Risk assessment guidelines for open water

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Introduction

For some sheltered water and inland dive sites, it is necessary to submit a RISK ASSESSMENT of diving activities as part of the application. Equally, it is a recommendation that such a document is created for all sites.

The purpose of the Risk Assessment Plan is to have evidence that the branch is aware of the potential hazards on site and have contingency plans to implement in the event that these hazards occur and possible litigation ensues.

The writing of a Risk Assessment does not require any specialist knowledge or qualifications. Recreational divers are already in the habit of assessing hazards associated with the sport and dive sites that are visited. These assessments may be referred to by another name, such as Dive Plan and/or Dive Managing Slate.

The format of this Risk Assessment document is more in line with an industry standard and will be more readily recognised by operators of facilities.

For subsequent applications where you have already submitted a full risk assessment generic plan there is no need to re-submit a further full plan. This previously submitted plan only needs to be reviewed and updated. In your application, inform the facility operators of any amendments that need to be applied to the risk assessment plan that is already on file.

How to use the guidelines

This document has been prepared by the British Sub Aqua Club to give guidance to members on how to perform risk assessments appropriate to their diver training and diving activities for all open water locations.

This document gives a brief explanation of the risk assessment process, provides some example risk assessments and includes a sample blank risk assessment form.

Existing practices

Risk assessment is in fact already inherent in the way in which BSAC Branches and individual divers go about organising their training and diving. For example, for open water diving, Dive Planning and Managing includes many activities that are designed to assess and control risk. A risk assessment is nothing more than a structured way in which to address these activities so that they are performed most efficiently and safely.

The risk assessment process is therefore a model, which Branches can utilise as part of their normal diver training and diving organisational activities. This document gives a brief explanation of the risk assessment process, provides some example risk assessments and includes a sample blank risk assessment form. The examples are not an exhaustive list but should be used as a basis for producing a more concise list for the final document.

Basic sequence

In order to illustrate that risk assessment is conducted at several stages of normal diving practices the following list identifies a typical sequence. It is recommended that all diving should be conducted using this, or a similar structure.

- Dive Manager Dive Plan – to be completed in advance of the event and conveyed to the group members on site. This will include all the Risk Assessment aspects listed in the ‘generic’ plan (see page 3).
- Dive Manager Sheet – filled in and used during diving activities to record circumstances on site at the time of diving. This is the ‘specific’ plan for the day identifying changes that are needed to the ‘generic’ plan

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- Dive Brief – should be conducted by the Dive Leader/instructor of each dive, using SEEDS to ensure all points are included
- Buddy Check – should be conducted by each diving pair to familiarise each diver with buddy's equipment and configuration, using BAR as an aide-memoir, to give it structure
- Dive Debrief – should be conducted by the Dive Leader/instructor of each dive using REAP
- Dive Records completed by Dive Manager and submitted to Diving Officer as branch record of proceedings

Reference documents

- 'Safe Diving' guide available from www.bsac.com/safediving
- Instructor Resources available from www.bsac.com/instructormaterialsonline
- Information Leaflet - *Risk Assessment: A brief guide to controlling risks in the workplace*. HSE leaflet INDG163 (rev 4) - www.hse.gov.uk/pUbns/indg163.pdf

What is risk assessment?

Risk Assessment is nothing more than a structured method to the identification of significant hazards associated with diving and diver training activities. The process addresses these activities so that they can be performed more safely.
Risk assessment is a common-sense approach process and consists of five simple steps that:

- identifying significant hazards
- who or what is likely to be affected
- the risks associated
- the measures taken to control the risks and finally
- recording what has been done

Conducting a risk assessment

A risk assessment is an assessment of the hazards that may exist when conducting diving and diver training activities. Its purpose is to evaluate whether sufficient precautions have been put in place to prevent harm befalling any of the persons taking part in those activities.

The risk assessment should, however, be **reviewed on each occasion and throughout the day** to ensure that the risks identified are still valid.

Any changes should be noted, signed and dated to show the changing situation has been assessed, that no further risks have arisen and that the appropriate controls are in place.

Definitions

In any risk assessment guidance, there are standard terms used. The following is a list of the more commonly used terms:

'hazard' – anything with the potential to cause harm
'risk' – the likelihood that harm from the hazard will be realised

Many risks may be '***generic***', with common factors while others are more '***specific***' that require individual consideration depending upon the diving activity or location.

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Creating a risk assessment document

The risk assessment document shown in App.1-1 is simply an example and includes two columns that show how the risk evaluation has been assessed. These columns do not need to be included in the final version.

In each case a hazard is identified, an assessment as to who is at risk has been made followed by a risk evaluation based on the severity and frequency of that hazard.

The final two columns record the controls that are normally put in place to avert this hazard followed by the actions to be taken in the event that the risk is not controlled.

Example risk assessment - open water

These examples are included for illustrative purposes only. They should be adapted and expanded to suit circumstances and dive locations.

Hazard	Who	Frequency *	Severity *	Risk evaluation	Controls	Immediate measures to deal with consequences if risk does occur
Heart attack	All	Rare	Fatal	Medium	Medical self-declaration / referral to Medical Referee. Having an Automated External Defibrillators (AED) on site.	BLS by Instructor. AED trained staff on site. Emergency services activation plan
Ear damage	All	Occasional	Moderate injury	Medium	Trainees receive specific instruction in 'ear clearing'. Divers or snorkellers do not dive when suffering from a cold.	Assistance from Instructor or buddy.
Mask Squeeze	Trainees	Rare	Minor injury	Low	Only mask which encloses both eyes and nose in the same airspace used. Trainees receive specific instruction in mask equalisation.	Assistance from Instructor or buddy.
Injury from falling cylinders	Trainees	Rare	Moderate injury	Low	Trainees taught to always lay heavy equipment down. Monitoring by Instructor.	First Aid by Instructor.
Running out of air	All divers	Occasional	Fatal	High	All SCUBA sets fitted with cylinder pressure gauges. Monitoring by Instructor. Instructor / trainee ratios in accordance with BSAC recommendations.	All divers carry AS.

* Note: The grey columns are included to show how the Risk Evaluation was determined and would not normally be included in the Risk Assessment documentation.

Hazard	Who	Frequency *	Severity *	Risk evaluation	Controls	Immediate measures to deal with consequences if risk does occur
Rapid ascent	All divers	Occasional	Fatal	High	Progressive training. Correct weighting of all divers. Monitoring by Instructor. Instructor / trainee ratios in accordance with BSAC recommendations. Visual datum used for ascent exercises where appropriate.	Diving monitored by shore / boat cover able to provide / direct assistance. Oxygen Administration equipment and trained administrators on site.
Entanglement in nets/lines/under-water obstructions	All divers	Rare	Fatal	Medium	All divers carry appropriate cutting implement, such as filament line cutter, wire snips, diving knife, etc. Instructor control.	Assistance from buddy
Diver Separation	All Divers	Occasional	Fatal	High	Divers to dive in buddy pairs at all times. Contact to be maintained throughout the dive. Strobes or buddy lines to be carried.	Divers to surface immediately. Re-establish contact. Render assistance as required. Apply first aid or hospitalise as required.
Reduced underwater visibility	All Divers	Frequent	Major Injury	High	Diver numbers in water to be controlled and monitored. Divers to carry strobes and buddy lines on all dives.	Strobes & buddy lines items to be used in the event of the onset of reduced visibility. Dive to be abandoned in the event of adverse reduced visibility. Divers to surface and exit. Dive Manager to abort diving.

* Note: The grey columns are included to show how the Risk Evaluation was determined and would not normally be included in the Risk Assessment documentation.

Hazard	Who	Frequency *	Severity *	Risk evaluation	Controls	Immediate measures to deal with consequences if risk does occur
Trips/Slips & Tumbles	All	Occasional	Minor Injury	Low	Dive Manager to advise all divers of no running on site. Make party aware of road-mounted ringbolts and other dangers.	Remove casualty from danger and provide appropriate first aid. Hospitalise, as required.
Decompression illness	All divers	Occasional	Major injury	Medium	Dives planned and conducted in accordance with BSAC '88 Decompression Tables or decompression computer. All divers equipped with depth gauges and watches and / or decompression computers.	Oxygen Administration equipment and trained administrators on site.
Nitrogen Narcosis	All divers	Frequent	Fatal	High	Progressive build up of depth experience for trainees. Progressive work-up dives for all divers who are going beyond their recent diving experience. Experience gained in company of Instructor / diver of greater experience at that depth. Clear dive plans.	Assistance from Instructor / buddy.
Separation from boat while drift diving	All divers	Occasional	Fatal	High	Dive plan agreed with boat Coxswain. All dive pairs follow same plan. All dive pairs marked by Surface Marker Buoy.	Each diver carries aids to visual detection – e.g. flags, sausage buoys, strobes, flares, whistles etc.

* Note: The grey columns are included to show how the Risk Evaluation was determined and would not normally be included in the Risk Assessment documentation.

Hazard	Who	Frequency *	Severity *	Risk evaluation	Controls	Immediate measures to deal with consequences if risk does occur
Contact with dive boat / propeller	All divers	Rare	Fatal	Medium	Only trained coxswains allowed to operate boats. Trainees receive specific instruction in boat exit / entry techniques. All exit from and entry to boats controlled by coxswain.	First Aid kit on boat. Boat crew trained in First Aid.
Injury from other boats	All divers	Rare	Fatal	Low	Flag 'Alpha' flown while divers are underwater. Monitoring of other surface traffic by boat cover. Divers marked by SMBs or ascending under DSMBs.	First Aid kit on boat. Boat crew trained in First Aid.
Deteriorating weather	All divers	Frequent	Fatal	High	Diving planned using latest weather information. Alternative site planned. Weather conditions constantly monitored by Dive Manager / coxswain during diving. Diver recall mechanism available (e.g. signals via SMB line, Thunderflashes)	Diving cancelled or changed to back-up site by Dive Manager. Diving in progress terminated using diver recall mechanism. Boat intentions and appropriate times notified to Coastguard prior to departure. Updated if plans are changed.

* Note: The grey columns are included to show how the Risk Evaluation was determined and would not normally be included in the Risk Assessment documentation.

Risk assessment form

Club (branch) …… **Location** …….. **Date**…….

Hazard	Who	Risk evaluation	Controls	Immediate measures to deal with consequences if risk does occur

Assessed by:
Name…… **Position**…….. **Date**…….