

# The British Sub-Aqua Club



## National Diving Committee Diving Incidents Report 2017

*Compiled by*

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## Introduction

This booklet contains the 2017 Diving Incidents Report, produced by British Sub-Aqua Club (BSAC) in the interest of promoting diving safety. It is important to note that it contains details of UK sports diving incidents occurring to divers of all affiliations, plus incidents occurring worldwide involving BSAC members.

The 2017 'Incident Year' ran from 1<sup>st</sup> October 2016 to 30<sup>th</sup> September 2017.

### Report Format

The majority of statistical information contained within this report is also shown in graphical form. Please note that all statistical information is produced from UK data only and does not include Overseas Incidents unless noted as 'All Incidents'.

The contents of this report are split into an overview of the year, and then the details of nine incident categories plus some historical analyses. The various sections can be found as shown below:-

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Within each category the incidents are listed in the order of their occurrence, not necessarily that of Incident Reference. They are laid out in the following form:

<i>MONTH/YEAR OF INCIDENT</i>	<i>INCIDENT REF.</i>
Brief Narrative of Incident.....	
.....	

The nature of many diving incidents is such that there is usually more than one cause or effect. Where this is the case the incident has been classified under the more appropriate cause or effect. For instance an incident involving a fast ascent, causing decompression illness, will be classified under 'Decompression Incidents'.

*Brian Cumming, Jim Watson*  
*BSAC Diving Safety and Incidents Advisors,*  
*October 2017*

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## Acknowledgements

Data for this report are collected from many different sources. We would like to extend our thanks and appreciation to the following for their assistance in its production and in ensuring its completeness:

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Lizzie Bird for data input  
Dr. Yvonne Couch for proof reading this report  
and, in particular, all of those divers and other sources who have taken the trouble to complete Incident Reports and share their learning experience with others.

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## Overview

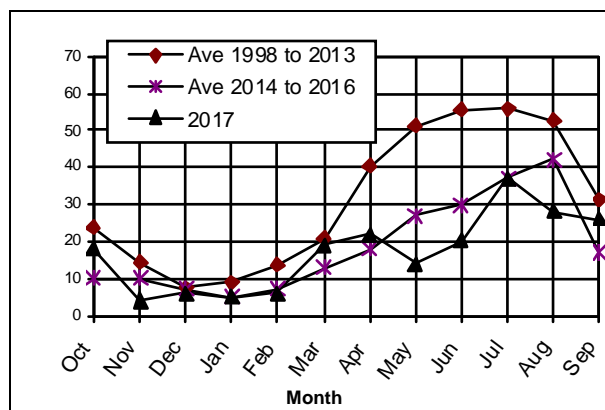
**2017** has seen 205 UK diving incidents reported, although operational changes meant that we have not yet received data from the RNLI, which would have added further records. This is a similar number to the 226 and 228 reported in 2015 and 2016 respectively. In the years 2006 to 2011 the number of incidents reported had been fairly consistent at around 370 per year. From 2011 to 2014, the number of reported incidents declined by approximately 60 reports per incident reporting year and now this decline may have plateaued.

The decline of incidents seen in recent years could be explained by less diving, less incidents or less reporting, or a combination of any of these factors. For reasons explained later in this report, we believe that this decline is unlikely to be due to an overall decline in the reporting of incidents.

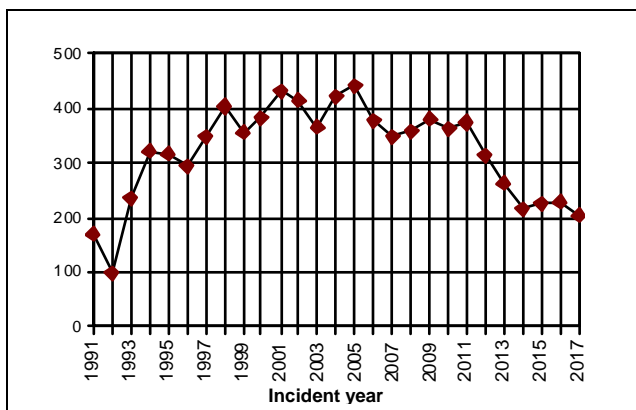
We continue to highlight a potential need for increasing awareness of the medical condition of immersion pulmonary oedema. We believe that there may be underlying evidence of this condition within the reports that could go some way to explain the recent trends seen within the fatality data.

of incidents is significantly changing and further analysis is still required to determine what the key influencing features behind this changing trend are.

Number of incidents by month



Number of reported incidents



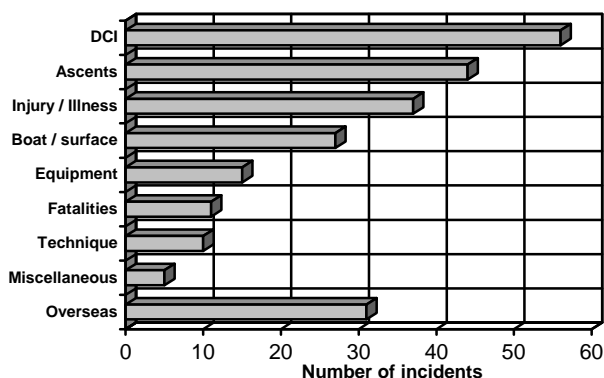
The significant fall in incident numbers appears confined largely to the months of April through July, which indicates that a decline in incident reporting is unlikely to be the root cause of the overall decrease in incidents.

It is to be expected that the total for September is lower than reality as a result of the time that it takes for reports to reach us. The cut-off period is now extremely tight because of the timing of the BSAC Diving Conference and this partially explains the drop in August and September. Reports received post cut-off are included in the database for future research purposes but they are not included in the annual report.

### Incidents by category

The incident database assigns all incidents into one of nine major categories, and the chart shows the distribution of the 2017 incidents into those categories.

Categorisation of the year's incidents



### Incidents by month

Between 1998 and 2013, the distribution of incidents by month follows a sinusoidal form with the lowest number of cases in December and January, which rises initially in March or April depending on when Easter falls and then to a peak in June and July.

In 2014 to 2016, the expected rise in incidents during spring and early summer (April to July) was absent. To illustrate this, we previously charted the average number of incidents reported per month in the years from 1998 to 2013 to provide a view of the 'normal' picture. This year we have combined the data for 2014 to 2016 and compared this with the number of incidents reported in 2017.

Previously we proposed that it was possible that divers are being more careful at the beginning of the diving season and heeding the advice given over many years to start slowly after the winter break. The reoccurrence of similar patterns in 2015 and 2016, with significantly lower incidents in April to July inclusive provides more evidence that the pattern of occurrence

The largest category of incidents in 2017 was for DCI, with 56 reported incidents, a reduction from the 75 incidents reported in 2016. In part this decline may be explained by the absence of RNLI data due to system changes.

'Ascents' have increased from the fourth highest category to second. This category involves incidents where divers have made an abnormal ascent but avoided DCI or other injury. This category peaked in 2006 and has been steadily falling since that time. In 2017, an increase in the number of 'Ascent' related incidents, 44, was reported. A further 6 ascents (19 in 2016) were reported which led to an outcome of DCI, hence they are included in the DCI category. A lot of effort has been put into improving diver buoyancy control and these numbers reflect the beneficial changes that have been made but the emphasis needs to continue.

The next largest category is 'Illness and Injury' with 37 incidents reported. The bulk of this category is thought to be cases of DCI. Unfortunately it is often not possible to distinguish cases of DCI from other diver ailments due to insufficient information being available.

Incidents involving 'Boating and Surface' events had been falling progressively since the late 90s. This year 27 boating and surface incidents were recorded which is a decrease of thirteen on last year. This category mainly comprises of problems with boat engines (33%) (engine failure and out of fuel) and lost diver(s) (66%).

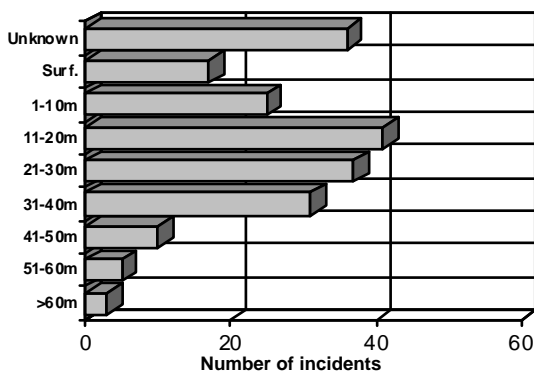
The last category to be mentioned specifically is 'Fatalities' and although the numbers are relatively small it is, of course, the most serious. This year saw 11 diver fatalities; the same as reported in 2016 and 2 more than reported for 2015, which represented the lowest number for over 20 years.

More analysis on these key incident categories is given later in the report.

**Incident depths**

The following chart shows the maximum depth of the dives during which incidents took place, categorised into depth range groupings.

Maximum depth of dive involving an incident



The pattern of depths in the 0m to 50m range is very similar to that normally seen and reflects the amount of diving that takes place in these depth ranges. Incidents involving dives deeper than 50m range are usually more serious and contain a disproportionate number of fatalities. This year there were eight reported incidents involving dives to depths greater than 50m and one involved a fatality. In a further two fatalities the depth of the dive is currently unknown. It remains the case however that such deep dives are serious undertakings and an incident could have serious implications so we repeat the following advice.

BSAC advises that no air dive should be deeper than 50m, and that dives to 50m should only be conducted by divers who are appropriately trained and qualified.

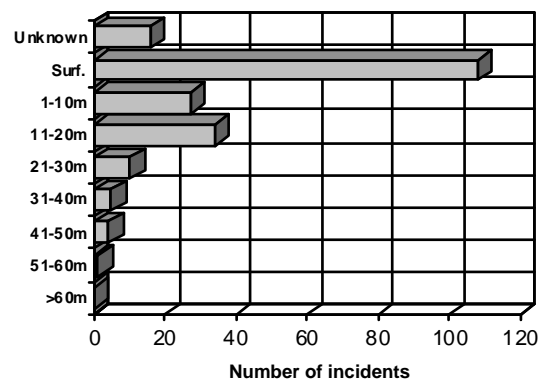
The recommended limit for divers trained to Sports Diver standard is 35m and then only when they have received appropriate training for diving at this depth.

BSAC recommends that helium mixtures should be considered as an option for depths deeper than 40m and that mixed gas diving should be to a maximum depth of 100m. Mixed gas dives should only be conducted when the diver holds a recognised qualification to conduct such dives.

See the BSAC website for more details of these and other diving depth limit recommendations.

Incidents do not always occur at the deepest point of the dive. The next chart shows the depths at which incidents started.

Depth at which an incident started

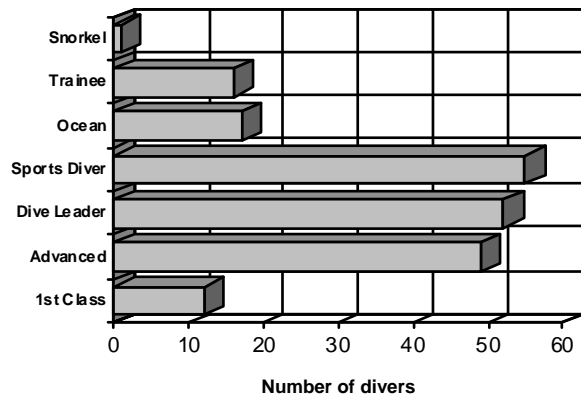


Inevitably these data are biased towards the shallower depths, since many incidents start during the ascent or at the surface. Critical among these are the DCI cases where, almost always, symptoms present when the casualty is out of the water. This partially explains the large occurrence of 'Surface' cases as this includes divers with DCI who have left the water. Other surface incidents involve boats and boating incidents and divers who are lost but on the surface. The depth profiles are consistent with previous years.

**Diver qualifications**

The next two charts show the qualification of those BSAC members who were involved in reported incidents. The first looks at the diver qualification.

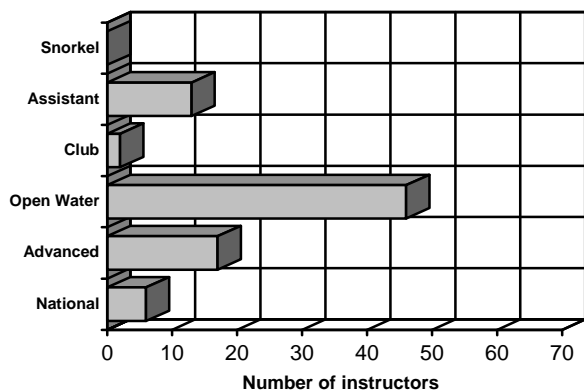
Qualification of the divers involved in incidents



These data are in line with the normal pattern of previous years and are thought to reflect the number of active divers in these qualification grades.

The next chart shows an analysis of incident by instructor qualification and again it is consistent with previous years. The only exception to this is the number of assistant instructors recorded. In analysing the 2016 data we identified an anomaly in the system that due to a change in the name of assistant instructors we had previously significantly under-reported their involvement

**Qualification of instructors involved in incidents**

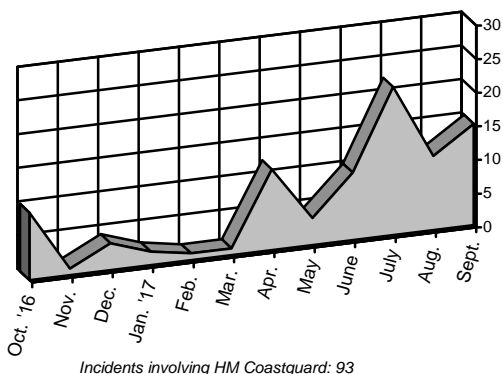


In 2014, there were no Club Instructors featured in the incident report and the plan was to drop this category from the incident report, however four instructors of this category were involved in incidents in 2015 and one in 2016 and two this year. The involvement of each grade of instructor in incidents is probably a reflection of both the number of instructors with that qualification and the activity levels of these instructors.

**Divers' use of the Emergency Services**

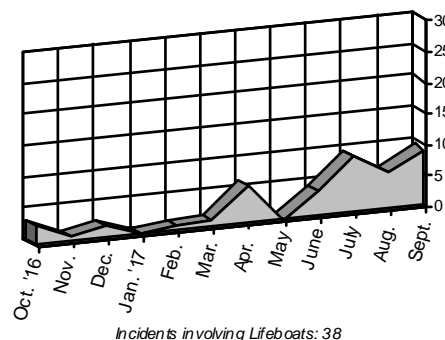
Divers' use of the emergency services shows a monthly distribution aligned to the distribution of all incidents, and is clearly correlated with the number of dives that are taking place.

**Incidents involving the UK Coastguard Agency - Monthly breakdown**



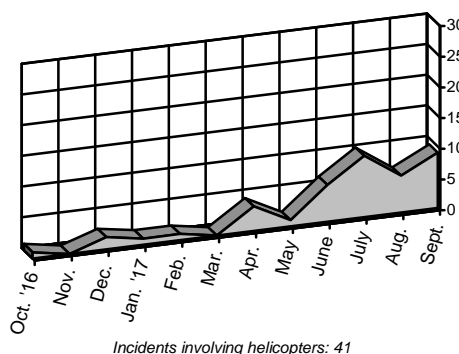
The total number of incidents involving the Coastguard was 93 (2016 total was 94) and there were 38 incidents reported that involved the RNLI (2016 total was 58). We believe that one explanation for the variation in the number of RNLI reports was the absence of RNLI data mentioned earlier. The RNLI's main support to divers involves assistance with disabled boats, searching for missing divers and the recovery of divers with DCI. Both the RNLI and the Coastguard data reflect the change in incident reporting pattern seen in the April to July period post 2012 as discussed earlier.

**Divers' use of RNLI facilities by month**



In 2017, 41 incidents involved the use of helicopters, a reduction of 19 over 2016. In diving related incidents, helicopters are mainly tasked to support searches for missing divers and to transport divers with DCI to recompression facilities. The decrease in helicopter use is reflected in the decreases in DCI cases reported in 2017.

**Divers' use of SAR helicopters by month**



**Fatalities**

11 fatal incidents occurred in the UK during the 2017 incident year. In 2015 we reported 9, the lowest number for over 20 years. The previous ten year average for all UK fatalities is 13.2 fatalities per year. However, when assessing these numbers the reduction in BSAC membership and the believed overall reduction in UK diving must be taken into account.

2 of the 2017 fatalities were BSAC members. The previous ten year average for BSAC fatalities in the UK is 6.1 fatalities per year.

9 of the year's fatalities were non-BSAC members. The previous ten year average for this group is 7.1.

Key factors associated with the 2017 fatalities can be summarised as follows:-

- Ten of the fatalities in 2017 involved divers aged between 36 and 72 with an average age of 55 (in one case the diver's age is unknown). This continues the previously identified trend and is discussed further in this report.
- Seven of these cases involved the casualty falling unconscious under the water. In all these incidents, where a casualty falls unconscious underwater, the rescue becomes much more problematic.
- At the time of writing there has been no confirmation that any of the reported fatalities were from medically related problems. However, there is a strong indication that medical

factors could be implicated in at least six of these incidents and two of the remainder have insufficient information to make that assessment. Notably, in the view of the authors, there seem to be indicators that immersion pulmonary oedema (IPO) may be a contributory factor in five of these fatalities.

- Two cases involved divers diving in a group of three or more. Diving in groups of three (or more) brings additional complexity to a dive and can generate problems that don't exist with pair diving. However, it is not clear whether trio diving directly contributed to these fatalities. BSAC recognises that, at times, it is necessary to dive in a group of three.
- Only one case is known to have involved a rapid ascent. This fast ascent may not have directly contributed to the fatality.
- Six cases involved a separation of some kind and two of these separations happened in a case where more than two divers were diving together.
- There were two cases of a solo diver; one using an open circuit set who had commenced the dive alone with two snorkelers nearby. The second involved a lone snorkeler. There is insufficient information available to understand the cause of either incident.

Often multiple causes are involved in an incident. With all 11 of these fatal incidents there is currently insufficient information available to be clear about the exact chain of events and specific root causes. Often new information comes to light (from coroners' inquests for example) after the publication of this annual report. Such information is added to the incident database for future research purposes.

### Decompression incidents

The BSAC database contains 56 reports of 'DCI' incidents in the 2017 incident year, some of which involved more than one casualty. An analysis of the causal factors associated with the 56 incidents reported in 2017 indicates the following major features:-

- 45% involved diving to deeper than 30m
- 41% were within the limits of tables or computers
- 41% involved repeat diving
- 11% involved rapid ascents
- 7% involved missed decompression stops

Some cases involved more than one of these factors. Given that 41% of DCI cases arose from dives reported to be within decompression limits, divers should be alert for DCI symptoms arising from any dive.

The number of reported DCI incidents appears to be indicating a levelling off of incident numbers for DCI following the downward trend previously seen between 2009 and 2013. We know that we do not capture all of the DCI related incidents but the sample that is captured in this report is sufficiently large to develop a good understanding of the underlying causal factors. As stated earlier, some of the 'Injury and Illness' incidents are also thought to be DCI related.

### Boating and Surface incidents

The number of incidents involving boating and surface issues reported in 2017 was 27. The factors associated with these incidents are as follows:-

- 81% involved lost diver(s)
- 22% involved engine problems
- 15% involved boat problems
- 4% involved bad seamanship

Some cases involved more than one of these factors. The number of lost divers (separated from their party but subsequently safely recovered) has shown a slow decline since

the beginning of the century. The big change in this category has been in 'Boat and Engine' problems where a reduction of close to 70% has taken place during the same period. Just 10 such cases were recorded in 2017; the lowest number since our records began. However, the absence of RNLI data may well explain the significant reduction in the boat related problems this year and the consequent relatively high percentage of reports involving missing divers.

### Ascent related incidents

Ascent related incidents had been falling in recent years with 31 such cases reported in 2016. However, this year there were 44 cases reported, an increase of 13. Future years will tell us if this is a changing trend or a simple anomaly in the data. As in previous years the majority, 18, of these were 'rapid ascents'.

An analysis of these 'rapid ascents' (where the detail is known) is as follows:-

- 82% Panic / anxiety / rush for surface
- 73% Poor buoyancy control
- 36% Weighting or weight related issues
- 36% Equipment problems
- 27% Delayed SMB problems
- 27% Out of air / gas
- 9% Drysuit/BCD control malfunction/mis-use
- 9% Free flows

A significant number of reported fast ascents were due to panic and a rush for the surface and buoyancy control issues continue to feature. This year however we have not seen the same high level of weighting issues featured.

Many DCI cases also are associated with a fast ascent; however even though they have been recorded under the 'DCI' heading the causal factors are the same, so the actual number of fast ascents recorded will be higher than these 44 cases. This year's DCI cases included 6 incidents where rapid ascents had also taken place.

### Immersion Pulmonary Oedema (IPO)

We have previously highlighted in this report the growing belief that instances of IPO in divers may not be as rare as previously considered (see 2016 report). In this year's reported incidents there are 2 cases from overseas where a diver was recovered from the water and survived thanks to the actions of other divers. In both instances the diver was confirmed to have suffered from IPO. Additionally, we have identified a further 13 incidents where IPO is suspected of being a factor. We aim to review these incidents further with the assistance of an expert to try and confirm or discount these cases. Of these 13 additional incidents, 12 were in the UK and 5 were fatalities. There is the potential that future coroner's inquests may also provide further confirmation.

At the 2017 BSAC Diving Conference, Dr Peter Wilmschurst stated that IPO is probably the most common cause of death during sub-aqua diving and triathlons; he pointed out that two thirds of triathlete fatalities occur during the swim phase of the event. He said that the precise numbers are not known because it can be easily mistaken for drowning. Dr Wilmschurst said that IPO can affect the super-fit, but that high blood pressure, undiagnosed heart disease and the normal effects of ageing are exacerbating factors. Cold water and exertion increase the likelihood of an IPO occurring and he also stated that divers should avoid excessive hydration before a dive. This runs counter to prior advice to be well hydrated before a dive to reduce the potential for DCI, which he said was unproven and probably of limited effect.



In light of this developing body of information we believe it is increasingly important for divers to be aware of factors that could indicate IPO which include:-

- Divers with breathing difficulties when not exercising particularly strenuously. Breathing difficulties may be indicated by rapid, uneven or heavy breathing, or coughing uncontrollably.
- Confusion, swimming in the wrong or random directions.
- Inability to carry out normal functions, whilst appearing to have to concentrate on breathing.
- Belief that a regulator is not working properly.
- Indication of 'out of gas' when their regulator(s) are found to be working correctly and with adequate gas supplies.
- Divers refusing or rejecting an alternate source when 'out of gas'.
- Indication of difficulty of breathing when on the surface.

Examples of one or more of these can be found in the reports of diving incidents which follow.

Advice from the medical experts at this time is that if you experience breathing difficulties underwater you should terminate the dive and ascend safely and exit the water. If you recognise any of the above factors in a buddy then assist them from the water as quickly as it is safe to do so. Once out of the water the casualty should sit, be given oxygen and medical advice sought.

## Conclusions

Key conclusions are:-

- The suspected reduction in the overall amount of diving taking place must be taken into consideration when assessing any trends.
- The number of incidents reported this year is very slightly down on 2016 but in part this may be due to the absence of data from the RNLI due to operational changes.
- The monthly reporting trend follows the unusual pattern identified over the previous three years with significantly lower numbers of incidents reported in April, May, June and August but similar numbers of incidents reported in the late summer and winter.
- The absence of the normal spring and early summer peak merits further analysis to understand the reduction in incidents at this time of year.
- The eleven fatalities in the UK are lower than the average (13.2) for the previous 10 years.
- The two fatalities of BSAC members is lower than the average of the previous 10 years (6.1).
- The nine fatalities of non-BSAC members is above the average (7.1) of the previous 10 years.
- The number of medical cases in divers aged over 50 is unconfirmed so far but there are strong indications for likely medical causes including immersion pulmonary oedema; the average age of the fatalities is 55.3.
- There were two overseas incidents where the casualty was subsequently confirmed to have been suffering from IPO but were saved by the action of others. 13 further incidents have been identified where IPO is suspected of being a factor and these will be investigated further.
- Diver age and potential related health and fitness issues are still featuring and may be critical factors in this and recent years' fatalities.
- Incidents of DCI have shown a reversion to levels of recent years and this may illustrate a levelling off of these incidents. The numbers remain lower than the number of DCI cases per year in the period 2000-2010.
- In 2017, there were a number of serious incidents, including one fatality, arising from dives of 50m or more depth.
- Panic and lack of buoyancy control were the main factors in rapid ascent incidents.

As has been stated for over fifty years in our annual report, most of the incidents reported within this document could have been avoided had those involved followed a few basic principles of safe diving practice. BSAC publishes a booklet called 'Safe Diving' which summarises all the key elements of safe diving and is available to all, free of charge, from the BSAC website or through BSAC HQ.

Remember you can never have too much practice and the further you stay away from the limits of your own personal capabilities the more likely you are to continue to enjoy your diving.

Please browse through the details in this report and use them to learn from others' mistakes. They have had the courage and generosity to record their experiences for publication, the least that we can do is to use this information to avoid similar problems.

Finally, if you must have an incident please report it using our Incident Report form, available free via the BSAC website or from BSAC HQ.

As always, your anonymity is assured – great care is taken to preserve the confidentiality of any personal information recorded in BSAC Incident Reports.

## Fatalities

### October 2016

**17/006**

The Coastguard received a 'Mayday' call from a dive boat reporting a diver on the surface who had suffered a medical episode prior to carrying out a shore dive. The boat returned to shore but the diver was pronounced deceased by a doctor on the scene. (Coastguard report).

### April 2017

**17/059**

A group of divers were carrying out a boat dive looking for seals. The requested depth was between 5m to 10m but if any further depth was required it was to be to a maximum of 15m. The divers entered the water but after 15 min and with no sign of any seals, one of the divers and his buddy surfaced. They looked over to the boat and saw a diver at the stern of the boat. The boat moved forward, stopped and then moved to pick up the diver and his buddy. Back aboard the diver was informed that one of a buddy pair in the group had become separated due to a problem he had with his suit inflator and the current flowing on the site. His buddy had surfaced briefly and then re-descended. The diver was recovered but there was no sign of his buddy. The boat's skipper called on other vessels in the area for assistance in the search but after approximately half an hour he advised the Coastguard of the situation and a 'Mayday' was issued. A major search was instigated involving four lifeboats and two helicopters. Some of the divers aboard the dive boat wanted to re-enter the water but the Coastguard advised against this. Another dive boat in the area had eight divers aboard and near slack water they entered the water where the buddy had last been seen. After approximately half an hour one of the divers found the buddy trapped against some rocks with her suit inflated. It appeared that she had tried to de-kit underwater but still had one of her BCD straps across her chest. The buddy was recovered to the second dive boat, received medical attention but was declared deceased at the scene.

### June 2017

**17/117**

The Coastguard picked up a 'Mayday' call from a dive boat reporting that one of their divers had been down to 80m and made a rapid ascent. The diver was reported to have surfaced, with a dive time of 20 min, unconscious and bleeding from the mouth. The diver was given CPR by fellow members of the dive boat crew and airlifted by a search and rescue helicopter to hospital but was pronounced deceased a short time later. An all-weather lifeboat proceeded to the scene to assist the dive boat in recovering the remaining divers and escorted it back to shore. (Coastguard report),

### June 2017

**17/122**

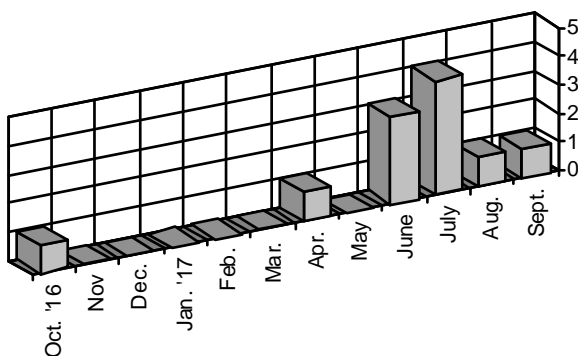
During an annual island diving expedition a diver had carried out a morning RHIB dive on a wreck reaching a maximum depth of 34m and a dive duration of 33 min including a 2 min stop and a 3 min safety stop, both at 6m. During the 5 hour surface interval the diver had lunch and slept out of the sun under a tree. The diver had a different buddy, who had carried an identical first dive to that of the diver, for the second RHIB dive which was on a shallow reef with seals. The diver's buddy from the first dive had completed the second dive, been recovered aboard the RHIB and took over as cox'n. He saw the diver surface about 30m away on a DSMB and give a clear 'OK' signal which he acknowledged. He went to pick the diver up but by the time he reached him, in around 30 sec, the diver was unconscious and low in the water. The cox'n leant over and put air in the diver's BCD but he was unresponsive. The diver was recovered aboard the RHIB in his full kit and the Coastguard alerted with a 'Mayday' call. The diver's computer had logged his dive to a maximum depth of 10m with a dive duration of 45 min including a 3 min safety stop at 6m. The diver was de-kitted and oxygen enriched CPR given over the next 30 min until a lifeboat arrived with two doctors and paramedics aboard. The diver was transferred to the lifeboat which made full speed towards the mainland and at 11 nm from the scene the diver was evacuated from the lifeboat by a rescue helicopter and taken to hospital but he did not survive.

### July 2017

**17/136**

A group of six divers, four using rebreathers and two using open circuit with one on trimix, carried out a hardboat dive on a wreck. A maximum 1 hour runtime was agreed with the skipper and all buddy checks, gas and computer checks and pre-breathes were carried out. The divers were split into two groups and a diver from the first group descended, tied the shot into the wreck, checked conditions and sent up a signal buoy as an 'OK' for the dive to go ahead. The first group carried out their dive and ascended completing their decompression with a run time of 50 min to a maximum depth of 45m. The second group, three on rebreathers carrying two bailout cylinders of air and nitrox 50, and one on open circuit trimix entered the water but the trimix diver experienced a flooded suit so aborted the dive. The three rebreather divers continued the dive and descended but at some point one of the group became separated from the others and was the first to surface using the shotline and was recovered by the boat. Two DSMBs arrived on the surface and it was assumed these were those of the two other divers. The skipper went to recover the shot but this was interrupted when only one diver surfaced with his DSMB. The diver reported that he and the third diver had deployed their DSMBs and begun their ascent after becoming separated from the first diver. During the ascent the third diver had let go of his DSMB and moved to grab the other diver's arm. The diver asked him if he was 'OK' and received an 'OK' in response although he did not seem it. The third diver then let go and slid off the diver's arm and sank down to the seabed where he was unresponsive, his

### UK Fatalities - Monthly breakdown from October 2016 to September 2017 incl.



### June 2017

**17/120**

Emergency service crews from the Coastguard and Police were called after concerns were raised about a snorkeller who had gone into the water but had not been seen for an hour. A rescue helicopter and private vessels were involved in the search. The Coastguard found the snorkeller and he was airlifted to hospital but died. (Media report).



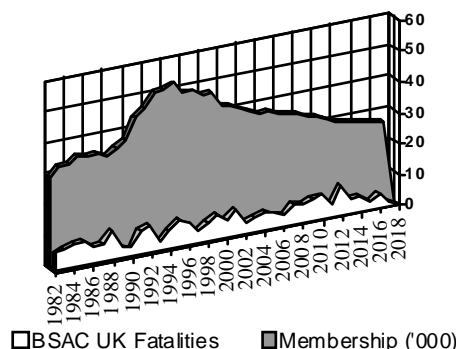
loop was out of his mouth and he appeared deceased. The diver tried to lift the third diver but he remained negatively buoyant and the diver was unable to raise him to the surface. He tied him to the shotline and made the decision to go up for help. He ascended, completed decompression and surfaced in a distressed state shouting for help. The boat picked him up, the diver calmed down and with the facts established the Coastguard was contacted. One of the rebreather divers re-filled his twin-set by decanting and after around 30 min on the surface he returned to the wreck to search unsuccessfully for the missing diver as he was no longer tied to the shotline. During this time the Coastguard had scrambled lifeboats and a search and rescue helicopter. The surface search, including a number of diving and fishing vessels, was carried out for about three hours and the police also conducted an underwater search with divers and sonar. Although an extensive search was made by all involved the diver was not located and the search stood down. An offshore lifeboat was tasked to continue a larger search over the next two days and covered approximately 180 nm. Inshore lifeboats and dive boats also returned to the scene. Eight weeks later police confirmed that they had recovered a body from the sea thought to be that of the missing diver.

decompression stops. The diver was reported to have frantically attempted to remove his equipment on the final stage of his ascent, surfaced alone and lost consciousness. When the rescuer reached the diver his equipment just fell away leaving just the buoyancy of his drysuit. The diver was airlifted to hospital and subsequently pronounced dead.

**July 2017** **17/133**

Police requested the Coastguard's assistance to search for a missing diver who had carried out an evening shore dive at an inland dive site. It was reported that the diver had appeared to be in difficulties and had been missing for an hour. Police, firefighters and two Coastguard teams attended the site and divers and a helicopter searched the water as darkness fell. The following morning the search was resumed at first light and divers found and recovered the diver's body. (Coastguard report).

**BSAC Fatalities against membership 1982-2017**  
**(UK fatalities only)**



**July 2017** **17/151**

The Coastguard received a 'Mayday' call from a dive boat requesting assistance. A diver had surfaced from a wreck dive, had not felt well, collapsed, was unconscious and not breathing. A helicopter was tasked to the scene. Oxygen enriched CPR had been given by the boat crew as well as a helicopter paramedic crewman. The helicopter evacuated the diver to hospital at which point he had a pulse but he was pronounced deceased the following date. (Coastguard report).

**August 2017** **17/180**

A diver using a rebreather and his buddy carried out a boat dive 12 miles offshore to a wreck in a depth of approximately 30m. During the ascent, the pair became separated and 1 hour after entering the water the diver's DSMB was sighted but he did not surface. The buddy surfaced and was safely recovered. The dive boat reported the overdue diver to the Coastguard who tasked a rescue helicopter, three lifeboats and some passing merchant vessels to search the area. The diver's DSMB was recovered with the reel attached wrapped around the shotline. The diver was reported to have been carrying an AIS locator beacon but no activation was detected. The extensive search continued overnight and into the following morning in calm conditions with good surface visibility but the search was called off later that afternoon. The dive boat had returned to the site that morning with divers to carry out an underwater search but they did not find the missing diver. (Coastguard report).

**July 2017** **17/167**

A diver using nitrox 32 carried out a wreck dive from a boat with two buddies. The dive plan was to a maximum depth of 24m with a bottom time of 35 min and a total run time of 45 min. The diver was using twin 12 lt cylinders and a side slung decompression cylinder with nitrox 80. The group ascended but were separated on the surface due to strong currents. The instructor and one student let go of the ascent line and inflated their SMBs. The instructor tried to tell the diver (the casualty) to let go of the line, too. The dive boat picked up the instructor and one student. The instructor told the skipper to get back to the shot line where he expected to find the casualty. They arrived at the line and the instructor got back in the water where he found the casualty on the surface without mask and regulator, face down and unconscious. The casualty was brought onto the boat and CPR with oxygenated air attempted. This was between 10 to 15 min after the group surfaced. A helicopter was called and the winchman arrived on the vessel approximately 10 min after CPR was started. He took over and tried to revive the casualty. The skipper believed the diver had completed all required

**September 2017** **17/194**

The Coastguard was alerted by a 999 call reporting a diver in the water shouting for help. The diver was recovered to shore by two snorkellers who had been with him, who commenced CPR, as the diver was unresponsive. The Coastguard tasked a rescue helicopter HEMS, two lifeboats and a Coastguard rescue team to the scene to assist the casualty, and search for any further divers in the water. The diver was taken to shore and transferred to a waiting ambulance and taken to hospital where he was pronounced deceased. It was reported that the snorkellers had been family members and the diver was diving alone. He had been suffering from breathing difficulties for approximately 3 months, and it was believed he had been advised not to continue diving. (Coastguard report).

## Decompression Incidents

### October 2016

17/034

A Coastguard helicopter was tasked to assist and transfer a diver with DCI to a recompression chamber. (Coastguard report).

### October 2016

17/035

The Coastguard received a 999 call from a member of the public who reported that her husband on a diving RHIB was taking a diver with spinal DCI to a local lifeboat pier. The lifeboat, which had been on the way back from another incident assisted with the transfer of the diver from the RHIB to a waiting ambulance which took the diver to hospital. (Coastguard report).

### October 2016

17/036

A dive boat contacted the Coastguard reporting they had a diver aboard with suspected DCI. An ambulance and Coastguard rescue team were tasked. An ambulance conveyed the diver to a recompression chamber for treatment. (Coastguard report).

### October 2016

17/011

Four divers on a RHIB carried out a dive to a wreck in 35m. The first pair descended a shotline to the top of the wreck at 15m and then made their way to the seabed at 35m. They followed the wreck to the bow which they then ascended and swam back along the wreck to the shotline. One diver had an indicated 4 min bottom time left and his buddy had 3 min. They ascended slowly, made a 4 min decompression stop at 6m, surfaced and were picked up by the RHIB. They helped the other buddy pair kit up for their dive and they entered the water. The divers tidied up the boat for a few minutes when one of them suddenly experienced painful stomach cramps and wind. 3 to 4 min later the diver had a 'tingling' sensation in both his feet which moved up both legs to his waist and he was unable to stand up. The preceding day the diver had completed a dive to 28m for a total duration of 36 min including a 3 min stop at 6m. The diver immediately put himself on oxygen and, with VHF radio problems, tried to contact a dive boat approximately half a mile away as well as the Coastguard. The dive boat called the Coastguard to report the RHIB, with two people aboard, was proceeding back to harbour with a diver requiring immediate medical attention. The dive boat subsequently recovered the other pair of divers once they surfaced. A lifeboat was tasked to intercept the RHIB to provide medical assistance and help in transferring the diver ashore. An ambulance had been arranged and the diver was taken to a hyperbaric chamber where he received recompression treatment. The diver was advised not to dive again until the possibility of a PFO had been investigated. The diver reported that in the last twenty or so years of diving he had never incurred decompression stops and had always dived on air. However, in the last few years he had experienced skin rashes in small patches and 'tingling' in his arms after most dives but had put this down to his age and exertion prior to diving. He also reported that his computer, which was showing low power, was fitted with a new battery the following day.

### October 2016

17/003

The Coastguard was contacted by a dive boat who reported they were returning to shore with a diver who was showing signs of DCI following a rapid ascent. The diver was reported to have carried out a dive to a maximum depth of 40m with a dive time of 43 min. The boat was met by a waiting ambulance which transferred the diver to a recompression chamber. The diver's buddy accompanied him as a precaution but was not showing any symptoms. (Coastguard report).

### October 2016

17/037

A dive boat called the Coastguard reporting a diver with DCI. Details were taken and passed to a hospital which arranged an ambulance and alerted the hyperbaric chamber. The ambulance met the dive boat and transferred the diver to hospital. The diver had reportedly carried out a dive to a maximum depth of 40m with a dive duration of 70 min. (Coastguard report).

### October 2016

17/038

The Coastguard received a call from a dive boat reporting a diver with suspected DCI following a dive to a reported maximum depth of 39m. A hyperbaric chamber was alerted and the vessel headed to harbour. Due to a delay in an ambulance meeting the dive boat, the diver was transferred to the chamber by car. (Coastguard report).

### October 2016

17/012

A diver had carried out a boat dive to 21m with a dive duration of 50 min including a 3 min stop at 6m. After a surface interval of 2 hours the diver carried out a second dive to 24m with a dive duration of 40 min including a 1 min stop at 11m and a 3 min stop at 6m. Approximately two hours after surfacing the diver developed itchiness on his upper chest which quickly developed into itchiness across his upper chest and stomach accompanied by a rash and pain. On advice the diver contacted a hyperbaric chamber who told him to attend. After an initial check the diver received recompression treatment.

### December 2016

17/020

A trainee carried out his first two shore dives in December with a water temperature of 10 deg C. The first dive was to a maximum depth of 13m with a dive duration of 45 min and, following a surface interval of 1 hour 44 min, the second dive was to a maximum depth of 8m with a dive duration of 58 min. That evening the trainee rang his instructor and reported he had a sore wrist. The instructor suggested that the trainee call a hyperbaric chamber and the trainee came back to him saying that the diving doctor would speak to him the following morning. The trainee rang the instructor that evening to say he had received recompression treatment as he had a rash on his upper chest. The trainee had another session of recompression treatment the next day.

### December 2016

17/041

A Coastguard helicopter transferred a rebreather diver from a dive boat to a hyperbaric chamber. The diver was reported to have carried out a wreck dive to a maximum depth of 110m for 240 min. (Coastguard report).

### January 2017

17/030

A diver carried out a shore dive with two buddies and prior to the ascent inflated his DSMB at 16m using his exhaled air. He took a breath without purging the regulator and took in a mouthful of water. Unable to breathe and panicked, the diver made a fast ascent to the surface missing his decompression stops. His dive duration was 42 min to a maximum depth of 17m. The diver received recompression treatment.

### January 2017

17/052

A buddy pair carried out a winter shore dive. Both were using new drysuits and undersuits for the first time although both had used neoprene suits in the past. The divers carried out a slow and controlled descent on a shotline to a 6m platform and then to

12m to check buoyancy. They then moved slightly deeper and repeated the buoyancy checks. They decided to descend further to two underwater features and reached a maximum depth of 24m. After swimming around they ascended to 20m where one of the divers turned to look back at her buddy but she was not there. The diver looked around and saw her buddy about 2m above her. As the buddy was getting further away the diver began a controlled ascent until around 10m when she saw the buddy signalling to her from the surface so the diver ascended directly to surface with a dive time of 24 min omitting a 6m safety stop. She could not remember whether she vented her drysuit but her computer was giving audible warnings and showed 'Ceiling, 3.0'. The diver asked the buddy, who was pale and dazed, what had happened and she said she could not vent air from her drysuit quickly enough. The pair swam around 150m back to the shore and exited the water. The buddy appeared to have trouble de-kitting and the diver informed their dive manager who took them both to the first aid room on the dive site. At that point the diver felt fine but the buddy said she felt 'woozy' and her hands, which she couldn't feel properly, were 'tingly'. The buddy was put on oxygen and contact made with a hyperbaric chamber who asked that she be brought in if there was no change in her condition. Around an hour later the diver began to lose sensitivity in her hands and was also put on oxygen and the chamber informed that there were now two divers showing signs of DCI. Initially, with the air ambulance grounded, a road ambulance had been deployed but the first aid room were updated that a rescue helicopter was on its way. The pair were evacuated by the helicopter and taken to a hyperbaric chamber where they both received recompression treatment and were later discharged.

## February 2017

17/047

A dive leader and a student carried out two shore dives. The first was a training dive where they were accompanied by an instructor and a trainee so the instructor could teach the student and trainee and then allow the dive leader to lead the student, who was using an SMB, on an experience dive. On the first dive the dive leader's maximum depth was logged at 19m with a dive duration of 18 min including a 3 min safety stop at 6m and the student's maximum depth logged at 16m with a dive duration of 16 min. They had a surface interval of 1 hour 15 min during which there was mention of a loss of buoyancy by the student at the end of the dive and it had been cut short. The pair carried out a second dive to a maximum depth of 13m with a dive duration of 15 min with both carrying out a safety stop of 3 min at 6m. No issues were reported at the dive site regarding the dives but at the debrief held later in a pub the student was asked about his loss of buoyancy on the first dive. He stated that when asked about his air contents by the dive leader he started to ascend and once aware of this he had dumped air and managed to control the ascent to 6m but had still ascended to the surface. The dive was cut short at this stage and the student felt he had been under-weighted for the dive. Later that evening the student experienced 'tingling' in his fingers, aching in his left knee, elbow and hand. Two of the divers from the group travelled to the student's house with an oxygen kit ready to help with contacting a hyperbaric chamber. When they arrived the student was immediately put on oxygen and the chamber contacted. They advised the divers to get the student to the chamber as a matter of urgency. When they arrived, although having been on oxygen whilst travelling to the chamber which had reduced the student's symptoms, the doctor felt it prudent to give him recompression treatment.

## March 2017

17/065

Three divers carried out two quarry dives. The first dive was to a maximum depth of 35m with a dive duration of 20 min including a stop at 6m for 3 min. After a 2 hour 20 min surface interval they carried out a second dive to a wreck. Due to poor underwater visibility the divers missed the wreck and after swimming steadily

they came to a wall on the opposite side of the quarry. As their air was nearing the point where they should ascend they made a slow ascent up the wall to 6m where they carried out a 3 min safety stop. They surfaced having reached a maximum depth of 20m with a dive duration of 40 min. The divers swam back across the surface to their entry point, de-kitted and travelled home about two hours later. One of the divers developed a headache so took pain killers and water thinking he was slightly dehydrated. During the next couple of hours he developed an itchy scalp and arms with a loss of feeling in his right leg. The diver contacted another diver who advised him to speak to a hyperbaric chamber and describe his symptoms. The diver did so and was advised by the chamber to attend immediately. He was given recompression treatment and kept in hospital until the next afternoon when he was given further recompression treatment and then discharged. The diver was told not to dive for a month and to seek further medical advice.

## March 2017

17/058

A diver carried out three shore training dives. The first dive was to a maximum depth of 13m with a dive duration of 17 min followed by a surface interval of 23 min before the second dive to a maximum depth of 13m with a dive duration of 15 min including a stop at 6m for 3 min. After a surface interval of 2 hours 22 min the diver carried out her third dive to a maximum depth of 11m with a dive duration of 21 min including a stop at 6m for 3 min. The diver was wearing a semi-drysuit and was cold after the first two dives but wanted to do the third dive. She warmed up during the surface interval, had lunch, wore additional protective clothing for the dive and commented how much warmer she was. The diver returned home and, around three hours after surfacing from her last dive, her left arm began to feel uncomfortable when she was trying to have a nap and she wondered if she had wrenched it lifting kit. When the diver woke up two hours later her arm was still aching, she had a pain in her shoulder and a slight 'tingling' in her fingers. She contacted her instructor who arranged for her to be put on oxygen and contacted a hyperbaric chamber for advice. The diver, still breathing the oxygen, was taken to the chamber. She was assessed and diagnosed with DCI and received two sessions of recompression treatment. She fully recovered and was discharged the following day.

## March 2017

17/056

A day had been organised for members of a dive club to undertake a hard hat try-dive in a pool and a hyperbaric chamber dive. The group were split into two with the first group carrying out the hard hat dive first followed by the chamber dive and the second group carrying out the chamber dive followed by the hard hat dive in a pool. One of the divers in the first group did the hard hat dive to a maximum depth of 4m with a dive time of 10 min. The diver and the rest of the group had a lunch break and then he undertook the chamber dive reaching a maximum depth of 50m with a dive time of 35 min. The diver returned home feeling a bit tired and aching which he put down to a long day and the weight of the hard hat equipment. Later that evening he felt a pain in his left knee but put this down to climbing a ladder out of the pool in the hard hat's heavy equipment. Soon after he had a pain in his wrist, his left arm felt weak which was followed by a 'tingling' and numbness in his left arm and lower leg. The diver contacted a divers' emergency hotline and was called back by a hyperbaric doctor who suggested the diver had DCI. A local hyperbaric chamber called the diver, who was now feeling worse, and they told him to attend as soon as possible. The diver was assessed and given recompression treatment and his symptoms subsided except for aching in both thighs which was believed to be musculoskeletal in origin. He was discharged from the chamber and advised not to dive for four weeks. It was reported that the staff at the chamber who treated the diver were concerned that he had carried out the shallower dive first and that 88 tables had been used for the chamber dive. The 88 tables comment probably refers to the diver calculating his own

profile using the 88 tables during the chamber dive when the chamber's own protocols would have been followed.

**March 2017 17/084**

A day had been organised for members of a dive club to undertake a hard hat try-dive in a pool and a hyperbaric chamber dive. The group were split into two with the first group carrying out the hard hat dive first followed by the chamber dive and the second group carrying out the chamber dive followed by the hard hat dive in a pool. One of the divers in the second group did the chamber dive to a maximum depth of 50m with a dive time of 33 min. The diver and the rest of the group had a lunch break and then she undertook the hard hat dive reaching a maximum depth of 4m with a dive time of 8 min. The diver returned home but later that evening she had a bad headache and was in constant pain so took pain killers. She stayed in bed until mid-day the following morning still with a bad headache and pain in her hips and knees so took more painkillers. The diver went to work but that evening she could not see properly, was disorientated and still had pain in her legs. She contacted a local hyperbaric chamber who told her to attend straight away and during the journey it was noted that she had become confused, still had the headache and pains in her legs, knees and right foot. The diver was assessed at the chamber and given recompression treatment. She was discharged and advised not to dive for four weeks.

**March 2017 17/077**

A diver was on a shore diving training weekend and on the Saturday he had carried out two dives. The first involved surface rescue skills and controlled buoyant lifts from 2m followed by a full rescue from 6m. The second dive, after a surface interval of approximately 2 hours, was to a maximum depth of 14m followed by alternate source ascents from 6m one of which was slightly fast. The dive time was 37 min. On the Sunday the diver carried out a dive which included surface skills followed by two full rescues from 6m. After a surface interval of approximately 2 hours the diver carried out a dive to a maximum depth of 17m for a dive duration of 37 min including a safety stop at 6m for 3 min. Around three quarters of an hour later the diver started to feel a numbness in his feet. This was still present on the Monday and a ringing in his ears had also started. The diver attended a hyperbaric chamber on the Wednesday where he underwent three sessions of recompression treatment. The diver had experienced DCI the year before and had a PFO test which was negative.

**April 2017 17/091**

The Coastguard was contacted by a dive boat requiring immediate medical assistance. They had a diver aboard who was passing out and groaning. He had been put in the recovery position and was on oxygen. The diver had carried out his first dive of the day using nitrox 28 with a normal dive profile to a maximum depth of 32m with a dive duration of 40 min. A rescue helicopter evacuated the unconscious diver to hospital and the diver was transferred to a hyperbaric chamber. (Coastguard report).

**April 2017 17/073**

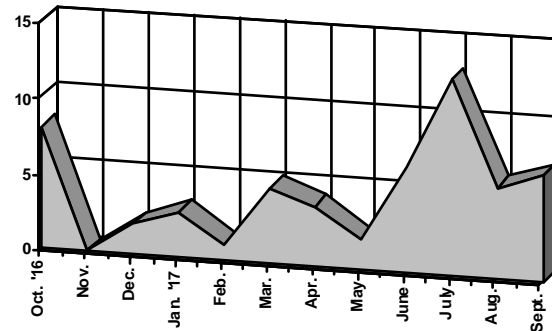
Two divers carried out a boat dive to a wreck in around 30m. They had no formal decompression plan before entering the water although they planned to dive on computers with a total time not to exceed 60 min. One diver was using twin 12 lt independent cylinders using only their drysuit for buoyancy and using a new computer which he had used on six previous dives. His buddy was using a rebreather and backup computer. 28 min into the dive the diver indicated that his total time to surface was 19 min. The buddy signalled asking if the diver wanted to ascend but he indicated to swim a little further towards the bow of the

wreck. At 34 min the diver signalled to ascend but he did not give the total time to surface to his buddy. The diver deployed his DSMB and began to ascend. At around 22m the diver's ascent began to exceed the buddy's rebreather ascent rate alarm so the buddy began to slow down indicating this to the diver. The diver continued to reel in the DSMB and tried to dump air from his drysuit. This proved unsuccessful so the diver attempted to dump air from his wing BCD but was unable to control his ascent and surfaced with a dive time of 36 min to a maximum depth of 31m missing all his decompression stops. On the surface he signalled the dive boat for assistance and requested oxygen. The diver was unsure of how much decompression he had missed and admitted to not fully understanding how his computer worked. The buddy remained underwater as he could see the diver had secured his buoyancy on the surface and had been recovered by the boat. The buddy had 5 min of decompression stops so he deployed his DSMB and completed these before ascending to the surface and was recovered aboard the boat. The diver had been assessed and advice sought from a diver helpline. On their recommendation the pair, on the boat's return to port, were transferred by ambulance to a hyperbaric chamber where the diver received recompression treatment. After the pair had left for the chamber other divers on the boat noticed that the diver's wing BCD was leaking air into the bladder and after it was emptied it filled again within 30 min.

**April 2017 17/095**

The Coastguard received a call from a dive boat reporting a diver with possible DCI. The diver's maximum depth was reported as 38m with a dive duration of 29 min. Medical advice was given over the radio and the dive boat was met ashore by an ambulance. (Coastguard report).

**Decompression incidents by month**



**May 2017 17/173**

A diver and his buddy had completed a hardboat dive on a wreck reaching a maximum depth of 30m for a dive duration of 30 min including a 4 min safety stop at 6m. Back aboard the boat the diver started to feel sick which he put down to the choppy sea and heavy swell. The other divers in the boat noticed that the diver's borrowed regulators tasted and smelt strongly of disinfectant and assumed this was why he was feeling sick. Around 20 min after surfacing the diver reported that he had 'pins and needles' in both his legs from his feet to his knees and asked to be put on oxygen. He did not display any other symptoms and was alert, breathing normally and calm. The dive boat skipper alerted the Coastguard and a helicopter evacuated the diver, together with his computer, dive sheet and casualty assessment form, to a recompression chamber where he was diagnosed with DCI and given six hours of recompression treatment.



## May 2017

17/258

The casualty was descending on the second dive of the day. At approximately 2m the instructor asked if the casualty was OK. She returned the OK signal but then signalled she had difficulty clearing her ears so the instructor slowly ascended with the casualty, ensured her BCD was inflated and then they exited the water. The casualty did not do any further diving that day, and left the site without any unusual signs or symptoms. The dive centre was informed two days later that the casualty was receiving hyperbaric treatment for a suspected spinal DCI incident.

## June 2017

17/134

A diver on a hardboat carried out a dive to a maximum depth of 53m using air with a dive duration of 56 min including 26 min of decompression on nitrox 58 at 6m. After a 4 hour 30 min surface interval the diver carried out a second solo wreck dive on air to a maximum depth of 35m with a dive duration of 26 min including 15 min of decompression on nitrox 58 at 6m. The diver had a lie down after the dive but about 45 min later felt a numbness in his left leg and arm. He was put on oxygen and the boat skipper called the Coastguard who tasked a helicopter to airlift the diver to a hyperbaric chamber. The diver underwent three sessions of recompression treatment and was discharged from hospital two days later.

## June 2017

17/106

A diver and his buddy had carried out two boat dives using nitrox 32 with lengthened or additional safety stops. The first dive was to a maximum depth of 29m on a wreck with a dive duration of 41 min and after a surface interval of 2 hours the second dive was a drift to a maximum depth of 23m with a dive duration of 47 min. The following morning the diver had woken up with a swollen left upper arm and shoulder. Suspecting a lymphatic DCI, similar to one he had experienced six years previously, the diver contacted a hyperbaric chamber who advised him to attend immediately. The doctor at the chamber confirmed the lymphatic DCI and the diver received six hours of recompression treatment. The diver's arm returned to its normal size by the end of the treatment and he was advised not to dive for a month. The buddy suffered no ill effects following the dives.

## June 2017

17/104

It was reported that a diver had completed a wreck dive and was back on shore when she developed symptoms of DCI. The Coastguard was contacted and a helicopter took the diver to a hyperbaric chamber. The diver received recompression treatment and was recovering at home. (Media report).

## June 2017

17/184

A diver had carried out a boat dive to a maximum depth of 40m with a dive duration of 40 min including a 2 min stop at 9m and a 15 min stop at 6m. The following day the diver and his buddy carried out a boat dive to a wreck reaching a maximum depth of 39m. The diver was using air and carrying nitrox 50 to practise accelerated decompression procedures. 17 min into the dive the diver ascended from 37m to 31m and then descended to reach 39m 25 min into the dive. At 31 min and having ascended to 34m the diver deployed his DSMB but made a rapid ascent and surfaced in just over 1 min. As the diver had not switched to his nitrox 50 at 20m as planned for his ascent he had missed 40 min of air stops. At the surface the diver switched to his nitrox 50 mix until the boat arrived to pick him up. The diver's buddy surfaced normally. Back aboard the boat the diver was put on oxygen but was nauseous and vomiting. The Coastguard was contacted and a helicopter evacuated the diver to a hyperbaric chamber. The diver had no other symptoms but was advised to have recompression treatment. He stayed overnight and was discharged after a check-up the following morning

## June 2017

17/118

The Coastguard tasked a lifeboat to help get a diver from an offshore island to a recompression facility. The lifeboat, with two paramedics aboard picked up the diver who had shown symptoms of DCI. The diver was taken by lifeboat to shore and transferred by ambulance to hospital shortly after. (Media report).

## June 2017

17/126

A diver carried out two wreck dives from a hardboat on a Saturday. The first dive was to a maximum depth of 32m with a dive duration of 51 min including a 9 min decompression stop. After a surface interval of 5 hours 22 min the second wreck dive was to a maximum depth of 21m with a dive duration of 32 min including a 3 min safety stop. Two hours after surfacing from the last dive the diver drove home but during the journey began to experience an aching sensation in the muscle of his upper right arm which he attributed to carrying equipment on and off the boat. The discomfort increased during the night but eased on the Sunday but that evening the discomfort increased and spread to the lower part of his right arm. On the Monday the diver contacted a DCI helpline and they advised that his symptoms were not classic DCI but nevertheless referred him to his nearest hyperbaric chamber. The chamber advised the diver to attend as soon as possible to rule out the possibility of DCI but the diver received five hours of recompression treatment that evening and two hour sessions on the Tuesday and Wednesday. When he was discharged the diver was advised not to dive for six weeks.

## June 2017

17/177

A diver carried out a weekend of wreck diving from a hardboat. On the Saturday he carried out two dives to a maximum depth of 25m using air on the first dive and nitrox 30 for the second. On the Sunday the first dive was to a maximum depth of 32m using air with a dive duration of 45 min including a 3 min stop at 15m and a 5 min stop at 5m. After a surface interval of 2 hours the diver carried out a drift dive to approximately 17m maximum depth with a dive duration of 30 min. The diver reported that some divers aboard the boat were seasick due to the sea swell. On the following Tuesday the diver felt lightheaded and after speaking to a fellow diver he called a hyperbaric chamber. The diver was admitted and received recompression treatment that day followed by a second session of treatment on the Wednesday.

## July 2017

17/128

A rebreather diver and his buddy had carried out a hardboat dive to a maximum depth of 59m with a run time of 142 min including all decompression obligations. When he surfaced the diver felt fine, allowed his buddy to use the boat lift first and back aboard he still felt fine until he came off the loop when he had a dry cough. Post dive tea arrived and the diver felt better but then started retching with nothing coming up. The diver told his buddy that he wasn't feeling very good and moments later he asked for oxygen. He remained fully conscious but had chest pains and was breathing very shallow breaths. The skipper called the Coastguard and the boat began to make its way back to shore when, 90 min after the Coastguard had been called, a helicopter arrived and airlifted the diver ashore to be met by an ambulance which transferred him to a hyperbaric chamber. At the chamber and before having his recompression treatment the diver went to the toilets but collapsed on his way back. He had to be stretchered into the chamber where he was given recompression treatment on a much longer schedule than had been originally planned. The diver left the chamber in the early hours of the following morning and was transferred to hospital where he was given morphine for the pain in his lungs from the high PO<sub>2</sub> and his abdominal pains from retching. Later that morning the diver was told he had a vestibular DCI and was kept in hospital and underwent another session of recompression treatment the following day. The diver had had a PFO check the previous year



which was negative. The reason for the ninety minute wait for a helicopter to evacuate the diver was reported as being due to the local helicopter having been stood down from service the previous day. Its replacement was covered by a regional service base further along the coast but its two helicopters were out on training exercises. This involved necessary pre-planning so that a backup search and rescue helicopter, which had also been out on a training exercise and had to land and refuel, travelling from some seventy-five miles away arriving at the scene within 40 min of being tasked.

## July 2017

**17/138**

A diver had carried out a wreck dive from a boat on a Saturday and during that evening felt a sensation of imbalance. On the Sunday morning the diver felt fine and using nitrox 32 with his buddy using air they carried out a boat dive on another wreck. After buddy checks the pair entered the water and descended making a halt at 9m where the diver sorted out a painful left ear until the sensation had gone and then they descended slowly to reach the bottom of the shotline. The diver had difficulty controlling his buoyancy and found it hard going throughout the dive as he felt heavy. He realised that he had dived his lighter weight cylinder on the Saturday and on this dive was using two 12 lt cylinders which were 3 kg heavier but he hadn't adjusted his weightbelt for this dive. The diver was breathing heavily and, as agreed in their dive plan, when he reached 70 bar they began their ascent. The diver found it a struggle to ascend to 6m where although his computer read 'no deco stop' he knew his buddy using air required a 3 min stop, which they carried out. The pair surfaced with a dive duration of 43 min to a maximum depth of 24m with the diver almost out of dive gas. On the way home the diver began to feel pain, 'pins and needles' and a feeling of apprehension. At one stage he had a feeling similar to a 'crackling' sensation in his nostrils and across his chest. The diver had a restless night but although the apprehensive feeling hadn't subsided he prepared for a deeper dive than that on the Sunday. However, due to bad weather the Monday dive was called off but the dull aching pains and mood did not subside. After another restless night the diver self-admitted himself to a hyperbaric chamber on the Tuesday morning and received recompression treatment.

## July 2017

**17/201**

The Coastguard was contacted by a dive boat who reported they had a diver experiencing 'pins and needles' in their feet and lower legs 5 min after surfacing and they had been put on oxygen. The diver had carried out two uneventful dives the previous day and this dive had been to a maximum depth of 28m with a dive duration of 32 min including a safety stop. Radio medical advice was arranged. The boat returned to harbour where it was met by a waiting ambulance and the diver taken to hospital for further assessment and monitoring. (Coastguard report).

## July 2017

**17/202**

A rebreather diver had carried out a boat dive to a maximum depth of 65m using trimix 16/50, set point 1.3 PO<sub>2</sub> and gradient factor 30/70. The diver had developed hand bruising and pain between 30 to 40 min after surfacing. The Coastguard arranged for radio medical advice and the doctor advised immediate helicopter evacuation. A Coastguard helicopter transferred the diver ashore to a waiting ambulance which took the diver to a hyperbaric chamber. The diver's buddy did not present any symptoms. (Coastguard report).

## July 2017

**17/204**

A diver had carried out a boat dive using nitrox 32 to a maximum depth of 31m with a dive duration of 45 min including a safety stop. The diver had reported feeling tired before the dive.

Approximately 20 min after surfacing the diver began to experience shoulder pain and was described as being 'docile'. The diver was put on oxygen and given water. Medical advice was sought and the doctor advised that the diver should be transferred by ambulance to a hyperbaric chamber. A lifeboat met the dive boat and took the diver ashore where the ambulance was waiting. (Coastguard report).

## July 2017

**17/175**

A diver and her buddy, both using nitrox 30, carried out a boat dive on a wreck. The diver was wearing a different type of undersuit to normal and although she had added additional weight for the dive she found this was not sufficient and was unable to control her buoyancy on the ascent missing a decompression stop of about 2 min and a 3 min safety stop at 6m. The diver's buddy stayed with her and they both surfaced with a dive duration of 46 min to a maximum depth of 34m. Back aboard the boat the pair shared the oxygen kit taking two five minute turns between them but showed no symptoms. After returning home the diver found a rash on her left shoulder, which she photographed, but her buddy had no symptoms. They contacted a hyperbaric chamber and were advised to attend. The diver's shoulder rash had reduced and the buddy still had no symptoms but they were both advised that recompression treatment was the best course of action.

## July 2017

**17/139**

A lifeboat was launched to assist a dive boat following reports that a diver was suffering from suspected DCI. The diver was taken to hospital. (Media report).

## July 2017

**17/147**

A diver had completed six days of wreck diving on a liveaboard. She had carried out two dives each day and all were completed within computer limits. She had used nitrox for most of the first dives each day and air top ups for the second dives. On the sixth day the diver had carried out a dive using nitrox 25 to a maximum depth of 31m with a dive duration of 37 min including a 1 min stop and a 3 min safety stop at 6m. After a surface interval of 2 hour 26 min she carried out the last dive on nitrox 22 to a maximum depth of 27m with a dive duration of 36 min including a 1 min stop and a 3 min safety stop at 6m. Around two hours after leaving the liveaboard the diver began to drive home and half an hour into her journey she started getting an itchy back and a pain in her left shoulder. She stopped and called her diving officer who advised her to contact a hyperbaric chamber. The diver phoned and explained her symptoms to a doctor at the chamber who advised that she go to the nearest hospital. She was also advised not to go onto oxygen even though it was in the car. At the hospital the diver was seen by a doctor who was in communication with the hyperbaric chamber and an ambulance was organised to transfer her to the chamber. The diver underwent five and half hours of recompression treatment during the early hours of the next day and was then admitted to a hospital ward. She had a chest x-ray, was kept in overnight and discharged the following morning. The advice from the hyperbaric chamber was that the diver have a PFO test which she was organising through her GP.

## July 2017

**17/205**

On a week's diving trip aboard a hardboat, a diver had carried out a dive on the Sunday to a maximum depth of 27m with a dive duration of 40 min. On the Monday he had carried out a wreck dive to a maximum depth of 32m with a dive duration of 39 min. After a 3 hr 22 min surface interval the diver and his buddy carried out a second wreck dive to a maximum depth of 43m. When the diver's air had reached 100 bar they deployed a DSMB with the diver controlling the reel, ascended to 10m where they carried out a 6 min stop and continued their ascent to 6m. The

diver was concentrating on the reel and realised he was ascending too quickly from 6m but managed to stop himself at 1m. He re-descended to his buddy at 6m but again lost buoyancy and surfaced. He re-descended again to 6m, lost his buoyancy again and surfaced. Cross with himself the diver remained on the surface where his buddy joined him. Their maximum depth was 43m with a dive duration of 43 min. The buddy tried to reel in the excess DSMB line as the boat came over to them as they were concerned that the divers had surfaced too far from the DSMB. Back aboard the crew checked whether the pair had missed any decompression which the divers said they had not. Half an hour after surfacing the diver felt a 'tingling' sensation in his feet and itching in his lower back and stomach. The diver spoke to the skipper and was put on oxygen immediately. The skipper notified the Coastguard and, as the boat was already making its way back to harbour, an ambulance was arranged to meet it. The diver's symptoms, which also included a rash on his torso's right side, improved whilst he was on the oxygen. The ambulance transferred the diver to a hyperbaric chamber where he was given recompression treatment. The diver was asked to return the following morning and the doctor discharged him. The diver continued with the rest of his trip but without carrying out any further diving.

### July 2017

17/206

A dive boat contacted the Coastguard to report a diver who, 10 min after surfacing from a wreck dive, was experiencing mild pain in both shoulders and 'pins and needles' in both hands. The diver had carried out a dive using nitrox 30 to a maximum depth of 28m with a dive duration of 33 min. It was a no stop dive but close to the limits and the diver had completed a safety stop but his computer was showing a fast ascent warning. A connect call was made between a dive doctor and the boat and the doctor recommended transfer by ambulance to a hyperbaric chamber. The boat returned to harbour where an ambulance took the diver to the chamber. (Coastguard report).

### July 2017

17/150

A rebreather diver was on holiday aboard a dive charter boat and on the third day of the trip he carried out two wreck dives. The first dive was to a maximum depth of 36m with a dive duration of 59 min including a 2 min stop at 18m, a 2 min stop at 12m and a 3 min stop at 6m. After a surface interval of 2 hours the diver carried out a second dive to a maximum depth of 33m for a dive duration of 34 min including a 2 min stop at 18m and a 2 min stop at 6m. The diver was recovered aboard by the charter boat's lift and, as he had been suffering from an old problem of back pain on previous dives, he lay down on the deck as his back was quite sore. Around 10 to 15 min later the diver tried to stand up but was unable to do so due to a feeling of spinning or vertigo. His buddy checked the diver and he was put on oxygen. A recompression chamber was notified and a local boat that had been alerted to the situation arrived alongside. As it was faster than the charter boat the diver was transferred and taken ashore. He was then driven to the chamber, assessed and had an hour's recompression treatment. The diver responded well but was told he had DCI and damage in his right ear. He was asked to attend the chamber the following day for further treatment which improved his balance and hearing. The diver underwent two further sessions of treatment to maximise recovery of his ear and when the dive trip was over he was walking normally and his hearing was perfect.

### July 2017

17/176

A diver, using manifolded twin 12 lt cylinders with nitrox 34 and his computer set for air, and his buddy using a rebreather, carried out two hardboat dives. The divers on the boat were advised that due to deteriorating weather conditions later that day the surface interval between dives would be an hour and a half instead of two hours and the divers should plan their first

dive accordingly. The diver and his buddy agreed to dive according to the diver's plan as his no stop time would be the limiting factor and they were not planning to do any decompression. Their dive profile for the first dive followed the underwater topography with a gradual descent to 20m and an ascent to 8m around 33 min into the dive. The pair then made a gradual descent back to 20m for the remainder of their dive and surfaced with a dive duration of 61 min including a 3 min safety stop at 6m to a maximum depth of 21m. After the hour and a half surface interval the pair carried out a second dive using the same equipment and gas mix. They stayed at around 14m for 23 min then made a quick descent as the diver chased a lobster to the bottom at 20m. The diver had a recollection of not clearing his ears during this descent and feeling discomfort until he had caught the lobster. The pair ascended and surfaced with a dive duration of 47 min including a 3 min safety stop at 6m to a maximum depth of 20m. Back aboard the boat the diver felt uncomfortable and for the journey back to shore he sat down not feeling normal but did not report this to anyone. The buddy had noticed the diver was not looking happy but assumed that he was feeling seasick as the conditions were rough and he was prone to seasickness. Once the boat had reached the shore the diver found he could not keep his balance and was feeling dizzy which he initially put down to finding his land legs after a day on the boat. The diver and the buddy travelled to a cylinder filling station and when the diver told the other divers in his group he was unwell they told him to stay in the car while the cylinders were unloaded. The group then returned to their accommodation and the diver went to bed. An hour later the buddy and others checked on the diver and as he had not improved they put him on oxygen. When the diver did not improve on the oxygen they contacted a divers' helpline. They advised that the diver should cease the oxygen treatment and report to a local hospital to have his ears checked for a barotrauma. The doctor at the hospital checked the diver's ears and reported everything to be normal but then consulted with a hyperbaric chamber who advised that the diver should be transferred to them by ambulance. The diver received two sessions of recompression treatment for suspected vestibular DCI. He was due to see a diving doctor four weeks later and was told to expect referral for an ECG to rule out a PFO.

### July 2017

17/209

A Coastguard rescue helicopter was tasked to assist the ambulance service with a diver suffering DCI following a shore dive. The diver was airlifted to hospital. (Coastguard report).

### August 2017

17/186

A diver, using nitrox 35 and her buddy using nitrox 32 had carried out a boat dive to a maximum depth of 48m with a dive duration of 74 min including a 5 min stop at 21m, 2 min stops at 18m, 15m and 12m, a 20 min stop at 6m and a 3 min stop at 3m. After a surface interval of 2 hr 15 min they carried out a drift dive to a maximum depth of 22m with a dive duration of 44 min including a 4 min stop at 6m and a 2 min stop at 3m. There was a moderate current on the drift dive with about 3m visibility. The diver had deployed her DSMB as soon as she reached the seabed and held this throughout the dive in her right hand. She had to stop a couple of times for her buddy to catch up and once or twice she swam back against the current towards him. When she surfaced the diver felt what she could best describe as suit squeeze on her right upper arm so she inflated her drysuit but still felt the 'squeeze'. Back aboard the boat the diver's upper right arm was sore to the touch but she had no other symptoms. About an hour after surfacing and back in harbour the diver's arm started to feel hot and this was followed by swelling and tightness of the skin. She also noticed minor suit squeeze marks on her shoulder. The buddy had no symptoms. The diver contacted a hyperbaric helpline and after hearing her symptoms she was advised to attend a recompression chamber. The diver was diagnosed with lymphatic DCI and underwent

recompression treatment. The doctor attributed the DCI to the diver's gas load and having her arm raised throughout the drift dive as she held the DSMB. The doctor noted that the minor suit squeeze on the diver's right shoulder may also have been a contributing factor.

## August 2017

**17/165**

A diver had carried out four dives from a hardboat over a weekend all within no decompression limits. On the first dive on the Saturday the diver's drysuit dump valve failed resulting in an intake of water in his left sleeve and to the right hand side of his suit. After the dive the valve was checked and the diver carried out his second dive when the dump valve leaked again. The diver reported feeling a little cold towards the end of the dive. His drysuit and undersuit were dried out overnight but the drysuit was still wet when the diver used it on the Sunday. He carried out two dives with the first to a maximum depth of 20m with a dive duration of 55 min including a safety stop for 3 min stop at 6m. After a surface interval of 1 hour 24 min he carried out a second dive to 16m with a dive duration of 57 min including a 3 min safety stop at 5m. On both dives the diver's dump valve leaked but at no time during the dives did he feel excessively cold or tired. An hour and a half after surfacing from the last dive the diver drove home, a journey of four and a half hours, during which he experienced joint pain in his right arm and stiffness in his right shoulder. He also felt flu like symptoms and was thirsty which he put down to being in wet clothes for long periods over the weekend. By the time he arrived home the joint pain had gone but there was severe stiffness in his right deltoid and shoulder muscle. The next morning the stiffness was still there and a red rash had appeared which was hot to the touch. The diver called a hyperbaric chamber and was asked to attend. After being examined there was no apparent neurological damage but the rash did cause concern. There was a debate about whether the rash and stiffness was a skin infection as there was a small puncture wound on the top of the diver's right arm, which could have been an insect bite or sting, or whether it was DCI or a combination of both. The doctor decided to give the diver recompression treatment with the result that some of the rash reduced, indicating some level of DCI, but the stiffness and remaining rash was diagnosed as cellulitis and treated with antibiotics. The doctor believed that the infection had happened first and prevented normal off-gassing after surfacing.

## August 2017

**17/214**

The Coastguard received a request from the ambulance service to evacuate a diver, who had carried out a shore dive and had symptoms of DCI, from the dive site to a hyperbaric chamber. A Coastguard rescue helicopter was tasked to the scene and transferred the casualty to the chamber. (Coastguard report).

## August 2017

**17/179**

A dive boat deployed a shotline on a wreck at around 30m and the divers were briefed that the slack window would be tight and they would experience a current either at the beginning or end of the dive. The current reduced on the surface and the divers were checked that they were happy with the conditions. A diver, using nitrox 29, and his buddy entered the water and reached the shotline without any issues and descended. With a strong current still running at depth they had to fin with considerable effort to reach the bottom of the shotline. The shotline was not on the wreck and the divers could not locate it due to the low visibility of 3m. The pair decided to go for a drift and, as agreed on the brief, the diver deployed his DSMB to signal to the dive boat that this was their intention. They passed the DSMB line around the shotline to begin their drift dive at 30m but the diver felt he was over-weighted as he could not stay off the bottom and began to feel the effects of narcosis. After a few minutes the diver stopped as his DSMB had become tangled in the shotline and he lost his grip on the reel. The buddy deployed his own

DSMB and the diver gave him a signal to abort the dive as he did not feel good and they began to ascend. At this point the diver realised how over-weighted he was and could not fin up. Panic set in with his breathing rate rapidly increasing and after ascending a few metres he sank back to the bottom. The buddy followed the diver back down where the diver felt he had no option but to release his weightbelt to get back to the surface. The buddy, seeing the diver reach for his weightbelt, assumed it had come loose but when he saw the diver release and let it go the buddy rushed forward grabbing the weightbelt in his left hand, which was also holding his DSMB, and the diver with his right hand. The diver looked panicked, resisted the buddy's attempt to give his weightbelt back to him, broke free from the buddy's grip and began a rapid ascent. The diver grabbed the buddy's DSMB line to slow his ascent and began to drag the buddy up who then let go of the DSMB. The diver made a fast ascent taking less than a minute and broke the surface with a dive time of 16 min to a maximum depth of 32m. He gave the emergency signal to the boat and was recovered aboard. The buddy had composed himself and began a slow, controlled ascent and surfaced with a dive duration of 19 min. When he was recovered aboard the boat he found the diver was on already on oxygen and a 'Pan Pan' call had been made to the Coastguard. The diver had a mild headache which was relieved once he was on oxygen. A helicopter evacuated the diver to a hyperbaric chamber where he received five hours of precautionary recompression treatment and was later reported as fit and well.

## August 2017

**17/215**

A diver, using a rebreather with air diluent, carried out a boat dive to a maximum depth of 30m and a run time of 60 min. The diver reported a normal ascent with no missed decompression stops. Back aboard the diver started vomiting, with blood seen in the vomit. The boat broadcast a 'Pan Pan' requesting Coastguard assistance. The Coastguard arranged a connect call with a duty dive doctor who advised that the diver be evacuated by helicopter to a recompression chamber. The diver at this point began to experience headaches, chest pain and shortness of breath. The boat skipper upgraded the incident to a 'Mayday'. The update on the diver's condition was relayed to the doctor who advised that the symptoms were not consistent with a cardiac issue and he still wanted the diver to be taken to the chamber. The diver's symptoms progressed to a worsening of his chest pain, tightness in the top of his shoulders and loss of the ability to stand. The diver was still conscious and responsive and an update was given to the doctor. The helicopter arrived on the scene and evacuated the diver. The nearest hyperbaric chamber was at capacity so the diver was transferred to another chamber once they could offer a space. There had been problems arranging a chamber space due to most local facilities being full to the extent that a chamber on a nearby warship was considered and prepared. (Coastguard report).

## August 2017

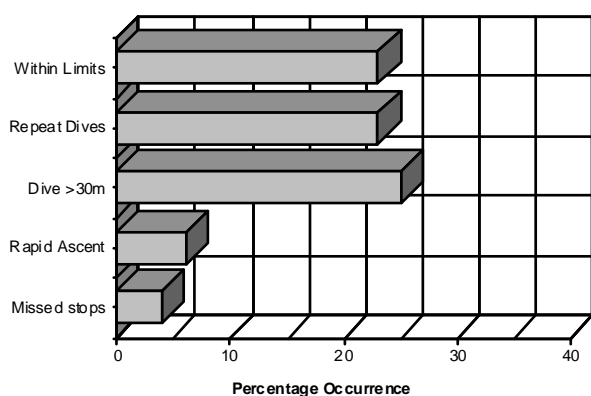
**17/199**

A diver was on week's holiday diving wrecks from a liveboard. His dives were planned for accelerated decompression and his computer was set to a gradient factor of 30/70. The diver had carried out nine dives about half of which had required decompression stops. On the Thursday morning the diver had carried out a dive with two buddies to a maximum depth of 39m with dive duration of 48 min including a 16 min stop at 6m. After a surface interval of 3 hr 27 min the diver carried out a second dive using the same gas mixes and with the same buddies to a maximum depth of 35m with a dive duration of 44 min including an 11 min stop at 6m. Back aboard the boat, some time after surfacing, the diver noticed a pain in his left shoulder but ignored it. The boat returned to harbour and the diver walked to a shop for supplies and then went to a pub for a drink with the rest of the divers. He started feeling less and less comfortable and at one point felt slightly nauseous so returned to the boat to have a lie



down. His upper arms had begun to 'tingle' and after 5 min feeling uncomfortable lying down he decided to check some training materials on signs and symptoms. He ticked off four symptoms, told one of his colleagues he thought he had DCI and asked him to tell one of the crew as he was going to put himself on oxygen. The boat skipper decided to take the diver to the local recompression chamber. The diver was assessed by which time his elbows had started to be painful. He received recompression treatment, his symptoms soon resolved and he had no further problems.

**Percentage analysis of factors involved in cases of DCI**



**September 2017 17/191**

A diver conducted a dive to 43m for a total duration of 44 min with a buddy, completing all mandatory decompression, using air as his only breathing gas. The diver reported completing a couple of extra minutes of safety stops beyond what his computer had indicated. Following the dive the diver reported he was experiencing numbness in his back and tingling in his legs. The buddy had been diving on nitrox 25, and was not presenting symptoms. The Coastguard was contacted and a connect call was arranged with dive doctor, who advised evacuation of the diver. Coastguard Rescue Helicopter 912 and lifeboat were tasked to evacuate the diver. The lifeboat arrived first and the paramedic in crew treated the diver until a Coastguard helicopter arrived and airlifted the diver to a recompression chamber. (Coastguard report).

**September 2017 17/238**

A diver, using a rebreather with trimix 12/50 diluent, conducted a 60m dive on a wreck in a buddy pair from a charter vessel. The pair had a 30 min bottom time, and completed all required decompression stops. The diver remained on the breathing loop during the ascent, no problems were noticed and he surfaced without any apparent symptoms. This was the diver's third consecutive day of deep diving. Approximately 25 min after surfacing the diver was back aboard and de-kitted, when the crew of the vessel noticed that the diver was not acting as his usual self so asked him if he was alright. The diver was feeling nauseated and dizzy, so oxygen was administered and fluids provided. The skipper called the Coastguard on VHF, whilst approximately 17nm south west of the Needles, Isle of Wight. Details were gathered, and a call was made to a hyperbaric chamber for advice. Based on the details passed, the duty doctor at the chamber declined to set up a connect call with the vessel for radio medical advice and advised that the diver should be extracted as quickly as possible by air. The Coastguard tasked a

rescue helicopter. Whilst the helicopter was getting airborne, the diver reported further symptoms of vomiting and a twitch in his eye. The doctor was called with an update on the situation; he advised that no further fluids should be given to the diver. A Coastguard rescue team were tasked to rendezvous at the helicopter landing site to facilitate the transfer to the chamber. The diver was airlifted by the helicopter and transported to the landing site from where he was transferred to the awaiting ambulance for transport to the chamber. (Coastguard report)

**September 2017 17/242**

A diver undertook a wreck dive from a charter vessel using a CCR rebreather with trimix 16/45 diluent. The dive was conducted to a maximum depth of 53m with a bottom time of 35 min and a total run time of 90 min. The dive was uneventful, and all decompression stops were completed successfully. After surfacing the diver reported having a numb left arm, so oxygen was administered and he was laid down. His buddy was not presenting symptoms. The skipper of the vessel contacted the Coastguard by routine radio communications. Medical advice was sought from the duty doctor at a recompression chamber, who requested immediate evacuation by helicopter. Helicopter support was tasked by the Coastguard, which then recovered the diver and transferred him to an awaiting ambulance to be taken to the chamber. (Coastguard report)

**September 2017 17/243**

A CCR rebreather diver conducted a dive to a maximum depth of 38m for 25 min using air as a diluent. Approximately 20 min after returning aboard, the diver lost feeling in legs and reported a 'straining feeling' in the stomach. The dive vessel returned to harbour, and was met by the local Coastguard rescue team. The diver was transferred by ambulance to local recompression facility. (Coastguard report)

**September 2017 17/200**

A diver had carried out four boat dives over a weekend, two on the Saturday and two on the Sunday. The first dive on the Sunday was to a maximum depth of 28m with a dive duration of 42 min including a 2 min stop at 17m and a 3 min stop at 6m. After a 2 hour surface interval and using nitrox 32 the second dive was to a maximum depth of 32m with a dive duration of 36 min including a 2 min stop at 17m and a 3 min stop at 6m. The stops at 17m on both dives were non-mandatory profile dependant intermediate stops (PDIS). Back aboard and after de-kitting and having a cup of coffee, the diver and his buddy sat in the wheelhouse. The diver commented to his buddy that he felt really tired and uncomfortable after the pasty he had eaten for lunch. Around 30 min after surfacing the diver decided to go out on deck as he was feeling a little sick but he could not stand up nor could he feel or move his legs. He told his buddy that he needed to immediately go onto oxygen. The skipper contacted the Coastguard and it was decided that when the boat returned to harbour it would be met by an ambulance to transfer the diver to a hyperbaric chamber. During the journey back and after 20 min on oxygen the diver was able to move his toes and 1 hour and 15 min later he was able to walk from the boat to the ambulance. At the chamber the diver was diagnosed with a suspected spinal DCI and underwent recompression treatment followed by further treatment the following day. He was asked to stay in the area for another twenty-four hours in case of a relapse but was discharged after further neurological tests. The diver was advised not to dive for three months and to have a diving medical before diving again.

**September 2017 17/246**

A diver called 999 from inland presenting symptoms of a migraine, headache, feeling weak, difficulty putting sentences together and itchy skin, with some numbness. He had conducted

a 40 min dive to 24m. The diver had completed a 5 min safety stop. An ambulance was arranged to transport the diver to the local hospital. (Coastguard report)

## September 2017

**17/237**

A diver completed a first dive of the day to a maximum depth of 32m with a total dive duration of 59 min including 16 min of stops at 5m. After a surface interval of 1 hr 50 min the diver conducted a slow drift dive to a maximum depth of 24m for a total dive time

of 38 min including 4 min of stops at 5m. Approximately 90 min after surfacing from the second dive the diver was in his car on the way home when he experienced an 'itchy belly', which he put down to crumbs from the food he was eating. Three days later the diver noticed a mottling of the skin in the same area and contacted a chamber for advice. He was advised that he shouldn't worry unless it reoccurred and should dive conservatively in the future.

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## Injury / Illness

### October 2016

**17/253**

During a mask removal and replacement skill the casualty appeared to become distressed and signalled to go up. He was brought to the surface under control and positive buoyancy established. The casualty complained of feeling cold and of a severe headache. When questioned he said that the pain had come on during the performance of the skill and decided he did not wish to continue. 10 min after exiting the water he reported he had a headache and was feeling sleepy. Oxygen was administered and emergency services called. The casualty vomited and confirmed that it was likely that he had inhaled some water during the skill. The casualty went to A&E for a check-up and was released around one hour later with no further treatment.

### October 2016

**17/263**

'Mayday' call received from diving vessel reporting unconscious diver. (Coastguard report)

### October 2016

**17/010**

A diver and his buddy had completed their dive and were de-kitting. As the diver bent down to put his kit under a bench his buddy was removing his fins. He pulled one fin which came off quickly and the tip of the fin hit the diver in the eye causing a haematoma. The eye looked back to normal the following morning and no medical assistance was sought.

### December 2016

**17/019**

A dive boat contacted the Coastguard asking for assistance with a diver who was suffering from near drowning having made a rapid ascent from a reported depth of 42m. The boat had three divers still in the water so could not return to shore. The Coastguard launched a lifeboat to evacuate the casualty to shore. An ambulance had been arranged to meet the lifeboat and the diver was transferred to hospital. The diver's condition was unknown. (Coastguard report).

### December 2016

**17/022**

A diving trio arrived at a shore diving site on a cold and frosty morning. They were accompanied by two other divers who were providing surface cover. The trio comprised a trainee and his instructor and a third diver who was just joining them for the dive. The trio entered the water and made their way on the surface to a shotline marking a 6m training platform. The water temperature was 4 deg C. They descended to the platform and the instructor and student began mask clearing skills. When the trainee removed his mask he became distressed and went to make an ascent to the surface but the instructor caught hold of him, calmed him down and assisted with the replacement of his mask which the trainee then cleared without any problems. The trio then commenced an exploratory dive moving into deeper water but after a short time the trainee indicated something was wrong and was pointing to his head. At this point the dive was aborted and the trio ascended with a dive time of 28 min to a maximum depth of 17m. Back on shore the trainee explained that he had a bad headache which had started when he had removed his mask exposing his face to the cold water. No further diving was carried out but on the following day one of the divers who had been providing surface cover received a message from the trainee stating that he still felt unwell and was going to visit the local hospital. He was examined at the hospital and prescribed pain killers and a few hours later his headache subsided.

### February 2017

**17/254**

The casualty was completing a confined water drysuit orientation dive. Soon after the weight check the casualty started to feel uncomfortable and hot, and exited the water. As the casualty continued to feel unwell, oxygen was administered and an ambulance was called. The casualty was discharged from hospital later that evening with directions to rest for a few days.

### February 2017

**17/089**

A 'Mayday' was issued by a dive boat requesting immediate assistance for an unconscious diver. The dive time was reported as 5 min. A lifeboat was launched, met the dive boat and the diver was transferred. As the lifeboat returned to port it was intercepted by a rescue helicopter and the diver winched aboard. The helicopter was met by an ambulance and the diver transferred to hospital. (Coastguard report).

### February 2017

**17/044**

An instructor and his trainee, accompanied by an experienced diver, had carried out a shore dive to a maximum depth of 8m and surfaced with a dive duration of 29 min. At the surface the trainee informed the instructor that one of her fins was coming off. The trainee's drysuit boot and fin had come off her foot so the instructor attempted to re-fit them but to no avail. He towed the trainee back to the nearest exit point which was a slipway. He helped her onto the ramp and removed her fins in shallow water but advised her to hold onto a wall when she stood up as the ramp was usually slippery. As the trainee started to edge her way along the ramp's wall she slipped over. The instructor and other diver de-kitted the trainee, who had obvious arm pain, and slid her up the ramp and then back onto her feet. After removing the top half of her drysuit the trainee was in a lot of pain and the instructor took her to the first aid room on the site. They felt the diver might have badly jarred and bruised her arm but advised that she should be taken to hospital to get it checked. After assessment and an x-ray, it was found that the diver had fractured the ball socket in her shoulder and it would take six weeks to heal with no further treatment.

### March 2017

**17/053**

An instructor and his trainee carried out a shore dive. They reached a maximum depth of 7m and 32 min into the dive the trainee signalled that she wanted to ascend so the instructor carried out a controlled buoyant lift. On the surface the trainee vomited and assistance was provided by a rescue boat. The trainee was recovered aboard the boat and taken ashore. The trainee was reported to be fine and with no further symptoms was allowed to go home.

### March 2017

**17/227**

A diver and his buddy carried out a shore dive to a maximum depth of 30m and surfaced with a dive duration of 37 min. 50 min after surfacing the diver felt 'pins and needles' at the top of both his legs. He was put on oxygen for 12 min and the symptoms resolved. The diver rested for 10 min, was checked again and given water. The diver remained on the dive site for a couple of hours and reported all was well.

### March 2017

**17/230**

A diver was kitting up for a shore dive when his dive knife came out of its sheath and stabbed the diver on his right thumb. The stab wound was cleaned with an alcohol wipe and steri-strips were applied. The diver was advised to get the injury checked by a doctor or nurse as it appeared to be quite deep.

**March 2017 17/255**

During the descent of the second dive of the day the casualty had ear problems and signalled that he wanted to surface. On the surface the casualty mentioned he had some discomfort on his ear, however this eased and after a short period at the surface they descended again and successfully completed the dive. The casualty cancelled diving the next day and a few days later, after consulting his GP as recommended by the instructor, he said he had injured his eardrum.

**March 2017 17/256**

The casualty was attempting to perform a giant stride deep water entry. She placed her fins over the edge, stepped forward and then with the other foot skipped in forward. She fell into the water without touching the pool wall and was taken to the shallow end. She was later taken to hospital and the following morning one of her friends came to pick up her car. They stated that the casualty was home and had damaged her anterior cruciate ligament.

**March 2017 17/257**

The casualty was participating in a discover scuba diving experience in the pool. At the end of the session, he showed no signs of any illness, ailment or complaint, however a short while later he complained of feeling faint. The pool environment was very warm, so the owner told him to sit on a step immediately outside the pool building. He then lay down and said he just wanted to sleep. He lost colour from his face and couldn't raise himself. He was also becoming very cold so thermal foil blankets and clothing were applied. After consultation with the instructor, an ambulance was called. The casualty was placed into an ambulance and following further assessment by the staff he was taken to hospital.

**March 2017 17/057**

The Coastguard was contacted by a diving doctor regarding a diver, who had carried out three dives on a Saturday, having convulsions early on the Sunday morning. The diver was reported to have had a previous history of convulsions but no reason as to why and had been cleared to dive four years previously. A lifeboat was launched to assist and evacuated the diver from the accommodation to the nearest port and transferred into the care of paramedics. The condition of the diver was not known. (Coastguard report).

**April 2017 17/198**

A diving group of two buddy pairs, a group of three and their surface cover carried out their first shore dive of the year from a beach nearby a harbour. The group of three divers, one of whom was an instructor, entered the water and swam on the surface a little way out from the shore. They all gave the 'OK' signal and descended but noticed straight away that the visibility was bad at around half a metre. One of the divers had difficulty leaving the surface despite help from the second diver who tried to pull her down. The second diver and instructor re-surfaced and the diver explained that the current and low visibility were making her nervous. They all decided to swim back on the surface to the harbour wall where they would be better protected from the current and continue their dive. When they reached the harbour wall the second diver was slightly out of breath but assured the instructor he was fine. There was a current running so the group held on to a mooring rope on the harbour wall until the second diver had relaxed then they all gave an 'OK' signal to descend. Just before this the second diver had untangled his torch lanyard from his BCD inflator hose but in so doing did not realise that he had disconnected the hose from his BCD. A buddy pair from their diving group descended beside them so the group waited a few seconds to let them move away before they descended. The instructor descended and glanced down to see if the other divers were underneath his group but he got caught by the current and

lost sight of his two divers in the low visibility. The first diver had not been able to get down so stayed on the surface by the wall waiting for the other two. The instructor carried out a 360 deg search and ascended. The second diver had descended but could not see the instructor or the other diver and assumed that she was having problems again on her descent so he decided to re-surface. His BCD would not inflate as he tried to ascend and due to the poor visibility he could not see the problem with his inflator hose. Knowing he was only 5m deep and the other two would be on the surface or close by, he decided to fin up. On the surface the instructor and other diver were about 10m away as the current had drifted the diver away from them. The diver shouted for help but they did not hear him; he was struggling to breathe and losing his buoyancy. He sank back down ending up on the seabed. As he was struggling to breathe from his regulator he switched to his octopus regulator but this did not help. The diver inhaled some water and not getting enough air from either regulator he felt as though he was suffocating. He finned up as hard as he could to the surface where he shouted again to the instructor and other diver. This time the first diver heard him and shouted at the instructor. Just as the second diver was sinking down again the instructor reached him and presented his octopus regulator which the diver took. The instructor tried to support the diver on the surface using his buoyancy whilst inflating the diver's BCD but was unable to keep them both at the surface and they started to sink whilst being swept further out to sea. As the diver was breathing off his alternate source and apparently not struggling the instructor decided to tow the diver underwater against the current back to the harbour wall. As he was about to dump the diver's weightbelt the instructor noticed the disconnected BCD inflator hose. After reconnecting it the instructor carried out a controlled buoyant lift to the surface and made the diver buoyant to keep his head out of the water. The diver was still struggling to breathe and his chest felt very tight. The current had picked up and the instructor struggled against it trying to tow the diver back to beach. The second diver who had remained on the surface had swum towards the beach, alerted the shore cover then returned to the harbour wall and saw the instructor and other diver on the surface. Another pair of divers, who were just about to enter the water from the beach, had realised there was a problem and one of them swam out to assist. The rescue diver towed the diver back to shore whilst de-kitting him but during this he saw the diver lose consciousness so gave a rescue breath and the diver coughed and started foaming at the mouth. The diver was recovered ashore and the emergency services called. The instructor had arrived back on the beach very out of breath and hardly able to speak and the second diver had made her way back to the beach but needed assistance to de-kit. The rescue diver asked for the oxygen kit but was told it had not been brought on this trip. He instructed fellow divers to comfort the rescued diver while he collected his nitrox 50 cylinder from his car. The diver's drysuit had been unzipped and with the top half removed to ease his breathing he was put on the nitrox. Once he was stable he was put in the recovery position to await the emergency services. An air ambulance arrived after about 30 min at the same time as an ambulance and the Coastguard. The ambulance paramedics attended to the diver and he was taken to hospital and spent five hours having treatment. It was confirmed he had inhaled water and an x-ray confirmed a chest infection that the diver had been unaware of. He was discharged later that evening and made a full recovery.

**April 2017 17/075**

A diver was preparing to dive, had kitted up and was about to start a buddy check when his pressure gauge suddenly burst off its hose and hit the diver on the left cheek. On inspection the gauge, over a period of time, had slowly unscrewed from the high pressure hose and the spindle had sheared off. The diver suffered minor bruising under his left eye and ringing in his left ear due to the noise when the gauge blew off the hose, neither of which caused any lasting effects.

## April 2017

17/178

An instructor and his two trainees carried out a shore dive practising alternate source ascents. On the second descent and at 6m one of the trainees indicated she was having trouble clearing her ears. The group ascended but this didn't help and the trainee indicated she wanted to surface where she managed to clear her ears. The group started to descend but the trainee had problems again at 6m so the dive was aborted and the group surfaced with a dive duration of 24 min to a maximum depth of 9m. Following the dive the trainee's ear was uncomfortable, would not clear easily and remained like that for few hours. The trainee was taken to A&E where she was found to have a torn eardrum.

## May 2017

17/098

A trainee carried out a dive and at around 4m felt some discomfort in his ears. He tried to solve the problem using a valsalva manoeuvre but this did not work and shortly after he felt a 'popping' sensation in his ear followed by minor pain. At this point the trainee's instructor terminated the dive, brought his group to the surface and the trainee exited the water with a dive duration of 12 min to a maximum depth of 4m. The dive manager ascertained the level of pain was slight but it was decided that the trainee should attend a local hospital's minor injuries unit. The trainee attended the unit and was told there was slight reddening in his ear which would reduce naturally and he could continue to dive dependent on how he felt the next day. The trainee had no pain the following day and completed his training course with no further incidents.

## May 2017

17/109

A diver was attending a buoyancy and trim workshop at a dive centre. He kitted up in a car park and walked quickly to the waterside entry point where he indicated that he was warm prior to the shore dive and he fainted during the dive brief. The diver was de-kitted, laid down and the alarm raised. The centre staff arrived with an oxygen kit and an oximeter. The diver's oxygen level was low and his heart rate was elevated so he was put on the oxygen and fluids given. It was reported that it had been a warm day, the diver was taking blood pressure tablets, had not eaten breakfast and had a tight neck seal. It was recommended that the diver should not drive and to visit an A&E department for a medical check but certainly to visit his doctor for a check-up before diving again.

## May 2017

17/113

A group of divers carried out a wreck dive using a hardboat. They had been briefed to remove the shot from the wreck before they ascended and to deploy DSMBs for decompression if the current started to run. Two divers surfaced and reported that other divers were still on the shotline although the tide was pulling the 50 kg shot buoy underwater. The last pair of divers surfaced and were recovered aboard the dive boat. A diver acting as crew on the boat used the boat hook to catch the shotline and attached it to the boat's winch. The shot was snagged in the wreck and the divers admitted they had not moved it clear. In an attempt to recover the shot the boat manoeuvred to drag it free but was unsuccessful. The boat pitched and the shotline jumped off the winch and a loop of rope struck the back of the diver's hand. This shattered the diver's veins and caused immediate massive swelling and shock. The shotline was cut by the skipper and the Coastguard was contacted with a request for an ambulance. The diver was laid down and kept warm with her hand in a bucket of cold water. Her glove, which she was wearing as protection against jellyfish stings, was removed but it had protected the skin on her hand. The diver recovered during the twenty minute return to harbour but as an ambulance was still 20 min away she was transferred to A&E by car. An x-ray revealed no broken bones but the bones in the diver's hand were 'bowed' due to the swelling and the diver

had bruising that extended to her armpit. She was given antibiotics and pain medication but will have a residual lump in her hand probably for two to three months.

## June 2017

17/123

A trainee and his instructor carried out two shore dives. During the first dive to a maximum depth of 13m the trainee took some time to descend as he had trouble equalising his ears. After the dive the trainee reported he had blocked ears but was able to equalise them. Before the second dive the trainee was asked if he was fit to dive and did not have ear problems to which he responded he was 'OK'. Approximately two hours after the second dive the trainee reported having a pain in his left ear and feeling nauseous and shortly afterwards he was sick but reported he felt better. The diver was advised to seek medical advice at an A&E department but just prior to attending his ear 'popped', the pressure decreased and the pain had gone. The trainee still went to A&E as a precaution. It was confirmed that the trainee did not have middle ear barotrauma and the blockage had been caused by an ear infection. He was given a course of antibiotics and did not dive the following day.

## June 2017

17/231

A diver had completed a shore dive to a maximum depth of 22m for a dive duration of 33 min. While he was de-kitting he felt the sensation of 'pins and needles' in both legs and a 'niggle' in his lower back. The diver was given oxygen and the 'pins and needles' resolved. The diver was reported as having no health problems other than operations on his right foot three and five years earlier and he suffered tendon problems in his left foot.

## June 2017

17/260

The emergency team at the dive site were alerted by the buddy to the casualty. The buddy team were at the surface, with the casualty conscious, but in full panic. The buddy reported that the casualty had a major panic attack 15 min into the dive at 11m, took the regulator out of her mouth and went for the surface. The buddy tried to slow the ascent down and replaced her regulator a couple of times as the casualty tried to reject it. The emergency team de-kitted the casualty including drysuit, and placed her on oxygen. An ambulance was called, and arrived some 20 min later. The casualty was able to walk to the ambulance, which took her to hospital. The buddy later reported that a chest x-ray was taken and she was found to have inhaled water. She also started to develop tingling, and then numbness in hands and feet, and was transferred to another hospital for treatment.

## June 2017

17/232

A diver and his buddy carried out a shore dive to a maximum depth of 20m. On their ascent and at 7m the diver became anxious as he was 'wheezy', out of breath and could not calm his breathing down. He aborted the dive and surfaced with a dive time of 20 min. Back ashore the diver walked back to his car, was put on oxygen and felt better after a few minutes. The diver had no known health problems but was told not to dive for twenty-four hours or do any heavy lifting.

## June 2017

17/125

A group of twelve school students had taken part in a pool diving session as part of the school's 'activities week'. The first casualty performed a deep water entry before passing out and becoming unresponsive at the surface. The instructor removed the casualty from the water and asked one of the staff to call 999 while the second instructor continued with the rest of the class. The casualty was breathing, and the instructor removed his equipment before placing him in the recovery position. Oxygen was administered. One of the other participants also became semi-conscious, and all remaining participants were then instructed to stop breathing from their equipment and to get out



of the water. The ambulance arrived and paramedics took over medical care before transporting the participants to hospital with suspected carbon monoxide poisoning. Several of the other students later felt unwell and were also taken to hospital and, as a precautionary measure, the remaining students involved in the session were taken to hospital. Eleven students were discharged but one remained in hospital and was reported to be in a stable condition. The possibility that carbon monoxide was present in the diving cylinders supplied by a local company was being investigated by the police together with the HSE. Divers were put on alert and told that any cylinders filled and supplied by the company must be returned as a matter of urgency and a warning was posted on the company's website.

## July 2017

**17/131**

An instructor and his student were on a dive trip and carried out a hardboat dive with the instructor assessing elements of dive leading. Because of the wind direction the skipper had chosen a sheltered reef site and had briefed the divers. The instructor and student carried out their dive, drifted with a current and occasionally entered gullies. At the end of their dive the instructor signalled to the student to deploy his DSMB ensuring they had moved away from the rock face to avoid entanglement. The divers completed a 3 min safety stop at 6m and surfaced with a dive duration of 40 min to a maximum depth of 21m. Within a minute of surfacing the divers were lifted and separated by a large wave which pushed the student out to sea and the instructor towards the rocks. A series of waves forced and trapped the instructor against the rocks and it was apparent that he was not going to avoid the large waves. He felt panicky and inhaled water as the force of the waves had removed both his mask and regulator so he crawled up onto a rock using its cracks to maintain a hold. The student, who had also lost his mask and had his regulator removed by the waves, swam toward the boat and was recovered aboard. Meanwhile the instructor had put on his replacement mask and waved and shouted at the dive boat and his signals were acknowledged. The instructor decided not to re-enter the water until the boat was near enough to recover him. With approximately 40 bar left in his cylinder he used it sparingly as more waves washed over him and pushed him twice off the rock so had to climb back up each time to be seen by the dive boat. Having recovered all the other divers the skipper moved the boat as near to the rocks as he could but the wave action and shallow depth prevented him from getting close. The skipper checked that the instructor was fit and experienced and used the boat's speaker system to tell him to re-enter the water and swim out far enough to be picked up. The instructor was recovered by the boat's stern lift and apart from being shaken and exhausted he did not require any first aid. He had bruising on his hands due to impact with and gripping the rock and had pulled muscles in his legs and abdomen from bracing himself against the force of the waves and decided not to dive for the remainder of the dive trip. As well as losing his mask the instructor had lost a torch and had a weight pouch ripped from his harness.

## July 2017

**17/181**

A diver and her buddy carried out a boat dive which was the first of a dive trip. The diver had had a neoprene neck seal replaced immediately prior to the trip and the evening before the diver had tried the seal and found it to be tight. The seal was stretched overnight and when tried again in the morning she reported it as feeling comfortable and completely satisfactory. The dive planned was a scenic one to a maximum depth of between 18m to 20m for a maximum time of 60 min. From the outset the diver, using hired weights, felt unbalanced as if one side was over-weighted and pulled her to that side, which the buddy had also noticed. As a result of her discomfort the diver decided to abort the dive after approximately 30 min and deployed a DSMB from around 8m. The diver found it increasingly difficult to reel the line in and passed the DSMB to her buddy and they ascended to

their safety stop at 5m. The diver reported that as the ascent had started she began to experience some wet breathing from her regulator which increased as the ascent progressed. At 5m the diver's computer showed a 3 min safety stop which the pair completed. The buddy looked up and began to reel in to ascend and then looked across to the diver. She saw that the diver was unresponsive, her mouth was open and her regulator out. The buddy grabbed the diver's BCD and attempted to replace the diver's regulator without success so immediately performed a controlled buoyant lift and the pair surfaced with a dive duration of 39 min to a maximum depth of 18m. The buddy made the diver buoyant, signalled to the boat for help and removed the diver's mask; the diver was unconscious and unresponsive. The pair had surfaced too close to rocks on a cliff face for the dive boat to reach them so the buddy was instructed to tow her buddy approximately 10m away from the rocks towards the boat, which she did immediately, and the skipper and crewman were able to recover the diver aboard using the boat lift. As this was happening the buddy informed them that the diver's neck seal had been tight so as soon as the diver was aboard her hood and neck seal were immediately cut open, she resumed breathing and regained consciousness. The diver was put on oxygen and emergency services alerted with an ambulance on standby at the pier awaiting the boats return to port. Another dive boat in the immediate vicinity came to the aid of the crew and arranged to pick up remaining divers to allow the dive boat to return immediately to port. By the time the boat reached the shore the diver was reported to be fully conscious, talking, complaining her throat felt sore as though she had been strangled and she was also experiencing some discomfort when breathing in. The ambulance transferred the diver to hospital and a diagnosis of aspiration pneumonia was made. The diver was kept in hospital for four nights and treated with intravenous antibiotics and oxygen. She was discharged, with a course of antibiotics and was due to have a review chest x-ray 6 weeks later.

## July 2017

**17/135**

A rebreather diver was preparing his unit in a garage for a series of dives the following day. The unit was placed on the floor in a stable position with the counterlungs face down. The diver was stooping to attach the oxygen cylinder, which was in test and oxygen service and pumped to 232 bar. He fitted the regulator first stage to the cylinder and tightened it. As he attempted to secure the cylinder to the unit by clamping the cam band he slipped and fell backwards. Off balance his foot kicked forward, made contact with the oxygen cylinder valve and violently turned it into the partly open position. The rapid adiabatic compression of the gas generated sufficient heat to cause a fire in the regulator. The resulting flame from the first stage regulator diaphragm housing burnt the diver's right hand and bare arm and removed skin from his index and second finger. The diver had the presence of mind to immediately turn off the oxygen cylinder valve and the fire went out. The ignition was contained within the oxygen first stage regulator, the intermediate and high pressure hoses and pressure gauge. Nothing else was damaged and no indication of ignition damage was visible in or on the cylinder pillar valve. The regulator was extensively damaged internally with the spring welded to the housing and the valve seat completely burnt out. The diver was given immediate first aid using cold running water and subsequently an ice pack as he was taken to hospital where he received treatment. The diver had to attend for a number of days to have his dressings changed but the injuries were not expected to cause lasting damage and the prognosis was for them to heal completely.

## July 2017

**17/132**

It was reported that a diver was given oxygen by staff at a dive centre following a shore dive. The diver was conscious and not in any pain and handed over to ambulance staff when it arrived on the site. The diver was then airlifted to hospital.

## July 2017

17/156

A diver using nitrox 32 and her buddy using a rebreather carried out a boat dive on a wreck reaching a maximum depth of 31m with a dive duration of 34 min including a 1 min stop and 3 min safety stop at 6m. During the descent the buddy was aware that the diver was breathing a little fast and encouraged her to slow her breathing rate. On the ascent the buddy noticed that as they carried out their stops at 6m in a current, the diver was holding tightly onto the shotline and had started to breathe faster again. The diver felt unwell after getting back aboard the boat which was initially thought to be seasickness due to the surface conditions but then she started to feel that her legs were 'tingly'. The diver was put on oxygen and then said her arms felt weak so the buddy carried out a neurological examination and all muscle strength and reactions appeared normal. The boat tried to contact the Coastguard but were in a radio blackspot so had to move further out to sea. At this point the diver said her legs felt better but she was having difficulty breathing and appeared to be hyperventilating. The buddy got the diver to get her breathing rate down, loosened her wetsuit top, gave her some water and kept her on the oxygen. This seemed to resolve the breathing problem but the diver said that although her legs and arms felt better she now felt 'tingly' around her lips and cheeks. Contact was made with the Coastguard and they patched the dive boat through to a hyperbaric chamber. With the diver appearing to make a good recovery the chamber's doctor advised that the boat make all speed to their launch site and phone him again. During the journey back all the oxygen was used. There were CCR units on the boat set to give oxygen but as the diver was not comfortable lying down and still a bit seasick she was put on nitrox 50. On reaching their launch site the doctor was contacted again and he spoke directly to the diver who now appeared fully recovered. After discussing her dive the doctor advised that she did not need to attend the chamber, to call him if anything changed but he would call her later that evening to check that all was still well. The diver made a full recovery and no further action was required.

## August 2017

17/221

Following a wreck dive from a hardboat with divers from more than one training agency, a loud scream of pain from the deck was heard within the wheelhouse. On investigation it was ascertained that a diver had been taking off his drysuit which included a 'pee valve' when his buddy, trying to assist, wrenched the lower part of the drysuit down. Consequently, the condom connecting the diver to the 'pee valve' was wrenched off the diver in a violent fashion causing immediate pain and later discomfort. The diver did not require any first aid treatment and the emergency services were not required. He was able to dive the following day although he did complain of blood blisters on the injured part of his anatomy.

## August 2017

17/216

A dive boat contacted the Coastguard to report that a diver was unconscious following a dive to a maximum depth of 34m with a dive duration of 20 min. The diver was quickly taken ashore by the boat where it was met by an ambulance and a Coastguard rescue team. The diver had regained consciousness within approximately 5 to 10 min and received medical attention from the ambulance around 10 min after that and had begun coughing

up a lot of blood. The diver was taken by the ambulance for further medical treatment. (Coastguard report).

## September 2017

17/261

Shortly after a confined water session, the casualty began exhibiting signs of confusion and was unable to remember details of his movements prior to the confined water sessions or the arrangements for the next day (which had just been discussed). The instructor administered oxygen to the casualty and called an ambulance, which arrived shortly afterwards to transport him to hospital.

## September 2017

17/234

A group of divers prepared to launch their RHIB using a slipway. They had reversed the trailer into the water and tried to start the engine before pushing the boat off the trailer. The engine would not start so the trailer was pulled forward out of the water. The cox'n was on the boat during this time and when the trailer was back on the slip he attempted to start the engine again. When this failed he got down from the boat by lowering himself over the side and putting one foot on the trailer's mudguard. He was holding a screwdriver in one hand and the boat with the other as he reached down with his other foot but the ground was further than he thought and he slipped and fell. The rest of the divers went to assist and saw that the cox'n had a large cut to his head which was bleeding but he was fully conscious and had no other obvious injuries. Two large dressings from a first aid kit were applied with direct pressure in order to stem the bleeding. They divers tried to seek assistance but there was no one in the harbour master's office, the mobile signal was weak so they called 999 from a public telephone box and requested an ambulance. The cox'n was lying down and after 10 min the bleeding appeared to have stopped. He was happy to move off the wet slipway and was assisted to a bench by the harbour master's office. While doing this his breathing became laboured so he was laid down and it was noticed he was still wearing his drysuit which was restricting his airway. The cox'n was assisted out of his drysuit and his breathing returned to normal. A paramedic arrived and looked at the wound and shortly after an ambulance turned up but was sent away as the paramedic treated the wound in the back of his vehicle using a skin adhesive. The cox'n made a full recovery.

## September 2017

17/229

A diver and his buddy carried out a shore dive to a maximum depth of 33m with a dive duration of 43 min. Back on shore the diver started to feel 'pins and needles' in his right leg and was put on oxygen for 15 min and the 'pins and needles' resolved. It was reported that there had been a loss of buoyancy control on the ascent and the diver felt he may have strained his groin.

## September 2017

17/247

A diver was reported to enter the water for a dive from a charter vessel and have a panic attack on attempting to descend. The diver was recovered back aboard the vessel where she was only presenting a limited level of responsiveness. Medical advice was sought and requested for oxygen to be administered and for her to be evacuated, so Coastguard tasked a rescue helicopter and evacuated the diver to hospital. (Coastguard report)



## Boating & Surface Incidents

### October 2016

17/001

The Coastguard was contacted by a group of divers after their RHIB's engine had failed. A lifeboat was called out and towed the RHIB back to shore. The Coastguard commented that 'the crew of the RHIB were experienced and their boat was well equipped. They did exactly the right thing in calling for assistance from the Coastguard using their radio as soon as they realised they had a problem. Although a mobile phone may sometimes be useful close inshore, there is no safe substitute for a marine band VHF radio, either fixed in the vessel or a hand portable.' (Media report).

### November 2016

17/039

A diver was reported overdue whilst carrying out a shore dive. The Coastguard tasked two lifeboats and a rescue team but the diver had made their own way to shore with a reported dive time of 20 min to a maximum depth of 5m. Safety advice was given to the diver. (Coastguard report).

### December 2016

17/018

Two RHIBs were travelling in convoy with one planning to carry out a wreck dive and the other a scenic dive. The boats separated to travel to the dive sites with the agreement that they would stay in VHF contact. On the way to the scenic dive the RHIB's engine cut out without warning leaving the RHIB drifting. They tried to contact the other RHIB for between 10 to 15 min without success. It later transpired that the RHIB did not hear the call as they were still travelling to the wreck site and could not hear the radio over the engine sound. The drifting RHIB contacted the Coastguard and was advised a lifeboat would be with them as soon as possible. The other RHIB had arrived at the wreck site and contacted the drifting RHIB and, as they had not yet put their divers in, they diverted and arrived within 10 min and the lifeboat arrived on scene shortly after that. Using jump leads to restart the RHIB's engine was unsuccessful and the lifeboat offered a tow back to shore which was accepted.

buddy pair the boat's steering failed with it locked in the full-left position resulting in a complete loss of steering. The cox'n attempted to slow the boat by going into reverse but was unable to prevent the RHIB heading towards the wall. As it was pushed onto the wall a crew member used an oar to fend it off the rocks but with wave action rocking the RHIB, a current pushing the RHIB towards the harbour entrance and becoming separated from their divers, the cox'n issued a 'Mayday' call to the Coastguard. The RHIB drifted around the harbour wall losing sight of the divers. The buddy pair returned to the wreck's bow shotline where they remained for 10 min until the group of three surfaced and they all stayed on the shotline for about 20 min until a nearby boat, which had responded to the 'Mayday', picked them all up. The RHIB had now dropped its anchor and was recovered by a boat from the local marina which towed it back to shore.

### April 2017

17/071

A lifeboat was called to rescue two divers separated from their dive boat. The boat had broken down almost nine miles from port. A local vessel offered to recover the divers while the lifeboat towed the dive boat back to harbour. (Media report).

### April 2017

17/069

Two lifeboats were launched by the Coastguard after it was reported that a shore diver was overdue. The inshore lifeboat quickly located the diver and recovered him aboard. Once it was established that he did not require any medical assistance he was taken back to harbour and reunited with his colleagues. (Coastguard report).

### April 2017

17/070

The Coastguard was contacted by a dive boat reporting that a diver on a scallop dive to 26m was 30 min overdue and they had lost visual contact with the diver's SMB. A lifeboat was launched and vessels in the area was asked to assist in the search. The diver was located and recovered aboard one of the search boats where he was assessed and no medical assistance was required. The diver was then transferred back to his dive boat. (Coastguard report).

### April 2017

17/072

An all-weather lifeboat and inshore lifeboat were launched to assist in locating a dive boat after its engine had failed 18 miles off the coast. The dive boat also had problems with its navigation equipment and was unable to provide an accurate location. The weather had turned and visibility was becoming restricted. The dive boat was located and towed by the lifeboat which handed it over to the inshore lifeboat for return to shore. (Media report).

### June 2017

17/119

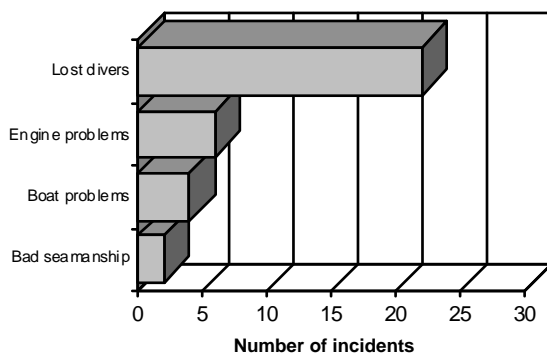
Two lifeboats were tasked to search for a pair of divers who were reported by their dive boat to be approximately 20 min overdue whilst carrying out a wreck dive. It was reported the divers were carrying marker buoys and a yellow flag. The divers were located safe and well on the surface and taken ashore by one of the lifeboats. The dive was reported to have been to a maximum depth of 25m for dive duration of 60 min. (Coastguard report).

### June 2017

17/160

The Coastguard received a report that two divers carrying out a boat dive were overdue by 6 min. The divers were located on the surface safe and well and no medical assistance was required. (Coastguard report).

### Analysis of boating & surface incidents



### January 2017

17/051

A dive RHIB with a non-diving cox'n and crewman deployed five divers; a buddy pair and a group of three, who carried out a shallow wreck dive by a harbour wall. The first group of two divers surfaced on the wreck's bow marker near the wall and finned out from the buoy and wall for the RHIB to pick them up. The RHIB put in the group of three but as it went to retrieve the

## June 2017

17/115

A diver and his buddy carried out a shore dive on a rocky outcrop that extended out to sea with several gullies interconnecting with each other. The weather was good with a minimal swell despite a strong breeze and they had shore cover at their entry point not far from a small harbour. Their dive plan was for a maximum dive time of 70 min to a maximum depth of 17m. The diver was familiar with the site having dived it several times in the past but he did mention that despite this he tended to get lost while diving there. The divers entered the water and swam through a gully and tried to locate the next one but could not find it. They stayed for some time between 3m to 8m but were unable to locate the gully. They headed away from the shore expecting to reach the edge of the outcrop and gully and follow it to return to their entry point. However the pair swam slowly into deeper water eventually reaching 16m without any signs of the outcrop. They decided to turn back but, and not carrying compasses, were now disorientated. Still in around 15m, with 70 bar left and a current against them, the divers decided to ascend. They surfaced with a dive duration of 43 min to a maximum depth of 17m but found they were around 250m from the shore and the current was taking them away from the shore. They signalled to the shore cover that they were safe and started to swim towards land but it became apparent they were making no progress as the current and wind were moving them further away. At that point and around 10 min after surfacing the divers grabbed hold of a nearby anchored buoy with a smaller 'tail' buoy attached to it. The buddy held onto the larger buoy and the diver managed to use his torch clip on his BCD to attach himself to the 'tail' buoy's line whilst he waved and shouted for help trying to get the attention of the shore cover or from people standing at the end of a jetty in the nearby harbour. The people on the jetty eventually spotted the pair and initially just waved back but then realised something was wrong. They alerted a couple of fishing boats in the harbour and they came to the divers' rescue. As the boats were on their way it was then that the shore cover spotted the divers, understood they were in distress and were about to call the Coastguard when they saw the boats recover the divers and head back to the harbour. The shore cover met the boats and divers in the harbour with an oxygen kit as they were unaware of the divers' condition and whether they would need any treatment but, apart from feeling very tired, both divers were fine. The diver reported that in retrospect that he should have inflated an SMB once they had surfaced or deployed a DSMB before their ascent.

## July 2017

17/129

Two lifeboats were launched to assist three divers who got into difficulty when they became separated from their dive boat by a current and ended up on a rock. The lifeboats managed to recover all three divers from the rock one by one. No injuries were reported other than the divers being very cold and shaken up. (Media report)

## July 2017

17/148

The Coastguard received a call from a dive boat who reported four divers, in two pairs, were overdue. At the last sighting their DSMBs were inflated on the surface as they were carrying out a drift dive running in an easterly direction. Conditions were reported as 'a bit of a swell'. A search and rescue helicopter was sent to the scene and located the four divers safe and well and provided safety cover whilst the dive boat recovered them. It was reported that the Coastguard commended the dive boat's swift action and the divers in having a plan of action and equipment should anything go wrong. The divers, who were also carrying strobe lights, had inflated their DSMBs but the choppy seas that day meant it was difficult for the dive boat to see them. (Coastguard report).

## July 2017

17/149

A dive boat called the Coastguard to report that two of its divers were missing. An inshore and two all-weather lifeboats were launched to prepare for a major search of the area. The sea state was reported as slight but visibility was poor. It was reported that the divers had got caught in a current but they had managed to swim to the nearby shoreline. As the lifeboats were about to begin their search one of them located the divers and picked them up. The divers were checked over but did not require any medical assistance and were returned to their dive boat. (Coastguard report).

## July 2017

17/207

A lifeboat issued a 'Pan Pan' reporting two divers overdue. A lifeboat was tasked to conduct a search of the immediate area while a Coastguard rescue team was tasked to conduct a shoreline search for any divers coming ashore. Just before the searches started the dive boat reported sighting a DSMB that had just surfaced and visible bubbles. Consequently the lifeboat and shore rescue team were placed on immediate readiness to await confirmation from the dive boat on the status of the divers. The boat reported both divers were back aboard safe and well and all units were stood down. (Coastguard report).

## August 2017

17/164

A diver carried out a boat dive to a maximum depth of 17m for 22 min. During the dive the diver felt that his drysuit was leaking, so made a controlled ascent. The dive boat reported to the Coastguard that the diver was overdue but he was quickly located on nearby rocks. The diver had swum for approximately 10 min to reach the rocks and had jettisoned his kit. Two lifeboats attended the scene and they each put a crew member ashore to check the diver. He was exhausted, dehydrated and had scrapes to his knees and hands from the rocks. After a bottle of water and a rest the two crewmen helped the diver to walk along the shoreline where he was transferred to one of the lifeboats which took the diver back to harbour and confirmed that no medical attention was required. A Coastguard rescue team met the casualty to collect details and provide suitable safety advice. (Coastguard report).

## August 2017

17/249

During an instructor examination two RHIBs were being used for diving activities. Prior to the first dive of the day two shotlines had been deployed onto a wreck and one pair of divers had been deployed from one RHIB. On the other RHIB a pair of divers were ready to dive when the engine stalled and all electronics, GPS, sounder, radio and pumps, went off. The engine would not restart and the boat was drifting due to wind and tide, it being 20 min after slack water. The anchor was deployed and a signal made to the other RHIB which came over and the problem was communicated to them and then the other RHIB returned to cover their divers. Contact was made with the shore by mobile phone and a replacement RHIB was sourced, launched and travelled to the dive site and delivered a spare battery and booster. The examination had continued in the meantime using the remaining functioning RHIB. Once the battery had been charged the engine started and all electronics were functional again but then failed again 10 min later. The RHIB was then towed back to harbour via a second site to allow the exam to continue. Subsequent investigation indicated that the alternator was not charging the battery.

## August 2017

17/210

Two divers, both using 12 lt cylinders of air, conducted a boat dive to a maximum depth of 15m and a dive duration of 45 min. Both were experienced divers and the weather conditions were reported to be very good but with a choppy sea state. The Coast Guard was alerted when both divers were 20 min overdue. The

dive boat and several nearby vessels started a search for the divers and a lifeboat was tasked to the area. A local vessel located and recovered the divers. The lifeboat checked the divers over and determined no medical attention was required. (Coastguard report).

**August 2017 17/211**

A diver was reported overdue on a boat dive by approximately 15 min. The diver had been in a group of three carrying out a reef dive. It was later reported that during the dive, to a planned maximum depth of 30m with a dive duration of 60 min, the diver had gone deeper than his two buddies and they had become separated. The sea was described as being a bit choppy and underwater visibility at around 4m. A Coastguard rescue helicopter, three lifeboats and two Coastguard rescue teams were tasked to search for the diver. The diver was located on shore nearby and found to be safe and well with no requirement for medical assistance. During his attempts to reach the shore the diver had lost his kit and fins. (Coastguard report).

**August 2017 17/169**

A dive boat contacted the Coastguard to report one of its divers was 15 min overdue from a dive. The Coastguard scrambled a helicopter, two lifeboats and shore rescue teams. A search of the coastline was made and after an hour the diver was located on the shoreline. Despite being exhausted the diver did not require medical treatment and was airlifted to safety. (Media report).

**August 2017 17/212**

Two divers conducted a drift dive from a dive boat. The divers deployed a DSMB after 13 min from a maximum depth of 13m. The dive boat did not see the DSMB surfacing as the current had been stronger than they had believed. The divers surfaced some distance from the vessel where they were found by a passing yacht. The skipper of the yacht reported the divers to the Coastguard and they were determined to be from the dive boat. A lifeboat and Coastguard team were tasked to ensure the divers were safe and well and to provide appropriate safety advice to all those involved. (Coastguard report).

**August 2017 17/213**

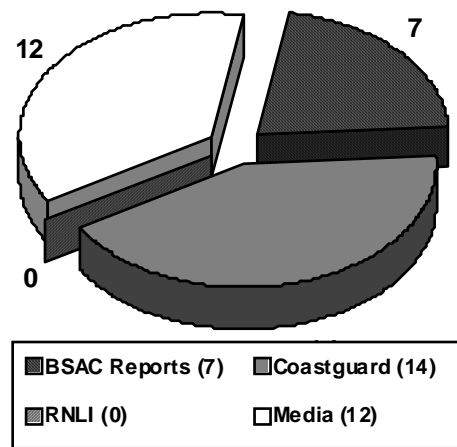
A solo diver reported to the National Coastguard Institution Watch (NCI) that he would be conducting a shore dive for around a 60 min duration. The diver had entered the water without any surface detection aids being used. Once the diver was 10 min overdue, the NCI informed the Coastguard and their rescue teams were tasked to try to locate the diver but, before their arrival, the NCI reported the diver had surfaced and was safe and well. (Coastguard report).

**August 2017 17/182**

An instructor, using nitrox 32, and his student carried out RHIB dive on a shoal marked by east and west cardinal buoys. The pair entered the water 25m east of the west cardinal buoy, carried out their dive and surfaced with a fully inflated DSMB approximately a 100m north west of the east cardinal buoy with a dive duration of 31 min to a maximum depth of 16m. The RHIB was close to the west cardinal buoy and the cox'n was facing west. The pair signalled to the boat that all was 'OK' but they did not receive a return signal. They waited for about 5 min watching the boat moving around providing surface cover to the divers on the western area of the shoal. After 12 min the pair saw a DSMB appear on the surface which belonged to other divers who had entered the water before them and the pair shouted to the RHIB. 3 min later the pair watched as the RHIB picked up the divers who had deployed the DSMB but it had still not seen them. A passing yacht was hailed by the instructor and he asked them to contact the RHIB on channel 14, as the radio watch was on dual 16/14 channels, and ask it to pick them up. There was no

response to the radio call on either channel and the yacht advised they would move over to the RHIB to alert it to the divers' position. The yacht made contact with the RHIB which immediately headed towards the divers and recovered them 25 min past their anticipated surfacing time. The RHIB's radio was checked and calls made on channel 14 confirmed it was working. The RHIB called the yacht to thank them but no contact could be made, suggesting the yacht's VHF radio was not working, so the RHIB moved across to it and thanked the crew for their assistance.

**Boating & surface incident report source analysis**



**September 2017 17/241**

A diver conducted a solo dive, from a boat, leaving one person aboard. The diver was reported to the Coastguard as overdue, so the Coastguard tasked a rescue helicopter, a lifeboat and a Coastguard rescue team to locate and recover the diver. The diver was found by the helicopter nearby onshore, found to be safe and well, no medical assistance required. (Coastguard report)

**September 2017 17/185**

An all-weather lifeboat was tasked to help locate a missing diver. However, a rescue helicopter had already located the diver who had made his way to shore and was assisted up a steep and rocky hill by the local Coastguard team. (Media report).

**September 2017 17/235**

Two pairs of divers carried out a boat dive. The brief was to descend the shotline to a wreck at 21m and deploy DSMBs if they drifted off the wreck in the predicted tidal stream of 0.2 kn rising to 0.5 kn. The maximum dive time was to be 40 min. The shotline was 10m too long, which was intentional, and alongside the wreck. A buddy pair, one using nitrox 32, descended to 19m but did not follow the shotline to the wreck and hovered above the seabed at 20m. A slight current took them downstream but as one of the divers was helping to correct his buddy's buoyancy they did not deploy a DSMB until 13 min into the dive. Meantime the second pair of divers entered the water, completed their dive and surfaced 30 min later. A boat search was instigated for the first pair but circular searches around the shotline produced nothing so the search was moved downstream and inshore. The boat then made a run offshore in case the divers had not headed

inshore. The divers had surfaced with a dive duration of 30 min to a maximum depth of 20m and could see the boat searching but were unable to attract its attention. 60 min after the divers had entered the water the boat was about to call the Coastguard when the divers were spotted 0.6 nm from the shotline. It was reported that their DSMB, which was small and a faded orange colour, was difficult to see against a low sun. The divers were recovered. One of the pair was diving in a wetsuit so was given a windproof jacket and taken ashore for a warm shower. He made a full recovery and dived later that day.

## September 2017

**17/236**

During an instructor examination a group planned to dive from two RHIBs on a site in the shelter of a breakwater but the wind

speed and direction made the first choice site unacceptable and the group relocated to a backup site which was more sheltered. After successful completion of two waves of diving on the site, the group relocated to a second site and again two waves of dives were completed without incident. With all divers recovered, the cox'n of one of the RHIBs had switched the engine off and it would not restart. The second RHIB was alongside and a tow was arranged back to harbour without further incident. The RHIB owner believed the incident may have been due to a failure of the engine control system which had recently been replaced, although the boat had been used several times without incident since the replacement. A replacement RHIB was sourced for the next day of the examination.



## Ascent Incidents

### October 2016

17/029

Whilst carrying out a shore dive a diver's BCD's stiff inflator button required her to use two hands to deflate and inflate. This resulted in her buoyancy control being compromised and she descended rapidly to 8m and a few minutes later made a buoyant ascent to the surface with a dive duration of 6 min to a maximum depth of 8m. The diver and her buddy aborted the dive and returned to shore.

provided with a coat and hat, as he had none, and was given a warm drink. The skipper and other divers monitored him as well as his buddy who was also shocked having also made a rapid ascent but was not showing any symptoms. The diver was not offered oxygen and the skipper said later that he was reluctant to do so as it would have meant contacting the Coastguard which he didn't want to do. The diver sat out the second dive, gradually warmed up, regained his composure and seemed fine when the boat returned to shore.

### October 2016

17/028

Three divers were carrying out a shore dive. Towards the end of the dive one of the divers had trouble venting air from her drysuit and began to ascend. One of her buddies noticed this, held onto the diver and attempted to assist by venting his own drysuit and BCD but could not prevent them both making a buoyant ascent from 14m. The other buddy who had been watching ascended with and at the same rate as the buddy pair. Back on shore all three divers were put on oxygen as a preventative measure and were monitored for any signs or symptoms. After approximately an hour with all divers well, the group returned home.

### December 2016

17/040

A diver carrying out a shore dive made a rapid ascent after hyperventilating while at 51m. The diver's reported dive time was 5 min. A medic who was on the dive site put the diver on oxygen and contacted the Coastguard. They tasked an ambulance and a rescue helicopter to the scene and the diver was transferred to a hyperbaric chamber. (Coastguard report).

### October 2016

17/007

An instructor and two students prepared to carry out a training dive from a RHIB on a wreck site. Unable to locate a shotline that had been deployed four days earlier the decision was made to continue the dive as the students would be carrying SMBs. The group entered the water but one of the students realised he had forgotten his weightbelt and re-boarded the boat as did the second student as she realised her weightbelt was slipping off and her mask, which was caught in her hood, was leaking. The group re-entered the water and descended but during this, and in the low visibility, one of the students lost sight of the other and began to panic. The group regained contact at around 14m but 3 min into the dive one of the students lost her fin, panicked and fully inflated her BCD to get to the surface. The instructor and remaining student made a controlled ascent. The student who had made the fast ascent gave the distress signal to the cover boat and was recovered aboard the RHIB, put on oxygen and monitored throughout the trip back to shore. A diver helpline was called for advice and the student was monitored for the rest of the day but showed no symptoms.

### January 2017

17/026

A diver and his buddy carried out a shore dive to a maximum depth of 21m for a dive duration of 31 min. After a surface interval of 1 hour 15 min the pair planned to carry out the same dive again but with a shorter dive time. After 20 min into the dive the pair swam back to a wall to ascend and the diver switched regulators on his side-mount configuration but took in a mouthful of water. There was no problem at this point but there was a little water in the replacement regulator. The diver found he could not breathe in and thinking he had a problem with the cylinder or regulator he switched back but still could not breathe in. The diver gestured to his buddy that he had a problem and the buddy started to deploy his alternate source regulator but the diver did not think this would help him and he ascended. He breathed out on the ascent but reported he was scared and had screamed all the way to the surface. He surfaced with a dive duration of 22 min to a maximum depth of 21m and gave a very large burp. The diver could see his buddy's bubbles below and he checked his regulators to see if there was a problem but they both worked perfectly. The surface cover realised there was a problem and came to the water's edge and the buddy surfaced checking the diver was 'OK'. The pair carried out a surface swim towards the shore and the diver was worried that if he got straight out he would be put off diving forever. He asked his buddy to descend to a 6m shelf to put his mind at rest. The buddy did not feel completely happy but eventually agreed. They descended and all was well as the diver's equipment worked and he was calm. They ascended to 3m and then exited the water. Back on shore the diver's physical and mental condition were checked as was his equipment again.

### October 2016

17/226

A diver and his buddy carried out a shore dive to a maximum depth of 20m. At 17m the diver lost weight pouches from his BCD and made a buoyant ascent surfacing with a dive duration of 20 min. Back ashore the diver was put on oxygen for 20 min, checked over and was fine.

### April 2017

17/078

### November 2016

17/013

A dive on a sea pinnacle with a depth of between 10m to 40m had been advertised by a Charter boat. However, due to the weather, the site was changed to a wreck lying on a flat seabed at 31m. One of the divers aboard, although qualified for the dive, seemed very inexperienced and had to be shown how to stow his equipment on the boat. He was also wearing a wetsuit, single cylinder and no hood or gloves. The skipper buddied the diver up with another and they carried out a buddy check with the buddy taking control of the dive. During the dive the diver ran out of air. He took the buddy's alternate source, failed to purge it, swallowed water, panicked and bolted for the surface. On the surface the diver was pale and confused and needed assistance to get onto the boat's lift. Back aboard the boat the diver remained very pale and was visibly shaken up. He was

Three divers, two of whom were instructors, carried out their first sea dive of the season from a RHIB. The plan was that one of the instructors would manage the SMB and be the diver's buddy and the other instructor would follow them and use his own DSMB for the ascent or in the event of separation. The diver felt rather tired having just kitted up and was feeling slightly nauseous but entered the water and felt alright until 5m where she felt it was taking a long time to reach the seabed. The visibility was low and the diver was constantly looking around to stay with the instructors. At 12m it had become dark and the diver could vaguely see the instructors and one of the instructor's torchlight. At 13m the instructors decided to abort the dive and gave the 'Up' signal. Not having reached the bottom to sort out her buoyancy the diver felt uncomfortable and at the 6m safety stop she had difficulty with her buoyancy as



she held onto the SMB line and then her buddy's hands. Her mask began to fill which she cleared but at that point she seemed to have water in her regulator. She tried to breathe again but the regulator appeared to continue to deliver water. The diver reported that she did not think to use her alternate source or purge her regulator and unable to breathe properly and desperate for air she just wanted to head for the surface, which she did 2 min into the agreed 3 min safety stop. The two instructors followed closely behind her and surfaced with a dive time of 11 min to a maximum depth of 13m. On the surface the diver was still panicked and trying to catch her breath. She took off her mask and removed her regulator in spite of the fairly rough conditions. The instructors ensured the diver was buoyant and told her to replace her regulator. One instructor positioned himself underneath her cylinder, fully inflated his wing BCD and lifted the diver further out of the water. He handed the diver her regulator and then his own but she refused to take either. The RHIB was close by but she was still incapacitated due to panic, the diver's kit was removed and she was recovered from the water. Back aboard the diver was exhausted, just wanted to lie down and a minute later she was sick. The diver was monitored closely but showed no further symptoms. That evening the diver had an ache in her right arm and shoulder which she put down to carrying cylinders. The following morning she complained of a shoulder pain and was advised to contact a hyperbaric chamber. She was asked to email all her details to the duty doctor who then called the diver. As her arm was feeling better, the doctor said there was no need to see him but asked her to monitor the symptoms and report back if they persisted. He also advised her to re-train in areas such as an 'out of air' situation to regain her confidence.

### April 2017 17/068

Two divers planned a shore dive with the aim of reviewing skills after the winter break and familiarizing themselves with diving on twin independent cylinders. One of the divers had bought a new back plate and twinning bands for his BCD which his buddy had fitted for him. On checking his cylinders after a service the diver found that a set of his manifolded twin 8.5 lt 230 bar cylinders were filled to 290 bar and when his buddy checked his 10 lt 230 bar cylinders he found they were also filled to 290 bar. The pair decided to use these cylinders as soon as possible to try and reduce any damage to them that might be irreversible. This meant the diver using his wing BCD, because of the narrower 8.5 lt cylinders, rather than the BCD setup for the independent cylinders. The pair arrived on the dive site and kitted up but during their buddy check the buddy noticed the diver, using the twin manifolded cylinders, had two independent sets of regulators with the two octopus regulators colour coded yellow. They did what they could to stow the redundant octopus regulators out of view, in the BCD webbing, to avoid the potential confusion of multiple regulators. They put the two primary regulators on the diver's right hand side, one in a clip and the other ready for use. When they entered the water the diver seemed under-weighted so another diver on the site clipped spare ankle weights to the front of his wing BCD. When the pair descended to 3m the diver's orientation was a problem so the buddy moved the ankle weights to the diver's feet. They descended to 8m where the buddy noticed that the diver's wing BCD inflator hose on his left side was coming out of a port on the wrong side of the first stage which was causing the diver discomfort by pushing his cylinders to the right. The buddy checked if the diver could cope with this and continue the dive which he confirmed, changed regulators and was fine. They descended to 20m but at around 30 min the diver seemed unhappy and not understanding why, the buddy indicated to ascend and deployed his DSMB. They began their ascent with the diver in the buddy's sight but he appeared to go up a little ahead of him and then descended past him. The next thing the buddy saw was a cloud of bubbles and the diver making a rapid ascent to the surface. Taking the view that as it was a busy dive site with plenty of help on hand at the surface to see to the

diver, the buddy continued his ascent and carried out 2 min of his 3 min safety stop before surfacing. A rescue boat confirmed to the buddy that the diver had been recovered, was on oxygen and ashore in the care of staff on the site who had alerted the emergency services. The diver reported that he had realised he was ascending too quickly and deflated his wing. This resulted in him hitting the bottom with such a force that it dislodged his regulator and he took in some water so he hit his inflate button to get to the surface. His dive time was 31 min to a maximum depth of 20m. The buddy met the diver in the first aid room and an ambulance arrived followed shortly after by an air ambulance with a doctor aboard. ECG and blood tests were taken and the decision made to take the diver by ambulance to hospital for observation. The diver was discharged later that evening with advice from the hospital doctor to check for any rash, joint pain or other discomfort in the next twenty-four hours and not to dive for a week.

### April 2017 17/081

Three divers carried out a RHIB dive and reached a maximum depth of 19m on a wreck. One of the divers deployed her DSMB from 16m with the help of one of her buddies. The group ascended but at 14m the diver with the DSMB lost control of her buoyancy and ascended, omitting a safety stop, to surface with a dive time of 32 min. The remaining pair deployed a DSMB and ascended together. At 6m they could see the diver on the surface and they continued their ascent without carrying out a safety stop to join her at surface without delay. The diver appeared well but was monitored on the RHIB and during the rest of the day.

### April 2017 17/137

A diver, using a twin-set with nitrox 28 and a stage cylinder, and her buddy carried out a boat dive on a wreck. There was a current on the dive site although it was due to decrease for slack water. The pair entered the water to descend a shotline with a 'tail' buoy attached to the shot buoy. The diver struggled to descend and dumped all the air from her wing BCD and drysuit. At approximately 4m the diver realised her stage cylinder was entangled in the line of the 'tail' buoy. Her buddy, who was unaware of the situation, continued to descend. The diver untangled the stage cylinder from the line and in the process became inverted. The buoy had kept the diver buoyant so as soon as she freed herself with no air in her wing BCD or drysuit she began a rapid inverted descent in the current taking her away from the shotline. At 18m the diver managed to recover from the inversion and inflated her drysuit and closed the dump valve but in the panic of the descent she struggled to locate her wing BCD inflator. She slowed the descent from 20m until she hit the seabed at 33m. At this point the diver was disorientated and initially unable to begin an ascent to abort the dive. She disconnected her stage cylinder and left it on the seabed and started to ascend using her drysuit as she was still unable to locate her wing BCD inflator. As she ascended she located the inflator but in panic put too much air into her BCD and despite trying to dump this she made an uncontrolled and rapid ascent from 25m to the surface. On the surface, with a dive time of 3 min to a maximum depth of 33m, the diver signalled the boat and was recovered aboard. The diver was immediately placed on oxygen and had a nose bleed for about 30 min. The buddy by this time had surfaced by the shotline and was recovered by the boat. The Coastguard was notified but did not attend the scene as they were involved on a 'Mayday' call but a diving doctor was contacted. After an hour the diver was sitting up and came off the oxygen within two hours. The diver suffered suit and mask squeeze resulting in bruises and black eyes and when she later attended a hospital it was confirmed she had swelling of her ear and sinus cavities which would resolve naturally.

**April 2017** **17/093**

A dive boat reported a diver aboard who had experienced a rapid ascent from 44m with a dive duration of 48 min. The Coastguard contacted a hospital and requested an ambulance to meet the dive boat on its return to harbour. The diver was transferred to the ambulance and taken to hospital. (Coastguard report).

**April 2017** **17/094**

Approximately 10 min into a dive the casualty felt uneasy and ascended to around 30m. The divemaster calmed him down and they both returned to 37m. Shortly afterwards, the casualty panicked again and made a rapid ascent directly to the surface. The assistant stayed all the way with the casualty. Meanwhile, the instructor ascended with the other students. At the surface the casualty was already being helped by another instructor. Despite displaying no adverse signs or symptoms the casualty was taken to the hospital as a precaution, placed on oxygen for 6 hours and was then cleared to dive. Their maximum depth was reported to be 39m with a dive duration of 15 min.

**April 2017** **17/080**

A group of three divers carried out a shore dive and spent a few minutes at their maximum depth of 24m before ascending to continue the dive in around 12m. As the group began their ascent from 10m one of the diver's weightbelt unthreaded from the buckle and fell off. The diver made a buoyant ascent but her computer did not indicate any warnings or missed stops and she surfaced with a dive time of 30 min. The diver's two buddies could see her on the surface whilst they completed their safety stops having recovered the diver's weightbelt from around 15m. Back on shore the diver was put on oxygen as a precaution and did not dive again that day.

**May 2017** **17/087**

An instructor and two divers, using nitrox 22, carried out a boat dive to a wreck in 34m. One of the divers deployed his DSMB at 20m and the trio ascended to 9m where they switched to their nitrox 53 decompression gas. At 6m the diver holding the DSMB became buoyant so let go of the DSMB, tried to dump air from his drysuit without success and surfaced missing 6 min of decompression stops. He located his wing BCD hose and was able to descend to the instructor and the other diver at 6m to continue his missed decompression stop for a further 5 min. The instructor and other diver had 4 min of decompression remaining which they completed and all three divers ascended and surfaced with a dive duration of 41 min to a maximum depth of 34m. The diver who had made the buoyant ascent was put on oxygen and the Coastguard contacted. The diver was taken to a hyperbaric chamber but after a full examination was declared medically fit with no need for recompression treatment.

**May 2017** **17/111**

A diver had carried out a dive to a maximum depth of 10m for a dive duration of 34 min. After a 2 hour surface interval the diver and his buddy carried out a drift dive from a RHIB. Around 24 min later the diver was seen on the surface holding onto his buddy's DSMB. The diver was picked up and recovered aboard when his buddy surfaced and was also recovered to the RHIB. The diver reported that he had thought he was out of air at around 17m and had panicked but didn't know why he had surfaced so quickly. He had surfaced with a dive duration of 26 min to a maximum depth of 20m with no decompression requirement and had 30 bar remaining in his cylinder. He showed no symptoms and was monitored for the rest of the day. The following morning the diver reported that he had slept badly and had an upset stomach. After a neurological assessment by fellow divers which showed no symptoms the diver reported that his knee, which had been hurting for a

couple of weeks, was feeling worse. The divers called a hyperbaric chamber for advice and the duty doctor advised that the diver should not dive for forty-eight hours and to self monitor. The diver did so and later reported that he was fine.

**May 2017** **17/101**

A diver using nitrox 25 carried out a shore dive with his buddy using air and a new weight harness. The divers entered the water and descended to 6m where the buddy carried out a buoyancy check. After a few minutes he gave the diver an 'OK' signal and they descended to 9m where the buddy checked his buoyancy again and signalled 'OK'. The diver headed to a wreck in around 18m but when he looked for his buddy he saw that he had descended to another underwater feature so headed down to catch him up. The diver's regulator had started to gently free flow and when the diver re-united with his buddy at 23m he gave the signal to surface. The diver's free flow became worse and he switched to his octopus regulator only for this to also free flow. The diver started to lose buoyancy control and began to ascend surrounded by a mass of bubbles. He switched to his BCD's auto air regulator but knocked his mask which flooded and shortly after the diver arrived at the surface with a dive time of 13 min to a maximum depth of 23m. The diver shouted for assistance and a rescue boat was quickly alongside. The diver informed the crew that his buddy was still underwater, that he may have a problem and indicated his bubbles so the crew knew where he was. The diver was recovered aboard the boat and taken ashore. The boat's crew advised two instructors that a diver may be in need of assistance and they entered the water to locate and guide him back to shore. The buddy surfaced with no ill effects. The diver was checked over as his ascent had been faster than normal and contact was made with a hyperbaric chamber for advice. The diver was informed that there should not be anything to be concerned about but was asked to take it easy, not dive again that day, given a diver information pack and asked to report if anything untoward happened.

**May 2017** **17/103**

An instructor and two recently qualified divers carried out a boat dive to a wreck at 16m with the aim of depth progression for the two divers. After reaching their maximum depth of 16m the instructor checked the divers' air and as one had 100 bar remaining, he signalled to both divers to slowly ascend to 6m and stop for 3 min. During the dive, with visibility of around 2m, the instructor had to constantly signal to one of the divers to stay with the other and he repeated the signal to both of them for the ascent. The instructor led the ascent to around 11m where the wreck levelled off. At this point he noticed that one of the divers was missing and signalled to the other diver if he had seen him. The diver signalled back that he did not know so they carried out a 360 deg search. The diver who had become separated followed separation procedure for 30 sec and had made a controlled ascent surfacing with a dive duration of 22 min to a maximum depth of 16m. He signalled 'OK' to the dive boat and was recovered aboard. After their search the instructor deployed his DSMB and signalled to the remaining diver to hold onto the line for the ascent. At about 7m the diver had problems controlling his buoyancy, let go of the line in an attempt to dump air from his BCD but, as he was already ascending too quickly, he surfaced beside the DSMB. He remained with the DSMB waiting for the instructor to surface and was requested by the dive manager aboard the boat to give pulls on the DSMB line following the diver recall procedure which had been briefed for the dive. The instructor felt the pulls on the DSMB line so knew the buoyant diver had reached the surface and he made a slow ascent continuing to look for the first diver and surfaced with a dive duration of 28 min to a maximum depth of 16m.

## May 2017

17/102

During their buddy check at the start of a RHIB dive a diver reported feeling unhappy to his buddy but did not elaborate exactly what the problem was and decided to proceed with the dive. Just after a gas check 25 min into the dive the buddy turned to find the diver had disappeared. Suspecting that he had lost buoyancy and ascended the buddy began to deploy a DSMB in readiness to surface when the diver re-appeared and the pair agreed to ascend. With the DSMB deployed 2 min passed while the diver attempted to leave the seabed but was having difficulty and began a laboured ascent. The buddy began reeling in the DSMB but at 18m the diver descended back to the seabed at 22m. The diver began to slowly ascend again before sinking back to the seabed once more. During the diver's third attempt to ascend the buddy, in an effort to allow the diver to control his ascent, handed him the DSMB to use as an aid. This was achieved until approximately 12m when the diver appeared to have difficulty managing the reel and controlling the buoyancy in his suit and BCD. It seemed that an over-weighting issue was causing the diver to over-inflate his BCD to achieve positive buoyancy. The buddy tried to resolve the issues with the diver's BCD, dumped some gas to avoid an uncontrolled ascent but the diver, still buoyant, drifted up to the surface. The buddy ascended normally, ensured the diver was secure at the surface and summoned the RHIB for their recovery. The pair had surfaced with a dive duration of 36 min to a maximum depth of 26m. The diver had missed a 1 min decompression stop and a safety stop but the buddy, using a rebreather, had no decompression requirements. The diver did not appear to be suffering any symptoms other than a mild headache but was placed on oxygen as a precaution and monitored. After around 30 min the diver's headache resolved and he came off the oxygen but he did not dive again. Approximately three hours later as the RHIB was being unloaded the diver felt dizzy. He lay on a pontoon before walking up a steep ramp and sat at the top where he was put on oxygen again. After half an hour the diver said he was fine and helped with preparations for the next day's diving. Later that afternoon the diver reported a bruise on his back, further dizziness and a mild headache. The bruise was attributed to mild suit squeeze and he remained lying down and was put on oxygen. A photograph of the bruise was taken should the diver's symptoms worsen and there was a need to contact a hyperbaric chamber. The diver had no further ill effects and he was feeling fine the following morning but did not dive again that weekend. It was discovered later that the diver was supposed to have put 1 kg weight blocks in his BCD but instead had used 2 kg blocks.

## May 2017

17/110

A diver and his buddy were in a group planning a RHIB dive on a wreck at 38m but due to a delay in preparing the boat and shotline this plan was aborted and changed to another wreck at 30m. The diver was using twin independent 12 lt cylinders with nitrox 26 in one and air in the other and was also carrying a 3 lt side-mount cylinder with nitrox 51 for accelerated decompression. His buddy was diving on air with a cylinder of nitrox 80 decompression gas. The wreck was located, the shot deployed and the first pair of divers, who had been slow kitting up, were put in at slack water. The diver and his buddy entered the water with the tide beginning to run on the shotline. The descent on the shotline was extremely difficult due to the current and the diver, pulling himself down hand over hand, became winded and realised he was breathing heavily. Checking with his buddy, who signalled 'OK' to proceed, the diver hoped that once on the wreck they would be able to shelter from the current. They continued to descend but the diver decided his breathlessness would consume too much gas on the bottom so decided to abort the dive and signalled to his buddy to ascend. The diver pulled himself up the shotline but this did not seem to help his ascent and when he found the shot

buoy in front of him he realised it had been pulled underwater by the current. The diver checked his depth, which was 25m, and signalled to his buddy to let go of the line and ascend but decided not to deploy his DSMB due to the current. The visibility was poor and the buddy shone his torch for the diver to locate him but despite finning strongly the diver was unable to stay with his buddy and then his fins touched bottom at 30m. The buddy was able to send up his DSMB and ascend normally despite feeling as though he was being dragged down by the current. The diver was still unable to ascend but was not over-weighted and had plenty of gas with no decompression requirement. Feeling unhappy by this time and normally controlling his buoyancy with his drysuit, he decided to inflate his wing BCD. His ascent was rapid although the diver constantly exhaled and attempted to dump from his wing BCD. He surfaced with a dive time of 7 min to a maximum depth of 31m. He inflated his wing BCD and signalled distress to the RHIB as he continued to be breathless from the efforts of the dive. The diver was assisted back aboard the RHIB, removed his mask and hood to breathe more easily and explained his rapid ascent. The diver was put on oxygen but found that as the mask did not seal properly he had to use the purge button to deliver sufficient gas to breathe. The diver remained on oxygen whilst other divers and his buddy were recovered. The RHIB returned to harbour with the diver switching from the oxygen to use a fellow diver's nitrox 80 decompression mix. He was monitored but showed no symptoms. After a surface interval of over 7 hours the diver carried out another dive which was an incident free drift dive for a dive duration of 36 min on air to a maximum depth of 18m. The diver stated that upon reflection carrying out the second dive was not the wisest or most conservative approach and that as a precaution he should have stayed out of the water for twenty-four hours after the first dive.

## June 2017

17/108

A year after qualifying a diver carried out her first open water shore dive using her own equipment apart from a hired drysuit. She and her experienced buddy carried out a dive brief and buddy check and entered the water using a stride entry from a jetty. The diver was uncomfortable following the entry, returned to the jetty and reported that she felt claustrophobic. In standing depth the diver recovered her composure and made the decision to continue with the dive so the pair descended to 2m. The buddy reported that the diver was comfortable at that depth, appeared to relax and was happy to carry on. They made an uneventful descent to a maximum depth of 10m but approximately 17 min into the dive the buddy found the diver was no longer with her so looked around, saw her on the surface and ascended. The dive manager, who had temporarily passed over dive management to an assistant while he checked on the progress of another group of divers, heard a shout indicating a distressed diver. As he grabbed his fins to enter the water, he was updated by the assistant that there were now two divers on the surface with one being towed. The dive manager entered the water and swam out to the divers and assisted with the last 30m of the tow. The diver, who was being towed by her buddy, was conscious, alert and responded to questions. She was assisted out of the water and needed minimal assistance other than to help remove a fin, the other having been lost. The diver reported that her regulator mouthpiece had become dislodged and unable to retrieve it or locate her alternate source she had panicked and 'shot to the surface'. She was shaken, said she had swallowed water and found the experience awful but otherwise appeared well. She was reassured during the debrief and monitored for the next half hour as equipment was packed up. The dive manager ensured that the diver had his phone number should any problems arise. He tried to contact her that evening but was unable to get a reply so left a voice message but he spoke to her the following day when she confirmed she was well, had no symptoms but was anxious about diving again. The dive manager undertook to maintain contact with the diver and to



find a way to help her back into diving if she decided this was what she wanted to do.

### July 2017 17/142

A diver and his two buddies carried out a boat dive on a wreck in 34m. When the diver and one of his buddies went into decompression they all decided to ascend according to their dive plan. The three divers made a slow, controlled ascent to 6m but after a couple of min at the stop the diver started to rise slowly and despite dumping all the air from his drysuit and BCD he continued to ascend and surfaced with a dive duration of 26 min to a maximum depth of 34m. His computer showed he had missed about 2 min of mandatory stops and a 3 min safety stop. The boat recovered the diver who showed no symptoms although he did get some 'pins and needles' in his right leg 20 min later. The diver did not undertake the second planned dive but otherwise felt fine.

### July 2017 17/203

Two divers had carried out a boat dive to a maximum depth of 27m with a dive duration of 50 min. The divers had missed mandatory decompression stops. Neither diver was presenting symptoms but on medical advice they were taken ashore and transferred by ambulance to a hyperbaric chamber. (Coastguard report).

### July 2017 17/145

An instructor and two students carried out a training drift dive from a boat to a maximum depth of 20m. One of the students had deployed his DSMB at the beginning of the dive and at around 17m towards the end of the dive the second student moved away from him to avoid any entanglement as he deployed his own DSMB. As the second student began his deployment the instructor signalled to the other student to wind in his DSMB's slack line and when he turned back to the second student deploying his DSMB he could not see him. The instructor looked around and then heard their dive boat manoeuvring above so signalled to the student with him that they had become separated from the other student and should ascend without undertaking a safety stop. When they surfaced the second student had already been recovered aboard the boat. As he had deployed his DSMB he had inadvertently started to ascend and at 10m tried to dump air from his drysuit but forgot to dump from his BCD, gained speed and at around 5m lost control. He surfaced with a dive duration of 31 min to a maximum depth of 19m. Back aboard the boat the student was put on oxygen and remained on this while he was taken back to shore and during the journey to a hyperbaric chamber. The student had no symptoms and after a check up he was given the all clear and able to continue with the dive course.

### July 2017 17/146

An instructor and two students carried out a wreck dive from a dive boat. Towards the end of their dive the instructor indicated to one of the students to send up his DSMB from mid-water in approximately 15m. The student deployed his DSMB but on its release he noticed that the line had snagged and he was being pulled towards the surface. The student let go of the reel to stop ascending but was now separated from the instructor and fellow student. He carried out a check and then ascended normally. The instructor had seen the deployment problem with the snagged line and made a grab for the student's legs as he started being pulled up but failed to make contact and saw him disappear from view. The instructor and remaining student ascended without carrying out a 3 min safety stop and surfaced a few seconds after the other student. Their dive duration was 34 min to a maximum depth of 21m.

### July 2017 17/140

The Coastguard was alerted by a dive boat that two divers had made a rapid ascent from 20m and were reported to be in need of medical attention. The divers had conducted their first dive of the day, one having not dived for a year and the other for a week. They were both reported to be in their late 50's and of large build. The divers were put on oxygen and medical advice was they should be transferred to hospital for further assessment. An inshore and all-weather lifeboat were launched and the divers were transferred to the all-weather lifeboat and taken ashore where they were assessed by waiting paramedics before being taken to hospital. (Coastguard report).

### July 2017 17/189

A diver using air and his buddy using nitrox 29 carried out a training dive from a boat which would include simulating the need of extra gas 30 min into their wreck dive when a cylinder would be lowered from the boat on a 9m line for the divers to 'use' when decompressing at 6m. The training exercise also included a simulated surface incident when the buddy pair would state they had missed stops. The pair carried out their dive and began their ascent from 31m after one of the divers deployed his DSMB. The ascent was slow due to the diver's small reel which he found awkward to wind and his lack of buoyancy control making him heavy on the line whilst reeling it in. The pair arrived at the 6m stop and deployed a yellow DSMB up the DSMB line as the signal for extra gas. The buddy thought this would also be useful as the diver was at 70 bar on his main 15 lt cylinder and had switched to his pony 3 lt cylinder. As they carried out their decompression stop whilst waiting for the cylinder to be lowered the diver's depth varied from 5m to 8m. He was also pulled up as the drop cylinder was being attached to his DSMB line at the surface, which he corrected by letting out some slack in his DSMB line. The diver's buoyancy was further compromised when the cylinder on its 9m line came down the DSMB line, passed the pair at 6m and dragged the diver down. The buddy immediately swam to the cylinder line and pulled on it to release the tension but, realising that the cylinder was quite heavy, he put more gas in his BCD to make himself more buoyant, pulled the cylinder up and attached it by a clip to the diver's DSMB at 6m. As the buddy had pulled the cylinder up his knife on his lower right leg had become entangled in the cylinder's line. The buddy became buoyant and lowered the cylinder in his right hand as he tried to dump air from his BCD. The buddy let go of the cylinder and, unable to dump quickly enough from his BCD, he made a buoyant ascent and surfaced with a dive duration of 34 min to a maximum depth of 31m. He signalled to the RHIB and as it came alongside he said he had made a rapid ascent and missed decompression. He was recovered aboard and put on oxygen. The RHIB's crew had realised that from the appearance of the DSMB, the appearance of the yellow signal DSMB some 8 min later than expected and the buddy surfacing alone was not the given training scenario. The diver completed his decompression, surfaced, was recovered aboard and confirmed not to have any issues. The buddy was asked to clarify what had happened and stated that he had carried out all his decompression obligations but in dealing with the cylinder had made an uncontrolled ascent. He was assessed during the return journey to port whilst remaining on oxygen. Back ashore the buddy went to a medical centre and was given the 'all clear'.

### July 2017 17/143

A diver on a holiday dive trip carried out a boat dive to a maximum depth of 28m. On the ascent the diver, who was under-weighted, made a buoyant ascent from around 20m and surfaced with a dive time of 34 min. As soon as he was recovered aboard the boat he went onto oxygen for 30 min.



**July 2017 171155**

A diver had carried out a boat dive to a wreck reaching a maximum depth of 28m with a dive duration of 37 min. At 19m, she lost her weightbelt and made a rapid uncontrolled ascent with no stops. She did not present any symptoms but the Coastguard established a connect call with the duty dive doctor. It was reported to be her fourth consecutive day of diving, with a total of nine dives in that time frame. The doctor advised she should be transferred to A&E and given oxygen and fluids. Due to the distance offshore an all-weather lifeboat was tasked to the dive boat to recover the diver and when it returned to harbour she was transferred to an awaiting ambulance. The diver was taken to A&E and given 6 hours of surface oxygen, with no recompression required. (Coastguard report).

**July 2017 171208**

A diver carried out a boat dive using air to a maximum depth of 41m with a bottom time of 18 min. The diver was reported to have missed 15 min of stops on his ascent but had completed approximately 4 min or 5 min of decompression at 6m. Back aboard and within 3 min of surfacing the diver, who had no symptoms, was given oxygen as a precaution. Medical advice was sought from the duty dive doctor at a hyperbaric chamber who advised helicopter evacuation to them. A Coastguard rescue helicopter airlifted the diver ashore to a waiting ambulance which took him to the chamber. (Coastguard report).

**August 2017 171168**

A diver and his buddy carried out a boat dive on a wreck reaching a maximum depth of 28m. The pair began their ascent and at 22m the diver deployed his DSMB mid-water but lost control of his buoyancy as he was unable to dump air fast enough from his drysuit's cuff dump. He made a buoyant ascent missing a non-mandatory 1 min deep stop at 14m, a safety stop at 6m and surfaced with a dive duration of 23 min to a maximum depth of 28m. The diver was recovered aboard the boat and put on oxygen for 35 min but had no symptoms of DCI. When the boat returned to port a hyperbaric chamber was contacted and the duty diving doctor said he was happy that the incident did not warrant a visit to the chamber but that the diver should continue to be monitored and if his condition changed then to contact the chamber again.

**August 2017 171174**

A diver, using a new wing BCD for the second time, and his buddy carried out a boat dive. At around 11 min into the dive and at 14m the diver ascended from a rocky gully over a small ridge at 11m. On reaching the top of the ridge he became slightly buoyant, was unable to dump air from his BCD, made a buoyant ascent and surfaced with a dive duration of 12 min to a maximum depth of 17m. He was recovered aboard the boat with no signs or symptoms of DCI although he did have a little blood from his sinuses in his mask. His buddy sent up a DSMB, carried out a 3 min safety stop and ascended to the surface.

**August 2017 171233**

A diver and his buddy carried out a shore dive reaching a maximum depth of 21m. At 13m and in low visibility the diver lost his bearings and his buddy. He began to ascend but lost control of his buoyancy at 8m, panicked and surfaced quickly with a dive duration of 13 min.

**August 2017 171190**

A buddy pair carried out a marine survey dive in about 14m from a RHIB and used an SMB to mark their underwater position. Aboard the boat a diver, undergoing a dive management assessment, took over as the dive manager. The lead instructor initiated a scenario which required the buddy pair

to be recalled so the dive manager instructed the boat to pull alongside the SMB where he gave one pull on the SMB line followed by four pulls to recall the divers. Using pulls on the SMB were not part of the brief but the dive manager thought they might be useful. He thought he had felt one pull back but nothing after that so he used a diver recall tag which he clipped to the line and sent it down. The diver holding the SMB felt the first pull but wasn't sure if this was a recall signal as no recall tag was received but, with the subsequent four pulls which confirmed it was a recall, he alerted his buddy who collected up the survey equipment. The diver let out some of the SMB line but the reel jammed pulling him upwards so he let it go. On the surface the SMB had moved around the boat and the dive manager had to take it back around the bow to release it. After a minute or so and without a sign of the buddy pair the dive manager realised that the SMB was separated from the divers' bubbles. The diver who had dropped the SMB reel carried out a mid-water deployment of his DSMB as the pair ascended. On the surface the drifting SMB was picked up and, with the appearance of the second DSMB, a second recall tag was dropped down its line. The divers had ascended to 4m when the diver holding the DSMB became inverted with air in the feet of his drysuit. He carried out a somersault in order to right himself but whilst doing so he made a buoyant ascent to the surface and, not letting go of the DSMB, became entangled in the line. He surfaced with dive duration of 34 min to a maximum depth of 15m. About 30 sec later the second diver surfaced, untangled the diver and DSMB line, signalled 'OK' to the boat. The divers were recovered aboard and checked.

**August 2017 171220**

A diver using a manifolded twin-set and his buddy using nitrox 32 carried out a wreck dive from a hardboat. The diver had assembled his twin-set, opened the three valves and checked it was operating correctly just before loading it onto the boat. The diver checked his twin-set again before kitting up, tested for air and all was correct. The pair carried out a buddy check and entered the water, swam to the wreck's marker buoy and the diver descended first holding the shotline with his buddy as well as other divers above him on the shotline. The descent took 3 min and when the diver reached 34m he let go of the line and after a few seconds his air supply stopped. The diver turned to his buddy, made him aware of the problem and went onto the buddy's alternate source regulator. The diver indicated to his buddy for him to check his twin-set valves but the buddy, not being twin-set trained, did not want to adjust anything on the diver's set. The buddy indicated all was 'OK' and they should ascend. The buddy felt they were going up too quickly and tried to tell the diver to slow down but they made a fast buoyant ascent and surfaced with a dive time of 4 min to a maximum depth of 34m. On the surface the buddy checked the diver was 'OK' and alerted the boat to pick them up. Once the pair were back aboard the right hand pillar valve on the diver's twin-set was found to be only a half turn open. The remaining divers completed their dive but one of them, who had been above the buddy pair on the shotline as they descended, had noticed that the diver was holding the line very close to his body with the line running underneath his pillar valve handle; it is suggested that this caused the closure of the valve. The diver admitted that he had panicked and put air into his wing BCD to bring him to the surface. The diver conceded that although he had completed deep diver and twin-set certification both were obtained at an inshore site with no currents, tides or waves. Both divers subsequently carried out a review of 'out of air' drills on a sheltered shore dive.

**August 2017 171248**

A group of three divers were diving on an offshore reef with a planned maximum depth of 25m and they had agreed that the first diver to reach 100 bar should signal this and that the group would commence their ascent once one of them reached 70

bar. The plan also involved the two less experienced divers deploying the DSMB together at the end of the dive and the group only planned for safety stops. One of the divers had problems with ear clearing during the descent so the group did a slower than normal descent. Once on the bottom they maintained a depth of between 22 and 24m until they reached a point where the current was noticeably stronger and so they reversed their track and continued at the same depth profile. One of the divers indicated that she had reached 100 bar and a short time later indicated she had reached 70 bar so the group ascended to the top of a nearby rock to deploy the DSMB at a depth of 20m. The more experienced diver signalled to the diver with more gas to deploy the DSMB and he removed his drysuit direct feed to inflate the DSMB through a nozzle. During deployment the reel jammed but the other diver managed to release it. During this period the diver who had deployed the DSMB had drifted off the rock and sunk to a depth of 27m as he struggled to reconnect his drysuit direct feed. The other diver again assisted him and then indicated her cylinder contents had now fallen to 50 bar. The more experienced diver signalled for the group to ascend and that the diver who was low on gas should stay close to her in case she required an alternate source. The ascent progressed normally until they reached 17m when the group dropped rapidly to 22m for no apparent reason. Being concerned for the diver who was low on gas, the more experienced diver donated her octopus for her to use and they resumed their ascent. At approximately 8m there seemed to be some form of blowout from the equipment of the diver with the DSMB, with a significant amount of bubbles engulfing the other two divers causing the pair to lose buoyancy control and they ascended uncontrolled to the surface. The diver with the DSMB surfaced shortly afterwards. The group were recovered to their boat and monitored due to the uncontrolled ascent. The diver who had been low on gas subsequently complained of a pain just below the sternum, which became sharper if she took a deep breath and so oxygen was administered. On return to harbour a recompression chamber was consulted and the diver was advised to attend hospital for a chest x-ray. The x-ray and medical assessment did not indicate any injury and the diver was advised the pain was most likely due to suit squeeze.

## August 2017

**17/197**

A diver had carried out a boat dive using nitrox 28 to a maximum depth of 36m with a dive duration of 45 min including a 3 min safety stop at 6m. During this dive the ratchet lever spring on his DSMB reel had broken. After a surface interval of 2 hr 42 min the diver carried out a second boat dive, using nitrox 28, to a maximum depth of 29m. At the end of the dive and in 20m, where it was dark, the diver tried to inflate his DSMB. He took a deep breath, which increased his buoyancy, removed his primary regulator to inflate the DSMB and concentrated on the reel's broken ratchet lever but failed to inflate the DSMB. He was struggling to control the situation and when he noticed that the underwater light was improving he realised he was ascending. He dumped air from his BCD as quickly as he could but made a buoyant ascent and surfaced with a dive duration 34 min. He signalled to the boat with his torch and was immediately picked up. Back aboard the diver de-kitted, lay down and informed the crew about his ascent. He was put on oxygen and a hyperbaric chamber was contacted for advice. He had a neurological check and the chamber's advice was to head back to harbour and, with a 15 lt and 2 lt oxygen cylinder aboard, to stay on oxygen for an hour and a half.

## September 2017

**17/240**

Two divers conducted a dive to 27m for 31 min and reported having made a rapid ascent from a depth of 10m. The divers were recovered to the vessel, and oxygen was administered. The vessel ran out of oxygen so the next richest nitrox mix was used. Neither diver was presenting symptoms. One diver had conducted three dives so far that week, and the other four.

These dives had been between 25 and 30m. The vessel called the Coastguard, who arranged a connect call with the duty dive doctor, who advised they should be seen at the nearest recompression facility when possible. Two lifeboats were tasked to transfer the divers to port, where they were met by a local Coastguard rescue team. The divers were taken to onward medical care by awaiting ambulance. (Coastguard report)

## September 2017

**17/223**

Four divers in two buddy pairs were diving from a hardboat. On the Friday a dive was carried out to a maximum depth of 26m with a dive duration of 47 min including stops at 5m for 3 min and 3m for 1 min. On the Saturday the first dive was to a maximum depth of 29m with a dive duration of 52 min including stops at 5m for 3 min and 3m for 1 min. After a 1 hr 31 min surface interval the four divers carried out their second dive. 20 min into the dive one of the divers lost his buoyancy at 20m and ascended about 5m above the seabed. The diver then had a hard swim back down to the bottom where he managed to wedge himself between rocks so that he could double check his BCD and drysuit inflation hoses. At this stage he did not realise that his loss of buoyancy control was due to losing half the weight, approximately 6 kg, which was normally held in place by Velcro on his weightbelt harness. The diver turned on his strobe light and signalled with his torch to his buddy and the other pair. The diver tried to signal that he was buoyant by grabbing a rock to signify he needed more to help him. One of the other buddy pair managed to locate a large rock and gave it to the diver who then began to ascend with his buddy while one of the second buddy pair deployed a DSMB to signal the ascending divers position to the boat. On the ascent the buddy had his alternate air source at the ready because the diver's air was below 50 bar due to the exertion of the swim back down to the seabed. The pair were unable to control their buoyancy at several points during the ascent but particularly over the final 8m to the surface. The ascent took 2 min and they surfaced with a dive duration of 36 min to a maximum depth of 20m. The diver was recovered aboard the boat and the skipper contacted the Coastguard. The diver's buddy had re-descended to 3m to complete 2 min of mandatory stops according to his computer as well as a further safety stop. In hindsight the buddy acknowledged this was a poor decision mainly due to the fact that he was already under some degree of stress following the buoyant ascent. Between 6 to 3m he had problems with his buoyancy and deployed a DSMB but his regulator became entangled and, unable to locate his alternate source regulator, he made a free ascent to the surface. Meantime, the diver had been recovered aboard in a confused state and was tended to by a diver who had been unable to dive due to a flooded drysuit. The diver said maybe he should re-enter the water and descend to complete his decompression but the diver looking after him said that was not an option. The diver's buddy then surfaced and was recovered aboard in a state of panic. The tending diver sat him down and de-kitted him as the buddy explained about the free ascent and that he had swallowed some water. The tending diver asked the skipper for the oxygen kit and found that it was only half full so gave it to the diver who had made the free ascent. All the other divers were recovered and as the boat returned to harbour the diver and his buddy were put on another diver's nitrox 32. Back in harbour ambulance crews came aboard and administered oxygen and the divers spoke to a doctor at a hyperbaric chamber. Happy with their condition, the doctor advised four hours of high flow oxygen and the ambulances transferred the diver and his buddy to hospital where they were treated.

## September 2017

**17/187**

An instructor and two buddy pairs were carrying out a shore dive to complete their training with a depth progression dive to 30m. At around 25m and 23 min into the dive one of the students started to cough. His buddy took hold of him and

signalled 'OK' to which he responded with an 'Up' signal. The buddy carried out a controlled buoyant lift and they surfaced with a dive duration of 25 min to a maximum depth of 32m. The buddy towed the diver back to shore where he was de-kitted, given oxygen and attended to by paramedics. The instructor and other buddy pair had surfaced after completing a safety stop. A hyperbaric chamber was contacted and following their advice the diver was taken to hospital for examination, blood tests and a chest x-ray. He was discharged and advised that all tests showed no abnormalities and he was fit to dive the following day. The buddy had been checked over by the paramedics on the site and allowed to go home following precautionary oxygen therapy.

**September 2017** **17/244**

A diver reported missing 8 min of mandatory decompression stops on a 45m dive, having lost buoyancy control at 6m. The diver had been diving using trimix 21/20, and had conducted decompression stops on nitrox 89. No symptoms were presenting, and the diver was on oxygen. The Coastguard arranged a radio medical advice link with a duty dive doctor, who advised that the diver be evacuated for recompression. The Coastguard tasked a rescue helicopter to transfer the diver to the awaiting ambulance for onward transport to a recompression chamber. (Coastguard report)

**September 2017** **17/193**

A dive boat, 8 nm offshore, called the Coastguard to report a diver had missed decompression stops. The skipper was put in contact with a diving doctor who advised that the diver, who was showing no symptoms, attend hospital as a precautionary measure. Due to the boat's distance offshore it was decided the diver should be airlifted to hospital. The diver was evacuated, taken to hospital and checked over at the recompression chamber. (Media report).

**September 2017** **17/224**

Three divers carried out a decompression dive from a boat. Two of the divers were using nitrox 28, the third diver was using nitrox 27 and all were carrying nitrox 50 decompression gas. The divers reached a maximum depth of 35m and when one of the divers indicated he was low on gas at 16m the signal was passed to ascend up a sloping wall to the decompression stop.

One of the divers led the way on the ascent and frequently checked that the other two were behind him. On the ascent it was noticeable that a fairly strong current was running across the wall. When the leading diver turned around to check again on the other two they were not visible. He carried out a separation drill then deployed his DSMB and carried out all decompression before ascending to the surface with a dive duration of 37 min to a maximum depth of 35m. The remaining two divers had followed the leading diver up the wall but one of them was having problems with his DSMB. The other diver had stayed with him and they drifted off the wall in the current and lost sight of the leading diver. They carried out a separation drill then ascended, completed their decompression and surfaced down current of the leading diver 2 min later.

**September 2017** **17/222**

A group of four divers, an instructor with two trainees and a safety diver, carried out a boat dive. They descended the shotline to a wreck and landed on the seabed at 20m where they stirred up the visibility. The instructor decided that having two trainees the dive should be aborted but he lost sight of the safety diver. The instructor and two trainees ascended using the shotline but at around 10m one of the trainees lost his buoyancy and surfaced. During this time the safety diver, having carried out separation procedures, deployed his DSMB and ascended but lost his buoyancy control at 12m and surfaced. All the divers arrived on the surface at approximately the same time with a dive duration of 15 min to a maximum depth of 20m. The boat quickly picked up the four divers and the two divers who had made the buoyant ascents had no symptoms but were put on oxygen. The boat contacted a diving doctor to inform him of the incidents and he said they should be treated as a missed decompression stop and the divers should be taken to a local medical centre. With all other divers recovered the boat returned to shore and a call was made to the medical centre informing them of the divers' arrival. The divers were taken to the medical centre but on their arrival and due to a doctor not being available, an ambulance was waiting to take the divers to hospital. The divers had remained on oxygen throughout their journey and following assessment by a doctor at the hospital they received a further one and a half hours oxygen treatment.

## Technique Incidents

### October 2016

**17/008**

An instructor and his two students acting as a buddy pair, carried out a shore dive. For one of the students it was her first dive in cold water conditions and she was wearing a hood. The group made a gradual descent down a slope to 12m during which the student's mask was slightly fogging but she was able to clear it a couple of times. After swimming around an underwater feature the instructor led the students to slightly deeper water. The student attempted to clear her mask once more but it flooded and, despite a number of attempts to clear it, she was unable to open her eyes, felt she was choking, unable to breathe in and ended up inhaling water. She began to panic and opening her eyes slightly could see the surface. She managed to get a breath of air in and out but still could not clear her mask so, breathing in and out, she finned to the surface from 12m. The student surfaced with a dive time of 17 min to a maximum depth of 14m; shortly followed by her buddy. The student had been able to inflate her own BCD at the surface but found it hard to communicate with some divers, who had swum out from the shore to assist her, as she was coughing up water and catching her breath. The student was recovered into a rescue boat and taken ashore to a first aid room. The instructor, before descending into deeper water, had looked around to signal 'OK' to the students but could not see them. He retraced his path back to the underwater feature, looked around for a minute and then made his ascent where the student's buddy informed him what had happened. The student who had experienced the mask problem showed no symptoms but was monitored for the rest of the day.

### November 2016

**17/016**

A diver and his buddy were taking part on an instructor training course and carrying out boat dives. While the diver was acting as a dive manager he asked his buddy to replace and fit a new cylinder to his dive kit. The buddy took a cylinder from the front of the boat which had a black insert cap in the DIN fitting which normally indicated a full cylinder. He fitted the cylinder and turned it on to check its contents on the diver's gas integrated dive computer. Not knowing exactly how it worked he played with the buttons to cycle through the information until he read what he believed to be 232 bar in the bottom left corner of the display. He showed this to another member of the dive team who agreed with the reading. With his dive manager duties completed the diver kitted up with his instructor trainer who was going to act as a 'student' for the first part of the dive. The buddy also kitted up and was paired with another instructor trainer who would observe throughout the dive. The buddy was to observe the first part of the dive and then switch places with the diver to take over leading and teaching his instructor trainer for the final part of the dive. On the buddy check the diver confirmed his cylinder contents as 232 bar. The group descended in their respective pairs and, during the descent, the diver went through his left hand settings to bring him back to what he thought was his gas pressure but didn't focus on the actual reading. The diver spent around 8 min teaching his 'student' filling a lift bag on the shotweight. Before setting off for the planned scenic part of the dive the diver carried out a contents check with the others noting that he had 145 bar. The group descended down a gulley and 13 min into the dive and at 14m the diver was about to teach his 'student' drysuit buoyancy skills when he felt his regulator was getting hard to breathe. He gave 'I have a problem' signal to the instructor trainer, immediately took his alternate source and they made a controlled ascent. They surfaced with a dive time of 15 min to a maximum depth of 14m and were recovered by their dive boat. The buddy and his instructor trainer also surfaced shortly after. On initially checking his computer the diver had the left hand corner displaying the maximum depth for his previous dive to

23.2m. He had failed to notice the decimal place. When he checked the cylinder contents underwater he had inadvertently scrolled to the time of 1455 hours and misread this believing he had 145 bar. The next time he read the contents, the window was flashing 21 per cent, possibly a low gas warning that he didn't acknowledge until he had difficulty breathing. The diver reported that all the errors were potentially caused by the pressure he was under during the instructor course.

### March 2017

**17/055**

Two divers were carrying out a shore dive with the aim of depth experience at 25m for one of the pair under guidance from the other. Both divers had carried out a previous dive that day with a different buddy, the dive leader to a maximum depth of 13m with a dive duration of 37 min and the diver to a maximum depth of 25m with a dive duration of 30 min. They both had a surface interval of 2 hours but on preparing kit for the second dive there was an audible leak when the diver's cylinder was turned on. The first stage was removed, the 'O' ring re-aligned to resolve the issue and then re-assembled. The divers kitted up, buddy checked, entered the water and surface swam to a buoy. They made a slow descent and came off the line at approximately 20m to explore an underwater feature. After around 2 min and at 25m the diver signalled she was out of air and the dive leader donated her secondary regulator. When the diver had calmed down and contents gauges checked, the pair made an alternate source ascent and surfaced with a dive time of 7 min to a maximum depth of 25m. The dive leader towed the diver to the shore and they both exited the water. The dive leader's air was 160 bar and the diver's 150 bar. Neither reported any symptoms but when the diver's kit was examined it was found that the cylinder had only been opened half a turn.

### March 2017

**17/063**

Two divers, sharing an SMB, carried out a boat dive and reached a maximum depth of 23m. Approximately 10 min into the dive one of the divers became separated from his buddy due to the poor visibility. He carried out a 360 deg search but could not see his buddy's torch or bubbles. He ascended with the SMB to 6m where he carried out another 360 deg search for his buddy and surfaced 1 min later with a dive time of 23 min. On their separation the buddy also carried out separation procedures, ascended to 6m where he carried out a 3 min safety stop, deployed his DSMB and surfaced a couple of minutes after the diver. Both divers were recovered aboard the dive boat.

### March 2017

**17/064**

Two divers carried out a boat dive and at their maximum depth of 20m one of the divers filled the lift bag to raise the shotweight as his buddy deployed the DSMB as planned. The diver turned on his torch and, due to poor visibility, could not see his buddy. After a 360 deg turn looking up and down for torch light he could not see his buddy so deployed his own DSMB. He ascended forgoing any safety stops and surfaced with a dive time of 8 min. The buddy had carried out separation procedure and with no sign of the diver he ascended omitting any safety stops and surfaced 1 min after the diver.

### May 2017

**17/114**

Four pairs of divers were diving from a dive boat with a briefed maximum dive time of 60 min. 30 min into the dive three DSMBs surfaced and at 45 min a fourth DSMB was seen floating free. Shortly after this a lone diver surfaced and was looking down into the water for his buddy. The diver was recovered aboard the boat and explained that he had signalled



to ascend when the pair were close to the end of their no stop time. They started to ascend and met the end of his DSMB line shortly after leaving the bottom. The buddy started to unclip his DSMB but dropped the reel and as he looked for it the pair became separated. The boat drifted past the buddy's bubbles but lost sight of them in the choppy surface conditions. 65 min after the pair had entered the water and with fading light the boat contacted the Coastguard for assistance in the search. Around 5 min after the call was made the buddy surfaced, with a dive duration of 73 min to a maximum depth of 21m, and inflated his DSMB at the surface so the boat could locate him. The buddy was recovered, the Coastguard informed and the search stood down. The buddy was shaken but fine and explained that he had incurred an extra 10 min of decompression due to descending to look for the dropped reel. He also described the decompression stop at dusk on his own and without a line to a DSMB on the surface as 'scary'.

### July 2017 17/144

An instructor and his two students carried out a shore dive. The instructor demonstrated DSMB deployment at 13m above the silted bottom of the site at 15m. The visibility was about 2m and once the DSMB had been deployed the instructor and one of the students noticed the other student could not be seen. The other student had watched the demonstration but the visibility had become worse and when it cleared he found he was on his own. After a 360 deg check he deployed his own DSMB and carried out a normal ascent. The instructor and remaining student had also carried out a 360 deg check, ascended and were re-united with the other student on the surface. Their dive time was 14 min to a maximum depth of 15m. The group decided to re-descend and complete the planned dive.

### August 2017 17/166

Two groups of divers carried out a wreck dive from a RHIB. One group consisted of an instructor, his safety diver and two newly qualified divers carrying out their final depth progression dive. This group descended the shotline and carried out their dive in visibility of between 3m to 6m. At a depth of 16m and 11 min into the dive the group headed towards the wreck's bow. The safety diver looked down to check his air and depth and when he looked up he could see a diver's fins ahead and, with no other divers, bubbles or torch light visible, he followed the diver into the wreck's bridge section. As he entered bridge the safety diver realised that he had become detached from his own group and joined the second group by mistake. The leader of the second group saw the safety diver and assumed the rest of his group would follow and, to give them room, he took his own group up through the bridge's open roof. On the roof the leader of the second group demonstrated DSMB deployment and then realised that the safety diver had mistaken the group as his. 'OK' signals were exchanged and the safety diver deployed his

DSMB and ascended with the second group, completed a 3 min safety stop and surfaced with a dive duration of 25 min to a maximum depth of 20m. The instructor in the safety diver's group realised that the safety diver was no longer with them so searched around but unable to locate him he carried out a separation drill, inflated his DSMB and ascended with his students to the surface omitting their 3 min safety stop at 6m.

### September 2017 17/218

A diver and his buddy, both using air with nitrox 80 decompression gas, carried out a boat dive. They left the bottom at 25 min, having reached a maximum depth of 46m, and deployed their DSMBs. As they were ascending the diver noticed he had missed a deep stop at 25m. He had done this before and his computer had re-calculated his decompression once he reached 9m. The diver was well within his dive slate plan, which was to a maximum depth of 48m and leaving the bottom at 28 min, so he decided to continue to 9m and not re-descend to the deep stop. His ascent was controlled but his computer went into 'error' mode at approximately 11m. It was still showing dive time and depth but no decompression information. The diver informed his buddy and continued to complete his decompression using his slate. The pair completed their decompression and ascended to the surface with a dive duration of 53 min to a maximum depth of 46m including a stop at 9m for 3 min and a stop at 6m for 16 min. The diver sat out the following dive.

### September 2017 17/251

A pair of divers were diving from a charter vessel. The first dive of the day was to a maximum depth of 5m with a total duration of 62 min. After a surface interval of 75 min the pair entered the water to dive a wreck. They descended the shotline directly onto the wreck at a maximum depth of 25m, the visibility was poor and there was a moderate current. After 8 min one of the divers ran out of air and he assumed there had been a fault. He was carrying a 5 lt pony cylinder with a second stage clipped off to a ring on his BCD on his right shoulder but could not locate it. He signalled out of gas to his buddy and was handed his buddy's pony regulator as an AS which he switched to. The pair ascended slightly faster than normal taking approximately 2 min to surface omitting any safety stops. On the surface the diver inflated his BCD and the pair were recovered by the charter boat, safe and well. During the ascent the diver realised he might have started the dive breathing from his pony regulator by mistake and once back on the boat a check confirmed this had been the case. The diver had both regulators configured over his right shoulder and they both had similar looking mouthpieces.

## Equipment Incidents

### November 2016

17/014

A pair of divers carried out a boat dive to a wreck at 26m. Towards the end of the dive the divers ascended to the top of the bow at 24m and one of them deployed a DSMB. As the DSMB rose to the surface the alternate source regulator used by the diver who had deployed the DSMB continued to free flow. The diver attempted to resolve the problem without success and her buddy offered his alternate source which was accepted. The buddy turned off the diver's cylinder to stop the stream of bubbles and restore visibility and the pair ascended calmly maintaining close contact. At the beginning of the ascent they had incurred 2 min of decompression stops but this cleared as they ascended and omitting safety stops they surfaced with a dive time of 35 min to a maximum depth of 26m and were recovered by their boat.

### January 2017

17/024

A rebreather diver carried out a boat dive. He had prepared his unit the day before and then checked and calibrated it before loading it onto the boat. When he switched the unit on before diving the electronics and display appeared as expected. A pre-breathe was conducted until the temperature stick indicated that the scrubber stack was active. The diver descended and about 15 min into the dive at a depth of 16m there was the first and only alert that there was a major failure. The error message 'No Data' appeared in the head up screen but no audible alarm. No information on the cells, PO<sub>2</sub>, batteries or controllers was available on the head up screen although it appeared to be under power and illuminated. With no information as to the gas he was breathing the diver used the bailout valve on the unit, signalled to his buddies that he had a problem and ascended. As the last decompression information was that the diver had no penalty he ascended directly to the surface and was recovered aboard the boat. On regaining the surface and aboard the boat the unit would only momentarily shut down and would constantly and repeatedly cycle and attempt to self check. This continued until the battery isolator tab could be applied. The unit was returned to the manufacturer for investigation.

### February 2017

17/045

An instructor, two trainees and a safety diver had carried out a winter shore dive to a maximum depth of 6m for a dive duration of 18 min. On their second dive they reached a maximum depth of 10m and 20 min into the dive and at 5m the instructor demonstrated DSMB deployment. His octopus regulator went into free flow as he inflated the DSMB and a loop in the line snagged the regulator causing him to rise about a metre. He released the regulator and descended to the group at 5m with his octopus continuing to free flow. The safety diver attempted to stop the instructor's free flow but then his own primary regulator went into free flow. The group aborted the dive and ascended safely to the surface with a dive time of 25 min.

### February 2017

17/046

An instructor, his two trainees and a safety diver carried out a winter shore dive. The group descended to 6m to carry out alternate source skills and the instructor demonstrated being the recipient with each trainee acting as donor. One of the trainees conducted the alternate source ascent with the other trainee as the recipient but on the change over of their roles the trainee, now acting as the donor, had a free flow on his octopus regulator. Unable to resolve the free flow the dive was aborted with the instructor making a controlled ascent with one trainee and the safety diver with the other trainee. All surfaced with a dive duration of 13 min.

### March 2017

17/062

Three divers, one of whom was an instructor, carried out a shore dive and reached a maximum depth of 15m. Towards the end of the dive one of the group was deploying his DSMB using his octopus regulator when it went into free flow. The diver tried to stop it but was unsuccessful. The instructor donated his secondary regulator and they carried out an alternate source ascent to the surface with the third diver alongside. They all surfaced with a dive time of 24 min.

### March 2017

17/061

An instructor and three students carried out a shore training dive. They reached a maximum depth of 10m and at 8m one of the students was attempting mid-water DSMB deployment but had problems directing air from his octopus regulator into the DSMB. When he finally inflated the DSMB his octopus went into free flow. Without signalling his buddy or the instructor he ascended to the surface followed by the instructor and two remaining students. They surfaced with a dive time of 25 min.

### March 2017

17/060

An instructor and two students carried out a shore training dive. They reached a maximum depth of 10m and at 9m one of the students attempted to carry out mid-water DSMB deployment. He struggled to direct the air flow from his octopus regulator into the DSMB and when he finally inflated it the regulator went into free flow. The diver ditched the DSMB but whilst trying to stem the free flow he was unaware he was ascending. The instructor went over to arrest the ascent but only managed to slow it down. The instructor and student ascended at a safe rate and the other student followed them to the surface. The divers surfaced with a dive duration of 20 min.

### April 2017

17/066

Three divers carried out a shore dive. They carried out buddy checks, entered the water and descended to around 5m where one of the diver's regulators started to free flow and would not stop. The diver made an alternate source ascent with one of her buddies and they all surfaced with a dive time of 10 min to a maximum depth of 5m. At the surface the diver's regulator was shooting out ice and was frozen over resulting in the other two divers' gloves becoming stuck to it as they tried in turn to stop the free flow. As the diver's BCD was fully inflated one of her buddies turned off her air and towed her back to shore. They all exited the water and had no ill effects.

### April 2017

17/099

A rebreather diver carried out a boat dive on a wreck. At 17m the diver had a CO<sub>2</sub> alarm. He bailed out to open circuit, carried out a diluent flush of the loop and the alarm cleared. The diver returned to the loop but approximately 3 min later at 8m the CO<sub>2</sub> alarm happened again. The diver bailed out and the dive was terminated. His dive time was 28 min to a maximum depth of 17m.

### April 2017

17/076

An instructor was preparing to carry out a pool training dive. His cylinder was turned on and the high pressure hose ruptured approximately 5cm back from the pressure gauge causing a 1.5cm tear. The cylinder was immediately isolated and the pressure gauge and hose replaced. As this was the second event involving the same type of pressure gauge they were removed from other equipment being used and were replaced by new ones.

**May 2017** **17/088**

A rebreather diver and his buddy carried out a wreck dive from a boat. The divers descended but at 6m the rebreather diver found it difficult to breathe, the dive was aborted and both divers surfaced with a dive duration of 1 min to a maximum depth of 6m. The diver had not noticed any difficulty during the pre-breathe on the unit before the dive but it did take longer than usual for the unit's temperature stick to register.

**May 2017** **17/086**

A buddy pair carried out a planned decompression wreck dive from a dive boat. At their maximum depth of 44m and at the agreed time of 17 min one of the divers was about to deploy his DSMB when he noticed the line had snagged inside the reel and was therefore going to jam. It took about 2 min to untangle the line but this was enough time to significantly increase their decompression by an additional 13 min. The divers switched cylinders, began their ascent and reached their first stop at 9m for 3 min. Their time to surface was 28 min which included a safety stop of 3 min. The divers saw their shotline and decided to hold onto this for the remainder of their ascent. They met another pair of divers and made them aware of how much decompression they needed to do so these divers, when they surfaced, could report to the dive manager aboard the dive boat that the buddy pair were going to surface later than planned. The buddy pair completed their decompression at 6m including a 3 min safety stop, switched to their 7 lt bailout cylinders and surfaced 12 min over their planned time with a dive duration of 62 min.

**August 2017** **17/196**

A diver was preparing to carry out a wreck dive from a dive boat. During the buddy check his regulator seemed to deliver a large gas flow on each breath but was not free flowing. The regulator was isolated and later checked but no problems were found.

**August 2017** **17/188**

A buddy pair, who had dived together on many previous occasions, carried out a wreck dive from a RHIB. 15 min into the dive and at 31m the divers made their way from the wreck towards a nearby reef to deploy a DSMB and signal to the boat they had moved off the wreck. One of the pair deployed his DSMB using his octopus regulator but it went into rapid free flow. The diver tried to resolve the problem without success and due to the amount of bubbles he became disorientated and lost sight of his buddy. The diver switched to his 3 lt pony cylinder alternate source and made an ascent using the DSMB. Due to being on a limited air source and separated from his buddy, the diver ascended slightly quickly to 6m where he omitted a 3 min safety stop and then took 1m to surface with a dive duration of 15 min to a maximum depth of 33m. The diver was recovered aboard the RHIB where his computers were checked and neither indicated 'error' or had locked out. On their separation the buddy had carried out a 360 deg search, which he repeated using his torch, and then deployed his DSMB making a slow ascent to 6m where he carried out a 3 min safety stop and surfaced around 10 min after the diver. The diver was advised not to dive for twenty-four hours, to drink plenty of fluids and report if he had any ill effects or DCI symptoms.

**August 2017** **17/183**

Several divers had reported bad air fills from a local dive shop over the previous two years. On a dive trip three divers found their cylinders had a bad smell when testing them prior to diving. A trainee's cylinder had also been filled at the same shop before a pool training session and when it was checked by an instructor it had a bad oily smell. The cylinder was taken to another dive shop where it was assessed as being contaminated. Other individual divers had also reported having bad air fills from the same dive shop but when complaints were made the shop staff had denied any involvement or concern.

## **Miscellaneous Incidents**

### **March 2017**

**17/085**

A day had been organised for members of a dive club to undertake a hard hat try-dive in a pool and a hyperbaric chamber dive. One of the hard hat try-divers carried out his dive to a maximum depth of 4m with a dive time of 9 min. The diver was kitted up sitting on a box when the helmet was put on with the initial rushing sound of air but as the faceplate was about to be screwed shut this stopped. The diver put his hand over the faceplate and explained there was no air. The two attendants left the diver and he could hear them 'banging about' in the room to the side of him and when they re-appeared the air was rushing into the helmet again. The faceplate was screwed in place and the diver entered the pool using the ladder. On the bottom of the pool in 4m the diver picked up an air line and gun to use on a lift bag but as he started to fill it there was no sound of air entering his helmet so he dropped the air line, took a couple of steps towards the ladder and gave 'out of air' signals. He stepped onto the ladder and the air returned. Assuming the attendants had seen his signal and resolved the problem, the diver started to fill the lift bag but again there was no sound of air in the helmet. Thinking that the two airlines supplying the helmet and air gun were linked he abandoned the air line, went back to and put his feet on the ladder giving the 'out of air' signal. The air returned to the helmet so the diver decided to ignore the air line and walk around the pool instead but again felt no air in the helmet so returned to the ladder, felt suit squeeze, gave 'out of air' signals again and the air returned. The diver tried one more time, walked away from the ladder but had to signal 'out of air' again so he returned to and climbed the 8m ladder with no air until an attendant opened the faceplate. Saying he had no air the attendants said they turn it off as a diver breaks the surface so they are not struggling to manoeuvre with air in the suit. The diver said his air went off four times during the dive. After he got changed he explained what had happened but the attendants had not seen his signals as they just watched bubbles break on the surface. The diver watched other divers in the pool and explained that the time delay between breathing out and bubbles at the surface may only be 10 to 15 sec but he was without air during that time. On

hearing this the attendants watched another diver in the pool and then stated that one air bank wasn't working properly so the diver assumed the remaining dives were conducted on another air bank. The diver later contacted the organizers of the hard hat try-dive and they said it took less than half a second for the bubbles to break the surface and that the lack of air was the diver's unfamiliarity with the equipment as when divers breathe in they draw air through the helmet.

### **April 2017**

**17/090**

A diver was reported to be in an ambulance and a request was made to contact a hyperbaric chamber. (Coastguard Report).

### **June 2017**

**17/158**

The Coastguard received a call reporting an overdue diver. The diver had made his own way ashore and no further action was required. It was reported that an over-zealous houseguest was concerned that the diver had been away for longer than expected. (Coastguard report).

### **July 2017**

**17/130**

Two lifeboats were launched after concerns were raised about two divers thought to be in need of assistance. The lifeboats located both divers who were given the all clear and the response stood down. (Media report).

### **September 2017**

**17/239**

A diver conducted a dive on a CCR to a maximum depth of 55m. 15 min before he was expected to surface, the vessel reported that his DSMB had surfaced, with a note indicating low gas. This was reported to the Coastguard, but before assets could be tasked, the diver surfaced and was confirmed safe and well. (Coastguard report)



## Overseas Incidents

### Fatalities

**October 2016**

**17/005**

Two divers, both using rebreathers, were carrying out a boat dive and prepared to dive a wreck at 60m. The pair kitted up and one of the divers entered the water first to collect his two bailout cylinders and camera from the boatman and fitted them on the surface. He then moved to the shotline approximately 5m off the bow to wait for his buddy as they had planned to descend the shotline together. The buddy entered the water and collected his bailout cylinders. He had fitted one cylinder but appeared to be struggling with the second and turned towards the diver seemingly to seek assistance. The diver turned to check his position in relation to the shotline and when he looked back the buddy no longer had the breathing loop in his mouth and was unresponsive. Before the diver could reach him to assist the buddy sank. The diver immediately descended the shotline and reached the top of the wreck at approximately 50m where he managed to get the attention of two other divers and they carried out a search for the buddy. After 10 min the diver was located on the seabed at 62m on his back, with no gas supply and clearly deceased. The divers ascended and then planned a recovery of the deceased diver, which was completed later that day.

**April 2017**

**17/067**

A diver and her buddy carried out a shore dive with a group of divers led by a dive guide. The divers entered the water and reached around 18m on a reef wall. The group were together to the right of the buddy pair with the diver slightly below her buddy. As the group began to move away along the reef the buddy looked back at the diver who was setting up her camera and strobe lights. The buddy set up his camera, confirmed to the diver where and what direction the guide was taking and he took a couple of shots to check his own camera settings. He felt a slight bump on his leg and assumed the diver had come up alongside and slightly behind him. He turned to check on her but only saw her fin above him. He looked up and realised immediately the buddy had a problem as she only had her mouthpiece in which had separated from her regulator. The diver followed the buddy up and they surfaced with a dive time of 3 min. The buddy positioned the diver on her back, checked she was breathing and 'OK' and replaced the mouthpiece on the regulator. The dive guide surfaced and the diver confirmed that the diver wanted to get out of the water. The guide and buddy towed the diver, with her mouthpiece in, to a ladder near their original entry point. The buddy clipped his camera to the guide in preparation for getting out but the diver would not initially release her camera but relented when the buddy said he would also clip this to the guide. The buddy released the diver's weightbelt and held on to it as the guide removed the diver's fins and helped her to the ladder. It was evident that she was too weak or shocked to hold onto the ladder and climb it in the sea swell so the guide decided he and the buddy would tow the diver around a rocky point to the dive's planned exit point which was more sheltered. The buddy dropped the diver's weightbelt and both he and the guide reassured the diver, kept her on her back with her octopus regulator in her mouth and commenced the tow. The tow around the rocky point was in a heavy swell and then back into the sheltered side to the exit point's ladder. When they reached this the guide sent the buddy up first where he dropped his kit and re-descended the ladder to help recover the diver. The guide got the diver to the ladder, the buddy held the buddy's pillar valve with his left hand and hooked his right arm through the ladder and lifted the diver. Between them the buddy and guide got the diver upright on the ladder and with

encouragement and giving her time to rest between each step she climbed one or two rungs with the guide guiding her feet onto each rung. At this point the diver fainted or blacked out and she fell back into the water. The guide immediately held her face up on her back and told the buddy to go for help as he commenced in-water rescue breaths. The buddy ran up a track onto a road and stopped a car telling them they would see a group of divers further along the road and to stop and tell them there was a diving emergency, the location and to contact the emergency services. The buddy stopped a second car and the driver tried to call the emergency services but had no mobile reception so the buddy told him to drive to the nearby town and raise the alarm. He then stopped a builder's vehicle and asked if they had a rope, which they did, and they followed the buddy back down the track. The buddy tied a bowline in the rope, climbed down the ladder and threw it to the guide. The guide removed the diver's equipment and got her to the ladder where between the guide, the buddy and the builders they managed to pull the diver from the water and over the top of the ladder. The guide began CPR and the buddy started to run to a dive vehicle parked nearby which had the oxygen kit. Another diver on the site assisted and picked up the oxygen kit allowing the buddy to return to help the diver where he found another person had arrived on the scene and was assisting with CPR. The diver who had picked up the oxygen kit returned and it was used during CPR. An ambulance and paramedics arrived followed shortly afterwards by a doctor and the police. CPR was eventually stopped with the doctor pronouncing the diver deceased.

**July 2017**

**17/161**

A group of rebreather divers were on holiday and used a hardboat to carry out a week of deep wreck diving. At the beginning of the trip they had carried out two wreck dives but due to bad weather the diving was pulled back to sheltered and shallow scenic sites. The dive day started with the divers meeting the boat and travelling to look at a site where conditions were sheltered behind a headland with a swell coming from the opposite side. After checking the conditions all the divers agreed to dive. A local instructor who was diving with the group explained that the planned route was a through a tunnel with a maximum depth of 11m which had access to the surface throughout and could be seen by the boat. From the tunnel the route was to go around the headland to a reef at a maximum depth of 30m where the divers would deploy DSMBs for the boat to pick them up. Three buddy pairs entered the water together with a solo diver who said he did not want to swim around the headland but would dive the tunnel and then exit where he had entered for the boat to pick him up. A few minutes after the divers had descended a DSMB was sent up and the solo diver was recovered aboard the boat. 10 min after the buddy pairs had descended a diver's buddy surfaced and reported to the surface cover on the boat that the diver had lost his mask going through the tunnel and was on the surface. He was given a spare mask which he took back to the diver. About the same time the local instructor surfaced saying he had become separated from the other three divers. The surface cover told him the solo diver was back on the boat, the situation with the lost mask and he descended to follow the diver's buddy back into the tunnel. The buddy had returned to the diver, given him the replacement mask and they decided, as there was too much surge on the surface in the tunnel, to re-descend and make their way back to the boat. As they descended a surge came through pushing the diver into a gully inside the tunnel and the buddy into another. The buddy released himself but could see the diver's torch shining inside the other gully and tried to signal to him. The local instructor surfaced and reported that one of the divers was trapped inside the tunnel and asked

for a rope to assist in getting him out. The surface cover kitted up and entered the water with a rope. He swam into the tunnel, followed by the local instructor, and after a search he found the buddy but another surge came through separating them. The cover diver continued the underwater search in the tunnel and found the trapped diver's camera and the back lid from his rebreather but could not locate the diver. The diver's buddy ascended again and asked the boat to pass him a boat hook to assist the trapped diver and re-descended. Whilst this was happening the boat saw that the diver who had been trapped was now on the surface outside the gully and was holding onto a rock calling for help. The solo diver on the boat kitted up and entered the water to assist. When he reached the diver he found that he had let go of the rock and was lying back in the water with his mouthpiece out and he had no face mask. The solo diver attempted to give rescue breaths but had problems keeping the diver buoyant. The local instructor surfaced from below them and assisted in keeping the diver's head above the water as he and the solo diver towed the diver back to the boat. The diver's buddy surfaced and assisted with the tow and the cover diver, who had surfaced outside the gully, saw the three divers carrying out the rescue tow and swam over to assist. Alongside the boat the diver's rebreather was removed in the water and he was recovered aboard using the boat's lift. The diver's computer had recorded three dives within a very short time window of approximately 12 min to a maximum depth of 11m. With all the divers involved in the tow back aboard, oxygen assisted CPR was carried out as the diver had no pulse and was not breathing. The remaining three divers in the water, unaware of the situation, completed their dive, deployed DSMBs, surfaced and were recovered by the boat. As soon as they were back aboard they also assisted with the CPR. The Coastguard had been contacted and CPR continued for 30 min until a lifeboat arrived and used their defibrillator while the divers continued CPR. The boat was now heading back to port and 10 min after the lifeboat had arrived a helicopter was on the scene and airlifted the diver with CPR being continued until they arrived at hospital where the diver was pronounced deceased 30 min later. A post mortem was due to be carried out.

**August 2017** **17/172**

The Coastguard was alerted by a dive boat that they had a technical diver missing following a wreck dive at around a depth of 65m. A search operation was launched with a helicopter, lifeboats, local vessels in the area and colleagues of the diver. It was reported that the diver had last been seen on an 18m decompression stop by other members of his dive group and the sea state was reported as heavy rolling swells of up to 5m. The search was stood down that evening due to fading light but resumed early the following morning. A specialist dive vessel arrived on the site and a number of divers searched the site where the missing diver was last seen. On the third day of searching the diver's body was recovered by the specialist diving team, reportedly on or near the wreck he was diving, and taken ashore. (Media report).

**Decompression Illness**

**May 2017** **17/127**

A diver was on a hardboat holiday dive trip and carried out two 'check' dives on the first day of the trip to 30m followed by a dive to 27m with no issues and all safety stops completed. On the following day the diver carried out two wreck dives using air in twin 11 lt cylinders and a 11 lt side-mount cylinder. The first dive was to a maximum depth of 46m with a total dive time of 35 min including stops for 1 min at 15m, 2 min at 12m, 3 min at 9m and 14 min at 6m. After the surface interval of 4 hours, the diver carried out the second dive on the same wreck as the first dive. This dive was to a maximum depth of 53m with a total dive

time of 63 min which included 1 min stops every 3m from 30m to 12m, 3 min at 12m, 3 min at 9m and 23 min at 6m. About 45 min after surfacing the diver had a dry cough which he thought was possibly due to breathing in a small amount of salt water. He felt tired so decided to retire to his bunk for a sleep and he let someone on the boat know that he was not feeling well. In his bunk the diver coughed up some clear mucus, checked for but found no blood and his chest felt irritated. 5 min later the diver made his way up the stairs feeling lightheaded, his speech was a bit slurred and his vision seemed impaired. He spoke to the dive manager who decided to put the diver on oxygen. The diver was cold, shivering and sweating but had no pain in his joints or 'tingling' in his hands. The decision was made to seek emergency assistance and a helicopter airlifted the diver ashore where he was transferred by ambulance to a hyperbaric chamber where he received recompression treatment and remained in hospital overnight. After he had been discharged the diver felt fatigued for the following few days and no further dives were carried out. The diver returned home and four weeks after the incident the diver went to a medical referee and was declared fit with the restriction that he complete another four weeks recovery phase.

**June 2017** **17/124**

A trainee had carried out two dives. The first dive was to a maximum depth of 7m with a dive duration of 40 min and after a surface interval of 1 hour 24 min the second dive was to a maximum depth of 5m with a dive duration of 30 min. Approximately two and a half hours after exiting the water from the second dive the trainee complained of feeling unwell. The trainee was taken to a medical centre and seen by a doctor and it was decided to transfer her to a recompression chamber. The trainee underwent treatment that afternoon followed by another session of treatment the following day. The trainee was discharged and advised not to fly for seventy-two hours.

**September 2017** **17/192**

A group of divers in a hot climate had carried out two boat dives on the same wreck at a maximum depth of 31m. The divers had carried out the dives within the no stop limits using nitrox 33 and their surface interval was 1 hr 20 min. One of the divers had made a quick ascent from 20m to 12m when he deployed his DSMB but he had carried out a 3 min safety stop. A few minutes after surfacing the diver felt unwell, had pains in the right side of his chest and some numbness. He was given a neurological check but this appeared normal and the initial diagnosis was that the diver had mild DCI compounded by dehydration and stress. The diver was put on nitrox 50 and encouraged to drink water as the oxygen kit was prepared. He was put on the oxygen and monitored as the boat recovered the other divers and motored back to shore during which there was discussion about whether to call an ambulance. The diver was asked to stand up to check for dizziness and blood pressure but he said he was better and it was decided not to call an ambulance. The divers arrived back on shore but during the short walk from the boat to his car the diver felt unwell and had to sit down. The diver was taken to hospital, given recompression treatment, IV fluids and kept in overnight. He was discharged the following afternoon.

**Illness / Injury**

**October 2016** **17/219**

A buddy pair carried out a hardboat dive on a wreck lying between 12m and its maximum depth of 27m. One of the divers had borrowed a BCD to test before a possible purchase which resulted in a new configuration of his alternate source regulator and BCD hose. The diver and his buddy carried out a buddy

check and entered the water descending the anchor to the deck of the wreck at 12m and then down the side of the hull. At 15m the diver got hit by jellyfish tentacles between his regulator and mask causing severe pain. His natural reaction was to wipe the tentacles from his face and in so doing he inadvertently dislodged his regulator. The diver was still in distress and again tried to wipe off the tentacles but dislodged and removed his mask which sank. He tried to locate his alternate source regulator but could not find it due to the unfamiliar kit configuration and started to panic. The buddy quickly identified the problem, put his alternate source regulator in the diver's mouth, carried out a controlled buoyant lift to 6m and they then surfaced with a dive duration of 15 min to a maximum depth of 15m. The boat was alerted, the divers were recovered aboard and vinegar was applied to the jellyfish stings but with little effect. Both divers were quiet and in shock for a while but were monitored and looked after by other divers.

**December 2016** **17/021**

A group of divers were on a diving expedition using a Charter boat. One of the divers, who was also acting as the expedition medic, was woken early one morning by a fellow diver informing her there was a medical emergency involving the captain. The diver informed the medic that the captain was unconscious and believed to be diabetic. The two went to the captain's cabin and were met by the boat's dive guide and a crew member. The dive guide believed that the captain had not been taking his insulin nor eating correctly to manage his condition. The captain was in a reduced level of consciousness and only responsive to voices. After examining the captain and carrying out a blood sugar test it became apparent he was going into a diabetic coma so the medic asked for his diabetic drugs but no one in the crew knew where they were located. The only action the medic could take was to get the captain to ingest sugar using honey, jams and yogurt. She spoke to the captain, with the crew member translating, to keep him focused while she massaged sugar inside his cheeks and lips. The boat was turned around to head straight back to port and arrived around two hours later to be met by an ambulance that the dive guide had organised. The captain's level of consciousness and his blood sugar levels were improving slowly and he was given oxygen when his oxygen saturation level reduced. Once the boat reached port the crew, under the direction of the diver, helped to get the captain on a stretcher and transferred him off the boat to the waiting ambulance. The medic recommended that the whole crew must be made aware of the captain's medical condition and know where to locate his diabetic drugs. As the captain should also carry a blood sugar level tester, the medic gave the one in her own kit to the dive guide.

**January 2017** **17/023**

A group of divers were conducting a RHIB dive on a wreck prior to instructing on a diving course. A hardboat was on the same site and just after the RHIB had arrived they noticed that a diver had surfaced and appeared to be in some distress. The divers on the RHIB tried to attract the diver's attention and also informed the hardboat that there was a problem. As the hardboat still had divers down it was easier for the RHIB to go and assist. When they reached the diver he was unresponsive with froth around his mouth. One of the divers in the RHIB entered the water and established the diver was not breathing. He was immediately recovered aboard the RHIB and oxygen enriched rescue breaths administered. The hardboat informed the RHIB that an ambulance had been called to a nearby fishing pier and the RHIB started to head the short distance towards it. On the way the diver started breathing again and when the RHIB arrived at the pier he was transferred to the ambulance and taken to hospital. It was later reported that the diver had suffered IPO but was making a good recovery.

**February 2017** **17/048**

Three rebreather divers carried out a boat dive on a wreck reaching a maximum depth of 35m. The group ascended but at 12m and approximately 36 min into the dive one of the group began to feel unwell and nauseous. He carried out a diluent flush but still felt unwell. He signalled a problem to his buddies and at 9m he switched to his bailout nitrox 23. He exchanged 'OK' signals with his buddies and they ascended to complete safety stops at 6m before surfacing with a dive duration of 45 min. After getting out of the water the diver felt fine but subsequently developed an ear infection and a cold.

**March 2017** **17/054**

A diver carried out a dive to a maximum depth of 20m and had carried out a normal ascent and completed a 3 min safety stop at 6m. As she left the stop and ascended to the surface she experienced a sharp pain in her ear. The diver surfaced with a dive time of 30 min. The dive manager suspected the diver had a reversed ear perforation and contacted a diving doctor who, with the relevant dive details, agreed. The diver was taken to an A&E department who could not find anything wrong. Pain killers were prescribed for twenty four hours and no further action taken. The diver was advised to see her doctor before diving again.

**April 2017** **17/074**

Two divers carried out a boat dive to record wreck footage for a promotional video. Two other divers in the group had completed their dive and were acting as surface cover. 33 min into the dive one of the pair indicated he was ready to ascend from 16m. His buddy reminded him to stop for 3 min at 6m and they both started to ascend. At 6m the buddy saw the diver at the surface and he abandoned his safety stop to surface with a dive duration of 36 min to a maximum depth of 19m. One of the divers acting as surface cover entered the water to assist the diver and towed him to the boat. The other surface cover diver prepared the oxygen kit. The diver was recovered aboard the boat at which time he was unconscious, appeared not to be breathing and was showing signs of cyanosis. Oxygen was used and the diver started breathing but was still unconscious. During the return to harbour the diver became responsive but was kept on oxygen until the boat arrived in the harbour where he was handed over to an ambulance crew and taken to hospital. The cause of the incident was given as immersion pulmonary oedema.

**April 2017** **17/079**

A trainee completed a boat dive to a maximum depth of 10m with a dive duration of 28 min. On the surface his instructor noticed he had blood in his mask and asked if he was alright. The diver had no pain or ill effects but had dived with an ill fitting mask with loose straps. The following morning the diver felt he had blocked ears and saw a doctor. The doctor advised him not to dive for seven days as a precaution but there was no evidence of a perforation to the eardrum. The diver was given ear drops.

**May 2017** **17/083**

A trainee carried out a shore training dive and complained of ear pain at 2m whilst descending to a maximum depth of 5m for a dive time of 30 min. Following the dive she attended a medical centre and was advised not to dive for three days.

**May 2017** **17/100**

Following a shore dive to a maximum depth of 6m with a dive time of 30 min a trainee felt ear discomfort later that evening. She was referred to a medical centre the following morning, told not to dive and therefore did not complete the course.



## June 2017

17/116

A group of divers on an expedition abroad were carrying out dive management rescue scenarios. A rescue simulation was set involving two divers having surfaced with one of them unconscious. The acting dive manager allocated different roles to the surface cover available. One of the divers offered to put on snorkel kit and help with towing the 'casualty' back to shore. He entered the water and assisted in towing the 'casualty' the short distance remaining to the rocky water's edge. There the diver supported the 'casualty' with the help of two others on the shore. As the diver manoeuvred the 'casualty' into a position to de-kit him he trapped his thigh between the rocky water's edge and the 'casualty's' cylinder. He later reported that the cylinder had knocked his leg into the rocky shoreline with a bit of a bump but did not mention it as he did not feel it was significant. The shore cover took over landing the 'casualty' and the diver exited the water using a ladder. The following morning the diver reported that he had knocked his leg, that it was painful and he had tried to walk it off. It was decided that he should not go RHIB diving that day. Later, when the group had returned from diving, the diver was found to be visibly in pain. On examining his outer thigh there was a lump about the size of a golf ball visible but no discolouration. It was decided that the diver should go to hospital and that afternoon a doctor confirmed that the diver had acute compartment syndrome and required surgery. The doctor monitored the injury and advised that they needed to operate quickly to release the pressure or the diver could risk losing his leg. The operation took place the following day which involved opening up the diver's thigh with a large five inch incision. Two days later the diver was taken back to the operating theatre to clean up the wound further in a sterile environment. The wound continued to bleed and the divers' haemoglobin level dropped so the hospital were prepared to give him a blood transfusion. Two days later the wound was closed and the surgeon confirmed that it was healing well and the diver should return to his previous level of mobility. The diver was due to be discharged from hospital in four days and would be able to fly home three days after that.

## June 2017

17/121

A trainee carried out a shore dive during which he had a problem with his ear and the dive was aborted. His dive duration was 22 min with a maximum depth of 3m. The trainee went to a medical centre and was advised not to dive.

## July 2017

17/141

During a training dive a student descended to 6m after carrying out an alternate source ascent exercise. At approximately 4m during the descent the student was unable to equalize his ears. He surfaced with his dive group with a dive time of 25 min to a maximum depth of 6m and they swam back to shore. The student went to hospital and was diagnosed as being temporarily unfit to dive.

## September 2017

17/225

A diver who had qualified two days earlier experienced issues with ear clearing on a morning dive which he then aborted having reached a maximum depth of 7m for 14 min. He had carried out a 40 min dive to a maximum depth of 19m that afternoon. The following day the diver, his buddy and an instructor carried out a shore dive. They swam on the surface to a wreck marker buoy with a plan to descend to a maximum depth of 20m on top of the wreck, ascend to 17m and swim back to the shallow reef on the coastline. As they descended the diver experienced difficulty clearing his ears at around 4m. The group ascended slightly and then descended but at around 6m the diver still had ear problems. Another slight ascent allowed him to clear ears, then they descended to 7m but he had problems again. After ascending to 4m and clearing his ears the diver could not get below 6m. The instructor indicated

that they should stay at 6m in the diver's comfort zone and swim back to continue their dive on the shallow reef. The diver signalled he wished to surface 21 min into the dive so the group surfaced with a dive duration of 23 min to a maximum depth of 7m. Back on shore the diver explained that he had aborted the dive due to feeling unbalanced underwater, suffering some pain in his ear and behind his right eye. There was a small amount of bloody mucus in his mask. He was monitored during de-kitting and showering despite saying his balance had returned to normal and he then returned to his accommodation to rest. Medical advice was sought as the diver was due to fly home the following day and he was advised to use decongestants. The following morning the diver reported that he was able to clear his ears and all discomfort had gone. He was advised to see a doctor when he returned home.

## Technique

## October 2016

17/009

A diver and his buddy carried out a boat dive and descended onto a wreck at 26m. Prior to entering the wreck they circled the area to get a good understanding of the site but approximately 5 min into the dive and just prior to entering the wreck the buddy tapped the diver's shoulder indicating he had an issue with his air supply. The diver indicated to the buddy to switch to his pony cylinder and they started a controlled ascent. At 6m the pair levelled off and the diver asked to see his buddy's contents gauge. The gauge read zero but the buddy was calm and indicated he was 'OK'. The diver immediately gave his octopus regulator to the buddy and carried out an alternate source ascent. The divers surfaced with a dive time of 12 min to a maximum depth of 26m. Back aboard the boat it became apparent that the buddy had descended on his 3 lt pony cylinder instead of his main cylinder. Both his primary and pony regulators looked very similar and the buddy acknowledged he had made a simple mistake which could have become critical if the pair had entered the wreck or he had panicked.

## February 2017

17/049

After boarding a dive charter boat a rebreather diver put on his drysuit. The skipper said it would be a forty-five minute passage to the dive site and the diver intended to zip up on reaching the site. The diver prepared his rebreather but failed to ensure his suit was closed. Following a buddy check whilst seated on the boat the diver then stood and made his way to the entry point and entered the water. The diver's error was immediately apparent, he aborted the dive and forfeited the remaining dives of the day whilst his suit and undersuit dried out.

## June 2017

17/112

A diver and his buddy carried out a wreck dive from a dive boat. As they were completing their dive, having carried out a 2 min stop at 13m, they arrived at 6m on the shotline to carry out a 3 min stop where they met another pair completing their decompression. When the diver had 1 min remaining he noticed that one of the other pair had taken his buddy's alternate source and was having problems as the alternate sources on both their sets of equipment were configured incorrectly resulting in them being positioned upside down when in use. Neither of the buddy pair were panicking but the out of air diver was struggling so the diver donated his own alternate source to him. The out of air diver settled down but the diver noticed that his contents gauge registered zero but his buddy seemed to have plenty of air to complete his decompression. The diver could not see the out of air diver's computer so had no idea how much decompression he needed but with his own decompression completed and with plenty of air he was happy to stay there as long as needed with his own buddy comfortably hanging nearby. On a signal from the out of air diver all the divers surfaced in a controlled



manner, the diver and his buddy with a dive duration of 50 min to a maximum depth of 31m. Back aboard the boat the out of air diver was reluctant to talk to the diver so he was unable to discover what had led to the incident.

## September 2017 17/217

A diver and her buddy were on holiday abroad and carried out a lake dive from a hardboat. They were given a dive brief by an instructor, who was also the boat's skipper, when they arrived on the dive site which was a wall dive with a maximum depth of 49m. There were seven divers aboard, a buddy pair who entered first, a buddy pair with their dive leader who entered second followed by the diver and her buddy. The diver and her buddy started their descent whilst the group of three were still on the surface. The pair descended and had reached 24m when the diver saw a lone diver descending rapidly with his arms at his sides. He was making no attempt to stop his descent and was completely 'frozen'. The diver swam up towards him and noticed that he was breathing from his regulator but not finning or attempting to inflate his BCD. The diver took hold of his BCD and fully inflated it but this only slowed his descent so she inflated her own BCD to stop the descent. The lone diver was so heavy that she had to get a better grip on him so passed her arm through his BCD strap. She gave him an 'OK' signal but there was no response from the diver whose eyes were open but he was completely passive. The diver realised that she would have to carry out a controlled buoyant lift using the buoyancy in her own BCD. Her buddy had seen what was happening and swam over to assist. Below them the water was dark so she turned the diver to face the cliff wall hoping that this would give him a visual reference and provide reassurance as he would be able to see they were ascending. The dive group had also been briefed to ascend close to the wall to avoid boat traffic. The buddy took hold of the lone diver's other arm and they ascended with the diver using her buoyancy. The lone diver was still unresponsive so the diver checked him again and his contents gauge in case there was a possibility of an 'out of air' situation. The lone diver appeared to have used over half his air in the few minutes he had been in the water and had sufficient for the ascent but he made no response as the diver and her buddy took him directly to the surface. The pair made sure the diver was buoyant on the surface, the dive leader came over and the diver was recovered aboard the boat. The dive leader said later that he and his buddy pair, a father and son, had started to descend when the father had landed on top of him and by the time he had got out from underneath him the son had disappeared, so he and the father had returned to the surface. The instructor, who had been skippering the boat, later commented that this was the son's third dive since he had been recently certified. The father had bought all new equipment for them both which included steel cylinders unlike the aluminium ones they were used to. The son had a new mask which he hadn't cleaned since purchase and could not see out of it very well. The son did not know how his equipment worked, specifically he did not know how to inflate his BCD. As it was his first boat dive the instructor had not allowed him to take in his large new camera. The instructor had gone through all the equipment with the son and explained how to use it, had reduced the weight on the son's weightbelt and showed him how to clean his mask.

## Equipment

### February 2017 17/031

A diver was using a rebreather with a separate cylinder for suit inflation. The first stage of the cylinder had been serviced the year before but not used since then. During a surface interval between dives the cylinder was left switched on and remained on the dive boat while the diver was ashore. A loud bang was

heard which had been caused by a split in the medium pressure hose. This was replaced and diving commenced but while the first wave of divers were underwater the replacement hose also split with a loud bang. The first stage was examined and was found not to be holding the inter-stage pressure and allowed a build up of pressure causing both hoses to fail.

### February 2017 17/032

A rebreather diver carrying out a boat dive had begun his descent to a wreck when he had a CO2 warning on his handset between 7m to 9m. The warning was intermittent and the diver switched to his 7 lt bailout cylinder and aborted the dive when he was unable to clear the warning. He surfaced with a dive time of 8 min to a maximum depth of 10m. He stripped down the rebreather and applied more grease to the scrubber 'O' ring and recalibrated the unit. He dived later that day with no further warnings.

### February 2017 17/033

A rebreather diver had carried out all his pre-dive checks on a boat dive. He descended but at approximately 8m he had a CO2 alarm warning. The diver carried out the appropriate drills and the alarm cleared but after a couple of min the alarm re-activated and unable to clear it the diver aborted the dive. He surfaced with a dive time of 9 min to a maximum depth of 9m. Back aboard the boat the diver attempted to trigger the alarm by breathing from the unit but after 10 min nothing had happened. The diver stripped down the unit and found a small distortion in the scrubber's 'O' ring, similar to a tiny nick in the material. The 'O' ring was replaced, the unit rebuilt, checked and was dived again with no further problems.

### May 2017 17/107

Whilst setting up his equipment on a diving expedition a student's regulator had a minor free flow. As the regulators being used were from a loan pool of kit the faulty regulator was replaced by a spare one, part of another set of loan equipment from a dive centre, and given to the student for the dive. The spare regulator was also found to have a similar fault. Returning from the dive two instructors on the expedition asked to have a look at both regulators and the student went to fetch them but returned with a different set. This set was part of the equipment loaned by the dive centre and it was noticed that in the area of the hose protector there were multiple cracks and a split to the regulator's hose outer sheath exposing the inner core. When the hose protector was pulled back it was also noticed that there was a kink in the hose where it joined the metal connection to the first stage. This set was put aside and reported to the dive centre when the kit was returned at the end of the expedition. The two regulators that had free flows were rectified with minor adjustment made by one of the instructors.

### July 2017 17/162

A diver was on a liveaboard diving expedition, using a 12 lt cylinder throughout, and had demonstrated good buoyancy and air consumption during the week's diving. On her previous dives she had surfaced with 110 bar after a 45 min dive to a maximum depth of 30m and 150 bar after a 38 min dive to the same depth. Although her air consumption was low, owing to her trim in the water this had not raised any suspicion of kit malfunction. The diver and her buddy carried out a dive on a wreck and as this involved entering holds and swim-throughs, air consumption was monitored throughout the dive. The pair made their way back to the shotline which was tied into the wreck at 16m, checked they were within no decompression limits as planned and the diver signalled she had 150 bar remaining. They ascended to carry out a 3 min safety stop at 6m where there was a strong current on the shotline. When they had completed the safety stop it was noticed that the

diver's pressure gauge had dropped to 20 bar with no indication of air loss from either her first or second stage. The pair ascended to the surface with a dive duration of 43 min to a maximum depth of 24m. Back aboard the boat it was confirmed, using a separate pressure gauge, that the diver had surfaced with 20 bar. The problem was diagnosed with the gauge's needle sticking between 150 bar to 100 bar and it was believed that something had caused the needle to move and show the correct reading. Another diver on the trip also reported that the needle on his pressure gauge was sticking when he first pressurised his regulator and then turned it off. The needle sometimes got stuck at 90 bar and would respond when tapped. Both divers were using the same type of gauge which had been provided by a dive equipment hire company. Both gauges were changed and no further problems reported.

## September 2017

17/250

A pair of divers conducted a night dive on an offshore wreck accompanied by a very experienced local dive guide. The dive was conducted from a boat tied off to the mast of the wreck which showed above the surface. The dive proceeded well and the group explored the wreck and noted plenty of marine life, including a nurse shark. Towards the end of the dive one of the divers swam off the wreck towards the nearby reef and made a noise to attract her buddy's attention. The buddy presumed she wanted to show him something of interest but as he got close she calmly showed him her contents gauge, the needle of which dropped from registering 80 bar down to almost zero every time she took a breath. Her buddy offered his alternate source but she declined and motioned for him to check the cylinder was fully turned on. On checking, the buddy tried to turn it fully on but determined that the valve was already fully open. The buddy signalled OK and turned to alert the guide but heard an audible 'NO' and so he offered his alternate source and this was calmly

taken by the diver. The guide appeared looking concerned and when shown what the problem was also tried to turn the valve fully on, with the same result. The diver then switched to her buddy's AS and the group then commenced their ascent. The diver then had difficulty reading her newly purchased computer as it required a button to be pressed in order to read it. Her buddy again assisted by altering his grip so that he could hold out his colour display computer so that they both could monitor it. During the ascent the group realised that the local boat handlers were motoring around on the surface at a rapid pace. In order to alert them to the surfacing divers the buddy removed his DSMB and reel and passed it to the dive guide to deploy in order to avoid task loading himself further. The guide took the DSMB and reel and looked at it for a short time before handing it back to the buddy. The buddy pair then slowed their ascent to allow the dive guide to surface first and hopefully be able to fend off the boats. The diver switched back to her own regulator for the final part of the ascent so that she could react quickly if there were any risk from the surface traffic. All divers surfaced fit and well and were recovered safely into their own boat.

## Miscellaneous

### July 2017

17/153

A diver entered the water from a dive boat to carry out a training dive on a wreck. During his descent he had a problem equalizing his ears at 4m and the dive was aborted. The diver was seen by a doctor who found no damage to his ears but a slight cold was the probable cause of the problem.

## INCIDENT REPORTS

If you would like to add to, correct or place a different interpretation upon any of the incidents in this report please put your comments in writing and send them to the following address:

**The Incidents Advisor,  
The British Sub-Aqua Club,  
Telford's Quay,  
South Pier Road,  
Ellesmere Port,  
Cheshire,  
CH65 4FL.**

For new incidents please complete a BSAC incident report form and send it to BSAC HQ at the address shown above.

**All personal details are treated as confidential.**

Incident Report Forms can be obtained free of charge from the BSAC Internet website

[bsac.com/incidentreporting](http://bsac.com/incidentreporting)

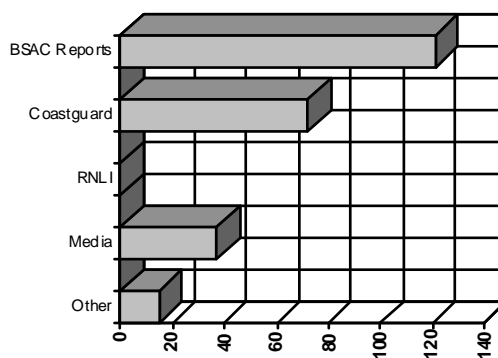
or by phoning BSAC HQ on **0151 350 6200**

## Numerical & Statistical Analyses

### Statistical Summary of Incidents

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Incidents Reported	499	437	401	416	453	412	405	377	335	277	274	283	255
Incidents Analysed	474	418	377	381	409	393	392	346	311	265	252	271	236
UK Incidents	441	379	349	359	381	364	375	314	263	216	226	228	205
Overseas Incidents	33	39	28	22	28	29	17	32	48	49	26	43	31
Unknown Locations	0	0	0	0	0	0	0	0	0	0	0	0	0
UK Incident - BSAC Members	160	148	120	129	120	116	193	133	104	101	131	106	114
UK Incident - Non-BSAC Members	65	50	61	65	29	30	94	40	38	30	24	28	27
UK Incident - Membership Unknown	216	181	168	165	232	218	88	141	121	85	71	94	64

### UK Incident Report Source Analysis



Total Reports: 245  
Total Incidents: 205

### History of UK Diving Fatalities

Year	Membership	Number of Fatalities	
		BSAC	Non-BSAC
1965	6,813	3	-
<b>1966</b>	<b>7,979</b>	<b>1</b>	<b>4</b>
1967	8,350	1	6
<b>1968</b>	<b>9,241</b>	<b>2</b>	<b>1</b>
1969	11,299	2	8
<b>1970</b>	<b>13,721</b>	<b>4</b>	<b>4</b>
1971	14,898	0	4
<b>1972</b>	<b>17,041</b>	<b>10</b>	<b>31</b>
1973	19,332	9	20
<b>1974</b>	<b>22,150</b>	<b>3</b>	<b>11</b>
1975	23,204	2	-
<b>1976</b>	<b>25,310</b>	<b>4</b>	<b>-</b>
1977	25,342	3	-
<b>1978</b>	<b>27,510</b>	<b>8</b>	<b>4</b>
1979	30,579	5	8
<b>1980</b>	<b>24,900</b>	<b>6</b>	<b>7</b>
1981	27,834	5	7
<b>1982</b>	<b>29,590</b>	<b>6</b>	<b>3</b>
1983	32,177	7	2
<b>1984</b>	<b>32,950</b>	<b>8</b>	<b>5</b>
1985	34,861	8	6
<b>1986</b>	<b>34,210</b>	<b>6</b>	<b>9</b>
1987	34,500	6	2
<b>1988</b>	<b>32,960</b>	<b>10</b>	<b>6</b>
1989	34,422	4	8
<b>1990</b>	<b>36,434</b>	<b>3</b>	<b>6</b>
1991	43,475	8	9
<b>1992</b>	<b>45,626</b>	<b>9</b>	<b>8</b>
1993	50,722	3	6
<b>1994</b>	<b>50,505</b>	<b>6</b>	<b>6</b>
1995	52,364	9	9
<b>1996</b>	<b>48,920</b>	<b>7</b>	<b>9</b>
1997	48,412	4	12
<b>1998</b>	<b>46,712</b>	<b>6</b>	<b>16</b>
1999	46,682	8	8 *
<b>2000</b>	<b>41,692</b>	<b>6</b>	<b>11</b>
2001	41,272	9	13
<b>2002</b>	<b>39,960</b>	<b>4</b>	<b>10</b>
2003	38,340	5	6
<b>2004</b>	<b>37,153</b>	<b>6</b>	<b>19</b>
2005	37,185	5	12
<b>2006</b>	<b>35,422</b>	<b>4</b>	<b>12</b>
2007	34,857	7	5
<b>2008</b>	<b>34,325</b>	<b>6</b>	<b>4</b>
2009	32,790	7	7
<b>2010</b>	<b>32,229</b>	<b>8</b>	<b>9</b>
2011	30,909	4	7
<b>2012</b>	<b>29,632</b>	<b>10</b>	<b>7</b>
2013	28,728	5	10**
<b>2014</b>	<b>28,375</b>	<b>6</b>	<b>10</b>
2015	27,803	3	6
<b>2016</b>	<b>27,346</b>	<b>5</b>	<b>6</b>
2017	26,774	2	9

\* 1999 Figure corrected from 9 to 8 due to a double count discovered in 2010

\*\* 2013 Figure corrected from 9 to 10 due to reporting of a snorkel fatality after the publication of 2013 report



**LIST OF ABBREVIATIONS USED IN THIS AND PREVIOUS INCIDENT REPORTS**

AIS	Automatic identification system (location beacon)
AS	Alternative source (gas or air)
A&E	Accident and emergency department at hospital
AED	Automated external defibrillator
ARCC(K)	Aeronautical rescue coordination centre (Kinloss)
ARI	Aberdeen Royal Infirmary (Scotland, UK)
AWLB	All weather lifeboat
BCD	Buoyancy compensation device (e.g. stab jacket)
BOV	Bailout valve
CAGE	Cerebral arterial gas embolism
CG	Coastguard
CCR	Closed circuit rebreather
CNS	Central nervous system
CPR	Cardiopulmonary resuscitation
CRT	Coastguard rescue team
DCI	Decompression illness
DDMO	Duty diving medical officer
DDRC	Diving Diseases Research Centre (Plymouth, UK)
DSC	Digital selective calling (emergency radio signal)
DSMB	Delayed surface marker buoy
DPV	Diver propulsion vehicle
ECG	Electrocardiogram
ENT	Ear, nose and throat
EPIRB	Emergency position indicating radio beacon
FAWGI	False alarm with good intent
FRS	Fire and rescue service
GP	General Practitioner (doctor)
GPS	Global positioning system
Helo	Helicopter
HEMS	Helicopter emergency medical service
HLS	Helicopter landing site
HSE	Health and Safety Executive
HUD	Head up display
ILB	Inshore lifeboat
INM	Institute of Naval Medicine
IPO	Immersion pulmonary oedema
IV	Intravenous
kg	Kilogramme
LB	Lifeboat
MCA	Maritime & Coastguard Agency
m	Metre
min	Minute(s)
MOD	Maximum operating depth
MOP	Member of the public
MRCC	Maritime rescue coordination centre
MRSC	Maritime rescue sub centre
MV	Motor vessel
NCI	National Coastwatch Institute
PFO	Patent foramen ovale
PLB	Personal locator beacon
POB	Persons on board
QAH	Queen Alexandra Hospital (Portsmouth, UK)
QAB	Queen Anne Battery (Plymouth, UK)
RAF	Royal Air Force
RHIB	Rigid hull inflatable boat
RMB	Royal Marines base
RN	Royal Navy
RNLI	Royal National Lifeboat Institution
ROV	Remotely operated vehicle
SAR	Search and rescue
SARIS/SARSYS	Search and rescue information system
SMB	Surface marker buoy
SRR	Search and rescue region
SRU	Search and rescue unit
UK SDMC	UK Sports Diving Medical Committee
UTC	Coordinated universal time
VLB	Volunteer life brigade
999	UK emergency phone number