

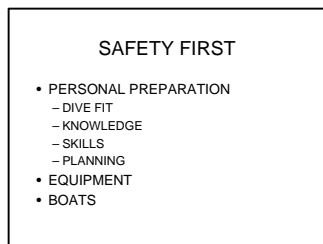
# Lesson Plan for 'ScubaWISE' Lecture



## INTRODUCTION

The 'ScubaWISE' Course forms part of the BSAC Safety First Programme. The following ScubaWISE plan provides a structured lecture which can be used for revision of key information both for Branch Members of all levels and for members of other organisations who approach Branches or Schools for refresher training.

This lesson is not intended to be either exhaustive or set in stone and can be adapted to reflect both the specific conditions and types of diving undertaken.



## OVERVIEW

The first slide outlines the main areas to be covered during the Lesson.

Personal preparation

Point out that the lesson will cover the following points;

### DIVE FITNESS

Cover why this is important and how to maintain Dive Fitness

### KNOWLEDGE

This underpins our understanding of diving and will be revised during this lecture.

### SKILLS

The importance of continual practice and revision of key skills will be emphasised

### PLANNING

Some key aspects of dive planning will be addressed including some aspects of decompression planning

### EQUIPMENT

Our sport is highly dependent on equipment. This section will focus both on the servicing and maintenance of equipment and the need to practice with new items of gear before placing great dependence on them.

### BOATS

This will cover the importance of maintenance and safety checklists for the use of Boats by divers.

<p style="text-align: center;">PERSONAL PREPARATION</p> <p style="text-align: center;">DIVE FITNESS</p> <ul style="list-style-type: none"> <li>• One clear indicator</li> </ul> <p style="text-align: center;">DIVING MEDICAL</p> <ul style="list-style-type: none"> <li>• Valid for <ul style="list-style-type: none"> <li>- 5 years to age 40</li> <li>- 3 years to age 50</li> <li>- 1 year thereafter</li> </ul> </li> </ul>
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## DIVE FITNESS

Though diving is often considered a relaxing and stress free sport, to the extent that the French refer to it as “a sport for active grandmothers”, it can become stressful when things go wrong. It is important that Divers are fit enough to cope with both normal diving and potentially stressful situations.

Since June 2001 the UK diving agencies have operated a system of Self Declaration Medicals following advice from the UK Sport Diving Medical Committee (UK SDMC).

Remind existing Members that it is a requirement to dive within the BSAC that they **MUST COMPLETE A MEDICAL SELD-DECLARTION** in order to dive. Non-BSAC Members should be advised of the need to conform to this system (issue forms as necessary).

## SELF DECLARTION PROCESS

**Providing a diver can answer ‘No’ to all the questions on the form then they simply sign the declaration and this is sufficient for compliance. If however, anyone has to answer ‘Yes’ to any of the questions they must seek specialist advice from a UK SDMC Medical Referee before undertaking any diving activity.**

<p style="text-align: center;">PERSONAL PREPARATION</p> <p style="text-align: center;">DIVE FITNESS</p> <ul style="list-style-type: none"> <li>• WHEN WAS YOUR LAST DIVE?</li> <li>• After any break <ul style="list-style-type: none"> <li>- fitness deteriorates</li> <li>- skills are lost</li> <li>- acclimatisation is lost (Narcosis)</li> <li>- The longer the break the greater the loss</li> </ul> </li> <li>• Amount of loss mitigated by level of experience</li> </ul>
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## DIVE FITNESS Cont....

Ask your audience when their last dive was.

Develop the points to illustrate what the effects of a lay off between the last dive are

### FITNESS DETERIORATES

With any lay off from a physical activity there will be a drop in fitness levels to carry out that activity. Taking part in other sports will help maintain general fitness levels. However specific fitness for our sport may be affected. The most common problem being the ability to cope with the sheer weight of the equipment whilst out of the water.

### SKILLS ARE LOST

Practical skills such as those used in diving are so specific to the sport that the only way to practice them is to go diving. Any skill that is not practised regularly will deteriorate and this is particularly true following a long absence from the sport. It would be unreasonable to expect to return to operating at previous skill levels following a long break, hence the need for refresher training.

### ACCLIMATISATION IS LOST (NARCOSIS)

With regular experience and practice it is believed to be possible to build up a tolerance for things such as Nitrogen Narcosis. Any such tolerance is entirely dependent on recent experience and even a very short break will reduce tolerance significantly. STRESS that as a consequence it would be foolhardy to expect to return to diving after any break and immediately return to your previous operating depth.

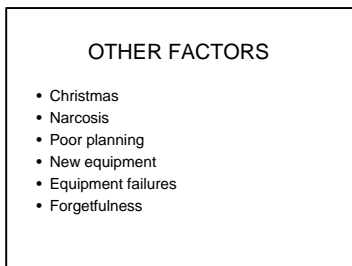
Emphasise the need to start shallow and build up progressively (5m increments) to deeper depths.

### THE LONGER THE BREAK THE GREATER THE LOSS

The greater the period away from diving the larger the loss of the above factors and consequently the return should be slower, shallower and more relaxed from progressively longer breaks.

## AMOUNT OF LOSS MITIGATED BY EXPERIENCE

The better qualified you are will both reduce the rate at which you will lose fitness, skills and acclimatisation. It will also improve the speed at which you can regain previous levels of competence. You should point out however that those with high levels of experience frequently take part in VERY adventurous diving and should probably plan a more structured approach to returning to previous levels of operation.



## OTHER FACTORS

There are a variety additional factors which should be considered when returning to diving after a break which clearly contribute to the spike seen in the Diving Incident Reports coinciding with the Easter weekend.

### CHRISTMAS

The Christmas break is frequently a time where we all indulge in too much good food and drink and too little exercise. This all too frequently leads to a much-reduced level of fitness, which is often not addressed prior to returning to diving.

### NARCOSIS

Early season diving is often carried out at the previous level of experience and the effects of narcosis tend to affect further the level of competence. In particular diving skills, which were previously automatic, would require a greater level of thought and concentration due to their attrition following a break. The effects of Narcosis would reduce this ability to concentrate and think about the skills. The aim should therefore be to regain a skills level where responses are automatic before venturing towards potential narcotic depths.

### POOR PLANNING

Poorly planned dives can lead to a catalogue of problems such as separation from a buddy due to misunderstood dive plan; separation from surface cover due to misunderstanding of dive plans or inappropriate location aids.

## REMEMBER THE INCIDENT PIT

### NEW EQUIPMENT

Where new equipment is being used for the first time it places an added strain on the dive party. In particular some pieces of equipment need new skills to use them (e.g. lifting bags, delayed SMB's, reels) whilst others such as pony's and twin sets etc. have weight implications.

### EQUIPMENT FAILURES

Cause additional stress

### FORGETFULNESS

- It has to be said that sometimes divers simply forget things.
- It could be simply allowing important bits of training to be lost.
- It could be omitting important points of safety and buddy checks out through lack of practice.
- It could be leaving equipment at home or in the car and carrying on regardless.

<p><b>DIVER CHECKLIST</b></p> <p><input checked="" type="checkbox"/> Do you have a current Medical?  <input checked="" type="checkbox"/> Are you fit enough for the planned dive?  <input checked="" type="checkbox"/> Can you cope with additional stress?  <input checked="" type="checkbox"/> Is your diving knowledge up to scratch?  <input checked="" type="checkbox"/> Are your skills up to date?  <input checked="" type="checkbox"/> Have you practised with any new kit?  <input checked="" type="checkbox"/> Are you happy about the dive?</p> <p style="text-align: center;">NO ? DON'T DO IT!</p>
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**DIVER CHECKLIST**

To emphasize the points run through the Divers Checklist.

If any points are missing then suggest that the planned dive should perhaps not be undertaken and a less adventurous one planned or refresher training undertaken.

<p><b>SKILLS TO PRACTICE</b></p>	
<p>CORE SKILLS</p>	<p>RESCUE SKILLS</p>
<ul style="list-style-type: none"> <li>• Buoyancy Control</li> <li>• Mask Clearing</li> <li>• Regulator Clearing</li> <li>• Regulator Recovery</li> <li>• Finning</li> <li>• Signals</li> </ul>	<ul style="list-style-type: none"> <li>• Alternate Air Source</li> <li>• Controlled Buoyant Lift</li> <li>• Surface Support</li> <li>• Towing</li> <li>• Artificial Ventilation</li> </ul>

**SKILLS TO PRACTICE**

The ‘ScubaWISE’ Pool/Sheltered Open Water lesson plan covers this in more detail.

Point out that the Core Skills are ESSENTIAL in all Divers and should be practiced continually both in the pool and during the course of normal Diving.

Rescue skills are also relevant to ALL divers but their standards of competence in these will vary in relation to their Diving Grade. It is important that these skills are kept up to date and are well practiced. You could suggest ways in which they can take the opportunity to practice these skills. For example through occasional Rescue Skills sessions in the pool or in agreeing to practice a specific skill at the end of a dive or during a surface interval.

Ancillary skills such as forward and backward rolls can be used both as confidence building exercises and to help develop further the Core Skills.

<p><b>DIVE PLANNING</b></p> <ul style="list-style-type: none"> <li>• MONITOR CONDITIONS</li> <li>• DETERMINE SKILL LEVELS</li> <li>• BEGIN SEASON CONSERVATIVELY</li> <li>• PLAN FOR LEAST EXPERIENCED</li> <li>• GOOD DECOMPRESSION PRACTICE</li> </ul> <p style="text-align: center;"><b>PLAN THE DIVE</b> <b>DIVE THE PLAN</b></p>
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**DIVE PLANNING**

Review the need for appropriate Planning of a dive.

**MONITOR CONDITIONS**

Stress the importance of monitoring conditions constantly both before and during the dive. If situation changes should be prepared to alter plan as necessary or abort the dive altogether.

**DETERMINE SKILL LEVELS**

During the planning stage stress the importance of determining ALL skills levels and current state of dive fitness of all members of the Dive Party.

**BEGIN SEASON CONSERVATIVELY**

Take a more conservative approach to all early season diving, especially in the light of the prevailing weather and sea conditions.

**PLAN FOR LEAST EXPERIENCED**

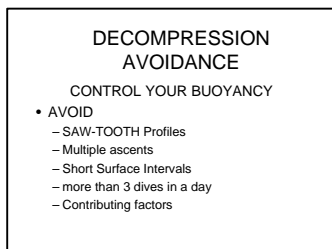
Tailor the Dive Plan to the needs and abilities of the least experienced Member but remember to take account of recent experience too.

An Advanced Diver who hasn't dived for 2 years may well need a more conservative dive plan than a Sports Diver who has been diving regularly to 35m.

### **GOOD DECOMPRESSION PRACTICE**

Follow the advice below

Remind the Audience of the saying **PLAN THE DIVE, DIVE THE PLAN**



### **DECOMPRESSION AVOIDANCE**

The BSAC Annual Incident Report clearly shows that Decompression Incidents arise from two main causes

1. Omission of Decompression stops
2. Fast or uncontrolled ascents

Buoyancy control or the lack of it is often the underlying reason for this due to

- Going deeper than intended
- Unable to control ascent
- Unable to maintain or stay at stop depth
- Too much/too little weight

Other common causes include

- Insufficient air/inadequate plans for deco gas
- Failure to conduct proper buddy checks

Other factors to consider

### **SAW-TOOTH PROFILES AND MULTIPLE ASCENTS**

Both these can lead to the formation of micro-bubbles on ascent which may not be absorbed on a subsequent descent but can serve as a nucleus for the formation of larger bubbles.

### **SHORT SURFACE INTERVALS**

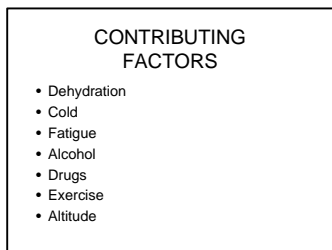
Insufficient release of Nitrogen results in starting next dive with a very high loading of Nitrogen.

### **MORE THAN 3 DIVES IN A DAY**

Can lead to a build up of Nitrogen that cannot be accounted for by BSAC '88 Tables.

### **CONTRIBUTING FACTORS**

The following slide lists some of the factors, which can increase susceptibility to Decompression Illness and consequently should be avoided



## DECOMPRESSION GOOD PRACTICE

- Plan dive using Tables or Computer
- Avoid Decompression Stops
- ALWAYS Ascend slowly
- Conduct a Safety Stop if conditions allow
- Use Nitrox to give added safety margin
- NEVER conduct stops in heavy swell

## DECOMPRESSION GOOD PRACTICE

### PLAN DIVE USING TABLES OR COMPUTER

Always plan using the Tables or computer you are going to use.  
If two different methods are used use the most conservative

### AVOID DECOMPRESSION STOPS

Decompression Stop Dives are effectively dives with No-clear surface as they mean you cannot SAFELY ascend to the surface in an emergency.

If you do conduct staged decompression stops then ensure they are properly planned, you have sufficient gas to complete them with appropriate safety margin, and are able to accurately maintain your stop depth.

BSAC recommends a limit of a MAXIMUM OF 20 minutes of stops in any 24 hours.

### ALWAYS ASCEND SLOWLY

Slow ascents allow a more controlled release of nitrogen from the body

### CONDUCT A SAFETY STOP IF CONDITIONS ALLOW

Safety stops allow a much slower and consequently safer controlled release of gas than direct ascent to the surface.

### USE NITROX TO GIVE ADDED SAFETY MARGIN

Because of its reduced nitrogen content you will clearly absorb less nitrogen if you breathe Nitrox and be even safer if you are following Air Tables or an air computer.

### NEVER CONDUCT STOPS IN HEAVY SWELL

The movement experienced in a heavy swell can lead to rapid variation in the pressures experienced by a diver.

## EQUIPMENT

- Regulator Free-flow
  - deterioration of condition
  - needs annual servicing (professionally)
  - newly serviced = very sensitive
  - use in pool and shallow water first
  - protect from cold and keep dry
  - avoid by keeping in mouth
  - do not purge on surface

## EQUIPMENT

A common problem with early season diving especially in fresh water is regulator free-flow.  
Run through the list to explain the measure recommended to avoid such a potential problem.

## EQUIPMENT (cont.)

- **NEW EQUIPMENT FOR CHRISTMAS?**
- Think about stowing Gauge, AAS etc.
- Can you locate everything when needed?
- Can you operate all your kit quickly and efficiently?
- Practice using in pool and shallow water
- Does it affect your Buoyancy?
- Only take the kit you need

## EQUIPMENT Cont...

Stress the point that any new equipment needs to be considered carefully.  
Points to make include:

Thinking carefully about where to attach and secure equipment so that it is accessible but does not pose a risk of snagging.

That the equipment can be located and used quickly and efficiently in normal diving conditions and that this may involve practicing prior to use both in the swimming pool and in shallow open water.

Large items of equipment such as cylinders and torches can significantly affect buoyancy and so remind your audience to check this too.

With a growing amount of equipment the tendency is to carry it all the time. Encourage all to only carry the equipment needed for a particular dive. The worst case scenario would be to for someone to wear a twin 12 litre cylinder and side mounts on a 6m training dive!

- LOCATION AIDS**

  - Delayed Surface Marker Buoys
  - Fluorescent strips
  - Flags
  - Strobes
  - Air Horns
  - Personal Flares
  - EPIRBs

Proper Dive Planning Prevents the need

## LOCATION AIDS

The advice of all the rescue agencies is that the carrying of surface location aids greatly improves the chance of success of any surface search. There is a wide range available and you should run through some of the options and comment on their use and effectiveness.

Finish with a reminder that the best method is to avoid getting lost in the first place through proper planning.

- BOATS**

  - Has the engine been properly stored?
  - Have engine serviced by qualified engineer
  - Ensure all Safety Equipment is present and functional
  - Have sufficient fuel for your trip?
  - Check boat runs OK BEFORE loading
  - Carry out SAFETY CHECKLIST

## BOATS

Early season diving is littered with reports of boats breaking down, running out of fuel and divers becoming separated from their cover as a consequence. By following some simple steps much of this can be avoided.

Checking that the engine is stored properly over the winter will ensure that it does not deteriorate over a period without use.

Correct and regular servicing by properly qualified personnel should ensure that you gain optimum and reliable performance.

Safety equipment such as spare engines, radios etc. should also be checked for function regularly and serviced or maintained as appropriate.

Checking that you have sufficient fuel for your proposed journey should be obvious. However account should also be taken of the need for a reserve to cope with emergencies, deteriorating weather or other changes in plans.

Before loading the boat at the start of a days diving suggest that it might be an idea to take the boat outside the harbour for a run to ensure everything functions properly.

The following slide can be adapted into a safety checklist for a Club boat to help make sure that all appropriate checks have been made prior to departure.

BOAT SAFETY CHECKLIST	
• Trailer Parked/Secured	• Fire extinguisher
• Tubes Inflated/No leaks	• Flares
• Anchor, chain, warp and Buoy	• First Aid Kit
• Alternative Propulsion	• Oxygen set
• Bailer or Bilge pump	• VHF RADIO
• Engine spares & tools	• Navigation aids
	• Enough fuel + Reserve
	• Boat runs OK
WEATHER FORECAST	

## BOAT SAFETY CHECKLIST

Point out that this is a general checklist and more detailed lists could be developed for both the boat and individual pieces of equipment.

CONTINUING EDUCATION
• Provides opportunity to
– Revise skills
– Learn new Skills
– Advance Qualifications
– Develop new interests
– Meet new people
– Share ideas
– Have fun

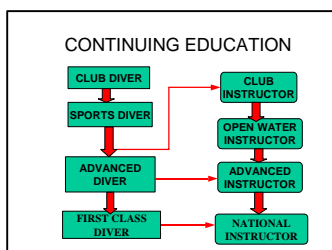
## CONTINUING EDUCATION

Whilst the 'ScubaWISE' Lessons provide an excellent opportunity to undertake refresher training, the BSAC firmly believes in the merit of continuous training and there is a wide range of opportunities for this.

Among the benefits of continuous education you should highlight the opportunity to revise existing skills and learn new ones.

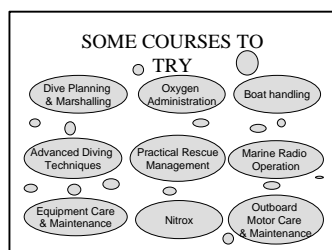
Inevitably as you gain new skills you will progress and advance qualifications and develop new interests.

Not least among the benefits are the opportunities it affords to meet other people and share ideas and ultimately **To have fun!**



## CONTINUING EDUCATION

Some of the more obvious routes for continuing education are through the established Diver and Instructor Training Routes and you can explain some of the more appropriate levels for your audience. In addition there is the wide and increasing range of Skill Development Courses which they can try.



## SOME COURSES TO TRY

This is a sample of some of the courses available but you should perhaps concentrate on those that support the type of diving or interests of your Branch or School.

You could also emphasise which courses you will have coming up and their dates and availability.