

# Diving Incident Report

## 2018

Compiled by  
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# The British Sub-Aqua Club

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## 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 eight incident categories plus some historical analyses.

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:

MONTH/YEAR OF INCIDENT	INCIDENT REF.
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'.

Clare Peddie, Jim Watson

BSAC Diving Safety and Incidents Advisors,

October 2018

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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:

- Maritime & Coastguard Agency
- MOD Superintendent of Diving
- PADI Europe, Middle East and Africa
- Royal Society for the Prevention of Accidents
- Scottish Sub-Aqua Club
- Sub-Aqua Association
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Cover photo by Simon Rogerson

## Overview

The BSAC reports annually on the diving incidents in the UK as part of its role as National Governing Body for the sport in the UK. The BSAC incident report has been gathering data on recreational diving incidents for over 50 years. The data is reported anonymously through BSAC and other diving agency incident report forms, through the Maritime & Coastguard Agency, the RNLI, MOD Superintendent of Diving, PADI Europe, Middle East and Africa and Royal Society for the Prevention of Accidents.

When interpreting the BSAC incident report it is important to understand the parameters under which the report is prepared. Firstly, from 1972, the BSAC has not recorded incidents which are commercial such as incidents involving professional scallop fishermen or operational work dives in harbours. It does however include all recreational instruction dives even when commercial in nature.

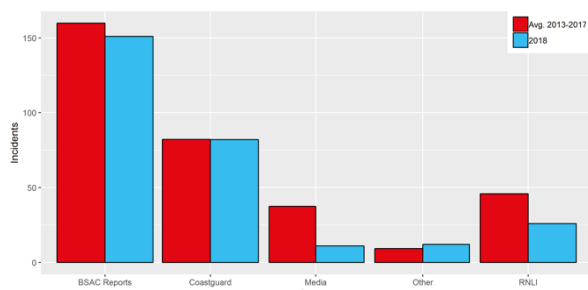


Figure 1. The source of reports contributing to the BSAC Incident analysis

Secondly, although operational changes last year meant that we did not receive RNLI data in time for the 2017 report, we have now received that data and these are now reflected in the data for 2017 and the data for 2018. Thirdly, the data reported in these graphs, unless otherwise stated is for UK based diving involving all diving affiliations and not just BSAC. We are really grateful that we have started to receive data and record the incidents from the CFT (Eire-based diving) and when we have sufficient consecutive years of data we will incorporate these data into the analyses. And lastly, the reporting year closes at the end of September 2018 and the data is analysed within two weeks of the year end. Consequently the figures for the month of September in the most recent year are artificially depressed due to some inevitable delay in receiving the reports.

We have made a number of changes to the way the data is presented in this report, choosing to compare the current incident year with the average of the previous five years. The justification for this is evident when looking at Figure 1 in which it can be seen that the overall number of reported incidents has remained relatively static over the previous five years.

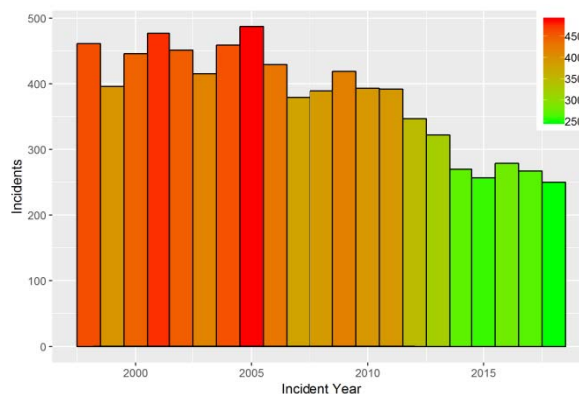


Figure 2. Number of reported incidents in each incident year (all incidents)

2018 has seen 251 valid incidents (Figure 2) of which 215 involve UK diving. This number is consistent with the number of incidents reported over the last five years and represents a plateauing in the level of reports.

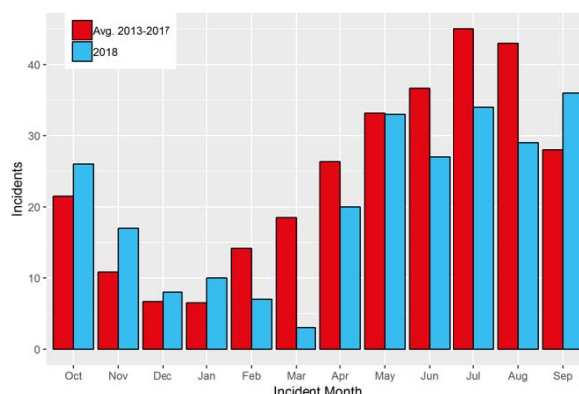


Figure 3. Number of incidents occurring in each month of the incident year

Consistent with the trend over recent years we do not see a peak in the number of incidents in the early spring which in the past was interpreted to be coincident with divers returning to diving after a break over the winter. Instead we now see a smaller rise in April followed by a consistent number of 30-50 incidents per month in May through to September; this change is probably a reflection of the level of diving activity in those months, with fewer divers venturing out early in the season. Of note in 2018, is the extremely low number of incidents reported in March, we believe that this is due to the period of weather which occurred in the UK from the 24<sup>th</sup> February to the 19<sup>th</sup> March which was named the 'Beast from the East' when even the bravest of divers did not venture from home let alone into the water.

The BSAC incident report is intended to help support diving agencies and rescue services in providing information to help inform strategic decisions regarding training design and efficacy of rescue technique. Later in this report we present the results of an analysis of the efficacy of rescue and resuscitation techniques used by divers.



## Incidents by Category

The incident database assigns all incidents into one of eight major categories, and Figure 4 shows the allocation of the 2018 incidents into these categories.

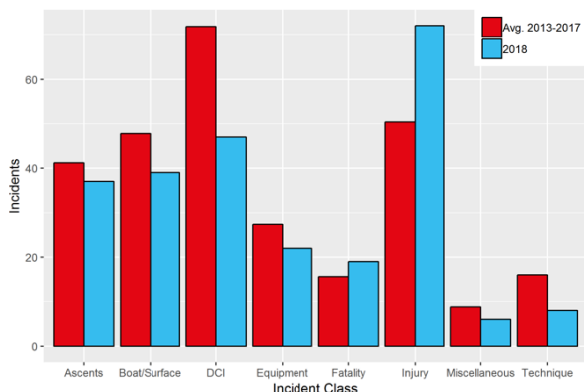


Figure 4. Reported incidents by category

The allocation to a category is based upon the most serious attributable factor reported. Unfortunately due to insufficient detail it is not always possible to allocate every incident to an accurate attributable factor. In 2018 there were fewer DCI incidents (45) than the average number of incidents reported over the last 5 years. The number of incidents attributed to ascents is comparable with previous years. The ascent category involves incidents where divers have made an abnormal ascent but avoided DCI or other injury.

The largest category is 'Illness or Injury' (which includes undefined illnesses) with 51 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 the number of boating incidents is again down with respect to the last five years.

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 unfortunately saw 19 diver fatalities; more analysis on this incident category is given later in the report.

## Incident Depths

The maximum depth of the dive during which incidents took place, categorised into depth range groupings, is shown in Figure 5.

The pattern of the maximum depth of a dive on which an incident was recorded or was the dive that gave rise to an incident is probably a reflection of the amount of diving that takes place in these depth ranges. Where the depth is known of the dive, we are seeing a shift deeper in the distribution of dives on which incidents have occurred (Figure 6). The likelihood of an incident occurring as a result of diving to deeper depths is increased due to decompression illness, nitrogen narcosis, gas consumption

and, in the UK, reduced light or visibility. In addition, once they have occurred incidents involving deeper dives are often more problematic due to the likelihood of serious DCI or unfortunately, unsuccessful rescue.

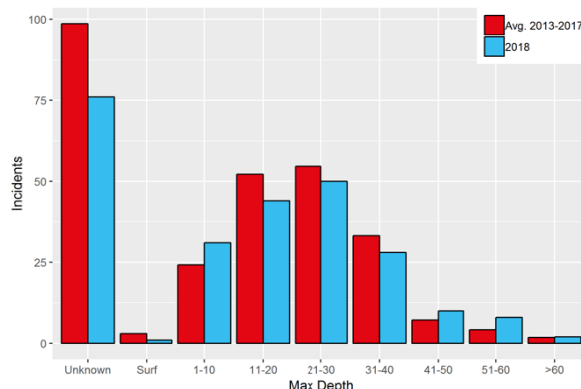


Figure 5. Maximum depth of dive in which incident occurred

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. Figure 6 shows the depths at which incidents started.

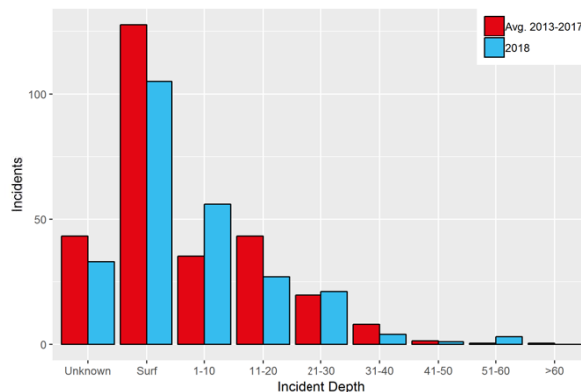


Figure 6. Depth at which incident started

The data shown in Figure 6 reflects the situation that many incidents start during the ascent or at the surface. A significant proportion of these are the DCI cases where, almost always, symptoms present when the casualty is out of the water. Other surface incidents involve boats and boating incidents and divers who are lost but on the surface. The depth at which the in water incidents began in 2018 is not inconsistent with the average of the previous 5 years but could possibly have shifted slightly shallower, we will monitor this movement in the future.

## Diver Qualification

Figures 7 & 8 show the qualification of those BSAC members who were involved in reported incidents. When interpreting these graphs it is important to acknowledge that the data gathers not only those who were subjects of the incident but also those involved in the rescue. The first figure looks at the diver qualification.

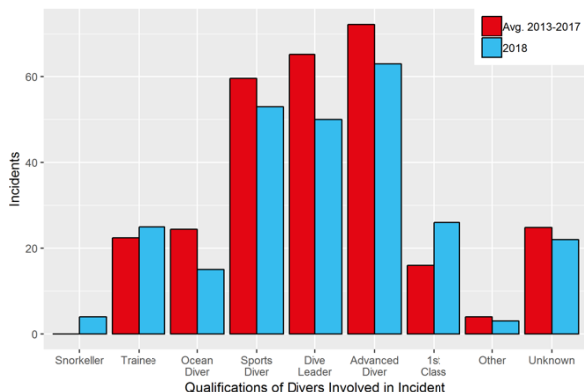


Figure 7. Qualification of divers involved in reported incidents

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 (Figure 7). Figure 8 shows an analysis of incident by instructor qualification and again it is consistent with previous years.

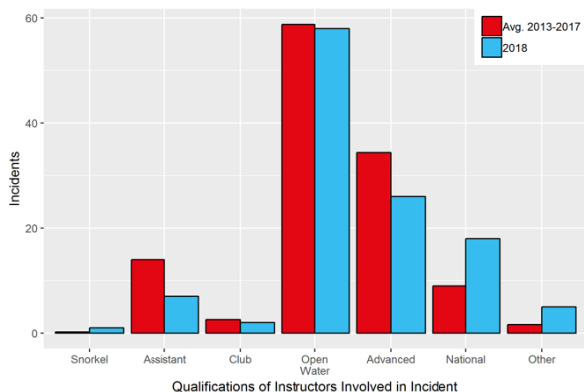


Figure 8. Qualification of instructors Involved In incidents

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. To reassure readers, the unusual number of incidents involving National Instructors (the highest award in BSAC) is a reflection of the instances of the breakdown of RHIBs used on National events and the involvement of National Instructors in rescues.

## Divers' Use of Emergency Services

Normally the divers' use of the emergency services shows a monthly distribution aligned to the distribution of all incidents, and is normally correlated with the number of dives that are taking place. However, this year in May the number of incidents reported involving the Coastguard, the RNLI and helicopters is noticeably down (Figures 9, 10 and 11) but in contrast, the number of overall incidents

reported is comparable with the last five years. This difference was investigated and can be explained by the fact that, in May, a significant proportion of the incidents reported were resolved without the activity of the rescue services.

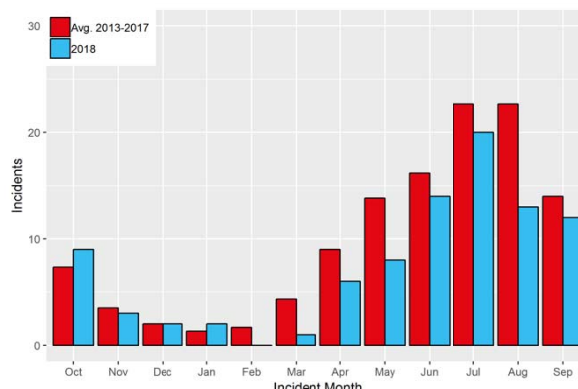


Figure 9. Incidents involving the UK Coastguard Agency in each month of the incident year

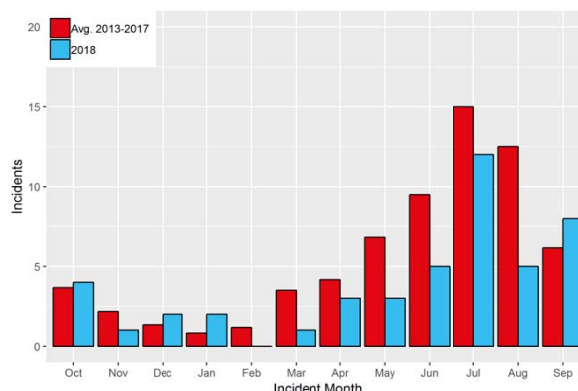


Figure 10. Divers Use of RNLI facilities in each month of the incident year

In 2018, 47 incidents involved the use of helicopters, a slight increase of 6 over 2017 but still lower than previous years. The decrease in helicopter use is reflected in the relatively low numbers of DCI cases reported in 2018.

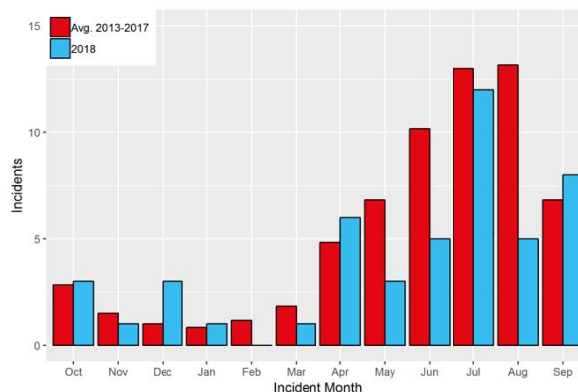


Figure 11. Divers' Use of SAR Helicopters in each month of the incident year

## Fatalities

19 fatal incidents occurred in the UK during the 2017 incident year. Unfortunately this is the highest number of fatalities recorded since 2004. Four of these fatalities

occurred in October at the end of the diving season last year and a further five fatalities occurred in July 2018. A feature of the fatalities in diving is that in a proportion of incidents the difference between an incident resulting in a fatality or a successful rescue is a consequence of a number of factors which come into play once an incident begins. Later in this report, we analyse the number of incidents in which rescue and recovery techniques have resulted in a successful outcome.

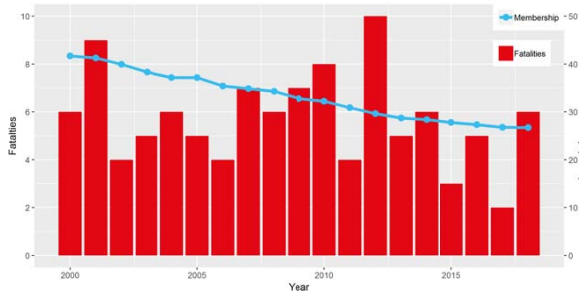


Figure 12. Fatalities of BSAC members and BSAC membership in each incident year

Six of the 2018 fatalities were BSAC members. The previous ten year average for BSAC fatalities in the UK is 6.1 fatalities per year. Thirteen of the 2018 fatalities were non-BSAC members. The previous ten year average for this group is 7.1. Key factors associated with the 2018 fatalities can be summarised as follows:-

- The fatalities in 2018 involved divers with an average age of 56 (in one case the diver's age is unknown); three of these divers were in their 70s. This continues the previously identified trend of the fatalities occurring in an aging population of divers.
- Fifteen of these cases involved the casualty falling unconscious under or in the water. In all incidents, where a casualty falls unconscious in the water, the rescue becomes much more problematic.
- Two of these fatalities have been confirmed as having a significant pre-existing medical condition. In addition, there is a strong indication that medical factors could be implicated in at least five other fatal incidents and in the remainder there is 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 a proportion of these indicated medical fatalities.
- In eleven of the fatalities the divers either began their dive alone (5 cases) or became separated (6 cases).
- Four cases involved divers diving in a group of three or more and in two of these cases there was a subsequent separation of the casualty. Diving in groups of three (or more) brings additional complexity to a dive and can generate problems that don't exist with pair diving. 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.

Often multiple causes are involved in an incident. With all but two of these 19 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 48 reports of 'DCI' incidents in the 2018 incident year, some of which involved more than one casualty. An analysis of the causal factors associated with the 48 incidents reported in 2018 indicates the following major features:-

- 30% involved diving to deeper than 30m
- 24% involved repeat diving
- 22% involved rapid ascents
- 13% involved missed decompression stops
- 11% were within the limits of tables or computers

Some cases involved more than one of these factors. Given that 11% of DCI cases arose from dives reported to be within decompression limits, divers should be alert for DCI symptoms arising from any dive.

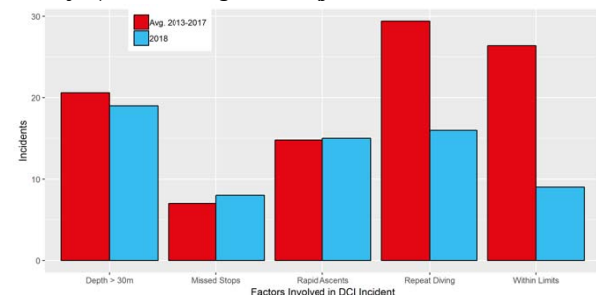


Figure 13. Factors involved in incidents that have resulted in decompression illness

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 2018 was 37. Some cases involved more than one of the factors shown in Figure 14. The number of lost divers (separated from their party but subsequently safely recovered) has shown a slow decline since the beginning of the century. This year there is an improvement in the number of lost divers compared to previous years and a continued decline in boat and engine failures.

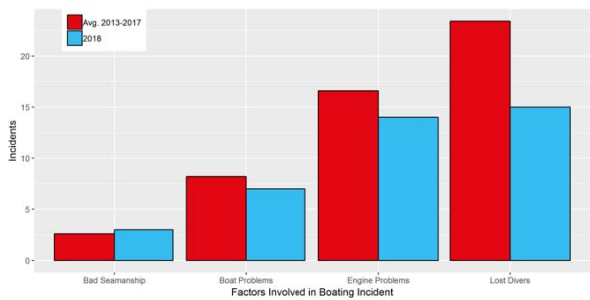


Fig 14. Factors involved in boating incidents

## Ascent related incidents

Ascent related incidents had been falling in recent years, however with 31 such cases reported in 2016, 44 cases reported in 2017, and 42 in 2018 the number seems to have stabilised at this level.

Factors which lead to rapid ascents include:

- 82% Panic / anxiety / rush for surface,
- 73% Poor buoyancy control,
- 36% Equipment problems
- 27% Delayed SMB problems
- 27% Out of air / gas
- 17% Weighting or weight related issues
- 9% Free flows
- 9% Drysuit/BCD control malfunction or misuse of Drysuit controls

A significant number of reported fast ascents were due to panic and a rush for the surface and buoyancy control issues continue to feature. 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 (45) included 14 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 and 2017 reports).

Two of the incidents described in the associated synopses have been confirmed by medical assessment as involving IPO in the casualty; both survived by immediately leaving the water and attending hospital. Twenty further incidents have been identified where IPO is suspected of being a factor from the synopsis using the factors described below. We are continuing to consult with an expert to ascertain if IPO is likely in incidents where the description of the incident implies an IPO may have occurred. In light of the developing body of information we believe it continues to be important to remind 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.

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.

## Efficacy of rescue and resuscitation techniques

In this report synopses sections there is the report of the use of in-water rescue breaths for an unconscious casualty on the surface which resulted in the successful recovery of the casualty. In this report we present evidence of the likelihood of success when using various rescue and resuscitation techniques.

Table 1. The efficacy of rescue techniques used in reported incidents

Technique	Reported use	Successful outcome <sup>3</sup>	Success rate
Alternative Air source Used <sup>1</sup>	125	107	85%
Controlled Buoyant Lift <sup>1</sup>	81	63	78%
CPR <sup>1</sup>	82	13	16%
Oxygen-enriched CPR <sup>1</sup>	22	4	18%
AED defib use <sup>2</sup>	20	6	30%

<sup>1</sup>analysis from data from 2013-2018 inclusive

<sup>2</sup>data extracted from the entire database

<sup>3</sup>successful outcome defined, for AS, as the casualty reaching surface without having to use free ascent; for CBL as the casualty reaching surface and for resuscitation techniques as the casualty regaining consciousness

The BSAC incident reports for the last six years in the database were interrogated for data with respect to the likelihood of success when using rescue and resuscitation techniques taught to divers. In particular we were interested in the outcome of using the alternate source

(AS) technique in an out of air or free flow scenario, the controlled buoyant lift (CBL) technique to recover divers to the surface, the outcome of using CPR and oxygen-enriched CPR and the outcome of using AED defibrillators. In the case of alternate source technique we analysed if the technique resulted in the return of the diver to the surface without resorting to a free ascent, the technique included all cases where a diver resorted to using their own AS or an AS provided by a buddy. The controlled buoyant lift technique was defined as a diver using either the casualty's buoyancy or their own buoyancy to make a controlled ascent resulting in the casualty reaching the surface. CPR, oxygen-enriched CPR and AED were defined as when the technique was used in the rescue or attempted rescue of an unconscious casualty. Success of all of these three resuscitation techniques was defined as the recovery of the casualty to conscious and breathing. In Table 1, evidence is presented that where a controlled buoyant lift was used, the technique was successful at recovering the casualty to the surface in 78% of the cases and in cases where an alternate source of gas was used the technique was successful in 85% of incident reports. It is reassuring that, even when under the stress of an occurring incident the techniques taught by diving agencies to assist their buddy to the surface are successful in the majority of cases. The suspicion is that these success rates are a large underestimation of the actual success rate.

The instances, where resuscitation techniques are called upon, are significantly more serious because the casualty is by definition unconscious and not breathing. Even in these very difficult circumstances, the evidence is that divers have successfully resuscitated casualties. The success rate is 16% for CPR and 18% for oxygen-enriched CPR; and when an AED is used the success rate is increased to 30%.

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## Conclusions

Key conclusions are:-

- The number of incidents reported has plateaued over the last four to five years.
- The monthly reporting trend follows the now usual pattern identified over the previous four years where the number of incidents rises in the spring to a peak over the summer and declining again in the autumn and winter months.
- The nineteen fatalities in the UK are unfortunately higher than the average (13.2) for the previous 10 years.
- The six fatalities of BSAC members is comparable with the average of the previous 10 years (6.1).
- The thirteen fatalities of non-BSAC members is above the average (7.1) of the previous 10 years.
- There were three fatalities of divers over the age of seventy and the average age of the divers who died was 55.8 (similar to last year where the average age of the fatalities was 55.3).
- There are still strong indications for likely medical causes including immersion pulmonary oedema from the description of the incident in some of

the fatalities although this has yet to be confirmed.

- Two of the incidents have been confirmed by medical assessment as involving IPO in the casualty; both survived by immediately leaving the water and attending hospital. A further twenty incidents have been identified where IPO is suspected of being a factor from the synopsis.
- 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.
- Analysis of the efficacy of the diver rescue techniques of CBL and AS show that even in an incident scenario these techniques are deployed with a high chance of success and lives saved.
- Analysis of the resuscitation techniques implemented by divers when the casualty is unconscious and not breathing give indication that the recovery rates are certainly comparable with those achieved by professional resuscitation in the field.

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 of successful techniques such as controlled buoyant lift and alternate air source techniques. With respect to your resuscitation techniques, the evidence is that it is successful in a good proportion of cases and that it is worthwhile keeping your technique up to date and in practice. In addition the message these data give is that it is always worth using CPR and that the success of your CPR could be significantly enhanced by having access to an AED.

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 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 2017**

**18/001**

A 'Mayday Relay' broadcast was issued by the Coastguard after they had been contacted by a dive boat who reported one of their divers was 15 min overdue. Coastguard rescue teams, a helicopter and lifeboat were involved in a search. Another dive boat located the diver face down on the surface and he was recovered aboard the lifeboat where he was assessed by a paramedic winchman from the helicopter and pronounced dead. The diver's contents gauge was reported to show an empty cylinder. (Coastguard report).

**October 2017**

**18/003**

Whilst a diver was acting as shore cover for an instructor and student undertaking rebreather training at a shore diving site, he noticed a lone diver who appeared to be finning gently back to a jetty. Moments later two passing free divers noticed the lone diver was not moving. The shore cover tasked one free diver to swim out and assess the lone diver and the other to assist whilst he deployed a lifebuoy and line. He pulled all three back to a jetty. Rescue breath attempts were made without success. The shore cover raised the alarm, requesting assistance. He, with the shore cover's group and site staff, removed the diver's twin-set and recovered him onto the jetty and CPR commenced. One of the divers in the shore cover's group was an ambulance service first responder and took over management of the rescue as CPR continued. Oxygen was delivered and a short time later an AED was delivered. An off-duty paramedic arrived and he and the rescue group continued CPR for approximately 30 min until three rapid response vehicles and two ambulances attended the scene but doctors eventually declared the diver deceased. The diver's computer was interrogated, which proved difficult as the language was not English and it was assumed to be Polish. The dive details obtained were that this was the diver's second dive of the day after a 2 hour 14 min surface interval to a maximum depth of 71m with a dive duration of 13 min and an indication that the incident had started at 56m. The computer was set for trimix with a possible mix of 15/40.

**October 2017**

**18/006**

A diver and his buddy carried out a wreck dive, in approximately 45m, from a hardboat. The diver was reported to have been in a partially drowned state when he was recovered aboard the dive boat. A 'Mayday' was relayed by another dive vessel. CPR was performed on the diver and the hardboat made it quickly back to shore where an ambulance and doctor were waiting. The diver was declared deceased upon arrival. (Coastguard report).

**October 2017**

**18/017**

A diver and his buddy diving from a dive boat, conducted their first dive of the day to a wreck at 27m. The diver signalled that there was an issue and a DSMB was deployed and the pair started to ascend together. At 23m the diver signalled again he had a problem and started to ascend rapidly to the surface. The buddy tried to slow the ascent until they reached 8m where he let go and the diver made a rapid ascent to the surface, where he was reported to have vomited and then became unconscious and unresponsive. The buddy saw two other divers go to the diver's aid and made a safety stop before surfacing. The diver was recovered aboard the dive boat and CPR commenced. A rescue helicopter and lifeboat were tasked to recover the diver and transport him onwards to appropriate medical care. The helicopter recovered the casualty and transferred him to hospital where he was pronounced dead. The buddy was taken by the lifeboat to an awaiting ambulance for precautionary medical care and checks. A Coastguard rescue team met the dive vessel when it returned to harbour to ensure that all equipment was secured for follow up investigation.

**November 2017**

**18/022**

A diver and his buddy carried out a wreck dive from a hardboat. The diver was using a 15 lt cylinder and 7 lt stage cylinder of nitrox 50. The buddy was using twin cylinders and a stage cylinder. Their bottom time was 30 min at a maximum depth of 31m, the buddy deployed his DSMB and they ascended to 15m to carry out a decompression stop where the diver switched to his stage cylinder and at this point he went for the surface. The buddy lost sight of the diver but did not follow as he still had around 10 min of decompression to complete. When the diver surfaced he had shouted to a hardboat, one of another two on the same site, and a safety diver aboard put on mask and fins and entered the water to assist. The safety diver tried to inflate the diver's BCD but his 15 lt cylinder was empty, the diver had passed out and was unresponsive. The hardboat recovered the diver and safety diver aboard and CPR was carried out on the diver by the skipper for 35 min. The Coastguard had been contacted and three lifeboats were alerted and arrived on the scene. The diver was transferred to one of the lifeboats where two of the crew continued CPR in conjunction with their on-board defibrillator. A rescue helicopter arrived and airlifted the diver to hospital where he later died. The lifeboat crew assisted another diver suffering from shock and they and the other lifeboats continued to search the area to confirm all in the diving party had been accounted for.

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**March 2018**
**18/044**

A buddy pair on a hardboat were about to enter the water to dive on a wreck at approximately 23m. One of the divers entered ahead of the other and descended. The buddy entered approximately 1 to 2 min later but was not seen again by the diver. He was using twin 12 lt cylinders of air and had said he felt a bit ill on the way to the site. The surface cover reported seeing a sudden burst of bubbles whilst the buddy had been on his descent. When the diver returned to the surface he had not seen his buddy and reported him as missing. The skipper of the hardboat broadcast a 'Mayday' call and the Coastguard launched a large scale search over the next two days but the buddy was not found. Units involved in the search were five lifeboats, a Coastguard Rescue helicopter, three Coastguard rescue teams, Police divers, a local port launch, a passing naval sail training vessel and the charter vessel the buddy was diving from. He was reported to be using a wing BCD and a drysuit, carrying two torches and a 2m orange DSMB. (Coastguard report).

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**April 2018**
**18/052**

A diver using a CCR was diving in a buddy pair from a RHIB. During the dive on a wreck at approximately 20m the diver became separated from his buddy and was found unconscious and unresponsive on the surface by the skipper. He was recovered aboard the RHIB and CPR commenced. The RHIB still had other divers in the water. A Coastguard rescue helicopter and a lifeboat were tasked to assist and a passing ferry was also diverted to assist as it had an AED aboard. The diver was transferred to the ferry for defibrillation, was recovered from the ferry by the helicopter and airlifted to an awaiting ambulance at the ferry terminal. The diver was transferred to hospital where the Police confirmed later that he had died. (Coastguard report).

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**April 2018**
**18/053**

A group of divers was carrying out shore dives. Three of the divers carried out a dive, the initial objective of which was to navigate to an underwater pinnacle at a depth of 12m and fix a SMB to its summit. This was to facilitate an instructor and his student to make a surface swim out to the site without the need for underwater navigation and complete the student's training with a 30m dive. The instructor, using air in a 7 lt independent twin-set with a stage cylinder of nitrox 44, and his student using air, swam out to the marker buoy and the student saw that air was escaping from the instructor's wing BCD hose as he attempted to inflate it. The instructor was struggling to stay on the surface and a few metres from the buoy he sank. Using the SMB's thin line he managed to regain the surface and was grasping at the buoy for support. He shouted at the student to release his weightbelt and the student submerged a little, managed to release it and it dropped away. The student was holding onto the instructor when he became unconscious, heavy and dragged the student down. The student released his hold and the instructor sank while the student remained on the surface and called for

help. Two divers on the shore swam out to the student and recovered him to the shore. The shore cover contacted the emergency services and a large multi-agency group, including ambulance, air ambulance, rescue helicopter, fire brigade, police, mountain rescue and Coastguard rescue teams arrived on the scene. Divers from another group on the site searched for and recovered the instructor from 26m. It was noted that as the rescuers tried to make the instructor buoyant, air bubbles immediately escaped from what appeared to be the joint between the instructor's wing BCD and inflator tube. The instructor was recovered to the surface and taken ashore by the mountain rescue team's boat. Back on shore the crews from the ambulance and air ambulance made extensive efforts to revive the diver but were unsuccessful. An inquest found that the diver had significant undiagnosed narrowing of the arteries of the heart and cause of death was recorded as natural causes.

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**April 2018**
**18/078**

A CCR diver, using 15/45 diluent, carried out a dive from a hardboat. The diver reportedly had a rapid ascent from 40m and missed approximately 50 min of decompression stops. His buddy made a safe ascent completing the mandatory stops. When the diver surfaced, with a dive duration of approximately 45-50 min to a maximum depth of 57m, he was described as being semiconscious but still had the loop in his mouth. He was recovered aboard the hardboat and became unresponsive. The skipper, still with a number of divers in the water, issued a 'Mayday' call and CPR was administered. A Coastguard rescue helicopter was scrambled and two support vessels from a nearby windfarm were tasked to proceed to meet the hardboat, offer assistance using their first aid and AED equipment and to standby to assist with recovery of surfacing divers. The helicopter recovered the diver and transported him to a nearby helicopter landing site, which had been secured by a Coastguard rescue team, and he was transferred to a waiting ambulance. The diver was declared deceased. It was later reported that this was his first dive since November the year before. (Coastguard report).

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**June 2018**
**18/080**

It was reported that a diver had surfaced unconscious, possibly that he had hit his head at the surface on his dive boat. A Coastguard rescue helicopter and Coastguard rescue teams were tasked to provide medical assistance. The helicopter airlifted the diver to hospital where he was declared deceased. The buddy was found to be safe and well. Appeals were issued by the Police to three kayakers who were believed to have gone to the diver's aid but who had left the scene before giving their details. (Coastguard report).

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**June 2018**
**18/093**

A diver carried out a shore dive on a CCR course. He was on his second dive of the day, following a previous dive to a maximum depth of 32m for a total dive time of 61 min, the seventh of the course. The diver, accompanied by an

instructor and a safety diver, conducted a dive to a maximum depth of 36m and was at a depth of 32m when he indicated something was wrong and he was assisted to the surface by his two buddies in what became a rapid ascent. On the surface the alarm was raised but the rescue boat was unable to recover the diver and he had to be towed to a jetty where CPR including oxygen were applied. The diver was declared deceased at the scene. The instructor complained of a headache and was taken to hospital for observation.

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**July 2018**
**18/099**

A dive charter boat reported a diver overdue from a 44m dive. He was reported to be using twin 10 lt cylinders and a 3 lt stage cylinder of nitrox 50. A large number of leisure and commercial vessels responded to the Coastguard's 'Mayday Relay' broadcast, and were tasked to search for the diver. Three lifeboats, a Coastguard rescue helicopter and three Coastguard rescue teams were all tasked to search for the diver. Searches were conducted overnight and the following day. The search continued over the next two days with Police divers searching to depths of around 46m. Two weeks later a body was recovered by the Police divers but they were not in a position at that time to identify the body. (Coastguard report).

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**July 2018**
**18/102**

A solo diver undertook a dive from a small dory with one person remaining aboard. Approximately 5 min after entering the water the diver was reported by the vessel to be on the surface and unresponsive. A lifeboat and Coastguard rescue helicopter were tasked to provide immediate medical care and onward transport. The diver was recovered by the lifeboat and taken to a harbour where he was passed over to the care of paramedics from the ambulance service who were unable to save him. A rescue helicopter had been tasked to assist but was stood down upon its arrival. (Coastguard report).

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**July 2018**
**18/104**

A group of four open circuit divers using air and a CCR diver carried out a shore dive. The four open circuit divers entered the water as two buddy pairs. The CCR diver's plan was that he was going to dive in the shallows and practise buoyancy with his new scooter. He had dived with it about six times before and solo dived with it two weeks before. Just before descending one of the group shouted to the CCR diver to see if he was alright to which he replied he was and would be entering the water in a few minutes. The two buddy pairs carried out their dive and around 50 min later separated from each other towards the end of the dive. One of the buddy pairs swam towards their exit point when they saw a shape ahead. When they got closer they saw it was the CCR diver lying on his side with feet raised and without fins. His unit was on the seabed at around 2m with one shoulder strap unclipped but the other still clipped holding the diver down. The pair pulled the CCR diver to the surface, towed him ashore and recovered him from the water. They

began CPR and called the emergency services. The Coastguard tasked a rescue helicopter, an air ambulance, a lifeboat and two Coastguard rescue teams to assist. The second buddy pair surfaced and in rotation with the first pair, continued with CPR and oxygen enriched rescue breaths. Their efforts continued for 30 min and a helicopter arrived. The winchman touched down in the water, ran across the rocks, checked information with the divers, and the CCR diver was winched aboard and taken to hospital. Police on the scene later informed the group that the CCR diver had died. The diver's scooter was found later washed up on a rocky beach by the Coastguard approximately 30m to the right of the entry point. When collecting the CCR diver's kit together it was noticed that the diluent cylinder was empty.

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**July 2018**
**18/111**

A group of three divers conducted a wreck dive from a charter boat to a maximum depth of 31m. At the bottom they exchanged OK signals and commenced the dive. A short while later one of the divers indicated that he wanted to ascend. One of his buddies indicated for him to return to the shotline for ascent rather than deploy a DSMB. As they approached the shotline they saw other divers completing their descent and the buddy exchanged hand signals with one of them. As the buddy turned back he noted that the diver had not followed him and had ascended slightly and was 1 or 2m from the wreck near the boiler. The buddy closed with the diver, turned him towards himself and tried to calm him and signalled him to stop, including shouting through his demand valve. At this point the diver was moving uncontrollably and was none responsive but retaining his regulator in his mouth and his gaze was fixed. The buddy did not note any signs of inhaling or exhaling from the diver. The buddy then conducted a controlled buoyant lift during which the diver remained unresponsive and moving uncontrollably with his hands and head moving erratically. The diver retained his regulator in his mouth until reaching 11m on the ascent at which point it fell from his mouth. The buddy tried to reinsert the regulator but the diver was not responsive and so the buddy continued the lift direct to the surface omitting any safety stops. On the surface the diver remained unresponsive with a fixed glazed expression and foam like liquid was being excreted from his mouth. The buddy tried to clear the diver's airway by scooping the liquid from his mouth but it was simply replaced by more fluid. Both divers were recovered aboard and CPR commenced. During CPR efforts had to be stopped frequently to scoop out froth/foam like liquid from the diver's mouth and then recommence CPR. Initially nitrox was used for enriched rescue breaths before oxygen was located and switched for the nitrox. A Coastguard rescue helicopter and two lifeboats were tasked to provide medical care and recover the remaining divers. A paramedic was put aboard the charter boat to assist with CPR efforts. The buddy and other rescuers were taken aboard a lifeboat whilst the paramedic and lifeboat crew took over CPR and the buddy was placed on oxygen. The diver's buddy reported that he believed that the casualty had an oxygen toxicity

convulsion at about 10m. Both divers were taken to hospital but the diver who had been rescued by his buddy did not survive.

**July 2018** **18/122**

A 'Mayday Relay' was received by a dive boat on behalf of another dive boat that had an unresponsive diver aboard. The diver had conducted a 36m dive in a buddy pair but became unresponsive on the seabed. His buddy lifted him to the surface and the diver was recovered aboard and CPR started. The second dive boat also proceeded to provide assistance whilst a lifeboat was tasked to the scene. The vessel made its way back into harbour with CPR ongoing and was met by an ambulance and a Coastguard rescue team. The ambulance service personnel declared the diver deceased aboard the vessel. It was reported that although the diver was reasonably experienced this trip was his first experience of cold water diving. It was his third dive of the trip and he was using a nitrox mix. (Coastguard report).

**September 2018** **18/163**

A diver was diving with two buddies from a charter boat. The previous day he had completed 2 dives 30m for a total dive time of 45 min and three hours later 10m for a total dive time of 45 min. The diver and his buddies conducted a dive on a wreck to a maximum depth of 28m. On ascent he deployed his own DSMB in addition to that of his buddies who deployed one between them. All reeled up slowly to a depth of 12m when the diver lost control of his buoyancy and ended up on the surface. He was found a short time later by one of his surfacing buddies face down and unresponsive and the alarm was raised with the boat. He was recovered aboard the vessel, and CPR with oxygen enriched rescue breaths commenced. One local dive boat responded to the 'Mayday' communications, proceeding to the charter boat with an AED. Other divers were still in the water. Coastguard tasked two lifeboats and two helicopters to assist with diver recovery, and with resuscitation attempts. The diver was declared dead on arrival at hospital. The result of a subsequent post mortem found evidence of a massive heart attack as well as evidence of an enlarged heart, liver damage and emphysema, none of which was known prior to diving.

**September 2018** **18/167**

An instructor and student carried out a shore dive on a CCR course. They descended to a maximum depth of 30m but due to the poor visibility the instructor elected to ascend by following a line to a 20m shelf. During the ascent they lost contact with the line and at a depth of 27m when the instructor turned to check his student he saw him bailing out onto open circuit. As the instructor went to assist, the student lost buoyancy and the regulator fell from his mouth. The instructor grabbed the student, tried to provide his alternate source and noticed his eyes were closed and he appeared unresponsive. The instructor carried out a controlled buoyant lift which became a fast

ascent. At the surface assistance was summoned and a rescue team from the dive centre recovered both divers. Emergency services attended but the student did not recover.

**September 2018** **18/169**

A diver was doing a successive fun dive with two other divers. During the ascent from a maximum depth of 9m the two other divers noted the diver was not with them anymore. After a brief search they found the diver on her back facing the surface at 9m. As the diver was unresponsive they started to bring her to the surface. Reaching the surface they inflated her BCD and drysuit, ditched the weightbelt and called for help and started in-water rescue breaths. The site rescue boat arrived, recovered the diver from the water and the diver was taken ashore and resuscitation with oxygen was administered. The emergency services attended and the diver was taken by ambulance to hospital. The diver's buddy had no ill effects but it was later reported that the diver did not survive.

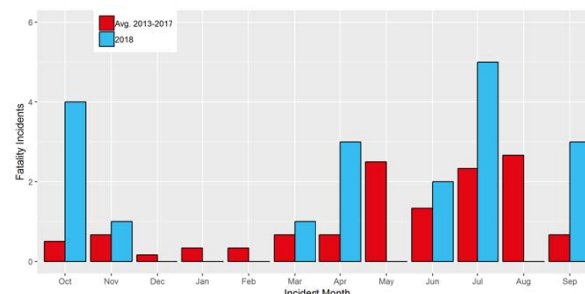


Figure 15. The month of occurrence of fatalities



## Decompression Incidents

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**October 2017**

**18/144**

A CCR diver, using a 20/40 gas mix, carried out a wreck dive from a dive boat to a maximum depth of 54m with a bottom time of 40 min. The diver made a rapid ascent from 54m and arrived at the surface having missed approximately 30 min of mandatory decompression. The diver was recovered back aboard the boat, began to be violently sick and was administered oxygen. His level of responsiveness decreased but he remained conscious. The boat issued a 'Mayday' and a helicopter was tasked to the scene. The Coastguard also consulted a duty doctor at a hyperbaric chamber, who agreed to accept the diver and agreed with the decision for air evacuation. The skipper reported he still had eight divers in the water so was unable to leave the area. The Coastguard tasked a lifeboat and requested a nearby dive vessel to proceed to the area to provide safety cover for the remaining divers and to ensure they were recovered safely. A Coastguard rescue team was tasked to secure the helicopter landing site and an ambulance was requested to transfer the diver to the chamber. As the helicopter neared the vessel, the diver began to experience pain in his arm. The helicopter lowered the winchman onto the deck, who assessed the diver and prepared him for winching. The diver was airlifted ashore and taken by ambulance to the hyperbaric chamber. The dive boat managed to recover all remaining divers so the lifeboat and standby dive vessel were stood down. (Coastguard report).

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**November 2017**

**18/253**

A diver and his buddy completed a first dive of the day without incident to a maximum depth of 20m for a total duration of 48 min. After a surface interval of 80 min the pair conducted a dive to a maximum depth of 20m for a total dive time of 38 min. Towards the end of the second dive the diver experienced a regulator free flow and went onto his buddy's alternate source. The pair made a faster than normal ascent and omitted safety stops. The diver was provided oxygen by the onsite staff who noticed a slight stigmatism in the right eye. The buddy spoke with a local chamber who advised the diver to attend for assessment.

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**November 2017**

**18/033**

A diver and her buddy, both using nitrox 27, carried out a boat dive reaching a maximum depth of 35m and at 30 min they began their ascent. At 30m the diver realised she was ascending too quickly and was unable to control her buoyancy despite trying to dump air from her BCD and drysuit. She missed her planned decompression stop and surfaced with a dive duration of 34 min with her computer showing she had missed 18 min of decompression. This was subsequently calculated to be less as her computer had been set to air. Aboard the boat the diver was given oxygen and remained on this for 1 hour 30 min. She had no

symptoms of DCI for the next 24 hours and felt fine. However, she started to get pain in her elbows and shoulders and when she contacted a hyperbaric chamber they advised she should attend. The diver received three sessions of recompression treatment and was signed off after her third visit.

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**January 2018**

**18/038**

Three divers, using air, carried out a winter shore dive with a water temperature of 6 deg. One of the divers had made a buoyant ascent at one point during the dive and carried out safety stops but felt extremely cold. She surfaced with a dive duration of 38 min to a maximum depth of 21m and did not carry out a second dive. 6 hours after surfacing from the dive the diver became aware of discomfort in her left shoulder and a noticeable but intermittent ache in her left arm. The following day her symptoms were more pronounced and she was feeling very lethargic, her concentration was impaired and she had a headache which was only temporarily relieved by painkillers. This prompted the diver to contact a hyperbaric chamber for advice and evaluation. The diver was diagnosed with DCI and received two sessions of recompression treatment, the first of which almost completely resolved her symptoms and the second achieved complete resolution. A follow-up phone call the following day confirmed she was free of all symptoms. The diver was advised to avoid diving and flying for at least four weeks and have a diving medical before returning to diving.

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**January 2018**

**18/260**

A diver had conducted a dive earlier in the day to a maximum depth of 22m for a total dive time of 58 min. Later that day the diver phoned the inland managed site saying that he had collapsed but provided conflicting information about the location. The diver was located sitting in his car at the roadside. An ambulance had been called and in assisting the diver from his car he reported being dizzy and was unable to support his own weight or move unassisted and kept one eye shut and subsequently vomited. Examination in the ambulance could find nothing untoward and sats were fine but the diver was taken to hospital. The hospital conducted further tests and all were fine but eventually a call was made to a local chamber who advised transfer for treatment. The diver underwent an 8 hour recompression treatment and was diagnosed with a CNS DCI. The diver was released home but remained unable to stand.

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**April 2018**

**18/148**

A diver and his buddy had been carrying out a shore dive with an instructor as part of a drysuit course to a maximum depth of 18m. At the end of the dive the diver started to panic and then became unresponsive. The diver was at

16m at the time and sank to the seabed at a depth of 21m. The instructor removed the diver's weight system and inflated their BCD and controlled the ascent to the surface. As they approached the surface the ascent started to speed up and the instructor had to release the diver to avoid risk to themselves. Another instructor was on the surface and responded to the surfacing diver. The diver surfaced without a regulator in his mouth, was reported to be unresponsive and also vomiting blood. The instructor gave in-water rescue breaths and after a number of breaths the diver started to breathe independently. He was recovered ashore by other divers and first aid was administered including oxygen. A rescue helicopter, an air ambulance, a lifeboat and Coastguard rescue teams were all tasked to assist. The diver regained consciousness and his buddy began to present symptoms.

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**April 2018** **18/149**

A diver, using air, conducted a boat dive to a maximum depth of 25m with a dive duration of 43 min. Immediately after surfacing the diver appeared pale, felt sick and was dizzy. The diver was put on oxygen and a local Coastguard rescue team and an ambulance were tasked to attend and medical advice was sought. On the assessment of a hyperbaric doctor a rescue helicopter was tasked to recover the diver and he was transferred to a hyperbaric chamber. (Coastguard report).  
(see also 18/304 and 18/305)

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**April 2018** **18/305**

An instructor was teaching a Drysuit speciality course with two students. After rapidly ascending with a student having difficulties, as a precaution the instructor was taken to a hyperbaric chamber, received 5 hours of treatment and was kept in hospital overnight as a precaution. (see also 18/148 and 18/304)

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**April 2018** **18/300**

A diver had completed four dives at an inland site using nitrox 32 but with his dive computer set to air. At the end of the final dive he made a fast ascent from 5 m missing safety stops. The diver and his buddy had a long surface swim and during this the diver complained of chest pains and so his buddy assisted him into the shore. After exiting the water and de-kitting the diver complained of a numb right leg and asked the dive staff to check him over. The diver was placed on oxygen and an ambulance was called to transfer the diver to a recompression facility.

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**May 2018** **18/58**

A diver conducted a solo dive from a commercial dive charter using trimix 11/50 on CCR. The dive was to a maximum depth of 55m for a bottom time of 25 min. The diver was reported to have had an uncontrolled ascent from the bottom, missing approximately 30 min of decompression, but had managed to deploy her DSMB. On the surface she became tangled in the line of her

DSMB, and was recovered aboard the vessel. At this point 9 divers remained in the water, and the diver was presenting with chest pains. She was placed on oxygen, and medical advice sought from the duty doctor at the local hyperbaric chamber, who requested she be taken to A&E initially. A Coastguard Rescue Helicopter was tasked and recovered her from the vessel, whilst the vessel recovered the remaining divers. Selsey CRT prepared the helicopter landing site for the arrival of the diver. She was successfully transferred to hospital for assessment and treatment. It was later reported that the diver appeared to be having difficulty descending at the start of the dive. (Coastguard report).

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**May 2018** **18/060**

A diver was airlifted from a dive boat with DCI symptoms. He was taken to hospital where he had an echocardiogram, a chest x-ray and then a CT scan. 3 hours after surfacing the diver was transferred to a hyperbaric chamber. Just before going into the chamber the diver stood up from his bed and passed out. He came to with AED pads being applied to his chest, nurses administering IV bags, a doctor pressing his groin pressure points and an ambulance crew arrived. The diver was told he had had a pericardial arrest but did not know how long his heart had stopped but the AED was not used. He was rushed into the chamber accompanied by a doctor, who stayed with the diver until he had stabilised at depth, and had 9 hours of recompression treatment. Following this he was moved back to hospital, given morphine and rested overnight. The following day he returned to the chamber for another session of recompression treatment and remained in the area awaiting either further treatment or discharge the following day.

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**May 2018** **18/238**

A diver conducted a dive from a commercial dive charter in Scapa Flow on nitrox 30. He dived to 29m for 40 min, and had dived that morning to 40m for 45 min. Once back aboard the vessel, the casualty presented with a skin DCI, so was transferred back to port by the dive vessel, where an ambulance was arranged to transport him to the local hyperbaric chamber. (Coastguard report)

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**May 2018** **18/239**

A diver conducted a dive from a club RHIB using air, and had a rapid ascent from 27m, after 29 min, reportedly due to an equipment issue. No symptoms were present, Medical advice was sought and the doctor recommended recompression. Coastguard tasked a rescue helicopter to the vessel, and put their paramedic winchman on the vessel to assess the casualty. The diver was recovered onto the helicopter and transferred him to the nearest hyperbaric chamber, where he was met by CRT. (Coastguard report)

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**June 2018**
**18/077**

After missing 12 min of stops on a 35m dive with a run time of 30 min, a diver was recovered back aboard a dive boat with no apparent symptoms. She had been using nitrox 29% travel gas and nitrox 70% in a stage cylinder. As she had missed stops she was put on oxygen. Approximately 1 hour later the diver began to experience nausea and a headache so the skipper declared a 'Pan Pan' and a Coastguard rescue helicopter was tasked to recover the diver and transfer her to a recompression chamber. (Coastguard report).

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**June 2018**
**18/181**

After returning aboard a dive boat a diver experienced chest pains, 'pins and needles' and loss of sensation in his legs. He had made a dive to a maximum depth of 27m for 25 min and had a normal ascent. Coastguard rescue teams and an ambulance met the dive boat in a harbour and the diver was taken to a recompression chamber. (Coastguard report).

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**June 2018**
**18/182**

A CCR diver felt he had symptoms of DCI when returning into harbour. He had dived to a maximum depth of 45m for an 80 min run time. He had mottling on his legs and back so was put on oxygen. The dive boat called the ambulance service directly and the diver was transported to a recompression chamber by a land ambulance. The Coastguard was notified later to see if a helicopter was available but due to the time elapsed it was calculated the ambulance would be faster. (Coastguard report).

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**June 2018**
**18/089**

On the second dive of the day a diver had a rapid ascent from 18m. He returned to that depth and continued his dive. He surfaced with a dive duration of 60 min to a maximum depth of 55m. Aboard a dive boat and approximately 30 min after surfacing he became dizzy and was vomiting. A Coastguard rescue team and helicopter were tasked to assist. The diver was taken to the nearest available recompression chamber. (Coastguard report).

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**June 2018**
**18/092**

A CCR diver had been on a hardboat trip and all his dives had been conducted safely and within decompression requirements. Using trimix 20/30 he carried out a wreck dive on 1.3 PO<sub>2</sub> set point and 1.4 PO<sub>2</sub> for decompression at 6m. The diver reached a maximum depth of 45m and on the ascent carried out a 1 min stop at 12m, and a 4 min stop at 9m which was extended slightly due to congestion on the shotline and also extended his stop at 6m to 18 min. He made a slow ascent from 6m and surfaced with a dive duration of 69 min. Immediately on surfacing the diver had a pain in his right elbow but thought it was cramp. Back aboard the hardboat the elbow pain re-occurred but the diver felt this was a deep pain or strain and not a muscular

pain. The diver asked for assistance to de-kit and was put on oxygen. The hardboat issued a 'Pan Pan' call and the Coastguard directed them to a nearby harbour. A Coastguard team and an ambulance arrived and the diver was taken to a hyperbaric chamber. A doctor carried out neurological assessments but the pain in the diver's elbow had subsided by this time. In consultation with a doctor at another hyperbaric chamber it was decided to give the diver precautionary recompression treatment. Following this the diver was advised that although it was suspected rather than confirmed DCI, he should not dive for 28 days but did not require a follow up medical.

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**June 2018**
**18/188**

A diver had made a rapid ascent from approximately 20m and surfaced, unconscious but breathing, with a dive duration of 30 min. Other divers were still underwater. A lifeboat and Coastguard rescue helicopter were tasked to locate the divers still in the water, recover them and assist the unconscious diver. He was airlifted to a recompression chamber. (Coastguard report),

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**June 2018**
**18/119**

A diver was on a three day boat diving trip with all her dives carried out at approximately 15m for around 45 min. On the final day she and her buddy, both using air, carried out a dive to a maximum depth of 15m with a dive duration of 42 min and after a surface interval carried out her eighth and last dive. The diver was using a second hand drysuit which fitted reasonably well but was a little tight on the hips and as she felt cold in the water she was wearing a couple of ski thermal sets underneath. The dive was through gullies and the diver was very anxious as the visibility was poor, she was scared of losing her buddy and she was rapidly using her air. She felt buoyant and feeling herself floating upwards she kept holding onto rocks to keep herself down. The diver lost sight of her buddy when she grabbed a rock with both hands, panicked, made a rapid ascent taking 1 min from 14m and surfaced with a dive duration of 32 min to a maximum depth of 15m. The boat recovered the diver and she felt fine once she had calmed down. She was offered oxygen that evening but feeling fine she only stayed on it for a few minutes. The diver drove home the next day and had 'pins and needles' in her arm which became worse as time went on and became painful. She contacted a hyperbaric chamber and drove straight there where she underwent two full and two shorter sessions of recompression treatment. She passed a full medical a month later and was allowed to return to diving but advised to limit this to no more than two dives a day and no more than two consecutive days of diving before taking 24 hours off.

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**June 2018**
**18/097**

A diver had completed a 50m dive with a 70 min run time from a dive boat. Approximately 90 min after surfacing the diver began to experience shoulder pain, felt dizzy, had a tightness in his chest and was reported to appear pale.

The dive boat made best speed back to its berth, and requested Coastguard assistance. Medical advice was sought from a dive doctor who felt the diver should go to a hyperbaric chamber for assessment and treatment. The boat was met alongside by a Coastguard rescue team and the diver was transferred to a helicopter and taken to the nearest recompression facility. (Coastguard report).

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**June 2018** **18/100**

A buddy pair conducted a dive to 30m from a commercial dive boat. The divers were using nitrox 28 and nitrox 32. One diver began to have difficulties at 27m so they both ascended to 15m at which point one diver made a rapid ascent to the surface with a dive duration of 28 min. His buddy, a qualified instructor, went to his aid but also ended up making a rapid ascent from the same depth. Once aboard the dive boat the divers were put on oxygen and Coastguard assistance requested. A lifeboat and Coastguard rescue helicopter were tasked to assist. The lifeboat arrived first on scene and stood by whilst the helicopter lifted both divers and transported them to the nearest hyperbaric chamber. A Coastguard rescue team met the boat on its return to harbour and another rescue team manned the helicopter landing site and assisted in transferring the divers to the awaiting ambulance to take them to the chamber. It was later reported that the diver believed he was under-weighted. (Coastguard report).

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**June 2018** **18/109**

An instructor and three students all using air were undertaking advanced lifesaver rescue assessments supported by a RHIB with two crew. The students carried out BAR checks but did not do a 'hands on' check of each other's equipment. The first controlled buoyant lift was only partially controlled by the 'rescuer' resulting in a buoyant ascent from 22m to approximately 2m below the surface before re-descending to 7m. During the second lift from 22m to 6m the 'rescuer' mistakenly activated the air horn fitted on the 'casualty's' BCD rather than venting air from it. By the time the 'rescuer' realised his mistake the ascent was out of control. The instructor attempted to slow it down by grabbing hold of the 'casualty' but was unsuccessful and the group surfaced. They re-grouped on the surface but as they re-descended again the instructor's mask strap snapped resulting in the group re-surfacing. Once a spare mask was supplied by the RHIB, the divers tried to re-descend for the third time but the instructor experienced severe vertigo and aborted the dive. The divers surfaced with a dive duration of 25 min to a maximum depth of 22m. At the surface the instructor was slightly disorientated, vomited and wanted to go ashore where he was seen to very unsteady on his feet as he walked up the beach. He was still nauseous several minutes later, was put on oxygen and fluids whilst the emergency services were called. The instructor could not stand unaided and was only comfortable in a sitting position as any attempt to lie down resulted in increased nausea and vomiting. The instructor was airlifted by helicopter to a recompression chamber where he was diagnosed with a vestibular DCI and he underwent several

sessions of recompression treatment. It was reported the instructor had been in a 4m pool the previous evening testing regulators which had involved numerous descents and was also reported to have had no breakfast the morning of the dive.

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**June 2018** **18/196**

Two divers had conducted a dive to a maximum depth of 44m. When back on shore, one felt unwell enough to call for an ambulance who assessed the casualty and arranged for transport to a recompression chamber. The Coastguard was notified for awareness only. (Coastguard report).

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**June 2018** **18/198**

A diver and his buddy conducted a dive on a wreck initially between 20 and 25m. One of the divers had some issues clearing his ears and once this was resolved the pair descended to around 27m where the shot was snagged. The pair had been asked by the skipper to dislodge the shot. Once they had completed this they descended further to 31m then moved steadily shallower on the wreck eventually reaching a depth of 15m. Along the way the pair had met up with another pair of divers and when the divers had some problems with deployment of their DSMB one of the second pair deployed theirs and the group of 4 started to ascend. At around 7m one of the divers was surrounded by bubbles and the diver felt they caused him to become more buoyant and he lost control and ascended rapidly to the surface. Once back aboard the charter boat, approximately 50 min after surfacing the diver reported his right leg going numb and began to experience a rash, 'pins and needles' in the legs and abdominal pain. The skipper of the dive boat conducted an assessment of the diver, advised administration of oxygen and fluids and made a 'Pan Pan' call for advice. A Coastguard rescue helicopter was tasked to recover the diver and transported him to the nearest hyperbaric facility. It was reported that it was the diver's first dive of the day and that he believed he had made a normal ascent. (Coastguard report).

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**June 2018** **18/115**

A diver completed a dive to a maximum depth of 52m with a dive duration of 30 min and completed all stops on his ascent. When back aboard the dive boat he began to experience shoulder pain. Medical advice was sought from a dive doctor who wanted the diver transferred to the nearest chamber for assessment and possible treatment. A Coastguard rescue helicopter was tasked to recover the diver and transported him to the nearest chamber. The dive boat was met alongside by a Coastguard rescue team. (Coastguard report).

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**June 2018** **18/199**

The Coastguard received a call from a diver who had started to experience symptoms of DCI whilst back at



home inland. After discussion with the ambulance service it transpired that no helicopter was available so a Coastguard rescue helicopter was tasked and transported the diver to a hyperbaric chamber. (Coastguard report).

**June 2018** **18/200**

Request for assistance was received from the Isle of Man when a diver had missed a 3 minute stop at 9m after a dive to a maximum depth of 33m for a dive duration of 29 min. He was experiencing a 'tingling' in his legs, so a Coastguard rescue helicopter transported him to an appropriate chamber on the mainland. (Coastguard report).

**June 2018** **18/250**

A diver conducted two dives from a charter boat to a maximum depth of 35m including stops at 17m for 1 min and 5m for 7 min with a total dive time of 37 min, then following a surface interval of 2hr 51 min completed a second dive to a maximum depth of 27m with stops at 14m for 1 min and 6m for 10 min with a total dive time of 51 min. During the 6m stops on the second dive the diver's main computer and that of his buddy cleared all required stops after about 5 mins but his second computer indicated he had a further 5 min of stops. The diver completed these additional stops but omitted any safety stops. Once back aboard the charter vessel the diver felt OK, stowed his kit and had a cup of tea. During the journey back to harbour the diver started to feel tired and not himself so he lay down on the deck and tried to sleep. On approaching harbour the diver tried to stand and get his kit together but found he was struggling with his balance and felt unwell and sat down and closed his eyes. The other divers aboard noted the situation for the first time at this point. The diver was insistent that he was OK and did not have DCI and would be OK and he drank a lot of water. Once alongside the diver's vision seemed 'confused' and he had to make a concerted effort to climb up the ladder onto the pier and once at the top felt really grotty. The diver sat on a bollard whilst his colleagues went to get a vehicle to take him back to his accommodation as he was still insistent on not having DCI. When the others returned the diver opened his eyes and found the vision in his left eye was blurred and he consequently acknowledged that he required medical assistance. A local chamber was notified and the doctor agreed to meet the diver at the chamber and he was transported there by his colleagues. On arrival at the chamber the diver vomited the water he had consumed. The diver was examined by the doctor and the diver was unable to complete a heel to toe exercise successfully. The diver also reported tenderness in his chest and stomach but on examination there was no visible rash. The diver reported that he had experienced similar tenderness several times before but had not previously sought medical advice and it normally cleared after about a week. The diver was recompressed with resolution of all symptoms except for the tenderness. The diver was advised not to dive for 28 days and to seek advice from a diving doctor and should consider tests for a PFO. The

diver subsequently had tests for a PFO and has been informed that he does have a PFO.

**August 2018** **18/201**

A diver undertook two dives from a dive boat. Both dives were to 35m, with a surface interval in-between. After the second dive he reported pain in his left arm so was placed on oxygen and the boat returned to the harbour where he was met by a Coastguard rescue team and an ambulance which transported him to the local hyperbaric chamber. (Coastguard report).

**August 2018** **18/166**

A diver and his buddy had carried out two boat dives on a Saturday, the first to a maximum depth of 13m with a dive duration of 65 min and after a surface interval of 1 hour 16 min the second dive was to a maximum depth of 20m with a dive duration of 61 min. A 3 min safety stop at 5m was carried out on both dives. On the Sunday and with a surface interval of 19 hours 57 min the diver, using nitrox 26 and his buddy air, carried out a dive to a maximum depth of 21m with a dive duration of 60 min including a 3 min safety stop at 5m. The diver's drysuit had leaked and he was quite wet but did not feel cold. About 30 min after surfacing, having had a coffee and cake, the diver was about to try the skipper's drysuit so had changed his undersuit and socks when he began to feel unwell. He had a pain in his right chest that felt like a pulled muscle and after a few minutes his right leg started to feel heavy. The diver was put on oxygen and the skipper started to return to harbour. Around 15 to 20 min later the diver reported that his chest felt better but his leg was still heavy and weak. After 30 min the boat arrived back in harbour and the diver felt well enough to climb the ladder to get off the boat and the skipper took the diver by car to the lifeboat station where he was given more oxygen. The Coastguard was contacted as well as a hyperbaric doctor and the decision was made to take the diver by helicopter to a recompression chamber. The diver was initially moved by land ambulance and paramedics carried out an ECG which gave them concern so they referred this to another hospital where a doctor said the results were fine and the transfer to the recompression chamber should continue. A helicopter transferred the diver to the recompression chamber where he was initially taken to A&E and had a chest x-ray and blood tests which did not indicate problems. The diver was then taken back to the chamber where he received around 5 hours of recompression treatment. He was transferred to a ward for observation before being discharged around mid-day on the Monday. The doctor recommended that the diver did not fly for two weeks and did not dive again until further tests and diagnosis were complete. The diver has since had a PFO which confirmed that he did have a PFO.

**August 2018** **18/127**

On the first day of a hardboat wreck diving trip a diver and her buddy, both using nitrox, had carried out two dives. The first was to a maximum depth of 28m with a dive

duration of 38 min and the second was to a maximum depth of 26m with a dive duration of 49 min. They had carried out a 1 min stop and a 3 min safety stop at 6m on both dives. On the second day the diver and her buddy, both using nitrox 30, carried out a wreck dive to a maximum depth of 34m with a dive duration of 49 min including a 4 min stop and a 3 min safety stop at 6m. An hour after surfacing the diver complained of itching in her right arm and noticed some mottled red discolouration of the skin. The diver reported this to her buddies and the skipper. He recognised the symptoms of DCI, initiated first aid treatment and called the Coastguard. The diver was given oxygen as the hardboat motored to the nearest convenient landing point where it was met by an ambulance which took the diver to a hyperbaric chamber. The diver was diagnosed with skin DCI as the symptoms persisted throughout the assessment including a 'tingling' moving down her arm and fingers. She was given recompression treatment and returned to her accommodation that evening where she met up with her buddy, who had no symptoms, and others in her group for dinner. The following day she was discharged by the hyperbaric chamber, instructed to visit the local GP, which she did, and it was recommended that she have a PFO test at the earliest opportunity. During the hyperbaric doctor's assessment they had mentioned that coughing can cause problems in the case of a PFO and the diver remembered that she had a brief coughing fit on her ascent due to a dry, tickly throat.

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### **August 2018**

**18/202**

A diver completed a boat dive to a maximum depth of 38m for 37 min run time completing a 5 min stop at 5m. Back aboard the diver began to experience pain in one side and numbness in her legs. Medical advice was sought from a dive doctor and she was taken back to harbour, then transported by a Coastguard rescue helicopter to a recompression chamber. (Coastguard report).

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### **August 2018**

**18/155**

Three divers carried out a drift dive for scallops from a hardboat. The dive leader used an SMB and it was agreed that if the visibility was poor or the current running on the bottom her buddies would attach buddy lines. The divers descended to 10m and with poor visibility the buddies attached their buddy lines, approximately 5m long, to the dive leader with one on her right and the other on her left. After approximately 10 min the divers drifted to around 24m. They collected scallops into their goody bags and after a dive time of around 30 min one of the buddies indicated he had a couple of minutes of no stop time left so the dive leader signalled to her other buddy and they all agreed to ascend. The dive leader clipped the SMB reel onto a 'D' ring on the left hand shoulder of her BCD so it was out of the way as she removed a lift bag from her BCD's right hand pocket. She clipped her goody bag of scallops onto the lift bag, added a little air with her alternate source regulator and both buddies attached their goody bags. She signalled 'OK', checked everything was clear and added more air to the lift bag. The bag

ascended to the surface but as it did so the three bags of scallops spiralled around and became entangled in the SMB line. The dive leader, still with the SMB attached to her, was pulled rapidly upwards to the surface. The buddies saw the disappear from view, one managed to detach his buddy line but the other realised from his buoyancy and ascent rate that keeping his buddy line attached was not going to help so he unclipped it and managed to slow his ascent at 8m. He could see the other buddy's bubbles so stayed over them as he ascended to 6m where the buddy joined him around 2 min later and they surfaced after a further 2 min at 6m with a dive duration of around 36 min to a maximum depth of 24m and were recovered aboard the boat. Meanwhile the dive leader had re-descended for 10 min to carry out stops at 10m and 5m, re-surfaced and was recovered aboard the boat. The skipper put her immediately on oxygen and she said she felt fine other than 'pins and needles' in her left arm, which she put down to her drysuit's slightly tight wrist seal, and an uncomfortable shoulder which had been jerked when she had been pulled up. After 10 min the skipper made a 'Pan Pan' call to the Coastguard who linked the boat directly with doctors at a hyperbaric chamber. The Coastguard gave instructions for the boat to return to harbour for the dive leader to be met by an ambulance. This was subsequently changed and the boat instructed to leave the harbour so the dive leader could be evacuated by helicopter. The dive leader remained on oxygen until she and the buddy who had made the buoyant ascent to 8m were airlifted to the chamber. At the chamber and with no apparent ill effects the dive leader was given precautionary recompression treatment.

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### **August 2018**

**18/203**

A dive boat called for assistance after two divers had rapid ascents after a dive to a maximum depth of 45m with a dive duration of 75 min. They reported they had an equipment issue and ascended from 30m. One of the divers was on open circuit using nitrox 28, the other on a CCR using 20/23

diluent. One of the divers had a nose bleed and the other was disoriented and shaken. A lifeboat was tasked to stand by and recover three other divers in the water but the dive boat managed this without assistance so the lifeboat was stood down. A Coastguard rescue helicopter picked up both divers and transported them to a recompression chamber. (Coastguard report).

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### **August 2018**

**18/152**

A trimix diver using twin 12 lt cylinders with 20/35 mix and nitrox 40 and nitrox 80 side mount cylinders carried out a dive for a dive duration of 45 min to a maximum depth of 59m. The following day he carried out a dive using a trimix 30 mix in twin 15 lt cylinders and with the same side-mount cylinders to a maximum depth of 33m with a dive duration of 72 min including a 3 min stop at 18m, a 3 min stop at 12m, a 5 min stop at 9m and a 18 min stop at 6m. 5 hours after surfacing he returned home, washed his kit and experienced two quick bouts of 'sea legs' where he

momentarily had to grab furniture to steady himself but put this down to it having been a bit rough that day with wind against tide for the first third of the dive boat's two hour journey. He woke early the next morning to go to the toilet and found he had to hold onto walls and door frames as, although not nauseous, his balance had gone. The diver strongly suspected a vestibular DCI but decided to wait another couple of hours. Waking later with the same symptoms he contacted a hyperbaric chamber and made arrangements to attend. When he arrived he walked with the 'staggers' and could not walk in a straight line. He received recompression treatment for five and a half hours after which he could walk in a straight line but still had balance issues when he moved his head. The diver reported that he had not re-charged his nitrox 80 side-mount and after 10 min using it on the 6m decompression stop he switched back to his 30 mix for the last 10 min. He did not want to use the nitrox 40 side-mount as he wanted to keep this for his next dive although well aware of the risk of isobaric counter diffusion switching from a high helium mix to a high nitrogen mix.

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**August 2018** **18/204**

A CCR diver completed a dive to a maximum depth of 47m with a dive duration of 63 min. After about 10 min back aboard the dive boat the diver began to experience breathing difficulties. The skipper called 'Pan Pan' and a Coastguard rescue helicopter was tasked to recover the diver and take them to a recompression chamber. The dive boat made it back to port before the helicopter arrived and was met by an ambulance which took the diver to the chamber. (Coastguard report).

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**August 2018** **18/310**

After a full day teaching multiple courses with several ascents and descents, some of them a little fast, an instructor felt unwell. The next day she saw the medical services and was treated for DCI and advised not to dive again for 28 days.

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**September 2018** **18/242**

A diver had conducted a 57m dive using trimix 18/40, and missed a stop on the way up. His buddy was still in the water. Once the casualty was aboard the vessel, he became weak and complained of chest pains. CG assistance was requested, and Coastguard tasked a rescue helicopter, which transferred the diver to the nearest chamber, where he was met by Poole CRT. (Coastguard report)

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**September 2018** **18/243**

Coastguard received a request for assistance from the ambulance service. After conducting dives earlier in the day, a 21 year old male had gone back to his accommodation and called the ambulance when he was experiencing DCI symptoms. Coastguard tasked a rescue

helicopter which transferred him to the chamber, where he was met by CRT. Limited details known as ambulance incident. (Coastguard report)

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**September 2018** **18/244**

Coastguard tasked an inshore lifeboat to recover a diver from a vessel near Lundy. The diver had surfaced with pain in his arm, and the duty dive doctor had requested he be transferred to the chamber for assessment. The vessel still had divers in the water, so the lifeboat was also tasked to assist in recovering them if required. The lifeboat brought the diver alongside, where he was met by CRT then taken to the chamber by helicopter. (Coastguard report)

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**September 2018** **18/245**

Coastguard received a request for assistance from the ambulance service. After diving at an inland managed dive site, a diver began to experience nausea and loss of balance. Coastguard tasked a rescue helicopter which transferred him to the chamber. Limited details known as ambulance incident. (Coastguard report)

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**September 2018** **18/246**

A diver conducted two dives from a charter boat. On the first dive, to a maximum depth of 36m for 35 min, he missed 5 min of decompression stops. After a surface interval he undertook a second dive, to 26m for 59 min, completing approximately 20 min of stops. Back aboard the charter vessel he reported chest pains and struggling to walk. The diver presented himself to the chamber as it was close by. (Coastguard report)

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**September 2018** **18/311**

After 10 consecutive work days a diver did 2 consecutive recreational dives, with the last being to a maximum depth of 18m. After completing the dives the casualty felt unwell and sought medical help. He was treated for DCI and advised not to dive again for a month.

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**September 2018** **18/274**

A diver had conducted two dives the previous day to 36m for a total of 37 min and around 150 min later a dive to 17m for a total dive time of 50 min. The following day the diver was using a gas mix of nitrox 28 as was his buddy. However, the diver had not slept well overnight and the dive plan changed to a different site and the pair were joined by a third diver for a wreck dive to a planned maximum depth of 40m. As a consequence the diver and his buddy forgot to change the settings on their dive computers and they were set to air rather than nitrox 28. The group descended the shotline to a wreck at 29m and they found the visibility to be poor at around 2 to 3m. As they explored the wreck they reached a maximum depth of 39m. Whilst at that depth the diver became disoriented and spent some time looking for his two buddies and felt afterwards that he had been suffering the effects of

narcosis. The diver had felt the separation lasted a couple of minutes but actually constituted around 6 min. The diver also missed checking his computer and had not noticed it going into required decompression stops. On realising the error of the incorrect settings for their computer the diver checked with the third diver who had correctly set their computer and found they had just reached the end of their no stop time. A gas check indicated that the diver had 100 bar and the others had 130 and 140, and so the diver indicated they should head back towards the shotline rather than deploy a DSMB for ease of conducting their required stops. As they tried to work back towards the shotline the current was making it difficult and so it was decided to deploy a DSMB instead. The diver deployed his DSMB and then handed it to his buddy to reel up as previously agreed. During the ascent the buddy started to have difficulties with her buoyancy and tried to stabilise herself by grabbing onto the diver. Both then got entangled with each other with either the diver's arm or his BCD inflator entangling the buddy's regulator. The pair ascended to 7m and then descended back down to 15m to meet the third diver. The diver then positioned himself off to the side to avoid further entanglement but had not corrected his own buoyancy properly and ascended to the surface after 90 sec missing 10 min of indicated decompression stops (the dive buddy with the correct setting indicated 2 min stops). The diver swam clear of the DSMB and was picked up by the dive charter boat and placed on oxygen and monitored whilst the other divers surfaced. After around 10 min the diver developed some pain in his arm and after all divers had been recovered the boat headed back to harbour. The boat skipper contacted the local hyperbaric chamber for advice and he was advised to take the diver to the chamber for assessment. The diver was given a precautionary recompression treatment. A follow up medical examination advised that the diver should not dive for 28 days but no further treatment was necessary.

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### September 2018

18/312

A diver was in a group of 10 divers on a 3 day diving holiday. The group completed 2 dives a day. Maximum depth of dives for the trip was 19m with the shallowest dive 7m. Average depth for the trip 14m. After the last days diving with a maximum depth for the final dive of 15m, the group started their journey home, 1330 hours. On the way home, approximately 1715 hours, the diver called the trip organiser complaining of a racing heart rate, stomach cramps and tingling in their thighs. The diver was put in the trip organiser's car and given oxygen. The trip organiser contacted the Emergency Services for advice and continued to administer oxygen for 30 min. The casualty was taken to the hospital at 0830 hours the next day. The casualty was evaluated and received treatment in a recompression chamber, over the next 3 days.

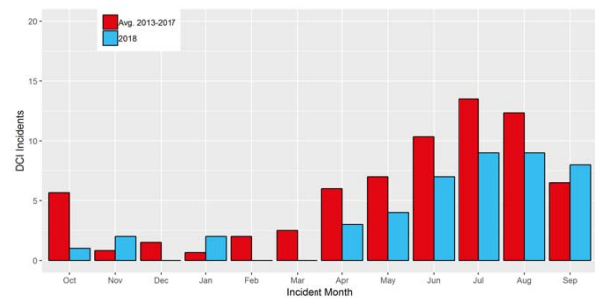


Figure 16. The month of occurrence of decompression incidents



## Boating and Surface Incidents

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**October 2017**

**18/002**

Two dive boats were being used on an instructor exam when one had engine failure but its radio was still working. The disabled boat was anchored in about 8m. In order to allow the exam candidates to safely complete their dives in what appeared to be deteriorating weather, one of the candidates was asked to contact their dive club, who had been diving in the vicinity, to ask if their boat could be used. The club's boat arrived on the site and with all divers aboard having completed their dives, the three boats returned to harbour with the club boat towing the disabled boat.

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**October 2017**

**18/142**

A distress alert was received from a personal locator beacon in a harbour. Investigation confirmed this was an accidental activation by a group of divers using a boat in the area. (Coastguard report).

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**October 2017**

**18/141**

A member of the public reported concern for a solo diver conducting a shore dive and a Coastguard rescue team were tasked to the scene. The diver was located safe and well back on shore. (Coastguard report).

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**October 2017**

**18/143**

A dive club were carrying out an afternoon dive using a RHIB with one dedicated cox'n and twelve divers. The cox'n, a qualified diving and powerboat instructor, was also acting as the dive manager. The RHIB was not large enough to take all the divers and their equipment so the plan was to shuttle them out in groups to the dive site. Initially four divers were taken out and dropped in the water then the RHIB left the dive site to collect another three divers, dropped them in at the same site, went back to collect the final five divers and dropped them at the site. Each time the RHIB went to collect a new group, those divers in the water were left without any surface cover and could not have received rapid assistance in the event of an emergency. The area is also well known for strong currents and riptides. The divers were being collected each time from a cove which was approximately two nautical miles away from the dive site by boat. During this time the RHIB had no line of sight of the divers in the water. The divers submitted a dive plan by VHF to the Coastguard at around 1600 hours saying that they were diving on a reef site with nine divers in the water and one dedicated cox'n remaining aboard. At 1647 hours they contacted the Coastguard to report that all divers had been recovered. At 1702 hours they called the Coastguard to report that they had run out of fuel on their return to shore with the cox'n and nine divers aboard and admitted their initial reports suggesting that there were only nine divers and that they had all been recovered was

in fact not true. They reported that there were still three divers left at the dive site without any surface cover. The RHIB had intended to return for them later. The area the divers had been left in was subject to a 4 kn tide at the time so they could very easily have been swept away. Two lifeboats were tasked to the area to firstly locate and recover the three divers still in the water and then to tow the RHIB back to safety. (Coastguard report).

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**October 2017**

**18/146**

A report was received of a yacht aground near an island. The Coastguard investigated and determined that the yacht was at anchor and the persons aboard were about to engage in diving on a nearby reef. The yacht was displaying an A flag and had a small tender to act as safety cover. (Coastguard report).

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**December 2017**

**18/185**

A lifeboat was launched to assist two missing divers who had become separated from their dive boat. The lifeboat located the divers one mile south of their dive boat. The divers were in good health and had no risk of DCI and so were returned to their dive boat and the boat was escorted back to harbour before returning to their base. (RNLI report).

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**December 2017**

**18/034**

A father and his children were walking by a lighthouse situated on an exposed peninsula when his daughter heard shouting and spotted divers on the sea surface. When she told her father he realised the divers were in trouble as it rapidly became obvious that their dive boat could not see them. He immediately called 999 and a lifeboat and a rescue helicopter quickly located the divers. They were recovered aboard the lifeboat who carried out a medical evaluation and, as no medical assistance was required, the helicopter returned to base. The two divers were re-united with their dive boat. The skipper of the vessel had not been aware that the divers were missing, and had not been monitoring VHF channel 16, so missed the 'Mayday Relay' broadcasts. Suitable advice was given to him. (Coastguard report)

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**January 2018**

**18/037**

The Coastguard received a report from a member of the public concerning two people, thought to be on a raft, waving for assistance near a small island. A lifeboat located the pair, who were in fact on the island, and transferred them to the lifeboat. The pair were two divers who had been diving the morning of the day before but when they had surfaced their RHIB had drifted off in a strong easterly wind. They had managed to get to the small island but all their means of communication were on the RHIB. The pair had managed to gain access to an

outbuilding on the island to provide shelter until the following morning when they were sighted. The divers were taken to the nearest harbour and landed whilst the lifeboat returned to the area to search for the RHIB, which was eventually located on the west side of a larger island and was re-united with its owners at the harbour. The lifeboat commented that they would always recommend a policy of having a dive boat manned whilst divers are in the water. The divers had not advised anyone of their intentions so nobody knew they were overdue and no search was carried out when they failed to return. (Coastguard report).

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**April 2018** **18/150**

A dive boat reported a diver being 30 min overdue and lost in fog. The buddy was recovered but had become separated from the diver whilst searching for scallops. After a search involving a lifeboat and a number of nearby commercial vessels, the diver was located safe and well. (Coastguard report).

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**May 2018** **18/236**

The Coastguard tasked an inshore lifeboat and CRT to assist a dive vessel that suffered mechanical failure whilst conducting engine trials. No diving was being conducted. (Coastguard report)

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**May 2018** **18/070**

During the transit of a RHIB from its launch site to a mooring, some equipment in the boat became loose. A crewman attempted to secure it and lost his balance which resulted in a 'man overboard'. He was wearing a life jacket and was recovered, without injury, by the boat.

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**May 2018** **18/105**

A diver was practicing boat handling with a student on a Diver Coxswain course when he heard a distress call on the radio from the harbour master. The diver responded and travelled to the site of the incident where he found three people in a boat which had run out of fuel. The diver notified the harbour master they had located the boat and they towed it back to its mooring.

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**May 2018** **18/197**

A lifeboat was launched to assist a dive boat suffering from machinery failure. Weather conditions at the time were reduced visibility due to thick fog and the lifeboat proceeded at reduced speed but the vessel was soon located and a tow was established. The lifeboat towed the vessel to safety and then returned to station. (RNLI report)

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**June 2018** **18/184**

A RHIB reported engine failure with all divers safely aboard. A lifeboat was tasked to tow them back to harbour where a Coastguard rescue team met them to provide safety advice. (Coastguard report).

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**June 2018** **18/090**

The Coastguard was contacted by a RHIB on a wreck site reporting an engine failure. Three divers were still in the water. An inshore lifeboat met the vessel now with eight divers aboard, the crew set up a tow and returned the boat with the divers to the safety of a harbour. (Coastguard report).

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**June 2018** **18/186**

A dive boat reported a diver overdue. Three lifeboats, a Coastguard rescue team, a Coastguard rescue helicopter, another dive boat and a warship were all tasked to the search. The diver was located safe and well and then continued with his day's diving. (Coastguard report).

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**June 2018** **18/187**

A dive boat noticed they were taking on water with divers still down and called the Coastguard for assistance. Three lifeboats were tasked to recover the divers and assist the dive boat with the water ingress. The boat was pumped out, the cause rectified and all the divers were recovered safe and well. (Coastguard report).

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**June 2018** **18/190**

A dive RHIB reported engine failure with all divers safely aboard. A passing RHIB offered to tow them back to harbour. (Coastguard report).

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**June 2018** **18/191**

A charter boat reported two overdue divers. During the call the divers' DSMB was spotted and shortly after they surfaced safe and well. (Coastguard report).

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**June 2018** **18/192**

A dive charter boat called 'Pan Pan' after suffering engine failure with two divers still in the water. A nearby dive vessel responded to the 'Pan Pan' offering to assist. The boat successfully restarted its engine and recovered the divers without assistance. (Coastguard report).

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**June 2018** **18/101**

A diver and his buddy carried out a wreck dive from a RHIB. The RHIB was one of two dive boats on the wreck site, the other being a hardboat. The divers descended to 31m and reaching the end of their no stop time, they

moved to the top of the wreck at around 25m and 30 min into the dive deployed a DSMB. Before the dive the buddy had asked to practise her mid-water DSMB deployment and the plan was to do this from 10m and ascend to 6m for a safety stop. After ascending for 5 min they were at 12m when the diver felt a sharp tug on his DSMB and before he was able to react he had been pulled up by approximately 3m so he quickly let go of the reel. He saw a large hull passing overhead which was definitely not the RHIB's. After regaining his buoyancy the diver re-joined his buddy at 12m and she deployed her DSMB. They ascended, completed their safety stop and surfaced with a dive duration of 45 min to a maximum depth of 31m. On the surface they were approached by the hardboat with the skipper holding the diver's DSMB and reel and who jokingly asked the diver if he had lost them. When the diver informed the skipper that his boat had gone over the top of them and pulled the reel from his hand, the skipper reacted angrily and blamed the divers for sending up the DSMB underneath his boat. When the diver told him that this was not the case as he and his buddy were ascending under the DSMB for at least 5 min before the incident took place, the skipper threw the reel and DSMB at the divers narrowly missing the diver's buddy. According to the crew of the RHIB they had seen the DSMB on the surface before it went under the hardboat's hull.

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**June 2018**
**18/193**

A dive RHIB called for assistance after suffering engine failure with no divers in the water. A lifeboat towed them back to harbour. (Coastguard report).

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**June 2018**
**18/194**

A small boat declared a 'Mayday' reporting a missing snorkeller who had been spearfishing. Two lifeboats and a Coastguard rescue team were all tasked to locate the snorkeller. He was located by his boat and reported to be safe and well, but tired. Units arrived on scene to check the casualty over, but it was confirmed no medical assistance was required. (Coastguard report).

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**June 2018**
**18/275**

A lifeboat was launched to a dive vessel adrift and escorted the boat to safety. (RNLI report)

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**June 2018**
**18/195**

A buddy pair conducted a shore dive with the intention of doing a drift dive. They became separated so one searched for 1 min before surfacing and returning to shore. They made a 999 call to alert the Coastguard but during the call the second diver returned to shore and was confirmed safe and well. It was not believed that the diver was carrying an SMB. It was reported that the dive plan had been for the pair to swim into the tide at first before drifting back but the diver reported missing had done the opposite. (Coastguard report).

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**June 2018**
**18/116**

Four divers carried out a drift dive from a boat. They had arranged to deploy their DSMBs after 30 min which they did but the cox'n had thought they were going in a different direction. He was searching for the divers about a mile away and in a different bay. The divers managed to swim ashore which they found quite hard and one of them suffered cramp in his leg. One of the group flagged down a car and rang the Coastguard. A lifeboat was scrambled and confirmed that all the divers were safe and well after making it ashore and they escorted the dive boat back to harbour.

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**August 2018**
**18/177**

Two divers carried out a shore dive and surfaced, with a dive duration of 45 min to a maximum depth of 14m, approximately 150m from their beach entry point and close to rocks. Despite only being around 2m apart one of the divers was caught in severe wave action caused by the tide and the rocks. She used a significant amount of her remaining air trying to swim out of the affected area but was pushed by the waves into a small cove. Whilst caught by the waves, being thrown around and low on air she gave the 'diver in distress' signal at which point her buddy dumped his weights and swam in to give assistance. Both divers safely exited the water onto the rocks in the cove but there was no safe way on foot out of the cove due to cliffs and large rocks nor was there a safe place to re-enter the water and swim back to the beach. The shore cover notified the Coastguard who sent two lifeboats to assist. One of the lifeboats recovered the divers and took them back to the beach where they were checked by a paramedic but found to be uninjured.

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**August 2018**
**18/276**

A lifeboat was launched to assist a dive boat that had broken down. The vessel was escorted to safety. (RNLI report)

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**August 2018**
**18/139**

A dive boat with one person aboard called for help after suffering an engine failure with a diver still in the water. Two lifeboats were tasked to recover the diver and assist the boat back to shore. The diver was recovered safe and well and the boat towed back to harbour where they were met by a Coastguard rescue team who gave safety advice. (Coastguard report).

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**August 2018**
**18/206**

A Coastwatch station reported a boat that had been empty for 30 min with an A flag raised. During the call a solo snorkeller returned to the boat safe and well. (Coastguard report).

**August 2018** **18/207**

A dive RHIB called for assistance with engine failure and three divers still in the water. A local fishing vessel and a lifeboat were tasked to assist. It was realised that the kill cord had come out, so it was replaced and the engine re-started. (Coastguard report).

**September 2018** **18/241**

A dive charter vessel reported main steering failure and was now using emergency steering. No divers were in the water, so CG monitored the vessel on its passage back to harbour. It returned alongside with no need for assistance. (Coastguard report)

**September 2018** **18/151**

It was reported that a diver had been airlifted from a beach by a helicopter. (Media report).

**September 2018** **18/165**

On a late afternoon a buddy pair carried out a drift dive from a RHIB. Their dive plan was to be underwater for around 30 to 40 min and they would deploy a DSMB upon reaching the seabed at 18m. During the descent one of the divers had difficulty clearing his ears and after about 10 min it was agreed they abort the dive. They deployed the DSMB, made a steady ascent and surfaced with a dive duration of 16 min to a maximum depth of 14m. Whilst underwater they had drifted a considerable distance from the RHIB due to the speed of the current and westwards towards the setting sun. The sun's reflection on the water made the divers and their DSMB invisible to the RHIB which was to their east and despite the cox'n using binoculars as well as carrying out an east to west search pattern trying to locate them. The divers deployed a second DSMB at the surface. After about 40 min and unable to locate the divers the cox'n issued a 'Mayday' call. The Coastguard tasked three lifeboats to the scene and one of them spotted the divers as it travelled towards the original dive location. The lifeboat crew commented that from their northerly position relative to the divers they had been easily visible with both DSMBs and the torches signals the divers gave as darkness approached. The divers were recovered aboard the lifeboat and transferred to their RHIB when it arrived and returned to harbour as night fell.

**September 2018** **18/248**

A diver was reported 20 min overdue. Multiple dive vessels and a lifeboat were tasked to search for the diver. He was located by one of the dive vessels, and found to have missed some stops so was taken to the harbour to be assessed by ambulance. (Coastguard report)

**September 2018** **18/175**

A buddy pair were about to carry out a RHIB dive. The cox'n was giving the entry briefing procedure to 'go' when he had counted down to three but one of the buddy pair mistook this as the actual drop off instruction and on hearing the 'three' he rolled off the RHIB. He surfaced close to the shot buoy in a calm sea so swam to it and waited for his buddy. The dive continued without further incident.

**September 2018** **18/160**

Two dive RHIBs, one with three divers aboard and the other with two, were travelling together when it was reported that a storm blew up and one of the RHIBs broke down in heavy seas with a fuel problem with 4m waves and high winds. The second RHIB tried to tow the broken down RHIB but the tow line broke and whilst trying to cut it free the second RHIB was swamped by a couple of waves, the line floated out and got caught in its propeller. Afraid of being turned over by the waves as well as being swamped a 'Mayday' was issued. Two lifeboats were launched but the skipper of a local ferry heard the distress call and having an idea where the RHIBs were he diverted off-course and found them about half a mile apart. The ferry went alongside the RHIB with three divers aboard who weren't in any immediate danger but were concerned about the other RHIB which was in danger of sinking. The ferry went alongside the second RHIB, managed to recover the two divers aboard, went back to the first RHIB and carried out a similar rescue. The ferry attempted to tow the RHIBs back to port but realised they were in danger of damaging them so left them for the approaching lifeboats who towed them back.

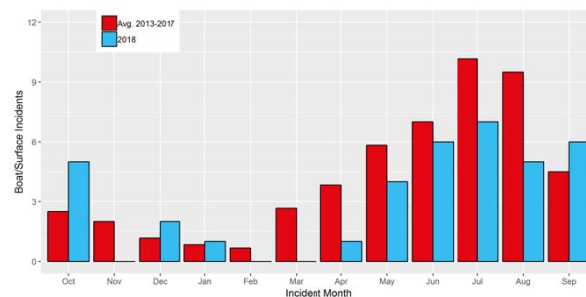


Figure 17, Boating and surface incidents in each month of the year



## Ascent Incidents

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**October 2017**

**18/014**

An instructor and his two students carried out a wreck dive from a boat during a CCR course. The maximum depth of the dive was 18m and at 17m one of the students successfully carried out a bailout exercise from his CCR to open circuit and deployed his DSMB. He ascended to his intended safety stop at 6m but at the start of the stop he was unable to control his buoyancy despite dumping excess air from his drysuit, BCD and counterlung and made a buoyant but steady ascent to the surface. The instructor was unable to grab the student at 6m so he remained with the other student and they surfaced together in a controlled manner. Back aboard the boat the student who had made the buoyant ascent felt well and displayed no signs or symptoms and his computer dive profile indicated the ascent had not been unduly fast.

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**October 2017**

**18/015**

Two students and their instructor carried out a wreck dive from a boat during a CCR course. It was the first dive of the day and the group reached a maximum depth of 18m. Towards the end of the dive one of the students completed his bailout procedure from CCR to open circuit. The student had deployed a DSMB and was ascending when at 10m he had to unwrap his reel which was causing some issues and in so doing became distracted and slowly lost control of his ascent. He tried to dump from his closed loop, drysuit and breathe out but could not regain control of his buoyancy and surfaced. Unable to arrest the student's ascent the instructor and other student remained together and surfaced shortly afterwards. Interrogation of the student's computer dive profile showed no fast ascent warnings or alarms but the diver was monitored and did not dive again that day.

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**October 2017**

**18/016**

A diver was on the pontoons of a shore diving site about to go for lunch when he heard loud groaning and gasping to one side of the site. The commotion came from two divers on the surface as one of them was putting the other on his back. The diver spoke to what appeared to be their shore cover and they responded in broken English that they thought the divers were their father and his buddy but believed all was fine. No attempts to perform rescue breaths or a tow were seen so the diver donned mask, fins and snorkel and swam out to the divers who had now been joined by a third diver who had surfaced nearby. Initially they waved the snorkel diver away but as they were not moving anywhere he went back and with the diver on his back in some discomfort, they explained that he had panicked at around 19m, made a rapid ascent but that all was fine and once he had had a few minutes to recover they would re-descend to 6m "for safety". The snorkel diver explained he did not think this was a good

idea and that they should return to the shore but they showed no interest in doing so. However, the snorkel diver managed to convince them to swim towards the pontoons and shallower water at which point the lead instructor on the dive site had arrived and between him and the snorkel diver they were able to convince the group to de-kit and remove the diver from the water. Back ashore he was put on oxygen and it was discovered that he had not been in the water for some time and was carrying out a 'shake down' dive with a friend who was apparently an instructor. They confirmed the panic and rapid ascent from 19m, that the panicked diver had not been wearing a depth gauge or computer and a buddy check had not taken place as the diver's buddy commented that 'he was a qualified diver and should be able to set up and check his own kit'. Other staff from the centre took over and the snorkel diver was asked to check in at the dive site's centre later on. When he did so they confirmed that the story of the incident had changed and it was now claimed it had been a lot shallower and there had been no panic. The snorkel diver did not think that the diver was sent for evaluation at a hyperbaric chamber.

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**October 2017**

**18/012**

A diver using air and his buddy carried out a boat dive reaching a maximum depth of 28m on a reef wall. The diver made a fast ascent from around 8m omitting his safety stop as he could not release air from his dump valve. The diver surfaced with a dive duration of 30 min and his buddy surfaced shortly after. Back aboard the boat the diver's computer was checked which showed a fast ascent but was not locked out. The diver was put on oxygen and another diver in the boat carried out a neurological check. Medical advice was sought and they advised that the diver be kept on oxygen for 10 min and to call back if he showed symptoms of DCI. The diver showed no symptoms but on return to harbour was advised to go to a medical centre for a check-up. He was given the all clear to dive the following day.

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**October 2017**

**18/005**

A diver and his buddy had carried out a wreck dive with a planned dive duration of 60 min from a hardboat and after a surface interval of 1 hour 30 min they carried out a second dive, both using air, to a maximum depth of 20m. This was a planned drift dive and they deployed SMBs on entry. Towards the end of the dive the pair gave each other the signal to ascend but at around 12m the buddy was unable to dump air from his BCD, let go of his SMB reel and ascended. The diver caught hold of the reel and continued his ascent. He believed the buddy knew what he was doing so carried out a 3 min safety stop at 5m and surfaced with a dive duration of 40 min. On the surface he saw the hardboat some distance away picking up a diver on its lift and assumed this was his buddy. He waved to the boat to let them know he was 'OK' but looking around he

saw a head in the water about 25m away. He thought this was his buddy and that the hardboat had been picking up another diver. The diver shouted at his buddy but received no reply, realised there was no movement and the buddy's head was face down in the water. With his sight obstructed by waves and believing his buddy was unconscious or dead he frantically waved at the hardboat which reacted very quickly. Just before it reached the diver he realised, with relief, that his 'buddy' was a black, head sized buoy.

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**November 2017** **18/210**

A diver experienced a fast ascent but suffered no injury.

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**November 2017** **18/254**

A diver and his buddy completed a first dive of the day without incident to a maximum depth of 34m for a total duration of 64 min. After a surface interval of 103 min the pair conducted a dive to a maximum depth of 33m for a total dive time of 55 min. Towards the end of the second dive the diver was switching to their decompression stage regulator when the diver got a mouthful of water and made a fast ascent from 2m missing 12 min of required decompression stops. The diver was placed on oxygen by the on-site staff.

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**December 2017** **18/256**

An Instructor, accompanied by a safety diver, led a group of three students down to a maximum depth of 27m to conduct training. During the training one student started to ascend and the safety diver intervened but the student continued to ascend. The safety diver continued to follow the student slowing their ascent. On surfacing the site rescue boat was called and the student and safety diver were recovered from the water. The Instructor deployed a DSMB and ascended with the other two students. The student was placed on oxygen and monitored for 1 hr.

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**January 2018** **18/258**

A group of three divers conducted a dive to a maximum depth of 34m. One of the divers had some problems with their kit and the group started to ascend. Around 26m one of the divers had problems with air trapped in their suit and had a rapid ascent from that depth. The divers were placed on oxygen and a recompression chamber contacted for advice. All three divers were advised to attend the chamber for evaluation.

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**February 2018** **18/213**

A diver experienced breathing difficulties during a dive at an inland site and made a rapid ascent. The diver was advised to attend A&E.

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**April 2018** **18/214**

A buddy pair experienced a rapid ascent during a dive at an inland site. Neither diver suffered any ill effects.

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**April 2018** **18/215**

A diver experienced a fast ascent during a dive at an inland site but suffered no ill effects.

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**April 2018** **18/059**

Three divers had carried out a boat dive reaching a maximum depth of 17m on a wreck and had ascended to 6m to carry out a safety stop. Their boat handler moved the boat upwind of the divers so that it would drift towards them in a few minutes and he turned the engine off. The boat drifted straight towards the group's DSMB and, as the boat handler did not want to turn the engine on, the boat went over the DSMB. Those in the boat moved it around the side of the boat but the diver who was holding the DSMB was pulled up from 6m to 2m. He re-descended and completed the stop with the other two divers.

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**May 2018** **18/262**

A group of seven divers were on a training dive to a maximum depth of 35m. One of the divers had problems with his regulator and was provided an AS by one of the group which had nitrox 32. An ascent was initiated and became rapid from a depth of 25m. Four of the group of divers were placed on oxygen for 30 min.

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**May 2018** **18/091**

A diver and his buddy carried out a shore dive reaching a maximum depth of 20m on a wreck. They headed back to a wall at 20m and noticed that a lot of silt had been kicked up ahead of them. They followed the wall for a few metres and saw two divers standing on the quarry floor. One of the divers summoned the buddy pair over and indicated all was not well. The standing pair were close together with one at the back holding onto the one in front of him. After reaching them the diver in the buddy pair signalled 'OK' to the diver standing at the back to which he responded again something was wrong but did not give an indication of what. When he asked the diver at the front if he was 'OK' he responded with a shrug and a blank stare so the diver in the buddy pair indicated they should ascend. The diver standing at the back then released his weightbelt, held onto the diver in front of him as he inflated his BCD and they started to ascend. The diver and his buddy briefly continued their dive before deciding to abort the dive, ascend and complete a safety stop. They surfaced with a dive duration of 31 min to a maximum depth of 20m. On the surface they saw what they assumed to be the two divers exiting the water.

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**May 2018**
**18/085**

An instructor and two students conducted the final boat dive of a CCR course. On the ascent at 16m one of the students deployed his DSMB. When he reached 10m he lost some buoyancy, recovered and then as instructed, changed his PO<sub>2</sub> to 1.4 but was unable to counter the effects of additional gas in his loop and dump gas from his drysuit to maintain a safety stop at 6m. He ascended to the surface with a dive duration of 58 min to a maximum depth of 29m. He signalled 'OK' to the dive boat and watched his buddies from the surface for the next 2 min as they completed the safety stop and ascended.

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**May 2018**
**18/068**

An instructor and his trainee carried out a shore dive. It was the trainee's first open water dive and using a drysuit. The trainee needed more weight before he could descend and on reaching 5m he struggled to find his drysuit inflation valve, began to panic and his breathing rate increased. The instructor carried out a controlled buoyant lift and they surfaced with a dive duration of 3 min. Back ashore the pair talked about the incident and the trainee said he had been worried about the drysuit and doing the open water dive. He had got up early the day of the dive but had been out the night before and did not get home until late. He also had hung around whilst his partner carried out her first open water dive in a drysuit but her dive was aborted, due to her feeling everything was too tight, meaning his dive had come sooner than expected. Once in the water the trainee felt he was not in control and afterwards he said he felt he was not as fit as he thought.

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**May 2018**
**18/087**

Three CCR divers carried out a boat dive and reached a maximum depth of 30m. The divers had no decompression requirement as they ascended under a DSMB. They stopped at 6m to carry out a 3 min safety stop but after 1 min one of the divers became positively buoyant and surfaced, with a dive duration of 45 min, having omitted 2 min of the safety stop. He signalled to his two buddies that he was 'OK' and remained in visual contact as they completed the safety stop, ascended and surfaced. No rapid ascent was indicated on the diver's computer, he had no ill effects and dived later that day.

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**May 2018**
**18/128**

Two CCR divers had carried out a boat dive to 30m and after a surface interval carried out a second boat dive. The maximum depth achieved was 25m on a wreck with a bottom time of 35 min. On their ascent one of the divers deployed his DSMB at 14m and they ascended to 6m to carry out a 3 min safety stop. After approximately 1 min the diver became positively buoyant and ascended to the surface omitting 2 min of the safety stop. Neither the diver's CCR nor secondary computer indicated a rapid ascent.

The diver was checked on the surface but had no issues following the dive.

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**May 2018**
**18/075**

A diver and his buddy carried out an evening wreck dive from a hardboat. Both were using nitrox 32 and the buddy was carrying a 3 lt pony cylinder. The divers descended and towards the bow of the wreck they entered a hole by the seabed at 26m. In the hole the pair agreed to ascend through a small hatch into a compartment above. On entering the compartment, which was approximately 4m x 4m and with no other obvious exits, the pair stirred up the sediment which started to reduce the visibility. The divers exchanged signals to turn round which was difficult in the confined space and they disturbed more silt. They were unable to locate the floor hatch so turned off their torches but no light source from the hatch was visible. The diver took out a spool line to start a search but immediately lost contact with his buddy in the zero visibility and could not give him the end of the line. The diver searched, found the floor hatch, went through, deployed his DSMB through the exit hole in the side of the wreck and took the line back to the hatch and tied it off to a ladder. He ascended back into the compartment and laid a line partway around it and flashed his torch and shouted. He was unable to locate his buddy and assumed he had exited the compartment so left the line in situ, followed it out of the wreck and ascended. On the surface the diver signalled to the hardboat which came over straight away. The diver's buddy had not surfaced so the diver checked his gas which was 100 bar in a 15 lt cylinder. He asked the skipper to check for any spare gas aboard but then decided that time could be critical and told the skipper he would follow the DSMB line down and search again for his buddy. The skipper agreed but cautioned him to return with at least 50 bar. Meanwhile, the buddy had remained stationary for a while but then searched for a way out of the silty compartment. He found an exit in the ceiling, exited the wreck and ascended. The diver had re-descended and back in the compartment he had found another hole in the floor. He was now running low on gas, fearful that the buddy

May have exited this way, be stuck and low on gas. He placed a lit torch by the hole and exited the wreck but placed another lit torch on the deck by the top exit from the compartment. The diver ascended, had a rapid ascent warning and his computer indicated 3 min of mandatory decompression stops. He carried out 2 min of the stops but ascended believing he had missed the remaining 1 min, surfaced with a dive duration of 47 min to a maximum depth of 27m, and found his buddy was already back aboard the boat. Because the diver thought he had missed 1 min of his stops and had carried out a sawtooth profile, he was placed on oxygen as a precaution. He developed no symptoms and realised that he had completed all necessary decompression. As a further precaution a hyperbaric chamber was called who advised the diver be monitored and to call back the following day to ensure no symptoms had developed. The diver remained symptom-free.

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**June 2018**
**18/183**

After a boat dive to a maximum depth of 27m a diver using air had a rapid ascent from 6m and surfaced with a dive duration of 33 min. He was placed on oxygen as the boat returned to harbour. When back alongside the diver was met by a Coastguard rescue team and an ambulance and taken to A&E. (Coastguard report).

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**June 2018**
**18/083**

A diver, using nitrox 29, and her buddy carried out a RHIB dive. The diver had borrowed a 300 bar 12 lt cylinder for the dive and had reduced her weight by 2 kg as she normally dived on a 232 bar 12 lt cylinder. The pair entered the water and descended a shotline. The diver was aware that she still felt heavy at the start of the dive and had to keep adding more air to her BCD. They reached a maximum depth of 27m and at around 20 min into the dive the diver signalled to ascend as she was uncomfortable with her additional weight. Her buddy deployed his DSMB and they ascended to 6m to begin a safety stop where the diver struggled to maintain her buoyancy and kept sinking by up to 2m. Feeling not only uncomfortable but panicky she added what she thought was a small amount of air to her BCD and made a buoyant ascent, omitting a safety stop, and surfaced with a dive duration of 25 min. The diver was recovered aboard the RHIB and, due to a bad headache, was given oxygen during the journey back to harbour. She suffered no further ill effects.

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**June 2018**
**18/107**

A diver and his buddy, both using air, carried out a boat dive and reached a maximum depth of 25m. With 100 bar and at 24m the diver attempted to deploy his new DSMB. It was smaller than his previous one and took less air, the rapid fill meant it shot to the surface with more force and the diver lost hold of it. The diver then deployed his buddy's DSMB but the line on the reel was less than the depth the divers were at with the result that it pulled the diver off the seabed at 24m and he quickly ascended to 18m. There he managed to bring his buoyancy under control and his buddy joined him. The diver's air had dropped to 50 bar and the divers ascended but due to the limited air supply they did not complete deep stops at 12m and 9m. At 6m they began a stop but the diver's air was now 30 bar so he used his buddy's alternate source for a short time but he had under 50 bar left. The diver's breathing became more rapid and the pair made the decision to ascend without completing the stop. The diver surfaced with a dive duration of 37 min with 'slow ascent', 'missed deco stop' and 'SOS' warnings on his computer. On the surface although the diver felt fine he coughed and his phlegm contained a small amount of blood but the coughing stopped after a couple of minutes. He had experienced problems with his sinuses in the past. Back aboard the boat the diver drank lots of water, rested for the remainder of the dive trip and monitored himself. He and his buddy had no other side effects from the dive.

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**June 2018**
**18/108**

A trimix diver, the only one in a diving group using open circuit, carried out a wreck dive from a hardboat. He was using two 15 lt cylinders with oxygen 19, helium 35 and nitrox 26 as a travel gas. He also had a 5 lt stage cylinder with nitrox 76 for the shallower stops. The diver was due to descend the shotline with two of the CCR divers in the group but had a minor problem with one of his regulators which he resolved and followed them down to the wreck about 5 min later. He was breathing nitrox 26 on the descent and switched to trimix at 50m. For the ascent the diver deployed his DSMB at the same time as the two CCR divers and immediately switched to his nitrox 26. He carried out his deep stops and switched to nitrox 76 at 10m and ascended to 5m to carry out 26 min of stops. After 6 min the diver noticed he was drifting into the CCR divers' DSMB lines. They were deeper than him having spent longer on the bottom but as the diver started to fin away from the lines his weightbelt fell off with no warning. Having lost his buoyancy he surfaced with a dive duration of 52 min to a maximum depth of 52m. The diver stayed on nitrox 76 and waved to the hardboat which, having picked up other divers, came and recovered him 4 min later. This was too late for the diver to borrow a weightbelt and re-descend to complete his stops as, according to the helicopter paramedic who later attended the scene, 2 min is the recommended surface time limit. Back aboard the hardboat the diver continued breathing the nitrox 76 whilst other divers helped him de-kit. The hardboat did not have oxygen aboard so two of the CCR divers gave the diver their 3 lt cylinders of oxygen. The diver began to feel 'odd' and asked for a helicopter. The CCR divers noticed the diver was breathing the oxygen too quickly and with the advice to breathe slowly and deeply, the 'odd' feeling gradually disappeared and by the time the helicopter arrived the diver felt normal. The helicopter dropped a paramedic aboard the hardboat as a lifeboat arrived. After assessment the diver was transferred to the lifeboat and he and the paramedic winched aboard the helicopter. The diver was taken to hospital and then a hyperbaric chamber where, with no symptoms, the doctor gave the diver the choice of recompression treatment or to go home and the diver chose to go home. Apart from being tired the following day and on the day after that having an occasional 'tingle' in a finger which immediately disappeared, the diver felt quite normal. As a matter of prudence he decided not to dive again for the next 3 weeks.

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**June 2018**
**18/117**

A diver and their buddy both using air carried out a boat dive with a plan to go to a maximum depth of 35m using nitrox 25 in twin 12 lt cylinders. They descended the shotline to 28m where the diver adjusted their buoyancy but began an uncontrolled ascent from 27m and surfaced with a dive duration of 2 min. Two other divers remained in the water. The diver was recovered by the boat, placed on oxygen and the Coastguard contacted for advice. The Coastguard set up radio medical advice with a dive doctor who felt that no evacuation was required. The



diver was advised to call the hyperbaric chamber if any symptoms developed. The diver showed no symptoms but believed the problem may have been caused by their drysuit's inflation valve sticking and continuing to let air into the suit.

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**June 2018**
**18/217**

A diver had a fast ascent from 16m at an inland site. The diver reported to the dive centre that he felt wobbly but was otherwise OK.

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**August 2018**
**18/131**

A buddy pair were part of a group of divers on a hardboat diving trip. Their first dive was a shallow one to around 6m as most of the divers had driven a long way to the venue the day before, some had not dived for a while or were using unfamiliar kit. The buddy pair reached a maximum depth of 6m with a dive duration of 3 min and after a surface interval of 2 hours a second dive was carried out on a wreck. The pair, both using air, descended and the diver reached a maximum depth of 32m with a dive duration of around 30 min. One of the divers incurred decompression stops, missed some of these on her ascent and her computer went into error mode indicating no further diving for 48 hours. Her buddy, who had not gone as deep during the dive did not require stops. The diver was unaware of the problem and did not report it to the dive manager.

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**August 2018**
**18/135**

An instructor using an SMB and two trainees carried out a boat dive. One of the trainees lost control of his buoyancy and subsequently disturbed the silt and mud on the seabed at 20m which further increased the poor visibility and he became separated from the instructor and other trainee. The other trainee grabbed hold of the SMB line and he and the instructor carried out a 360 deg visual search but were unable to locate the trainee. The pair ascended to 15m and carried out a further search to no avail and ascended to 10m where a further search was conducted before they ascended to the surface omitting safety stops. At the surface they were met by the trainee who had ascended approximately 1 min earlier with a dive duration of 11 min to a maximum depth of 20m. The three divers were recovered aboard their dive boat.

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**August 2018**
**18/153**

A diver and his buddy, both using air, carried out a wreck dive from a dive boat. After 30 min on the wreck the diver deployed his DSMB and they began their ascent from 24m. The diver signalled to his buddy to hold onto the DSMB line but she continued to ascend on her own towards the surface from around 15m and out of reach of the diver. The diver continued his ascent and made a safety stop at 6m. Whilst on his safety stop he did not realise his buddy had surfaced and then re-descended to him at 6m. Surprised to see her he immediately got her to hold onto

the DSMB line and they exchanged 'OK' signals. The diver assumed that they had become separated and the buddy had re-established contact to carry out the safety stop. He checked her air and signalled for her to show him her computer, which she was reluctant to do so. Although they had carried out the same dive profile he saw that she had accrued 7 min of decompression time, 3 min of which were a safety stop. The diver completed his 3 min safety stop and stayed with the buddy whilst she completed her decompression and safety stop. They ascended and surfaced with a dive duration of 36 min to a maximum depth of 26m. Back aboard the boat the buddy informed the diver that she had ascended to the surface without a safety stop, had seen the diver's DSMB and re-descended to him at 6m. The buddy was monitored during the journey back to shore and advised not to dive again that day.

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**August 2018**
**18/205**

A dive boat reported two divers had made a rapid ascent from 16m. However, neither diver was presenting symptoms. Both were closely monitored by the dive manager and advised to call if any symptoms presented. Both went home with no problems. (Coastguard report).

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**August 2018**
**18/172**

A pair of divers, both using air, carried out a planned decompression dive on a wreck and at the end of the dive they both deployed DSMBs. One of the divers surfaced with a dive duration of 34 min to a maximum depth of 29m but had missed 3 min of decompression stops due to a buoyant ascent. The diver was recovered aboard the dive boat and his computer checked which indicated the missed stops. The dive manager put the diver on oxygen and called a doctor for advice who recommended monitoring the diver and taking him to a hyperbaric chamber to be assessed. The diver's buddy surfaced having completed his decompression stops. The diver was not displaying any symptoms of DCI and when he and his buddy were taken to the chamber they were examined and given the all clear.

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**August 2018**
**18/216**

A buddy pair experienced a rapid ascent during a dive at an inland site. Neither diver suffered any ill effects and were advised not to dive again the same day. The advice was ignored.

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**August 2018**
**18/269**

A pair of divers conducted a dive to a maximum depth of 22m and were following an anchor chain in poor visibility when they became low on gas and ascended to the surface a bit faster than they would have liked. As a precaution the pair were placed on oxygen.

**September 2018****18/224**

A diver lost their weightbelt a depth of 25m and made a fast ascent to the surface but suffered no ill effects.

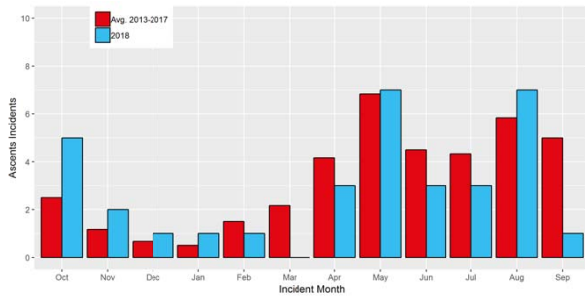


Figure 18. Ascent related incidents in each month of the year

## Technique-related incidents

**October 2017**

**18/018**

A diver and his buddy, both using air, carried out a wreck dive from a boat. As they descended the shotline the diver had issues clearing his ears. At approximately 20m another shotline crossed over the one the divers were using and, due to the low underwater visibility and his slightly tinted mask, the diver was unable to distinguish between the two lines. He continued descending on what he believed was the correct taut shotline as he had been informed prior to the dive that it was a top tensioned line. At approximately 22m the diver realised he had not seen either his buddy's hand or torch for a minute or so and re-ascended to the 20m point expecting to find him waiting there. He saw his buddy's torch below him and thought he must be waiting on the bottom so descended onto the wreck reaching 27m expecting to find his buddy. When he reached the bottom he found it was the incorrect shotline as no lift bag was attached and there was also no sign of his buddy in the low visibility. The diver carried out a separation drill and began to slowly ascend the shotline as he was still having problems with his ears and this led him to carry out an unplanned 3 min safety stop at 6m. He had failed to deploy his DSMB for his ascent, as briefed before the dive, as he felt the best place to clear his ears was on the shotline. The diver surfaced with a dive duration of 17 min to a maximum depth of 27m. His buddy had also found the crossed lines at 20m and continued on the correct line. He had seen the diver's torch light but lost it as the two shotlines diverged. He arrived on the wreck's boiler at 24m but was unable to locate the diver and carried out a separation procedure. He deployed his DSMB but the reel jammed and in the poor visibility he was unable to see and free the line. He made an uneventful ascent and surfaced with a dive duration of 12 min.

**October 2017**

**18/302**

An instructor, student and another diver descended to 9m to conduct a training exercise in underwater navigation. As the student was about to start the skill the instructor noticed the student was struggling to set the bezel of the compass. The instructor then noticed the student seemed to have a mask squeeze. After repeated attempts by the instructor to get the student to blow air into his mask, he took the student to the surface, where the student removed his own mask. No injury could be seen at the surface, so they both descended to complete the training dive. No hospital visit was needed.

**January 2018**

**18/035**

A buddy pair using air carried out a winter shore dive to search for a spare torch that had been lost a few weeks earlier. After about 15 min and at 23m they became separated. One diver completed a 360 deg look around, waited a minute and whilst still looking around, slowly ascended and completed a 3 min safety stop at 6m

before surfacing. The surface cover immediately saw the lone diver, checked he was 'OK' and informed the dive site staff. His buddy had also carried out a 360 deg look around but rather than surfacing he made his way underwater ascending along the way towards the exit point. The surface cover could see bubbles which appeared to be those of a lone diver but was unsure. Other divers were about to enter the water but were stopped to allow further offgassing on the surface and were asked to be ready to search if necessary. After a period of 2 min the site staff decided to drop a thunder flash to raise all divers and those in the immediate vicinity did so except for the missing buddy. The surface cover and the diver who had surfaced tracked a set of bubbles which ended at the exit point when the buddy surfaced and signalled he was 'OK'. He surfaced with a dive duration of 33 min to a maximum depth of 24m and had completed a 3 min safety stop at 3m. The site staff explained to the buddy the error of his ways and he apologised profusely to all concerned.

**April 2018**

**18/261**

During a pool training session a student replaced her regulator upside down, swallowed water and went for the surface of the 4m deep pool. The student complained of her chest feeling tight, was very tearful and apologetic. The student was placed on oxygen for 5 min and once she had calmed down continued with her training without further problems.

**June 2018**

**18/307**

A student on a training course ran out of air midway through her safety stop at 5m. The student signalled out of air and a trainee Divemaster provided an alternate air source. On the surface the trainee Divemaster and the student were struggling to stay on the surface, as both were negatively buoyant. The student had removed the alternate air source. The trainee Divemaster could not remove the casualty's weightbelt because it was stuck under the casualty's BCD. The casualty and the trainee Divemaster were unable to inflate the BCD orally. The instructor then provided the student with their alternate air source and managed to orally inflate the BCD.

**August 2018**

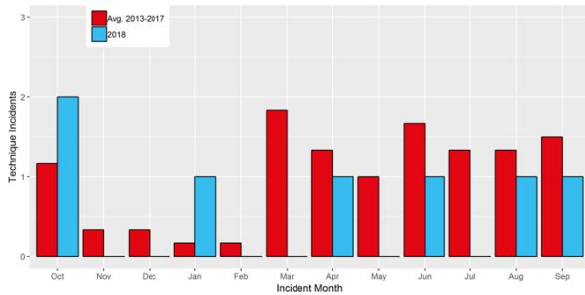
**18/267**

An instructor conducted a training dive with 2 students. One of the student's dive computer was set to a more conservative setting than the instructor and other student and on surfacing was displaying caution as missed required decompression stops. The other two diver's computers were both fine. The student was placed on oxygen as a precaution.

**September 2018**

**18/271**

A student was on a training dive to a maximum depth of 6m when she got water in her regulator and panicked, lost her regulator and surfaced after a total dive time of 5 min. The diver was placed on oxygen and advised not to dive again that day.



*Figure 19. Technique-related incidents in each month of the year.*



## Equipment

**January 2018**

**18/036**

A diver using a 12 lt cylinder of air and his buddy using a CCR carried out a shore dive. Almost immediately after descending and at 7m the diver noticed air escaping from either the exhaust valve or the swivel joint of his primary regulator. The diver also noticed that the air pressure seemed to be higher than normal. He removed the regulator from his mouth to carry out a check and it immediately went into free flow. The diver adjusted the flow rate to a minimum, tried to remedy the free flow but was unsuccessful. He checked his remaining air, depth and time, which was now around 10 min, and decided to abort the dive in order to remedy the situation on the surface. Both divers surfaced and with his buddy's assistance, they closed and re-opened the cylinder valve which resolved the free flow problem. The divers signalled 'OK' to their shore cover and with 150 bar left in his cylinder and both happy to continue the dive, the pair descended and completed their dive to a maximum depth of 16m with an overall dive duration of 75 min. Later testing of the regulator indicated that its inter-stage pressure may have been set too high.

**May 2018**

**18/094**

A diver using air had carried out a shore dive to a maximum depth of 21m with a dive duration of 30 min. He carried out a second dive with his buddy, who was using a CCR, and they descended to a maximum depth of 35m. The diver checked his air, which was 200 bar in a 15 lt cylinder and the water temperature was 6 deg. At around 10 min the divers began their ascent but 1 min later the diver had a regulator free flow. The diver signalled to ascend and was assisted by his buddy. They made a controlled ascent with the diver breathing off the free flowing regulator and not panicked as he remembered his training and knew that his buddy was carrying a bailout 12 lt cylinder of air. The divers surfaced with a dive duration of 15 min. The free flow stopped on the surface with 50 bar left in the diver's cylinder.

**May 2018**

**18/084**

An instructor and two students carried out a wreck dive from a boat, which was the third dive of a CCR course. They had conducted skills including bailout and diluent flushes and after each drill the oxygen, diluent and bailout contents were checked. One of the students had completed a skill and returned onto his CCR with what was seen as 150 bar on his diluent gauge. The instructor was conducting a skill with the other student when the first student indicated he was not happy. He had switched to his bailout cylinder, signalled that his auto and manual diluent valves did not seem to be working and on inspection his diluent gauge read zero. The instructor and student double checked the diluent valve on the cylinder which was open. The group conducted a bailout ascent

and carried out 3 min of stops at 6m. The student who had the diluent problem went back onto his loop and used the manual oxygen valve to reset the unit's set point to 1.5 and continued the ascent. Within 1 min the CO2 alarm was set off and he went back onto his bailout. The group surfaced with a dive duration of 60 min to a maximum depth of 18m. When the cylinder contents gauge was checked it showed empty. Regular checks of content had been conducted throughout the dive and the students had confirmed a similar content level of approximately 150 bar before the incident. No obvious leaks were seen nor was it apparent the first student had been exhaling through his nose or venting excessive gas at any point. It was found that the diver had a flooded canister.

**May 2018**

**18/069**

Two divers, using trimix 20/31 and nitrox 50, carried out a wreck dive from a boat. They descended the shotline to the wreck and at 20m the visibility was about 7m but at 50m, their maximum depth, it was 1m. The divers decided to use a distance line from the shot as they needed to return to it for their ascent as briefed by the dive manager. They stayed on the wreck close to the shot because of the limited visibility but at 17 min they returned to it. The dive plan was not to exceed 28 min time to surface but trying to recover the distance line caused a 'silt out' which delayed them leaving the bottom by 2 min. One of the divers was running two computers, both with reduced gradient bubble model (RGBM) algorithms but different versions. They ascended and at 27m the diver's computer algorithms began to contradict each other. One wanted the diver to carry out deep stops whilst the other had a moving ceiling considerably slowing the diver's ascent. The slow ascent indicated by this computer added additional decompression penalties to the other. The divers completed their decompression and surfaced 7 min over the planned dive time of 50 min. Although overdue, their boat cover was able to observe their bubbles throughout the ascent. Back on shore the computers were downloaded which allowed the differences in dive profiles to be ascertained. It was a surprise to the divers that two technical computers from the same manufacturer had significant differences.

**June 2018**

**18/081**

A group of three divers, one using a CCR and his buddies on open circuit using air, carried out a freshwater shore dive primarily to wash salt off dive kit following a week's sea diving and for 'light entertainment'. The group descended to 20m where the buddies inflated an inflatable Star Wars character, the CCR diver photographed the activity before the group continued and reached a maximum depth of 35m. The visibility was poor, it was dark and the group made a navigation error by circling around rather than taking a straight line to their

next waypoint. Throughout this the CCR diver had issues with his mask and, with the navigation error, the group ascended. During the ascent and at 25m the CCR diver switched his backup open circuit computer from air to nitrox 32, checked his contents gauge and became aware he had used almost all of his diluent. He was not particularly worried just annoyed at his incompetence. At 20m he was still dealing with mask issues and it occurred to him that this had the makings of an incident. Having decided he was being foolish especially if he had no diluent for mask clearing, loop flushing or bailout he decided to plug in the bailout cylinder but did not consider he needed to go onto open circuit. Initially he was unable to find the end of the bailout whip but managed to do so by undoing the rear clip of the bailout cylinder, he located the diluent manual inflate and released the on-board quick release fitting. At this point one of his buddies appeared and wanted to help, they exchanged signals by which time the CCR diver had now flooded his mask completely. After an 'OK' from the buddy, the CCR diver attempted a manual diluent inject but realised the buddy had reconnected the hose he had just disconnected. He stopped, undid the hose and connected the bailout whip. He completed a loop flush, mask clear, double checked the handset, reconnected his bailout cylinder to a rear D ring and checked on both buddies who looked very confused. At this point the CCR diver signalled to ascend and one of the buddy pair deployed their DSMB. The group ascended during which the other buddy's computer had a deep stop warning so they carried out a 1m stop at 15m where the CCR diver deployed his DSMB. The group ascended to 6m and carried out 8 min of decompression as they made their way underwater to their exit point. The group surfaced with a dive duration of 44 min. The CCR diver admitted that his frequent mask clearing should have warned him to check his diluent contents gauge.

**June 2018**

**18/118**

An instructor and student both using air carried out two shore training dives. The first dive was to a maximum depth of 25m with a dive duration of 35 min including a 3 min stop at 6m. After a surface interval of 1 hour 30 min they carried out a second dive. They descended a cliff to a wreck where the student attached his DSMB reel to a rail on the wreck at 18m and deployed the DSMB using his alternate source regulator. The regulator went into free flow and the diver was quickly losing air. The instructor donated his alternate source, they abandoned the DSMB and made an alternate source ascent and surfaced with a dive duration of 17 min to a maximum depth of 20m. At the surface the instructor turned the student's cylinder off and then on again which stopped the free flow. They finned back to the shore and other members in their dive group retrieved the DSMB and carried the instructor's and student's kit back to their cars to ensure they were not over-exerted. Later investigation showed that the regulator's venturi had been moved to the positive position making it very sensitive. The divers suffered no ill effects following the dive.

**June 2018**

**18/264**

A pair of divers had dived to a maximum depth of 22m and were making their way back to shore underwater. As they reached a depth of 11m one of the diver's regulators free flowed and the pair ascended to the surface. The on-site team administered oxygen to both divers and advised no further diving that day and they should remain on site for a couple of hours before travelling.

**June 2018**

**18/106**

Two divers, one using air and the other a CCR, carried out a RHIB dive and reached a maximum depth of 24m. On the ascent at the first decompression stop the air diver realised he had not turned off the nitrox 54 mix in his computer. The diver had decided to leave his stage cylinder on the boat shortly before the dive but had not changed his computer setting which therefore indicated incorrect time to surface. He informed his buddy and they carried out a 14 min stop at 6m. The result was that they surfaced with a dive duration of 72 min, 12 min over their planned dive time of 60 min. Their boat cover was concerned when their dive time was exceeded but was able to monitor them over the side of the RHIB at their 6m stop.

**June 2018**

**18/112**

An instructor and a trainee carried out a shore training dive with a dive duration of 30 min to a maximum depth of 8m. Their second training dive was to a maximum depth of 10m but at 7m one of the pair had a problem with her regulator and was given her buddy's alternate source. They aborted the dive, made an alternate source ascent and surfaced with a dive duration of 25 min.

**June 2018**

**18/164**

Following a buddy check a pair entered the water from a dive boat and carried out a dive reaching a maximum depth of 18m. The pair ascended and carried out a 3 min safety stop at 6m and surfaced with a dive duration of 33 min. At the surface one of the divers tried to inflate her BCD and found the air was emptying into the sea. The inflator button fitting had become disconnected from the hose. Unable to inflate her BCD the diver tried to inflate her drysuit but air was escaping via the cuff dump valve. She could not keep her head fully above the surface and noticed that one of her fin straps had come off and the fin in danger of falling off. The diver tried to sort the fin strap out and signalled to her buddy for help but unable to get her mouth above the water could only do this with signals and he did not appear to understand. The diver found she was descending and unable to put air in her BCD desperately tried to inflate her drysuit again but she struggled to get to the surface. The buddy heard a shout from the boat's skipper that the diver had gone down. He looked over his shoulder and saw that she had disappeared. He dumped all the air from his BCD and dived down to his buddy who was about 2m below him. By the time he reached her she was at about 5m and

struggling with her fin. He grabbed the diver and carried out a controlled buoyant lift, surfaced and kept her buoyant until they were recovered aboard the dive boat. The inflator unit had been replaced a couple of years earlier and there was some doubt as to whether it was the correct one as it fitted into the hose by a very short margin, was held in place by a tie zip but did not abut correctly with a ridge in the hose designed to hold it in place.

**June 2018** **18/266**

A diver and her buddy were swimming out on the surface to a marker buoy. On arrival at the buoy the pair stopped to rest and the diver started to sink. Her buddy put air into her suit and the diver held onto the buoy. Her buddy then removed her integrated weights and it was discovered that her BCD wouldn't hold air and was leaking from the dump.

**August 2018** **18/129**

A diver had purchased a new CCR directly from the manufacturer in preparation for a training course. The oxygen cylinder arrived without oxygen clean stickers so was submitted for cleaning at a local dive shop. The diluent cylinder was taken to be filled and subsequently used to demonstrate an oxygen analyser to trainees. When the diver collected the oxygen cylinder he was informed that its pillar valve was found to be insufficiently tight when the cylinder had been put in a vice to remove the valve. The cylinder was cleaned, the valve refitted and the diver was advised to check the diluent cylinder. When he slowly vented the diluent cylinder he found he could remove the pillar valve by hand with minimal effort so took this to the dive shop to be tightened. The diver emailed the manufacturer to inform them of the situation in case any other cylinders were affected.

**August 2018** **18/268**

Following a previous dive to 6m with a total dive time of 20 min a student on a training course with an instructor conducted a dive to a maximum depth of 17m. Close to the maximum depth she experienced her mask filling with water and felt slight panic and breathlessness. The pair ascended to 6m and started to conduct a safety stop, during which her mask filled again. The pair completed their 3 min safety stop at 5m and ascended to the surface. The diver on surfacing was breathless and complained of a dry throat and was given oxygen and advised not to dive again for 48 hours.

**September 2018** **18/171**

A diver and his buddy, both using CCRs, carried out a boat dive. During the dive the diver felt a leak in his drysuit, checked his zip and asked his buddy to also check. No problem could be seen and the pair continued with their dive but with the leak getting worse the diver signalled to abort the dive. The pair ascended and surfaced with a dive duration of 38 min to a maximum depth of 25m.

When the drysuit was inspected it was found that the zip material had failed.

**September 2018** **18/173**

A diver had assembled, calibrated and completed positive and negative pressure checks on his CCR unit. He carried out a buddy check, entered the water from a RHIB and when he surfaced he took a breath and swallowed water. The diver immediately signalled to his buddy who saw that the scrubber to inhalation 'T' piece hose was detached. The buddy secured the hose and the diver was recovered back aboard the boat. On inspection some water had entered the breathing loop and scrubber. The diver admitted to being distracted whilst preparing his unit and had not screwed the hose to the 'T' piece but just pushed the two together. This had enabled the positive and negative pressure checks to be completed but the force of rolling back off the RHIB had caused the hose to separate.

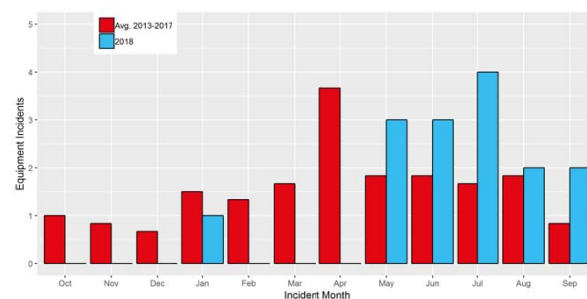


Figure 20. Equipment related incidents in each month of the year.

## Illness or Injury related Incidents

**October 2017**

**18/004**

An instructor and her trainee using air carried out a shore dive to a maximum depth of 14m with a dive duration of 31 min. The trainee had ear problems at 14m so the pair had ascended to shallower water, carried out some compass skills and practised a controlled emergency swimming ascent, which although a little fast did not exceed the limits. The divers re-descended to 2m but at that point the trainee clutched her head so the instructor took her back to the surface where the trainee said her head and the back of her neck hurt. The instructor towed the student to shore, de-kitted her in the water and they returned to a classroom nearby. The trainee was given first aid but not oxygen as no symptoms were apparent apart from a headache. The trainee was told there would be no diving for the rest of the day but to sip water and remain on the dive site where she could be monitored.

**October 2017**

**18/159**

A diver and his buddy, both using air, carried out a hardboat dive onto a group of wrecks close to a breakwater. They reached a maximum depth of 17m, ascended to 6m on a DSMB, completed a 3 min safety stop and surfaced with a dive duration of 33 min near the shotline. The hardboat was stood some way off from the divers and rocks by the breakwater and the first mate indicated that the divers should swim out to it which they started to do. The diver finned on his back and, with the current feeling quite strong, he exerted himself considerably. After a few minutes the pair were still some distance from the boat and could not grab its side ropes as it went past. It moved around and made another pass but again was not near enough. The diver was breathing rapidly as his efforts had increased and he felt he was not getting enough air from his regulator. The boat made another pass and threw a buoy attached to a line but, as this was being towed by the boat, it was going too fast and was too far away for the diver to grab. Whether it was on this pass or subsequent ones the buddy managed to grab the line and the hardboat focused on getting him aboard. This seemed to take some time and the diver was struggling for breath, being buffeted and washed over by the waves and the current was pushing him back towards the breakwater. He was physically exhausted and unable to fin against the current. In order to breathe the diver eased his hold on the regulator mouthpiece but this resulted in swallowing some, and possibly aspirating, salt water. The diver attempted to indicate his difficulties to the hardboat by signalling and shouting through his regulator but got no response as they were concentrating on recovering the buddy. The diver fully inflated his BCD to achieve maximum buoyancy but still was not getting enough air from his regulator. In respiratory distress and feeling he was facing the possibility of drowning, the diver began to ditch his weights starting with his BCD integrated weights. Once the buddy had been recovered the first

mate shouted and motioned for the diver to swim out and away from the breakwater. Shouting back that he could not swim any further the hardboat made a number of passes with the buoy on the line which was unsuccessful. The diver felt he had to find an alternative to save himself and as the current continued to push him towards the breakwater he thought that this seemed to be a place of possible safety. He struck out for the rocks by the breakwater and ditched his main weightbelt as he went. When he reached the rocks he climbed out as high as he could so he was waist deep, clinging to the rocks and with waves knocking him against them. The hardboat came nearer and although unable to fully hear what was being shouted it sounded as though they were calling for a smaller boat to come out and rescue the diver. The diver switched to his snorkel and although finding breathing a little easier it had not returned to normal. He was unable to turn around and face out towards the hardboat due to the wave action but after about 15 to 20 min he heard an engine and saw a RHIB behind him. The RHIB threw a buoy on a line which the diver managed to grab and going in reverse the RHIB towed the diver away from the rocks and recovered him aboard. As they returned to harbour the hardboat wanted the diver to transfer back which meant the diver, having now de-kitted, jumping back in the water and swimming towards the hardboat. Still fatigued and not confident the hardboat would retrieve him from the water the diver declined and the transfer was carried out at a nearby jetty. The diver decided not to do the second dive of the day and removed his kit from the hardboat. He found that any physical activity such as moving and stowing his kit, walking across a car park and showering left him extremely fatigued. On his return home the diver felt he should get medical advice and went to an A&E department. The consultant was concerned that the diver may have aspirated seawater with the subsequent risk of secondary drowning and that his fatigue was symptomatic of DCI. Chest x-rays were clear and antibiotics prescribed with the advice to call 999 if his symptoms deteriorated. The diver, with the possibility of DCI, contacted a hyperbaric chamber and after the diving doctor had spoken to the A&E consultant the view taken was that it was unlikely to be DCI but the diver's condition should be monitored and reviewed. On review the diver was given the all clear. He reported that his exhaustion in the water had been unusual and unexpected as he considered himself physically fit being a regular runner who had completed marathon races throughout the past year. His regulator was serviced shortly after the incident and nothing untoward was reported.

**October 2017**

**18/007**

A diver, using nitrox 27 and nitrox 53 for decompression, and his buddy entered the water from a hardboat to dive a wreck. The buddy was unable to descend due to incorrect weighting so the divers returned to the hardboat, added weight, re-entered the water and descended the



shotline. A lion's mane jellyfish tentacles were wrapped around the shotline at 2m and stung the buddy on his lips and face but the pair continued their descent and completed the dive with a maximum depth of 27m and dive duration of 36 min. Back aboard the hardboat the buddy did not secure his twin-set which fell on his head causing minor bruising. Shortly afterwards the buddy felt an intermittent 'tingling' sensation across his body. Medical advice was sought and a neurological examination carried out which revealed no additional symptoms. The doctor advised a 2 hour wait during which time the buddy's symptoms did not change. The doctor then advised putting him on oxygen for 30 min, which did not improve the symptoms, and he then advised precautionary treatment at a hyperbaric chamber. During the 4 hour 30 min recompression treatment the buddy's symptoms gradually subsided. The doctor at the chamber diagnosed that the buddy was likely to have had an allergic reaction to the jellyfish sting but recompression treatment was completed as a precaution.

**October 2017**

**18/010**

A diver was on a hardboat diving trip lasting six days and on the last day carried out two wreck dives. The first dive was to 35m and the second dive to 34m using nitrox 32. Both dives were for a 60 min dive duration incurring 9 min decompression stops plus a 3 min safety stop on nitrox 50. During the entry on the first dive the diver had experienced a rush of water into the left side of his hood but there was no pain or discomfort and both dives were completed with no ill effects. Over the next two days the diver developed ear ache in his left ear which he self-medicated but he approached a pharmacist for advice when the ear ache became worse and with a loss of hearing. He was advised to contact the NHS helpline and they advised him to attend A&E. The diver was diagnosed with an outer ear infection with no evidence of discharge but due to the swelling within the ear a full examination was carried out. The diver was prescribed an antibiotic, painkillers and ear drops. Two days later the swelling and pain had decreased and there was a slight return of hearing although the pain relief was still being used. A follow up medical examination was to be carried out prior to any further diving.

**October 2017**

**18/301**

A group of divers on a training dive were making their ascent up a shotline and while carrying out a safety stop one of the students lost control of her buoyancy and began descending again. A divemaster descended with her followed by the instructor and the other student. The student indicated she had an issue with her ear. The group started to ascend again in a controlled way. At around 10m the casualty ascended too quickly to the surface missing her safety stop. The rest of the group ascended together. At the surface the student was conscious and crying, bleeding from her right ear. She was towed by the instructor back to shore. There she breathed oxygen as a precaution and an ambulance was called. The student

was then taken to hospital and was treated for a perforated ear drum.

**October 2017**

**18/013**

During a rescue training session using a hardboat a diver was in the process of removing another diver and his kit from the boat's stern lift. The sea state was causing movement of the lift within its frame and as the diver put his left hand on the lift structure for support it went between the lift platform and the frame. As the hardboat rolled it caused the lift and support frame to move together which crushed one of the diver's fingers. The diver was given first aid aboard the hardboat and on return to harbour the diver went to a medical centre where the doctor confirmed that the finger was not broken. The diver was given anti-inflammatory medication and painkillers and told to avoid diving for the remainder of the week.

**November 2017**

**18/251**

A diver was trying to remove a cable tie when he snipped the end off the forefinger of his left hand. The staff at the dive site cleaned and bandaged the wound and advised him to go to hospital.

**November 2017**

**18/252**

A diver and her buddy completed a first dive of the day without incident to a maximum depth of 20m for a total duration of 33 min. After a surface interval of two hours the pair conducted a dive to a maximum depth of 19m for a total dive time of 31 min. As the diver approached a 6m shelf during her ascent she started to feel unwell. As she exited the water she vomited. Another diver on the site provided her with nitrox 80 to breathe until the onsite staff put her onto oxygen and she started to feel more like herself. The diver's computer showed no missed stops and she was taken off oxygen after 14 min.

**November 2017**

**18/147**

A dive boat reported a diver aboard suffering from chest pains. The diver was administered oxygen and transported ashore. The Coastguard offered radio medical advice but this was declined and an ambulance was arranged to meet the dive boat on its arrival back in harbour. (Coastguard report).

**November 2017**

**18/249**

The on site safety team were notified of a diver in the changing room who had a dislocated shoulder. The shoulder had popped out twice previously that day and the diver had a history of shoulder dislocation. The diver had been diving with a recreational diver training centre and so the site team advised the diver to visit A&E as soon as possible and handed him over to the care of the training centre team.

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**November 2017**
**18/026**

An instructor, his two trainees and a safety diver all using air, carried out a wreck dive from a boat. On the descent using a shotline the instructor and trainees paused at 10m due to some ear problems. Once resolved the instructor checked everyone was 'OK' and they descended to 15m where the instructor noticed the safety diver was not with the group. He saw a diver on the shotline above them but as the group ascended it became clear that diver was from another group. Back on the surface, with a dive duration of 2 min to a maximum depth of 15m, the instructor located the safety diver's SMB and when they reached it they could see the diver about 3m below them. The safety diver had descended with the group on the shotline whilst controlling the SMB but it had become entangled with the shotline at around 10m. In the time it took to untangle the line the instructor and his trainees had descended out of sight. The safety diver ascended as the instructor and trainees made their way on the surface to his SMB. Back on the surface and with everyone checked they were 'OK', the group re-descended using the SMB and completed their dive.

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**November 2017**
**18/027**

Two buddy pairs, who had completed a morning shore dive to a maximum depth of 5m with a dive duration of 35 min, carried out a night dive from the shore to a pier. One the divers became disorientated on the swim from shore but both pairs met up at the pier. The pairs descended but the diver was still disorientated and did not follow the agreed dive plan but reached a maximum depth of 5m with a dive duration of approximately 60 min. Both pairs surfaced separately under the pier and the disorientated diver and his buddy called to the other pair who swam over to them. The disorientated diver had been carried east by the current and his buddy had taken him back to the pier as he was unable to swim against the current, was breathless, cold and tired. The sea had become choppy with increasing waves and, with no access to the pier as it was locked, the swim back to shore was difficult. A passing Coastguard officer on the pier asked the divers if they needed help as they were unable to tow the disorientated diver on his back, due to a badly fastened BCD. The Coastguard officer called for a boat. However, the diver's buddy and one from the second pair managed to tow the diver partly on his front and made good progress to shore. A Coastguard rescue team arrived with an ambulance and paramedic. The diver was checked over and released after he had warmed up.

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**November 2017**
**18/303**

A student had completed her first open water training dive with an instructor to a maximum depth of 6m. Immediately upon surfacing the student was coughing up a dark fluid. The Instructor took the student to the edge and removed the diving equipment and went to the changing room with the student. Oxygen was administered and now the student was coughing up a pink fluid. After consultation with the dive chamber it was

advised to take the casualty to hospital. Blood tests were OK, X-Ray of the lungs indicated no water or damage. The casualty was monitored for a few hours and then discharged.

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**November 2017**
**18/255**

An instructor and student conducted a pool session in a 4m deep swimming pool completing a number of ascents and descents at a slow steady pace. On surfacing at the end of the dive the student cried out and clutched her right ear. The diver reported she had felt/heard a bang and experienced extreme pain. The ear was covered to keep it warm and was found to have slight bleeding after 15 min. The diver was advised to attend hospital.

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**December 2017**
**18/211**

Following a long cold dive at a managed inland site, which included a provocative dive profile, a diver reported to the dive centre that his arms had felt heavy after surfacing and he was found to have poor coordination. A recompression chamber was consulted and they advised evacuation by helicopter, however the diver was found to be OK at the chamber.

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**January 2018**
**18/257**

A diver on a CCR training course had completed two training dives without incident. The first to a maximum depth of 6m for a total duration of 60 min and the second after a surface interval of 60 min to a maximum of 15m for 35 min. On surfacing from the second dive the diver started coughing as if he had something stuck in his throat but had no other problems. The diver was placed on oxygen for 10 min during which time the coughing improved.

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**January 2018**
**18/259**

A diver and his buddy completed a first dive of the day without incident to a maximum depth of 34m for a total duration of 50 min. After a surface interval of 70 min the pair conducted a dive to a maximum depth of 33m for a total dive time of 50 min without incident. On exiting from the dive the diver had stomach cramps and his right leg felt heavy. The diver was given oxygen by the on-site staff.

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**January 2018**
**18/039**

Three divers, one using a CCR and the others air on open circuit, carried out a winter shore dive with a water temperature of 6 deg. The divers descended to a maximum depth of 24m and spent approximately 20 min at 20m before they made a gradual ascent to 10m and then to 6m where they stayed for at least 25 min stopping at a 6m platform near their exit point. The two air divers practised removal and re-attachment of side cylinders and as the second diver was doing his practice, the rebreather diver, who had been watching, was seen to be head down and descending onto the platform. He was

blue in colour, his breathing loop was out of his mouth and he appeared unconscious. One of the two divers took hold of him and carried out an emergency controlled buoyant lift. The dive duration was 55 min. On the surface the diver shouted for help and a member of staff on the site entered the water, de-kitted the unconscious diver and assisted in removing him from the water. On hearing the shouts the site owner sent another staff member to summon the emergency services during which time the unconscious diver was put on oxygen. The site owner gave a minimum of twenty oxygen enriched rescue breaths and the diver regained consciousness. The emergency services arrived, took over and a doctor who arrived by helicopter deemed that air evacuation was not required and an ambulance took the diver to hospital. Police, who arrived on the scene, isolated and impounded the diver's equipment.

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**February 2018** **18/212**

A diver was found to be suffering from immersion pulmonary oedema (IPO) following a dive using a CCR. The diver was evacuated to A&E for treatment.

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**February 2018** **18/209**

A diver commenced the first dive of the day and reached a maximum depth of 20m but found he was breathless and he resurfaced with his buddy after a total dive time of 5 min. The diver was brought to the water's edge by his buddy and others assisted him to remove his kit. The diver was checked over by the staff at the dive centre and the diver indicated he would drive himself to hospital. He was however taken to hospital by his partner and he was checked out and informed he had a viral infection.

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**March 2018** **18/045**

A snorkel instructor, supported by an assistant instructor, was working with three advanced snorkelling students in a pool. The three students had undergone training for a snorkel lifesaving exam and on this occasion they wanted to develop their breath holding skills. The students carried out a breath hold on the surface averaging around 2 min. After relaxing for 5 to 10 min and starting from the 2m deep end of a 25m pool, the students started their breath hold dive. Two students completed two lengths of the pool and the third completed one and three quarter lengths. The instructor approached the deep end where the students had finished and saw one of the students, who had completed two lengths, come to the surface. He lifted his head and then re-submerged whilst the other two students were on the surface catching their breath. Looking down into the pool the instructor saw the student face down and sinking to the bottom. The instructor asked the assistant if the student had gone back down for something but when he replied 'no' the instructor asked one of the students on the surface to check if the submerged student was 'OK'. The student did so and with no response he brought him to the surface. The instructor entered the pool and assisted by the student who had carried out the lift, they pulled the unconscious student

onto the pool side. The student was blue in the face, unresponsive and not breathing and the instructor immediately carried out rescue breaths. After five rescue breaths the student coughed briefly and began to breathe again. He was placed in the recovery position, monitored and an ambulance had been called. He was unresponsive for just under a minute, within 2 min he was conscious but a little confused and after 3 min he was alert and talking. The student's father attended the poolside and he and the student informed the instructor that the student had recently been investigated for fainting fits and vomiting, similar to possible vertigo, and this also included a slow or abnormal heart rate. This had not been declared to the snorkelling club. The ambulance and paramedics arrived and the student was taken to hospital for observation and kept in overnight. He remembered completing the two lengths and pushing himself to do so. He also remembered coming to the surface and believed he had got out of the pool when, in fact, he had submerged in a faint. The instructor was informed the following day that the student was doing well and hoped to be discharged from hospital later that day.

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**April 2018** **18/049**

A diver, who had completed over 300 dives but none carried out in the last couple of years, had joined a club with the intention of getting back into regular diving. With this in mind he had just purchased some new equipment and intended to try this out on a pool training night. The diver kitted up and carried his fins as he walked towards the edge of the pool's shallow end. As he neared the edge he slipped, landed on his coccyx and hurt the fourth finger of his left hand. The diver fainted, assistance was immediately to hand and support given by a club member who was a full-time paramedic. As the diver was being de-kitted he fainted twice more but was then helped to a bench on the poolside and laid down. The diver had no pain or loss of movement in his left hand but it was agreed he should not drive home and was advised to go to hospital. The diver was taken home by a colleague. When contacted the following evening he confirmed that he had no further fainting episodes although he generally felt unwell and had a headache. He had attended a local minor injuries unit and had tests for heart activity which appeared normal. He explained that on the evening before attending the pool he thought he might have eaten something past its edible date and this had made him queasy. He also disclosed, and thought it might explain his fainting episodes, that he had previously been diagnosed with an iron deficiency and was on medication for this but had stopped taking it a while ago. The diver was going to take further medical advice and was informed that he would need to consult a diving referee before he resumed diving.

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**April 2018** **18/061**

A diver and her buddy, as part of a group of four, were about to carry out a shore dive. The diver was wearing a drysuit, wing BCD and twin-set of air. The group entered the water and were on a platform at 2m where the diver

began a weight check. The diver had problems keeping her legs down, began to invert and became distressed. Her buddy went to assist but saw her eyes were glazing over so took her to the surface at the bottom of a ramp and, with the other two divers, yelled for assistance. The dive site's rescue team were quickly on the scene and dragged the diver further up the ramp and out of the water. One of the rescue team arrived with emergency bags, the oxygen kit and a defibrillator. The emergency services had been called and were kept updated of progress. One of the rescue team heard a laboured gasp from the diver who then immediately turned blue and stopped breathing. He and another team member performed rescue breaths and CPR and after two sequences the diver regained consciousness and was placed in the recovery position with oxygen. The rescue team managed to stretcher the diver off the ramp in readiness for the ambulance. The diver was semiconscious with laboured breathing from which it was evident she had breathed in water or had other fluid in her lungs. 10 min later an ambulance arrived and, with fluid in her lungs, they aspirated the diver who recovered to the point where she could sit up and speak coherently but had no recollection of the incident. The ambulance took the diver to hospital and she was discharged the following day after various tests had been carried out. The hospital found that she had been suffering from a lung infection which had been missed by her local doctor who had diagnosed her symptoms as indigestion.

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**April 2018**
**18/304**

A student was taking part in a drysuit training course together with another student and an instructor. During the dive, the instructor attended to another student who was having difficulties, so after completing a safety stop the student ascended on his own and a couple of minutes later the instructor surfaced with the other student. A few days after the dive, the student reported ear problems. (see also 18/148 and 18/305)

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**April 2018**
**18/056**

A diver and his buddy carried out a shore dive. The diver used twin 12 lt cylinders of air and a 7 lt cylinder with nitrox 50 for decompression. The pair reached a maximum depth of 44m, ascended and completed stops of 1 min at 9m and 1 min at 6m on nitrox 50 and surfaced with a dive duration of 39 min. The diver switched back to air and started to swim to the end of a pontoon where some drills had been planned. While swimming the diver felt out of breath and tired but this lessened when he slowed down. At the end of the pontoon the diver still felt out of breath, exited the water and experienced some 'gurgling' in his chest. This became more pronounced as he stowed away equipment but at rest it was tolerable although the diver felt the need to cough but without any discharge. Medical assessment was that the diver had suffered from immersion pulmonary oedema. The symptoms resolved in approximately 2 hours.

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**May 2018**
**18/073**

A diver and his buddy, using air, carried out a wreck dive from a dive boat. The buddy had pain in his right ear on the descent which he alleviated by slightly ascending. As the pain subsided the pair continued their dive and surfaced with a dive duration of 31 min to a maximum depth of 16m. Following the dive the buddy reported that he had ear pain again. He saw a doctor who diagnosed a perforated ear drum and he was told not to dive for a week but was expected to make a full recovery.

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**May 2018**
**18/306**

A student was under training and was on the first open water dive when she ascended from 6m direct to the surface accompanied by her instructor within normal ascent rates and was distressed when on the surface. The student later reported that she had a 'minor nose bleed' on the surface. The Instructor did not notice the nose bleed or any issues apart from frustration from the student having problems with the skills. The student left at the end of the day without reporting any injury to the Instructor. On the next day she reported to the instructor that her ears were sore and was recommended not to dive. The student reported that she then went to the hospital on the four days later suffering from 'chronic ear and chest pains'. The casualty received 6 hours of oxygen therapy and was informed by the medical staff that she had suffered an 'ear barotrauma'.

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**May 2018**
**18/066**

A group of three rebreather divers using trimix 10/53 diluent in their CCRs carried out a hardboat dive to a wreck in approximately 60m. The divers descended, checked the shot was in the wreck, secured strobe lights and moved out to explore. Their planned bottom time was up to 30 min and a run time of up to 90 min. On return to the shotline it was discovered that it was not where the divers had left it so they deployed DSMBs and started their ascent to the surface at 31 min. They carried out a 3 min stop at 15, a 4 min stop at 12m and a 6 min stop at 9m. At 6m two of the divers' computers cleared after around 8 min but the third diver's had not. When communicating with him it became clear the third diver was not fully alert, appeared confused and responded with an 'OK' signal to all requests regarding his decompression status. A check of the diver's computer showed that the set point had changed to 0.7 PO<sub>2</sub> on the 6m stop and this had extended his decompression. The two divers supported the third at 6m until the decompression requirement of 55 min had cleared and then took him gently to the surface. They surfaced with a dive durations of 136 min to a maximum depth of 59m. The diver was supported on the surface, assisted onto the hardboat's lift and recovered aboard where other divers removed his equipment and he was put on oxygen and fluids. The skipper called the Coastguard and was call linked to a hyperbaric chamber. The diver's signs and symptoms included shivering, congested breathing, pale and confused and loss of short term memory. He could recall events at the start of the



dive and on the bottom but nothing from the 6m decompression stop. The diver's pulse and respiration were fine and a neurological check revealed no other issues. The diver was taken ashore and then by ambulance to a hyperbaric chamber with suspected DCI. His temperature was around 34 deg and he was re-warmed by a heated blanket in the ambulance. At the chamber the diver was diagnosed with hypothermia and was observed and re-warmed. On return to normal core body temperature it was confirmed that the diver did not have DCI and was discharged.

**May 2018**

**18/071**

A diver and a trainee had arrived at a harbour shore dive site. Whilst waiting for their dive manager the pair kitted up and, as the weather was very warm, the diver entered the water to cool off. The trainee then asked the diver to join him jumping off the harbour pier. The diver stepped off the pier believing the trainee to be behind her but he had stopped to talk to a bystander. When the diver surfaced she saw a splash to her left and realised that the trainee had jumped into the harbour at its shallowest point. He was in pain with an injured knee but said he was fine. The diver advised him to get out of the water and rest his knee until the dive manager arrived when they could carry out their training dive. The diver helped other trainees who had arrived to kit up and the dive manager arrived on the site. He had seen the trainee crying whilst sitting at the boot of his mother's car as she pulled his wetsuit off. When asked what was wrong the mother said that he had jumped off the pier into shallow water and his leg was swollen. When asked if the trainee was 'OK' his mother said they were going home. The following day the dive manager received a call from the father of the trainee advising him that he was in hospital with a broken leg.

**May 2018**

**18/086**

A diver using open circuit and his buddy using a CCR carried out a wreck dive from a boat. They descended the shotline but at 16m the open circuit diver developed a headache and signalled this to his buddy. The pair aborted the dive, ascended and surfaced with a dive duration of 6 min to a maximum depth of 16m. They were recovered aboard the boat and the diver, believed to have been suffering from mild heat exhaustion, made a full recovery and dived the following day.

**May 2018**

**18/076**

A diver attended a technical try-dive event to carry out a CCR shore dive. She was due to dive with an instructor and another diver but whilst kitting up under a gazebo it was found there was a fault on the mouthpiece of her CCR. As this required changing and so as not to delay the instructor and other diver, another instructor started to change the mouthpiece. At the time there was a thunderstorm with very heavy rain and part of the cliff above the gazebo fell away and onto it. As well as the instructor and the diver there were other people using the gazebo but the diver did not recognise immediately what

had happened as she had her hood on and thought the noise was more thunder. Her original instructor pulled her across a path away from the bottom of the cliff. A rock hit her on the cheek causing a small graze. Mud was also noticed on her hood which suggested something had hit her on the head but she was unaware of this. The gazebo had been hit by rocks, its frame damaged and a CCR unit under the gazebo was also hit and damaged. The diver reported the event to the dive site staff, had a shower and changed but did not dive for the remainder of the event as she had been quite shaken by the incident.

**May 2018**

**18/263**

A diver and his buddy completed a first dive of the day without incident to a maximum depth of 12m for a total duration of 8 min. After a surface interval of 120 min the pair conducted a dive to a maximum depth of 18m. As the pair worked their way shallower and reached a depth of 8m the diver complained of ear pain and the pair surfaced after a total dive time of 18 min. The diver's ear was found to be bleeding and one of the site team placed a patch over the ear and the diver was advised to go to hospital.

**June 2018**

**18/079**

A trainee was carrying out a swimming assessment prior to starting pool training on a diving course. The trainee stopped halfway and held onto the side of the pool. He was experiencing shoulder pain and informed the course instructor that two weeks earlier he had been involved in a mountain biking accident. He had been seen by a doctor and following an x-ray had been informed it was just muscle damage and would be healed in time for the diving course. The trainee said he was able to complete the swim assessment and subsequently carried out two pool sessions with an instructor and another trainee and reached a maximum depth of 1.8m for around 2 hours. The following morning the diver informed the course instructor that he had been in great pain all night and had taken medication. He was sent to a doctor that morning who informed the trainee that he had damaged a deltoid muscle and was required to rest for two weeks after which further investigation would be carried out if required.

**June 2018**

**18/308**

A student took part in a confined water training dive with no incident occurring during the session. The following day at 0830 hours the student experienced chest pains and was taken to hospital. The student was diagnosed with a pneumothorax. The lung re-inflated itself. This was reported to be the result of a medical condition unknown by the student or his parents.

**June 2018**

**18/265**

An instructor leading a student on a training dive carried out a giant stride entry from a quayside and hit her foot on a rock. The instructor continued with the training dive to a



maximum depth of 6m and total duration of 31 min. Following the dive the instructor was found to have deep tissue damage to her ankle.

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### **June 2018**

**18/179**

A pair of divers entered the water from a charter vessel and descended the shotline to a wreck. During the descent one diver experienced problems with his low pressure inflator to his BCD, which resulted in him suffering shock and panic at the shotline. He returned to the surface pulling himself up the shotline hand over hand due to lack of buoyancy. The diver surfaced showing distress, which was spotted by the charter boat skipper who alerted others aboard. Shortly after surfacing in distress the diver sank again and then surfaced again in distress after he managed to release his weightbelt. Total time underwater was 12 mins. The skipper moved the boat close to the distressed diver and another diver who had been preparing to dive pulled the diver onto the lift. The diver was wide eyed, had purple lips and a white complexion and was in a weakened and semiconscious state. The diver was raised on the lift to deck level and pulled aboard and his equipment removed. The diver was positioned lying down with legs raised and administered oxygen. Initially remained white with a pulse of 100 bpm and drifted in and out of a sleepy state. After 3 mins his colour started to return and his pulse rate slowed and the diver gave an indication he was getting better. After 20 mins the oxygen cylinder was exhausted, the diver took some water and then vomited to the side. The diver then was given nitrox 70 to breathe for 30 mins and then nitrox 50 for a further 30 mins whilst the boat returned to harbour. The DCI helpline was contacted for advice and they advised transfer to hospital due to the short dive duration. Once ashore the diver was escorted to hospital to be checked out and later released.

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### **June 2018**

**18/134**

On a training course an instructor, safety diver, a trainee and his buddy carried out two dives from a RHIB. The first dive was to a maximum depth of 8m and the second dive was to a maximum depth of 9m, both with a dive duration of 36 min. There was no diving the following day but in the evening the trainee reported to the dive manager that he had woken up that morning with a wet pillow due to fluid leaking from his ear but was not in any pain. The trainee was advised to go to a medical centre the following morning where a doctor confirmed he had a perforated ear drum and he was sent to hospital to have fluid drained from his ear. He had a follow up medical check two days later and was advised to see a doctor two weeks later. The doctor confirmed that the trainee's ear had fully healed but his hearing had not fully recovered. On a repeat examination a week later his hearing had returned to normal.

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### **June 2018**

**18/110**

A CCR trimix diver, using trimix 50/85 diluent 10/50, bailout 20/45, plus nitrox 80 and nitrox 50, carried out a wreck dive

with two other CCR trimix divers on a hardboat diving trip. It was their fourth dive over a four day period. The first day had been a dive to a maximum depth of 59m with a dive duration of 115 min, the second day's dive to a maximum depth of 67m with a dive duration of 146 min and the third day's dive to a maximum depth of 68m with a dive duration of 150 min. On the fourth day their wreck dive had a dive duration of 143 min to a maximum depth of 62m. The diver had felt cold as he passed through the thermoclines and this persisted during the approximately 40 min bottom phase of the dive. The diver had not felt cold on the previous three dives but on this one the feeling progressively became worse on the ascent and decompression phases. By the time he surfaced the diver was shaking. In addition the diver had felt the need to urinate using a P-valve during the bottom, ascent and decompression phases which was unusual for him as this normally happened well into final decompression stops. Despite feeling the need to urinate this resulted in very little flow but was accompanied by a burning sensation. Back aboard the boat the diver changed into warm clothes, had lunch and hot drinks. That evening he went to bed without eating and developed symptoms similar to those of exposure but still needing to urinate often with little flow and significant pain. This continued throughout the night and into the following day. By late afternoon his symptoms had worsened, a hyperbaric chamber was contacted and they diagnosed a bladder infection and said the diver should see a local doctor. The doctor confirmed the diagnosis and sent the diver to hospital where he was admitted and remained for six days being treated with intravenous saline, twice daily injections of antibiotics, paracetamol, and daily injections to prevent blood clotting. The diver was discharged with nine days of oral antibiotics and he made a full recovery. The diver suspected the infection came from his P-valve system. He was fastidious in disinfecting the system components but his drysuit had been left on the boat each day and the tube and valve were not disinfected after each dive. The medical staff who treated the diver were in general agreement that it was rare for males to suffer urinary infections unless there is some external source. The diver also suspected, although had no clear evidence, that the infection may have begun on one of the earlier dives. On one of the first two he was under-weighted with little gas in his drysuit and on one occasion he experienced a kink in the P-valve's tube which had caused a leakage, either of which may have caused some back pressure.

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### **June 2018**

**18/113**

A diver using air carried out a boat dive and after a surface interval of 1 hour 40 min he carried out a second boat dive with a dive duration of 34 min to a maximum depth of 12m. He surfaced from the dive with a blocked ear which had not cleared after 4 hours so he reported this to the dive manager. After a shower later that evening the diver noticed a discharge from his ear. He phoned a doctor for advice who suspected an outer ear infection and recommended seeing a doctor for antibiotics. The diver visited a medical centre the following morning and the doctor diagnosed ear barotrauma, advised the diver

not to dive for 2 to 3 days and return to the medical centre prior to any diving being planned within the next 2 to 3 weeks.

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### **June 2018**

**18/114**

A diver using air carried out a boat dive reaching a maximum depth of 18m on a wreck. The diver surfaced from the dive with a dive duration of 28 min and reported feeling excessively tired and slightly 'spaced out' which had started during his ascent. The diver was given water to sip and ate some food to improve his energy level. After no improvement the diver was taken to a medical centre where he was assessed and found to have low blood oxygen levels. The diver returned to the medical centre the following morning and his oxygen levels had returned to normal. The medical staff advised that the diver should not dive for the next 48 hours.

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### **August 2018**

**18/126**

A diver on a training course had conducted a pool dive on a Monday, a 13m sea dive on the Tuesday, two 20m dives on the Wednesday and a 13m and a 10m on the Thursday. He had surfaced from the dives fit and well with no incidents. After returning home on the Thursday evening the diver had numbness and pain in his left shoulder, which he described as a 'dead arm' feeling. He decided to have a good night's rest and the following morning he felt much better and the symptoms were no longer present. The diver informed his dive manager who sought medical advice and it was suggested the diver have a 24 hour break from diving and to go to a local medical centre. The centre referred the diver to a hyperbaric chamber where he was seen by the duty doctor. The decision was made that the diver was fit and well with no long term problems but he was given the chamber's call number if any further issues arose.

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### **August 2018**

**18/273**

A student was on a training dive from the shore with an instructor, a fellow student and an experienced diver as an assistant. The group conducted a number of controlled buoyant lift ascents during the first 22 min of the dive and then conducted an exploratory dive to a maximum depth of 11m. As the group made their way back towards the shore the instructor noted that one of the students was higher in the water than the rest and trying to inflate her BCD. The instructor finned up to her and was given an up signal as the diver had been struggling to keep up and her BCD did not feel as if it was inflating. The instructor assisted her to the surface with a mixture of his own and student's buoyancy from a depth of 3m. On surfacing, after a total dive time of 38 min, the student removed her regulator and said she could not breathe. The instructor took her to a nearby rock so she could sit down and helped remove her mask and loosen her equipment. The student still complained of difficulty breathing and feeling restricted. The other two divers surfaced nearby and they assisted the student back to the shore and she was assisted from the water by the shore cover. On shore the student was

provided nitrox 30 to breathe and assisted out of her equipment. On removal of her drysuit the student found around a litre of water in each of the legs of her drysuit, which she felt might explain the difficulties she had keeping up with the rest of the group.

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### **August 2018**

**18/132**

A diver and her buddy on a hardboat diving trip had carried out a dive on the first day using air and reached a maximum depth of 32m for a dive duration of approximately 30 min. The diver had incurred decompression stops but had missed some of these on her ascent and her computer went into error mode indicating no further diving for 48 hours. Her buddy, who had not gone as deep during the dive did not require stops. The diver was unaware of the problem and did not report it to the dive manager. The following day the buddy pair using air carried out a wreck dive with a maximum depth of 28m with a dive duration of 32 min including a 3 min safety stop at 6m. During the surface interval the diver reported to the dive manager that she had not noticed her computer was in error mode until well into the dive. The dive manager checked her computer and advised her not to do the second planned dive of the day. The diver had no symptoms but her computer remained in error mode. Overnight a rash developed on the diver's neck and chest which continued to spread to her back, arms and hands. Suspecting the diver had a possible skin DCI, she was put on nitrox 31 which was available at the time and a call made to a hyperbaric chamber. After some discussion it was decided the diver should be taken to the chamber. An oxygen kit was collected from the skipper of the hardboat which the diver used for the 2 to 3 hour drive to the chamber. At the chamber the diver was checked by the doctors and her rash had continued to spread and redden. It was itchy but otherwise the diver had no other symptoms. The doctors did not believe the rash was DCI and gave the diver oral antihistamines which started to reduce the rash after an hour or so. The doctors concluded the diver's rash was most probably an allergic reaction, possibly due to a jelly fish sting, and she was advised not to dive for two weeks as she had missed decompression stops on the first day and that she had continued to dive on the second day. The diver continued to take antihistamines and the rash disappeared with no further side effects.

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### **August 2018**

**18/309**

During Discover Scuba Diving pool training, the casualty swallowed some pool water during the dive. The casualty was taken out of the pool and was sick 3 times. The casualty was not taken to hospital and felt OK the next day.

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### **August 2018**

**18/133**

After a 50 min dive to 36m a diver reported a 'tingling' sensation. The dive boat requested assistance for a suspected DCI and the diver was taken back to harbour and met by a Coastguard rescue team and an

ambulance. The diver was taken to a hyperbaric chamber for assessment where it was concluded that the symptoms were in fact a jellyfish sting.

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**September 2018** **18/208**

A diver was walking down a slipway to help support a RHIB during recovery onto a trailer. The diver was taking care as the slip was slippery but an undertow caused both his feet to slide down the slipway and he lost balance and fell backwards landing in the water. The diver consciously held his head up to protect it as he was unsure of the depth of water and was concerned about hitting his head on the slipway. The water proved deep enough and the diver righted himself and reported to others who expressed concern that only his pride was hurt at the time. The diver subsequently discovered he had cracked a rib during the fall and it was still painful five weeks later.

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**September 2018** **18/270**

A student on a training course conducted a dive to a maximum depth of 6m for a total duration of 25 min. During the dive the diver started to experience a headache which got progressively worse during the dive. On exiting the water the diver was placed on oxygen for 10 min and was sick whilst moving from the quayside. It was considered the problem may have been caused by an equalisation failure and a recompression chamber was contacted for advice. The chamber advised 20 min on oxygen, legs elevated and sips of water. After 20 min the diver sat up of own accord.

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**September 2018** **18/154**

Four divers carried out the first shore dive of an instructor training course. The group consisted an instructor demonstrating teaching techniques to two divers acting as 'students' and observed by the course leader. They swam out on the surface in windy conditions to a wreck shotline which left the instructor and one of his 'students' winded but it had been agreed that the group would pause at the shotline to allow everyone to catch their breath prior to descent. This they did and the group descended but the instructor experienced symptoms consistent with mucus on his chest which impaired his breathing. He stopped the group at 6m to perform a bubble check and to see if the symptoms abated but when they did not he signalled to abort the dive and the group surfaced with a dive duration of 5 min to a maximum depth of 6m. The instructor arranged for the course leader to take over control of the group as he felt unfit to continue and they waited for him to return to the shore before continuing the dive. Back ashore the instructor coughed up mucus, his symptoms eased and he was able to compete two further 6m sessions that afternoon. The instructor acknowledged that he was physically and mentally fatigued prior to the dive due to a combination of work load and high stress levels of his job, his volunteer diving activities and having left home in the early hours of the morning to travel to the dive site. He also felt he was over-weighted, his drysuit was 'snug' and this

impacted on his fitness and movement in the water as well as the possibility that he had a mild cold or other chest complaint that day.

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**September 2018** **18/162**

Two trainees, an instructor and safety diver carried out a shore dive. This was the first open water dive for the trainees and the plan was for a dive duration of 30 min to a maximum depth of 6m. Reaching a maximum depth of 2m and 14 min into the dive one of the trainees had just completed his regulator retrieval skill and as his instructor was about to demonstrate the next skill the trainee signalled to him that he was going to ascend and appeared to vomit. The instructor followed the trainee to the surface where the trainee vomited twice more. The other trainee and safety diver surfaced and the group exited the water. Back ashore the trainee was checked over, appeared normal except for a swelling on his lower lip and admitted that he struggled retaining items in his mouth such as gum shields. He said that when he returned the regulator to his mouth at the end of the retrieval skill his gag reflex had made him vomit which made him head to the surface. The dive manager, unsure if the trainee's lip swelling had been caused by an allergic reaction to the regulator mouthpiece or from sealife such as a jellyfish, decided to seek medical advice and the doctor said the trainee should make an appointment at a medical centre that afternoon as a precaution. The trainee remained on the shore with the dive manager while the instructor, remaining trainee and safety diver completed a second dive with a dive duration of 24 min. On completion of the dive the trainee informed the instructor that he now had mild chest pain and the doctor was contacted again who said the trainee should be put on oxygen and that the instructor was to call 999. The instructor made the call and was informed that an air ambulance had been tasked to attend the scene due to the chest pain complaint. The trainee was put on oxygen and an off-duty paramedic arrived followed by the air ambulance and a land ambulance. After consultation with a hyperbaric chamber the trainee was airlifted to an A&E department. The trainee was discharged mid-afternoon with no injuries and given clearance to dive by the emergency doctor. However, with the concern regarding the trainee's inability to confidently retain the regulator in his mouth, it was decided to remove him from the course and that he should consult with his own doctor so a decision could be made on future diving.

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**September 2018** **18/174**

A diver spent a week on a training course. On his first open water dive he had experienced problems clearing his ears on the descent. Both ears were difficult to clear with the right ear being more problematic. The last dive of the week was a wreck dive and the diver, using air, had problems clearing his ears throughout the entire descent to 21m. He and his buddy ascended to 17m and continued the dive but just before they ascended the diver developed a headache. He surfaced with a dive duration of 21 min to a maximum depth of 22m and his

headache became worse, he was nauseous and had bloody mucus in his mask. The boat returned to shore and a doctor was contacted. They recommended seeing a doctor at a hyperbaric chamber and following examination the doctor at the chamber diagnosed ear barotrauma in both the diver's ears. The doctor recommended no diving for seven days and the diver to take a pain killers and anti-inflammatory pills until the pain ceased.

**September 2018** **18/272**

A diver was taking part in the deep dive of a training course. The dive to a maximum depth 28m for a total duration of 21 min, including a 3 min safety stop at 5m, was conducted without incident apart from some ear issue at 28m, which was resolved. On surfacing the diver felt unwell and after leaving the water passed out and was shaking on the floor and was placed in the recovery position. The diver was given oxygen and shortly after came around and was coherent, sat up but looked spaced out and then became unresponsive again and was replaced into the recovery position. Once he recovered again he was transported to the on-site first aid room. The diver was ok in the first aid room and was sat up eating and drinking. The diver had previously hurt his ankle and this was aggravated on the quayside when he passed out. The diver was advised not to dive again that day and to avoid alcohol and consult his own GP.

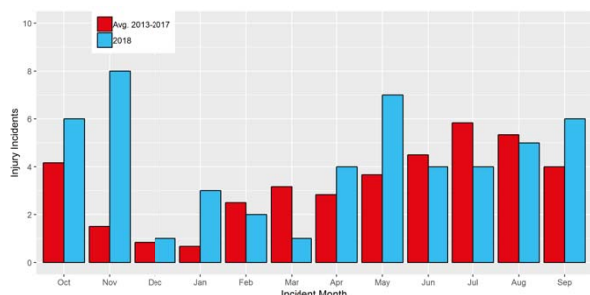


Figure 21. Illness or injury related incidents in each month of the year.

## Miscellaneous

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### January 2018

18/240

A diver was reported 18 min overdue by his spouse. He had been conducting a shore dive. A CRT and inshore lifeboat were tasked to the beach to locate the diver. The diver called CG stating that he was safe and well, and had given his spouse the wrong time. (Coastguard report)

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### May 2018

18/064

The Coastguard was contacted after a walker on the sea shore noticed that two kayakers were no longer with their craft and could not be seen. An inshore lifeboat was deployed and was quickly on the scene and established that the kayakers were not missing but wreck diving. Their kayaks were flying the appropriate dive flag and the crew stood off until the two divers surfaced and were found to be in no difficulty. A Lifeboat spokesman said it was a false alarm with good intent and understandable that the walker was concerned. They also added that it was always a good idea for divers to let the Coastguard know their plan before setting off. (Coastguard report).

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### May 2018

18/065

An instructor, his student and an accompanying pair of divers carried out a shore dive. They were practicing the surface towing element of rescue skills with one of the divers acting as the 'rescued diver' for the student. The instructor was keeping an eye out for possible hazards when he spotted something on the surface. The instructor noted the student had carried out the tow successfully and he then collected the item seen on the surface. It was a fin with a rock boot still in the fin's foot pocket. The instructor thought this quite strange as he had seen fins lost in the past but this was a first. He took the fin and boot to the dive site store and was told that someone had reported them missing and they had been lost at a depth of 16m.

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### September 2018

18/247

999 call received reporting a person swimming around a small dinghy with no one aboard. The Coastguard tasked an inshore lifeboat and two CRT teams to locate and ensure the safety of the person. It was found that they were solo freediving from the vessel. It was found that although he was flying an A flag it was not big enough to be visible to passers-by. (Coastguard report)

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### September 2018

18/277

A lifeboat was launched in response to an emergency call to the police reporting a problem with an overcrowded dinghy and a person in the water. The lifeboat arrived on scene and a CRT had spotted a possible person in the water and directed the lifeboat to investigate. The lifeboat identified a lone skindiver in the water with a large circular

surface marker buoy. The diver was OK and required no assistance and after reporting this to the CRT the lifeboat returned to station. (RNL I report)

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### September 2018

18/170

A diver and his buddy, both using air, carried out a wreck dive from a RHIB. The buddy had warned the diver that he was new to drysuit diving and had only carried out two dives using it. The pair descended and travelled along the starboard side of the wreck. The visibility was around 3m and it was quite dark but both divers had torches and the diver was also wearing a strobe light. When the divers reached the bow and the bottom of the shotline the buddy became unsettled and began to ascend but aware of the situation the diver held onto the shotline, grabbed hold and pulled the buddy down to him. The diver settled the buddy down, checked his buoyancy and they descended to 28m and started to follow the hull plating. About 15m from the bow all the diver could see was darkness but there was a dark shape above them and the diver thought that they may be heading into a no clear surface situation. With reduced visibility the diver indicated to his buddy to turn around, head back to the hull plating, ascend by it and then travel along the top of the wreck. The buddy signalled 'OK' so the diver started to swim thinking the buddy was beside him but when he checked the buddy was not there and the diver saw his fins ascending. He swam up fast to him and the buddy indicated he had lost his weightbelt but the dark shape that was above them was a piece of the wreck at 24m which he had managed to grab onto. The diver signalled that the buddy was 'OK', called him down and clipped on his buddy line. The diver then unclipped the reel from his DSMB buoy and tried to locate something on the wreck to attach the line. He found a cross beam, signalled for the buddy to hold onto the wreck while he attached the DSMB line and then moved back to his buddy. They held onto each other's BCDs, dumped all air and ascended as the diver slowly reeled out the DSMB line. At one point they began to re-descend so the diver put a small amount of air in his BCD and, checking their air, they ascended to 6m and carried out a 4 min decompression stop. They surfaced with a dive duration of 23 min to a maximum depth of 28m. With no DSMB buoy to mark their position and seeing their dive boat about 20m away, the diver used his whistle and the cox'n signalled he had seen them. As the boat headed towards them the diver cut the line attached to the wreck, released the buddy line when the boat was alongside and the divers were recovered aboard.



## Overseas Incidents

### *Decompression Incidents*

**April 2018**

**18/054**

A group of divers was on a diving trip and three of them, using nitrox 32 with computers set to air, carried out a shore dive to a wreck. The dive was to a maximum depth of 20m for a dive duration of 25 min. The majority of the dive was spent at 12m or less and the divers completed 3 min of safety stops as they swam back to their exit point and began their ascent. At approximately 5m one of the divers began to ascend faster than normal and surfaced. The other two divers completed a normal ascent and joined him on the surface around 45 sec later. The group, led by the diver who had made the buoyant ascent, swam to the exit point and exited the water via steps 3m high. Whilst de-kitting the diver complained of a headache and his computer was examined but showed no warnings. The diver was monitored but was still suffering from a headache and he began to vomit. A diving doctor was contacted and following examination by senior divers in the group, the diver was put on oxygen and an ambulance called to take him to hospital. There the diver was given an intra-venous infusion and during his examination reported some visual disturbances. A diving doctor examined the diver and, following a chest x-ray which was deemed to be normal, the diver was given recompression treatment. Following treatment the diver reported feeling completely fine, was discharged with the advice not to fly for the next 48 hours and not to dive before having another medical examination.

**April 2018**

**18/055**

Three divers undertook a final dive whilst on holiday abroad. The dive was the second of two planned that day. The first dive, using nitrox 32, had been to a maximum depth of 30m with a dive duration of 34 min and after a surface interval of 2 hours 8min, the second was a shore dive using air to a wreck with a maximum depth of 27m and a dive duration of 39 min including a 3 min safety stop at 6m. From the point at which they surfaced the group had a surface swim of approximately 250m taking around 7 min to their exit point. Once ashore the divers reported all was well apart from tired legs. The group returned to the dive centre where they were based and around 90 min after the dive one of the divers reported that he had begun to experience 'pins and needles' in the palms of his hands. A neurological check was carried out and medical advice sought. The advice was that the diver should be checked by a doctor and he was taken to hospital where, after being examined in A&E and then by a diving doctor, the diver was given oxygen, had an ECG and fluids. He underwent two sessions of recompression treatment, was discharged and told that his treatment was precautionary but he was not to dive for at least four weeks and not before seeking further medical investigation to check for a PFO.

### *Boating and Surface Incidents*

**April 2018**

**18/048**

A group of seven divers using air carried out a shore dive to a wreck site. One pair entered the water and dived for approximately 30 min but failed to find the wreck. The second pair entered while the first pair were in the water and, once the first pair had returned to shore, the remaining three divers handed over shore cover to them and entered the water. After approximately 30 min the second pair had not returned within their maximum dive time. The shore cover went up to higher ground to see if they could locate the divers. They saw the pair had surfaced, reaching a maximum depth of 31m with a dive duration of 50 min, to the left of the entry/exit point. The divers, even though they had dropped their weightbelts, were unable to make their way back as they could not fin against the current and waves. They eventually gave up to prevent exhaustion and signalled to the shore for help and for someone to call the emergency services. A local woman saw the divers in distress, called for help and informed the shore cover who made additional calls to the emergency services to ensure help was on the way. A helicopter arrived on the scene, instructed the divers to remove their equipment and winched them aboard. The divers were landed ashore and escorted to an ambulance. Neither diver had missed any decompression stops and they were released after a brief assessment. During the rescue the trio of divers had surfaced within the maximum dive time at the entry/exit point without issue.

**May 2018**

**18/074**

A dive manager had been told that all information and permissions regarding a designated dive site in a harbour had been notified and therefore approved by the appropriate authorities. He was shore cover for two pairs of divers who carried out a shallow dive to a maximum depth of 6m to practise skills and carry out DSMB deployment, which they were to use for their ascents. The dive manager briefed them not to venture out into the main channel but stay close to the harbour wall as fast boats went in and out and, if they heard a boat, they should remain on the bottom until it had passed. He had set up an A flag by steps leading to the designated site so it could be seen by all boats and he remained on shore by the steps. During the dive a RHIB entered the harbour and the dive manager waved at it, pointed to the A flag and to where his divers were in the water and was acknowledged by the cox'n. One pair of divers had moved along a jetty, out of the designated area but still close to the wall and the other pair were still close to the steps when a patrol boat entered the harbour. The dive manager waved to the boat but received no response but was happy that his divers were clear of any danger. The patrol boat reported it had no knowledge nor had given permission for a dive to take place. When it noticed

two streams of bubbles on the starboard side at a range of 2m it had stopped its propellers but, not making contact with the divers, continued to its assigned berth. The patrol boat also said that the divers were not marked by a float and there was no A flag or dive manager and reported this to the Harbour Master. With confusion regarding the reporting procedures and contradictory reports as to the actual events, the harbour master investigated and determined that there had been the potential for injury or a near miss and some safety issues could be improved. However, it had been assessed that no divers were deemed to be in immediate danger at any time during the dive with the divers being briefed on safety procedures for any passing boats. Where the two divers had moved out of the designated area, recommendations were made to improve the site information when future diving took place.

## *Ascent Incidents*

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**December 2017**

**18/029**

A group of five divers all using air carried out a shore dive. The group consisted of an instructor, his trainee, a support diver and two safety divers. Having completed alternate source and controlled buoyant lift exercises with the trainee and support diver, the instructor continued to lead the group on a recreational wall dive. At 10m a small amount of seawater entered the trainee's mask and although he cleared most of it he inhaled remaining water in the mask. He began to panic and started to ascend to the surface. One of the safety divers made contact with the trainee and arrested his ascent. Once the situation was under control the trainee indicated that he wished to abort the dive and the instructor signalled 'OK' to him and 'Up' to the other three divers. They surfaced with a dive duration of 38 min to a maximum depth of 15m. Back ashore the trainee's computer did not indicate a rapid ascent and he said he was fit and well but had panicked and felt unable to continue with the dive. The planned surface interval was extended before the next dive which the trainee completed with no further issues.

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**December 2017**

**18/046**

Two divers, both using nitrox 32, carried out a boat dive and descended the shotline to a wreck reaching a maximum depth of 20m. At the end of their dive they returned to the area of the shotline and carried out a training drill deploying fixed DSMBs using a piece of wreckage. With both DSMBs deployed and released from their fix points, the pair ascended. At 9m they were surrounded by between ten to fifteen divers from another dive group who insisted they had 'right of way' and at 6m they used the shotline and one the diver's DSMB line to ascend to the surface. This caused the diver to lose control of his buoyancy and ascend to the surface having completed only 1 min of his planned safety stop. His buddy remained on the stop to clear his DSMB line from the shotline and allow the large group of divers to clear the area. He finished his 3 min safety stop and ascended to

join the diver on the surface as throughout their separation they had remained in visual contact and exchanged signals. Back aboard the boat the diver said that he had inhaled some water during the incident and did have a slight cough. He did not dive again that day and was monitored by a diver medic who part of his dive group. The diver showed no other ill effects and resumed diving the next day.

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**April 2018**

**18/057**

Two divers on a holiday abroad carried out a shore dive to a wreck. They descended but after a period of 11 min one of divers experienced a fast ascent from 22m but managed to arrest it at 8m. She then re-descended and was met by her buddy, who had ascended normally, at 14m. The pair agreed to continue the dive and they descended to 20m. They surfaced with a dive duration of 35 min reaching a maximum depth of 25m. Around 1 hour 30 min later the diver who had made the fast ascent informed the dive manager that she had slight discomfort in her left elbow. The dive manager checked for abnormalities or rashes and checked again 5 min later to see if the discomfort had eased or got worse. Medical advice was sought and the diver spoke to the doctor. The dive manager was asked to carry out a neurological check of the diver and get her to carry out some exercises to determine if the discomfort was muscular rather than anything else. It was decided this was the case but the diver was advised not to dive again that day, drink plenty of fluids and have a further check later that day. The final outcome was that the issue was almost certainly muscular and no further action was required.

## *Technique related incidents*

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**September 2018**

**18/158**

An experienced diver, who was also an instructor, had taken a two year break from diving. She decided to carry out some resort diving whilst on holiday and, as she wanted to refresh core skills before using her qualification, she initially joined up with a recently qualified instructor and his trainee. The trio had carried out two dives and the following morning they carried out a dive to a maximum depth of 16m with a dive duration of 41 min. After a surface interval of 65 min, they carried out a second dive with the plan to complete some emergency ascent drills at the beginning of the dive, some extra buoyancy drills to help the trainee and end with a short exploratory dive. After completing the skills the diver and trainee were led by the instructor on an exploratory dive to a maximum depth of 16m. The instructor swam ahead and regularly turned around to check all was well with the diver and trainee who were swimming side by side. After approximately 35 min and at around 5m the diver checked her air which was 110 bar and could see from the trainee's dangling gauge that he had around 60 bar. As the instructor had not done any air checks since the end of the skills session and with the trainee a little buoyant, when the instructor next turned around the diver

signalled her remaining air and that the trainee was on reserve. The instructor acknowledged her signal, swam back to the pair and pointed at the diver's alternate source regulator. The diver assumed that perhaps it had come out of its retainer clip but it was still stowed and, slightly confused, looked back to the instructor who picked up his contents gauge, showed it to the diver and she saw it appeared to be almost on zero. She immediately donated her alternate source to him and they exchanged 'OK' signals. Wanting to keep the group together, the diver signalled the trainee, who was floating 1m or so above them, to come down and as soon as he was in reach she grabbed his hand and indicated he should keep a hold on her. The instructor indicated that he wanted to continue swimming in the same direction and from the dive plan and route navigated by the instructor, the diver estimated they probably had around a 5 min swim to reach their start point and the dive boat. The diver thought that if she could keep the three of them together then swimming underwater would be easier given the slight swell on the surface. After around 4 min the diver made out the shape of the dive boat above and other divers returning to the anchor line ready to ascend. At that point the instructor returned the diver's alternate source, put his own regulator back in, gave the 'Up' signal and immediately made a quick ascent to the surface. The diver looked at the trainee, exchanged 'OK' and 'Up' signals and they made a normal ascent and surfaced with a dive duration of 44 min. Back aboard the boat the instructor confirmed that he had surfaced with an empty cylinder as he had thought it unnecessary to change it after the morning dive expecting he would have enough air for the second dive.

## Equipment

### October 2017

18/020

A diver using air carried out a boat dive with a group of divers to a shallow reef at 6m. After 10 min he signalled he was out of air and was immediately provided with an alternate source regulator. His cylinder was checked and found not to be fully open. The valve was opened and the diver was able to continue the dive. After the dive the cylinder, hired from a local dive company, was inspected and it appeared that the valve opened with two full turns and then stuck firmly suggesting it was fully open when it was not. The cylinder was taken out of service by the company.

### December 2017

18/028

An instructor led two trainees on a shore dive through sea tunnels and caves with the support of a safety diver. All the divers were using air. As they exited a tunnel at 8m one of the trainee's weightbelt dropped to the seabed at 12m and as he tried to dump air he began to ascend but the instructor was able to make contact and took him to the seabed. Making himself and the trainee negatively buoyant and assisted by the safety diver, the instructor was able to refit the trainee's weightbelt. The instructor

checked his and the trainee's computer and with no fast ascent indicated and the trainee happy to continue, the group completed their dive reaching a maximum depth of 12m with a dive duration of 34 min.

### December 2017

18/032

A diver, using nitrox 32, and his buddy on a holiday trip had planned a boat dive to a wreck with a maximum depth of 30m for 45 min but with a decompression limit of not less than 5 min before the no stop time. The diver's computer display became corrupted towards the end of the dive at 24m so he used his backup depth gauge and timer. He ascended with his buddy and completed a 'computer fail' plan of 3 min at 6m and surfaced with a dive duration of 30 min to the maximum depth of 30m. Upon investigation it was found the computer had flooded during the dive and it was returned to a loan pool of equipment the diver had used. The diver did not dive for the next 24 hours but when he did it was with a computer loaned by another diver that had not been used on the trip.

### February 2018

18/043

A diver and his buddy on a dive trip abroad carried out a morning boat dive to a maximum depth of 45m with a dive duration of 48 min and carried out a 3 min safety stop at 6m. After a surface interval of 2 hours 13 min they carried out a second boat dive, the diver using nitrox 33 and the buddy nitrox 32, on a wreck and reached a maximum depth of 32m. The diver's computer was set to nitrox 33 and the buddy's primary and backup computers were set to air. The divers encountered no issues during the dive and at 27 min they deployed a DSMB and began their ascent. At 12m the buddy signalled to the diver that his primary computer indicated 16 min of decompression stops but his backup computer showed 27 min. The divers ascended to 5m to conduct their stops and the diver deployed a yellow DSMB up his DSMB line to signal a request for gas to the boat. A drop cylinder of air was deployed by the surface cover which the divers used during their decompression stop. The diver's computer, set to nitrox 33, cleared after approximately 2 min but both divers completed the 25 min of stops required by the buddy's computer. They ascended to the surface with a dive duration of 73 min and were recovered by their dive boat. Subsequent analysis of the buddy's backup computer showed anomalies from dives recorded in its dive log, an example of which was a 14m dive previously carried out that the computer had logged as a 50m dive. The faulty computer was quarantined and both divers given a 24 hour break from diving.

### May 2018

18/095

A trainee was carrying out his first open water dive by a harbour jetty. At 6m the trainee indicated to his instructor that his BCD inflator button unit had separated from the direct feed. The instructor took the student to the surface, the dive manager repaired the inflator and the instructor

and trainee carried on with their dive. They surfaced with a dive duration of 45 min to a maximum depth of 6m.

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### **June 2018**

**18/120**

An instructor using air carried out a shore dive and at 6m experienced a free flow on his primary regulator which had been serviced two weeks earlier. The training dive was aborted and he surfaced with a dive duration of 9 min to a maximum depth of 6m. The fault was found to be a damaged internal hose 'O' ring.

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### **September 2018**

**18/180**

A diver was on holiday and carried out two boat dives a day for seven days. He was using his own regulators which had been serviced six months previously. On the eighth day he carried out a dive but at 10m started to experience a strange taste from his primary regulator and could not get much air from it although he still had 90 bar on his gauge. He stayed calm and changed to his octopus regulator which also gave him little air so he took his buddy's alternate source regulator and they ascended to the surface. Their dive duration was 44 min including a 3 min safety stop and to a maximum depth of 20m. When the diver was back aboard the boat he raised the issue but got very little response from the other divers who could speak English other than offers to use their regulators for the second dive. The diver declined and examined his regulators but there was nothing visible to indicate a problem so he gave them a good wash in clean fresh water and solution to see if this would dislodge any debris they might have picked up. The diver decided to carry out the second and last dive of his holiday but briefed his buddy to stay close to him. His regulators were better than before but he still had the strange taste with breathing from them a little impaired. On his return home he took the regulators to his service engineer for inspection and when he dismantled the first stage he struggled to remove the filter but when he did find it was blocked solid with what looked like aluminium powder. The diver tried to contact the dive company he had used without success to alert them to the possible problem of other contaminated aluminium cylinders.

### **Illness or Injury related**

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#### **October 2017**

**18/011**

A diver using air indicated a problem equalizing his ears at 7m during a shore training dive. The dive was aborted and the diver surfaced with a dive duration of 4 min to a maximum depth of 7m. He attended a medical centre and after a doctor's examination was instructed not to dive for two weeks.

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#### **October 2017**

**18/019**

A buddy pair, both using air, were on holiday and about to carry out a dive from a RHIB. They entered the water using a backward roll and one of the diver's head collided with

the other's cylinder. The dive was aborted and both divers were recovered aboard the RHIB. The diver had a minor cut to the side of her head but no other symptoms but the dive school's protocol they were diving with was that she should attend hospital for a check-up. This was done and advice given to return should any further complications arise. No further complications arose.

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#### **November 2017**

**18/021**

An instructor and two divers, using air, carried out a shore dive the aim of which was a 'shakedown' dive including a refresher of basic skills as well as conducting rescue skills. On the initial descent one of the divers experienced difficulty clearing his ears at 1m. Having checked the diver was 'OK', the group descended very slowly reaching a maximum depth of 6m and they completed a 20 min dive as planned. Later that day a further shallow shore dive was carried out. At the end of the day the diver who had difficulties clearing his ears on the first dive said that he was still experiencing ear problems and did not want to dive the next day. He was advised to report to a medical centre where a doctor confirmed the diver had a perforated ear drum, prescribed antibiotics and told him not to dive for a period of at least two weeks.

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#### **November 2017**

**18/023**

A trainee was undertaking a controlled buoyant lift assessment from 6m to the surface whilst on a training course abroad. After the last ascent had been completed the trainee surfaced with his group with a dive duration of 30 min to a maximum depth of 11m. He reported a minor pain in his left ear and was told that if it got worse he should attend a medical centre. A day later he still had pain in his ear and was told to go to the medical centre where a barotrauma and bleeding to his left ear was diagnosed. The doctor stopped him from diving for the rest of his trip and, when the trainee was seen four days later, he was cleared to fly but instructed that he must see a doctor when he returned home.

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#### **November 2017**

**18/024**

A trainee diver carried out his first dive of a Friday on a reef site. Whilst descending the shotline and at 4m the trainee experienced pain in his left ear as he tried to equalize. He reached a maximum depth of 6m but after 6 min and with the pain getting worse, the dive was aborted by the instructor and they surfaced with a dive duration of 8 min. The trainee was told to attend the medical centre where he was found to have a minor barotrauma to his left ear and told not to dive for two days. When he attended the centre again on the Monday the doctor told him not to dive for another 24 hours as he still had redness in his ear and to come back the next day. On the Tuesday the trainee was cleared to dive again.



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**November 2017**
**18/025**

A diver on a trip overseas carried out two dives. The first dive was to a maximum depth of 28m with a dive duration of 31 min and following a surface interval of around 5 hours, the second dive was to a maximum depth of 8m with a dive duration of 13 min. The following day she and her buddy, who was an instructor, carried out a shore dive both using air. The aim of the dive was depth progression on an underwater wall. The divers entered the water and were guided to the wall by another pair of divers. As they approached the wall the diver signalled that she was not happy with her weightbelt so knelt down on the seabed at 20m and adjusted it. The diver signalled she was 'OK' and the pair finned over the wall and began to descend. The diver's computer depth alarm sounded at 28m and she alerted her buddy who examined the computer and signalled that it was 'OK' and they could continue their descent. About 6 min into the dive and at 30m the diver signalled that she had a problem and pointed to her head. The buddy's immediate thought was that she had narcosis, got hold of her and signalled to ascend to see if her head would clear. The diver signalled back 'OK' but then did nothing and appeared to 'black out' and go limp so the buddy took control and began a controlled buoyant lift. They ascended from 33m to 12m but with computer ascent warnings the buddy dumped air to slow them down and they dipped back to 15m. The buddy tried to get a response from the diver by signalling and making eye contact but she was still unresponsive. They ascended to 8m and dipped back to 10m as the buddy again tried to slow the lift but by now the diver was responding and signalled she was 'OK'. The buddy indicated they were going to surface and they made a controlled ascent, omitting a safety stop, and surfaced with a dive duration of 12 min to a maximum depth of 33m. Back on the surface, with the buddy fully buoyant and on a buddy line, they talked over what had happened as they swam back around 150m to the shore. The diver said that at 33m she had started to feel sick, light-headed and on the ascent felt dizzy and tired but seemed unaware of the controlled buoyant lift until around 10m. The shore cover had sent in two swimmers to assist and de-kit the pair. The divers were debriefed, their computers checked, they were placed in the shade, given fluids and put on oxygen as a precaution. Two neurological tests were carried out and the diver, although anxious, was responsive and coherent. By the second check she appeared to have recovered and was calm. A doctor was contacted and spoke to both divers. An analysis of the diver's cylinder was carried out and no problems were found. The divers appeared to be well the following morning but were supervised for the next 48 hours, told not to conduct strenuous physical activity or drink alcohol before their flight home two days later. The diver was instructed to visit her doctor when she returned home.

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**February 2018**
**18/041**

An instructor, trainee and third diver carried out a wreck dive all using nitrox 32. They descended to 7m where the

third diver was unable to clear his ears. The group ascended and surfaced with a dive duration of 7 min. The diver who had the ear problem was taken ashore under supervision and the instructor and trainee continued their dive. The diver was taken to a clinic, prescribed medication and advised not to dive for five days.

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**February 2018**
**18/042**

A group of divers surfaced during a shore dive. They had a dive duration of 13 min to a maximum depth of 26m when an incident had occurred involving panic and a buoyant ascent. They were 100m away from the exit point and one of the group called for help. Two divers from another group on the shore responded, swam out and towed a diver from the group that had surfaced to the exit point and then assisted her ashore. The rescued diver vomited numerous times whilst being towed and when she was back on land. She was given oxygen and a full casualty assessment carried out. The emergency services were called and an ambulance arrived. The diver had become more responsive whilst waiting for the ambulance but was evacuated by stretcher to the ambulance and taken to hospital. The diver, who had initiated the rescue by calling for help, contacted the two divers who had carried out the rescue to inform them of the diver's condition and to thank them for their help.

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**February 2018**
**18/051**

An instructor and two trainees carried out a shore dive. They kitted up, completed checks, entered the water and swam about 30m to the end of a bay. They paused to get their breath back and then descended to 6m. They had a short underwater swim of around 15m to an area where they practised skills including mask clearing and all went well. The next skill was AS ascent which was completed at the correct pace. On the surface, with a dive duration of 15 min to a maximum depth of 7m, one of the trainees started coughing hard, went extremely red in the face and was showing signs of panic. After a short time the trainee calmed down and regained reasonable breathing control. The instructor towed him to the shore, during which the trainee was still coughing, and then assisted him out of the water where the trainee looked totally exhausted. The instructor informed the student that he could not continue with the training. A number of days later the trainee mentioned for the first time that he had inhaled water on the dive but was now fine.

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**March 2018**
**18/047**

An instructor and his student, both using air, carried out a boat dive and descended to 36m. The aim of the dive was depth progression but not to exceed 40m. During the descent the student's breathing rate was normal. After completing a full set of checks the instructor moved off but as the student followed his breathing rate increased and it appeared to become harder for him to breathe. At this point the student became more anxious, indicated to the instructor that he was not happy and that they should ascend. His breathing rate continued to increase and as



the ascent began the student was initially unable to control his extremely accelerated breathing rate. The pair ascended with the instructor holding onto the student and helped to maintain his buoyancy by dumping air from his BCD until they reached the safety stop at 6m. The student had fully opened his regulator adjustment valve at 30m and during the ascent he had felt re-assured with his improved breathing rate and indicated he was happy to carry out the full 3 min safety stop. The pair surfaced with a dive duration of 14 min to a maximum depth of 38m. Back aboard the boat the diver, who was visibly shaken and pale, was put on oxygen for the journey back to shore. The diver attended a hyperbaric chamber where he was given a full neurological check and put on oxygen. The instructor gave details of the dive profile backed up by his computer's profile. The chamber's staff felt that the student had experienced an anxiety attack which may have been brought on by nitrogen narcosis. The diver was advised not to dive for 24 hours.

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**April 2018**
**18/067**

A diver was on a hardboat diving holiday. His first dive of the second day had been to a maximum depth of 27m with a dive duration of 44 min and, after a surface interval of 3 hours 24 min, he carried out a second dive using nitrox 32 reaching a maximum depth of 24m, a 3 min stop at 6m and surfaced with a dive duration of 64 min. The diver exited the water using the hardboat's large stern ladder. Having climbed to the top, his left foot and fin were on the uppermost left rung and his right foot on the deck. A deckhand was removing his right fin when his left foot slipped off the rung; his left leg slipped and was wedged between the top rung and the boat's stern. The diver lost his grip with both hands and he fell vertically downwards in full kit and his crotch impacted on the ladder's cross bar pivot. The diver recovered and the experience has not put him off diving in the future.

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**May 2018**
**18/062**

Two divers and an instructor carried out a training shore dive but on the descent to 10m one of the divers felt pain and pressure in his ear. He paused his descent to try and equalise then tried to continue the descent when his ear 'popped' at 6m and the pain abruptly stopped. The diver carried on with the dive reaching a maximum depth of 11m with a dive duration of 48 min. Back on the surface the ear pain began again and as he exited the water he spat out some blood. The diver did not dive again that day and saw a doctor the following morning. The doctor checked the diver's eardrums but on checking his sinuses found they were inflamed and damaged. The doctor said that instead of his eardrums perforating, the pressure had been released into his sinuses. The diver was prescribed a nasal spray, took three days off diving and was cautious on his first dive back but had no further problems.

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**May 2018**
**18/063**

A diver on holiday had carried out a shore dive reaching a maximum depth of 20m with a dive duration of 43 min. As she made her way out of the water the waves pushed her into rocks just after she had removed her fins. Exiting the water the diver felt a pain in her toe and on examination saw it was swollen. She left it for a while to see if the swelling would go down but it did not. Her dive manager sent her to hospital and the result of an x-ray showed a hairline fracture. The diver was advised not to dive until she felt better and off the pain killers.

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**May 2018**
**18/088**

Whilst carrying out a boat dive as part of a group, a diver experienced a 'noise' sensation, rush of cold water, dizziness and pain in his right ear at 13m. Because of the dizziness the diver surfaced immediately, omitting a safety stop, with a dive duration of 10 min to a maximum depth of 15m. The pain and dizziness lasted for approximately 20 min and the diver later attended a hospital.

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**May 2018**
**18/096**

A trainee carried out a shore dive and indicated to his instructor that he had a problem with his ears. He surfaced with a dive duration of 9 min to a maximum depth of 5m. The trainee was sent to a medical centre and advised not to dive for seven days.

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**June 2018**
**18/138**

A diver was on the final day of a week's hardboat diving trip. He had carried out two dives a day and on the last day had carried out his thirteenth dive to a maximum depth of 18m buddied with two other divers. After a 2hr 30 min surface interval they carried his fourteenth dive on a wreck. The diver, using air, felt slightly apprehensive on the descent which he put down to deeper diving and poor visibility as he descended the shotline but once he was on the wreck he felt better as the visibility was much improved. The three divers stayed together and when they went into decompression they all ascended slowly to 6m and, as mandatory decompression had cleared, they carried out a 4 min safety stop at 6m and surfaced with a dive duration of 27 min to a maximum depth of 32m. Back aboard the boat the diver started to feel strange and had irritating pains across both shoulders and a pain in his left elbow. He reported this to another diver and then his right leg felt noticeably hotter than his left which he also mentioned to the diver. The skipper was informed and the diver, now feeling lightheaded, was put on oxygen, laid flat on the deck with water and his drysuit removed. He was advised to stay on the oxygen for the journey back to port and kept warm with jackets and a woollen hat. The diver had taken sea sickness tablets and had helped move cylinders and kit prior to boarding the boat that day which he felt may have caused his fatigue. The diver's pains gradually subsided over a day or two and the hot feeling in his leg did not get worse.

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**June 2018****18/123**

A diver and his buddy carried out a dive and as he descended the shotline he had ear problems at 4m. Unable to clear his ears he surfaced with a dive duration of 3 min to a maximum depth of 4m. He reported to a medical centre and was told to return the following morning if he was still unable to clear his ears. The diver returned the following morning, was given antibiotic medication and told not to dive for the next two days.

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**September 2018****18/156**

Two pairs of divers were about to carry out a morning training dive from a RHIB. The pairs were sitting either side of the RHIB as the cox'n positioned it by a shotline and counted them down for their entry using a backward roll. One pair and one of the other pair entered at the same time but the remaining diver delayed his entry, collided with his buddy and hit him on the head with his cylinder. The buddy was stunned and he and the diver were recovered back aboard the RHIB. The buddy saw a doctor who said he could return to diving that day if he wanted but the diver decided to miss the afternoon dive.

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**September 2018****18/157**

A trainee reported that he had a sore left ear and attended a medical centre. He had carried out two dives the day before, one to a maximum depth of 17m with a dive duration of 25 min and a night dive to a maximum depth of 15m. The doctor advised the trainee not to dive for 48 hours to allow his ear drum to recover.

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**September 2018****18/161**

A trainee carried out a shore dive and experienced ear and sinus pain at 5m. The dive was aborted and the trainee surfaced with a dive duration of 12 min to a maximum depth of 5m. He was seen by medical staff and informed that he could dive the following day if he felt well enough.

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**September 2018****18/176**

A diver on a training course was trying to complete skills for his qualification. During a RHIB dive with an instructor, fellow student and safety diver and at a depth of 10m the diver was unable to clear his mask due to sinus problems. The diver made a rapid ascent to the surface with a dive duration of 9 min to a maximum depth of 15m. The surface cover noticed he had blood around his face and he was recovered aboard the RHIB. The diver was unable to complete the course due to the sinus problems.

## History of Previous UK Diving Fatalities

Year	Membership	Number of Fatalities		Year	Membership	Number of Fatalities	
		BSAC	Non-BSAC			BSAC	Non-BSAC
1965	6,813	3	-	2000	41,692	6	11
1966	7,979	1	4	2001	41,272	9	13
1967	8,350	1	6	2002	39,960	4	10
1968	9,241	2	1	2003	38,340	5	6
1969	11,299	2	8	2004	37,153	6	19
1970	13,721	4	4	2005	37,185	5	12
1971	14,898	0	4	2006	35,422	4	12
1972	17,041	10	31	2007	34,857	7	5
1973	19,332	9	20	2008	34,325	6	4
1974	22,150	3	11	2009	32,790	7	7
1975	23,204	2	-	2010	32,229	8	9
1976	25,310	4	-	2011	30,909	4	7
1977	25,342	3	-	2012	29,632	10	7
1978	27,510	8	4	2013	28,728	5	10**
1979	30,579	5	8	2014	28,375	6	10
1980	24,900	6	7	2015	27,803	3	6
1981	27,834	5	7	2016	27,346	5	6
1982	29,590	6	3	2017	26,774	2	9
1983	32,177	7	2	2018	26,717	6	13
1984	32,950	8	5				
1985	34,861	8	6				
1986	34,210	6	9				
1987	34,500	6	2				
1988	32,960	10	6				
1989	34,422	4	8				
1990	36,434	3	6				
1991	43,475	8	9				
1992	45,626	9	8				
1993	50,722	3	6				
1994	50,505	6	6				
1995	52,364	9	9				
1996	48,920	7	9				
1997	48,412	4	12				
1998	46,712	6	16				
1999	46,682	8	8 *				

\*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)	RMB	Royal Marines base
AS	Alternative source (gas or air)	RN	Royal Navy
A&E	Accident and emergency department at hospital	RNLI	Royal National Lifeboat Institution
AED	Automated external defibrillator	ROV	Remotely operated vehicle
ARCC(K)	Aeronautical rescue coordination centre (Kinloss)	SAR	Search and rescue
ARI	Aberdeen Royal Infirmary (Scotland, UK)	SARIS/SARSYS	Search and rescue information system
AWLB	All weather lifeboat	SMB	Surface marker buoy
BCD	Buoyancy compensation device (e.g. stab jacket)	SRR	Search and rescue region
BOV	Bailout valve	SRU	Search and rescue unit
CAGE	Cerebral arterial gas embolism	UK SDMC	UK Sports Diving Medical Committee
CG	Coastguard	UTC	Coordinated universal time
CCR	Closed circuit rebreather	VLB	Volunteer life brigade
CNS	Central nervous system	999	UK emergency phone number
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		