



Ocean Diver Safety Skills

Module objectives

This module will develop the safety skills needed by an Ocean Diver to provide assistance to a buddy by introducing the rescue of an unconscious or otherwise incapacitated diver. Alternative supply (AS) skills are consolidated to increase the students' confidence in their own abilities.

Achievement targets

At the end of this module students should:

- Be able to assemble and check their equipment with minimal supervision
- Be able to kit up and conduct a thorough buddy check without prompting by the instructor
- Be able to perform a forward-roll entry in full scuba kit
- Be able to perform an AS ascent as both donor and recipient
- Be able to recover an unconscious or incapacitated buddy to the surface using a controlled buoyant lift
- Be able to secure an unconscious or incapacitated buddy at the surface
- Be able to signal for help and tow an unconscious or incapacitated buddy a distance of 25m

Equipment needed

The instructor and each student will need:

- Basic equipment (mask, fins and snorkel)
- A scuba set comprising a single cylinder, BC (ensure that a student's BC is a good fit) and regulator fitted with an AS configured to comfortably provide an effective gas supply to an out-of-gas recipient
- Weight belt and weights if necessary
- Pool suit or shorty wetsuit and boots (optional appropriate to conditions)

Note: Initial training is best completed with simple, standard equipment styles. Avoid the use of specialised or unusual equipment for Ocean Diver modules if possible.

Module contents

After consolidating AS ascents, students will learn the component elements of a controlled buoyant lift (CBL) and surface tow in isolation before joining them together in a complete rescue sequence.

All practical Ocean Diver modules can either be delivered as a single session or broken down into two or more separate sessions, depending on students' progress and the time available.

The following sections are intended as a guide on how to deliver the skills. The sequence can be varied to suit local conditions and the needs of individual students. However, each session should begin with a briefing and a buddy check, and end with a debrief.

Using the principle of teaching by demonstrating a practical skill and then asking students to do it (demo/do), you will demonstrate each element of a skill first before asking students to copy your demo. Correct any errors by repeating the demo-do sequence emphasising the correct action.



SEEDS brief

Cover all elements of a SEEDS brief in a logical sequence appropriate to the local conditions. Reassure students that less haste at this point in training will mean more speed overall.

- **Safety**

Remind students of the importance of ear clearing, mask equalisation, checking gas consumption and breathing normally at all times when using scuba, taking particular care on ascent. Stress the importance of controlling buoyancy very carefully during rescue exercises and avoiding breath-hold injuries. Also point out any relevant hazards of the venue.

- **Equipment**

List the equipment required for the lesson: basic equipment, scuba and weight belt.



- **Exercise**

Very briefly outline the main elements of the lesson as stated in the lesson objectives: forward-roll entry, consolidation of AS skills, introduction of CBL and surface tow. Relate this to real diving, so that students understand why they are practicing these drills and understand when they would become relevant, for example a forward roll can be used to protect delicate camera equipment. Do not talk through each skill in detail, this will be covered by demonstrating in the water.

- **Discipline**

Ensure students understand the importance of watching each of your demonstrations and only attempting to repeat a skill when prompted by you. Emphasise the importance of keeping close together while practicing skills, and adopting a one-up-all-up policy when practicing AS ascents and CBL.

- **Signals**

Remind students of the basic diving signals 'OK', 'stop', 'up', 'down'. Introduce the surface version of the 'help/I am not OK' signal. Ensure all students understand these and can repeat them. Remind students of the teaching signals 'you watch me', 'you do', 'faster', 'slower', 'do it again'. Introduce any new teaching signals needed, such as 'be rescuer' and 'be casualty'.



Kit-up and buddy check, dry run, forward-roll entry

By this stage students should be competent to assemble and check their own equipment without assistance. Ensure that students continue with the routines taught in earlier lessons and don't lapse into bad habits. Carry out a dry run for the CBL exercise and introduce another deep-water entry.

- **Assemble scuba**
 - Fit BC to cylinder.
 - Fit regulator to cylinder.
 - Connect BC direct feed, secure contents gauge and AS. Stress the need to keep hoses tidy and out of the way.
- **Carry out functionality checks**
 - Physical check: Check that all hoses are free from damage. Check that the mouthpieces of both main and AS demand valves are firmly attached and are free from splits or tears that could allow water in.
 - Contents check: Turn cylinder valve on slowly, holding the contents gauge facing the cylinder. Check gauge to ensure cylinder has adequate contents.
 - Operational check: Take several breaths from both main and AS demand valves, while observing the contents gauge. Ensure valves breathe smoothly and contents gauge operates correctly (no fluctuations).
 - Leak check: Turn cylinder valve off and check for leaks by both listening and observing the contents gauge (leave for a few minutes).
 - Breathe down: Purge the air pressure, while cylinder valve is closed, and attempt to breathe from both main and AS demand valves to check for inward leaks. Before use, open cylinder valve, slowly as usual.
- **Kit up and buddy check**
 - Supervise buddies helping each other to kit up, and their buddy check.
 - Listen for the use of BAR or another appropriate acronym.

Note: Students should by this stage be competent and confident in helping each other kit up and conducting a buddy check. Ensure that you are included in the buddy check.



- **Dry run, controlled buoyant lift**

- Face to face with buddy, grasp their BC control in your nearest hand.
- Establish a positive grip of buddy's harness, avoiding quick release buckles, with the other hand.
- Raise the BC controls and add and dump gas.

Note: Emphasise that a buddy check not only ensures that equipment is correctly fitted and functioning, but is also when each diver sees how to operate the other's BC controls. At depth, when an incident occurs, is not the time to do this.

- **Forward-roll entry, into deeper water**

This type of entry can be appropriate from some types of boat and when conditions preclude delicate equipment, such as cameras, being handed down from the boat after entry.

- Partly inflate BC. Stand at edge of entry point breathing from demand valve. Bend knees, bend at the waist and tuck in head.
- With one hand press mask and regulator against head, to secure.
- Collect up other hoses and gauges with other hand, to secure.
- Fall forward headfirst into the water.
- Once on surface, turn to face other divers, and signal 'OK' (or 'not OK').



Master alternative-supply skills

As in the previous module, teach for the most stressful of emergency situations requiring AS, where the recipient takes the donor's AS from its stowage location and doesn't wait for the donor to remove it and offer it. Teach the realistic situation that the recipient will have no gas with which to inflate their BC at the surface.

To minimise the number of ascents and to build up the lesson in a progressive manner it helps to begin by recapping the surface actions.

- **Surface actions, following AS ascent**
 - At the surface, simulating following an AS ascent, donor fully inflates own BC using direct feed and supports recipient.
 - Recipient inflates their own BC by mouth or emergency cylinder (if fitted), while treading water.

Note: For BC's where the pull dump is routed through the corrugated BC hose take care to ensure that gas is not accidentally dumped by pulling on the hose.



- **AS ascent, student as recipient then donor, with surface actions**

In deeper water, ask students to carry out an AS ascent, including surface actions, with each other, one by one. Indicate who should be the donor and who should be the recipient. Each student should have a turn as donor and recipient. If necessary the instructor may need to demonstrate the complete sequence. During any ascent the whole group should remain together to ensure that any demonstrations/corrections can be clearly observed and to help maintain group control. Stay close to the students in case you need to offer your AS.

- From a position of neutral buoyancy establish AS use. The recipient should be breathing comfortably from the AS and positive contact (that is a firm hold) should be made between donor and recipient.
- Donor signals clearly to recipient the intention to ascend and waits for a response.
- Donor initiates the ascent, by finning up. Donor and recipient ascend at normal rate to the surface. Both should be ready to vent expanding gas from their own BC to slow the ascent rate as necessary.
- At the surface, donor fully inflates own BC using direct feed and supports recipient.
- Recipient inflates their own BC by mouth, or emergency cylinder (if fitted).
- To cover the situation where the recipient is unable to orally inflate their own BC students should also practice the donor inflating the recipients BC.



- **Use of AS on horizontal swim**

- Starting from a normal swimming position, to reflect a realistic situation, repeat the AS exercise with the donor and recipient swimming side by side.
- Follow the usual steps to establish AS use, reaching across to take donor's AS and making positive contact by holding shoulder strap or other convenient hand-hold.

- Swim 10m, disengage by retrieving recipient's main demand valve. The horizontal swim may be required to ascend the slope when shore diving or to return to a shotline to provide a reference for a safe ascent.



Controlled buoyant lift

Students should now be competent to control their own buoyancy during an ascent from deeper water. This skill is reviewed here before progressing to apply the same concepts to controlling an incapacitated diver's buoyancy during a controlled buoyant lift (CBL).

- **Self lift**
 - From kneeling position, hold BC controls above shoulder.
 - Introduce gas in short bursts until slight positive buoyancy achieved.
 - Once knees are clear of bottom, vent in bursts to stop ascent.
 - Vent further to start descent.
 - Gently lower back onto knees, using a short burst of inflation to cushion landing if necessary.



Note: Students should be directed to watch each other perform this exercise, particularly the use of the BC controls, as this will reinforce the dry run carried out earlier. It will also enable students to appreciate that not all BCs inflate at the same rate

- **'Mini' CBL**

This exercise introduces how to control another diver's buoyancy.

- From kneeling position, establish positive hold on 'casualty' (avoid harness quick release buckles).
- Raise casualty's BC controls sufficiently to enable venting when required and introduce gas in short bursts until slight positive buoyancy achieved.
- Once casualty's knees are clear of the bottom, vent BC in bursts to gently lower casualty back onto knees.



- **Full CBL**

This exercise develops the control of another diver's buoyancy into a complete lift to the surface.

- Establish positive hold on 'casualty' (avoid harness quick release buckles).
- Raise casualty's BC controls sufficiently to enable venting when required and introduce gas in short bursts until slight positive buoyancy achieved.
- Continue to the surface.
- Vent BC in bursts to maintain a controlled, normal rate of ascent – venting will need to be done more frequently as you near the surface.
- At the surface, fully inflate casualty's BC first then rescuer's, while maintaining a firm grip of the casualty.

Note: Where the depth of water exceeds 2m, a further intermediate ascent should be included between a mini CBL and a full CBL. During any ascent the whole group should remain together to ensure that any demonstrations can be clearly observed and to help maintain group control.

Surface towing

This exercise introduces surface towing techniques in chest-deep water.

- **Identify towing hold**
 - Find a suitable item of equipment, such as the cylinder valve/BC by which to hold the casualty.
 - Keep towing arm straight to take the load.



- **Tow**
 - Rescuer swims slightly on one side, towing-hold arm uppermost, so that their finning action is side to side, not up and down, underneath the casualty and the rescuer can look over their shoulder to see where they are going.
 - Minimise drag by keeping the casualty directly in line with rescuer.
 - Progressively increase the distance towed to 25m.
- **Alternative holds**
 Allow students to experiment with different holds, and use different hands, to find a hold with which they are comfortable. Discourage holds which result in the casualty being held to one side of the rescuer, these not only increase drag (requiring more effort) but also make directional control much more difficult. The object of this exercise is to establish a comfortable towing position. Once this has been achieved, it is not necessary at this point, to tow for any distance.

Rescue with controlled buoyant lift

This lesson element builds on the CBL and towing exercises. By this point the students should be proficient at controlling the lift itself. This exercise develops the technique by putting it into a rescue scenario.

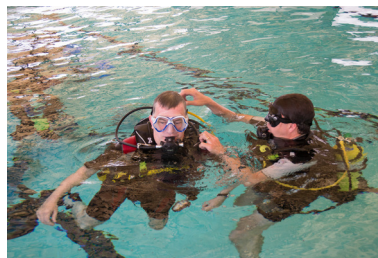
To minimise the number of ascents and to build up the lesson in a progressive manner it helps to start the teaching of this skill with the surface actions that follow a CBL.

Repetition is built into the exercise to provide the students with opportunities to develop their abilities to perform a successful rescue.

- **Surface actions**

- Provide surface support by gripping casualty's BC strap, face to face, and, holding BC controls above shoulder, fully inflating the BC.
- Secure casualty by rolling them onto their back and ensuring face is clear of water.
- Signal to surface cover/boat using distress signal, whistle or shouting.

Note: Many public pools will not allow the use of distress or alarm signals (such as shouting for help) in training exercises in case they are confused with real emergency situations. In these cases, it may be necessary to employ a suitable training signal.



- **Initial underwater contact**

- Place the casualty and rescuer approximately 3m apart, in deeper water, casualty face down on bottom.
- Rescuer swims to casualty, turns casualty onto back and establishes positive hold.
- Ask students to repeat the exercise, on each other. Indicate who should be the casualty and who should be the rescuer.

- **Rescue CBL**

- Repeat the initial underwater contact, as above.
- Carry out a CBL to bring casualty to the surface.
- Add surface actions to secure casualty and signal for help.
- Indicate who should be the casualty and who should be the rescuer. Each student should have a turn as rescuer.



- **Rescue CBL and surface tow**

- This exercise combines all the rescue elements learned previously to complete a full CBL and tow.
- Make initial contact underwater.
- Carry out a CBL to the surface.
- Take actions necessary to secure casualty at the surface, and signal for help.
- Tow casualty for approximately 25m.

Exit from deeper water and de-kit

This provides further practice exiting from the water as if onto a jetty or large boat. On the surface refrain from talking, if possible, and encourage students to keep demand valves and masks in place until they have exited the water.

- **Remove fins**

- All should hold onto a secure point to the side of the ladder.
- Use figure 4 position and remove fins.

- **Exit water**

- Climb the ladder, one by one (instructor last) using the principle of three-point contact.

- Ensure students in water stay well clear in case someone falls from ladder.
- Ensure students on pool side are positioned a safe distance from the water's edge.



- **De-kit**

- Remove weight belt, securing the free end to prevent weights sliding off, or remove integral weights.
- Take care to place weights down carefully and not drop on toes or pool tiles.
- Buddies help each other to remove scuba kit.
- Ensure kit is laid down on the pool side, demand valves placed on top.

- **Equipment care**

The students should have achieved performance standard to wash and disassemble their own equipment, without assistance, at the end of the previous lesson. Further monitor their performance during this lesson.



REAP debrief

Conduct a brief but thorough debrief using the REAP format, making sure that everyone has enjoyed their lesson and highlighting the areas of progress that they have made. Offer constructive feedback and explain how they will further develop their skills in the next module.

- **Review**
 - Briefly playback the skills covered in the lesson and remind students of the lesson objectives.
 - Ensure that the students note the configuration of equipment that they have used, particularly the amount and location of any additional weight required, when preparing their equipment for future lessons. This should also include cylinder size, BC size and position of BC straps.
- **Encourage**
 - Praise good performance.
 - Provide support and comfort if things haven't gone so well.
- **Assess**
 - Offer constructive feedback to enable students to identify areas for improvement.
- **Preview**
 - The students have mastered all the basic skills and will now go on to apply them in a wider range of conditions in the open-water modules. Answer any questions that the students have.

Skills Performance Standards

At the end of this module, students should be sufficiently competent to achieve the following skill performance standards without supervision, in the water conditions that they have experienced.

Assemble and check equipment Students should be able to assemble their equipment unaided, conduct visual checks for damage and conduct functional and leak tests to ensure all equipment is ready for use.

Buddy check Students should be able to assist a buddy to kit up and then conduct a buddy check covering BC controls and function, breathing gas supply contents and function and BC harness and weight system releases. Students should be able to assess how to access their buddy's AS and how they would carry out a CBL on their buddy.

Deep water forward roll entry – Students should be able safely enter the water with a forward roll entry. Prior to entry they should ensure they will be positively buoyant by adding gas into their BC, check for potential obstructions, secure their masks and regulator with one hand and gather gauges, hoses with the other to secure and roll forward into the water. On surfacing they should give an OK signal to their buddy and instructor.

Rescue: AS ascent as a donor Starting from normal swimming, students should be able to correctly and safely carry out an AS ascent acting as donor. The donor should provide clear access to an AS for the recipient, take secure hold of the recipient and allow them to establish a stable breathing rhythm. After an exchange of 'OK' signals, the donor should initiate an ascent, venting their own buoyancy device as necessary to control the ascent. At the surface, the donor should maintain a secure hold of the recipient and provide surface support, while the recipient orally inflates their BC.

Rescue: AS ascent as recipient Starting from normal swimming, students should be able to correctly and safely carry out an AS ascent acting as recipient. The recipient should swiftly remove the donor's AS from stowage without fumbling, clear it of water and establish a stable breathing rhythm, taking secure hold of the donor. After an exchange of signals ('OK' and then 'up', when ready, the recipient ascends with the donor, venting their own buoyancy device as necessary to control their ascent. On the surface, while supported by donor, the recipient should orally inflate their BC.

CBL Students should be able to correctly and safely carry out a rescue CBL. The rescuer should take a secure hold of the casualty, inflate the casualty's buoyancy device to produce adequate positive buoyancy to begin to lift the casualty, then manage the casualty's and their own buoyancy to achieve a controlled ascent. At the surface, the rescuer should fully inflate the casualty's buoyancy device and signal for help.

Tow Students should be able to correctly and safely carry out a surface tow. The rescuer should remove the casualty's demand valve/mask from face, establish a secure hold and tow the casualty 25m, maintaining control of direction and keeping the casualty's face clear of the water. The rescuer should maintain a continual grip of the casualty throughout and fin at a reasonable pace, kicking from the hip with the knee kept relatively straight (no excessive cycling motion).