

6 VICTIM RECOVERY

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Overview

Victim recovery is essentially the rescue part of search and rescue operations. As such the CRV and its crew will enter situations that may involve a high degree of risk if proper planning and procedures are not followed.

This module describes various scenarios that may be encountered; however no manual can cover every eventuality.

Knowledge of the theory and general principals involved, coupled with practical training will equip you with the ability to carry out different recovery methods. This knowledge and training will enable you if necessary, to adapt or modify procedures to suit different circumstances.

Before looking at the types of situations a CRV crew may face, we should first look at procedures to ensure that they do not also end up as victims in need of recovery.

It has long been recognised in SAR operations that operational accidents and incidents often stem not from equipment failure, or deficiencies in people's skill and experience in using equipment, but more often from the operational plan (or lack off) that was employed by the CRV crew.

SAP – Stop Assess Plan

When things go wrong on an operation, and crew members get hurt it usually stems from one of two problems:

- A loss of scene awareness.
- A bad action plan.

SAR crews need to observe the scene carefully and notice all the details then formulate and agree to a plan before getting involved.

When faced with a potentially hazardous situation proper assessment is the key to a successful outcome. A few moments standing away from the action observing and formulating a plan will save time and possibly lives.

The idea of assessing the situation before formulating any plan of action is something that has always been taught to those involved in Search and Rescue, or any of the other emergency services. For example assessing the situation, and not just rushing in is a cornerstone of all First Aid training. SAP is merely a more structured form of what should already be an accepted common sense practice.

What is emphasised in SAP is that **all the crew**, not just the Skipper are involved in both the assessment and planing stage.

If it's only the Skipper assessing the situation, then the whole operation is dependent on one person's evaluation - and no one is infallible.

Using SAP, a SAR crew can:

- Identify all the hazards at a scene.
- Receive input from all crew members.
- Formulate a plan that best fits the situation.
- Assign tasks / roles for each crew member.

SAP can be as short as fifteen seconds for routine situations such as taking a vessel in tow, and could take several minutes for more complex or hazardous situations.

Phase 1 – Stop

Once you have entered the immediate area of an incident you are within range of any dangers that may be present, and involved in the scene. The urgency of the incident can compel people to act instinctively. They are pushed to act quickly to solve the problem as it presents itself (winging it).

This is why it is critical to stop outside the immediate area of the incident for an initial assessment. It is the small or partially hidden factors that can quickly turn an operation into a disaster.

In many situations, the vessel should come to a complete stop (all way off). In some situations, it may be necessary to maintain steerageway, to slowly circle a scene, or even pace a vessel underway in order to keep a constant position.

This all counts as stopping

Hollywood films give a false impression of what real life SAR incidents are like. They constantly portray ‘nick of time’ rescues that are not accurate depictions of reality. Very seldom is a situation so urgent that a team does not have time to stop and assess.

Pre-Arrival Planning

Plans should not be made based just on dispatch information. The situation that a CRV crew expect may well be different from the situation that they arrive to, and so will the solutions to the problems.

Pre-arrival planning can lead to problems when CRV crews go in with a plan that does not fit the situation. When the CRV crew arrives they should **always** take a fresh, unbiased view of the scene.

Phase 2 – Assess

The most important step, assessment must be just that – assessment not planning.

Here the entire crew observe the scene carefully, and comment on what they can see. Details can make a profound difference.

“I can see lines in the water off the stern”

“Looks like she’s listing to port and down at the bow”

“There’s fuel or oil on the water”

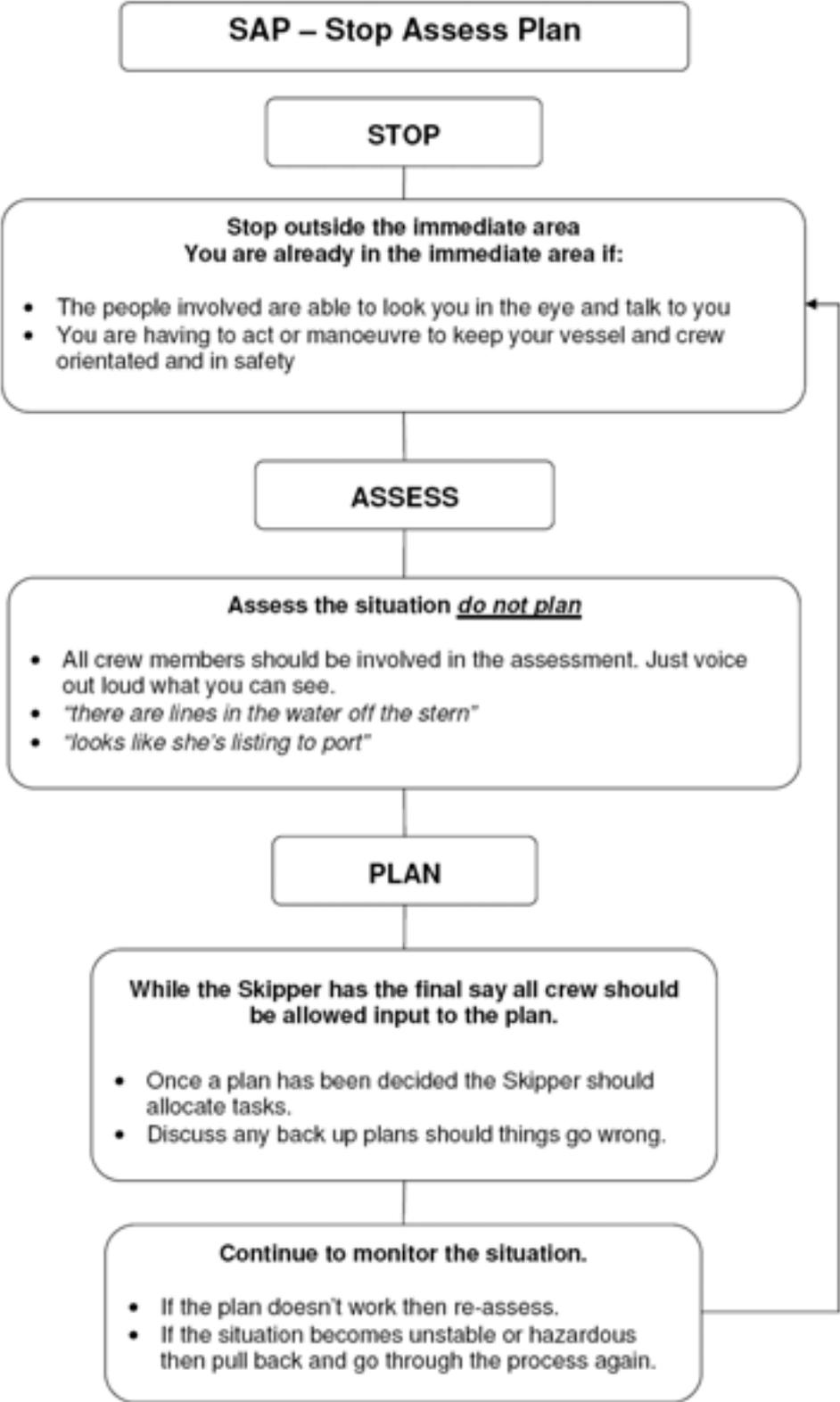
If the scene is complicated, it may be necessary to have a few seconds of silence while people observe; this gives the crew time to focus on their task of observation.

Phase 3 – Plan

The planning stage is where all crew are involved in coming up with the most effective plan. Everyone is allowed input, but the Skipper has the final say. Once a plan is decided the Skipper assigns tasks and gets verification from the crew that they all understand the plan, and their individual roles. Sometimes situations can change and turn a good plan into a bad one. If the Skipper & crew can foresee potential problems then a backup plan should be discussed.

SAP is a structured habit, a basic tool used in any situation with potential risk even scenes that appear routine should still be assessed.

SAP Flow Chart.



Recovery of Person in Water (PIW)

In a marine SAR incident, the highest priority must generally be given to people in the water, particularly those who appear to be unconscious, injured, or without flotation.

How you actually recover a person from the water depends on prevailing conditions, and the equipment you have available. Recovery of persons from the water can be potentially hazardous for both the PIW and the CRV crew.

There is no single correct method for all vessels, in all circumstances, and for all sea states - but the preferred method of approach is to manoeuvre the craft from a down wind position to provide greater manoeuvrability and speed control.

The CRV is then driven towards the PIW with her bow into the wind and sea. The final approach to the casualty should be made at reduced speed to avoid causing injuries from impact with the hull or propellers.

At this point there are two quite different methods of recovery that might be employed depending on the type of vessel and the sea state.

NOTE: In the following examples the helm position of the CRV is taken to be on the starboard side.

Method of Approach (calm to slight conditions)

- Drive the CRV into the wind and sea with the PIW slightly off to starboard.
- Once the PIW is approx abeam, turn the CRV so that the wind catches the port bow.
- Take all way off and allow the CRV to drift down on the PIW.
- Slight corrections to the CRV's position can be made by nudging ahead or astern so as to make contact at the most appropriate point on the hull (usually somewhere between midships and the starboard quarter).



If the PIW is conscious and uninjured, contact may be made with a messenger line. The PIW slowly pulled toward the CRV, with the engine(s) put in neutral, and the PIW assisted aboard.

As the wind speed and wave height increase, this method becomes potentially more and more hazardous for both the PIW and the CRV itself. As the rate of drift of the CRV increases, so does the tendency for the PIW to be forced under the sponsons and hull of the CRV. This risk can further increase with the CRV's rolling motion beam on to the waves. With the increased motion, there is also an increased risk of CRV crew going overboard while recovering the PIW.

Tethers or harness lines for CRV crew should be considered when making any PIW recovery in adverse conditions.

Lastly, there is increased risk to the CRV itself as sea conditions deteriorate. The vessel will be at its most vulnerable – beam on to the sea and listing down wind due to the position of the PIW and the crew making the recovery.

If there is any doubt as to the safety of the CRV and its crew in laying beam on in the prevailing weather conditions – then this method should not be used.

Method of Approach (moderate to rough conditions)

In more adverse sea states a different method of approach may need to be employed.

- Make contact with the PIW with virtually all way off by either driving directly to point of contact, or by slewing the CRV's stern slightly (by applying a touch of port helm, or reverse on port engine).
- Once initial contact is made secure the PIW by any means available to prevent losing contact.

In the example diagram opposite the starboard engine would be in neutral upon contact, and the vessel held in a relatively stationary position using the port engine only. The CRV should be held almost directly into the wind and sea with it slightly (approx 5 - 10°) on the starboard bow.

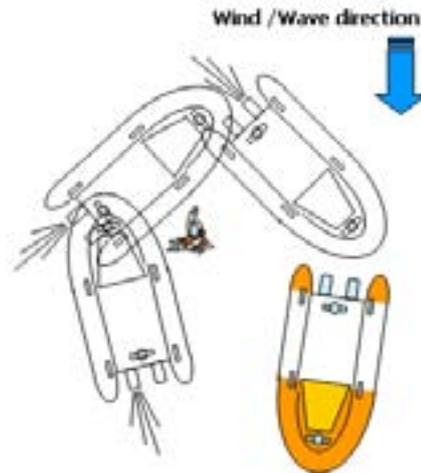
Wind /Wave direction



There are three major advantages to this type of manoeuvre;

- The person's lower body will tend to stream away from the craft and not under it.
- If unexpected problems arise in handling the CRV, the craft will move to leeward, and the casualty will then tend to float clear instead of being driven under the craft.
- In adverse conditions the CRV itself is in the safest position relative to wind and waves.

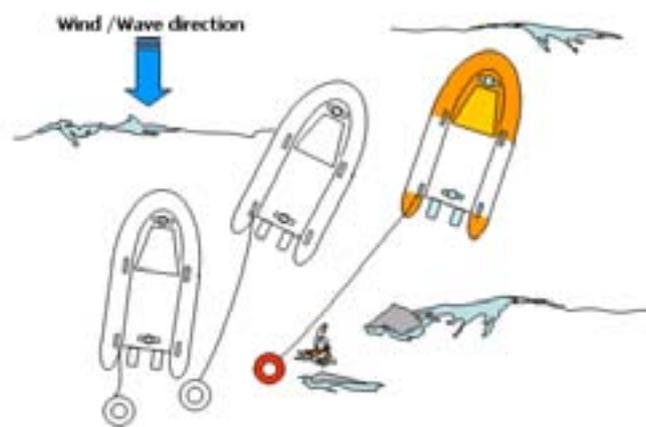
If the CRV fails to make contact or secure the PIW on the first approach, the CRV can be driven ahead or slightly to port to keep clear of the PIW and another attempt made. If for any reason the vessel is manoeuvred to starboard in a circle for re-approach then it should be done using the port motor only, with the person in the water always being on the inside of the turn.



Note this is an example of one method (regarding use of engines) that might be employed in heavy weather or surf. The important principal behind it is that the CRV's bow should not be allowed to fall off the wind, and hence risk a high degree of roll or possible capsize.

Life Ring Method

A floating line and life ring or similar may also be used. The CRV deploys the tethered life ring and manoeuvres slowly while paying out the line until contact is made. In practice control of the line and life ring can be difficult to achieve, but it may well be a viable option for recovery if the CRV is restricted by shallow water or obstructions as in the diagram opposite.



In Water Assistance

In some cases it may become necessary for a crew member to voluntarily enter the water to assist in the recovery operation. This can be extremely hazardous and should only be undertaken after careful consideration.

The crew member should ideally be trained in lifesaving, and be suitably equipped with an appropriate PFD, fins, mask and any necessary thermal protection. Consideration must be given to tethering the swimmer to the CRV by a hand held floating line, or allowing them to swim free.

Recovery Techniques

The most appropriate technique for actually getting the PIW on board will depend upon a number of factors;

- Firstly If the person is conscious or unconscious.
- If the person is conscious the degree of assistance they are able to offer will depend on whether they have any injuries. ***Having made contact with a conscious patient, always ask them about any injuries before pulling them onboard.***
- Size / weight of the victim - a very large person can be extremely difficult to recover aboard.
- Clothing / lifejacket worn - a lifejacket not only provides buoyancy but may help to bring the PIW aboard by providing a good handhold. At the same time its bulk can also be a hindrance.
- Available crew and equipment.
- Time in the water, and possible level of hypothermia.(See Module Personal Safety)

Recovery by Hand

The most common method of recovery is by hand. Even a conscious person will usually require at least two crew members to accomplish this task. One method is to turn the person with their back to the CRV. Crew then put their arms / hands under their armpits and lift them aboard. This method is especially relevant with anyone wearing a lifejacket, as its bulk can make recovery difficult if the person is facing the CRV.

While this method of turning the PIW to face away from the vessel may make life easier for the rescuers, it must be balanced with consideration for the PIW. If the method of making contact was to allow the CRV to drift down onto the PIW, by turning the PIW to face away from the vessel the PIW to end up in an arched back position with their legs being pushed under the CRV's sponsons – the faster the drift the more extreme the position.

Recovery with PIW facing away from CRV

- Often easier for CRV crew because PIW's lifejacket doesn't get in the way.
- Can be an uncomfortable even painful position for PIW if CRV drifting onto them, and may risk back / spinal injury.
- Back injury not an issue if CRV is drifting away from PIW.

Recovery with PIW facing towards CRV

- PIW's lifejacket can make recovery awkward.
- Increased risk of soft tissue injury – in particular to the face.
- Can be a painful method of recovery for women due to soft tissue injury to the breasts.

Recovery Equipment

Slings, scoops, boarding ladders, floating stretchers, and other devices may be found on some CRV's. Whatever equipment is available all the crew of the CRV must be familiar with its use – and its limitations.



Hypothermic Casualties

Casualties suspected of being hypothermic require special consideration to help combat what is known as post - circum rescue collapse. (See Module Personal Safety)

Firstly, any PIW that is suspected of being hypothermic should not be encouraged to exert themselves during recovery. Any physical activity will increase circulation, draw blood from the body core, and further increase cooling and risk of cardiac arrest.

While the casualty is in the water, the water pressure helps to reduce blood flow to the extremities. When the casualty is taken from the water this pressure is removed and their blood pressure may fall drastically. If this is coupled with the effect of gravity draining blood from the body's core to the legs, as in a vertical lift, it can cause unconsciousness and possible cardiac arrest.

During the Fastnet yacht race (UK1979) 3 of the 15 fatalities (20%) occurred during rescue. One while being winched to a SAR helicopter and two more while climbing a cargo net thrown over the side of a ship.

All 3 victims were exposed to a prolonged period in a vertical condition, and in the case of the 2 who died climbing the cargo net, physical exertion also.

The risk of post rescue collapse increases the longer a person is in a vertical position. The low freeboard of most CRV's, and the speed at which people can be removed from the water means that recovery itself is highly unlikely to produce post – circum rescue collapse. Once recovered however a hypothermic casualty must be placed as quickly as possible in a horizontal position, preferably with legs raised.

While every effort should be made to avoid injury to a casualty during recovery, such as a horizontal lift for a person with hypothermia, there may be times where due to weather and / or time constraints it will not be possible to use specialised recovery equipment.

The priority is to get them out of the water quickly, and without undue risk to the CRV and crew.

Recovery from the Shore or Grounded Vessels

This section describes three general methods of approaching a vessel or person ashore.

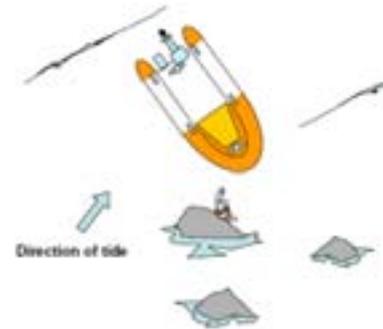
- Direct approach (adopting close handling techniques with the CRV itself).
- Using an anchor to veer down.
- Using a breeches buoy (or similar).

Direct Approach

Every situation will be different - the sea state, depth of water, direction of tide / current and proximity of hazards will all be factors in deciding how to approach.

As a general rule to allow greater ease in holding position, CRV should when possible be angled so as to have the wind or tidal stream / current pushing it away from nearby hazards rather than on to them.

Approaching the shore bow first is the most common method in shallow water or in the vicinity of any rocks. This gives some protection to the CRV's drive units. If the loss of manoeuvrability is not a problem, raising one of the outboard engines clear of the water is also a sensible precaution. However, there may be situations that going in bow first is not the best option.



Unless there is good reason not to – raise the port hand outboard, as port / left hand propellers and gearboxes are usually harder and more expensive to replace or repair.

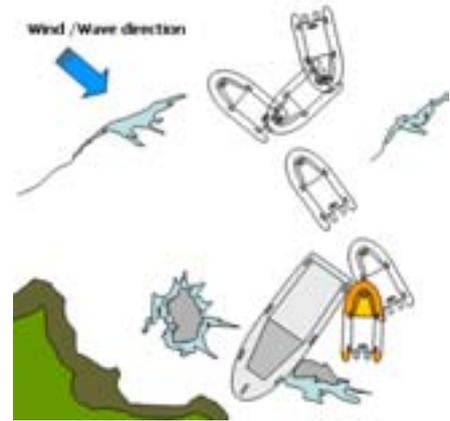
In surf or onshore swell the risk to the CRV's drive units may have to be weighed against the risk of being swamped, broached or even capsized.

To approach the in adverse conditions, the Skipper may run the CRV in stern to the sea, and then turn around to go alongside or adjacent to the vessel or PIW.

If the waves are breaking heavily it is often better to keep the CRV's bow to the waves and gradually drop back down or crab across the sea.



Going alongside a stranded vessel can be fraught with all manner of dangers. The Skipper must consider both the best method of approach to the vessel aground, and the best position alongside for transfer of persons - a point of low freeboard, clear of obstructions and with no overhanging hazards. Debris floating close to the stranded vessel may damage the CRV or foul its drive units. The vessel might have deployed an anchor before grounding and its anchor rode may be just under the surface.



One thought that must be uppermost in the Skipper's mind – ***Always ensure there is an escape route.***

Whether it is for a vessel aground or person ashore the CRV's anchor should be available for immediate use in an emergency.

Ensuring you have a clear escape route is especially important when an approach is being made into a narrow inlet, or an area with limited turning space.

If the casualty is in a narrow inlet with an onshore sea or swell, it may be preferable to go in stern first. This reduces the risk of being unable to overcome the force of the waves as they travel up the inlet (and it makes getting out again a lot easier).



In moderate seas it will usually be possible to drive the CRV astern, giving short bursts ahead to correct any steering problems. In adverse conditions it may be better to allow the CRV to be washed back into the inlet, using both astern and ahead power to control steering.

In any rescue of persons ashore the CRV crew must properly assess the local terrain. There is a tendency for rescuers to concentrate their efforts in approaching directly to the position of the casualty.

In the case of an injured person on the shore line the easiest access to the casualty may be a landing area further away where CRV crew members can be put ashore in safety, and then make their way back to the casualty.

Veering down

Veering down is a technique that;

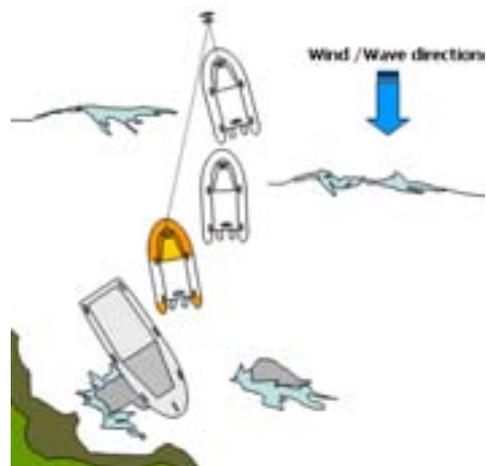
- Can allow the CRV to remain close to a disabled vessel or person ashore, and not have to constantly manoeuvre with throttle and steering to maintain station.
- Will allow the whole situation to be 'slowed down', and provide a more stable platform from which to communicate, plan or prepare a rescue.
- Will ensure that in the case of an approach close to shore with onshore winds the CRV is pointing into the wind and waves, and hence in the best position to ride the seas (and escape if necessary).

The limitation to veering down will always be the holding power of the anchor and rode – which will depend on the weight and length of anchor gear carried (the tow line can always be bent on to the anchor rode), the depth of water, and sea conditions.

To veer down onto a vessel aground or person ashore, first lay an anchor upwind and sea from the vessel. A large amount of anchor rode is desirable to reduce the possibilities of dragging.

After ensuring a good initial hold with the anchor the CRV is manoeuvred astern while veering out the anchor rode. In adverse conditions this task calls for good co-ordination and communication between the crew.

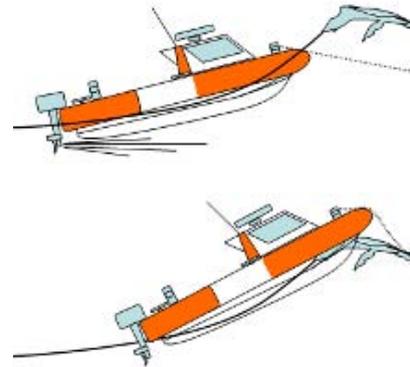
The hard part in veering down is often to judge the length of rode needed to anchor in the depth of water and prevailing conditions while still ending up in the desired position.



The anchor rode should be controlled with a running turn around the samson post or similar fitting to keep the CRV's bow into the sea until the CRV is adjacent to the vessel or person ashore. The CRV is then held in position by use of its engines and the anchor. The helmsman can manoeuvre sideways with the engines as required, while being held from dropping astern. In heavy seas one crewmember (usually the one controlling the anchor rode) should act as lookout to give prior warning of any seas likely to break onboard.

At the approach of any large, steep or breaking waves the engines should be put in neutral to relieve the strain on the anchor rode and allow the CRV to lift its bow to the wave.

Larger waves may need the CRV to power ahead to lift the bow, while the slack in the anchor rode is recovered. This is crucial to avoid the CRV being swamped. Vessels have been capsized because of their inability to rise to an oncoming wave. They have been swamped and literally rolled around the 'pivot point' created by the anchor rode made fast to the bow.



If conditions are such that the CRV needs to power ahead to ride the waves then veering down is probably no longer a viable option.

Breeches Buoy Transfer

Breeches buoys have been used in rescues for centuries. Although largely superseded by faster more manoeuvrable rescue vessels and helicopters, the principals remain sound.

A situation may still arise where the CRV is unable to manoeuvre close to the vessel, there is no possibility of rescue from the shore, and a helicopter is not available or capable of effecting a rescue.

A breeches buoy is basically a continuous line with a lifebuoy or similar in the middle, running through a block at each end of the line.



To carry out a breeches buoy transfer;

- The rescue vessel first anchors to seaward of the vessel aground.
- A messenger line is transferred to the vessel.
- One end of the breeches buoy is passed to the vessel.
- The lifebuoy is pulled out to the other vessel and the person for transfer is secured in the lifebuoy and pulled back out to the rescue vessel.

Breeches buoy equipment is not usually carried on board Coastguard vessels, but a similar arrangement can be effected using available equipment.

In the absence of a dedicated breeches buoy, a lifering and lines carried onboard could be used in its place. The arrangement need not have blocks at either end, but could be looped over a suitable deck fitting.

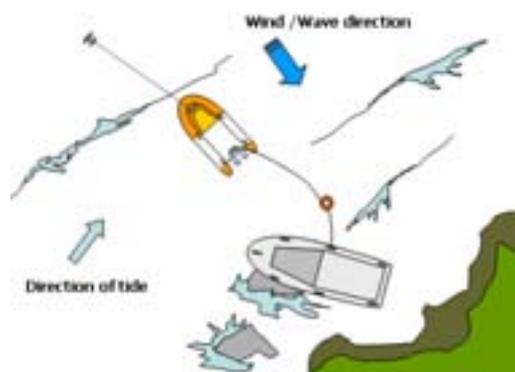
One thing that should be communicated to the other vessels crew is that for the comfort of any persons being transferred in a lifering, they should position themselves with their backs to the surf.

Liferafts and small inflatable boats have also been used. A small inflatable could be a good option in slight to moderate conditions and it allows more than one person to be transferred at a time.

When either of these alternatives are employed, the Skipper and crew of the CRV must control the number of persons being transferred at any one time. In heavier seas the resistance by the raft or inflatable boat to the oncoming seas may place an unacceptable load onto the controlling lines and cause them to part.

Single Line Transfer

If the distance to the other vessel is such that a continuous loop cannot be passed to it, then it may be that only a single line can be used. Once the line has been passed to the vessel aground, if it is not feasible to transfer all personnel together in a life raft or inflatable boat a line from the other vessel could be attached to the initial line so it can be recovered for the next person.



Recovery from Marine Structures

Around the country there are a number of different and unique structures that each local Unit needs to consider in their rescue plans, and conduct appropriate training as required - e.g. wharves, bridges, and breakwaters.



The Skipper and crew should be familiar with all the hazards specific to the site.

Rescuing people from the water close to such structures may involve a high degree of boat handling skill, and efficient team work by all of the crew. Prior to making an approach to the casualty it is essential the Skipper is sure that once the CRV is committed to the rescue approach it still has a way out.

Always ensure there is an escape route.

Recovery from a Drifting Vessel

Coming alongside a disabled vessel in rough weather can be hazardous. Normally a vessel will drift approximately beam on to the wind and sea. ***Before doing anything, stand off and assess the situation. (SAP – Stop Assess Plan)***

During this time the motion and rate of drift of the vessel can be determined, as can the most suitable position for the CRV to go alongside.

As a general rule the larger vessel is the one positioned to windward so as to provide a lee (shelter) for the smaller vessel.

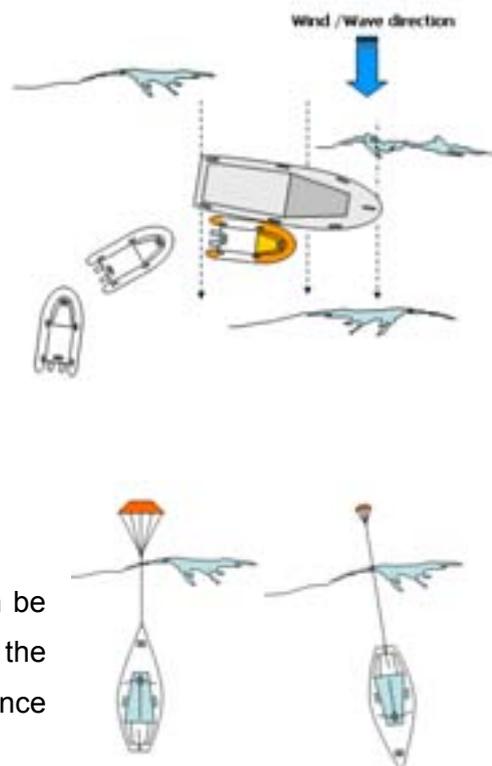
Different vessels and different sea conditions will dictate different methods of recovery – there are no hard and fast rules, each situation must be assessed individually.

The best place for transfer of persons is usually the lowest part of the vessel that is not being swept by seas. This will allow easier access to the CRV as the vessels rise and fall.

The use of boarding ladders or equivalent should generally be avoided due to the danger of people being trapped or ‘nipped’ between the disabled vessel and the CRV as the two vessels rise and fall.

Sea Anchors & Drogues

Some vessels carry sea anchors or drogues which can be deployed to keep them orientated either bow or stern to the sea. They come in various different designs; the difference between them is essentially one of size.



A drogue is designed to slow down a vessel and give it more directional stability, i.e. deploying a drogue from the stern of a towed vessel to stop it yawing or broaching in a following sea.



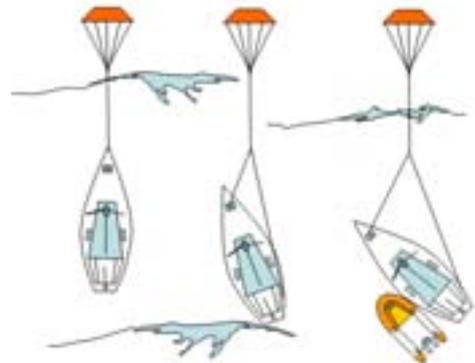
A sea anchor is designed to stop a vessel completely, or at least reduce its drift to an absolute minimum, and therefore is larger than the drogue and normally deployed off the bow.



With either a drogue or sea anchor deployed, the vessel's drift will have been reduced but its pitch and roll could still make getting alongside hazardous.

A method of reducing this motion and creating a lee for the CRV is to 'spring' on the sea anchor. A line of suitable strength is taken from the vessels quarter and attached (using a snatch block if available or series of rolling hitches) to the rode of the sea anchor.

The rode is then veered out with the strain taken on both the rode and the spring. The vessel will take up an increasing angle to the sea. Generally an angle of between 30° to 50° will reduce the vessels motion and create the desired lee.

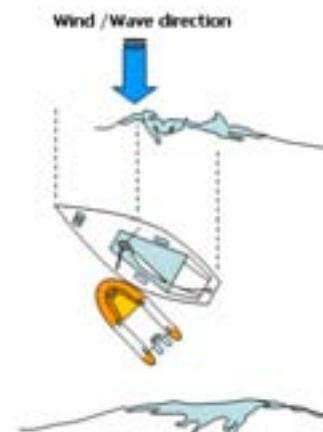


Springing on a sea anchor is a heavy weather survival tactic adopted by many yachts.

Heaving To (Sail)

Another method that may be used to reduce the motion of a vessel in a sea way particular to sailing vessels is heaving to.

'Heaving to' is where all forward motion is stopped and the vessel drifts slowly to leeward while presenting its bow to the sea at an angle similar to the method described above. In reality most modern yachts are unable to stop completely, and will continue making way although at a much reduced speed.



Different vessels heave to under different combinations of sail and rudder angle. Heaving to is unlikely to be successful if the Skipper of the vessel is not practiced in doing so.

Recovery from Vessels on Fire (Or Gas / Chemical Situations)

In a fire it's the smoke, not the flames that are the biggest killer. One breath of toxic fumes may be all that is needed to inflict permanent lung damage.

The CRV should stand off the distressed vessel to assess the situation (SAP), and come up with a plan for safely evacuating its crew, while at the same time minimising risk to the CRV and crew.

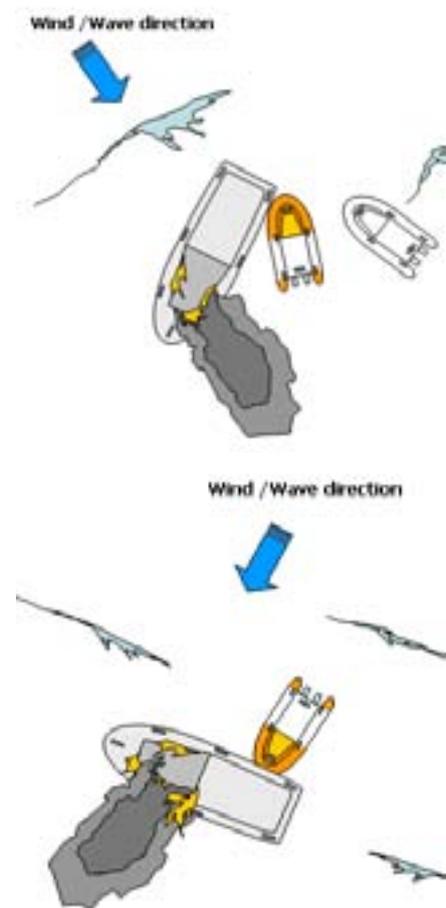
CRV crews are neither equipped nor trained to fight any but the smallest fires – the priority is to save lives not property.

The leeward side of the distressed vessel is most likely to be affected by flames, smoke or fumes. However there may be space on the lee side to affect a rescue depending on the size of the vessel and its orientation to the wind.

If coming alongside to windward, a bow on rather than parallel approach should be considered. This exposes less of the CRV and personnel to the danger of explosion from fuel or LPG. The other danger of coming alongside parallel to the other vessel is the CRV being 'pushed on' by wind and waves and subsequently having difficulty clearing away from the vessel in a hurry.

The merits of a bow on approach will have to be weighed against the increased difficulty in transferring people across the bow.

If coming alongside the distressed vessel is not considered a safe option, the only course of action is to instruct the crew to abandon ship, and then recover them from the water.



Recovery from a Vessel Underway

The use of CRV's to transfer personnel from / to another vessel while underway, takes good seamanship and knowledge of the CRV's handling characteristics. The Skipper of the CRV should consult with the Skipper of the other vessel involved as to a speed and course to maintain.

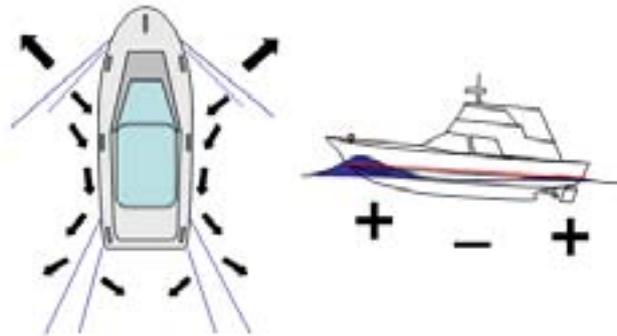
Experimenting to establish a course that produces the least amount of motion at a speed sufficient to give effective control will be time well spent.

Pacing / Transfers While Underway

Coming alongside another vessel while it is underway to transfer personnel or equipment will often be easier than coming alongside a vessel drifting in any seaway.

The higher the speed at which this manoeuvre is carried out the more difficult and potentially hazardous it becomes.

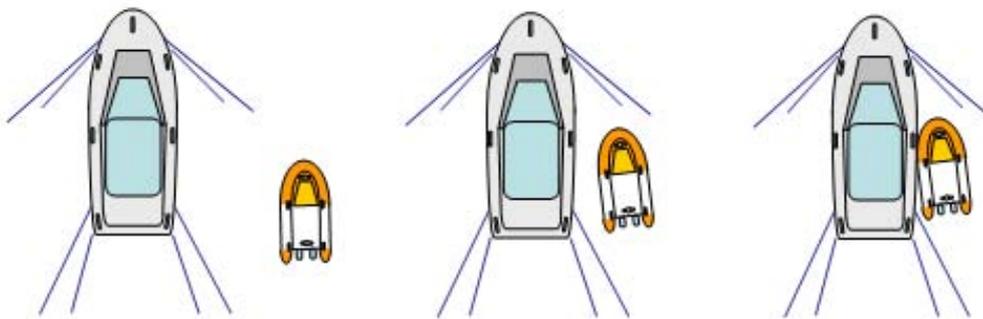
- Any displacement vessel or planing vessel at displacement speed produces a bow wave while underway.
- At the bow and the quarters the movement of water pushes objects away from the vessel.
- Between those two points the water flows back in toward and along the vessel's hull.
- This movement of water creates areas where the CRV will be either attracted to or repelled from the other vessel.



Remember – the greater the bow wave created by the other vessel the greater the forces involved.

Procedure to Come Alongside

- Approach the other vessel on a parallel course at approximately its 4 o'clock (or 8 o'clock) position.
- Pick a fixed point on the other vessel on which to focus and use as a reference point.
- Match the other vessels speed – this will probably need constant adjustment of the throttles.
- Move the CRV in toward the other vessel using small adjustments on the helm and throttle.
- Once alongside push the CRV's shoulder into the other vessel using the helm and a slight increase in throttle.



Use of a Bow Line

Once alongside a line from the CRV can sometimes help maintain position but should be used with caution. In adverse conditions lines secured to the other vessel can end up snatching and jerking the CRV violently.

If the line is led directly from the bow of the CRV to the other vessel, and weight taken on it, the CRV will tend to assume a bow in stern out aspect to the other vessel. Ideally the line should be led from a fitting abaft the bow (approx 1/3 the boat length) to ensure the CRV stays parallel to the other vessel.

The line should also be led as far forward as is possible on the other vessel. The more vertical the lead, the more the line will snatch and jerk with the motion of the two vessels.

The more horizontal the lead, the more it will allow the CRV to ride up and down with the sea.

Procedure to Come Off Other Vessel

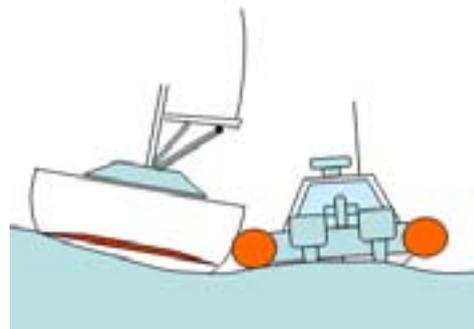
- Straighten up the helm and ease back slightly on the throttle.
- Maintain your position next to the other vessel.
- Apply small amounts of throttle and helm (typically no more than 10° to 15°) to crab sideways, and create a gap between the CRV and the other vessel.
- Once there is a sufficient gap to allow the CRV to turn away without making contact with its stern.
- Turn away from the other vessel and increase throttle to leave the vessel's bow wave at approx the 2 or 10 o'clock position, or move away from the other vessel along the same track that you used to approach until clear of its bow wave and wash.

Do not be tempted to let the CRV slide astern of the vessel – the different directions of water flow at the vessel's stern can make control of the CRV extremely difficult.

Vessels under Sail

Vessels under sail will generally have a much steadier motion in a seaway than when under power.

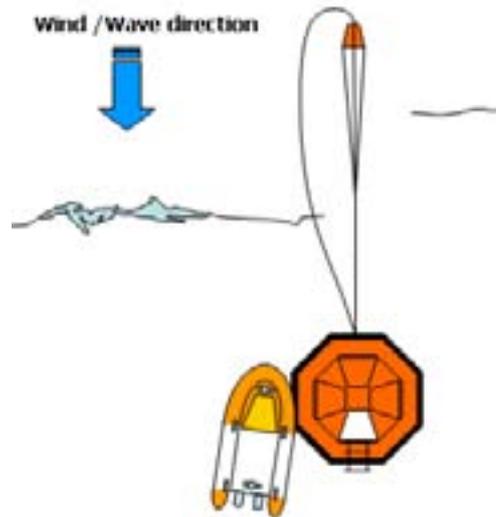
- Approaching from its leeward side will give the most shelter, and because of the heel induced by the wind, it will also be the lowest side of the vessel.
- The boom(s) should be sheeted inside the line of the hull to avoid contact with the CRV.
- Consult with the skipper of the other vessel to establish a course to steer taking into account the position of the boom(s).



Recovery from Liferaft

The transfer of persons to a CRV from a raft is made easier by the fact that both are usually quite low in the water; however there are a number of other aspects to be considered.

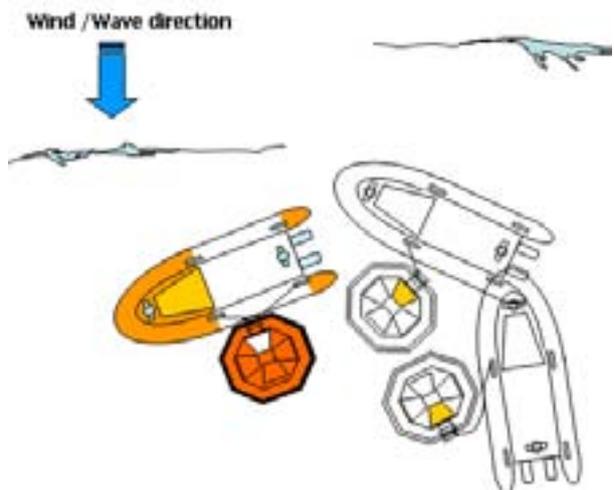
A liferaft adrift in strong winds will 'sail' down-wind and may attain a fairly fast rate of drift. A drogue is supplied in every liferaft, but be aware that it may not have been deployed.



The drogue, if deployed, will be streamed to windward of the raft and probably just below the water surface. The CRV should, therefore, manoeuvre to leeward of the raft and approach into the wind and sea.

When the CRV is alongside the liferaft the two can be kept together by means of the liferaft painter and lines from the CRV. Liferaft painters are designed to part under load to avoid the raft being pulled down by a sinking vessel, so care should be exercised if the painter alone is used to secure it alongside.

Transferring from a liferaft to any other vessel, even in relatively calm conditions can be difficult. This is mainly due to the undulating motion of the life raft's soft floor and the constantly changing motion of the liferaft as a whole.



Subject to sea conditions and with a small liferaft, the liferaft drogue can be tripped once initial contact has been made. The CRV can then be allowed to fall off the wind and the liferaft secured on its lee side.

Recovery from Lifeboats

Lifeboats are classed as open, partially enclosed or totally enclosed.



The transfer of persons from lifeboats, especially totally enclosed lifeboats has always presented particular problems. Lifeboats in general by the nature of their construction and design are usually very buoyant and lively at sea. The motion a lifeboat may have, even in moderate conditions can make transfer of personnel extremely difficult.

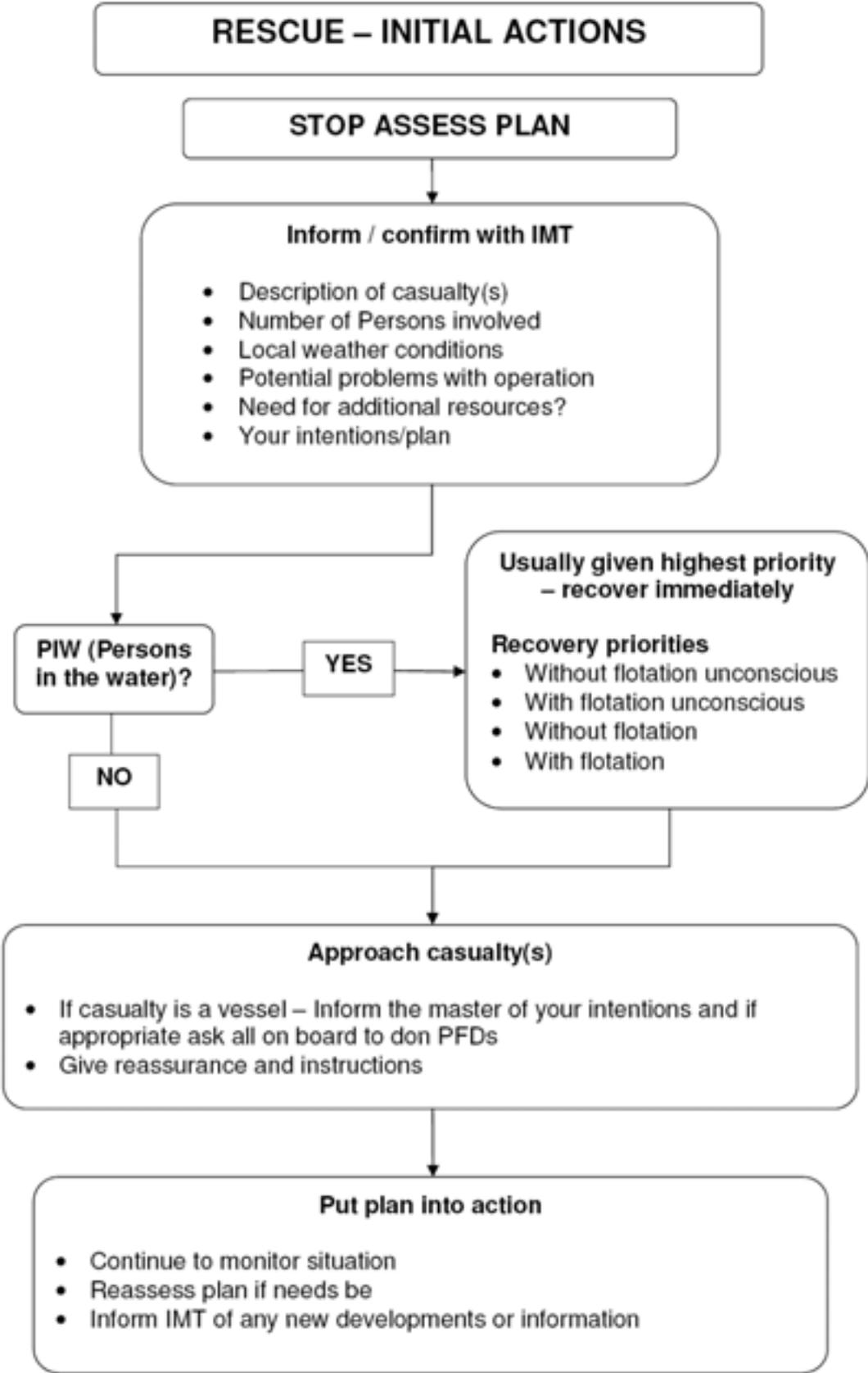
With open or partially enclosed lifeboats it is generally just their motion that can make life difficult and they should be treated just like any other distressed motor vessel. With enclosed lifeboats comes the added difficulty of the size and location of its hatches.

Enclosed lifeboats are designed to protect against fire or toxic environments. They are also designed to be self righting, providing that the personnel onboard are strapped in and all hatches are closed. To meet these design specifications the hatches are necessarily small. Transfer of survivors who are unable to help themselves can be extremely difficult and, in adverse conditions potentially dangerous.

Different designs have different positions for hatches. For some of the smaller free fall lifeboats the only usable hatch may be at the stern. Others may have hatches on either side of the hull with sufficient freeboard to be used.

In general terms, unless there is a definite requirement to transfer persons, enclosed lifeboats and their personnel should be monitored or towed only, until sea conditions have moderated sufficiently to enable a safe rescue operation.

Rescue Flow Chart



Medical Care

With any SAR operation the CRV crew may have to administer first aid.

All Operational crew will have undergone First Aid training, and this section of the module is a recap on the general First Aid / medical care guidelines.

- Check the victim's ABC's and carry out necessary first aid.
- If the person is conscious, obtain their identity, and determine number of POB the vessel or involved in the incident.
- Obtain a history of the incident.
- Update the IMT with a sit-rep.
- Never leave the scene of an incident until you are sure that you have recovered all survivors!

Patient Assessment

A systematic approach to an assessment will ensure that nothing goes unnoticed. Avoid making any snap judgments. A common mistake is to become preoccupied with obvious injuries (for example, a broken arm) and overlook more life-threatening injuries that are not immediately apparent.

Assessing a Conscious Patient

A conscious patient is generally easier to assess as they will probably be able to give some indication of their injury. Concern should be given to their emotional well-being.

The assessment procedure is as follows:

Prioritise your victims for immediate care.

- Ask the patient for a brief history of the incident.
- Ask the patient if and where they have any pain, examine these parts first. Remember, though, that pain in one area can mask pain or injury elsewhere.
- Using the standard first-aid assessment examination, check the victim's head, neck, back, trunk, arms and legs for injuries.
- Look for any Medic Alerts (necklace, wrist or ankle type).
- Treat conditions as recommended by your first-aid training.

Assessing an Unconscious Patient

The assessment procedure is as follows:

Determine the level of consciousness by gently squeezing and shaking the victim's shoulders and shouting to illicit a response.

Your most important function is to check the patient's 'ABC':

- A = Airway — is the patient's air passage open and clear?
 - B = Breathing — is the patient breathing?
 - C = Circulation — is there a pulse?
-
- If you are satisfied that the patient's heart is beating and they are able to breathe normally, then check for and treat bleeding, and support fractures.
 - Place in recovery position or tilt and support head to maintain the airway.
 - Use the standard first-aid assessment examination to check the victim's head, neck, back, trunk, arms and legs for any other injuries. Look for any Medic Alerts (necklace, wrist or ankle type)
 - Continuously monitor the patient's level of consciousness, their breathing and if possible pulse rate.

After any patient assessment your findings should be communicated to the IMT or medical professional. Your report should include:

- The patient's age and gender.
- A history of the incident.
- A description of any injuries you have identified, and any treatment you have given.
- The patient's current state of consciousness and any changes in responsiveness.
- The patient's pulse, skin colour, and blood loss; and any changes that have occurred in these during your assessment.
- Any unusual behaviour of the patient.

Patient Handling & Transport

Coastguard rescue work sometimes involves the transport and movement of patients at sea. This should be done with the following guidelines in mind:

- Promote comfort and safety of patients during treatment and subsequent transportation.
- Minimise the aggravation of injuries and deterioration in the patients' conditions.
- Develop good techniques based on smooth, deliberate, and unhurried movement of the patient.
- Some injuries require specific patient positioning for transportation — for example, hypothermia and dive-injury patients.

Assess all immersion victims for hypothermia, and if necessary treat accordingly. Depending on the degree of hypothermia, the IMT may arrange for a helicopter evacuation. Seasickness is a very debilitating condition at sea and should be anticipated with the majority of patients.

Due care and consideration should be given to any injuries when moving a patient. Many of the standard movement techniques are designed for stable underfoot conditions and often require more than one rescuer. You will need to consider these limitations as you develop movement techniques for work on a CRV.

Patient Care during Transportation

- The nature of the patient's injuries will in most cases influence the speed of the CRV to the shore.
- If there is severe bone injury the affected part must be immobilised before transportation.
- Communication with the patient should be maintained throughout the journey. This helps them to relax, and enables the level of consciousness to be monitored.
- Use of space blankets, polythene sheets and thermal suits or blankets will minimise the onset of shock, help in the treatment of hypothermia, and will protect the patient from wind-chill.

Working with Stretchers

The following points should be considered:

- If the patient is to be transferred ashore via helicopter, liaise with the IMT and air crew before putting them in a stretcher. The CRV stretcher may not be suited for helicopter transfer and the air crew may want to use their own stretcher instead.
- The toilet requirements of a patient may need to be considered before transportation.
- Allow the patient to use their hands to grip something, like the rails of the stretcher. This provides a more secure feeling for them and can be a great psychological booster.
- Use a footplate if it will not aggravate any injury, as it often assists by making jolts and bumps a little easier to bear. A conscious patient will be able to bear weight on uninjured legs, decreasing the feeling of helplessness.
- **When securing a patient to a stretcher, do not to restrict breathing or circulation.**

Transfer (Vessel To Vessel) Using Stretchers

Transfer of a patient secured in a stretcher can be a hazardous operation, and a very frightening one for the patient. It is essential that all risks are minimised and they are kept reassured and comfortable.

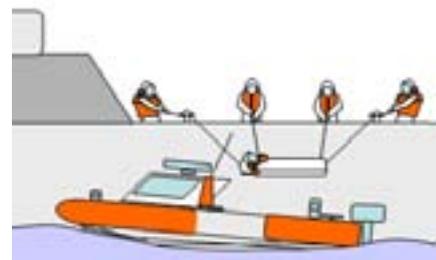
During this operation lifelines should be secured to the head and foot of the stretcher, and that contact is maintained on these lifelines until the transfer is complete. When stretcher transfers are undertaken a method of flotation should as far as possible be provided for the patient. Depending on the type of stretcher used and the nature of the patient's medical condition, a lifejacket can be secured directly to the patient within the stretcher, or to the stretcher itself. - ***If the CRV carries a dedicated stretcher – find out what works best.***

Transfers between Comparable Sized Vessels

Stretcher transfers between a CRV and another vessel of comparable size and / or freeboard often requires that the patient be passed over rather than lowered or raised with ropes, etc.

Transfers between Different Sized Vessels

The CRV should come alongside the vessel after the larger vessel has taken up a course and speed which allows the most stable conditions for a stretcher transfer. The transfer should then be carried out in the manner detailed in the diagram.



Only one person only should be coordinating the transfer.

Diver Care

Diving accidents can rapidly become medical emergencies. Any person who has recently been diving and displays unusual behaviour or complains of unusual symptoms should be treated as a diving injury, and expert advice should be sought immediately.

Diving Emergency Service 24–Hours

0800 4 DES 111 (0800 433 7111)

The doctor from the Navy's hyperbaric unit in Devonport will advise on the best course of action based on the available information.



To treat a suspected diving incident;

- Information on the patients recent dive history should be collected from the diver or any 'dive buddies'. Dive 'computers' can be sent with the patient in any subsequent evacuation.
- Remove diving equipment but not wetsuit.
- Log all diving equipment and its status.
- Keep patient lying flat on their back. If vomiting or unconscious use 'recovery' position.
- Keep patient warm but not overheated.
- If fully conscious give water to drink.
- Administer oxygen at a comfortable breathing rate until supply runs out.
- Monitor and treat as per First Aid ABC.
- Liaise with IMT to arrange evacuation / further transportation of the patient.

Multiple Casualties

A major incident may involve multiple casualties and this will call for even greater care and organisation.

- The crew member with the most experience of first aid should liaise with the skipper to determine the best course of action.
- The casualties will probably have a range of injuries and levels of consciousness.
- Only basic First Aid can be delivered, irrespective of the number of casualties and complexity of injuries.
- Space will be limited aboard the CRV.
- A shortage of First-Aid materials may also be a problem.
- Try if possible to use other available uninjured victims, or other members of the public to help with the ongoing medical care of the injured, and control of the scene.

Rescue Scene Management.

Managing the scene and the resources available will be a full time task for the CRV Skipper / On Scene Command. There are seven components to managing a multiple-casualty incident.

Phase 1: Hazard Identification and Priorities

- Conduct an assessment (SAP – Stop Assess Plan) of existing and potential dangers to CRV crew and casualties.
- The CRV crew must then decide on how best to affect a rescue in the circumstances.
- CRV crew should be briefed on the intended plan, and assigned roles / tasks.

Phase 2: Crew Preparation

- Crew members must be prepared to control the immediate situation, to issue orders and organise available resources and persons, including non-crew members.

Phase 3: Prioritisation of Casualties

- A rapid assessment of all casualties is required to decide which require priority attention:
- Follow the basic principals of First Aid priorities, ABC – Airways, Breathing, and Circulation.

Phase 4: Casualty Search

When (or while) all priority casualties are being attended to, a search of the vessel or area should be carried out for casualties who may be hidden in debris or below decks. Patients should be interviewed to provide pertinent information.

Phase 5: Triage

When the total number of casualties is known and priority actions have been carried out, it is necessary to divide casualties into categories to ensure the best level of care possible with the resources you have.

This medical categorisation is known as 'triage'.

- **Category 1 – CRITICAL:** casualties requiring continuous attention and basic life support (breathing and bleeding).
- **Category 2 – SERIOUS:** injuries not immediately life-threatening — major fractures, serious burns, impacts, external and internal injuries, progressive shock, and changes in level of consciousness.
- **Category 3 – LESS SERIOUS:** conscious casualties who need minimal attention, and can usually help themselves to some extent.

A fourth group, not strictly part of the triage, are those victims who are obviously dead. A casualty who appears to be dead must be initially placed in Category 1 and basic life support attempted. Ideally a casualty should only be considered dead if there is no possible doubt — decapitation, total body burned, severe crushing, in sea several days, etc.

In the case of mass casualties the difficult choice may need to be made as to who is treated especially those in Category 1. With a limited number of people available to administer medical care, using 2 or more to administer CPR on a casualty who has little chance of recovery is not necessarily good management of the scene. Using those people to administer medical aid to 2 or 3 others who do have a chance of recovery may be a more sensible and ultimately more successful use of resources.

Dead casualties should be covered up and placed out of sight if possible, as they can have a very disturbing effect on other casualties.

Corpse Retrieval

The retrieval of a body may be an unpleasant task and one that if possible only experienced crew should be asked to carry out.

- The Police must be involved in all cases of body retrieval. The IMT should be consulted for advice if the Police are unavailable to retrieve the body themselves.
- In the event that next of kin may be nearby, the body should be covered to avoid causing them additional distress.
- Depending on the circumstances, the IMT may determine that the task poses too great a danger to crew and advise that the body be left at the scene.
- Use equipment available to ease the task of recovering bodies, such as scoops, body bags and recovery stretchers.
- All personnel should wear medical latex gloves (infection can remain in a body after death).
- A body can float on the surface because of trapped air. Care should be taken to avoid causing the body to sink.
- The time a person has been dead in the water will determine the care needed to retrieve the body. A recently deceased corpse can normally withstand heavy handling, such as passing a rope under its shoulders and lifting it on board. However, a severely damaged corpse, or one that has had prolonged exposure (usually one that has been in the water for several weeks if not months) may disintegrate with only minimal handling. Use of a body recovery sheet or bag is advised.
- Greatest care should be taken to avoid causing any additional damage to the body. Clothing or anything else attached to the body must be contained as found.
- If possible photograph the body prior to, and immediately after retrieval.
- Many deaths on or near the water will meet the criteria for a sudden-death inquest, and a few may be the result of suspicious circumstances.

Crew Welfare

The continued well-being of crew and helpers is paramount to the success of an operation. The Skipper should manage the status of the crew, including rest periods, sustenance, protective clothing and general well-being. After any operation that involved trauma, severe injuries or fatalities, any debrief for those CRV crew involved must emphasize the opportunity for counselling. Counselling services are available through your local Unit / Region if required.

Recognising Post Traumatic Stress Disorder

Post Traumatic Stress Disorder is a very real, and potentially very disruptive and damaging condition for the individual, their family, friends, and colleagues. Symptoms of PTSD most often begin within three months of the event. In some cases, however, they do not begin until years later. The severity and duration of the illness vary. Some people recover within six months, while others suffer much longer. Symptoms can be grouped into three main categories;

Re-living the Trauma

People with PTSD repeatedly re-live memories of the trauma. These may include flashbacks, hallucinations, and nightmares. They also may feel great distress when things remind them of the trauma, such as the anniversary date of the event.

Avoiding things associated with the trauma

The person will avoid places, people, or situations that remind them of the trauma. This can lead to feelings of detachment and isolation from family and friends, as well as a loss of interest in activities that the person once enjoyed.

Emotional and physical problems

These include outbursts of anger; difficulty concentrating; and being "jumpy" or easily startled. There can be difficulties relating to others, including feeling or showing affection; and difficulty with sleeping. The person may also suffer physical symptoms, such as increased blood pressure, heart rate, rapid breathing, muscle tension, and nausea.

No one – no matter how ‘tall or bullet proof’ is immune from the risk of suffering Post Traumatic Stress.