British Sub-Aqua Club

Risk Assessment

Guidelines For Branches

Liverpool South Docks

July 2004

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Introduction

Applying for a licence to dive - In order to receive a licence to dive in Salthouse Dock and other permitted waters in the Liverpool Docks complex from the Estate Owner (see Appendix 3), it is necessary to submit a RISK ASSESSMENT of diving activities as part of the application.
Application documentation should be sent to the Harbour Manager, who is responsible for licence allocation.
The purpose of the Risk Assessment Plan is to show the Estate Owner that the branch is aware of the potential hazards on site and have contingency plans to implement in the event that these hazards occur.
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 sites that are visited. These assessments may be referred to by another name, such as Dive Plan and/or Dive Marshal Slate.
The format of this Risk Assessment document is more in line with an industry standard and will be more readily recognised by the Estate Owner.

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 Estate Owners of any amendments that need to be applied to the risk assessment plan that is already on file.

Licence Terms & Conditions must be adhered to at all times when using the sites of the South Liverpool Docks.

How to use the guidelines

This document has been prepared by the British Sub-Aqua Club, in conjunction with the Harbour Manager, to give guidance to branches on how to perform risk assessments appropriate to their diver training and diving activities at the Estate Owner Site and how to produce a suitable document for submission.
It is not intended to be a course in how to write risk assessments but the readers may find it of interest and useful for normal branch activities at other locations.
Read the background information on Risk Assessment; understand the use of the matrix and the examples of risks likely to occur at this type of site.

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 Marshalling 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 Branches 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. 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.

Risk Assessment

- **Dive Marshal 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.
- **Dive Marshal 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.
- **Dive Brief** – should be conducted by the Dive Leader/instructor of each dive, using SEEDS to ensure all aspects 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
- **Dive Debrief** – should be conducted by the Dive Leader/instructor of each diver using REAP as an aide memoire to give it structure
- **Dive Records** completed by Dive Marshal and submitted to Diving Officer as branch record of proceedings

Reference Documents

'Safe Diving' Booklet 2007

This booklet is an alphabetical guide to safe practices of sports diving as recommended by the British Sub-Aqua Club (BSAC), the governing body of the sport of sub-aqua diving and snorkelling in the UK.

The ideas expressed within reflect the current thinking of the National Diving Committee (NDC) and the advice on which it is acting.

It also contains the Diver's Code of Conduct and lists the current policies of the BSAC.

Available from BSAC HQ or **www.bsac.org/page/141/safe-diving.htm**

Instructor Resources 2008

Also published by the BSAC, this manual takes into account the consideration of risks inherent in diver training, which has been a feature of the development of the BSAC's recommended syllabus of training and its associated implementation.

This includes risk control criteria such as training progression, maximum group sizes, appropriate instructor qualifications etc.

Available from the BSAC Mailshop or **www.bsac.org/page/518/training-materials.htm**

Information Leaflets

5 Steps to Risk Assessment HSE leaflet INDG163 (rev 1).
Aimed to help employers and self-employed people to assess risks in the workplace.
HSE Books, PO Box 1999, Sudbury, Suffolk, CO10 2WA. Tel: 01787 881165 Fax: 01787 313995
Website: **www.hsebooks.co.uk**

Risk Assessment

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. How they will be affected is determined by identifying the 'Maximum Severity' to occur if subjected to that hazard

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 severity'*** of the consequences if it does.

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

RISK EVALUATION MATRIX

Frequency of occurrence / 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 Branches recording each assessment is essential and each assessment plan should form part of their filed and recorded RA information. An example of a suitable form is included in Appendix 2. It can be either printed to be used directly as a fill-in form or be cut and pasted to another file so that it can be tailored to suit a particular Branch'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.

Swimming Pool

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.

Sheltered Water & Open Sea

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 dependants) needing to be addressed specifically on the day and throughout the day.

'Generic' or 'Specific'?

Risk Assessment Plan

Many risks may therefore be ***'generic'***, that is they remain unchanged but relevant to the location. This is the content of the Risk Assessment Plan that is required by the Estate Owner.

Dive Marshal Planning Sheet

Others are more ***'specific'***, implying that they may change depending upon the diving activity, location and water conditions. These risks can be covered by the Dive Planning Sheet used by the Dive Marshal on the day. It should identify aspects that exist on the day of diving that are different from those listed in the Risk Assessment Plan.

HSE Advice

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.

Risk Assessment

Contacts

For further information and guidance on applying for a diving licence at Liverpool South Docks:

The Harbour Manager
Unit 7M, Atlantic Pavilion,
Albert Dock,
LIVERPOOL,
Merseyside, L3 4AE

Tel: 0151 709 6558

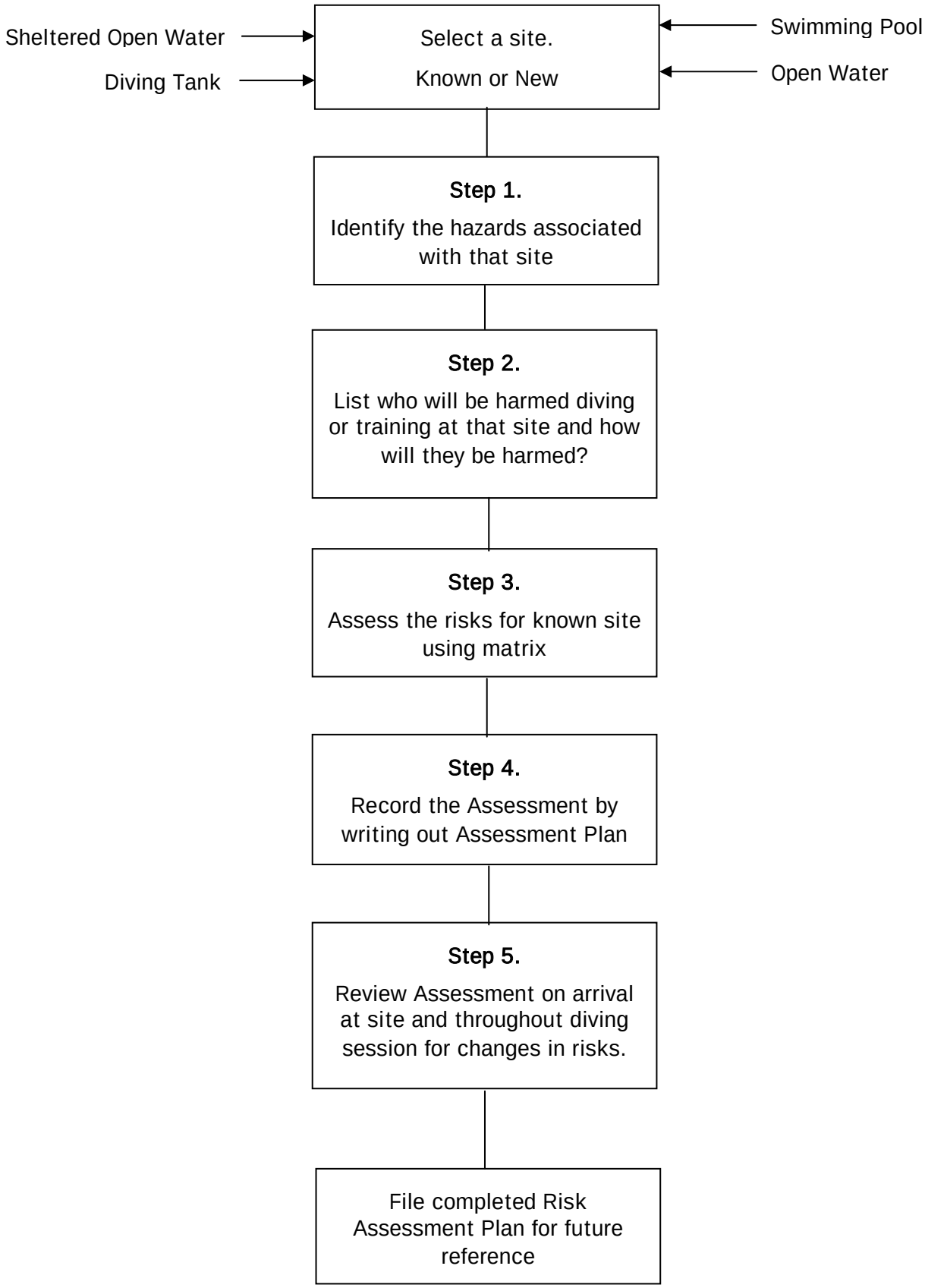
For further guidance on safe diving practices and risk assessment plans:

Diver Resources Team
British Sub-Aqua Club
Telford's Quay,
South Pier Road,
ELLESMERE PORT
Cheshire, CH65 4FL

Tel: 0151 350 6200
e-mail: technical@bsac.com

Risk Assessment

Flow Chart for Generic Risk Assessment Plan



EXAMPLE RISK ASSESSMENTS

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

ID No	Hazard	Who at Risk	Frequency	Severity	Risk Evaluation	Controls	Immediate measures if risk occurs
1	Heart Attack	All	Rare	Fatal	MEDIUM	Medical self-declaration/referral to Medical Referee.	CPR by Instructor or buddy. Emergency services activation plan.
2	Ear Damage	All Divers	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.
3	Mask Squeeze	All Divers	Rare	Moderate 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.
4	Injury from falling cylinders	All	Rare	Moderate Injury	LOW	Trainees taught to always lay heavy equipment down. Monitoring by buddy or Instructor.	First Aid by Instructor or buddy

5	Running out of air	All Divers	Occasional	Fatal	HIGH	All SCUBA sets fitted with cylinder pressure gauges. Monitoring by Instructor or buddy. Instructor / trainee ratios in accordance with BSAC recommendations.	All divers carry AAS.
6	Rapid Ascent	All Divers	Frequent	Major Injury	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.
7	Entanglement with nets / lines / underwater obstacles	All Divers	Rare	Fatal	MEDIUM	Dive Marshal to brief divers of danger areas. All divers carry appropriate cutting implement, such as filament line cutter, wire snips, diving knife, etc. Instructor control.	Assistance from buddy. Buddy to raise alarm to shore party Diver to be removed from danger and exit the water. Apply first aid as appropriate. Hospitalise, if required.

8	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.
9	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 Marshal to abort diving.
10	Trips/Slips & Tumbles	All	Occasional	Minor Injury	LOW	Dive Marshal 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.
11	Water Temperature	All Divers	Frequent	Moderat e Injury	LOW	All divers to wear appropriate thermal protective clothing, including dry suit, gloves	Provide first aid treatment for hypothermia. Hospitalise

						and hood.	
12	Illness from water quality	All	Rare	Minor Injury	LOW	Provide appropriate first aid on the scene.	Seek medical advice. Hospitalise.
13	Contact with other water users	All	Occasional	Minor Injury	LOW	Divers to dive in pairs and use SMBs. Dive Marshal to plan use of site to reduce diver/diver contact. Liaise with other water users.	Remove casualty from the danger and water. Apply appropriate first aid. Seek medical advice. Hospitalise.
14	Objects thrown at divers	All Divers	Occasional	Minor Injury	LOW	Divers to exit the danger area. Security to be contacted to remove offenders	Provide any first aid that may be appropriate. Hospitalise, if required.
15	Loss of buoyancy at surface	All Divers	Occasional	Major Injury	MEDIUM	All buoyancy devices should be checked for functionality prior to dive in brief. Dive to be aborted if any indication of BC malfunction is detected.	Buddy to render immediate assistance to casualty. Divers to raise alarm to shore party. Shore party to provide additional assistance.
16	Diving equipment malfunction	All Divers	Rare	Fatal	LOW	Divers to carry octopus rig to cover loss of primary second stage. To be checked in brief.	Dive to be aborted. Buddy to render assistance to casualty.

						Buddy check must be conducted before every dive. All diving equipment must be checked as being in service and function for purpose.	Casualty to be removed from water. Appropriate first aid to be applied Hospitalise as required
17	Rough surface water conditions	All Divers	Rare	Fatal	MEDIUM	Weather forecasts to be taken prior to diving and recorded in dive plan. Diving to be aborted by Dive Marshal in the event of adverse weather conditions.	Assistance by buddy or instructor. Divers to exit water. Appropriate first aid. Hospitalisation as required.
THIS SHOULD NOT BE CONSIDERED TO BE AN EXHAUSTIVE LIST OF POSSIBLE HAZARDS							

Risk Assessment

Branch …… Location …… Date……

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

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

Assessed by:

Name..... **Position**..... **Date**.....

LIVERPOOL WATERFRONT PLAN