

The Scottish Sub-Aqua Club

Health and safety Manual

Issue 1

January 2001

Copy write of this document is the property of the Scottish Sub-Aqua Club. It is issued to members as detailed by the distribution list. Any suggestions for improvement should be addressed to SSAC HQ for the attention of T Carter.

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Health and Safety Policy Statement.

The Scottish Sub-Aqua Club, as the governing body of the sport in Scotland is committed to providing a healthy and safe working environment for its employees, sub-contractor, members and to the general public.

It has a duty to encourage and recommend safe diving practice for all diving and diving related activities carried out by its employees, sub-contractors, members and friends.

Health and Safety Policy management.

The Scottish Sub-Aqua Club will provide a healthy and safe working environment for its employees, sub-contractors, members and friends of members and to the elimination of diving and diving related incidents by:

1. Devising Health and safety policies appropriate to the activities carried out by:-
 - Employees, members, sub-contractors and friends of members.
2. The SSAC Health and Safety policies will be activity encouraged and supported by:
 - The General Council.
 - The National Diving Council
 - Branch Committees.
 - Instructors.
3. Requiring each employee, member, sub-contractor and friends of members to consider the health and safety issues associated with their activities and to communicate those risks to those who may be affected.
4. By ensuring each employee and member is adequately trained for the activity they are to undertake.
5. By ensuring all instructors have the appropriate skills and experience for the instruction being undertaken.
6. To include health and safety issues within the 'fabric' of :
 - Diving.
 - Instruction.
 - Courses.
 - Assessment activities.
7. To train members to carry out risk assessment.
8. A record of discrete health and safety training will be maintained.
9. To review the Health and safety policies at regular intervals to ensure the policies and activities of the SSAC are consistent and appropriate.
10. To audit at regular intervals the activities of the SSAC to ensure the Health and safety policies are being followed.
11. To use personal having specialist knowledge or experience in the provision of specialist services.

This document is written to satisfy the HS(G)65 benchmark standards and conditions 11 and 12.

Application of the Health and safety policies.

For ease of application the above policies will be applied to a number of discrete activities and environments:

- The headquarters.
- Diving and diving related activities
- The expedition.
- The dive
- Training activities

Headquarters activities.

Health and safety issues will be discussed, minuted, with employees at monthly intervals.

All equipment used within the office is to be safe, mechanically and electrically:

Electrical equipment will be safety tested at regular intervals by a experienced person.

Mechanical equipment will be examined for mechanical safety by an experienced person.

Details of inspections, level of training, competency and records can be found in appendix 1.

The office is to be maintained in a clean and tidy condition:

Appropriate cleaning materials or a cleaning service will be provided.

All cleaning materials used will be supplied with Health and safety information.

Appropriate storage facilities will be provided for all materials.

Employees will be provided with suitable adjustable furniture for the tasks to be carried out.

Employees will be trained to safely carry out all activities and in the use all equipment provided.

A risk assessment of the office activities will be carried out, Health and Safety training, based on the identified risks will be carried out.

A record of all health and safety training will be maintained which will include the following:

A record of training & the training offered but not taken up in the case of employees.

A record of each members diving grade, members instructor grade and endorsements successfully completed will be maintained.

SSAC will provide sub-contractors with a written notice of the risks, which may be encountered within the HQ office, a representative of the sub-contractor will sign that the notice has been seen.

Sub-contractors will provide SSAC with a declaration that their employees have undertaken appropriate H & S training for the activity they are to carry out.

Appendix 1 details H & S regulations which are mandatory to the headquarter activities.

Other parts of Appendix 1 give details of the appropriate 'blank records, audits etc. to be completed.

Diver and diving related activities.

General Health and safety issues.

SSAC will provide health and safety advice and the associated risks while carrying out diving activities to members.

The medical advisers will be practising doctors with hyperbaric experience.

A list of medical advisers is to be found in appendix 2a.

SSAC, via the medical advisers, is a member of the UK Sports Diving Medical Committee.

Any member undertaking diving activities will make a declaration as to their fitness to dive by completing a SSAC sports diving medical form in accordance instruction.

Appendix 2b

The member will also complete the:

‘Declaration of fitness to dive’ (page ‘4’ in the ‘Diver training record’)

Appendix 2c.

Pressure vessels and pressure systems.

Pressure vessel (air, oxygen, mixed gas cylinders) will be handled and stored in accordance with the recommendations found in Appendix 3a.

In the event of there being a conflict between ‘Appendix 3a’ and any legal or national standard then the legal or national standard will take precedence.

It shall be the responsibility of a nominated person to maintain pressure vessels in accordance with ‘Appendix 3a’.

Health and safety issues related to cylinders will be included in the ‘Sports diver award’ lecture ‘8’ ‘Principles of the aqualung, air endurance and air cylinders’.

Compressors and associated equipment may have to comply with the pressure systems regulations which require:

A detailed inspection plan.

Records of the inspection carried out.

The inspection reports.

An example of a inspection plan is in appendix 3b.

An example of an inspection record is in appendix 3c.

Health and safety issues related to compressor operation will be included in the ‘Master diver award’ lecture ‘8’ ‘Compressor operation’

Note

It is recommended that all compressed gas sources to be used as breathing gas supply should be tested for purity at regular intervals as recommended by the manufactures of the compressor or the filter and the results recorded in the compressor maintenance record.

Other equipment.

SSAC recommend that all equipment be maintained in a clean and serviceable condition by a suitably qualified / experienced person.

Deficiencies in any equipment should be immediately reported to the owner or keeper (preferably in writing).

Where appropriate, a service and deficiency record is to be maintained by a nominated person.

An example of a service and deficiency record is to be found in 'Appendix 4'.

Health and safety issues will be included in the 'Sports diver award' lecture '8', 'Maintenance of equipment and diving accessories'.

Personnel diving equipment.

The diving equipment used by an individual should reflect the type of diving carried out.

The type and configuration of all diving equipment to be worn should be detailed after a risk assessment of the normal dive and diving conditions has been carried out.

To reduce the risk of hypothermia the diver should wear suitable protective clothing (wet suit / dry suit). The diver should be encouraged to change this clothing to suit the conditions.

Health and safety issues will be included in the 'Sports diver award' lecture '6', 'Exhaustion protective clothing and hypothermia'.

The diver will wear a suitable buoyancy compensator which is capable of supporting the fully kited diver on the surface in the event of the loss of all other buoyancy.

It is desirable for the buoyancy compensator to support the diver in a manner so as to maintain the diver's face clear of the water and a 'clear' airway.

Health and safety issues will be included in the 'Sports diver award' lecture '3', 'Aqualung use, buoyancy control, description and use of buoyancy aids' and the BC endorsement.

When the diver finds it necessary to wear additional weight to achieve neutral buoyancy the amount should be the minimum necessary to achieve neutral buoyancy when all the buoyancy compartments are empty of air and the 'cylinder' is empty. The diver should be able to 'ditch' the weight quickly and easily at any time during the dive.

The use of additional air supplies, cylinders should be considered after a risk assessment of the dive has been carried out.

Details of the factors to be considered in a risk assessment are found in Appendix 5a

Appendix 5b gives information, which could be used in a personal diving equipment risk assessment.

Appendix 5c shows an example of a personnel diving equipment risk assessment form.

Health and safety issues will be included in the 'Sports diver award' lecture '10', 'Open water diving and diving procedures'.

Expedition organisation.

When a branch or group of individuals plan an expedition SSAC advised that a risk assessment be carried out, which includes as a minimum the factors included in appendix 6a:

The risk assessment should be carried out by a suitably qualified member of the party, nominated by the expedition organiser.

At a pre-expedition meeting the risks and hazards should be explained to each diver.

It is desirable that each diver should sign that they have seen and had the risk and hazards of the expedition explained.

Discussions should take place with each diver so that identified unacceptable risks to the diver can be reduced to an acceptable level.

It is the responsibility of each diver taking part in the expedition to identify and reduce unacceptable risk and the possibility of an incident.

A note of specific risk reduction measures should be included in the 'Risk assessment form'.

The 'Risk assessment form' should be split into 2 sections:

Part 1 Specific to the expedition, objectives and divers.

Part 2 Specific to the diving area and or sites.

An example of a 'Risk assessment form' is to be found in 'Appendix 6b'.

Risk assessment training shall be included in:

'Master diver lecture' '7', 'Expedition organisation' and practical training.

The dive

All diving should be carried out within the 'Diving rules' issued by SSAC Appendix 7a.

It is the responsibility of each diver in the dive party to actively prevent and help in the resolution of situations which may result in an incident above and below the water surface.

SSAC recommend that a risk assessment be carried out for the specific dive taking into account the factors given in Appendix 7b

The risk assessment should be carried out by the dive leader or in the event of multiple dive taking place in very similar conditions by an experienced member of the dive party.

On completion of the risk assessment the identified risks should be discussed between members of the dive team and the support team.

Identified risks should be agreed as acceptable before the dive takes place.

In the event of the identified risks not being acceptably to all directly involved then elements of the dive should be modified until agreement is achieved.

It is the dive leaders responsibility to ensure identified risks will be reduced to an acceptable level, to lead in the resolution of the of the risks when leading a less experienced diver and explain to the less experienced diver how the risk have been reduced.

The less experienced diver has a responsibility to ensure the dive leader and support team are aware of any reservation related to any aspect of the dive and related activities of the dive.

In the event of a 'Risk assessment form' being completed for the expedition the risk reduction techniques related to the dive should be recorded on the form and retained for a minimum of 1 year.

It is advised a Risk assessment from be completed prior to the dive.

An example of a Risk assessment form is given in Appendix 7c.

Health and safety issues will be included in the 'Sports diver award' lecture '10', 'Open water diving and diving procedure'.

Training activities.

Training activities are defined as, “all activities during which knowledge and or skills are to be actively increased or developed”.

Activities will be sub-divided dependant on the type of activity as follows:

- Lectures
- Shore based practical activities.
- In water activities.
- Underwater activities.

Elements of health and safety will be included in all instructor courses.

Lectures

SSAC recommend that lectures are conducted in and with facilities which meet the H & S requirements of SSAC HQ. Appendix 8a

All visual aids should (where ever practical) be safe to handle.

Where visual aids can not be made safe for normal handling then appropriate warnings should be given.

Shore based practical activities

SSAC recommend a risk assessment be carried out before the activities commence.

At a pre-activity briefing / meeting the risks and hazards should be explained to each diver.

Discussions should take place with each participant so that identified unacceptable risks to the participant can be reduced to an acceptable level.

It is the responsibility of each member taking part in the activity to identify and reduce unacceptable risk and the possibility of incident.

A risk assessment should be carried out for each type of shore based activity.

The factors to be considered in the risk assessment can be found in appendix 8b

A note of specific risk reduction measures should be included in the ‘Risk assessment form’.

An example of a Risk assessment form is given in Appendix 8c.

Specific health and safety actions for specific shore based activities are to be found in Appendix 8d(N).

In water activities

A risk assessment will be maintained for those water training activities in which there is a risk of a person being injured. Supplementary activities, e.g. photography, archaeology, carried out by qualified divers will not be included. Details the normal major hazards for the trainee and instructor and how those risks can be reduced or eliminated are to be found in Appendix 9.

The instructor will:

Explain each training exercise to the trainee.
Why the exercise is being carried out.
The precautions being taken to minimise any risk associated with the exercise.

To reduce the risk of injury when the trainee kits up, enters or leaves the water the instructor will:

Assist the trainee with kiting up where necessary.

Guide the trainee in to the water.

Enter the water at the same time and in close proximity to the trainee,

or enter the water before and leave after the trainee and give suitable warnings

as necessary.

The instructor will demonstrate what is expected of the trainee at each stage of the training exercise.

It will be confirmed with the trainee that they are ready to attempt the training.

The trainee will be given an opportunity to build up their skills in suitable conditions before attempting an assessment, i.e. practice in shallow water before progressing to deeper water.

The trainee will be monitored during the exercise for signs of unnecessary stress.

Pool activities.

Any pool can have multiple activities taking place at any one time.

Each activity should where practical be segregated from others.

Where practical a 'Pool safety officer' should be appointed for the pool session to provide safety directions to those in the water and ensure pool safety rules are followed.

The instructor responsible for a pool training activity should keep an appropriate look out to ensure that his group does not impede other water users.

Under water activities.

A major part of all training activities are carried out under water.

Where possible training activities will be carried out in water conditions which are appropriate to the training activity.

Appropriate support teams should be available during all training activities, dependant on the assessed risk. The support team will have completed training to carry out appropriate emergency, rescue and recovery procedures.

Appendix 10 gives the recommendation for the conditions for each training activity.

Carrying out risk assessment.

Risk assessment is a means of calculating the probability of an incident occurring.

It consists of:

Formally recording the major risks which may occur during a dive.
Assigning an estimated probability of each risk occurring during a dive.
Calculating the probability of an incident occurring.

The probability of any incident occurring is the sum of the probabilities of each major risk occurring. An example is given in appendix 11.

Dependant on the probability of an incident occurring and the effects of the incident risk reduction methods can be formulated and employed.

Authorisation and amendments

Authorisation

The Health and Safety Manual is written and maintained by the Nation Diving Council of the Scottish Sub-Aqua Club.

Copy write is owned by the Scottish Sub-Aqua Club.

The Health and Safety Manual is authorised by the National Diving Officer and the Chairman of the Scottish Sub-Aqua Club.

Amendments.

Minor changes to this document will be notified to the owners of maintained copies by way of a 'Amendment notices'.

An 'Amendment notice' will comprise:

Details of the amendment.

Up-dated 'Amendment record'.

The Details of the amendment will replace the appropriate page in the Health and safety manual.

The Amendment record will replace the previous issue found in Appendix 12

Where only minor changes have been made to this document there will be no changes to the document issue number.

The amended pages will be issued with a revised issue number specific to the page.

In the event of a major rewrite the Health and safety manual will have a revised issue number.

The 'Amendment notice' will be published in 'Scottish Diver'.

Distribution

Distribution will be as follows:

- General committee.
- Elected members of the National Diving Council.
- Regional Coaches.
- Co-opted members of the National Diving Council.
- Active Ex-officio members of the National Diving Council.
- Branch copy in the care of the Branch Diving Officer.
- Branch Instructors at the Branch Instructor Course.
- Regional Instructors at the Regional Instructor Course.
- Examiners at the Examiner Course.
- Instructors of instructor courses.

Copies issued to following will receive all amendments to the Health and Safety Manual:

- General committee.
- Elected members of the National Diving Council.
- Regional Coaches.
- Active Ex-officio members of the National Diving Council.
- Branch copy

Medical standards as per training schedule

Declaration of fitness to dive

(To be completed by new members before training commences).

I declare that to the best of my knowledge I have no physical or mental disability which I believe to be hazardous to me whilst in pursuit of snorkel or scuba diving activities. I also agree to inform the Branch Diving Officer (BDO) or the National Diving Officer (NDO) should any changes occur in my state of health which would make snorkel or scuba diving hazardous to me.

SIGNED..... DATE.....

Medical Examination Endorsement

Before you are allowed to use compressed air or other breathing gas underwater a Diving Medical must be completed. The results of the medical must be recorded on a SSAC Medical Form and be passed to your BDO who will forward the form to the NDO, SSAC, The Cockburn Centre, 40 Bogmoor Place, Glasgow G51 4TQ.

In addition, when required, the following section is to be completed by the member's Medical Practitioner at the time of your Medical Examination.

This is to certify that I have carried out a diving medical in accordance with the SSAC Medical Examination form and consider the member fit to use compressed air or other breathing gas underwater.

Medical Practitioner's Recommendations

SIGNED.....

DATE.....

(Stamped name and address of Medical Practitioner).

NOTE: The official SSAC Medical Examination Form is available from the SSAC, The Cockburn Centre, 40 Bogmoor Place, Glasgow G51 4TQ. Notes for the guidance of Medical Practitioner's are printed on the reverse of that medical form.

Medical Alert Information

Blood Group..... Allergies, Reaction.....

Required Medication.....

Medical Problems.....

Medical Certificate of fitness

Valid 5 years to age of 40, 3 years to age of 50 and 1 year thereafter Members must hold a valid Medical Certificate to dive within SSAC rules.

Pressure vessels

A pressure vessel is defined as a container which has an operating pressure above ambient pressure.

All pressure vessels will be tested inspected and tested in accordance with the appropriate standards.

It is a SSAC recommendation that pressure vessels which do not require to be inspected and tested, should be inspected and tested in accordance with an appropriate standard.

A record shall be maintained of the inspection and testing carried out on each cylinder by the nominated person using the 'Equipment inspection service and record' form, Appendix 4.

Pressure vessels should be handled as follows:

- Should be handled with care.

- Not thrown, dropped or handled in a manor by which damage can occur.

- Long term storage should in cool dry condition, with a low internal pressure with the cylinder supported in the vertical position.

- Cylinders 'in use' should be laid down when not being prepared for use.

Pressure systems inspection

Recommendations for the inspection of the system will take place as follows:

Element of the system	Type of inspection	Frequency of inspection
Safety valves	operation	5 year
Pipe work	visual	1 year
Pipe work	pressure test	10 year
Filters (machined construction)	visual	5 year
Filters (machined construction)	pressure test	10 year
Filters (welded construction)	appropriate NDT	5 year
Filters (welded construction)	pressure test	10 year
Storage cylinders	visual	5 years
Storage cylinders	pressure test	See cylinder specification
Filling hoses	visual	6 months
Filling hoses	pressure test	2 year

Factors to be included in the personal diving equipment risk assessment.

The type of dive, shallow, deep, drift, profile, decompression.

The divers air consumption.

The cylinder size.

The competence and experience of the diver and dive partner.

The physical strength of the diver.

Consideration should be given to the total mass of the diving equipment which has to be lifted, carried, the distance it has to be carried and HSE industrial limits.

The physical agility of the diver

The mean time (number of dives) between failure for the equipment.

The consequences of the equipment failure.

The mean time between (number of dives) significant incidents.

The consequences of the incident type.

Data for use in the personal diving equipment risk assessment.

This data is based on known reported incidents and gives an indication of the probability of the type of incident occurring.

Other factors such as the type of dive, the experience of the dive team will have an effect on the probability of incident occurring.

Equipment failure.

Air supply

Running out of air	
First stage failure No air	
Free flow	
Second stage failure No air	
Free flow	
HP hose failure	
LP hose failure	

Inflation valves

BC valve not opening	
BC valve free flow	
Dry suit valve not opening	
Dry suit valve free flowing	

Weight belt / packs

Weight lost on surface	
Weight lost during a dive	
Could not release weight on surface	
Could not release weight during dive	

Dump valves

Dry suit dump valve	
BC dump valve	

Suit problems during dive

Seal leaks	
Zip leak	
Suit tare or 'rip'	

Other equipment failure

Mask	glass failure	
	strap failure	
	knocked off	
Fins	'lost'	
Snorkel	'lost'	
Knife	'lost'	
	not up to task	

Surface marker buoy including SASMB

Unable to stream	
Unable to rewind	
Line broke	
Deflated on surface	
Tangled with diver	
Tangled with bottom objects	
Buoy dragged by current	
DASMB lifted diver	

Support failure.**Boat**

Would not start	
Not where expected (Divers lost)	
Divers not where expected	
Divers not noticed (rough water)	

Personal diving equipment risk assessment.

Personal diving skills.
Certified diving skills

Current training

Instruction skills

Mixed gas skills

Rescue skills

Diving experience

Onset of N₂ narcosis

Others

Personnel strength and fitness.
Strength

General fitness

Physical limitations

Medical limitations

Factors to be included in a expedition risk assessment.

The objective of the expedition.

The proposed dive sites.

Known features of the sites which could contribute a hazard.

Depth

Currents.

Expected visibility.

Temperature.

Entanglements.

Access the water, (boat or shore).

Consideration should be given to the ease with which the diver can approach the entry point and enter the water.

Consideration should be given to the number exit points, the ease with which exit can be achieved, the ease with which movement from the exit point can be achieved.

Dive duration, type (decompression), profiles.

The qualification and experience of the divers.

Are the divers qualification and experience appropriate for the expedition.

Diver fitness.

Is the balance of experienced divers to inexperienced divers appropriate to fulfil the expedition objectives.

Diving equipment needs.

Consideration should be given to equipment needs of each diver of the party.

Weather services.

The ease with which appropriate weather information can be obtained.

The availability of support services.

Different types of injury or illness require different types of support.

These different support services require different times to arrive, consideration could be given to there accessibility.

Transport facilities and travel times to support services or other help.

Number and type of transport vehicles.

Number and type of boats.

Equipment of the boat.

Others.

Communication facilities.

The presence and available signals of mobile phones,

availability of land phones,

availability of VHF radios,

others

Available equipment.

Diving equipment spares.

List of non-standard equipment.

Expedition risk assessment form.

Expedition area of operation

Objective of the expedition.

Number of divers

Qualification and experience of divers

Name
Diver grade
Experience

Communication facilities.

Telephone

Mobile

VHF radios

Others

Weather information&ease of access

Divesites to be used.

Site
Type ofdive
Access
Depth
Currents
Comments

Transport facilities.

Type

No.&size.

Cars

Boats

Others

Availability of support services.

Service

Telephone
Traveltime

Doctor

Hospital

Coastguard

Non-personal equipment

No.&type

Equipment

No.&type

Equipment

Identified risks and risk reduction measure.

Risk

Risk reduction measures

Appendix 7a
SSAC diving rules
Open Water Diving Procedure

Equipment

1. All snorkellers must wear a buoyancy compensator (B.C.).
2. All divers must wear a B.C. capable of supporting a fully kitted diver face up, on the surface and the B.C. must be fitted with an inflation device in addition to an oral inflation tube. Alternative inflation devices must be checked before every dive.
3. Your weight system must always be separate from your aqualung, free from obstruction and capable of emergency release.
4. Always carry a snorkel tube, knife, depth gauge and timing device or a computer.

Do Not Dive-

1. If you are unfit, tired, cold or feel unwell in any way.
2. If you are suffering from a cold, nasal or bronchial catarrh.
3. If you are unhappy about any aspect of the safety of the dive plan, e.g. sea conditions, current etc.
4. In areas where fishing or boat movements are in progress. Do not dive in shipping channels, on designated wrecks or in restricted areas.
5. In 30m or more of water without a shot line.

During the Dive – Advice to Divers.

1. Never hold your breath while using an aqualung. Always breath normally.
2. Protect yourself against cold and avoid over-exertion.
3. Abandon a dive if you are feeling worried, unwell or unsure about it.
4. Never allow your underwater interests to absorb you to the point of exhaustion or danger.
5. Make use of surface cover, boats and surface marker buoys where appropriate.
6. Limit ascent rates to 10 metres per minute.
7. Restrict partial pressure of oxygen to 1.4 bar.
8. Never dive deeper than 50m unless holding a recognised qualification to do so.

Factors to be considered in the risk assessment of a dive.

The objective of the dive.

The dives should be within the agreed dive parameters of the expedition.

The dive sites.

Known features of the site which could contribute a hazard.

Depth and steepness of the seabed.

Currents.

Expected visibility.

Temperature.

Entanglements.

Access the water, (boat or shore).

Consideration should be given to the ease with which the divers can approach the entry point and enter the water.

Consideration should be given to the number exit points, the ease with which exit can be achieved, the ease with which movement from the exit point can be achieved.

Dive duration, type (decompression), profiles.

The qualification and experience of the divers.

Are the divers qualification and experience appropriate for the dive.

Consideration should be given to known skill and missing skills of the

dive team.

(When a skill has not been proven then it is not assumed a diver has

that skill).

Diving equipment needs.

(The dive team should have the appropriate equipment and diving gas for the dive).

Weather and water conditions.

The current and projected changes to the weather and water conditions

The availability of support services (boat and or shore support).

Equipment of the boat.

Others.

Communication facilities.

SMB, delayed SMB, diver carried flags, personnel flares, 'strobes' & torches.

Available equipment.

Redundant equipment.

List of non-standard equipment required.

Dive risk assessment.

Type, objective&duration of the dive.

Divesite

Diveprofile

Maximum or planneddepth

Steepness ofbottom

Currents

Visibility

Type ofbottom

Entanglements

Watertemperature

Water entry andexit

Distance car park to entriypoint

Terrain, car park to entriypoint

Ease ofentry

Number of exitpoints

Planneddecompression requirements

3m

6m

9m

Diverexperience

Qualifications diver1

Last training /instruction

Date of last dive to divedepth

Date of last dive to divedepth –5 m

Last training /instruction

Qualifications diver 2

Date of last dive to divedepth

Date of last dive to divedepth –5 m

Weather and seaconditions

Wind direction relative tosite

Windstrength

Surfacevisibility

Temperature

Seastate

Direction ofwaves

Size ofwaves

Diver airconsumption

Air consumption diver 1 l /min

Planned air consumption litre

Air capacity (maincylinder)

Gasmix

Air consumption diver 2 l /min

Planned air consumption litre

Air capacity (maincylinder)

Gasmix

Communication
SMB

DelayedSMB

Flag

Personalflares

Strobe

Torch

Boat and shorecover
Coxswainexperience

Boat anchored /patrolling

Shore partyexperience

Identifiedrisks andhazards

Additionalerequipment

Identified risk reductionmeasures

Appendix 8a

Health and safety requirements for shore based activities.

The room to be used for lectures or any other shore based activity should have the following facilities

Fabric of the building is in a good state of repair.

The room is to be in a clean and tidy condition.

Suitable heating and ventilation.

Suitable daylight or artificial light for the proposed activity.

A minimum of 2 x 13A sockets.

Sufficient chairs, in a good state of repair, for each visitor.

Access to toilet facilities for each sex.

Tables or desks in a suitable state of repair for the planned activity.

Floor covering suitable planned activity.

Telephone facilities.

First aid kit

Refreshment facilities.

Wires and flexes will be routed in such a way to be safe.

Furniture will be safe:

No sharp edges

Wood will not splinter.

Good state of repair.

Desirable facilities.

Projector screen fixed to the wall.

13 A socket close to the projector screen.

Factors to be considered in a shore based activity risk assessment

The risk assessment should include the following:

- The surfaces on which the activity will take place.
- Any lifting or carrying activities which will take place.
- Any equipment which is being used.
- The availability of protective materials, clothing and / or equipment.
- The proximity of objects which could interfere with the activity.
- The climatic conditions.
- Communication facilities.
- The experience and qualifications of the activity participants.
- The availability of support services.

Shore based activity risk assessment

Course or activity

Working surfaces

Lifting weights

Climatic conditions

Hazards with equipment

Protective materials

Clear working area

Communication

Climatic conditions

Experience of participants.

Support services

Identified risk reduction measures

Appendix 9

Normal in water training hazards.

Activity	Normal training hazards	Risk reduction measures
Pool training		
Swimming	Tiredness. Glottal spasm due to 'breathing' water. Swimming pool water stinging the eyes.	Warning, swim close to the pool edge. Have a 'pole' available. Consider swimming with mouth closed Close eyes, only open for a short time at intervals.
Swimming with weight belt	Exhaustion, in extreme cases panic	Swim close to the pool edge, have a pole available, show how to release weight belt.
Floating		
Treading water	Exhaustion in extreme cases	Carry out close to pool edge.
Surface dive	Hitting bottom of shallow pool.	Carry out in deeper water, demonstrate.
Swimming underwater	Swimming pool water stinging the eyes. Collision with bottom or sides if eyes closed.	Close eyes. Open eyes for very short intervals.
Using snorkel	Ingress of water in to snorkel, glottal spasm 'breathing' water.	Warning, give explosive exhalation.
Clearing snorkel	Glottal spasm due to 'breathing' water	Warning, give explosive exhalation.
Using a mask	Persistent flooding. Claustrophobia	Check fit, use another mask. Use translucent silicon masks.
Clearing mask	Water 'stinging' the eyes.	Keep eyes closed.
Using fins	Cramp	Warning, float and use arms, inflate BC Trainee may have a salt in-balance.
Towing a diver	Being 'pushed' underwater by the 'victim' Exhaustion of the rescuer. Ducking of the victim. Bumping into other 'divers' in the pool.	Wrong towing position. Trainee to be fitter. Change position of victim / trainee. Warn trainee to keep a look out. Instructor to fend off other divers.
Mobility	Disorientation. Collision with the pool sides or bottom.	Carry out in deeper water. Carry out in short exercises. Place object in pool for trainee to watch.
Holding breath	Unconsciousness / breathlessness / asthma attack	Warnings, practice prior to pool work.
Introducing kit	Negative buoyancy problems. Burst lung from use of DV. Minor shock in the event of 'o' ring failure.	Use minimum weight to achieve neutral buoyancy. Warnings, normal breathing, no breath holding. Warnings
Achievement of neutral buoyancy	Extreme negativity. Danger of collisions with other diver	Introduce weight as needed. Keep other pool users clear.

	in the pool particularly above.	Lots of practice in shallows. Large quick changes by breathing in/out
Submerge 30 s	Should be no risk as holding breath already tested.	Practice.
Remove / refit kit underwater	Trainee positively buoyant with no kit. Tangled with equipment resulting in panic.	Identify trainee problems, practice in shallows, positioning of weight belt. Show how to arrange, practice. Practice one piece of kit at a time.
Mobility '6 rolls'	Disorientation, 'crashing' into bottom or sides.	Complete the exercise 1 roll at a time. Carry out in deep water. Good buoyancy control needed.
Support diver	Stress resulting in panic	Warning, improve fitness.
Remove / refit kit on surface	Dropping a weight belt, Problems with diver orientation and submerging when refitting BC. Entanglement when fitting resulting in panic	Warnings, confirmation of grip. Practice in shallows, improve water confidence, have slight positive buoyancy. Show how to arrange equipment prior to fitting.
Share DV	Burst lung from breath holding if significant reduction in depth while breath holding. Trainee may hold on to DV preventing instructor obtaining air. Trainee panic.	Warning of breath holding. Practice in shallows, have an 'octopus' Practice in shallows.
Swim with blacked out mask.	Panic attack caused by claustrophobia	Progressive training. Physical contact.
Emergency drill	Exhaustion of the trainee during the 50 m swim and tow. Uncontrolled ascent. Surfacing under other pool users. Ducking of the 'victim' resulting in choking. Injury to the victim during pool exit. Injury to the trainee during the 'lift'	Improve trainee fitness. Improve buoyancy control, practice dumping procedure in shallows, Instructor to dump air, hang on. Keep others clear. Trainee / victim positioning. Warnings, use assistance, appropriate sized victim.
Simulated dive	Trainee overheating	Warning, Do not 'hang' about.
Open water training		
First dives	Very different diving condition to pool Visibility. Temperature Marine life	Limit depth to pool experience. Choose a site with normally good visibility. Limit the dive time to avoid the trainee getting cold. Pour warm water into the suite of wet suite divers. Warnings, move slowly.
Buoyancy control	Extreme positive / negative	Practice at all times, encourage to add air and dump air a little at a time.

		Practice 'free' ascents. Instructor to be in a position where they could dump or add air, steady the trainee.
Jump entry	Equipment 'flying' and hitting the trainee. Air in BC and dry suite constricting the trainee	Hold and secure all the equipment. Dump all air from dry suit, add a little to BC. Practice from lower levels.
Remove & refit mask	Cold shock Mask will not re-seal	Warnings of what to expect, flood and clear mask prior to removal. Try on the waters edge. Practice in shallow water.
Remove & clear DV	Panic, miss fits DV, breaths water.	Practice at waters edge and in the shallows, prior to depth.
Share DV	Miss fits DV, Fails to clear DV. Will not give up DV	Practice at waters edge & shallows Have an alternative air source.
Inflate / deflate BC	Extreme negative buoyancy	Warnings, practice in shallows, water confidence in clearing DV in all conditions.
Snorkel swim	Exhaustion	Improve trainee fitness, water confidence, ensure trainees do not swim into a current.
Shared ascent	Miss fits DV, Fails to clear DV. Will not give up DV Extreme buoyancy changes	Practice at waters edge & shallows Have an alternative air source. Practice floating in mid water and changing depth very slowly. Instructor could be 'over weight' and has the ability to become negative.
Rescue	Exhaustion of the trainee during the 100 m swim and tow. Uncontrolled ascent. Surfacing under others. Ducking of the 'victim' resulting in choking. Injury to the victim during removal from the water.	Improve trainee fitness. Improve buoyancy control, practice dumping procedure in shallows, Instructor to dump air, hang on. Keep others clear. Trainee / victim positioning. Warnings, use assistance, appropriate sized victim.
Compass course.	Depth limitations	Careful selection of the site.
Master diver		
Dive leader	Lack of experience in the prevailing conditions. Getting lost. Many problems associated with poor planning of the dive and poor execution.	Choose a site and conditions where the trainee has had previous experience. Choose a site known to the trainee. The instructor should vet the dive plan particularly calculation and monitor the dive progress. No decompression dives.

Sweep search	Problems associated with an over ambitious plan in deep water.	The instructor is the vet the search program, particularly calculations, the suitability of the site for the search (unless a 'real' search).
Dive with surface marker buoy.	Line getting snagged on the bottom topography. Diver getting tangled with the line.	Choose a site appropriate for SMB use. Maintain a tight line at all times.
Compass course	Problems associated with an over ambitious dive plan on an unsuitable site.	The instructor is to vet the dive plan and site for suitability and monitor the progress of the dive..
Swim without mask	Cold shock Mask will not re-seal	Warnings of what to expect, flood and clear mask prior to removal. Try on the waters edge. Practice in shallow water.
Rescue	Exhaustion of the trainee during the 100 m swim and tow. Uncontrolled ascent. Surfacing under others. Ducking of the 'victim' resulting in choking. Injury to the victim during removal from the water.	Improve trainee fitness. Improve buoyancy control, practice dumping procedure in shallows, Instructor to dump air, hang on. Keep others clear. Trainee / victim positioning. Warnings, use assistance, appropriate sized victim.
Shared ascents. 20 m & 30 m	Miss fits DV, Fails to clear DV. Will not give up DV Beating the DV due to poor buoyancy control.	Practice at waters edge & shallows Have an alternative air source. Practice floating in mid water and changing depth very slowly. Instructor could be 'over weight' and has the ability to become negative.
Swim without kit.	Kit gets tangled during removal. DV hose stress. Kit tangled when refitting.	Practice on shore. Warning of possibility. Show how to set out kit.
Diving endorsements		
Dry suit		
Buoyancy compensator.		
Deep rescue		
Deep diving		

In water training guide lines.**Instructor trainee ratios.**

The desired ratio of staff (instructors) to students is 1:1. In exceptional circumstances it may be increased to a maximum of 1:2

Exercise	Support requirements	Recommendations.
Pool training		
Swimming	Nil	Safe confined water.
Swimming with weight belt	Nil	Safe confined water.
Floating	Nil	Safe confined water.
Treading water	Nil	Safe confined water.
Surface dive	Nil	Safe confined water. Visibility > 4 m.
Swimming underwater	Nil	Safe confined water. Visibility > 4 m.
Using snorkel	Nil	Safe confined water. Visibility > 4 m.
Clearing snorkel	Nil	Safe confined water. Visibility > 4 m.
Using a mask	Nil	Safe confined water. Visibility > 4 m.
Clearing mask	Nil	Safe confined water. Visibility > 4 m.
Using fins	Nil	Safe confined water
Towing a diver	Experienced / well briefed victim.	
Mobility	Nil	Safe confined water
Holding breath	Nil	Safe confined water
Introducing kit	Nil	Safe confined water
Achievement of neutral buoyancy	Nil	Safe confined water. Visibility > 4 m.
Submerge 30 s	Nil	Safe confined water.
Remove / refit kit underwater	Nil	Safe confined water. Visibility > 4 m.
Mobility '6 rolls'	Nil	Safe confined water. Visibility > 4 m.
Support diver	Experienced / well briefed victim.	Safe confined water. Limited wave action / height.
Remove / refit kit on surface	Nil	Safe confined water. Limited wave action / height.
Share DV	Nil	Safe confined water
Swim with blacked out mask.	Nil	Safe confined water
Emergency drill	Experienced / well briefed victim. Buddy for victim if carried out in open water.	Safe confined water. Visibility > 4 m. Depth < 4 m.
Simulated dive	See 'Emergency' drill.	See 'Emergency' drill.

	Large changes in buoyancy.	See 'Buoyancy control'.
Open water training		
First dives	Nil	Safe confined open water. Objects / life to look at. Shallow site, gently slopping bottom, good visibility >5 m.
Buoyancy control	Nil	Safe confined open water 'Hard' bottom at appropriate maximum depth.
Jump entry	Nil	Clear water to a depth of 2.5 m 'Hard' bottom 5 to 10 m.
Remove & refit mask	Nil	Safe confined open water
Remove & clear DV	Nil	Safe confined open water. Flat or gently slopping bottom.
Share DV	Nil	Safe confined open water. Flat or gently slopping bottom.
Inflate / deflate BC	Nil	Safe confined open water. Flat or gently slopping bottom.
Snorkel swim	Nil	Safe confined open water. Limited wave action/ height.
Shared ascent	Experienced partner	'Hard' bottom. Flat or gently slopping bottom. Visibility > 5 m.
Rescue	Experienced / well briefed victim	'Hard' bottom. Flat or gently slopping bottom. Visibility > 5m
Compass course.	Nil	'Hard' bottom. Generally flat. Visibility > 5 m.
Master diver		
Dive leader	Experienced 3 rd member	Safe confined open water. Visibility > 5 m.
Sweep search	Experienced dive party members.	Visibility > 4 m < 8 m. Generally flat bottom > 15 m.
Dive with surface marker buoy.	Nil	Interesting site, with some problems, e.g. low cliff, current, weed.
Compass course	Nil	Flat or gently slopping bottom < 15 m Visibility > 4 m
Swim without mask	Nil	Flat or gently slopping bottom < 15 m Must be ambient light.
Rescue	Experienced well briefed victim. Experienced buddy for victim.	Flat or /gently slopping bottom < 18 m. Visibility > 4 m.
Shared ascents. 20 m & 30 m	Experienced buddy. Torch.	Flat or gently slopping bottom < 32 m. Visibility > 4 m Provide illumination if necessary.
Swim without kit.	Nil	'Hard' bottom.

		Flat or gently sloping bottom. Visibility > 4 m.
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Appendix 11a

Example of a risk assessment.

Scenario

A dive party of four divers.

Two Master divers.

One very experienced

Infrequent diver.

One Sports Diver (80 dives)

One Trainee (15 dives)

Dive site

The Caves (Loch Long).

Time

December late afternoon.

The completed Dive Risk Assessment Form is shown in Appendix 11b

Dive risk assessment (example).

Type, objective&duration of dive

Leisure, non-training dive30 min

Divesite

Diveprofile

Sawtooth

Maximumdepth

15m

Steepness ofbottom

Cliff&ledges

Currents

Vslight

Visibility

Poor<4m

Type ofbottom

Rock&mud

Entanglements

Lots

Watertemperature

11 Ccold

Water entry andexit

Distance car park to entrapoint

15m

Terrain, car park to entrapoint

Difficult

Ease ofentry

Difficult

Number of exitpoints

2

Planneddecompression requirements

3m

nil

6m

nil

9m

nil

Diverexperience

Qualifications diver1

Mex

Last training /instruction
4M
Date of last dive to divedepth
2W
Date of last dive to divedepth –5 m
Nov
Qualifications diver 2
Trai
Last training /instruction
2W
Date of last dive to divedepth
Nov
Date of last dive to divedepth –5 m
Nov

Weather and seaconditions

Wind relative tosite
Onshore
Windstrength
Low
Surfacevisibility
Good
Temperature
Cold
Seastate
Slightwaves
Direction ofwaves
Onshore
Size ofwaves
Vsmall

Diver airconsumption

Air consumption diver 1 l /min
15l/m
Planned air consumption litre
1125l
Air capacity (maincylinder)
2320l
Gasmix
air
Air consumption diver 2 l /min
25l/m
Planned air consumption litre
1875l
Air capacity (maincylinder)
2784l
Gasmix
air

Communication

SMB

DelayedSMB

yes

Flag

Personalflares

Strobe

Torch

2

Boat and shorecover

Coxswainexperience

Boat anchored /patrolling

Shore partyexperience

Reasonable

Identifiedrisks and hazards

Cold water.

Difficult access

Difficult entry

Limited exit sites

Possible snags from fishing line.

Trainee as dive buddy with limitedexperience.

Low visibility&dark

Additionalerequipment

Identified risk reductionmeasures

Assist the each other to the waters edge and I kiting up&warn of exit sites.

Warn of snags and stay clear of thebottom.

Divers warned to stay close together or use buddy line,knife to be very sharp, stay still ifsnaged.

Divers use torch all time if no buddy line each hasspare torch, surface on torch failure.

Trainee to be briefed of actions to take if there isanserious incident to the diveleader.

