Module objectives

This workshop module reminds students of the skills necessary to identify and locate potential dive sites from a variety of sources including dive guides, tide tables, charts and maps.

Students should be encouraged to review any previous knowledge from Snorkel Diver and Advanced Snorkel Diver prior to attendance on this workshop module.

Achievement targets

At the end of this module students should have been introduced to and have some experience of:

- Identifying the route to be taken to a dive site (by boat or surface swim)
- Estimating the time to travel to the site (by boat or surface swim)
- Identifying sources of relevant tidal information from tide tables, almanacs and charts
- Identifying direction and strength of tidal streams and calculating slack water times.
- Calculation of tidal height at HW, LW and intermediate times using the ‘Rule of Twelfths’.
- Considering the implications of depth of water

BSAC Dive with us

Equipment needed

For this module the instructor and each student will need the following equipment:

- Chart of sites ideally known to branch
- Chart 5011
- Dive guides, magazines etc. relevant to chart
- Almanac
- Portland plotter/dividers
- Paper and pen

Duration

It is expected that this workshop module will be run as a dry planning session which would be expected to last between 30 minutes to one hour. The session is best suited to two or more students to allow different ideas and contribution of experiences to be made and timing will reflect the numbers involved in order to ensure everyone is able to make a contribution.

Pre-requisites

Students should have completed the Advanced Snorkel Diver qualification and hold the Advanced Snorkel Lifesaver Award.

Contributes to

This workshop module contributes to the following qualifications / awards:

- Snorkel Dive Manager

It is particularly relevant to have completed this workshop module before SMP3.

Validity

This module remains valid for life.

Instructor Requirements

The lead instructor should be an Advanced Snorkel Instructor or higher. Any BSAC Qualified SCUBA Instructor, or assistant instructor supervised as specified in the DTP guidance notes, can teach the lesson. All instructors should have rehearsed and mastered the practical skills, with other instructors before teaching/supervising other students.

Student: Instructor ratio

For this workshop module session there should be a maximum of four students to one instructor. The maximum number of students to each instructor could be extended to six where a number of student groups are involved in a workshop supervised by a lead instructor who is able to monitor all student groups and intervene should assistance be required.

Dry Skills: Planning session

Introduction

This activity is about showing the students the wealth of information available to them about snorkelling sites and how to link different sources together to develop a plan. It is not about learning to read detailed positions from a chart or creating detailed passage plans. However, guidance can be provided about the benefits and additional options available to expand their interests and qualifications in this area by attending BSAC Boathandling and Chartwork Courses.

Managing resources

In the first part of the session you should introduce the student to the type of resources they can use to identify a dive site. You should plan the session based around a location where there are ideally sites known to the branch and you have access to charts, dive guides, magazines and other resources that the students can browse. It is especially helpful if students have dived the sites themselves but not been involved in planning so that you can relate the planning directly to the end result.

Review the information shown on the chart (this has been covered in Advanced Snorkel Diver lectures) and highlight some of the sites that you have further information about.

Activity 1a : Site selection

Based on the sites that you have information about give the students a brief for the activity they are planning.

For example: a group of 12 snorkel divers, all at least Snorkel Diver, with some experience of open water snorkel diving. Looking to get some experience snorkel diving from a RHIB.

Further examples of activity might include:

- Following a marine trail
- Locating and exploring a wreck
- Draw other examples from Advanced. Snorkeller

Based on the brief you have chosen, discuss and make notes on the type of sites that would be suitable and identify some options from the resources available. Based on this information produce a list of sites that would be suitable and locate them on the chart.

Also identify the points from which you would either base yourselves for shore diving or could launch a RHIB. Make use of information in the almanac or dive guides to identify possible launch sites, or the chart and dive guides to identify beaches with parking and suitable access.

Estimation of travel time to site

The purpose of this activity is not to create a detailed passage plan but to teach the students how they can estimate the amount of time to be allowed for travel to site either by boat or surface swim.

Using the start locations identified teach the students how to plot a route to the site. This is simply for using as an estimate for distance not for navigational purposes. Measure the length of the route and take a distance from the chart scale.

We can then teach the student how to estimate the journey time:

For example:

- A 10nm journey in a RHIB assuming a speed of 20 knots is a 30 minute transit time.
- A 0.2nm surface swim at 2 knots would take 6 minutes.

Activity 1b: Tidal information

This activity focuses on the importance of being able to use and interpret tidal information in relation to a selected site to ensure safe access and snorkelling.

Equipment needed

- Tide Tables (or Almanac)
- Chart of sites ideally known to branch
- Chart 5011
- Paper and pen

Tide table info

This activity should make use of tidal information relating to the area for which you have selected sites. The example data contained here should **not** be used.

Sat 15 July					Sun 16 July			
HW	LW	HW	LW		HW	LW	HW	LW
03:23	09:31	15:54	22:06		04:25	10:32	16:48	23:03
4.4m	2.0m	4.4m	2.0m		4.5m	1.8m	4.6m	1.7m

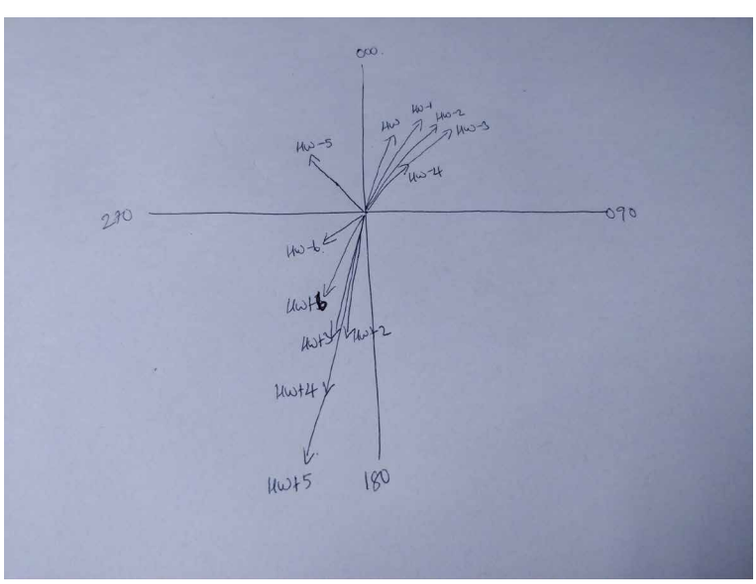
Show students sources of tidal data, this can be an almanac online. Show the information on the chart indicating the standard port that should be used when relating tidal information to the chart.

Calculation of tidal stream

Tidal Set & Drift at Example Site			
Time Ref to HW	**Direction (Set)**	**Drift Springs (Kts)**	**Drift Neaps (Kts)**
-6	233	0.1	0.1
-5	343	0.2	0.1
-4	27	0.2	0.1
-3	27	0.4	0.2
-2	23	0.4	0.3
-1	17	0.4	0.2
HW	9	0.3	0.2
+1	0	0	0
+2	193	0.3	0.2
+3	198	0.3	0.2
+4	196	0.5	0.3
+5	196	0.7	0.4
+6	204	0.2	0.1

Show the students the tidal diamonds on the chart and identify the closest one to the site you are using. Then show the tidal stream information relating to that tidal diamond.

As an exercise get the students to do a rough plot of the direction of tidal flow for the chart you are using. Based on the tidal information you are planning for, choose either springs or neaps. The example shown uses springs.



Time to dive based on slack

From this discuss with the students the impact of tidal movement on the site they have chosen and whether this restricts the times during which they would wish to snorkel.

Where slack water is needed record the times of this to feed forwards into planning the timeline. (SMW3)

Calculating tide height at HW and LW

From the tidal information move on to show the students how to calculate the height of the tide at HW and LW. Point out the spot heights on the chart and explain that these are at chart datum. To find the depth of water at LW we add the LW value for the day (in the example 2.0m) and this will give us the depth at that time.

E.g. If chart datum is 0.5m, then there will be 2.5m of water at LW. At HW there will be 0.5+4.4m = 4.9m of water.

Calculating tide height at any time

The amount of water above chart datum can be estimated at any point in the tidal cycle using the Rule of Twelfths. Demonstrate to the students how they can do this using the following steps.

1. The total increase, rise or range in water level between low and high tide is the tidal range = depth at HW - depth at LW

   e.g. 4.4 - 2.0= 2.4m

1. Calculate 1/12th of the tidal range

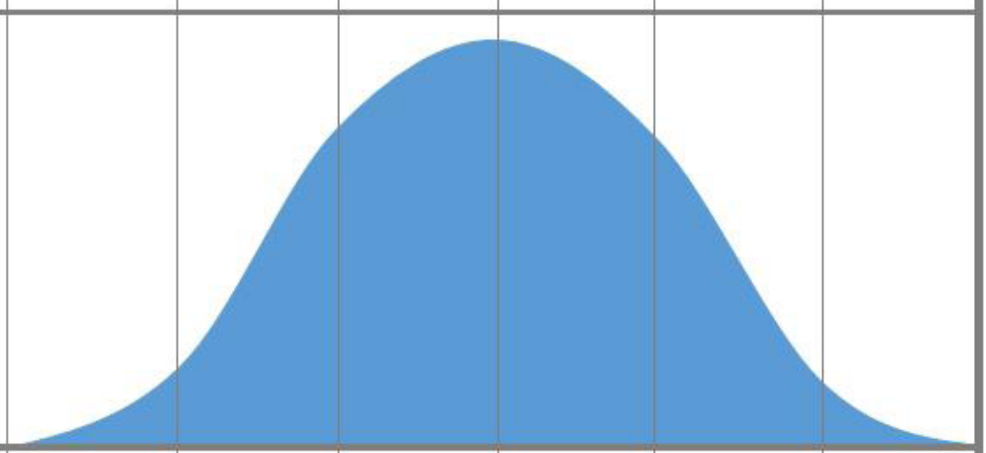
   e.g. 2.4/12=0.2m

   In the first hour, the water level would rise by 1 twelfth of the total (2.4 metres) or 0.2 metres.

   In the second hour, the water level would rise by 2 twelfths of the total (2.4 metres) or 0.4 metres.

   In the third hour, the water level would rise by 3 twelfths of the total (2.4 metres) or 0.6 metres.

From this we can work out that after 3 hours the water level will have risen by 6/12 so in this example the depth of water will be Chart Datum 0.5m + 6 twelfths 1.2m = 1.7m.

Hour of Tide	1st Hour	2nd Hour	3rd Hour	4th Hour	5th Hour	6th Hour
Curve presents **volume** of water and **not height** Rise or Range represents 100% of the volume of the tide						
Twelfths	1/12	2/12	3/12	3/12	2/12	1/12
Percentage	8%	17%	25%	25%	17%	8%
Tidal Flow	Weak	Medium	Strong	Strong	Medium	Weak

Depth of water implications

Discuss with the students the potential impacts on sites and access from HW/LW changes in depth. Points to cover:

- Depth of water on site (too deep/too shallow)
- Depth of water for launch/recovery of boats
- Accessibility of shore entry based on depth. Difference between jump into deep water from wall against scramble over rocks, or a long walk down the beach for not much depth...
- Will change in height of tide affect exit?
- Any risk of strong current/rip tides?

Implications

Based on this work students should be able to compile a list of key times (not all may be applicable for all sites)

- Best time to snorkel (slack water, drift in safe direction)
- Time to launch boat
- Time to recover boat
- Time when entry point is accessible (or inaccessible)
- Time when exit point is accessible (or inaccessible)

Further practice

Instructors are encouraged to develop alternative planning examples to allow further practice but should avoid complex and unrealistic examples.

Skills Performance Standards

At the end of this lesson, students should be sufficiently competent to achieve the following skill performance standards without supervision, in the {location / water conditions / etc.} experienced:

- Identify the route to be taken to a dive site by boat and/or surface swim
- Estimate with reasonable accuracy the time to travel to the site by boat and/or surface swim
- Identify sources relevant tidal information from tide tables, almanacs and charts
- Identify correctly the direction and strength of tidal streams and calculate slack water times.
- Calculate accurately tidal height at HW, LW and intermediate times using the ‘Rule of Twelfths’.
- Identify the implications of depth of water for best time to snorkel, boat launch and recovery and safe access and exit points for a dive.