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CMAS Self-Rescue Diver

1 Introduction

CMAS training programmes and ethos are based on the "Buddy" system of diving. CMAS, in offering Self-Rescue diver training, accepts the real-world fact that divers may, *on occasions*, become separated from their dive partner and, thus seeks to provide candidates with the knowledge, self-reliant diver skills and techniques to protect themselves in such events.

2 Entry Qualifications

Candidates need to be at least CMAS Two Star Diver prior to engaging in the Self-Rescue Diver training programme

3 Minimum Course Content

3.1 Classroom: Lectures and written examination (up to 3 hours).

3.2 Three open-waters dives, to a maximum depth of 20-metres, when skills are taught, practised and assessed.

4. Objectives

4.1 On the successful completion of this programme candidates will have the confidence, knowledge, skills and techniques to plan and execute dives within their current diving qualification limitations such that they will be a Self-Rescue-Diver who is able to select and use all appropriate equipment including the necessary redundant equipment for the planned dive including self-extrication gear, which includes:

4.1.1 suitable separate primary and alternative breathing apparatus for the planned dive. This excludes the use of octopus rigs as an alternative gas supply.

4.1.2 entanglement using cutting devices – knives and/or line cutters, for self-extrication from a line/rope/net entanglement.

4.1.3 delayed surface marker buoy (DSMB) with a dive-reel and sufficient line for the planned dive depth and a yellow emergency DSMB with dive-reel and line, such that candidates can act alone, if inadvertently separated from their dive buddy. These are to be used to help in a safe and controlled ascent.

4.1.4 preparation a gas plan including back-up gas, using candidate's actual knowledge of his personal surface air requirements (SAR), to support self-defence in the event of buddy separation.

4.1.5 enact search techniques to find a lost partner, including the ***set*** *search duration*, and recovery navigation.

4.1.6 enact underwater signalling using a torch and sound.

4.1.7 perform a safe self-recovery method to the surface from the seabed, including all necessary stops, in the event of an unexpected positive buoyancy event: ie the loss a weight-belt.

5 Self-Rescue Diver Techniques

5.1 Knowledge.

5.2 Gas Planning: Preparation, application and management.

5.3 A method of determining the candidate's personal surface air requirements (SAR).

5.4 Back-up equipment selection and configuration that provides proper access to all equipment, including BCD and dry suit valves and avoids inadvertent inappropriate operation. Discuss the benefits/disadvantages of back and side-mounted dive cylinders.

5.5 Types of knives and other line cutting devices. Discuss the benefits/disadvantages.

5.6 Escape route planning and practice, including dealing with a positive buoyancy event.

5.7 Skills

5.8 Entanglement self-release, from underwater line/rope/net cutting (to be taught and practised in a safe location with excellent visibility), with an Instructor close by for safety purposes. First with clear vision and then with a blacked-out mask.

5.9 Emergency controlled ascent following an unintended positive buoyancy event, e.g. using a hand-held reel and line tied to a wreck or reef to help control the ascent to the surface. This, in the first instance, will be in a swimming pool with a separate line between the instructor and trainee to guard against a free-ascent accident.

5.10 Light and audio signalling techniques to attract a lost buddy.

5.11 Basic search techniques with a defined time constraint for re-buddying.

5.12 Exchanging the primary DV for the alternative DV, fit a back-up mask and perform a gas shut-down to seal-off a simulated cylinder gas leakage.

5.13 Set a red location DSMB from the maximum planned depth and then set an emergency yellow DSMB from the Safety-stop to the surface with a message outlining the diver's predicament.

6 Basic Equipment for the Self-Rescue Diver

6.1 In addition to the primary diving equipment required for standard sport diving ALL Self-Rescue divers WILL carry, on ALL dives, back-up equipment for all fundamental activities including:

6.1.1 Breathing equipment suitable to extricate the diver in the event that the primary breathing system failure of any kind – this excludes octopus rigs.

6.1.2 Decompression instruments and plans to deal with a primary instrument failures.

6.1.3 Cutting tools (knives and line cutters).

6.1.4 Back-up torches – suitable size and in accessible stowage.

6.1.5 Face mask in addition to the one being worn.

6.1.6 Dive-reels and lines to cover malfunctions/lost equipment, which are suitable for the planned depth, and a primary Red Delayed Surface Marker Buoy (DSMB) and an emergency Yellow DSMB.

7 Practical Open-Water Dives

7.1 The in-water skills will be taught and practised, over three dives, at a maximum depth of 20 metres and will be assessed on a progressive basis with constructive feed-back to the candidate after each dive. However, the practical underwater rope/line cutting exercise should be taught and practised in a swimming pool, with an Instructor acting as safety cover:

7.1.1.1 During the first pool session, candidates will determine, underwater, their own surface air consumption (SAC) rate in bar/minute/depth (m).

7.1.1.2 Prepare a gas plan using the above mentioned SAC see clause 4.1.4 above, including emergency back-up.

7.1.1.3 Enact a dive, correctly, to the dive plan's pre-determined mid and end point pressure gauge readings.

7.1.1.4 Candidates will demonstrate, underwater, the appropriateness of the selected equipment configuration set out in clause 5.4 above.

7.1.1.5 Candidates will, while underwater, demonstrate using their *own* cutting equipment the ability to cut a range of lines/ropes/net entanglements and then extricate themselves from an entanglement set by the Instructor – see clause 5.8 above. Enact a search for a lost buddy using light and audio signals for a search period of between two and three minutes.

7.1.1.6 Replace, while underwater, a lost mask with the carried back-up mask.

7.1.1.7 At depth transfer in a smooth and faultless fashion from the primary DV to the alternative DV, then perform a gas shut-down of one cylinder to seal-off a *simulated* gas leakage.

7.1.1.8 Candidates will deploy a dive-reel and line to the surface from the seabed using a red DSMB. Ascend the line to the safety-stop whilst reeling the line, which must be kept taut throughout the ascent. From the safety-stop depth deploy a yellow emergency DSMB to the surface with a message asking for additional breathing gas.

7.1.1.9 On the seabed enact a *simulated* positive buoyancy event. Tether the loose end of a dive-reel line to a rock or wreck, dump all stored gas from the BCD and/or dry suit and unwind the dive-reel to control the ascent rate to a safety-stop at six metres. During the safety-stop send a yellow DSMB with a message to the surface. Note: During the first practise session the candidate will be held on a separate line held by an Instructor. This is to prevent a fast ascent error.

8 Practical Assessment

8.1 Continuous assessment will be made of the candidate's performance throughout the pool and open water dives. Constructive comments will be conveyed to the candidate.

9 Theory Assessment

9.1 The theoretical aspects of the course will be tested via a written examination paper.

10 Certification

10.1 Upon successful completion of the training programme the participant shall be awarded with a CMAS Self-Rescue Diver C-Card.