



Cambridge University Underwater
Exploration Group

Master Document

Safe Diving Practices

DO NOT EDIT THIS DOCUMENT WITHOUT PERMISSION

Permissions required to effect changes to:

Safe Diving Practices: Branch Diving Officer

Constitution: Branch membership via a General meeting

Financial Rules: Committee

Date effective	Change made by	Approved by	Summary of changes made
Jun 1999	Sam Cockerill		Original document
Oct 2000	Iain Smith		Revised
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Safe Diving Practices

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1. Introduction

- 1.1 CUUEG officers, and especially the Diving Officer, have legal responsibilities for the health and safety of CUUEG members engaged in diving activities. Such legal responsibility is not open ended, and depends upon club members diving in a safe and responsible manner.
- 1.2 These rules are not intended to be restrictive, but are written largely for the benefit of less experienced divers in a university club with higher than normal throughput of trainees. It is hoped that more qualified divers who feel constrained by these rules will discuss this with the Diving Officer so that exceptions can be agreed in specific cases, and the rules updated where appropriate.
- 1.3 As our experience grows, the CUUEG Safe Diving Practices will continue to evolve and change in response to the needs of the club, provided members continue to regard them not as a burden, but as part of our safety equipment and a reflection of CUUEG's combined experience.
- 1.4 BSAC also provide information on '[Safe Diving](#)' on their website.

2. Branch Dives

- 2.1 What is and isn't a branch dive? What is and isn't a club trip? Who is responsible for ensuring safe diving? Any diving that involves ANY club resources is potentially a branch dive unless the Diving Officer confirms otherwise. For example (including but not restricted to):
 - Use of the club email distribution list for advertising purposes.
 - Use of club equipment (diving, training, or safety equipment).
 - Use of the club bank account for transactions.
 - Use of the club's name for bookings.

Any dive and/or dive trips that make use of CUUEG resources may be defined by the descriptions given in the table '[Definition of Authorised Dives](#)', issued by BSAC. Broadly, they fall into three categories.

- 2.1.1 If the dive / trip is conducted with the Diving Officer's approval, then it is expected that all BSAC and CUUEG 'Safe Diving' Guidelines will be adhered to. This includes both diving and dive managing requirements (principally, the observation of depth limits, and the availability of a Dive Leader to manage the dives). If the trip is approved, and fulfils all the requirements of BOTH CUUEG and BSAC 'Safe Diving' Guidelines, then it is deemed a 'club

trip', consists of 'branch dives' and the ultimate responsibility for diver safety lies with the Diving Officer! Most diving undertaken by branch members will fall into this category.

2.1.2 BSAC members are permitted by BSAC to take part in dives outside of the branch without the Diving Officer's explicit approval (this doesn't mean he/she disapproves in the colloquial sense, it merely means that he/she cannot individually approve dive plans either personally, nor via an appropriate dive manager appointed by him/her). This would then NOT be a 'club trip', and the dives are NOT 'branch dives'. Please note that this means that you still have to dive within BSAC 'Safe Diving' Practices, including observation of your depth limit (dictated by the depth progression sign-off in your QRB). Note also, that although the Diving Officer cannot be held responsible for your safety when diving on non-approved dives, he/she can still take action against you if you do not adhere to BSAC 'Safe Diving' Practices. CUUEG members may, with the Diving Officer's explicit AND individual permission, use club resources for a non-approved trip, PROVIDED:

- You make clear your intent and rough diving plans in writing (e.g. email).
- You ask permission for any equipment hire as soon as possible, and AT LEAST TWO WEEKS before you will require the equipment.
- All members involved MUST individually provide a written (by email is fine) statement, to the effect that they understand that the dives will not be D.O. approved, and that they take full responsibility for ensuring that the BSAC 'Safe Diving' Practices are observed.
- You understand that the Diving Officer retain the right to refuse use of club resources, irrespective of whether they are required for other CUUEG purposes.

2.1.3 Any diving outside of BSAC 'Safe Diving' Practices is entirely at the member's risk, or at least, outside the scope of this document (it is appreciated that diving could take place under other agency qualifications). Absolutely no CUUEG club kit or other resources is to be used for diving outside of the relevant agency's recommendations, Safe Practices, or qualification levels! If it is discovered that this has occurred, the consequences for individuals will be very severe!

If in any doubt regarding whether or not a trip is considered a 'club trip', this should be clarified with the Diving Officer.

2.2 Any member of CUUEG may organise a branch dive; speak to the Expeditions Officer or Diving Officer for advice on organising a trip.

- 2.3 Certain trips may be restricted to experienced Sports Divers or Dive Leaders due to the nature of the diving.
- 2.4 All CUUEG branch dives must be agreed with the CUUEG Diving Officer, who will want to know:
- The Dive Manager.
 - The names, qualifications and experience of all people going on the dive.
 - The dive site.
 - The type of diving involved (shore, boat etc) and planned maximum depths.
 - The safety cover to be provided.

3. Dive Manager Responsibilities

The Dive Manager (DM) is responsible for the safe conduct of CUUEG dives during a branch trip. DM responsibilities include:

- Agreeing dive details with the DO prior to a trip
 - Ensuring that the BSAC membership, qualifications and dive medical of all divers are all current
 - Taking the DM file to the dive site and using it!
 - Allocating Buddy pairs and approving dive plans
 - Ensuring all diving is monitored by surface safety cover
 - Ensuring complete records of dives are kept
 - Managing and co-ordinating activities in the event of a diving incident
 - Ensuring all diving is performed within CUUEG and BSAC Safe Diving Practices
- 3.1 The DM must be qualified as a Dive Leader or above, unless agreed otherwise with the Diving Officer. Although Sports Divers can buddy each other, they have not received instruction in Dive Managing. The Diving Officer may require additional qualification (e.g. BSAC Dive Planning and Managing Skill Development course), for example if a new site is being dived or a large number of divers are present.
- 3.2 The DM should appoint a deputy who will assume the DM responsibilities whilst the DM is diving.
- 3.3 The DM should evaluate the risks present at the dive site and manage diving activities so as to minimise the risk to all diving members. Where necessary, advice should be sought from local sources (e.g. skipper, dive shops, harbour master). Consideration should be given to a number of factors:

- Weather conditions and sea state
- Tidal conditions during and after dives
- Adverse diving conditions; Visibility, depth, water temperature
- Entry and exit points
- Qualifications and skill levels of divers

- 3.4 The DM should be familiar with the diving qualifications and experience of members of the diving group, and will normally allocate buddy pairs such that less experienced divers dive with more experienced divers. At any dive site, the safest procedure is for one person in the buddy pair to have previously dived the site.
- 3.5 The DM must ensure emergency Oxygen is available at the dive site. If necessary, the club O₂ kit should be taken, provided a properly qualified O₂ administrator is present on the trip.
- 3.6 The DM may elect to suspend diving activities if he considers the conditions present an unacceptable level of risk, given the qualifications and experience of the diving group.
- 3.7 The DM has the right and responsibility to suspend from diving any member of the group whose conduct is considered reckless or dangerous. This authority is irrespective of any monies paid for the trip by the suspended diver.

4. Safety Cover

- 4.1 All dives will have safety cover. In most cases it is acceptable for a non-diver to act as safety cover. Safety cover will usually be provided in one of two ways:
- 4.1.1 If more than one buddy pair is in the diving party, one pair will provide cover whilst the other dives.
- 4.1.2 If only one buddy pair is involved, a third person must provide the cover
- 4.2 Although popular dive sites (e.g. Gildenburgh and Stony Cove) have stand-by divers on duty, they do NOT act as safety cover - they do not record dive plans and they do not check divers in and out of the water.
- 4.3 For boat dives there will be both top cover in the boat and shore cover in the form of someone who knows where the boat is going, what time it is due back, and what action to take if it is overdue. The person providing such cover should be competent to provide assistance to divers in trouble and to summon assistance. The person providing top cover in a boat will be a competent boat handler.
- 4.4 In all cases, the safety cover must be properly briefed and must be capable of carrying out emergency procedures.

5. Personal Records

5.1 Qualification Record Book ("QRB", "Blue Book", "Qualification Binder/File"):

All CUUEG divers should have current BSAC qualifications. Evidence of your qualification should be provided on all branch dives in a blue BSAC qualification record book. This should include:

- A photograph of yourself fixed in the appropriate place and overprinted with a BSAC/Club stamp.
- All the items of personal details and branch details properly completed, with the exception of "Blood Group".
- A copy of the receipt of your current BSAC subscription or the counterfoil from your annual membership card.
- All lessons, tests and qualifying dives completed, signed and stamped.
- On the qualification pages, the certificate must be signed, dated and stamped.

5.2 Dive Log Book ("Red Book"):

Divers should maintain a Diving Log Book, where you log every dive you do. A red booklet for this purpose can be bought from CUUEG. This log book should accompany you to every site. It allows your buddy and dive manager to quickly see what sort of diving you usually do, what sort of depths you are used to, and when you last went diving.

After a time it will provide you with a reference document, showing the different amount of lead weight required for steel and aluminium bottles, for sea and fresh water, for dry suits and wet suits etc.

5.2.1 The minimum information you need to note is:

- Date and Place
- Name of buddy
- Equipment used & weight carried
- Depth, time, decompression and safety stop information
- Type of dive (boat, shore, night, freshwater, low visibility etc)
- A description of the dive

5.2.2 The entry in your log book should be verified by your buddy. It is normal procedure to complete the log book details immediately after the dive, whilst they are fresh in your memory.

6. Buddy Pairs

It is important that when you go diving, you feel both comfortable and safe with your buddy. Comfortable, safe diving is all about building up experience and confidence in yourself, in your abilities and in your buddy.

- 6.1 Divers should always dive in buddy pairs. Divers will not dive alone. Groups of more than three divers will always be of an even number, divided up into buddy pairs.
- 6.2 Some BSAC training drills require a buddy pair to be observed by an instructor/assessor. If the drill is to come at the end (or beginning) of a 'normal dive', this is NOT an automatic excuse to dive as a threesome.
- 6.3 It is important to remember that divers-in-training for any given grade only hold the grade below that for which they are training and should be buddied accordingly. See also sections 7.1.1 and 7.2.
- 6.4 A Ocean Diver will buddy with a diver qualified as a Dive Leader or above. Under certain circumstances (e.g. shallow, sheltered sites) BSAC allow Ocean Divers to dive with Sports Divers and Ocean Divers. On CUUEG branch dives this must first be agreed with the Diving Officer.
- 6.5 Generally, newly qualified Sports Divers should buddy with more experienced Sports Divers. Newly qualified Dive Leaders should buddy with the more experienced Ocean divers.
- 6.6 No diver can be forced to dive with any other diver. If you feel uneasy with a prospective buddy, either get another buddy or cancel the dive.
- 6.7 Any diver may abort any dive at any time for any reason, or for no reason at all.

7. Maximum Depths and Decompression Stops

- 7.1 The attention of all divers is drawn to the subtle difference in wording relating to maximum depths for diver grades. Ocean and Sports Divers are restricted to the limits specified. That is to say that under no non-emergency circumstances will any Ocean or Sports Diver exceed the maximum depth permitted by their qualification. It is recommended that Dive Leaders restrict their maximum depth to 50m. See also the remainder of section 7.

7.1.1 Depth Experience Record:

The initial depth limits associated with the BSAC qualification levels are:

- BSAC Ocean Diver - limited to the depth experienced during training (typically 10 to 15 m).
- BSAC Sport Diver - 20 metres
- BSAC Dive Leader - 35 metres

Note that (as awarded) the qualifications only allow you to dive to the depth indicated until you incrementally 'progress' this depth, to gain experience gradually over a number of dives.

- A BSAC Ocean Diver can progress depth experience to 20 metres AFTER the qualification is awarded.
- A BSAC Sport Diver can progress depth experience to 25 metres, 30 metres, and then 35 metres ONLY AFTER the qualification is awarded. Don't forget that a Sport Diver trainee is still classed as an Ocean Diver, and hence has a 20 metre depth limit, which MUST NOT be exceeded, EVEN ON TRAINING DIVES.

All depth experience must be signed off by an NQI (who must have been on-site in the case of Ocean Diver and Sport Diver experience dives). For depth experience, the student MUST be buddied with a Dive Leader (not necessarily an instructor).

7.1.2 The CUUEG safe-diving practices currently state that no dive on air/nitrox can be undertaken to depths below 50 metres. This limit will be absolutely enforced. Any diver wishing to dive below 30 metres on air or a weak nitrox mix MUST observe three rules:

- Carry their own independent back-up gas supply, containing gas breathable at any point in the dive. This could be:
 - A pony cylinder (3 litres) as an absolute minimum, AND be practiced with its use.
 - A stage bottle, AND be practiced with its use.
 - A twinset with an isolating manifold, AND be practiced with shutdowns.
- They must complete and submit a risk assessment (this is a requirement of BSAC, not just CUUEG), AND obtain explicit permission from the Diving Officer (any other Dive Manager's permission is NOT sufficient). In short, recognise that diving below 30

metres requires a significant amount of planning, and is not a decision that can be made, on the boat, a few minutes before the dive!

- They MUST have the relevant depth progression boxes signed (unless, of course, it is a depth progression training dive).
- 7.2 During Ocean Diver training, trainees may be lead by Dive Leaders who do not hold an instructor qualification on dives which do not involve any training elements, and which remain within the limits of the trainee's previous experience. Dive Leaders in such a roll should be capable of supervising the trainee's performing of previously taught skills.
- 7.3 Ocean divers may dive to a maximum of 20m, but may not conduct dives involving decompression stops.
- 7.4 Sports Divers have a non-negotiable maximum depth limit of 35m. Dives over 30m will only be undertaken after consultation (and agreement) with the CUUEG Diving Officer.
- 7.5 Dive Leaders and above have a recommended maximum depth limit of 50m. Dives over 30m will only be undertaken after consultation (and agreement) with the CUUEG Diving Officer.
- 7.6 Trimix must be used on any dive with a maximum depth of 50m or more. Only suitably qualified divers may use Trimix, and all Trimix dives require explicit permission from the Diving Officer. Trimix dives are limited to a maximum depth of 70m with explicit permission from the Diving Officer.
- 7.7 Dives requiring a mandatory decompression stop OF MORE THAN 3 MINUTES will only be undertaken by agreement with the Diving Officer.
- 7.8 Safety stops should be performed on all dives in excess of 20m. Divers should give consideration to performing deep stops during ascents from such depths.
- 7.9 Conduct of dives involving accelerated decompression or more than 5 minutes of non-accelerated stops:
- 7.9.1 All divers conducting dives involving accelerated decompression will carry both red and yellow delayed surface marker buoys. Both such buoys will be marked with personal identifying marks, e.g. name or initials.
- 7.9.2 All such dives will be supported with additional decompression gas available to be deployed down a DSMB line.
- 7.9.3 For such dives involving a single decompression gas, all divers will carry sufficient:
- bottom gas to be able to complete the necessary decompression required in the event of a decompression cylinder failure.
 - decompression gas to enable both members of a buddy pair to complete required decompression stops using one cylinder only.

7.9.4 For dives involving two decompression gases, all divers will carry sufficient of each gas to be able to:

- complete all necessary stops on it alone
- allow both divers to complete all stops requiring that gas, whichever is greater.

7.9.5 Divers are reminded to consider the effects of stress on breathing rate when calculating the above gas requirements.

7.9.6 Dive Managers will ensure that skippers and surface parties are familiar with the Procedures for DSMBs and Advanced Dives.

8. Use of Club Equipment

Although CUUEG takes reasonable steps to ensure club kit is serviceable and safe, the Equipment Officer cannot check each item of equipment before it is used. You should check each item as best you can, and plan your diving activities based on the fact that you are using Club equipment. Keen divers will acquire their own equipment, learn to maintain it, and spend the necessary time and money on keeping it in good condition.

- 8.1 CUUEG equipment may only be used either on Branch dives, or (with permission from the Diving Officer) on dives within the BSAC Safe Diving Practices (see point 2.1, above).
- 8.2 CUUEG Club members use CUUEG Club equipment at their own risk.
- 8.3 When selecting a regulator, the inflation connections to both drysuit and buoyancy compensator should be tested.
- 8.4 Club equipment should be signed out and returned in a clean (e.g. rinsed with fresh water after salt water diving) and serviceable condition. Any problems should be noted on the hire forms and reported to the equipment officer.
- 8.5 Equipment with problems which render it unserviceable should be marked with white tape and put aside for attention. Such equipment should (obviously) not be used until the fault is remedied.

9. Dive Computers

- 9.1 If both divers in a buddy pair are using computers, the most conservative computer will be observed. Otherwise, the dive will be planned and conducted using tables with which the divers are familiar.
- 9.2 'Computer' dives will be properly planned, with information given to the Dive Manager regarding planned depths, times and decompression stops.
- 9.3 Divers are reminded that the use of a computer does not absolve them from planning their dive, and in particular, gas requirements, which should always be planned such that each diver has sufficient gas at the most exposed point of the dive to allow both divers to complete all necessary stops after a total gas loss on the part of his or her buddy.

10. Delayed Surface Marker Buoys (DSMBs)

- 10.1 CUUEG members diving in open water will each carry a minimum of one orange DSMB and a reel.
 - 10.1.1 The use of a permanent SMB does not relieve divers of this requirement.
 - 10.1.2 Yellow DSMBs must not be carried for routine use.
- 10.2 All DSMBs will be clearly labelled with the owner's name or initials. These identifying marks should be recorded in the Manager's file.
- 10.3 Each pair should deploy a DSMB, either prior to starting the ascent, or during decompression stops, unless a permanent SMB is in use.
- 10.4 Information relating to the use of DSMBs for advanced dives may be found in the Procedures for DSMBs and Advanced Dives.

11. Exceptions

- 11.1 CUUEG members who wish to dive outside these guidelines may do so by agreement with the Diving Officer. Agreement will normally be given by e-mail, and will be given on a case by case basis. An exception given for one dive will not be sufficient reason for a similar exception for subsequent dives.
- 11.2 The Diving Officer may make additional requirements for divers (e.g. for qualifications, experience or remedial training) if this is considered necessary for a particular trip.

Annex 1. Notes on Safe Diving Practices

A1.1

The CUUEG Safe Diving Practices are written with UK waters in mind. Divers venturing overseas should remember that the gas laws still apply in warmer, Mediterranean and tropical waters. In particular, procedures for repeat/repetitive dives should be carefully followed, and the recommended rest days should be introduced when diving a series of dives. Divers should manage their own dive profiles and safety procedures, and restrict their time and depth profiles if re-compression facilities are remote from the dive location. Dive practices, procedures and tables vary around the world - BSAC tables and safe diving practices apply world wide. Stick to those that you know. Do NOT rely on other people to plan your dives for you.

A1.2

The Diving Officer needs to know about all diving activities taking place within the Club. This creates particular problems during the Summer vacation, and when dives are arranged when the Diving Officer cannot be contacted. In such cases, the Diving Officer will normally appoint a deputy.

A1.3

Sports Divers wishing to go diving, and especially people wanting to go away for weekend trips, first need to establish which Dive Leader (or above) is going to accompany them. Keen Sports Divers will have the contact details for all known Dive Leaders and above, so that they can be contacted, and will also be making urgent arrangements to upgrade themselves to Dive Leader!

Annex 2. Safe Diving Practices Summary

A2.1

Dive Manager responsibilities:

The Dive Manager is responsible for the safe conduct of CUUEG dives, and must be qualified as Dive Leader or above:

- Ensure the dive manager file is taken to the dive site
- Ensure all diving is agreed with the DO
- Allocate buddy pairs and approve dive plans
- Ensure all diving is monitored by surface safety cover
- Ensure complete records of dives are kept
- Ensuring that the BSAC membership, qualifications and dive medical of all divers are all current
- Managing and co-ordinating activities in the event of a diving incident
- Ensure all diving is performed within CUUEG safe diving practices

A2.2

Diver responsibilities:

Divers must have a current medical, BSAC and CUUEG membership and provide evidence of qualifications and experience prior to diving:

- Ensure all CUUEG kit is signed out and returned clean
- Report all CUUEG kit problems in the kit log
- Ensure all diving is performed within CUUEG Safe Diving Practices

A2.3

Maximum depths:

- Ocean divers: 20m (NO DECOMPRESSION)
- Sports Divers: 30m (35m by agreement with the DO)
- Dive Leaders: 30m (50m by agreement with the DO)
- Trimix Divers: 70m by agreement with the DO

Note: Trimix must be used on dives with a maximum depth exceeding 50m (trimix divers must be suitably qualified and trimix dives require explicit permission by the DO).

Annex 3. BSAC Incident Reports Summary

UK Fatal incidents 1996 - 2001

Source: BSAC NDC Diving incidents reports

	1996	1997	1998	1999	2000	2001
Fatalities:						
Total Fatalities	16	16	22	17	17	22
BSAC member fatalities	7	4	6	8	6	9
Recorded initiating factors:						
Ascent problems	2	6	4	1	4	4
Free-flow	1	2	1			2
Equipment failure		1		1	2	2
Separation from Boat		1	1	1		1
Separation from buddy	4	3	4	4	7	9
Depth / Narcosis	1	2	4	2	3	7
Out of air	2	1	3	1	1	2
Heart attack / medical condition	4	3	2	4	2	2
DCI		2				1
Entrapment						1
Misc	2	3	5	5	3	3

Note: Many incidents involve several initiating factors