DARWEN SUB AQUA CLUB

BSAC BRANCH 0047

NORWAY EXPEDITION REPORT

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DIVING EXPEDITION TO NORWAY

MAY – JUNE 2013

INTRODUCTION

Darwen SAC completed a very successful expedition to the Falkland Islands in January – February 2007. Although not as ambitious this time the plan was to use the Falkland Island trip (which is included in the BS-AC Expedition Manual as an example of diving in a remote location) as a template for mounting a two week expedition to Norway in the summer of 2013. We carried out an expedition exploring the diving in the region of the city of Haugesund.

The trip was completely self-supporting using two RIBs that were ferried and towed to Haugesund together with compressors and the bulk of the heavy diving equipment. A core group of the team were involved in the transport by ferry and road from Darwen to Norway and returned at the end of the expedition. This group were present throughout which allowed continuity of operations, the remainder of the expedition team travelled by air with light weight equipment.

Haugesund

Arrangements were made to have oxygen available at the expedition base to allow nitrox and accelerated decompression to be undertaken by those qualified.

The site of Haugesund was chosen to give access to a variety of dive sites which allowed flexibility depending on wind direction and strength however the initial choice of dive sites assumed that the weather was favourable.

Alternative sites to be dived in the event of less than ideal weather conditions were researched and included in the planning document.

The overall objective of the expedition was to locate, dive, survey and record wreck, wall and reef sites as well as diving some sites known to the local divers. Research conducted in advance indicated the likely areas to begin searching. Information from local sources was collated and an attempt was made to verify the accuracy of wreck positions.

The team had access to side scan sonar to aid in wreck location.

Haugesund is a small municipality of only 73 km². The population is 34,619 giving the municipality a population density of 509 people per km².

The town is situated on a strategically important sound through which ships can pass without traversing heavy seas. The high density of ship movements through difficult, narrow waterways has resulted in frequent shipwrecks and collisions. The protective sounds of Smedasund and Karmshund gave the town potential to grow in both directions. In the early years the waters off this coast was a huge source of fish stocks especially herrings and the town grew accordingly however the petroleum industry now represents its main interest.

Haugesund has a coastline with the North Sea; however, the island of Karmoy and the archipelago Røvær shelter most of the city from the rough waters of the ocean. The sound of Karmsund, located between Karmøy and Haugesund used to be very strategically important, since ships could pass without having to sail through heavy sea. Haugesund city centre has a distinctive street layout, similar to those found in Kristiansand and Oslo. Haugesund has a typical maritime climate with mild winters, cool but pleasant springs, and mild summers lasting until the end of September. 24-hr average monthly temperatures range from 1.1 °C in February to 14 °C in August. Mean annual precipitation is 1520 mm, with September - December as the wettest period. The high latitude resulted in there being 19 hours of daylight at this time of year which gave the scope for longer surface intervals, the wind direction varied throughout the expedition but was mainly between ESE and NNW with Northerlies being most common

Haugesund is connected to Stavanger and Bergen by catamaran and bus services; and to Oslo by bus. The town is connected to Utsira by car ferry, and Røvær and Feøy by passenger ferry. The presence of these very fast ferries operating near the diving area added to the complexity of planning, dive management and observation skills on some sites and passages The European Route E39 bypasses Haugesund to the east, passing through Aksdal. The European Route E134 leads eastwards to Drammen outside Oslo.

Management of the expedition

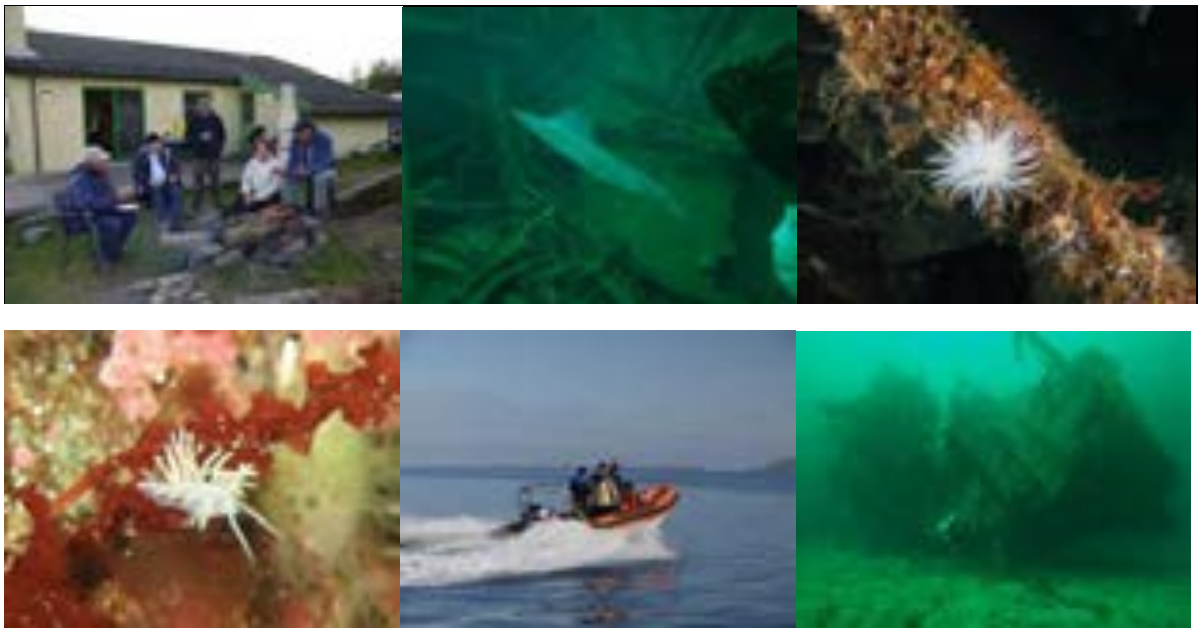
The expedition leader carried out overall management of the event but was able to delegate a very high proportion of the day to day organisation to other members of the team.

Dive management rotated throughout the two weeks together with roles including boat management and fuelling, coxing, gas blending and compressor operation.

Dive planning and navigation roles were also shared.

Rescue skills were fortunately not required bar some minor first aid procedures.

Other members of the team were tasked with dive record keeping, daily diary entries and photography both above and below water.



Launching and base harbour facilities

It had been part of the plan to used slips in Haugesund and base the boats in the harbour area available near the slip.

On inspection of the facilities available concerns over the security of the boats and equipment forced us to explore other options.

We discovered a small harbour area two minutes' drive from our accommodation which was unused by others.

There was a reasonably serviceable slip and an area for parking vehicles immediately adjacent to the quayside.

The depth of water was adequate even during low water springs.

The harbour was very sheltered and accessed through a very narrow cutting which taxed boat handling skill at times especially when we experienced a strong westerly.

We were very fortunate to be able use this facility and it reduced vehicle travel time very significantly.

The location did increase some of the sea passages but other passages were correspondingly reduced.

The location of the harbour so near to our accommodation allowed us to return to base for lunches and share out cylinder filling duties easily. The secure location allowed us to leave diving equipment on the ribs at all times. Long filling whips from the compressors meant there was no unloading of cylinders apart from when they required nitrox.

Decompression procedures.

Wreck diving was conducted with the use of a shot line either deployed by the team or if a satisfactory line was in place on arrival at the site this was used.

In some of the dive locations there was considerable ferry and other large vessel traffic in the area. On the wrecks divers returned to the shot to make their ascent.

Planned decompression dives

These dives were planned with due regard to gas supply and safe decompression timings. Where mandatory decompression was required there were pre- assembled scuba units with a 50% and 80% nitrox mixes available as a backup. The units had three second stages. The units were pressurised but the pillar valves turned off. These units were suspended on the shot line at 9m and 6m together with a similar unit with dive gas at the base of the shot line. It is stressed that these gas supplies were an additional safety item and their use was not included in gas planning calculations. There were similar units available on the ribs which could be lowered down a DSMB line to a diver in difficulties.

Detailed briefings concerning the operation of this system were undertaken by the DM before the relevant dives.

Surface location aids (DSMB, flags, strobes, flares, reflectors and EPIRB's) were carried by the dive team. The weather was changeable and warm, waterproof clothing was used on the ribs during the sea passages and while team members were acting as surface cover to avoid chilling between dives.

The maximum depth for air divers was 50M. All diving was undertaken with equipment that provided a truly independent alternative or bailout gas source. The use of rich nitrox mixes to accelerate decompression or to add a greater safety margin was employed

Safety

A comprehensive risk assessment for diving from the ribs in this location was produced (attached in appendix) which was enhanced by the dive manager for each dive. The expedition carried first aid and oxygen therapy equipment. Members of the diving team carry advanced rescue management, first aid and diver rescue qualifications.

Equipment

There was a considerable amount of equipment needed for this expedition to take place, all of this had to be transported in 3 vehicles with only some of the lighter personal equipment being brought over by plane by the people coming on the second week.

To give an idea of the amount of equipment this is part of what we took:-

- 2 Boats and associated equipment
- 2 Compressors
- 37 Diving Cylinders
- 2 O2 kits
- 1 rebreather
- 11 Full sets of equipment
- And spares for everything.

Where possible to keep weight down people who were only there for one of the weeks shared equipment with someone from the other week.

Getting the equipment together

In order for us to blend our own Nitrox we ordered 4 Cylinders of oxygen, these we collected shortly after we arrived, in order for us to be able to use the O2 cylinders in Norway we had to buy different unions to fit the cylinders. These we bought before we left and made up a manifold to enable us to use a cascade system so as use the cylinders more efficiently.

Training

The divers on the expedition in the main were highly experienced (see list in appendix). However some skills needed refreshing and we needed to ensure that certain aspects of their training were up to date, in particular BLS rescue skills.

The following courses with modifications met the needs of the expedition members

Course	Date
Basic Life Support and O2 Admin	Mar-13
Chartwork and position fixing	4-7 May 2013 including practical experience on a trip to the sound of mull
Survey Techniques	May-13

Expedition planning, execution and reporting as well as chart work and position fixing plus report writing was a huge benefit to most of the divers and in particular benefited:

i) A potential NI development.
ii) FCD preparation
iii) AI preparation
iv) AD preparation

Having held a number of wreck and sea life teaching sessions before the trip greatly benefited the group & added to their overall enjoyment of the dive trip.

A sea search type survey on the wreck of the Pysen was performed and a wreck survey on a barge sunk just outside the home harbour gave added purpose to the diving.

In addition five members of the group had applied to be assessed for the Diver Cox Award and two for the Diver Cox Assessor Award shortly after their return. One member in particular received a lot of hands on tuition in rough water handling.

The prior training both theoretical and practical and the chance to put these skills into practice on a real dive trip proved to be very beneficial.

A marine survey on the wreck of The Pysen is attached

A wreck survey on an un-named log transporter outside the home port is also attached.

On return to the UK all passed the Diver Cox Assessment and the Diver Cox Assessor Assessment

F.C.D., A.I. & A.D. is ongoing.

Members had the opportunity to use the club's compressor, see how nitrox blending was done and to realise the benefit of diving on enriched air.

List of dives carried out

Day	Dive site	Position	Max Depth Dived
Sunday	Ramonshalomane	N59 50.41 E5 11.60	27
Monday	Forlandsvegen	N59 28.17 E5 14.17	26
Monday	Bjorkevaer	N59 24.69 E5 06.95	40
Tuesday	Pysen	N59 36.84 E5 05.85	28
Wednesday	Dresden	N59 11.67 E5 18.95	49
Thursday	Dresden	N59 11.67 E5 18.95	50
Thursday	Barge	N59 29.52 E5 13.38	42
Friday	Barge	N59 29.52 E5 13.38	49
Friday	Ramonshalomane	N59 50.41 E5 11.60	32
Friday	Barge	N59 29.52 E5 13.38	32
Saturday	Forlandsvegen	N59 28.17 E5 14.17	25
Sunday	Pysen	N59 36.84 E5 05.85	27
Sunday	Sterling	N59 28.17 E5 14.17	28
Monday	R-56	N59 40.40 E5 19.14	45
Monday	Sterling	N59 28.10 E5 14.47	26
Tuesday	R-56	N59 40.40 E5 19.14	44
Tuesday	Reis	N59 41.39 E5 22.00	27
Wednesday	Dresden	N59 11.67 E5 18.95	50
Wednesday	Barge	N59 29.52 E5 13.38	36
Thursday	Ceang	N59 12.70 E5 28.12	26
Thursday	Ceang	N59 12.70 E5 28.12	27
Friday	Store Blokken	N59 32.60 E5 13.47	40
Friday	Pysen	N59 36.84 E5 05.85	27
Saturday	Barge	N59 29.52 E5 13.38	36
Saturday	Pysen	N59 36.84 E5 05.85	35
Sunday	Dresden	N59 11.67 E5 18.95	48

The Green Flag is where we were based

The Journey and Other Things.

Planning the journey from Darwen to Haugesund was a bit of a challenge! Gone were the days of the ferry from Newcastle to Bergen which would have made life a lot easier and cheaper.

We had a look at all the ferries from the UK to Norway but unfortunately they were all commercial and either didn't take passengers and/or private vehicles. We even had a look at putting all the kit and boats on the back of a 40ft trailer and having it shipped over. This was abandoned as we would have to hire vehicles in Norway which would have been prohibitively expensive and a lot of hassle.

In the end we had a bite the bullet and go the long way round.

The route was:

Darwen – Harwich (UK) 282miles

Harwich- Esbjerg (Denmark) via ferry overnight sail

Esbjerg – Hirtshals (Denmark) driving through Denmark to the tip of Jutland 213miles and an overnight stay in Hirtshals

Hirtshals- Stavanger (Norway) via ferry full day sail arrived in Stavanger 20.00 local time.

Stavanger-Haugesund driving in Norway 55miles to the accommodation via a local ferry and some deep road tunnels!

The first ferry journey over the North Sea wasn't great as it was Gale Force 8! We did start with a lovely meal and several bottles of wine between us but sleeping was difficult as the sea conditions were a bit lumpy. Luckily no one was ill. The rest of the ferry sailings were calm.

We arrived in Esbjerg at 13.00 and drove through Denmark which was uneventful and took 4-5hrs. I had booked a small hotel outside of Hirtshals near the beach and once we arrived we had a lovely meal overlooking the sea in a local restaurant and had a walk on the stunning beaches

The next ferry arrived in Stavanger at 20.00. We had at last set foot in Norway! We now had to navigate to Haugesund and find the accommodation in the dark. Also our ferry arrived late and we had to get a move on or we would miss the last ferry from Mortavicka to Arsvagen. We made it though and arrived tired but pleased at the digs around midnight.

The accommodation was 2 self-catering holiday homes 3km north of Haugesund. They were a little more remote than we thought; the last 1km was down a small single track road which ended up in a dirt track. The houses were spacious with a sauna and Jacuzzi Bath, there were barbeque facilities and sea views. We could also use some canoes on a small fresh water lake in front of the houses. The only downside was the water supply came from a bore hole which occasionally ran dry if we had too many showers!

The houses were set in woodland which had a childrens outdoor centre and lots of old gun emplacements and building that the Germans built in WW2 which were really interesting to look around. The outdoor centre had converted some into accommodation blocks for the children to stay in.

We bought food and supplies from the local supermarkets and we also caught some crabs, scallops and mussels and had several barbeques. The houses had wood burning stoves which were very cosy at night while we were chatting about the days diving. We ate out twice, in Haugesund, over the 2 weeks, once each week. The cost of eating out made our eyes water hence we only went out twice! We also made good use of the ferry duty free for the après diving. The houses had TV so we could show the photos and video we had shot that day and more often than not both houses ate together for dinner, taking it in turns to cook. Everyone mucked in with the cooking, washing up and keeping the houses clean and we had a great time.

After week 1 we had a turnaround of some personnel, we had a day off diving to drop people off in Haugesund to catch ferries back to Bergen to catch flights back to the UK and to pick people up. It also gave those of us who were staying a chance to de fizz. More people arrived and we were back into the diving again for another week.

At the end of week 2 we had to get the boats out of the water and pack up the gear for the long trek home. The trip home was more straightforward and didn't involve an overnight stay in Denmark. We did get a little worried waiting in Stavanger for the ferry as the van was late; they had got lost and were heading to Bergen!

The ferry to Hirtshals was overnight and calm. We had a leisurely drive through Denmark and a bit of a wait in Esbjerg; this gave us the opportunity to have a look around the pretty town centre and have a relaxing lunch outside in the town square.

The ferry back to the UK was also overnight and uneventful, all too soon we were back in sunny Darwen and a fantastic dive trip was over.

The Dives

Ramnshalomane

Dive on south side of island, scenic dive mainly shallow gullies then dropping off too approx. 40m. Vis approx. 15m. Lots of crabs, Nudibranch and Pollock.

Førlandsvegen / Sterling

The Sterling was a schooner that was travelling from Gothenburg to Spain when on the 26 December 1918 during a storm she got in trouble in the North Sea and headed toward the Norwegian coast to seek a safe haven. Outside Førlandsvegen Sterling ran aground at night and signalled for urgent assistance. The crew of eight men were then taken to Haugesund, while Sterling was standing on the reef. The wreck of Sterling were rescued from the cut a few days later and towed into Førlandsvegen where she sank shortly after. It took us a few dives to find the wreck as we had two different sets of co-ordinates and the wreck is very broken up as could be seen when we eventually found it, this explains why it didn't show up on the sounder. Førlandsvegen has some very good walls to dive on then levels out on a sandy bottom.

Bjorkevaer

This is one of the islands off the coast of Haugesund where we had planned to locate and dive the wreck of the Broughton, we didn't have much info on this wreck other than rough co-ordinates. As the wreck was a wooden hulled Brig we didn't expect to find anything but were pleased when one of the buddy pairs found the anchor and chain at the bottom of a superb wall.

Pysen

This was a small freighter that was heading from the UK to Iceland so was slightly off course when it hit the rock pinnacle that it now lays at the base of. The wreck was found to be fairly broken up with the boiler and engine still there, along with a big chunk of the stern.

Dresden

The Dresden was an excellent wreck dive, and once located was worth leaving a shot line on for the duration of the trip, in total some people made 4 dives on this wreck and could have spent many more exploring this wreck. We placed a shot line at about 30m and from there you could easily and quickly get to the stern which was at a depth of 46m to the sea bed. Once there you could see the rudder and where the props used to be. After spending a few minutes at the stern you could make your way up towards the bow. The shallower parts of the wreck are very broken up but it was good to be able to stay on the wreck right up until the end of the dive, surfacing with a DSMB. It was on this wreck that we saw squid and lots of their eggs.

Barge

This wreck we were told about by the landowner where out accommodation was. Not a lot of detail is known about this wreck but it is known that it was carrying timber at the time it sank, all of this has now gone from the wreck becoming dislodged during the sinking.

R-56

This was an old German minesweeper that is sunk in 45m of water. The wreck is upside down which gives a good view of the twin Voith Schneider propellors, something that none of us on the expedition had ever heard of before.

Ceang

This is a cargo vessel that sank in 1977 whilst carrying a cargo of gravel, it is still fairly well intact and it is possible to see the rip in the hull from hitting a rock. This wreck was one of the furthest away from our base so we didn't go back to fill cylinders this day.

Store Bloksen

This is a pinnacle that we passed on the way to dive the R-56 and though it would be interesting. There were shoals of fish and some of the divers saw pieces of aluminium wreckage that turned out to be parts of a high speed ferry called Sleipner which sank in 1999.

Relis

This was a wreck that we briefly tried to locate on our way back from the R-56 one day. We had 2 greatly different sets of co-ordinates but as we were going to be close to the one that was within diveable depth we thought we would have a dive there. Unfortunately we didn't find anything.

Wreck and Sea life Surveying and Recording

Wreck Survey – sketches in appendix

These skills were taught and practised prior to the expedition by qualified instructors who were also present on the expedition. They also over saw the actual surveys and gave guidance.

Survey techniques

The wreck survey was divided into three distinct phases:

1. Surface search.

2. Full structure survey of the wreck

3. Recording of results.

The whole team took part in phases 1, 2 and 3 which were managed and activities co-ordinated by the dive manager. The feedback from the first survey day was used to improve performance on later surveys.

Surface searches

We had approximate lat/long co-ordinates for the wreck after speaking to local landowners. The site was found without the need of a surface search as the rib's integral side scan sonar showed the wreck very clearly on the screen. The Cox asked members of the team to deploy the shot which was ready assembled.

Detailed survey

The entire team was involved in this phase of the operation. The diving team was divided into two groups allowing for surface cover in both ribs. Buddy pairs were tasked with specific roles; checking u/w position of shot, overall wreck structure, photographing and shot preparation for recovery.

Dry runs were performed to iron out any problems; additional kit stowage, logistics of actual measuring and signals for communication.

After the first wave of diving a few modification were made to the tasks before the second wave entered the water. The use of Wreckmap survey forms and NAS principles ensured the correct and easy collation of results and uniform detail of recording by the various buddy pairs.

The dive site was compact and very close to where the boats were moored so return to the site on many other days was possible. One advantage of the accommodation for the diving party being at one location is the enhanced ability to communicate plans to all.

Recording of results

Following a successful pilot scheme in 2005, the NAS ran WreckMap Britain 2006 [1]with the support of Seasearch, Crown Estate, PADI Project Aware and the British Sub-Aqua Jubilee Trust. The project aimed to get UK divers to collect and report basic archaeological and biological information about wreck sites on which they dive.

Although prepared for use in British waters the system of recording would still hold merit in the waters off Haugesund.

[1] www.nauticalarchaeologysociety.org/projects/wreckmap2006.php

Using this form enabled the less skilled to provide basic data and the more experienced divers were provided with a framework to guide and support those developing skills in recording.

Sealife survey – completed form in appendix

Survey techniques

The survey was divided into three distinct phases:

1. Surface search.
2. Full survey of marine life on & around the wreck
3. Recording of results.

Phases 1, 2 and 3 were managed by different team members so the various activities were co-ordinated by the dive manager. The feedback from the first survey day was used to improve their performance on later surveys.

Surface searches

Approximate lat/long co-ordinates for the chosen wreck site were already known having been obtained from local sources and various websites. They marked the origin of the surface search which in the first instance was conducted by both ribs operating independently in pre-arranged areas (one has integral side scan sonar and the other using its conventional downward sonar) Members of the team operating the equipment advised the Cox on the best search pattern. An accurate position was recorded so we could return on another day.
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Detailed survey

The entire team will be involved in this phase of the operation. The diving team will be divided into two groups allowing for surface cover in both ribs. Buddy pairs were tasked with specific roles such as checking overall survey area, recording marine life, and photography. An assessment of the findings from the first wave of diving allowed some modification to the tasks before the second wave entered the water. The use of Sea search survey forms ensured easy collation of results and uniform detail of recording by the various buddy pairs. The

photographs together with marine life books helped enormously in the identification of some species.

Recording of results

Some members of the team had experienced Sea Search diving techniques and provided had the forms which provided the framework and guidance for those less experienced to record the required information correctly and in a form that was compatible for all those taking part, enabling easy collation of the results.

Lessons learnt

Ideally an advanced party could visit the venue to assess the suitability of the arrangements for launching and mooring the ribs. Not always practical when expedition is to an distant location

Expeditions to Norway would benefit in a financial manner by purchasing non-perishable provisions in the UK and transporting them in the van with other equipment.

Expedition Members

Name	BSAC Qualification	BSAC Club
Keith Adam	Sports Diver	Darwen
Patricia Booth	Advanced	Darwen
Phil Botting	Dive Leader	Trafford
Martyn Dean	Dive Leader	Darwen/Trafford
Ian Dearden	Advanced	Darwen
Jill Dearden	Advanced	Darwen/Trafford
Keith Dearden	Advanced	Darwen
Jonathan Greenbaum	Advanced	Trafford
Mike Holroyd	First Class	Darwen/Ribble
Dave Lindsey	Advanced	Farnworth
Duncan Read	Advanced	Bury
Emma Starkey ***	Ocean Diver	Darwen
Paul Targett	Advanced	Darwen
Ian Ross	Advanced	

NOTE: Emma went along to possibly join us on the shallower dives but decided not to.

More detailed list showing individuals skills and qualifications is included in the appendix.

Expenditure

A full list of costs is attached in the Appendix.

UK to Denmark Ferry	£2,199.00
Denmark to Norway Ferry	£956.15
E39 Ferry/Road Tolls	£455.28
Vehicle Fuel Costs	£883.36
Accommodation	£3,385.50
Food	£1,770.59
Boat/Compressor Fuel	£2,070.44
Club Boat Fees	£285.00
Oxygen+Fittings	£500.00
Misc(Charts etc.)	£166.69
Total	£12,672.01

Appendix

Contents

Dive Logs

Accounts

Sea Search results

Wreck sketches

Risk Assessment

Divers Qualifications

Tide times

DSAC Dive Log Sheet

Date	[illegible]	Dive manager	Ian Dearden	Weather
Dive Site	[illegible]	Assistant Dive Manager	Duncan Reed	Force 3 Sunny Moderate

Name	Qual	Equipment type (OC/CCR)	Cylinder 1 Size	Cylinder 1 mix/ MOD	Cylinder 2 Size	Cylinder 2 mix/ MOD	Cylinder 3 Size	Cylinder 3 mix/ MOD	Cylinder 4 Size	Cylinder 4 mix/ MOD	Time in	Max Depth	Dive Time
Ian Dearden	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Keith Julian	SD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Pat Booth	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Mike Holroyd	PCD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Martyn Dean	DL	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Jill Dearden	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Keith Dearden	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Ian Ross		CCR					[illegible]	[illegible]	N/A		[illegible]	[illegible]	[illegible]
Duncan Reed	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Dave Lindsey	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]

DSAC Dive Log Sheet

Date	[illegible]	Dive manager	Pat Booth	Weather
Dive Site	[illegible]	Assistant Dive Manager	Martyn Dean	[illegible]

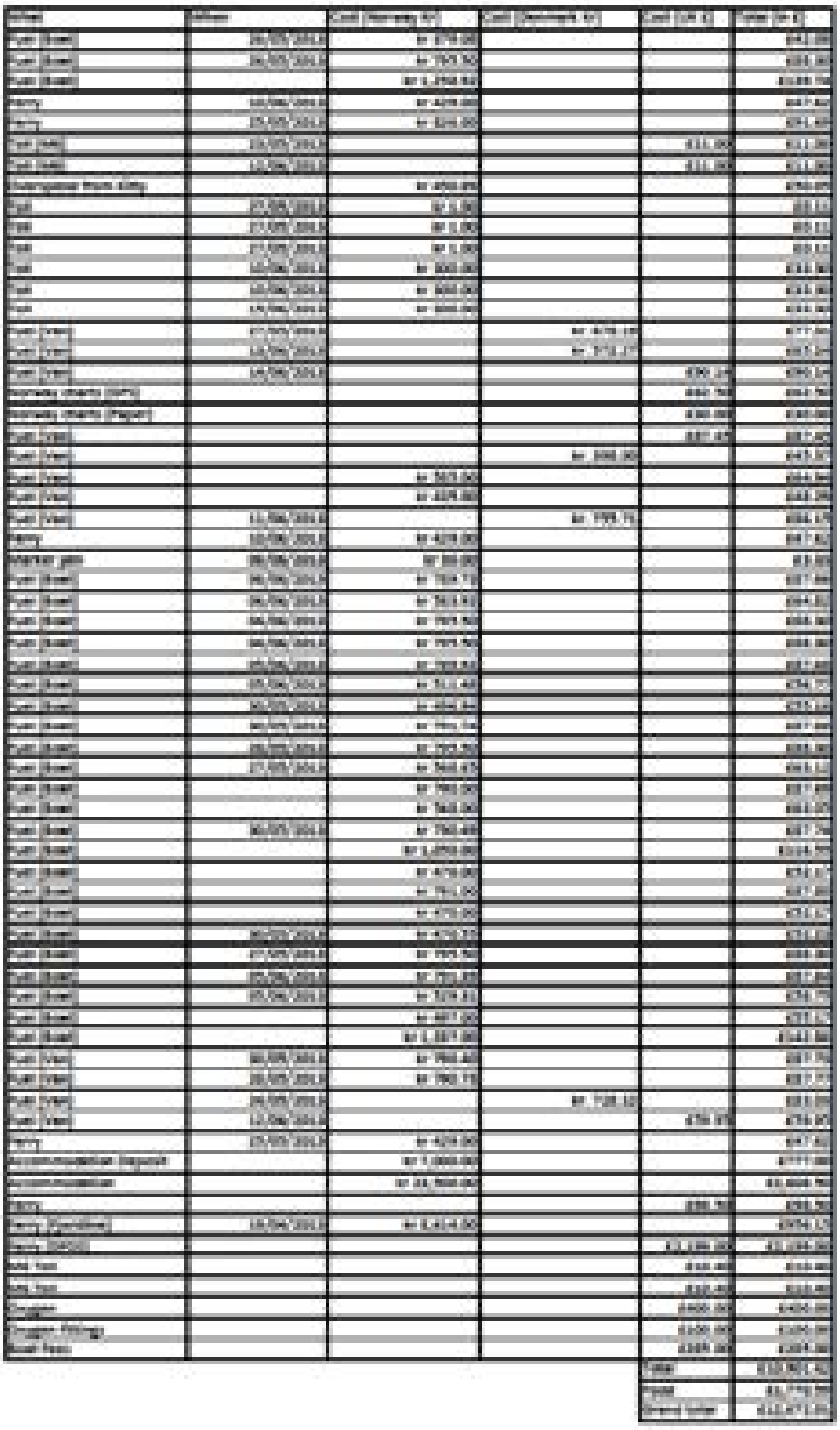
Name	Qual	Equipment type (OC/CCR)	Cylinder 1 Size	Cylinder 1 mix/ MOD	Cylinder 2 Size	Cylinder 2 mix/ MOD	Cylinder 3 Size	Cylinder 3 mix/ MOD	Cylinder 4 Size	Cylinder 4 mix/ MOD	Time in	Max Depth	Dive Time
Ian Dearden	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Keith Julian	SD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Pat Booth	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Mike Holroyd	PCD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Martyn Dean	DL	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Jill Dearden	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Keith Dearden	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Ian Ross		CCR					[illegible]	[illegible]	N/A		[illegible]	[illegible]	[illegible]
Duncan Reed	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Dave Lindsey	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]

DSAC Dive Log Sheet

Date	[illegible]	Dive manager	Pat Booth	Weather
Dive Site	[illegible]	Assistant Dive Manager	Martyn Dean	[illegible]

Name	Qual	Equipment type (OC/CCR)	Cylinder 1 Size	Cylinder 1 mix/ MOD	Cylinder 2 Size	Cylinder 2 mix/ MOD	Cylinder 3 Size	Cylinder 3 mix/ MOD	Cylinder 4 Size	Cylinder 4 mix/ MOD	Time in	Max Depth	Dive Time
Ian Dearden	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Keith Julian	SD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Pat Booth	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Mike Holroyd	PCD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Martyn Dean	DL	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Jill Dearden	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Keith Dearden	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Ian Ross		CCR					[illegible]	[illegible]	N/A		[illegible]	[illegible]	[illegible]
Duncan Reed	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]
Dave Lindsey	AD	OC	[illegible]	[illegible]	[illegible]	[illegible]	N/A		N/A		[illegible]	[illegible]	[illegible]

Accounts



Description of the seabed
Please draw an approximate profile of the seabed (i.e. a side-on view), labeling features and dominant forms as appropriate. Remember to show the depth range, direction and a distance scale.

Types of seabed present: (please tick all that you saw and circle the dominant one)

Rocky Reef ☐ Boulders ☐ Cobbles and Pebbles ☐ Mixed Ground ☐ Sand and Gravel ☑ Mud ☐ Wreckage ☑ Other ☐

Did you notice anything unusual or noteworthy about the seabed or the marine life?

LOTS OF JUVENILE MARINE LIFE. EARLY IN THE SEASON STILL QUITE COLD

Was there any litter or were there any man-made objects apparent?

NONE

What marine life did you see on your dive?

Seabed cover types (tick all those present)

Kelp forest ☐ 

Kelp park ☐ 

Mixed seaweeds ☐ 

Encrusting pink algae ☑ 

Barren sediment (no life or structures apparent) ☑ 

Animal turf on rocks

Short ☑ 

Tall ☐ 

Animal Beds (e.g. mussels, brittlestars, scallops - state which)

☑ brittlestars 

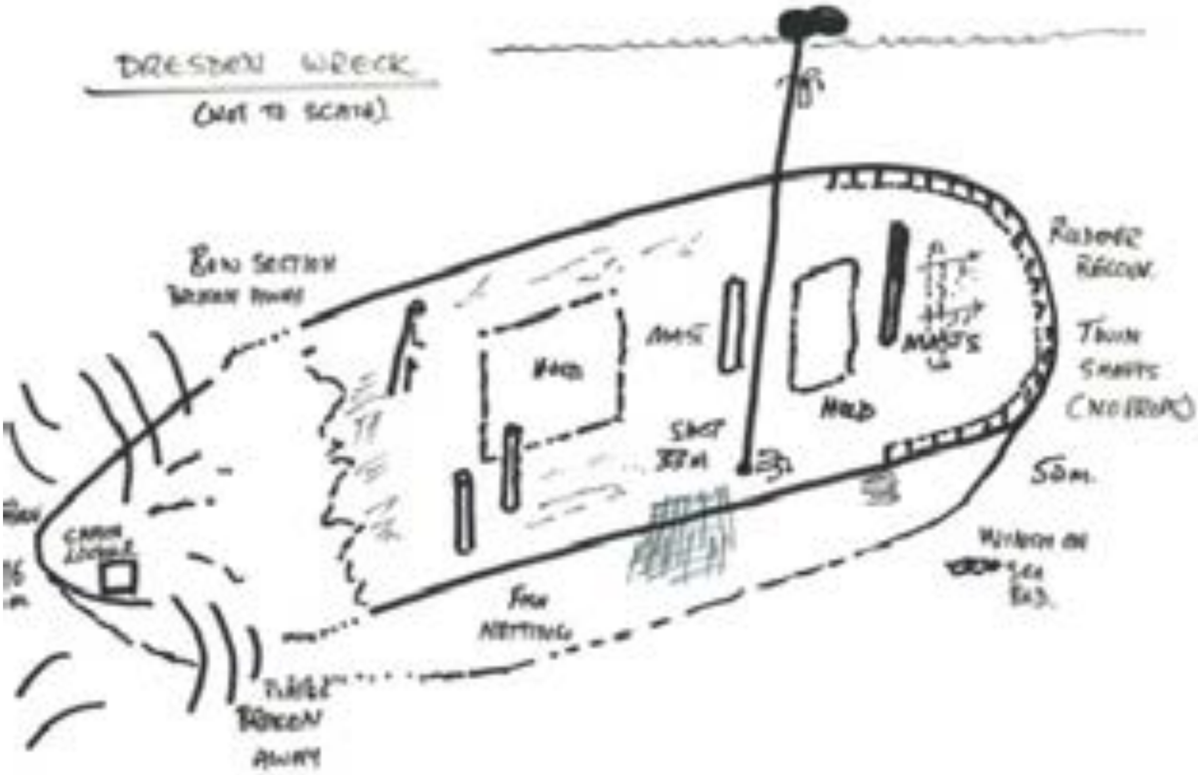
Sediment with life apparent (tubes, burrows etc)

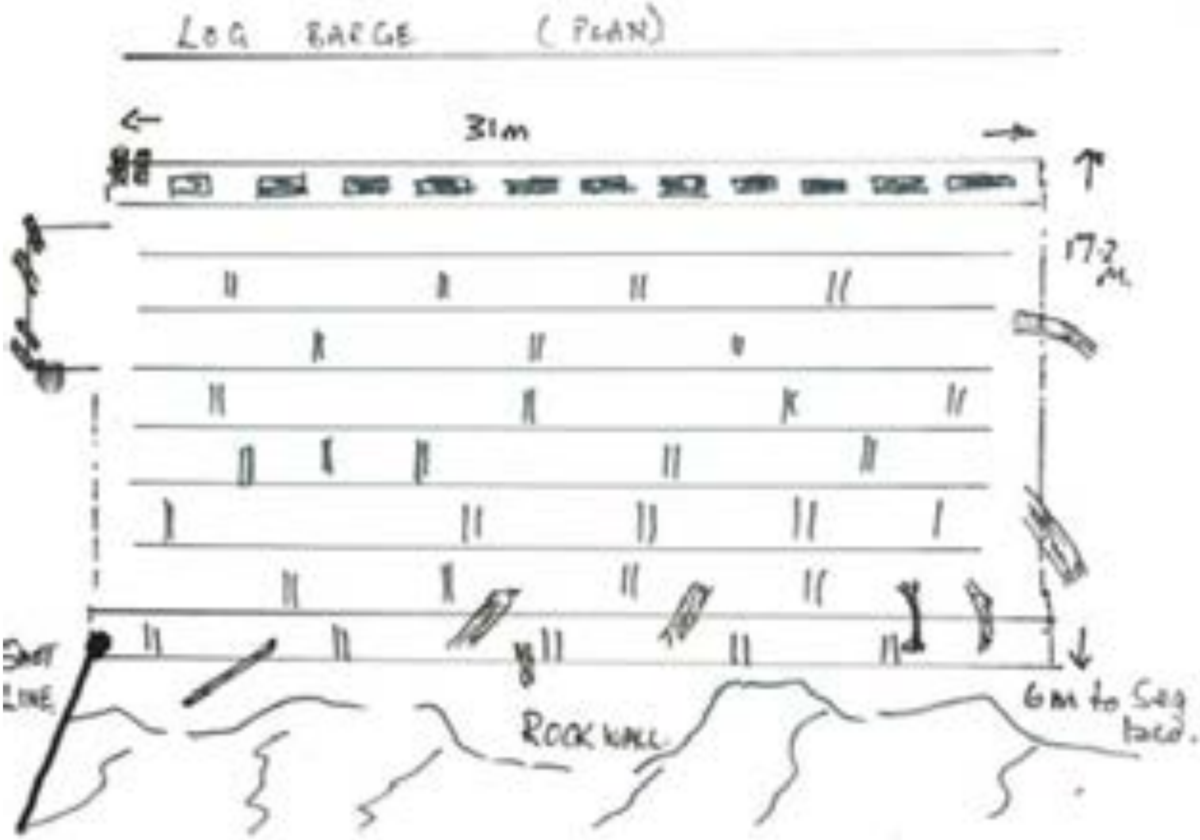
☑ 

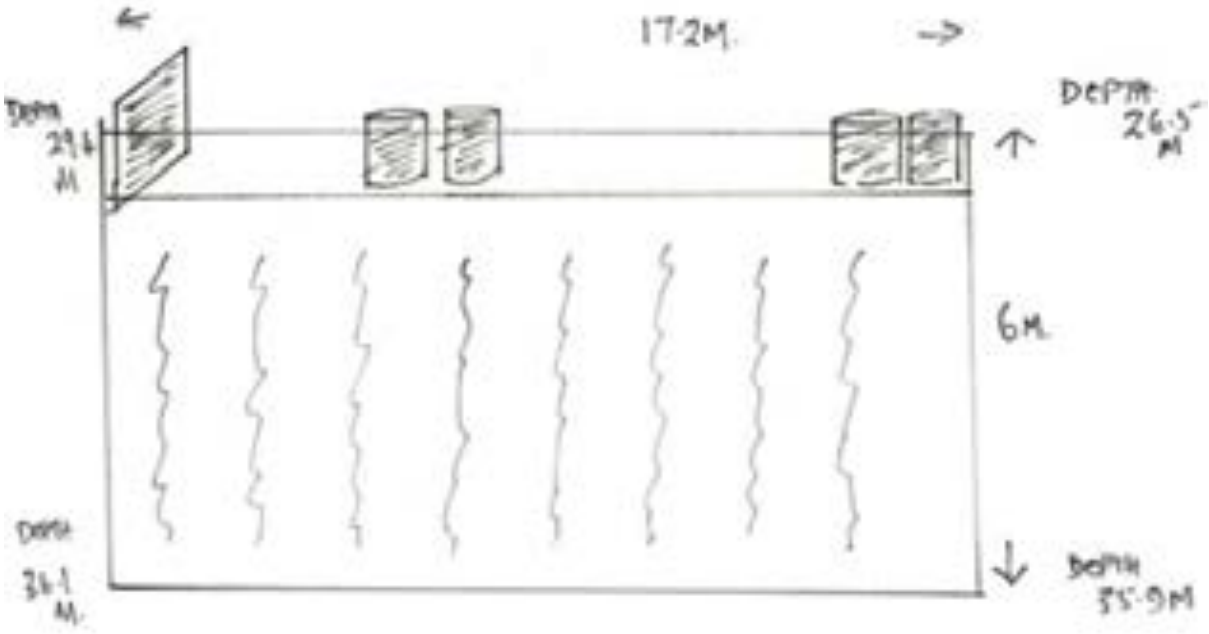
Species you saw
Show abundance of each species as Rare, Occasional, Common, or if you're unsure, Present.

Species	
MALE CUCKOO WRASSE	P
BRITTLE STARS	C
SANDSTAR	P
SEA URCHIN	C
NORWAY REDFISH	P
JUVENILE STARFISH	C
CUSHION STAR	R
SPIDER CRAB	R
BORING SPONGE	R
TOP SHELL	R
RED WEED	P
KELP	P
JELLY FISH	R
ANEMONE	R
LUMPSUCKER	R
HERMIT CRABS	P

Dead Man's finger C
Gravel sea cucumber Neopentadactyla Mixta P
Brittle Stars -if it had stripes on the legs then it is common brittle star – Ophiothrix Fragilis but if it is just a plain colour then it is the black brittle star -Ophiocomina Nigra C
white spiny starfish - Marthasterias Glacialis P
Spiny spider crab - Maja squinado P
sand mason - and fact is seemed alone Lanice Conchilege R
crab covered in white strings - cloak anenome Adamsia Carciniopados R

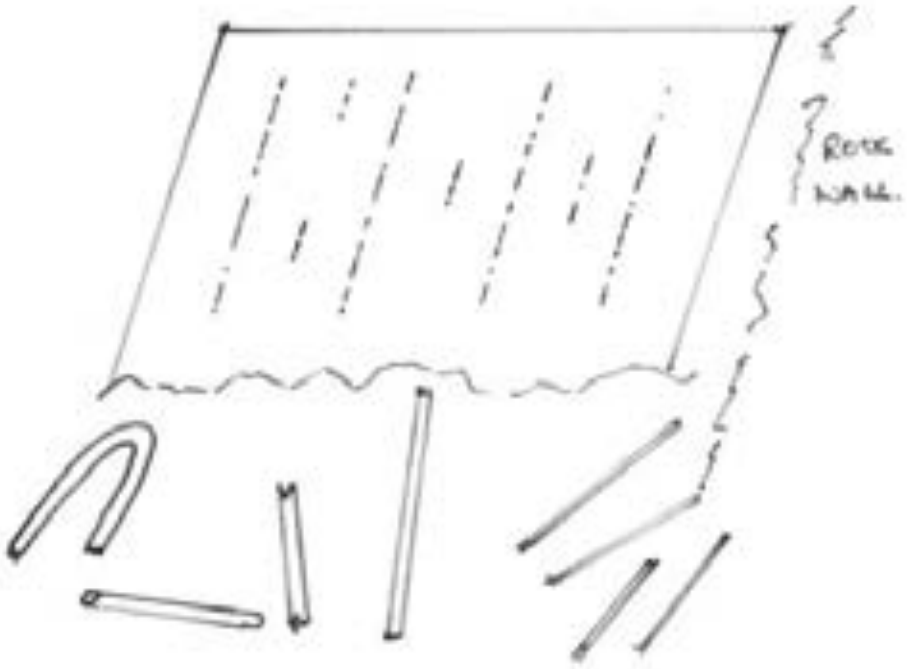

DRESDEN WRECK
(NOT TO SCALE)
HOLD
MAST
MASTS
HOLD
TWIN SHAFTS (NO PROPS)
50m.
WINCH ON SEA BED.
FISH NETTING
PLATE BROKEN AWAY

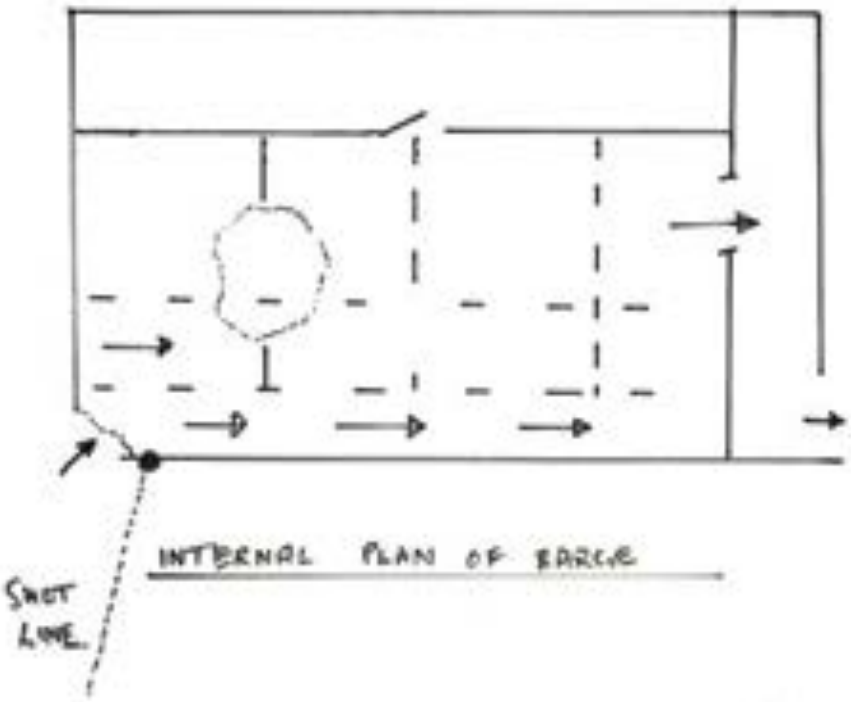

LOG BARGE (PLAN)
31m
17.2 m.
SHOT LINE
ROCK WALL
6m to Sea bed.



BARGE ELEVATION (DEEPER END)

BARGE (SEPARATED WRECKAGE).



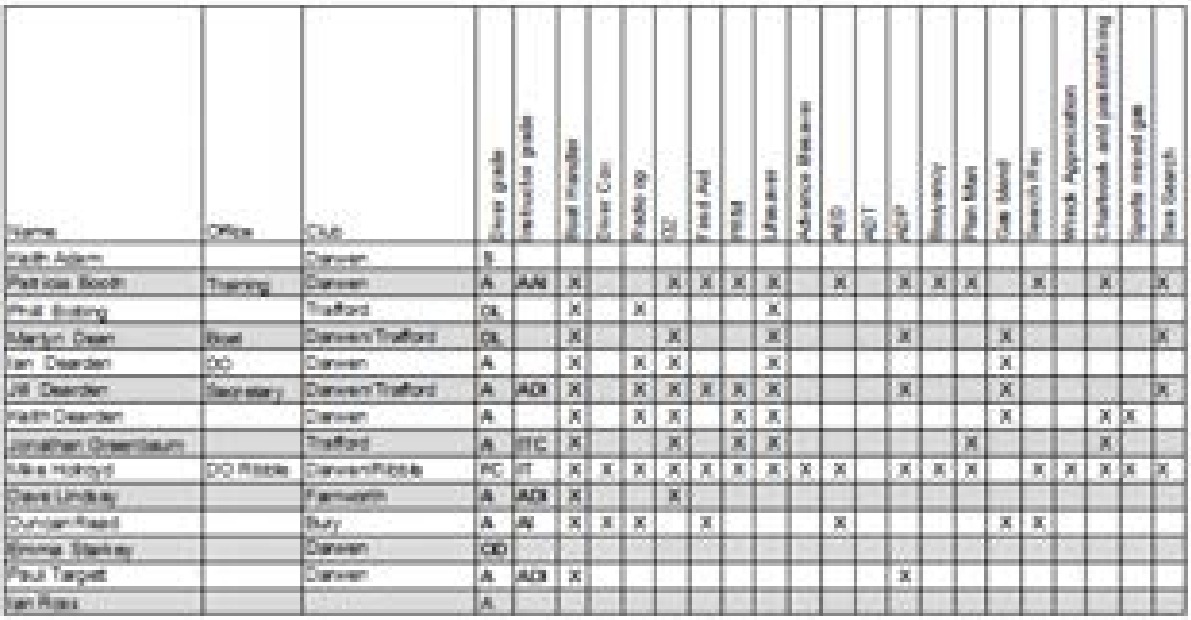

INTERNAL PLAN OF BARGE
SHOT LINE

Risk Assessment

Hazard	Who	Severity 1-3 (a)	Likelihood Risk 1-3 (b)	Evaluation (a * b)	Controls	Action to be taken in the event
DCI	all	3	2	6	Dive training and planning, approval. DM. Use of nitrox and computers. Extra safety stops over and above mandatory stops. Use of high % O2 for deco to 1.4 / 1.6 bar.	First aid Oxygen Contact CG
NARCOSIS	all	2	3	6	Use of mixed gas Buddy monitoring	Recognise problem Ascend
DARKNESS	all	1	3	3	Powerful torch and reserve	Use reserve Ascend
REPETITIVE DIVING	all	1	3	3	Conservative profiles Nitrox	Break Sequence
ENTANGLEMENT FISHING AND SURVEY LINES	all	1	3	3	Knives, cutters, buddy diving	Use. buddy to disengage
WRECK PENETRATION	all	2	2	4	Use distance lines, careful finning, finger walking, monitor gas. Avoid contact with silt.	Stop. Look for blue window. Follow line.
OXYGEN TOXICITY	all especially nitrox	3	2	6	Monitor depth. Planning, gas analysis, cylinder labelling, adhere to plan and MOD	Ascend. Buddy to assist to surface.

Hazard	Who	Severity 1-3 (a)	Likelihood of Risk 1-3 (b)	Evaluation (a * b)	Controls	Action to be taken in the event
PROPELLER INJURY	all	3	1	3	Only enter water on command from cox. Care returning to boat esp. in tidal streams	Rescue diver
LAUNCH AND RECOVERY OF RIBS	all	2	2	4	To be briefed and supervised by cox. Dry run in sheltered conditions. Boat manager to organise team	DM to monitor performance

Qualifications of divers on trip



Tide times

Sunday 26th May	Monday 27th May	Tuesday 28th May	Wednesday 29th May	Thursday 30th May	Friday 31st May	Saturday 1st June
05:57 0.2m	00:48 0.9m	01:29 0.9m	02:17 0.9m	03:08 0.9m	04:03 0.8m	05:03 0.8m
11:22 0.9m	06:46 0.2m	07:32 0.1m	08:24 0.2m	09:18 0.2m	10:18 0.3m	11:24 0.3m
17:16 0.1m	13:09 0.9m	13:58 0.8m	14:49 0.8m	15:45 0.8m	16:45 0.7m	17:55 0.7m
	19:04 0.2m	19:51 0.2m	20:41 0.3m	21:36 0.3m	22:36 0.4m	23:47 0.4m

Sunday 2nd June	Monday 3rd June	Tuesday 4th June	Wednesday 5th June	Thursday 6th June	Friday 7th June	Saturday 8th June
06:11 0.8m	00:59 0.4m	01:08 0.4m	01:07 0.4m	01:57 0.3m	04:33 0.3m	05:11 0.8m
12:34 0.3m	07:21 0.7m	08:27 0.7m	09:25 0.8m	10:10 0.8m	10:51 0.8m	11:29 0.8m
19:08 0.7m	13:45 0.3m	14:44 0.3m	15:30 0.3m	16:12 0.3m	16:50 0.3m	17:29 0.3m
	20:16 0.7m	21:10 0.7m	21:56 0.8m	22:36 0.8m	23:48 0.8m	23:48 0.8m