

Risk assessment guidelines for centres and resorts

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Introduction

This document has been prepared by the British Sub-Aqua Club to give guidance to centres and resorts on how to perform risk assessments appropriate to their diver training and diving activities. Risk assessment is in fact already inherent in the way in which centres and individual divers go about organising their training and diving. For example, for open water diving, Dive Planning and Managing includes many activities, which 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.

The risk assessment process is therefore a model, which centres can utilise as part of their normal diving 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.

Codes of practice

There are two relevant Codes of Practice that relate to diving and diver training activities. These are:

- “Recreational Diving Projects”, an ‘Approved Code of Practise’ (ACoP) to the Diving at Work Regulations 1997, published by the Health & Safety Executive, which is appropriate to diver training in commercial Centres. (ISBN 0-7176-1496(4) 1997), and
- “Safe Diving”, published by the BSAC, which is appropriate to all diving and diver training activities.

Additionally, and specifically for diver training, the consideration of risks inherent in diver training has been a feature of the development of BSAC’s recommended syllabus of training and its associated implementation, as described in the relevant Instructor handbooks and instructor notes. These include risk control criteria such as training progression, maximum group sizes, appropriate instructor qualifications etc.

Conducting a Risk Assessment

A risk assessment is an assessment of how diving and diver training activities are conducted. Its purpose is to evaluate whether sufficient precautions have been put in place to prevent harm befalling any of the persons taking part.

Definitions:

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

There are five steps in conducting a risk assessment:

Step 1 - Identify the hazards

Identify the potential hazards to the participants from the activities being carried out and from the environment in which they will be carried out. Some hazards (e.g. rapid ascent) will be common to all environments from swimming pools to hard boat dives in the open sea. Others will be very specific to the particular location or activity.

Identify only significant hazards. Including those of a trivial nature only makes the process unwieldy and detracts from the identification of those that are significant.

Step 2 - Decide who may be harmed, and how

Many hazards will apply to all divers, whereas some will be more appropriate to particular groups such as trainees.

Step 3 - Assess the risk

This is a matter of judging each of the hazards identified to determine whether the risk is considered to be high, medium or low. Often common sense will allow this judgement to be made directly from experience and knowledge. In other cases a judgement can be made by considering the frequency with which the risk can be expected to occur and the maximum likely severity of the consequences if it does.

One way of expressing this assessment is by using the following matrix:

Risk Evaluation Matrix						
	Severity	Fatal	Major Injury	Moderate Injury	Minor Injury	Trivial Injury
Very common		High	High	High	Medium	Low
Frequent		High	High	Medium	Medium	Low
Occasional		High	Medium	Medium	Low	Low
Rare		Medium	Medium	Low	Low	Low

Examples of typical risks, and their assessments, are provided in Appendix 1. The examples cover a range of risks, some relevant to the swimming pool, others relevant to open sea diving and some common across the spectrum of locations. The examples are for illustration purposes only and are by no means a fully comprehensive list.

Included in the assessments are two columns indicating how the risk was evaluated in addition to the column indicating the outcome of the evaluation. These two columns are shaded grey and illustrate how the above matrix was used to determine the final risk evaluation. These two columns can be omitted from a formal assessment, only the final evaluation needing to be recorded. Indeed common sense may enable the final evaluation to be determined directly from experience and knowledge.

Step 4 – Record the assessment

For commercial centres, recording the assessment is essential and each assessment should form part of their filed RA information. An example of a suitable form is included in Appendix 2. This form is in the form of a word table. It can either be printed out to use directly or be cut and pasted to another file so that it can be tailored to suit a particular centre's use.

Step 5 - Periodically review assessment

Risks may change with time. For some risks such changes may be very infrequent, while for others they will vary with each location or occurrence.

For instance, risks involved in training in a swimming pool may only vary when either the type of training to be carried out is varied or the swimming pool environment itself is subject to change. Once prepared, a risk assessment for such a venue will remain valid for a considerable period.

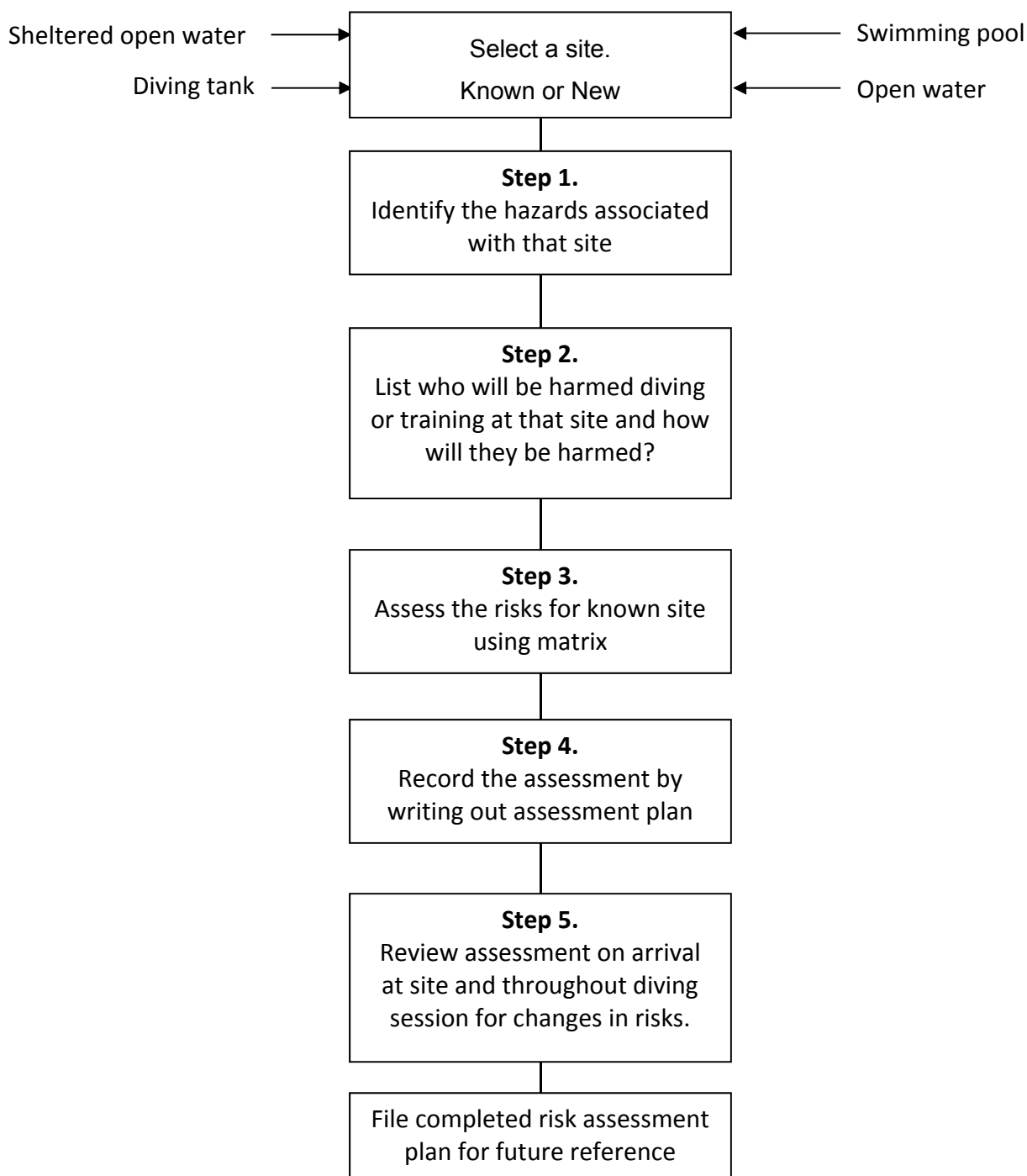
Where diving is carried out in sheltered water or open sea conditions, some aspect relevant to the diving activities may not change, while other aspects relevant to the site conditions may change on each occasion. For such a location a risk assessment can be prepared which will cover many of the risks which remain constant, only those risks which vary (e.g. Weather, underwater visibility or specific activity dependents) needing to be addressed specifically.

'Generic' or 'Specific'

Many risks may therefore be 'generic', while others are more 'specific' depending upon the diving activity or location.

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.

Flow chart



Example risk assessments

These examples are included for illustrative purposes only. They should be adapted and expanded to suit individual centre circumstances / 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.	BLS by Instructor. Emergency services activation plan.
Slipping on pool surrounds	All	Rare	Moderate injury	Low	No running in swimming pool area. Fins removed when walking on pool surrounds. Monitoring by Instructor.	Assistance / first aid by Instructor.
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.

* **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
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.
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.
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.

Hazard	Who	Frequency *	Severity *	Risk evaluation	Controls	Immediate measures to deal with consequences if risk does occur
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.
Entanglement in nets / lines	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
Separation from boat while drift diving	All divers	Occasional	Fatal	High	Dive plan agreed with boat Cox'n. 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.
Contact with dive boat / propeller	All divers	Rare	Fatal	Medium	Only trained cox'ns allowed to operate boats. Trainees receive specific instruction in boat exit / entry techniques. All exit from and entry to boats controlled by cox'n.	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.

Hazard	Who	Frequency *	Severity *	Risk evaluation	Controls	Immediate measures to deal with consequences if risk does occur
Deteriorating weather	All divers	Frequent	Fatal	High	Diving planned using latest weather information. Alternative site planned. Weather conditions constantly monitored by dive manager / cox'n 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.

Risk assessment

Centre

Location

Date.....

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

Assessed by:

Name.....

Position.....

Date.....