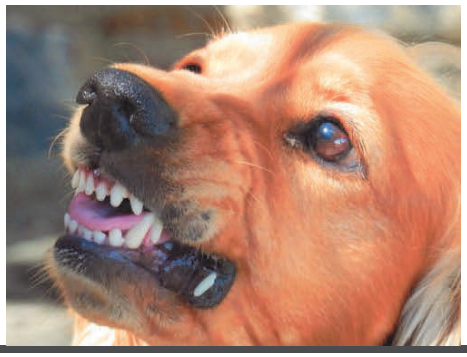
Further generic information can be found in the Crew Member Handbook.

LL 02-15

Case study 3

‘Being hurt and scared could make me dangerous …’

Each year the RNLI responds to animals that may need rescuing, as with any rescue there may be risks involved



In 2014 the RNLI rescued over 118 animals and any animal under stress has the potential to lash out and therefore be a danger to a rescuer, regardless of the good intentions.

For many it is a natural instinct to want to comfort an animal that is in distressed or hurt. However, even small animals have the natural armament to do harm and need to be considered as having the potential to attack.

Animal rescues should not be attempted if there is any danger to the crew, and where possible specialist advice should be sort.

Use of helmets with the visor down and wearing gloves can provide a level of protection if working close to animals.

For further specific information see SOP RNLI-SOP-23 Rescues involving animals (large and domestic).

LL 03-15

Case study 4

Standards should be standard

Every year ALBs undertake passages covering thousands of hours at sea.

For whatever reason a lifeboat is at sea, the same navigational and crewing standards apply.

Regardless of being at sea for exercise, service, trials or passage, the RNLI navigational and crewing standards apply.

If you are part of a lifeboat crew you should have been briefed and allocated a role before putting to sea. If you have not been briefed on your role, ask why – no lifeboat crewmember is ever ‘just’ a passenger.

This picture tells its own story, showing the consequences of not applying the required standards.

Our lifeboats are excellent vessels, but only ever as good as the team that crew and operate them.

During all operations (services, exercises or passages), duties should be allocated to individuals. Clear operating parameters should be defined and crew should be encouraged to discuss concerns, and or observations, regarding the safety of the crew or vessel.

Further specific information can be found in Crew Member Handbook and SOP LB-SOP-7.2-01 Safe Navigation.

LL 04-15

Exercise planning form

Exercise Planning Form

Location | Date

Completed by | Boat ID | Exercise Return No.

Times: Launch | Return

Afloat Crew (Cox, Helm, Radar, Nav, Mech, Crew etc)		Shore Crew		Officials/Other/Additional
Name	CA*	Name	CA*	Name

*CA: Currency Activity

Situation Overview

- ☐ Bi-Monthly Exercise
- ☐ Shore Side Exercise
- ☐ Casualty Care Training
- ☐ Other Exercise (Assessments, Trials, PR etc.)
- ☐ Helicopter Exercise

Weather

Wind Direction

Wind Force

- ☐ 0m Glassy Calm
- ☐ 0-0.1m Calm
- ☐ 0.1-0.5m Smooth
- ☐ 0.5-1.25m Slight
- ☐ 1.25-2.5m Mod/Chop
- ☐ 2.5m-4m Rough
- ☐ 4-6m Very Rough
- ☐ 6-9m High
- ☐ 9-14m Very High
- ☐ >14m Phenomenal
- ☐ Clear Sky
- ☐ Partially Cloudy
- ☐ Cloudy
- ☐ Overcast
- ☐ Rain/Hail
- ☐ Mist
- ☐ Fog
- ☐ Squally
- ☐ Thunderstorm
- ☐ Nil Visibility
- ☐ Poor Visibility
- ☐ Fair Visibility
- ☐ Good Visibility
- ☐ Excellent Visibility

Tide | High Water Time | High Water Height | Low Water Time | Low Water Height

Hazards, LNTM, safety notices, briefed, Horizon notices, other agencies involved?

Mission What are we going to do? Where are we going?

Afloat Roles

- ☐ 1. MOB Person Recovery and Pyrotechnics
- ☐ 2. Towing
- ☐ 3. Mooring and Berthing
- ☐ 4. Helming and SAR Unit Handling
- ☐ 5a. Anchoring and Veering (ILB)
- ☐ 5b. Anchoring (ALB)
- ☐ 6. Emergency Procedures
- ☐ 7. Search and Rescue
- ☐ 8. Navigation
- ☐ 9. Daughter Boat and Breeches Buoy (ALB)
- 10. Helicopter Operations
- ☐ Other

ALB Machinery Breakdown Drills (MBD)

- ☐ 11. Electrical and Electronic Systems
- ☐ 12. Hydraulic Systems
- ☐ 13. Main Machinery and Propulsion Systems
- ☐ 14. Main Engine Failure
- ☐ 15. Control Failure

Ashore Roles

- ☐ 1. PPE, Equipment and Pyrotechnics
- ☐ 2. Launch SAR Unit - High Water
- ☐ 3. Launch SAR Unit – Low Water
- ☐ 4. Recover SAR Unit – High Water
- ☐ 5. Recover SAR Unit – Low Water
- ☐ 6. Emergency Procedures

This form is to be filed and retained on station for a minimum of two years

Exercise Planning Form

Execution
What is our plan? How are we going to do it? SOPs/EOPs, Plan, Tasks, Emergency plan etc.

Administration Who is doing what? Equipment? PPE? Crew changes? Transport? etc

Command, Communications and Confirmation
Command Structure?, Call signs?, VHF/MF?, Channels? Ops?, Normal Questions? Lessons Learnt? etc.

Exercise authorised by _____ Was LA present for Launch? Yes ☐ No ☐

Launch Authority remarks

Was the exercise completed as planned? Yes ☐ No ☐ If 'No', what activities were completed?

As the SAR unit commander, I verify the activities were carried out. _____

Debrief - escalate any issues or concerns

Safety Launch & recovery, Risk assessments, Decision making.

People Emotional wellbeing, Physical wellbeing, Illness, Injury, Competence.

Equipment Condition, Defects, Missing/lost, Appropriateness.

Performance Safety, People, Equipment, Currency Activities discussed? Yes ☐
Did everyone meet the expected standards? No ☐
If no, was this debriefed?

This form is to be filed and retained on station for a minimum of two years

Abbreviations

AIS: Automatic identification system
ARCC: Aeronautical Rescue Co-ordination Centre
COLREGS: Convention on the International Regulations for Preventing Collisions at Sea
DSC: Digital selective calling
EPIRB: Emergency position indicating radio beacon
GHz: Gigahertz
GMDSS: Global maritime distress and safety system
GNSS: Global navigation satellite system
GPS: Global positioning system
HMCG: His Majesty's Coastguard (UK)
IAMSAR: International Aeronautical and Maritime Search and Rescue
ILB: Inshore lifeboat
IMCO: Inter-Governmental Maritime Consultative Organization
IMO: International Maritime Organization
IMRF: International Maritime Rescue Federation
IMSO: International Mobile Satellite Organization
ISM Code: International Safety Management Code
ISPS: International Ship and Port Facility Security Code
JESIP: Joint Emergency Service Interoperability Programme
MARPOL: Marine Pollution (International Convention for the Prevention of Pollution from Ships)
MCA: Maritime and Coastguard Agency
MOD: Ministry of Defence
MHz: Megahertz
MMSI: Maritime mobile service identity
MOU: Memorandum of understanding
MRCC: Maritime Rescue and Co-ordination Centre
MSI: Maritime Safety Information
NGO: Non-governmental organisation
PPE: Personal Protective Equipment
RNLI: Royal National Lifeboat Institution
RWC: Rescue Water Craft
RYA: Royal Yachting Association
SAR: Search and rescue
SART: Search and rescue transponder
SOLAS: Safety of Life at Sea
SOP: Standard operating procedure
SRR: SAR Region
STCW: Standards of Training, Certification and Watchkeeping
WHO: World Heath Organization
VHF: Very High Frequency

TP-INT-09-02