Planning a small diving project

This practical guide, aimed for Sports Divers and above, will help you plan and carry out a small diving project. It is a great way of enhancing your diving skills, discovering new dive sites, and seeing familiar diving sites in a new light.

Diving with a purpose is an excellent activity for all divers. You don't need a large group; you can carry out a small diving project in a buddy pair or involve a larger team of divers if you wish.

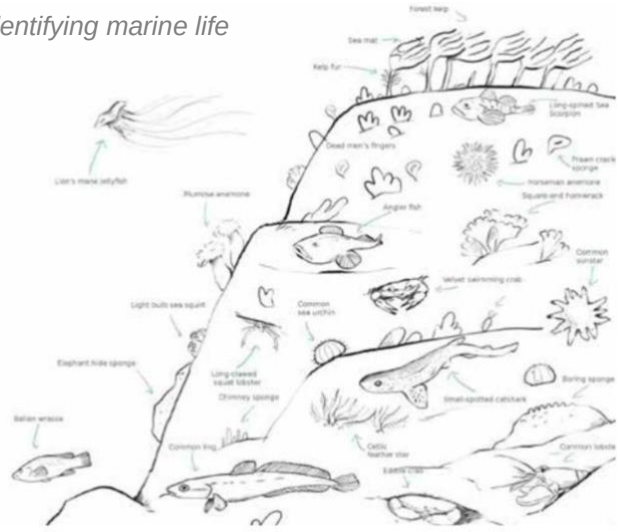
This guide aims to help you plan your project and contains practical examples as well as some ideas and inspiration. All the examples given are things you can do in a day or two of diving.

Choose your project and team

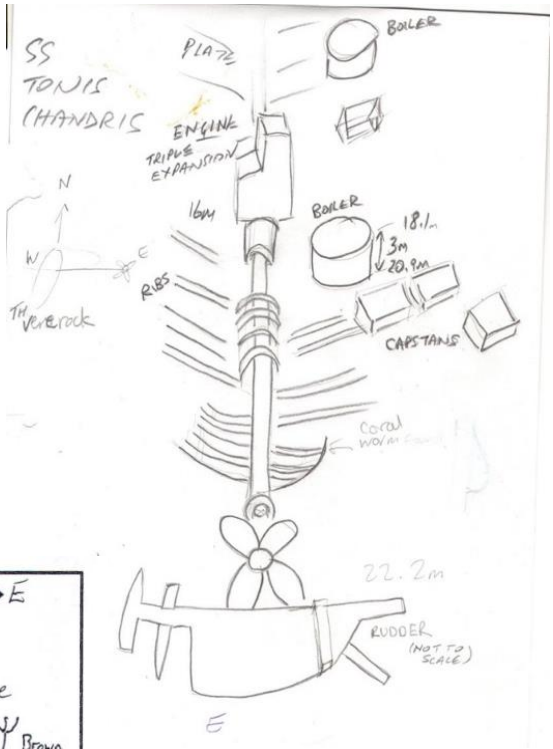
A small diving project does not have to involve a long expedition to a faraway place. A small-scale project can be a great way of improving your skills and getting more out of any dive.

A day trip and a couple of dives is enough to do a small project. All these real-world small projects were completed in a day of diving on an ordinary dive.

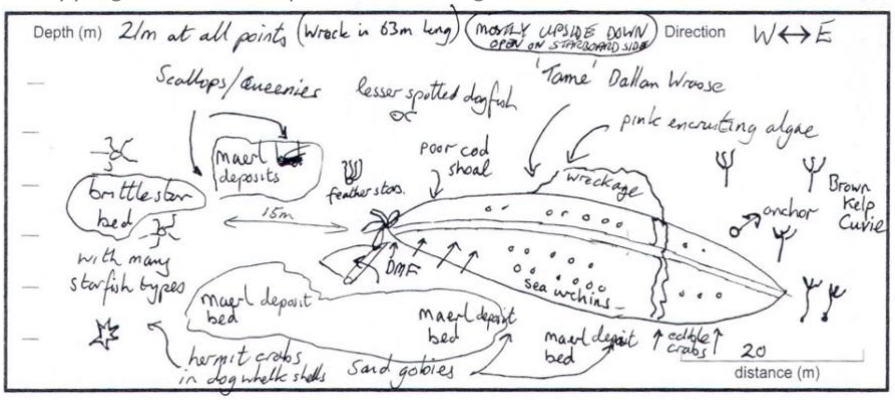
Identifying marine life



Sketching a wreck



Mapping a dive site to produce a dive guide



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BSAC Dive with us

Small projects are valuable for the whole diving community. Publish your results online and everyone can benefit from a sketch of a dive site or information about how to dive a wreck.

Who should be involved?

Small diving projects are ideal for Sports Divers and above. Carrying out a diving project requires diving to be second nature and good neutral buoyancy control. There is no reason why Ocean Divers cannot be involved but select shallow dive sites in good conditions.

Divers of all levels will have useful skills they can bring to the project such as surface support or boat handling.

What equipment do you need?

You may need extra equipment to complete your project. A writing board or underwater notebook is an excellent way of recording information underwater. A plastic tape measure lets you take accurate measurements of a wreck. An underwater camera to record pictures and videos is useful.

Planning your small project

Involve the other team members in your planning. Together, you will need to work out:

- Why are you diving?
  - A wreck or marine life survey?
  - Mapping a dive site?
- Who will be diving and organising?
  - Number of divers?
  - Skill levels?
- Where will it take place?
  - Suitable dive sites
  - Backups depending on weather and conditions
- When will it take place?
  - Consider weather and tides
- What is required?
  - Accommodation?
  - Special equipment?
  - Boats?
- How is it to be carried out?
  - Prepare a dive plan

Prepare a dive plan and briefing

Prepare a SEEDS briefing covering **s**afety, **e**quipment, **e**xercise, **d**iscipline and **s**ignals for each dive you plan to complete. It is also worth preparing a written timeline of how the day will run.

Time	Activity	Notes	Time +/-
	SEEDS briefing for dive 1		
	Dry run		
	Kit preparation and loading		
	Travel to dive site		
	Kitting up and buddy checks		
	Dive 1		
	Handover and debriefing		
	Lunch		
	SEEDS briefing for dive 2		
	Dry run		
	Kit preparation and loading		
	Travel to dive site		
	Kitting up and buddy checks		
	Dive 2		
	Debriefing		

Do a dry run

The most important part of your plan will be a dry run. Test out the plan on land to develop it, find out if there are any problems, and who is suited to undertake the different tasks.

Everything is harder underwater as there is so much to think about. Communication is more difficult and buoyancy control, currents, surge, visibility, and light levels can all add challenges. It is best to iron out the problems before you get in the water.

Diving conditions

Checking tides, currents and weather forecasts will help you plan the best dates and times to carry out the dives.

Tides

Knowing the depth of a site is important. A few metres variation in depth can make a big difference to whether the diver is suitable for your divers' depth limits, gas, and decompression requirements.

Remember:

- Spring tides – around the time of the new and full moon, larger tidal ranges can be expected.
- Neap tides – around the time of quarter moons, smaller tidal ranges can be expected, making the high water level lower and the low water level higher.

	Time	m		Time	m
16 SU	0545	1.8	23 SU	0007	0.5
	1148	4.8		0600	6.0
	1824	1.7		1236	0.4
				1823	5.7
17 MO	0029	4.7	24 MO	0051	0.6
	0701	1.7		0644	5.9
	1303	4.9		1321	0.6
	1905	1.5		1906	5.5
18 TU	0139	4.9	25 TU	0134	0.8
	0810	1.4		0727	5.7
	1410	5.1		1403	0.8
	2039	1.2		1948	5.3
19 W	0241	5.3	26 W	0216	1.0
	0912	1.1		0809	5.4
	1509	5.4		1445	1.1
	2136	0.9		2032	5.0
20 TH	0336	5.6	27 TH	0258	1.3
	1008	0.8		0853	5.0
	1602	5.6		1529	1.5
	2230	0.7		2118	4.7
21 F	0426	5.8	28 TH	0345	1.7
	1100	0.5		0942	4.7
	1651	5.8		1619	1.8
	2319	0.6		2214	4.4
22 SA	0514	6.0	29 SA	0442	2.0
	1149	0.4		1043	4.4
	1739	5.8		1722	2.0
				2326	4.2

Spring tide

Neap tide

Tide tables

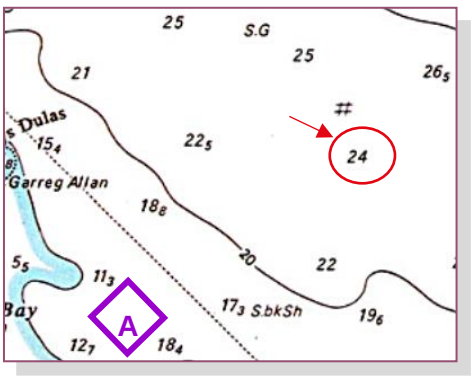
As tides are generally predictable, tidal height information can be found on tide tables. Tide tables provide the height of the tide (in metres) at certain times of day on every day of the year. Choose tide tables for the standard port on the maritime chart you are using.

n.b. Check the tide tables are corrected for British Summer Time. If not, add an hour during the relevant summer months.

Calculating depth at high water and low water

Depths marked on a chart are 'chart datum', which means the lowest predictable level.

To work out the depth of the water at high water or low water, add the depth from the tide table to the depth on the maritime chart.

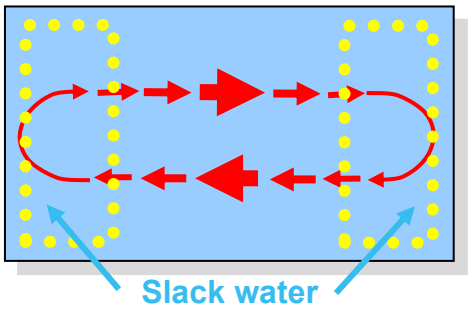


For example, the depth at the circled point on this chart on Thursday 20th is 24.8m at low water (24m + 0.8m) and 29.6m at high water (24m + 5.6m).

Currents

Slack water is when there is least water movement.

To calculate when slack water will be, find the nearest tidal diamond to the dive site on your chart. Alternatively, you can take advice from local divers and fishers.

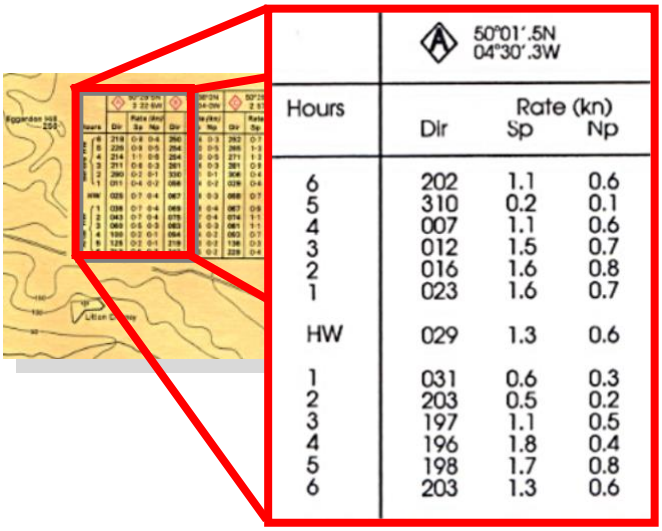


Tidal diamonds

Find the table for the relevant tidal diamond, showing the tidal direction and speed of flow (for spring and neap tides) for each hour before and after high water.

The best time to dive will be the times the speed of flow is lowest.

For example, for this dive site, the optimal dive times are five hours before high water (11am) or two hours after high water (6pm).



50°01'.5N
04°30'.3W

Hours	Dir	Rate (kn) Sp	Np
6	202	1.1	0.6
5	310	0.2	0.1
4	007	1.1	0.6
3	012	1.5	0.7
2	016	1.6	0.8
1	023	1.6	0.7
HW	029	1.3	0.6
1	031	0.6	0.3
2	203	0.5	0.2
3	197	1.1	0.5
4	196	1.8	0.4
5	198	1.7	0.8
6	203	1.3	0.6

Prepare a passage plan

If you are travelling by RIB, prepare a short passage plan detailing your waypoints, lat/long, position fix, relevant hazards, headings and distances.

Voyage Planning Slate

Start Point	Torquay	Destination	Lord Stewart	Date			
Boat		Coxn		Speed Restictions	5 kn speed limit in harbour		
Slack window		Time to get there		Ropes off time			
Boat Range n/m (1 gallon/9hp/hr) +30% reserve				Distance there + back	23	nm	
Standard Port	Devonport	HW's (time/height)		LW's			

	Waypoint Name	Lat & Long (WGS 84)	Position Fix / Hazards	Heading	Reciprocal	Distance nm	Time force 1	Time force 4
1	Torquay Slip	50 27'.468N, 3 31'.508W	START POINT				25	15
2	Exit Marina	50 27'.252N, 3 31'.911W	Navigate out of marina using channels as marked	219	39	0.5	6	6
3	Thatcher Rock	50 27'.214N, 3 29'.322W	Rock to North	90	270	2	5	8
								
5	Ore Stone	50 27'.413N, 3 28'.259W	Large Rock to West	70	250	1	2	4
							0	0
6	Lord Stewart	50 29'.617N, 3 16'.990W		70	250	8	19	32
	Contingency Plan				TOTALS	11.5	32	50

Planning certain types of projects

Planning a simple marine life survey

When planning a marine life survey project, one of the greatest tools at your disposal is BSAC's Marine Life Appreciation SDC. An OWI can run this within your club or at a local centre, and it can help participants identify the key types of marine life they will see on the dive.

Brief the divers on the kind of marine life likely to be found. Cover:

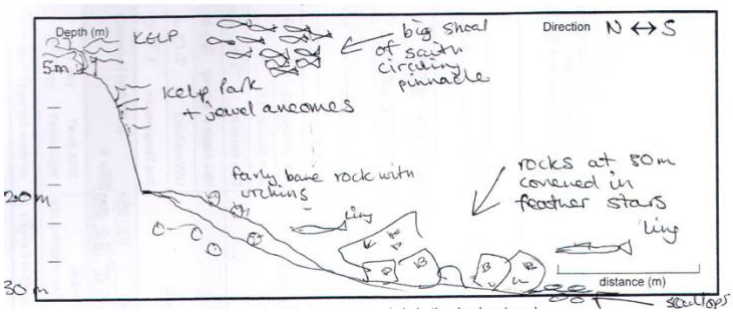
- Molluscs (slugs, shells)
- Worms (long and wiggly things)
- Porifera (sponges)
- Cnidarians (things that sting – jellyfish, anemones, sea pens, soft coral)
- Tunicates (sea squirts)
- Crustaceans (crabs, lobster, prawns)
- Bryozoans (tiny animals living in big corals)
- Echinoderms (spiny skinned)
- Fish
- Marine mammals (whales, dolphins, porpoise, seals)
- Plants and algae (seaweed, seagrass)
- Plankton (drifting bits)

Brief divers on how to conduct a simple survey:

- Keep your eyes open
- Move slowly and take your time
- Look for signs like burrows and tracks
- Look in small places (under rocks, in cracks)
- Look at hoe marine life changes with depth
- On safety stops, look at plankton in water, shallow seaweeds, jellyfish
- Take photos, draw a sketch, draw pictures

Record your findings

- Draw a simple sketch of the dive site
- Record the duration, depth, temperature, visibility, and conditions
- Describe the seabed (rocky reef, boulders, pebbles, sand, gravel, mud, wreck?)
- Include photos and video, if possible
- Use a marine life book to record species seen
- Seasearch has record forms available to use, if you wish, at seasearch.org.uk/record



Planning a simple wreck survey

Planning a simple wreck survey can be done in a series of steps. BSAC also offers a Wreck Appreciation SDC which can again be held in club or at your local centre.

Some equipment you may need will include:

- Writing board and pencils – A4 or A5 slate, pencil and waterproof paper for making notes
- Tape measure
- Compass
- Distance line and reel
- Dive computer
- Surface marker buoy (SMB) / delayed surface marker buoy (dSMB)
- Onboard GPS or phone with navigation app for GPS positions
- Camera

For more information on wreck surveys, 3H Consulting has some great resources which can be found at **bsac.com/wreckrecordingproject**.

1. Record the position and depth of the wreck site

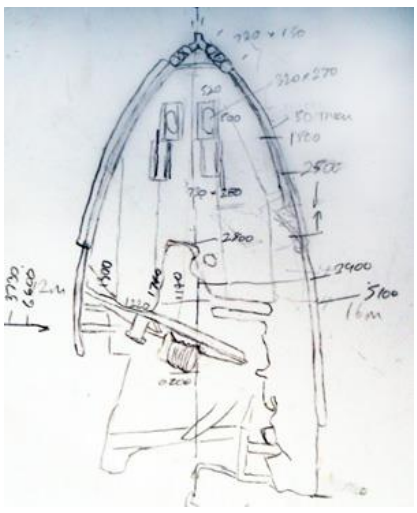
To record the position of the wreck site, put a diver in the centre of the site with an SMB (surface marker buoy) and record the latitude and longitude of the buoy using a GPS. If possible, record which was the wreck lies on the seabed.

Spot depths can be recorded by following the SMB in the boat and taking the GPS position at regular intervals. Signals from the divers, for example, three big pulls, can show where a particular feature has been found so you can take the GPS position. Make sure you take the GPS position at the end of each dive, so you then know where to start next time.

It is also useful to know the shallowest and deepest parts of the site.

2. Make a sketch

Draw a simple sketch from above which shows the main features and where they are in relation to each other. The sketch should be done quickly without getting bogged down in details. It should only take a couple of dives to get an idea of the main features on the site.



Make lots of notes while you are underwater on your board or notebook. Record:

- Estimated length and width of the side
- Seabed types – rock, boulders, gravel, sand, mud
- Seabed shape – flat, sloping, shallow gullies, deep gullies
- Wreck integrity – largely intact, broken into sections, buried, collapsed, jumbled, scattered
- Structure – keel, stem, stern, ribs (frames), plating or planking, deck
- Hull construction – iron, iron frames with wood, mostly wood with some iron fittings, all wood

- Gear – anchors, boilers, engine, chain, windlass, propeller, rudder, ballast
- Other features – cannons, cargo, small objects
- Makers names or marks

Take a lot of photos and video – if possible, include a scale to give an idea how big things are (ruler, dive knife or even your hand will do).

3. Make a site plan

If you have time, carry out a survey using tape measures.

Lay a 'baseline' down through the middle of the site and use that as a reference. Measurements made from points used to mark each feature to the tape baseline can then be drawn to scale on a piece of paper or on a computer and used to make the site plan.

With the tape measure baseline firmly secured it can be used as a reference. Any point on the site can be positioned relative to the baseline by making a measurement from the point to the baseline using a second tape measure, the second tape should meet the baseline at a right angle. This is known as an offset measurement. Two distances should be written down, the distance from the zero end of the baseline to the second tape and the distance from the baseline to the 'detail' point to be positioned. The depth of each detail point should be measured with a dive computer.

4. Do some research

Find out more about the wreck using the internet, dive guides or books of shipwrecks. If the wreck is unknown, the details you record about the ship may help identify it.

5. Publish your results

Report your results on your club website or Facebook page. You could also write an article for SCUBA magazine (**bsac.com/writingforSCUBA**) or send some information into BSAC's Marketing team for a blog post at **marketing@bsac.com**.

Planning a simple dive site guide survey

You can prepare an illustrated dive guide for divers in your branch or publish it on the internet for all to use. Make sure you add information about when the site is diveable, which tide tables are required, and what time slack is in relation to high and low water.

Prepare a dive plan:

- Choose your dive site
- Choose an alternate dive site in case of poor weather at your chosen site
- Prepare a simple passage plan
- Calculate depth and slack water using tide tables and tidal diamond
- Prepare a day plan ending with a debriefing and time to draw up the site guide

Information sources

Getting information about your dive sites and the conditions to expect will help you plan a successful project. If diving in the sea, get an accurate and up-to-date weather forecast from the Met Office, as well as tidal information and local launching details and rules.

Other sources of information that may be useful include:

- Dive guides
- Magazine articles
- Charts (paper or digital)
- Tide tables
- Speak to locals, especially local BSAC clubs if possible (**bsac.com/findaclub**)

Finding out more

There are many ways to find out more and get involved with other projects, but the first place to start is the BSAC Expedition Manual which can be purchased at **bsac.com/shop**. Other ways to get involved include:

- Getting involved with BSAC projects, such as Operation Oyster
- Joining a project advertised on BSAC's conservation projects and events page at **bsac.com/conservationprojects**
- Doing a Seasearch Observer course
- Joining the Nautical Archaeology Society and getting involved in their projects

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