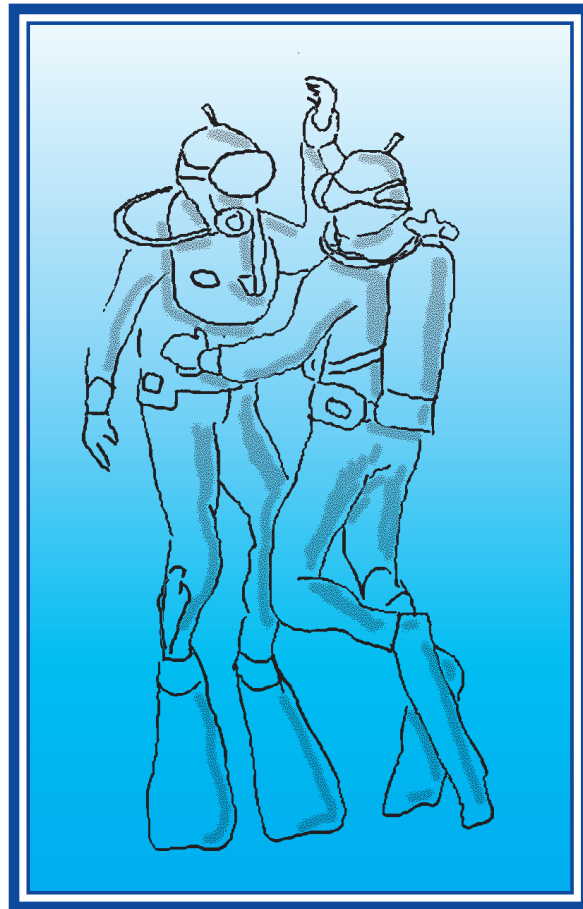


Irish Underwater Council
Comhairle F6-Thuinn



RESCUE DIVER
Training Programme
STUDENT HANDOUTS



RESCUE DIVER TRAINING PROGRAMME

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Rescue Diver Training Programme

STUDENT HANDOUT



Stress & the Diver

Primary Objective

Stress is an integral part of our daily lives, and we all learn to live with and handle it. Equally, stress is part of a diver's environment and we must learn to recognise it and cope with it in order to survive.

Stress may be defined as the sum of the biological reaction to any adverse stimulus, physical, mental or emotional, internal or external, that tends to disturb a diver's stability. Every time a diver goes out to dive he/she experiences some level of stress, but with training and experience they will learn to acknowledge and handle it.

Basically a diver is exposed to two forms of stress:

1. Physical Stress
2. Psychological Stress

Each are separate entities in their own right, but due to the nature of the diver's environment, both physical and psychological stress are interrelated. Exposure to extreme physical stress can lead to increased psychological stress which can lead to anxiety and panic. This in itself can lead to an emergency situation.

It is important that all divers be aware of stress, recognise the signs and symptoms, know how to manage the different types of stress and primarily how to prevent stress situations.

Physical Stress

Physical stress arises from forces on the diver's body that approach or exceed the body's physical limitations. Factors which contribute to physical stress include cold, fatigue, seasickness, alcohol, drugs, nitrogen narcosis, poor fitting wet-suits/dry suits which reduce mobility in the water and possibly inhibit regular breathing patterns. The sensitivity of the diver to any of these stressful situations will depend on the individual's health and level of fitness. What may not affect you one day can have a disastrous effect on you the next day depending on your sense of well being e.g. cold or seasickness.

Cold water, rolling seas, climbing over rocks, walking fully kitted to the dive site, currents, all of these are part of our diving environment. How we handle them is entirely up to the individual. Preventing stress then lies

with the diver in the format of preparation - adequate protection from the cold and training fitness to handle currents and walking to the dive site in comfortable fitting equipment.

If conditions exist beyond a diver's physical capabilities he/she should not dive. The problem area here is that not all divers realise their own limitations and are inclined to push or exceed their limits. Not only are they endangering their own lives but equally those with whom they are diving.

Example

A 35m dive is planned. Unless all parties are well dived up and are physically fit there is a risk that one will suffer nitrogen narcosis, possibly resulting in an emergency situation. The danger with physical stress is failure to recognise its effects and to take the appropriate action - possibly aborting the dive.

Psychological Stress

Some texts refer to this as emotional stress. This is definitely something we can all identify with, even though it is not very tangible. Psychological stress, is stress due to the diver's perceived "threats" in the environment. This stress may be real or imagined. Psychological stress often results from physical stress. Any type of physical stress can trigger emotional stress - a sense of fear or anxiety about whether the diver can cope with the situation.

Example

A pair of divers hit upon a current on a dive. One individual has no problem finning across it, while the buddy is not as fit or competent and has problems keeping up. A sense of anxiety about the situation begins to build up, so much so that a sense of panic and fear develops and the buddy decides to make for the surface. A rapid ascent with possible complications follows.

In this case as stress rises the diver becomes distressed and anxious and is prone to making mistakes. Psychological stress also initiates physiological responses in the diver's body, which may be physical stress in themselves. The diver becomes tense, may have a headache, feel nauseous etc.. Adrenaline may be released causing increased heart-rate, therefore increasing air consumption rate. All of these accumulatively and individually are contributing to a highly potential hazardous situation.

The real hazard with psychological stress lies in its manifestation with the diver and how he/she handles it. If the diver does not recognise what is happening, what starts off as an inconvenience could end in an irrational panicked ascent.

Recognising Stress

In order to handle stress it is important that we are all familiar with how it manifests itself in the diver. Each and every diver is unique and will have different levels of competency. Equally every diver has weak points and is familiar with them. This is knowing one's limitations. Some have a fear of deep dives, some of seasickness, some dread currents or simply diving with certain individuals within their club.

As a rescue diver you need to be aware of the circumstances that can lead to stress and to know the signs and symptoms of both physical and psychological stress both above and below the water.

A diver suffering from physical stress may not necessarily admit to it e.g. someone who is cold either in the boat or on a dive. The signs in this case may indeed be very subtle. On the dive their air consumption may increase. They may slow down and fall behind. In the event of them suffering cramp they may have problems finning effectively. A diver suffering nitrogen narcosis may not realise it and participate in strange behaviour, abandoning normal caution. Signs of physical stress appears to present itself similarly in each case depending on the cause.

Such is not the case with signs and symptoms of psychological stress. Who knows what is going on in your buddy's psyche? Stress in this case, manifests itself in individuals who are totally oblivious to it. A diver experiencing psychological stress before a dive may become withdrawn or the opposite, very talkative and even delay the dive.

Some divers experience a certain level of apprehension before a dive. Whilst this in itself is healthy, anything more serious should be dealt with in an appropriate manner to defray their fears and apprehensions and endeavour to have a safe and pleasant dive. Underwater a stressed diver may exhibit a change in dive skills - constantly checking and altering equipment, ineffective finning, inappropriate signals, may have a "wide eyed" look. A diver's eyes will reflect their level of ease and competence on a dive.

If on a dive you suspect your buddy is experiencing stress, stop the dive, check they are ok. If you suspect a particular problem e.g. they are not happy at that depth suggest ascending to a lesser depth. Try and identify the problem and act accordingly to reduce the stress aspect. By doing so you have now created a comfortable diving environment and averted a possible diver panic and emergency situation.

Conclusion

In conclusion, stress in diving has many disguises. Only by being aware of its aspects, being familiar with signs and symptoms of stress-related problems, being constantly alert and on the lookout, can a diver successfully intervene and avert the hazards associated with stress-related problems in diving.



Rescue Diver Training Programme

STUDENT HANDOUT



Rescue Prevention

Primary Objective

The primary objective of the course is to avoid the use of rescue skills. The course expects students to expand their awareness beyond themselves to the awareness of others.

Identifying Stress

As divers we are now familiar with the concepts of stress and how it manifests itself both physically and psychologically. More importantly we realise the hazards associated with it. By expanding our awareness beyond ourselves to our fellow divers, hopefully we can identify these signs at an early stage and intervene diplomatically to avert the situation deteriorating to a rescue.

Dive Planning

We all know the importance of planning your dive and diving the plan. With improved technology diving today is an adventurous sport allowing us to go deeper and possibly stay longer. By knowing C F T Rules and Recommendations, and knowing our personal limitations and capabilities and diving accordingly, we can expect to enjoy a long and happy diving career.

Being alert to the factors we expect to encounter on each dive i.e. depth, terrain, currents, visibility, time underwater etc. will enable us to carry out the dive in an informed manner while experiencing at the same time “the wonders of the deep”.

Buddy Check

The buddy system is fundamental to safe diving. C F T utilises the buddy system. This cannot be stressed enough. Correct dive practice will greatly improve the chances of a successful rescue. If you dive alone or widely separated from your buddy then your options and your chances of getting back to the surface are greatly reduced.

During normal diving operations any number of things can happen to cause an emergency to arise. With proper training, the student will be able to successfully deal with any emergency that may occur. Rather than teach many different methods to cover all the possible different combinations of equipment, the student should be given the information so that they will be able to think of and apply the correct combination of techniques to successfully complete the rescue be it of themselves or their buddy.

This requires “effective” education to address the following.

A. Anticipation

The Buddy Check is first and foremost of importance. It cannot be overlooked or treated lightly. The time taken for you and your buddy to become familiar with the workings of each others equipment cannot be over emphasised.

For the purpose of this course, emphasis will be placed on knowing how your buddy controls his/her buoyancy.

Practice inflation and deflation of both the Buoyancy Device and dry-suit. You will have to operate your own and/or buddy’s equipment automatically and possibly in darkness.

Ensure over-pressurisation valve operates properly.

Practice release of your Buddy’s and your own weight belt. Again it is not just enough to say “Yes, I know how to operate that type of weight-belt.”

These checks and questions will give you all the information you need to decide on a method of rescue. Without being too melodramatic, during the buddy check you should be asking yourself the question “How will I lift / rescue my buddy or myself at different depths?”

Hypothermia

Hypothermia means below normal body temperature. For survival the body maintains its core temperature at 37 degrees centigrade under normal conditions. Diving in cold waters may lead to a drop in body temperature if the diver is not adequately protected i.e. wet suit/dry suit. The areas of greatest heat loss are the head, neck, sides and groin. The reason for this is that in these areas major arteries and other blood vessels come close to the surface. Since these areas are not generally well protected by layers of body fat, the blood flowing through these areas can be rapidly cooled.

Symptoms

Symptoms of hypothermia begin with shivering and numbness / blueness in finger tips and toes. Shivering on a dive can lead to fatigue, increased air consumption and possible psychological stress. These signs and symptoms may progress from mild to severe as body core temperature drops further. As hypothermia deepens shivering will give way to mental disorientation, the diver loses co-ordination, becomes weak and confused and may lose consciousness.

Treatment

Prevention is better than cure. A jacket and hat for the boat to prevent wind chill, and suitable protection for the type of dive being undertaken. In the event of having to treat a hypothermic victim, the severity will dictate the level of care required. In mild cases remove the victim from the cold source, dry and rewarm gently. Cover the head using a wool hat and if necessary use the exposure blanket / bag in your first aid kit.

In severe cases hypothermic victims must receive medical attention and require hospitalisation. Protect victim from further heat loss and seek medical help.

Buoyancy

Buoyancy is the floating ability of a diver or object. Terms we encounter in diving are:

Positive Buoyancy	Tendency to rise
Negative Buoyancy	Tendency to sink
Neutral Buoyancy	Condition of balance, neither sinking nor rising but remaining suspended at a particular depth.

Ideally divers should weight themselves to be neutrally buoyant at 3 to 6m at the end of their dive with approximately 50 bar of air remaining. A diver experiences loss of buoyancy due to the compression of neoprene in suit or air in dry suits and compensates by filling air into the Buoyancy Device to adjust buoyancy.

Problems associated with loss of buoyancy control:

- Rapid descent, diver is negatively buoyant which can lead to suit squeeze, nitrogen narcosis, sinus and ear squeeze and decompression sickness.
- Rapid ascent, diver is positively buoyant which can lead to decompression sickness, burst lung, unconsciousness, drowning and death.

Buoyancy control is the ability to complete a dive with ease and comfort. This is achieved by adjusting one's buoyancy at various depths and being neutrally buoyant at the end of a dive for the recommended safety stops.

Each of us is a potential rescuer on every dive we undertake. Diligent equipment maintenance, good buddy checks, a good understanding of buoyancy, its loss, compensation and advantages, with regular practice of rescue skills will also guarantee a rescue executed with ease and safety.

Dry Suit Divers

The use of a buoyancy device is compulsory in C F T. The inherent nature of dry suits requires air input to prevent suit squeeze with increased depth. Improved technology allows divers to go deeper and stay longer. Without doubt the practice of using air in the suit alone for buoyancy and to prevent suit squeeze has become routine, thus rendering the buoyancy device dormant.

This is a dangerous habit to develop

In the event of a dry suit diver requiring assistance to the surface the situation can get out of hand. Air expanding in the suit on ascent, possibly greater than the ability of the dump valve to vent, resulting in an uncontrolled ascent.

Buoyancy devices are a common factor among all divers and everyone is familiar with their use, venting, advantages and disadvantages. Dry suit divers should endeavour at all times to only use air in their suits for comfort factor i.e. to prevent suit squeeze and utilise their Buoyancy device for buoyancy control.

Dealing with Problems

Despite appropriate preparation and dive planning, problems may arise on a dive. These adverse situations may apply to you or your buddy, and with the best intentions may occur without much warning. Such situations may include vertigo, vomiting, panic attack etc.

By practising a good buddy system, you will be close at hand. Maintain physical contact, ensure the regulator is retained in the mouth, stabilise the situation as best you can and at your ease ascend at the correct rate and abort the dive. On surfacing ensure the victim has no adverse effect, and discuss to evaluate the reason for the problem.



Rescue Diver Training Programme

STUDENT HANDOUT



Self Rescue & Rescue Skills

Awareness

To recap, the emphasis throughout the rescue course is to prevent rescue situations arising. Rescue Divers need the extra level of awareness to realise that dangerous situations can occur at any time, that it doesn't have to be a single major event but can be a series of minor events. Rescue Divers know that they cannot help others unless they can take care of themselves.

Critical Factors

Preparation

- Maintain your own physical and mental health and fitness and your diving skills
- Don't dive if you do not feel like it that day. Rescue Divers know that the skills of diving come with experience and time, not by exceeding their own or their buddy's limits
- Make sure that equipment is properly maintained and serviced. Remember that on a dive you must be totally familiar with your buddy's equipment and capabilities

Prevention

- Anticipate problems. Prevention is always better than a cure!
- Make sure you and your buddy's gear is in order and that you are both fit to dive
- Avoid using peer pressure to make someone go diving
- Listen to the dive brief and know what to expect at the site
- Good buddy check. Good buddy dive practice. Always make sure you know your buddy's capabilities and experience
- Understand the importance of buoyancy control, of being properly weighted and the risk factors involved.
- Give constructive advice after the dive.

Performance

Performance is the ability to deal with problems if and when they occur. Preparation and anticipation will help prevent a dangerous situation but if something goes wrong you will have probably just a few seconds to take calm and decisive action. How you do this can be the difference between whether the problem remains an incident or degenerates into an emergency.

STOP

THINK

ACT

When you spot a potential problem Stop and Think then Act. An instinctive reaction can sometimes be too hasty. Remember the person might be just nervous and needs some reassurance.

Review your own dive practices regularly. Practice rescue procedures regularly.

Out Of Air

This course strongly advises divers to carry a Secondary Air source. e.g.

- Octopus
- Air 11
- Spare Air / Pony cylinder
- Buoyancy Device mini cylinder. (This has the advantage of being able to provide buoyancy)

In conjunction with the buddy system, this will remove the necessity for free ascent, and result in a controlled ascent of both divers to the surface.

- The victim can simply take the second regulator or the rescuer can switch to the Buoyancy Device regulator while the victim gets the primary regulator
- Establish a secure grip and rhythm of breathing
- Positive Buoyancy must be achieved for the victim by inflation of the Buoyancy Device. If this is not possible then ditch victim's weight belt
- In theory, the victim will be neutrally buoyant and therefore will be positively buoyant upon leaving the bottom

Should, through bad dive practice, your buddy not be close at hand the out of air diver will have to perform a self rescue by FREE ASCENT or BUOYANT JACKET ASCENT.

If a Secondary Air System is available e.g. Spare Air or Pony cylinder then this will make the ascent easier. The less effort required the more likely it is to be successful.

- Again you must achieve positive buoyancy for yourself
- Start Finning STEADILY towards the surface
- If this can not be achieved by inflating the Buoyancy Device then do not waste any time and drop the weight belt



Ditching the weight belt

- Ensure to drop the weight belt well clear of your body
- If inflating the Buoyancy Device stop once positive buoyancy is achieved.
- Tilt the head back, retain the mouthpiece in the mouth
- Vent air from the jacket (and lungs if opting for a free ascent) during ascent.
- Monitor depth and time
- Blow or exhale hard during the last 7 metres
- Don't stop finning, venting jacket, exhaling
- The ascent rate can be increased by less venting of the Buoyancy Device

Much precious air will be wasted trying to fin hard off the bottom while negatively buoyant and still wearing the weight belt. You will only have one chance. It must succeed, a return to the sea bed will result in only one outcome.

Dangers

- Over expansion of lungs
- Rapid uncontrolled ascent
- Fear of exhaling



Free ascent

Points to Note

- If while ascending buoyancy is lost, don't stop finning. If wearing a weight belt, release and pull clear of the body and drop
- Retain regulator in the mouth. It may deliver some air at shallower depths as ambient pressure reduces
- You cannot run out of air if a free ascent is done properly. Remember Boyle's Law and residual volume
- If the ascent rate becomes too fast, extend all limbs outwards to increase drag, stop finning



Rescue Diver Training Programme

STUDENT HANDOUT



Deep Rescue Methods

Primary Objective

To recap C.F.T. utilises the buddy system. This cannot be stressed enough. Correct dive practice will greatly improve the chances of a successful rescue. If you dive alone or widely separated from your buddy then your options and your chances of getting back to the surface are greatly reduced.

Anticipate / Assess / Act

The rescuer should be familiar with the victim's equipment, both location and operation from the buddy check. The rescuer also knows the condition of the diver e.g. is the diver nervous etc. and from observation during the dive and just prior to requiring assistance.

Monitoring your buddy during the dive is very important so watch out for signs of distress. This is to anticipate problems rather than having to react after the event.

Signs of possible stress would be:

- Rapid breathing
- Bad finning technique e.g. rapid cycling kick
- Not finning horizontally and will only swim vertically
- Sinking / jerky motions

These can all be signs of stress / vertigo / narcosis etc.

From these observations you must decide on the best course of action. It may only require some reassurance / calming or an assisted lift.

If the victim is unconscious or in a state of Passive Panic or Narcosis an approach and lift from behind is advised, otherwise the side, or front style of lift will suffice.

The method of lift is the same for a wet or dry suit diver. Achieving positive buoyancy for the victim is second only to the safety of the rescuer.

A. Conscious Victim

- Establish contact / grip with victim
- Rescuer retains neutral buoyancy. No air should be dumped from BD or suit
- Positive buoyancy for victim is achieved by inflating BD. The victim should already be neutrally buoyant, however if the BD cannot be inflated then the weight belt should be ditched
- Rescuer, as required, controls venting of all systems during ascent



- Don't dump too much air too soon
- At or near the surface, drop the victim's weight belt

B. Unconscious Victim



- Establish contact with victim
- Rescuer retains neutral buoyancy. No air should be dumped from BD or suit
- Approach from behind and hold the victim's regulator in place. If this has fallen out do not waste time replacing it
- Positive buoyancy for victim is achieved by inflating BD. The victim should already be neutrally buoyant, however if the BD cannot be inflated then the weight belt should be ditched
- Rescuer controls venting of all systems during ascent
- At or near the surface, drop the victim's weight belt

C. Choking / Gagging Victim



Should the victim be unable to clear water from the mask and start to inhale / swallow it then assistance will be required as follows

- Establish contact with victim
- Rescuer retains neutral buoyancy. No air should be dumped from BD or suit
- Approach from behind and hold the victim's regulator in place while pinching the nose
- Positive buoyancy for victim is achieved by inflating BD. The victim should already be neutrally buoyant, however if the BD cannot be inflated then the weight belt should be ditched
- Rescuer controls venting of all systems during ascent
- At or near the surface, drop the victim's weight belt

Summary For All Lifts

The rescuer will most likely have to control dumping of air from all systems. If control of the ascent is lost then the victim should be released and let to the surface. The rescuer then proceeds at a normal ascent rate to the surface i.e. 10 metres per minute.

The rescuer will also have to decide which system to dump and when. If the victim is wearing a dry suit an only putting in air to prevent squeeze, then the BD will have priority for dumping. However if the victim is using the dry suit (incorrectly) for buoyancy control then the suit will have the most air in it and require controlling first. This again will be known from the Buddy Check.

One of the most common faults is the mistake of dumping too much air too soon from the jacket just after establishing an ascent rate of reasonable proportions. Very little air needs to be vented from the BD in the initial stages of the lift. It only becomes a priority if the victim begins to "rocket" to the surface and also during the last 10m of the lift.

Remember that a cool head and proper training, especially in the area of Self Rescue, are absolutely vital to a diver's sense of confidence in the water. The combination of these two

attributes will ensure that most underwater emergencies can be handled successfully. Training in the proper use and practice of these methods of lift can only enhance diving skills and greatly add to a diver's confidence and ability to handle most underwater emergencies. Remember as divers you owe it to your buddy to be trained and experienced in both "Self Rescue" and "Buddy Rescue" techniques to ensure proper "Buddy Protection."



Rescue Diver Training Programme

STUDENT HANDOUT



Diver Rescue Management

An Emergency

An emergency, by definition, is a combination of circumstances which are unforeseen. Normally the nature of the circumstances require action to be taken immediately in order to avoid serious injury or even death. The characteristics of the marine environment, such as weather, currents, remoteness and communication difficulties, all add a level of complexity to the emergency situation which may influence the ultimate outcome.

Both training and experience should ensure that the Dive Leader or Rescue Manager can handle a wide variety of emergencies and potential emergency situations. This will enable them to competently deal with an emergency, should one arise, and identify the key signs of potential situations before they even happen.

The objective of this programme is to offer the Rescue Manager a plan or set of guidelines to follow in the unlikely event of an emergency situation arising. However, when dealing with an emergency the Rescue Manager must be flexible and alter their actions and priorities as changing circumstances may dictate. Therefore when using the 'Rescue Plan' do not follow it blindly and uncompromisingly. Use it more as a guide or prompt indicating what action may be required next or what actions have been omitted. It must also be stated that no matter what is required by the 'Emergency Plan', always obey the instructions given by the emergency services.

What is Diver Rescue Management?

Rescue management can be defined as taking control of an emergency situation and undertaking a number of actions, which eliminates or prevents the situation from deteriorating further while awaiting the arrival of the emergency services.

What does Rescue Management Require?

As stated previously the Rescue Manager will use both their training and experience to the best of their ability to manage the emergency situation. He/She must also be aware of the resources which are available to them, from the people and equipment in close proximity, to the emergency services which can come to their aid if required.

Ideally, the Rescue Manager should have undertaken the CFT training courses and acquired the necessary skills for dealing with an emergency situation. Specifically the Club Diver, Rescue Diver and Diver Medic courses provide training in Rescue Management, First Aid, CPR and Oxygen Administration. In addition, the Rescue Manager must have an understanding of the Coast Guard system, the services they provide and the resources available to them.

The Emergency Plan

It has been said "to fail to PLAN is to PLAN to fail". This is true in most areas and especially with regard to rescue management. Thus, as part of the normal dive planning activity, the dive leader must also spend some time reviewing or anticipating potential emergency situations and how he/she may react should the unthinkable happen. Of course, it must be emphasised that effective planning and safe diving practice should significantly reduce the risk of an emergency situation arising. It can happen that, despite our best efforts, circumstance can sometimes conspire against us.

The Emergency Plan has been constructed to assist with rescue planning and to aid the rescuers response should action be required. It can be viewed as a 'flow chart' or a path to follow in the event of an emergency situation arising. The nature of a flow chart is to list a number of actions which follow in chronological order. Again, it must be noted, it is possible to undertake emergency actions either in a different order or simultaneously, as circumstances dictate. For example the emergency services can be notified while first aid is being administered.

The Emergency Plan is also used to record information, which the dive leader will use as part of the planning process, and may use as part of the rescue operation. Again, don't follow the plan blindly or ignore the instructions of the emergency services.

The 'Rescue Plan' should be brought with the dive party and used as a prompt card if required. A copy should also be left with the shore marshal who, if required, can give valuable assistance to the rescue operation. The 'Rescue Management Sheet' is also a vital part of the dive organisation, this is used to record information pertaining to the casualty during the emergency situation. The 'Rescue Management Sheet' must travel with the casualty to hospital.

1. Remove the Casualty from the Environment

If dealing with an in-water incident, for example a diver comes to the surface in a distressed state or someone is struck by a moving propeller, the primary concern is to remove them from the water to prevent further injury. If unconscious they may sink or stop breathing due to airway compromise. If there is a significant injury causing rapid blood loss, the sooner the person is removed from the water the quicker the injury can be treated. Also, as most experts agree, the sooner first aid is applied to a casualty the more likely a successful outcome will result. Also ensure that all other divers are recalled, accounted for and removed from the water.

If the casualty has sustained an injury, assume there may be a spine or head injury, thus extreme care must be taken of the head and neck when removing from the water.

Lost Diver

The obvious exception to this is in the 'lost diver' situation. While it is difficult to prescribe a detailed course of action for this there are a number of activities which must be undertaken immediately.

- Establish and mark the last known position and time
- Notify the coast guard of the situation, be able to answer the following:
 - What is your current position?
 - How long overdue is the diver?
 - Do you believe them to be on the surface or underwater?
 - Are there any special conditions (diving on wreck for example)?
 - Have you marked his/her last known position?
 - Are your other divers ok?
 - Describe your vessel?
 - What is the current weather?
 - If unable to contact the coast guard, broadcast a 'Pan Pan' urgency message
 - Recall all other divers
- Note local tide & current conditions
- Request other vessels to aid the surface search
- Can divers be put back into the water?
- Can snorkellers be put into the water, may see bubbles from the surface?

In the event of a lost diver the Rescue Manager must not compromise the safety of the other divers by putting them back into the water if it is unsafe to do so.

2. Take Control of the Situation

When the injured diver has been returned to the boat or shore, someone must assume overall control of the situation. This person becomes the Rescue Manager. In normal circumstance this may be the dive leader, but if

someone within the group is more competent or experienced in this regard they may, by agreement, assume control. As has been stated the Rescue Manager must have the necessary management skills to undertake the task. But as in any management role, the Rescue Manager may choose to delegate specific tasks to certain people because of their knowledge or skill. For example the Rescue Manager may ask a person to administer first aid because of that person's particular knowledge. Equally the Rescue Manager may ask the Coxswain to take control of all radio communications with the coast guard.

3. Administer First Aid

As previously stated first aid is always administered by the most competent person available.

First aid is given to a casualty:

- To sustain life
- To prevent their condition from worsening
- To promote recovery

As has been studied in the Diver Medic programme the primary concern for the first aider can be summarised by the acronym DR-ABC

- **Danger** - Ensure the first aider is not subject to any danger themselves
- **Responsive** - Is the casualty responsive, shake & shout
- **Airway** - Open the mouth, check for obstructions, open the airway
- **Breathing** - Look, listen and feel for breathing, if not present commence resuscitation
- **Circulation** - Check the carotid pulse, if not present commence compressions

The first aid kit and oxygen equipment should be made ready for use as appropriate.

4. Notify the Emergency Services

As soon as is practical the emergency services must be notified of the emergency situation. Also as the coast guard is charged with the responsibility of co-ordinating all marine based search and rescue operations, they should be the first to be contacted. The coast guard can be contacted by phone dialling 112 or 999, or by using a marine band VHF radio. While it is important to make contact with them with whatever means is available, the primary method should be VHF radio. Unlike mobile phones, VHF radio is the primary method of communication for the inshore marine environment. Also, if the position of a boat is not exactly known it is possible for a lifeboat or helicopter to use radio direction finding equipment to locate it.

It must also be recognised that VHF radio does have its limitations. Due to low antenna height, low power transmission or land obstructions, it may not be possible to

communicate to the coast guard from the dive boats location. The dive leader must be aware of this limitation and know where and how it is or is not possible to communicate with the coast guard. The logging of a Traffic Report and requesting a radio check periodically is a useful way of confirming that radio communication can be established.

Be ready to answer the following questions put by the emergency services;

- What is your exact location?
- What is the nature of the distress?
- What assistance do you require?
- How long overdue is the diver?
- Do you believe them to be on the surface or underwater?
- Any special conditions (diving on wreck for example)?
- Can you mark his/her last known position?
- Is the diver conscious or unconscious?
- What signs and symptoms are present?
- When did these symptoms first appear?
- What First Aid has been administered?
- Are your other divers ok?
- What is the dive profile of the distressed diver?
- Describe your vessel?
- What is the dive depth of water and current weather as appropriate?

Always call for assistance on Channel 16. If in a **DISTRESS** situation, **WHEN LIFE IS IN GRAVE OR IMMINENT DANGER**, use the distress call as follows:

MAYDAY MAYDAY MAYDAY
NAME and/or CALL SIGN of your craft (3 Times)
MAYDAY
NAME and/or CALL SIGN of your craft
Your present POSITION
What is the nature of your PROBLEM TO CRAFT OR DIVERS
Number of People on Board
Nature of ASSISTANCE required

If in an **URGENCY** situation - when no imminent danger to life exists (e.g. if broken down and drifting) use the urgency call as follows:

PAN PAN PAN PAN PAN PAN
NAME and/or CALL SIGN of your craft
Present POSITION and INTENTIONS
Nature of URGENCY

Continue to broadcast the message until an answer is received.

If an emergency situation has arisen during a shore dive in an isolated location, and if there is no other person available. The difficulty here is obvious: "do you leave the casualty and go for help?" or "do you stay and continue to administer first aid?" Firstly it must be argued that poor planning has allowed this to happen and a Shore Marshal should have been present. This is a difficult decision to make and will ultimately depend of the condition of the casualty. Current medical practice suggests that in such situation early access to the emergency services is vital.

In this case if a stranger happens to arrive on scene, request them to notify the emergency services and return to confirm with you that they have done so.

5. Monitor the Casualty

At all times a vigilant watch of the casualty must be maintained. This again is a task which the Rescue Manager may wish to delegate to a competent person. The casualty should be kept warm and dry and his/her vital signs checked regularly, i.e. responsiveness and ABC.

Ensure the 'Rescue Management Sheet' is being completed as the emergency progresses. It is important for hospital staff to know the dive profile, the signs and symptoms present and all first aid administered, in order to determine possible causes or course of treatment. Again this is a function the Rescue Manager can delegate to a competent person.

6. Arrange Transportation

The coast guard will normally decide the mode of transport of the casualty to hospital if it is required. This will depend on many factors including, distance from hospital, weather condition, nearest port or safe landing point, and type of injury or illness. Therefore, it may require that the casualty wait at the dive site because a helicopter has been dispatched, or travel by ambulance or is driven by car to the hospital or chamber.

If transporting the casualty by car ensure there is sufficient oxygen in the car, and a constant watch is maintained in case their condition deteriorates further. Also ensure that the casualties equipment is secured, fully intact, it may be required to determine the cause of the incident. However, the injured divers computer should accompany them to the chamber or hospital, as it may be used to determine possible courses of treatment.

The 'Rescue Management Sheet' must also travel with the casualty to hospital, this records vital information such as, dive profile, symptoms and first aid given, which also may be used by the hospital staff to diagnose and treat the casualty.

Finally if may be necessary for the casualties buddy to travel to hospital, especially if they were subjected to the same underwater profile and may not yet be presenting any adverse symptoms.

Helicopter Evacuation

Helicopters may generate downdraught, noise and static electricity as they hover. As a general guide you should always carry out the following before the helicopter arrives:

- Secure or stow any loose objects that may be affected by the downdraught
- Advise the casualty of what is about to happen and provide reassurance
- Identify a large clear area for winching, 15 meter clear radius
- Clear away all non-essential personnel
- Be ready to communicate with the helicopter on VHF Channel 16
- Do not communicate with the helicopter during winching, landing or takeoff operations
- Have an orange smoke flare ready to identify your position to the helicopter

On arrival the helicopter crew will assess your craft for safe winching operations. If it is safe, do exactly as requested. You may be required to lower aerials, to get underway at slow speed, or to receive a weighted rope. Whichever method is used it is important that you follow the instructions given.

Do not touch the winchman, winch wire or weight unless indicated by the winchman. The static electricity can cause severe shocks. Follow the winchman's instructions at all times. If you are asked to maintain a course and speed do not be distracted.

7. Peripheral Activities

Debrief Dive Group

It important that the rest of the dive group is kept informed of developments. Also if all the dive party is kept informed they can provide very valuable assistance to the Rescue Manager, if required.

Exercise Crowd Control

Emergency situations tend to attract spectators, especially if lifeboats and helicopters are involved. A large crowd can add further distress to a casualty and the first aiders. Be polite but firm with onlookers, request them to maintain a distance. Onlookers can be given a task which removes them from the scene: clear a landing site for the helicopter, go for a blanket or hold the boat.

Contact a Relative

Endeavour to contact a relative as soon as possible and inform them of the situation. If they arrive on site it is important that they be allowed stay with the casualty. Explain to them what has happened and what is happening. The presence of a family member may at times be difficult, however, as in all medical situations they may be asked to leave if a procedure has to be carried out. Personal physical contact with a casualty, conscious or unconscious has proven to be an aid in their survival while also diminishing their sense of isolation while in a stressful state.

Conclusion

As has been stated, an emergency situation is a combination of circumstances which arise in an unforeseen manner and require immediate action. This action must be controlled or managed by a Rescue Manager who is equipped with the necessary training and experience. This training and experience shall allow the Rescue Manager to deal with situations as they develop or identify the key signs of potential difficulties before they arise.

The 'Rescue Plan' has been constructed as a mechanism to aid rescue management. It can be viewed as a 'flow chart' or a path to follow in the event of an emergency situation arising. The nature of a flow chart is to list a number of actions which follow in chronological order. Of course the Rescue Manager must be flexible and alter the plan as required by changing circumstances. The key to the successful resolution of any emergency situation is the immediate involvement of the emergency services. With a skilled Rescue Manager and all the resources of the emergency services appropriately used, the chances of a successful outcome will be greatly increased.