

Ocean Diver

# Going diving

## Module objectives

This module offers practical advice to students on going diving. They may recognise many elements from their practical sessions and here we give guidance on what to expect on dives.

## Achievement targets

At the end of this module, students should:

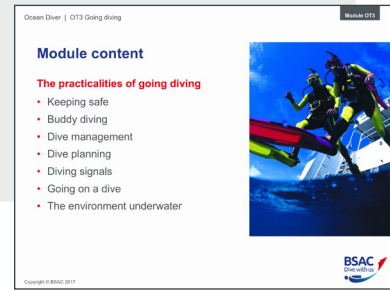
- Know that diving is an adventurous sport and that risks need to be assessed and mitigated to make it as safe as possible
- Understand the importance of diving as a buddy pair
- Understand that diving is controlled by a Dive Manager
- Understand the importance of the dive plan, briefing and buddy check
- Know how to use diving signals
- Know what to expect and what to consider during a dive
- Have a basic understanding of the environment underwater

## Additional visual aids needed

Instructors should enrich their teaching using additional visual aids: for example flag, torch, knife, net cutters, compass, and so on.

## Module content

This session looks in more detail at the practicalities of going diving.



## The practicalities of going diving

Going diving requires planning to ensure a safe, successful and enjoyable dive. In this module we will review how diving is structured and organised in BSAC branches or centres to ensure safety. We will also look at the importance of dive management and planning, and walking through what students can expect to experience on a dive.

The module covers the following topics:

- **Keeping safe**  
Diving is an adventurous sport and there are hazards that need to be assessed and mitigated to make it as safe as possible. However, simple actions that help to control the risks and make it a safe sport, enjoyed by many people.
- **Buddy diving**  
Following good diving practice is essential from the start and much of this module sets out what that is. For example, BSAC promotes diving in buddy pairs as a safe way to dive and sharing the experience with another diver also makes a dive more enjoyable.
- **Dive management**  
Students should understand how important dive management is, what the process involves, and where the responsibilities lie in order to play their part in club diving. Diving is, after all a team activity.
- **Dive planning**  
Deciding maximum depth and dive time, and gas planning are essential before every dive. The simple rule of thirds is used to ensure that divers leave the water with an appropriate reserve of gas, for use in an emergency; it's another element of good diving practice.
- **Diving signals**  
All divers need to know the common hand signals used between divers and be aware of the surface signals to inform other water users that diving is underway.
- **Going on a dive**  
A dive starts before entering the water with briefings and a buddy check. This walk through includes describing best practice for the entry, descent, the bottom phase, ascent, surfacing and exit from the water. Separation drill is introduced to minimise the risks if a buddy pair becomes separated.

- **The environment underwater**

Students have learned about the changed ambient pressure experienced on a dive, but may not be aware that other aspects of the physical environment also change underwater. Light and sound are affected, with some practical effects, and we need to consider the effect of water temperature to stay comfortable on dives.

## Keeping safe

Diving is a safe sport and major incidents are, fortunately, rare. The vast majority of incidents are completely avoidable. Diver error and complacency often play a part in serious incidents. Explain to the students the need to think about ensuring the safety of themselves and their buddy.



## Identify hazards, such as

The first step in the process of keeping safe is to identify the potential hazards associated with the dive about to be undertaken. These hazards may be generic risks that are present on all dives or very specific risks relating to the conditions that occur at the site or time of year. Run through a couple of examples.

- **Running out of gas**

Every dive carries the risk that a diver may run out of breathing gas. This could be due to equipment failure, which is rare, or to the diver consuming all of their gas before ascending. This event is nearly always avoidable.

- **Separation**

Separation of buddies could happen on any dive and is usually a result of insufficient care or inadequate buddy monitoring. Separation is not a hazard in itself but is a contributing factor in many accidents.

- **Entanglement**

This is an example of a more specific risk. Wrecks and other structures often act as magnets for discarded fishing equipment. When conducting dives on such sites the risk of snagging could occur.

## Plan controls

Having thought through the potential hazards divers should plan and enact the appropriate control strategies to minimise these hazards and ensure that they stay safe. Explain to the students some of the main controls for the examples discussed above.

- **Gas monitoring**

Divers should regularly check both their own and their buddy's gas supply during a dive. Do not be afraid to ask a more experienced diver for a gas check. Explain that divers should adhere to the plan, for example to turn around at an agreed gas level. Additional care should be taken by divers who are extending their experience to new locations or deeper depths.

- **Keep close**

Good buddy-diving practice is the best protection against separation. Stay close, keep communicating and look out for each other.

- **Knife/net cutters**

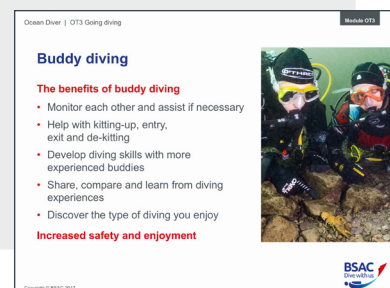
On any dive, to keep alert and on the look-out for snagging hazards, and keep away from them. Note that monofilament nylon fishing gear can be very difficult to see especially in poor visibility. If entanglement occurs, keep calm; avoid thrashing around and making the situation worse. Signal to your buddy and get their help to cut you free. Traditional dive knives are not good at cutting nets. Net cutters or shears can be more effective. Putting the line under a little tension can help.

## Follow safe diving practices

Explain to the students that these examples are just a small selection of the topics to consider. Divers should refer and adhere to the guidance given in the BSAC publication *Safe Diving*, which is a guide to the safe practices of sport diving, available on the BSAC website.

## Buddy diving

Buddy diving, that is a pair of divers diving together, is a way of diving that is both fun and provides maximum safety



## The benefits of buddy diving

- **Monitor each other and assist if necessary**

Looking out for each other throughout the dive means that someone is there to assist if their buddy is unable to resolve a problem safely. For example, a simple thing such as a fin strap slipping may mean a diver stops, loses buoyancy, kicks up the bottom sediment and becomes disoriented. A buddy's assistance can quickly and easily resolve the problem before it becomes an emergency.

- **Help with kitting-up, entry, exit and de-kitting**

- **Buddies can help each other with kitting up, entries, exits and de-kitting.**  
Why struggle on your own when your buddy can help?
- **Develop diving skills with more experienced buddies**  
Diving with more experienced buddies develops a diver's skills and experience base.
- **Share, compare and learn from diving experiences**  
Sharing and comparing a diving experience means that divers continue to learn and develop their skills.
- **Discover the type of diving you enjoy**  
Talking to different dive buddies will help you to discover, from their various dive experiences, the type of diving – for example, wreck diving, marine life identification or photography – that you really enjoy and want to pursue further.

## Increased safety and enjoyment

Many of the best experiences in life are all the better when they are shared. Shared experiences, memories with friends and fellow divers add significantly to whole experience of going diving. Buddy diving is a safe way to dive.

## Dive organisation

The way a dive is organised is important for all divers. Outline the procedures that Ocean Divers will encounter when diving with your branch or centre but each area is discussed more fully following this slide. Explain that there are a number of essential jobs to be done for a dive trip to be enjoyable and safe.

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**Dive organisation**

- Diving Officer (DO)/Lead Instructor**
  - Overall accountability for diving safety
- Dive Manager (DM)**
  - Appointed by DO/lead instructor
  - Responsible for all diving on site
- Buddy pair**
  - Duty of care to self and buddy

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## Diving Officer (DO)/Lead Instructor

Each BSAC branch or centre will have a Diving officer (DO) or Lead Instructor who is accountable to the BSAC National Diving Officer for maintaining safety and diving standards within the branch or centre.

- **Overall accountability for diving safety**  
The DO has overall accountability for diving safety and will ensure that safe diving practices are complied with. The DO may cancel diving operations or exclude individuals who fail to comply with the advice provided.



## Dive Manager (DM)

The DO may appoint other experienced and suitability qualified divers to the role of Dive Manager (DM). This appointment could just be for a single dive, a whole day's activity or it could be an on-going responsibility.

- **Appointed by DO/Lead Instructor**  
The DM will agree the objectives for these dives with the DO and with the divers who intend taking part.
- **Responsible for all diving on site**  
The DM is the DO's delegate on the day, and is responsible for ensuring that the dive(s) are conducted safely. The DM may need to cancel the dive or exclude individuals who fail to comply with safety advice.

## Buddy pair

Dive buddy pairs form the final and crucial link in the triangle of responsibility. Diving safety isn't the sole preserve of authority figures such as the DO and the DM.

- **Duty of care to self and buddy**  
All persons involved in diving have a duty of care to themselves, their buddy and the wider group. Divers should always raise any concerns over safety of the diving operations with the DM or DO. There are no prizes for being proved correct after the event. If something seems unsafe, speak up.

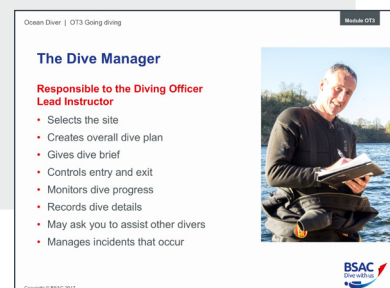
## The Dive Manager

In the following sections, we will look a little more closely at each of these roles starting with the Dive Manager.

### Responsible to the Diving Officer /Lead Instructor

Before each dive, the DM conducts a number of inter-related activities.

- **Selects the site**  
The DM will select a site and then put together the overall dive plan taking into account the weather, the site conditions and qualifications of the divers – most importantly the DM will plan the maximum depth and maximum dive time for the dive.
- **Creates overall dive plan**  
The DM will work out a timetable for the day, the dive pairings and all supporting activities which may include the availability of boats, the provision of breathing gas and anything else to make the diving both safe and enjoyable for all.



- **Gives dive brief**  
The DM will prepare and deliver a dive brief – it is very important that you attend and listen to the brief. If you do not understand something, you must ask, as it is important that everyone understands the plan and their part in it. The DM will also prepare and brief an emergency action plan in case a diver has a problem. While this is only precautionary, it is an important part of keeping everyone safe.
- **Controls entry to and exit**  
The DM will confirm your dive plan with you before you enter the water.
- **Monitors dive progress**  
They will also monitor conditions throughout the diving, particularly the weather and resulting sea conditions.
- **Records dive details**  
The DM will collect the details of your dive when you leave the water. These details form part of the branch or centre’s records and of course they are there for you to consult at any time and record in your dive log.
- **May ask you to assist other divers**  
During the day, the DM may ask you to assist in helping other divers with their kit or with other parts of the programme such as handing out refreshments. Taking part in this way is important and it allows the DM to focus on the critical elements of the dive programme.
- **Manages incidents that occur**  
Should a diving incident occur then the DM will co-ordinate and manage any support or rescue activities that maybe required.

## The buddy pair

### Responsible to the Dive Manager

Buddy pairs should:


- **Listen to dive brief**  
Divers should listen carefully to the dive brief and ensure that they understand it. Ask questions to clarify anything that is unclear.
- **Plan your dive**  
With your buddy, plan your dive within the overall plan set by the DM.


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#### The buddy pair

**Responsible to the Dive Manager**

- Listen to dive brief
- Plan your dive
- Agree and lodge dive plan with DMDO
- Be ready to enter water on time
- Dive the plan
- Lodge dive details with DM after dive
- Help other divers as requested by DM



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- Agree and lodge dive plan with DM/DO**  
 Inform the DM of the details of your plan and agree it with them. If you plan to do any drills, such as practising an AS ascent, then it is very important that the DM knows before the dive so that they do not start any emergency procedures when they see you surface.
- Be ready to enter water on time**  
 Be ready to enter the water at the agreed time with all the kit you need for the dive – if you will not be ready on time inform the DM as soon as possible. It is important to talk to the DM who will have many other things going on some contingent on your timings. Any information that you can give will help keep things running smoothly for all.
- Dive the plan**  
 Once a plan has been agreed then the buddy pair should take every care to adhere to the plan. Failing to comply could result in the DM initiating an emergency response, and soon calling out the coastguard or other appropriate emergency service.
- Lodge dive details with DM after dive**  
 Following the dive, a buddy pair should check in with the DM. The DM will want to know your dive time, maximum depth reached and the amount of gas remaining at the end of the dive. You should also report any problems or incidents you may have had.
- Help other divers as requested by DM**  
 Assist the DM by carrying out any tasks that the DM asks you to help with.

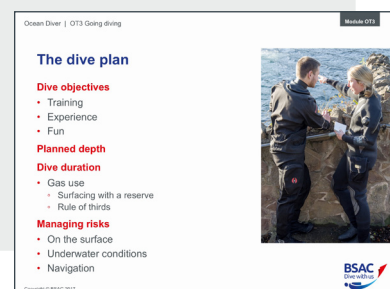
## The dive plan

Following the DM's brief the buddy pairs should agree their individual plans within the constraints of the overall dive plan. There are several things to consider.

### Dive objectives

Buddies should confirm their overall objectives for the dive, taking account of the following.

- Training**  
 Does the dive require any skills that one or other of the divers does not yet possess? Are there any activities or skills that the individual divers want to practice during the dive, and can this be done safely?





- **Experience**  
Each dive pair should nominate a dive leader, who after consultation with their buddy makes the decisions on the dive, such as direction to swim in and when to turn around. Normally this role would fall to the most experienced diver in the pair. But on occasions it will be beneficial to give the less experienced diver a chance to extend their own experience in safe conditions.
- **Fun**  
Don't forget that we do this sport for fun, so make sure that the proposed plan is enjoyable.

## Planned depth

The DM will have given the group a maximum depth for the planned dive. If the individual pair is to deviate from this plan this should be discussed and agreed with the Dive Manager.

## Dive duration

Buddies need to agree the total duration of their planned dive, which will be limited by no-stop times and gas consumption. Duration could vary from pair to pair depending on factors such as experience, physical fitness levels and environmental conditions. For example divers in drysuits will probably be able to have a longer dive in cold water than a pair in wetsuits will. It is important that this information is shared with the Dive Manager so that it's understood what each dive pair intends to do.

For example, one pair may plan to surface after 20 minutes and another pair after 25 minutes but both may be inside the maximum time of 30 minutes agreed with the DM. However, if a buddy pair exceeds the time they have given to the DM, it could be the first indication that the divers have a problem and the DM will need to carry out a rescue. It is therefore very important that divers do not go beyond the planned dive time, not only for themselves, but also for those acting as surface cover who will be monitoring divers in and out of the water.

You will need to advise the DM of your cylinder contents and the gas mix it contains (air or nitrox to 36%). The DM will want assurance that each pair has adequate and appropriate gas for the dive.

- **Gas use**  
Gas consumption may limit the duration of a dive. Explain the need to have a simple gas plan.

- **Surfacing with a reserve**  
The simplest approach to breathing gas planning – surfacing with a fixed reserve - is suitable for shallow dives in very sheltered conditions (for example at inland dive sites). This uses the principle that you surface when the first diver in a buddy pair reaches 70 bar gas remaining, this means you should exit the water with a 50 bar reserve, for use in an emergency.
- **Rule of Thirds**  
However, on deeper dives the Rule of Thirds should be used to prevent the risk of running out of gas during ascent. The rule is: use one-third of your gas for the outward leg of a dive, the second third for the return leg, which leaves a third in reserve. For example, if your cylinder is filled to 210 bar, your turnaround point would be 140 bar, and you should reach the surface with 70 bar remaining.

## Managing risks

The plan should also contain any specific actions that are to be taken to deal with any specific risks.

- **On the surface**  
The surface is often one of the most hazardous places for a diver. Safe entry and exits from the water is an essential consideration
- **Underwater conditions**  
This could include underwater hazards such as poor visibility or snagging risks. Where are the net cutters stored, have the divers got a torch?
- **Navigation**  
Divers should also consider how they will navigate their way around the dive site once underwater.

## Buddy briefing


The buddy dive brief is a recap or checking procedure following dive planning and should be done just before getting ready to enter the water. It is important to do a briefing as, in many cases, there may have been some time between planning the dive and getting into the water. The brief re-affirms the plan. Divers can construct this brief in various ways but the acronym SEEDS will help cover all the points of the plan.

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### Buddy briefing

- Safety**
  - Fitness to dive
  - Within capabilities and qualifications
  - Site hazards
- Exercise – dive objective**
  - Depth and time
  - Breathing gas
- Equipment**
  - What is needed
- Discipline**
  - Confirm dive leader
  - Stay together
  - Separation procedure
- Signals**
  - Highlight any special signals

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## Safety

Explain the importance of confirming the following:

- **Fitness to dive**  
Both divers are fit to dive, free from colds, and well-rested and are in general good health. Remember to avoid alcohol and recreational drugs before diving.
- **Within capabilities and qualifications**  
This is important, as honesty is always the best policy. Although every dive offers a challenge, divers should never feel forced into doing a dive that they feel they are not prepared for, or when the conditions are too challenging. Say if you don't think the dive is within your capabilities.
- **Site hazards**  
Divers should make sure that they understand any specific hazards of the dive site. The precautions to be taken to avoid these hazards should be included in the safety brief.

## Exercise – dive objective

The dive objective is the reason for doing a dive. For example, it may be an exploratory dive to see what is underwater in that location or an experience dive to improve buoyancy control. The dive will have certain limits.

- **Depth and time**  
Confirm your planned maximum depth and time for a no-stop dive (using tables or computers), staying within the Dive Manager's constraints.
- **Breathing gas**  
Confirm the gas choice (air, nitrox to 36%) and gas plan, including the cylinder contents at turnaround/surfacing.

## Equipment

- **What is needed**  
Discuss what will be needed on this dive. Ensure that all your equipment is prepared. It is checked for correct operation during the buddy check.

## Discipline

- **Confirm dive leader**  
It is important that this has been agreed to eliminate uncertainty in decision-making.

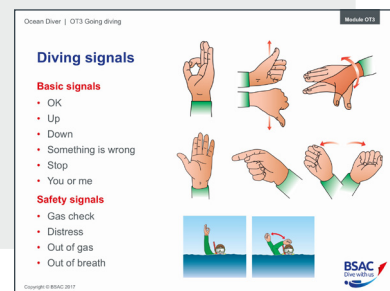
- **Stay together**  
Agree how you will maintain contact underwater. Swimming side by side reduces risk of separation. Deciding who will be on the left or right can be a useful tactic. In low visibility, holding hands can maintain contact and offer reassurance.
- **Separation procedure**  
Introduce the idea of a separation procedure that all divers follow. Explain the detail is to come later.

## Signals

Students have likely come across normal diving signals and training signals during a try dive or early pool session. Explain that there may be special ones agreed between the buddy pair, for example a 'turn around' signal. This part of the briefing provides a final check that these special signals are understood.

## Diving signals

As students already know, divers make use of a whole range of non-verbal signals to communicate with each other underwater.



## Basic signals

Basic signals are used on all dives, most are recognised worldwide. Explain to students the custom and practice behind each; important to stress that each signal requires a response so that your buddy knows you understand their intent.

- **OK**  
This signal is a question, which asks: Are you OK? It requires an answer: Yes, I am OK or No, something is wrong.
- **Up**  
Used to indicate that divers should ascend or go up (not OK as in thumbs up, confusion can arise).
- **Down**  
Given at the start of a dive before beginning the descent.
- **Something is wrong**  
Indicates that you have a problem or are feeling uncomfortable about something. Will usually be accompanied by another signal such as up, or pointing to the source of a problem.

- **Stop**  
Means stop what you are doing. Again, normally followed by another signal to perhaps indicate a change of direction or an Up signal to commence an ascent.
- **You or me**  
A pointing signal used to indicate who.

## Safety signals

Explain the special importance of these signals.

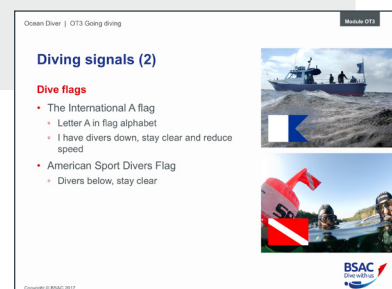
- **Gas check**  
During the dive gas should be routinely monitored. The dive leader should check gas at set points throughout the dive and confirm signals for the turn-around or check points required by the rule of thirds.
- **Distress**  
This is an emergency signal for use both on the surface and underwater.
- **Out of gas**  
A rarely used signal, but one with which all divers should be familiar. A buddy seeing this should immediately prepare to make their alternative supply available. In an out-of-gas situation it is more important to establish a breathable gas supply than to give any signals.
- **Out of breath**  
When finning hard underwater a diver can get breathless. The diver should give the out-of-breath signal. Both divers should stop finning to allow the affected diver to regain normal breathing. The dive leader should then consider if the dive is safe to continue or should be aborted.

## Diving signals (2)

### Dive flags

When diving in sheltered or open water where there is other surface traffic, flags are used to provide a visual warning of diving activities. Students should recognise them and understand when they should be used.

- **The international 'A' flag**  
Meaning – *“I have divers down, stay clear and reduce speed”*  
When the International letter 'A' flag is flown, it indicates to other water users that they must stay clear and pass at slow speed, as there are divers below. The 'A' Flag must be used when diving from boats. It must only be used when diving is actually taking place, and not when travelling to or from dive sites.



- **American Sport Divers Flag**

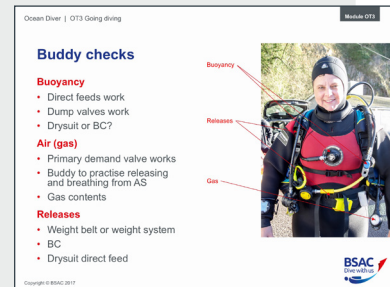
Meaning – “Divers below, stay clear”

Divers may see another flag being used when travelling to some other countries, the American ‘Sports Diving’ flag warns other water users that there are divers below and that they should stay clear.

## Buddy checks

Students should already be familiar with the buddy check from their sheltered water or pool work, but this is to remind them that a buddy pair needs to check their equipment before a dive. It is done not only to ensure that it is all working correctly, but also to familiarise themselves with each other’s kit, should assistance or rescue be needed during the dive. Various methods are used by divers, such as ‘top to toe’, but BAR is commonly used and easy to remember.

A buddy check should be done before every dive even if you are familiar with your buddy’s kit after the buddy briefing, just before diving.



## Buoyancy

The B in BAR refers to buoyancy. Check that BC, and drysuit if used, are working correctly and that they can be inflated and deflated.

- **Direct feeds work**  
Check direct feeds are working for the BC, and drysuit if used.
- **Dump valves work**  
Check dump valves are working for the BC, and drysuit if used.
- **Dry suit or BC?**  
Establish how buoyancy is controlled on a dive, as this will need to be considered if assisting or rescuing a diver. (Rescue is discussed in more detail in module OT5.)

## Air (gas)

The A in BAR refers to air, although it’s more correct to say gas as it could be a nitrox mix.

- **Check primary demand valve**  
Divers should check their primary demand valve by breathing from it to see that the breathing gas is free from odour or taste. They should monitor the contents gauge for any needle movement while breathing from the demand valve. Needle movement indicates a fault or the cylinder not being turned on fully.



- **Buddy to practise releasing and breathing from AS**  
The buddy should check the alternative supply, or octopus, as it is being carried for them. Particularly check the ease of release and, as with the primary demand valve, check against the contents gauge while breathing from it
- **Gas contents**  
Divers should be sure that cylinders are fully charged and that they are turned on. On modern cylinder valves it is normal practice to open the valve all the way. Avoid only partly opening the valve. This could restrict gas supply and could result in confusion – is the valve open or shut?

## Releases

The R in BAR refers to releases. In the event of difficulty, it is important that divers can quickly find and remove their buddy's equipment. So, divers should pay close attention to the various fastening points on their buddy's dive kit. This step also ensures that vital equipment is not left behind.

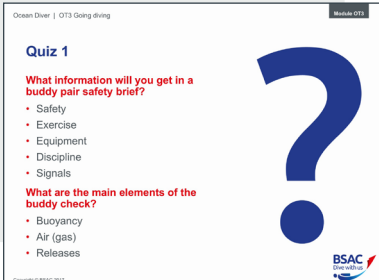
- **Weight belt or weight system**  
Check how the weights release and their location. Some BCs have integrated weight systems rather than a separate weight belt or harness.
- **BC**  
Check how the releases work on the BC.
- **Drysuit direct feed**  
If being worn, check drysuit direct feed hose release.

## Quiz 1

Instructors should routinely check for transfer of knowledge to the students. This can be done by asking an open question such as:

### What information will you get from a buddy-pair safety brief?

- **Safety**
- **Exercise**
- **Equipment**
- **Discipline**
- **Signals**



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Module 03

**Quiz 1**

**What information will you get in a buddy pair safety brief?**

- Safety
- Exercise
- Equipment
- Discipline
- Signals

**What are the main elements of the buddy check?**

- Buoyancy
- Air (gas)
- Releases

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## What are the main elements of a buddy check?

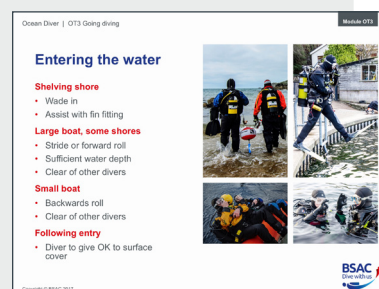
- Buoyancy
- Air (gas)
- Releases

Correct any incorrect answers and reteach the relevant areas if necessary.

## Entering the water

Having planned the dive, briefed and buddy checked, the divers are ready to go diving. The next stage of the dive is the entry. The method of entry will vary from location to location. The aim is to keep this as simple as possible while ensuring safety from slips and trips, and falls onto hard surfaces while wearing full scuba equipment.

Before any entry, divers should ensure that there is gas in their BC and their demand valve and mask are in place, so that if the diver falls they can still see and breathe.



### Shelving shore

- **Wade in**  
Wade into water taking care to avoid any hidden rocks. Work as a buddy pair to support each other and prevent accidents.
- **Assist with fin fitting**  
Fins can be fitted before or after wading into the water deep enough to support some of the weight of the cylinder. Both methods will require assistance of the buddy to help the diver keep their balance.

### Large boat, some shores

To enter the water from somewhere that has a vertical drop, such as stepping off a quay into deep water, or stepping through the gate of a large boat, a stride or forward roll entry can be made.

- **Stride or forward roll**  
Performed correctly both entry methods will result with the diver facing the same direction as they went in. Stride is probably the most commonly performed. Forward rolls are useful for protecting delicate camera equipment.

- **Sufficient water depth**

Before entering the water ensure there is sufficient depth for a safe entry and check that the area is clear of submerged hazards. A fully equipped diver will need a minimum of 2m. If the drop is high, then as much as 3-5m may be required.

- **Clear of other divers**

Check that there are no divers underneath the entry point.

## Small boat

From small boats, a backwards roll entry is the normal method used. It can be a little disorientating to start with.

- **Backwards roll**

If performed correctly the diver will come up facing the boat.

- **Clear of other divers**

Before entering check there are no divers underneath the entry point

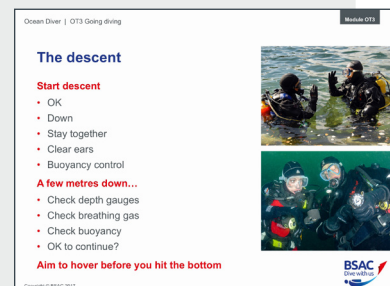
## Following entry

- **Diver to give OK to surface cover**

Divers should signal OK to the surface cover following a successful entry. Having given their 'OK' to the surface cover following entry into the water, the divers must stay together.

## The descent

The descent method will depend on the site. For a shelving-shore entry, you can descend immediately and follow the slope of the seabed to your intended dive depth. When diving from a boat, a shot line will generally be used to mark the dive site. The shot is a heavy weight with a connecting line between it and a large surface buoy. The line guides the divers to the site. It is best practise to follow the line down by allowing it to run through your fingers, rather than pulling yourself down using the line, which can move the shot weight off site.



## Start descent

Once a buddy pair has reached the place where they to descend, the divers should confirm to each other that they are OK and ready to dive.

- **Down**  
After checking you are 'OK' give the 'down' signals to each other when ready to descend.
- **Stay together**  
Stay together, either side-by-side or face-to-face on the descent. Where visibility is reduced it is better to descend fins first – better they, rather than a diver's head, hit the bottom first.
- **Clear ears**  
Remember to clear your ears and equalise your mask as you descend.
- **Buoyancy control**  
Remember that buoyancy will need to be adjusted to control your descent. If you do nothing you will become heavier and heavier and sink faster and faster, eventually losing control.

## A few metres down...

After descending a couple of metres stop your descent, by trimming for neutral buoyancy, and take the time to carry out some simple checks

- **Check depth gauges**  
Check depth gauges/computers – are they switched on and working? If one is reading slightly deeper than the other, use that for keeping to the maximum planned depth.
- **Check breathing gas**  
Check your breathing gas. Is the gauge reading what you would expect at this stage in the dive? Look around the back of your buddy and check that their equipment is not leaking breathing gas by confirming that no streams of bubbles can be seen.
- **Check buoyancy**  
Trim for neutral buoyancy.
- **OK to continue?**  
Give an 'OK' to proceed with the remainder of the descent. The process should be repeated on reaching the bottom/maximum depth of the dive.
- **Aim to hover before you hit the bottom**  
Divers should hover just clear of the seabed, and avoid crashing into the bottom by adjusting their buoyancy.

## On reaching the bottom

### Trim buoyancy

- **Aim to hover**

On reaching your maximum depth, fine tune your buoyancy to keep clear of the seabed and achieve a hover position.

### Check

- **Buddy with you and OK**

Check that your buddy is still with you and is ok by exchange of signals.

- **Check breathing gas for self and buddy**

Divers can often use a surprising amount of gas on descent, so check gas supplies and confirm that these are satisfactory for the dive.

- **Look at buddy, all kit still in place and done up?**

Check that all equipment is in good order and that weight belts are still securely attached. It may be necessary to tighten straps before proceeding.

- **Look for streams of bubbles**

Look around the back of your buddy to check that equipment is not leaking gas.

- **Ask am I happy to continue?**

Be prepared to abort the dive and return to surface if you are uncomfortable with the conditions or if there is an issue with your equipment or your buddy.

- **Establish direction of travel**

Agree and confirm with your buddy the direction in which to swim. Make sure it conforms to the plan.

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### On reaching the bottom

**Trim buoyancy**

- Aim to hover

**Check**

- Buddy with you and OK
- Check breathing gas for self and buddy
- Look at buddy, all kit still in place and done up?
- Look for streams of bubbles
- Ask am I happy to continue?
- Establish direction of travel



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## During the dive

Divers should regularly communicate with each other, pointing out items of interest, noting hazards and checking on the progress of the dive against the plan.

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### During the dive


**Stay together**

**Monitor**

- Conditions
- Depth
- Route
- Breathing gas
- Buddy
- Check alternative supply
- Weight belt feels OK?

**Keep to plan**

- If unhappy, abort the dive



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## Stay together

Swimming side by side will help avoid diver separation and it makes it easier to communicate. Where this is not possible divers should orientate themselves so that they only need to turn their heads very slightly to be able to see their buddy. Keep close. In low visibility this will be essential to avoid separation. In good viz you still need to be close so that you are available to assist in the event of an incident.

## Monitor

- **Conditions**  
Monitor the conditions, if vis decreases consider aborting the dive. In tidal waters or in regions with currents, be aware of the direction of water movement. Is it as expected? If not consider aborting the dive. Moving water can very quickly take you away from a safe exit point.
- **Depth**  
Monitor depth, particularly if the dive site shelves or 'steps' away to deeper depths. Do not exceed the maximum planned depth for the dive.
- **Route**  
Check that you are following the planned route. Beware of tides or currents that may be carrying you away from your planned destination. Turn around or abort the dive if you are unsure of your position.
- **Breathing gas**  
Monitor breathing gas in readiness for half way or 'turn-around' point.
- **Buddy**  
Monitor buddy with 'OK' signals. Remember to share with your buddy any interesting things that you see.
- **Check alternative supply**  
Make sure you can easily locate your alternative supply and that it is not leaking gas.
- **Weight belt feels OK?**  
Weight belts can come loose or move around the waist, so check that they are securely fastened and in the proper position.

## Keep to plan

Keep to the plan. It is easy to get distracted by interesting things underwater. If unhappy, uncomfortable or cold at any point during the dive, don't press on, end the dive.

Remember what to do if separated from your buddy.



## Separation procedure

Explain to the students the importance of having a separation procedure.

### If separated from your buddy

- **Stop**

Upon noticing that you can no longer see your buddy, both divers should stop; carry-out a complete turn looking around for their buddy or their bubbles. Swimming on may result in you swimming further away from your buddy who may be behind you.

- **Focus on direction of last contact, also look around and up**

If the buddy cannot be located then the diver should ascend a little, still looking for bubbles as a lightening in the green water against the sky's light. If they are carrying a torch or another light source, look out for light flashes too.

- **30-60 seconds maximum**

Limit the time you spend looking to 30-60 seconds. It is easy in the heat of the moment to get carried away and continue with a fruitless search.

- **Ascend**

If the diver or their bubbles are not seen, the diver does a controlled ascent to the surface and should signal to the surface cover that they are OK. If both divers do this on separation, they should both surface at more or less the same time and in better viz you may find each other during the ascent. The surface cover will be alerted that there has been a separation if only one diver appears and will be prepared to assist if necessary.

- **At surface make yourself buoyant and await instructions from Dive Leader or Dive Manager**

Divers should remember to inflate their BC or drysuit to ensure that they are securely supported on the surface. The instructions of the Dive Manager should then be followed.

### Trio diving

Evidence shows that diving in buddy pairs is the safest way to go diving. However, there will be occasions when you find yourself on a dive site with an uneven number of divers necessitating a plan to dive in a three.



- **Increased risk of separation**

The main issue with diving in threes is that there is a significant increase in the risk of separation, where one of the group is left behind. Explain to the student the importance of strong dive leadership in such situations to keep the group together.

Note: that during dive training diving in a three will be the norm with an instructor leading two students.

- **Buddy monitoring**

Trio diving requires all members of the team to be responsible for monitoring all members of the team continuously to minimise the risk of separation.

- **Self-reliance**

Ideally all divers would carry an adequate bail-out gas supply to allow them to make their own ascent to the surface without reliance on a buddy's alternative supply. Later in your diving career you will be introduced to kit set ups that do this.

## Finding your way

Usually a dive is a better, and safer, experience if you know where you are and where you are going to.

### Pilotage

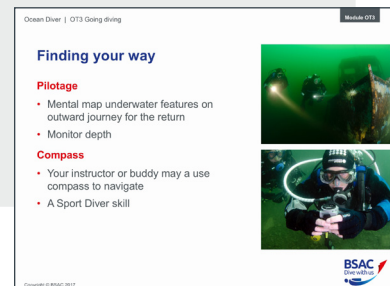
When walking or driving, we note passing features to help us return to where we started from. This is called pilotage and it can be used in exactly the same way when diving. Easily identifiable features need to be observed and remembered, such as a slope, cracks in rock faces, weed or coral heads, individual rocks, or items lost from passing boats. Sand ripples can also help with pilotage as they generally run parallel to the shoreline.

- **Mentally map underwater features on outward journey for the return**

On the outward journey, you can identify suitable features and when you pass them remember to look back to see how they will appear on the return journey (For example you might keep pier pylons on left on the way out, and then on the right on the way back.

- **Monitor depth**

Remember not to get distracted and monitor your depth while using pilotage.



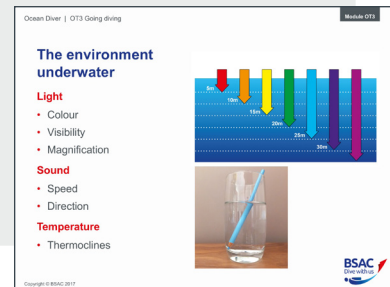
## Compass

It is not intended for instructors to explain how to use a compass at this stage.

Explain to students that when they learn how to use a compass, it will ensure a safe return to start point. They will see instructors/buddies doing this and will learn the skill in Sport Diver training.

## The environment underwater

Explain that water conditions can vary widely between different dive locations. Conditions also change with the seasons and the weather conditions.



## Light

White light, such as sunlight, is made up of light from across the colour spectrum: red, orange, yellow, green, blue, indigo and violet.

- **Colour**

Water absorbs the individual colours of light at different depths. Red is the first to go and so the deeper a diver goes the bluer the surroundings become. In natural light, marine life that is red will appear blue at depth. Only by using artificial light, a diver's torch, will the true colours be revealed.

- **Visibility**

Divers talk about 'viz' and this refers to how far they can see horizontally when diving (generally expressed in metres). Divers cannot see as far underwater as they can on land, as there is less available light and particles in the water will reduce overall light levels further by preventing light penetration from the surface.

- **Magnification**

Divers often come back from dives remarking on the size of marine life they have seen. From an earlier session, students will remember that divers need air in a mask to see underwater. Light rays passing from air into water are bent and this causes objects to appear about 25 per cent larger and closer to the viewer.

## Sound

Underwater hearing becomes an unreliable sense.

- **Speed**

Sound travels eight times faster through water than it does through air.

- **Direction**

In air we can determine the direction of sound by measuring the time difference in the sound reaching our left and right ears. This mechanism is not sufficiently sensitive to cope with the faster transmission speed of sound in water. So we are unable to identify the source of sound.

## Temperature

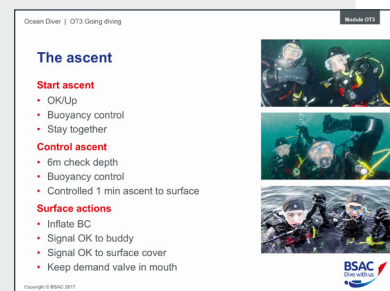
Water temperature can vary quite a lot with depth, starting off warm at the surface and steadily cooling with depth.

- **Thermoclines**

A thermocline is the transition layer between warm water at the water surface and cooler layer of deeper water below. The two layers of water don't mix and can create a blurry looking boundary. Their occurrence varies by season and local conditions.

## The ascent

Just like the descent, the ascent will depend on the type of dive being undertaken. For shore dives on a shelving beach the ascent will be a gradual swim up the sloping beach, for a boat dive it is likely to be a direct ascent up a shot line.



## Start ascent

- **OK/Up**

Signal, then follow the seabed contours, a shot line or other visual reference, towards the surface.

- **Buoyancy control**

Control ascent rate by controlling buoyancy. Monitor ascent rate either by using a depth gauge or computer. Maintain good buoyancy control throughout the ascent. Take care to avoid 'yo-yo-ing' up and down

- **Stay together**

While monitoring ascent rate, be careful not to become so pre-occupied with it that you ignore your buddy and risk separation. Stay together and monitor progress: depth and gas consumption.

## Control ascent

This is the most important phase of the dive, and a controlled ascent is the key mitigation against decompression illness.

- **6m check depth**  
Slow down for the 6m check depth. At 6m divers should stop and check that dive parameters such as depth and time are still within the planned limits.
- **Buoyancy control**  
Maintain good buoyancy control throughout the ascent. Take care to avoid 'yo-yo' profiles.
- **Controlled one minute ascent to surface**  
From 6m to the surface divers should be slow and controlled, taking one minute to reach the surface. Note if diving on a computer the ascent check depth and ascent rates may differ slightly from the BSAC tables. If in doubt use the most conservative option.

## Surface actions

Once back on the surface:

- **Inflate BC**  
Quickly check that the surface is free from other water users who could present a hazard; yachts, speedboats, and so on. Then inflate BC for both comfort and to ensure your head stays clear of the water.
- **Signal OK to buddy**  
Signal OK to surface cover
- **Keep demand valve in mouth**  
Divers should try to develop the good practice of keeping a regulator in their mouth until well clear of the water. A dropped regulator on a choppy surface could result in a diver inhaling water and possibly drowning.

## Exiting the water

When exiting the water in full kit, divers should ensure there is gas in their BC and that their demand valve and mask are in place – if the diver falls they will float and can still see and breathe.

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### Exiting the water

**Shelving shore**

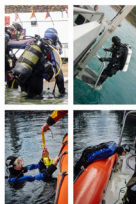

- Wade out
- Assist with fin removal

**Large boat, some shores**

- Steps or ladder
- Mask on, demand valve in, gas in BC
- Stay clear of diver on ladder/lift

**Small boat**

- Remove weight belt
- Remove scuba equipment
- Fin up into boat

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## Shelving shore

- **Wade out**  
Exits from a shore dive usually involve the diver walking out of the water across a 'beach'. When wading out of the water, buddy pairs should assist each other. Take care to avoid tripping over rocks and stones. Walking backwards is usually easier and safer when wearing fins.
- **Assist with fin removal**  
Fins can be removed before, or after, wading out, but both methods will require the assistance of your buddy to help you keep your balance.

## Large boat, some shores

On large boats, you normally exit the water either using a lift or up a ladder and over the gunwales of the boat. On some inland sites a ramp or ladder may be used.

- **Steps or ladder**  
Fins will need to be removed before climbing steps, but most boat ladders can be climbed with fins on.
- **Mask on, demand valve in, gas in BC**  
As generally these are exits from deep water, reiterate the importance of keeping the mask and demand valve in place and having gas in the BC.
- **Stay clear of a diver on ladder/lift**  
Always stay clear of the bottom of a ladder or lift in case a diver falls (especially in rough water conditions). Divers should stay well clear of the lift/ladder while waiting their turn to exit.

## Small boat

Exits on small boats involve a certain amount of de-kitting in the water. This makes it easier to get into the boat.

- **Remove weights**  
Hold onto the side of the boat, remove weight belt or weights if worn. Take care not to drop heavy weights. Hold the free end of a belt to prevent weights sliding off it.
- **Remove scuba equipment**  
Remove your cylinder and BC and assist in passing it up into the boat. Take care to ensure that equipment is not allowed to sink.
- **Fin upwards into boat**  
Holding onto the boat, fin upwards to get back in – not elegant but it works.



## After the dive

Once the dive has been completed there are still things to do.

### Dive details

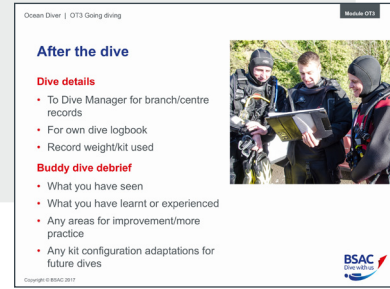
A short summary of the dive details should be provided to the DM. It's important that any issues or difficulties encountered are also reported.

- **To Dive Manager for branch/centre records**  
The dive details should be given to or be collected by, the Dive Manager or his/her assistant. The importance of this is that details may differ slightly from your intended plan – maybe the depth was shallower or the time shorter. Maybe the divers strayed just over planned depth or time. These details are logged by the Dive Manager in branch or centre records.
- **For own dive logbook**  
Divers should also record their dives together with buddy signatures, in their log books.
- **Record weight/kit used**  
Keeping a record of equipment and weight used for different dive types can be very useful, for example your weighting for a holiday dive may be very different from the weight you normally use if you are wearing a different suit. Having this information recorded will save some guesswork next time you travel abroad.

### Buddy dive debrief

Divers learn something new on every dive and, because of the shared experience, a dive debrief can recall some of the key points of the dive. This won't be difficult, as every diver wants to talk about:

- **What they have seen**
- **What they have learned or experienced**
- **Any areas for improvement/more practice**
- **Any kit configuration adaptations for future dives**



## Quiz 2

Instructors should routinely check for transfer of knowledge to the students. This can be done by asking an open question such as:

### What are the responsibilities of the Dive Manager?

- Assessing risks
- Buddy pairings
- Diving grade and depth limitations
- Monitoring conditions

### If you are separated from your buddy, what actions should you take?

- Stop
- Focus on direction of last contact, look all around and up
- Ascend
- Make yourself buoyant and await instructions

Correct any incorrect answers and reteach the relevant areas if necessary.

## Summary

Recap the module objectives and provide students with opportunity to ask questions.

### The practicalities of going diving

- Keeping safe
- Buddy diving
- Dive management
- Dive planning
- Diving signals
- Going on a dive
- The environment underwater

