

# The British Sub-Aqua Club



## National Diving Committee Diving Incidents Report

# 2014

*Compiled by*

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## Introduction

This booklet contains the 2014 Diving Incidents Report, produced by British Sub-Aqua Club (BSAC) in the interest of promoting diving safety. It is important to note that it contains details of UK sports diving incidents occurring to divers of all affiliations, plus incidents occurring worldwide involving BSAC members.

The 2014 'Incident Year' ran from 1<sup>st</sup> October 2013 to 30<sup>th</sup> September 2014.

### Report Format

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

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

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

**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'.

Brian Cumming,  
BSAC Diving Incidents Advisor,  
November 2014

## Acknowledgements

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

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and, in particular, all of those divers and other sources who have taken the trouble to complete Incident Reports and share their learning experience with others.

## Overview

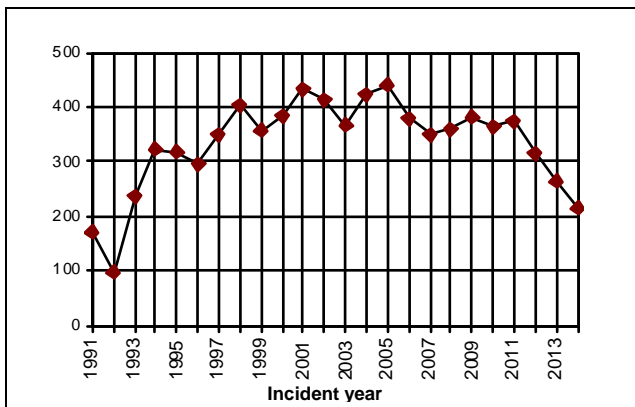
**2014** has seen 216 UK diving incidents reported. This continues the decline in reported incidents first recorded in 2012. In the years 2006 to 2011 the number of incidents reported had been fairly consistent at around 370. In the last three years the number of reported incidents has declined by approximately 60 reports per incident reporting year.

This decline in reported incidents could be as a consequence of one, or a combination, of the following:-

- A normal amount of diving has taken place but:-
  - It has been safer and fewer incidents have occurred.
  - A normal number of incidents have occurred but fewer have been reported.
- Less diving has taken place and thus fewer incidents have occurred, leading to fewer incidents and reports.

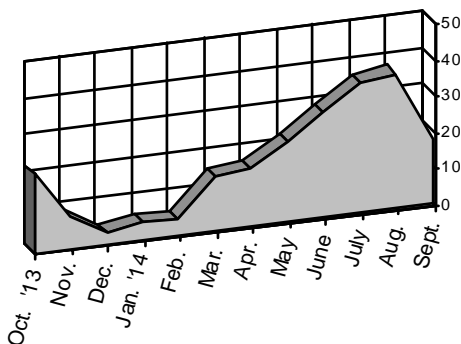
There are some trends identified in this report that indicate that there are improvements to diver safety with respect to decompression illness and buoyancy control and also a reduction in boating incidents; in combination these three factors account for a significant proportion of the fall in incident numbers this year. The only type of incident not in decline is the number of divers lost on the surface.

**Number of reported incidents**



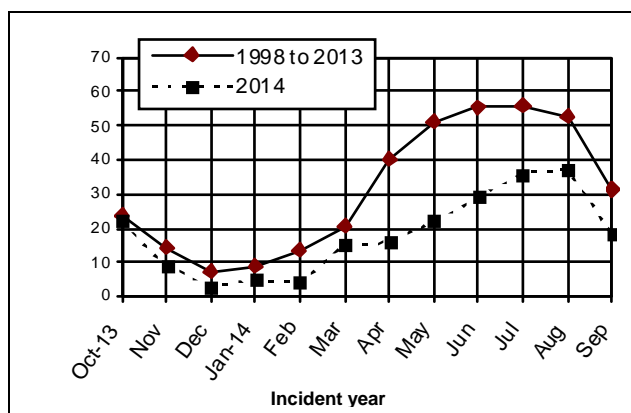
The distribution of reported incidents by month is shown in the following chart.

**Incidents by month**



Normally the distribution of incidents by month follows a sinusoidal form with the lowest number of cases in December and January, which rises initially in March or April depending on when Easter falls and then to a peak in June and July. This year the number of incidents follows a similar pattern except that the usual rise in incidents during the spring period is absent and the overall number is lower. To illustrate this more clearly the following chart shows the average number of incidents reported per month in the years from 1998 to 2013 to provide a view of the 'normal' picture in comparison to the number of incidents reported in 2014.

**Incidents by month**



In 2013, the expected rise in incidents during early spring was also absent and at the time this was attributed to the unusually poor weather which would have deterred many from going diving. This was the most plausible explanation for the drop in numbers of reported incidents in that period. It would be hard to find such justification in 2014 as the weather in the early part of the year was not likely to have deterred divers from venturing out. It is possible that divers are being more careful at the beginning of the diving season and heeding the advice given over many years to start slowly after the winter break.

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

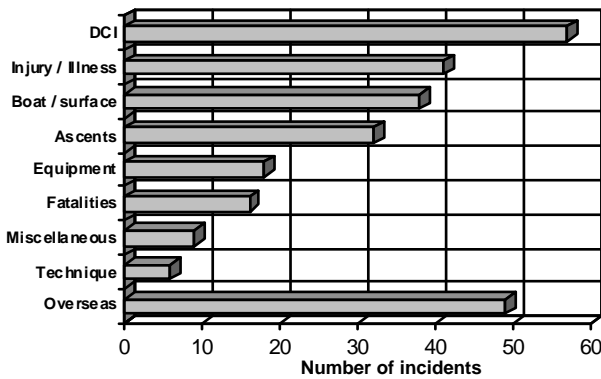
### **Incidents by category**

The incident database assigns all incidents into one of nine major categories, and the following chart shows the distribution of the 2014 incidents into those categories.

The distribution of incidents into the categories shows some interesting changes with respect to previous years. As a percentage of all incidents DCI, Ascent related incidents and Boating incidents have all fallen.

Cases of 'DCI' have been following a slight downward trend over the last ten years and this year's total of 57 represents an additional fall of 34 incidents on last year.

**Categorisation of the year's incidents**



The next largest category is 'Illness and Injury' with 41 incidents reported. The bulk of this is thought to be cases of DCI. But these cases are reported through the RNLI and their reports do not specifically record DCI, they often just state 'Diver illness'. Unfortunately, therefore it is not possible to distinguish cases of DCI from other diver ailments.

Incidents involving 'Boating and Surface' events had been falling progressively since the late 90s. In the period 2009 to 2011 this number rose back up to levels seen 10 years earlier, but the numbers have since fallen again. This year 38 incidents were recorded and this is a fall of 17 incidents on last year. This category mainly comprises of problems with boat engines (engine failure and out of fuel) and lost diver(s). Over previous years the number of lost diver incidents has remained relatively constant at a little under 30 reported incidents per year. This year there were half the numbers of boating incidents in contrast to a similar number of lost divers.

'Ascents' is the fourth category and this involves incidents where divers have made an abnormal ascent but avoided DCI or other injury. This category peaked in 2006 and has been steadily falling since that time. This trend is continued in 2014 when 37 'Ascent' related incidents were reported. A lot of effort has been put into improving diver buoyancy control and these numbers (together with the reduction of cases of DCI) reflect the beneficial changes that have been made.

The last category to be mentioned specifically is 'Fatalities' and although the numbers are quite small it is, of course, the most serious. This year saw 16 diver fatalities; sadly this broadly aligns with previous years.

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

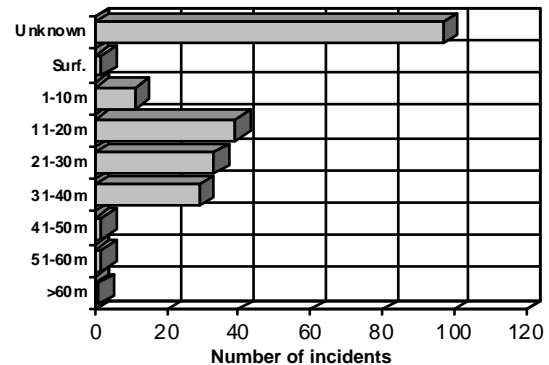
**Incident depths**

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

The pattern of depths in the 0m to 50m range is very similar to that normally seen and reflects the amount of diving that takes place in these depth ranges.

The number of incidents reported in the greater than 50m ranges is 3, this is a lower number than has been seen in previous years. Incidents in this range are usually more serious and contain a disproportionate number of fatalities. This year there were three reported incidents involving dives to depths greater than 50m and unfortunately one of them resulted in a fatality.

**Maximum depth of dive involving an incident**



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

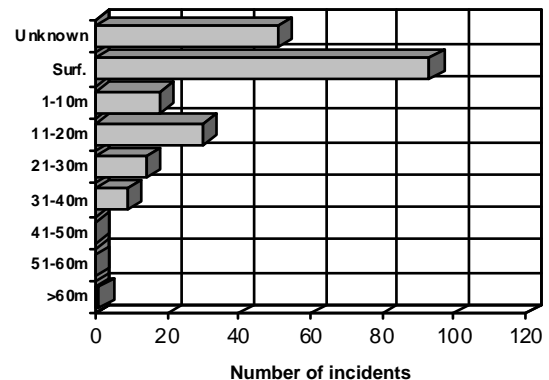
The recommended limit for divers trained to Sports Diver standard is 35m and then only when they have received appropriate training for diving at this depth.

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

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

The next chart shows the depths at which incidents started.

**Depth at which an incident started**



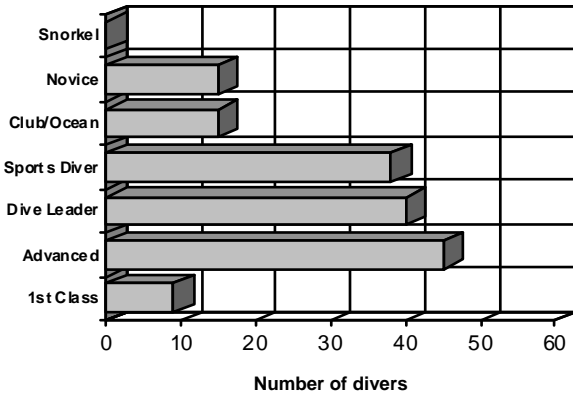
Inevitably the data are biased towards the shallower depths since many incidents happen during the ascent or at the surface. Critical among these are the DCI cases where almost always the casualty is out of the water before any problems are noted. This partially explains the large occurrence of 'Surface' cases as this includes divers with DCI who have left the water. Other surface incidents involve boats and boating incidents and divers who are lost but on the surface.

The depth profiles are consistent with previous years.

**Diver qualifications**

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

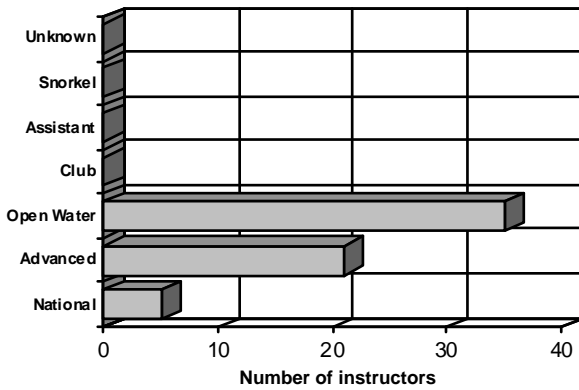
**Qualification of the divers involved in incidents**



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

The next chart shows an analysis of incident by instructor qualification and again it is consistent with previous years.

**Qualification of instructors involved in incidents**



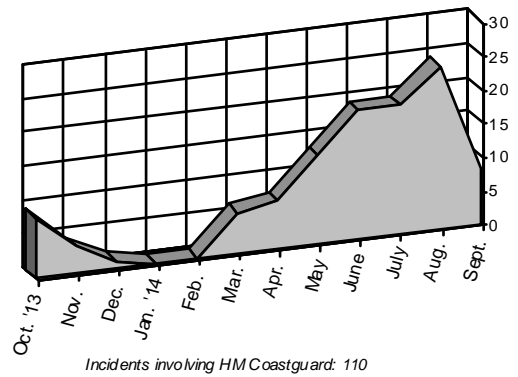
The lack of 'Club' instructor entries reflects the fact that this qualification is no longer part of the instructor development programme; this category will be removed from this report in future years.

**Divers' use of the Emergency Services**

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

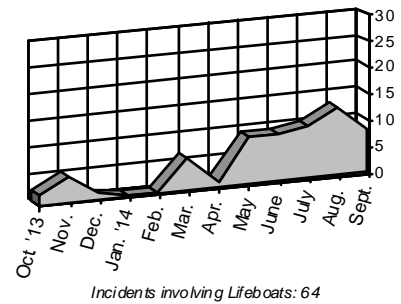
110 incidents were reported to us by the Coastguard. The average number of incidents reported by the Coastguard in recent years is just over 200. The number of incidents involving the Coastguard was relatively constant up until 2010 but has been falling steadily since then. The number this year represents a 48% decrease on the 1998-2010 average of 210 incidents per year.

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



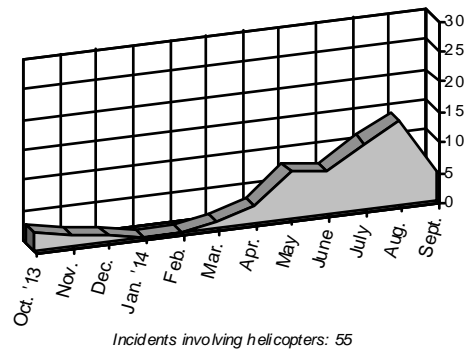
There were 64 incidents reported that involved the RNLI. The RNLI's main support to divers involves assistance with disabled boats, searching for missing divers and the recovery of divers with DCI. These data also reflect the dip in the first half of the year.

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



In 2014 55 incidents involved the use of helicopters. This is lower than normal and it reflects the overall reduction in reported incidents. In diving related incidents helicopters are mainly tasked to support searches for missing divers and to transport divers with DCI to recompression facilities.

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



**Fatalities**

16 fatal incidents occurred in the UK during the 2014 incident year. This is slightly above the average of 15 fatalities per year over the previous ten years. However, given the small numbers involved, this is not thought to be a significant difference.

6 of these people were BSAC members. The previous ten year average for BSAC fatalities in the UK is 6.2 fatalities per year.

10 of the year's fatalities were non-BSAC members. The previous ten year average for this group is 9.1. Broadly then, the number of fatalities is in line with previous years.

Key factors associated with the 2014 fatalities can be summarised as follows:-

- Five confirmed cases involved divers who suffered a 'non-diving' related medical incident (for example a heart attack) whilst in the water. There is one additional case where it seems very likely that the diver suffered a 'medical event' whilst underwater, although evidence to substantiate this assumption is not currently available. The average age of the divers in these confirmed cases is 60.
- Four cases involved a separation of some kind. In two of these cases, separation may have contributed to the outcome. Separation in itself is not a cause of death but death might have been avoided if the casualties' buddies had been to hand and thus potentially able to render assistance.
- Six cases involved divers diving in a group of three. In two of these cases, the casualties became separated underwater from their buddies in low visibility conditions. Diving in groups of three (or more) brings additional complexity to a dive and can generate problems that don't exist with pair diving. However, it is not clear how much trio diving directly contributed to these fatalities. BSAC recognises that, at times, it is necessary to dive in a group of three. Never-the-less pair diving will remain the strongly preferred option.
- One case involved a snorkel diver diving alone. However, in contrast to previous years, there were no cases of solo diver fatalities.
- One case involved a diver who was using a rebreather in a trio in low visibility. The casualty was separated from her two buddies early in the dive. It is not clear if the rebreather or its use was a primary factor in the incident.
- One case involved a dive greater than 50m on open circuit trimix where the diver made a fast ascent missing decompression but the cause of the incident is unknown.
- One case involved a diver who died as a result of breathing poisonous gas in a dry passage in a partially flooded mine.

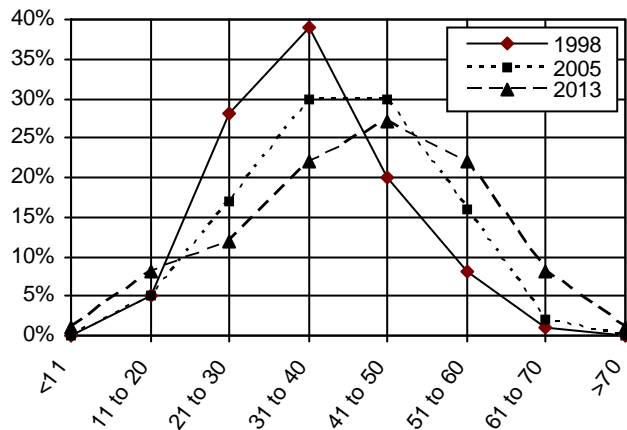
Often multiple causes are involved in an incident.

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

In the 2013 diving incident report a graph was presented which displayed the average age of UK fatalities together with the background age of the general diving population from 1998 through to 2013 (all divers, not solely BSAC). The data clearly showed that the age of the fatalities had increased at twice the rate of the background age of the diving population; at the time there was no obvious explanation for this observation. Further work has been conducted on this issue and the underlying cause has now been made clear.

To explore this problem more deeply the background UK diving age data for each year were split into age ranges with plots produced by year. The following graph shows the years 1998, 2005 and 2013. The intervening years have been omitted for clarity but they follow the same pattern and strongly support the conclusions drawn.

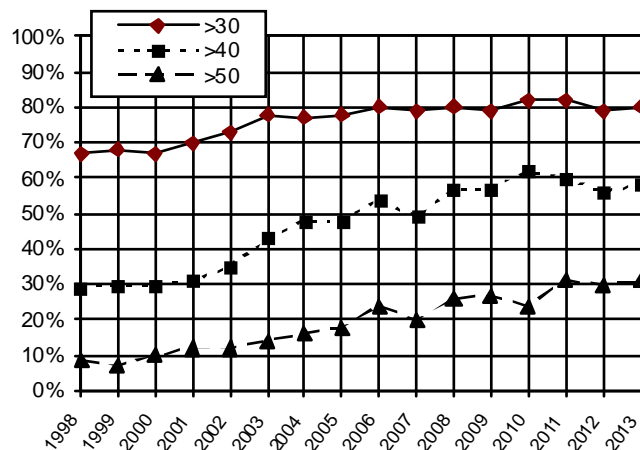
**Age range of UK diving population**



As can be seen, 2005 may be close to a normal distribution but neither 1998 nor 2013 are. 1998 is skewed to the younger age groups and 2013 is skewed towards the older age groups.

An alternative way of looking at these data is shown in the next figure. This graph shows the percentage of the UK diving population that fall above three selected ages; greater than 30 years old, greater than 40 years old and greater than 50 years old. Each is plotted against calendar years 1998 to 2013.

**Age range of UK diving population**



In 1998 68% of the population were over 30, 30% were over 40 and slightly under 10% were over 50. Viewed in 2013 the picture is very different; 80% are over 30, 60% are over 40 and 30% are over 50.

So while the average age has been slowly increasing the age distribution has been changing as well and there are now three times as many divers over 50 compared to the population 15 years ago.

Viewed in this light it is perhaps no surprise that we have seen an increased fatalities of the 'older diver'. Indeed, from the perspective of these data we might have expected even more!

A quick glance at the BSAC membership figures will show that diving started to become popular in the UK in the late 1970's and early 1980's and those divers are now 55 to 65 years old.

In the last two years all nine fatalities attributed to medical causes were of divers aged 50 or over. The average age of the 5 medical fatalities, in 2014, was 60; this number is significantly higher than the average age of the fatalities for non-medical reasons which is 42 years. This difference in cause of death between two age divided groups is probably to be expected and would also be true of the causes of death in the general population. However, given that the consequences of a medical event underwater are likely to be very much more serious in outcome than the same medical event occurring on land there are sensible considerations that could be made with respect to diving.

In the light of the above, and until more is understood about the medical background, older divers are advised to take account of the increased likelihood of a medical event when considering the type of diving in which they engage and those diving with them should be more aware of the increased risk.

Currently it is not possible to screen for the latent medical problems that may predispose older divers to in-water medical events. Accurate and honest reporting in the medical declaration form and subsequent follow-up, if necessary, is the correct approach. This is the current policy advocated by BSAC and other UK diving organisations supported by recommendation from the UK SDMC.

Note:-

Post the publication of the 2013 report, there was an additional fatality reported of a snorkel diver. The database and the data at the end of this report have been amended for 2013 accordingly.

### Decompression incidents

The BSAC database contains 57 reports of 'DCI' incidents in the 2014 incident year, some of which involved more than one casualty.

An analysis of the causal factors associated with the 57 incidents reported in 2014 indicates the following major features:-

25%	involved repeat diving
24%	involved rapid ascents
19%	involved diving to deeper than 30m
7%	involved missed decompression stops
7%	involved repeat diving with a reversed profile

Some cases involved more than one of these factors.

The number of reported DCI incidents is markedly reduced when compared with the last six years. 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

Encouragingly the number of incidents reported in 2014 has reduced to a total of 38 incidents. The factors associated with these incidents are as follows:-

24	involved lost diver(s)
12	involved engine problems
3	involved boat problems
1	involved bad seamanship

Some cases involved more than one of these factors.

Whilst the number of lost divers has remained constant over the last 10 years, many other aspects of diving safety in this category have improved.

### Ascent related incidents

Ascent related incidents have been falling in recent years and this year sees that trend continuing with 32 cases reported. As in previous years the majority of these were 'rapid ascents'. An analysis of these 'rapid ascents' (where the detail is known) is as follows:-

36%	Panic / anxiety / rush for surface
27%	Poor buoyancy control
23%	Delayed SMB problems
5%	Drysuit BCD control malfunction/mis-use
5%	Out of air / gas
5%	Weighting or weight related issues

Interestingly, there was an increase this year in the number of cases which identified the malfunction of inflation or dump valves on a BCD or drysuit.

Many DCI cases have their origins in these problems; they have been recorded under the 'DCI' heading but the causal factors are the same, so the actual number of abnormal ascents recorded will be significantly higher than 32 cases. This year's DCI cases included 20 incidents where rapid ascents had taken place.

### Conclusions

Key conclusions are:-

- The number of incidents reported this year is again lower than the level of recent years and it follows the trend first noted in 2012. This reduction is due in part to a lower number of incidents reported across the entire year but specifically in the period March to June. Last year this delayed start was attributed to bad weather affecting diving in the spring; this year the weather was very favourable.
- In addition to the absence of the normal spring peak in incidents, the reduction in number of incidents this year can be attributed to a reduction in DCI, loss of buoyancy control and boat breakdown cases.
- The number of divers lost on the surface has remained static over the last 10 years.
- The number of fatalities of BSAC members is in line with the average of the previous 10 years.
- The number of fatalities of non-BSAC members is in line with the average of the previous 10 years.
- The number of medical cases in the diver aged over 50 continues to feature; the average age of the five fatalities that were linked to medical causes is 60.
- Changing demographics in the diving population fully explains the rising numbers of 'older diver' fatalities.
- Diver age and related health and fitness issues are still featuring as critical factors in this and recent years' fatalities.
- Incidents of DCI continue to fall.
- Ascent related incidents continue to reduce.
- The reduction in reported incidents is thought to be, at least in part, due to an increase in diving safety.

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

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

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

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

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

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## Fatalities

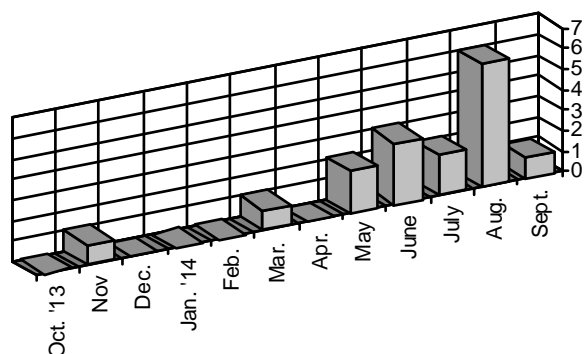
### November 2013 14/014

Three divers were ascending together at the end of a dive. They paused on an underwater pinnacle at about 9m to deploy a DSMB. At this time one of the three started to ascend directly to the surface. The other two followed and found the diver at the surface and unresponsive. Rescue breaths were given in the water and the diver was recovered into the boat. CPR was commenced and the Coastguard was alerted. Two lifeboats arrived and one of the crew began carrying out emergency resuscitation. Meanwhile, a search and rescue helicopter had also been called and the diver was flown directly to hospital with the helicopter paramedic continuing to provide emergency care. The diver was later pronounced dead. It was reported that a post mortem had revealed that the diver had suffered a heart attack.

### March 2014 14/036

The information received indicates that the casualty entered with water at a shallow site, accompanied by two other divers. All three were using rebreathers. The casualty had recently completed her rebreather training. Diving to a maximum depth of 14m, the group quickly became separated in low visibility, and all but the casualty surfaced. They realised the casualty was missing, and conducted a search. The casualty was located and was brought to the surface unconscious. CPR was commenced but the emergency services declared her deceased at the scene.

**UK Fatalities - Monthly breakdown  
from October 2013 to September 2014 incl.**



### May 2014 14/051

A diver surfaced with his buddy following an uneventful dive to a maximum depth of 16m. His buddy boarded the dive boat first and the diver was noted to be having difficulty maintaining a hold on the boat. Other divers entered the water to assist him and recovered the diver from the water. He was unresponsive, CPR was commenced and the emergency services were called. The diver was taken to hospital but did not recover. A coroner's inquest found that the diver died of natural causes.

### May 2014 14/068

A diver was on a depth experience dive with a buddy and an instructor. The group reached 30m without any problems and then began their ascent. The buddy heard a strange noise from the diver and noticed his regulator was not fully retained in his mouth. The buddy tried to push it back in but was unsuccessful

so offered his own alternate source but with limited success. The instructor pushed his own alternate source into the diver's mouth, which seemed to be retained, and the instructor and buddy began a controlled buoyant lift of the diver. The group continued their ascent but shortly before reaching 20m it became apparent there were no exhaust bubbles from the diver so the ascent continued but at a more rapid rate. At 10m a fast ascent was conducted in order to seek urgent attention for the diver. The total dive duration was 5 min. On the surface the alarm was raised and in-water rescue breaths attempted but the diver's airway was found to be blocked. A rescue boat attended, the diver was recovered but was unresponsive and emergency services were called. The instructor and buddy were put on oxygen as a precautionary measure whilst CPR with oxygen enrichment was administered to the diver and an AED attached but 'no shock advised'. An ambulance arrived followed by an air ambulance and doctor. AED was tried again but still showed 'no shock advised'. Chest compressions were continued throughout when a faint pulse was reported. The diver was airlifted to hospital but was certified deceased later that afternoon. The diver is thought to have suffered heart failure.

### June 2014 14/082

A dive boat skipper called 'Mayday' 16 miles south of Beachy Head. He was heading to a diver who had surfaced and was unconscious. MRCC Dover immediately requested a helicopter from ARCC and R-104 was tasked from Lee on Solent. A fishing vessel proceeded to the scene and the Trinity House vessel Patricia also proceeded. The dive boat reported nine other divers still down. The fishing vessel William approached from down tide and Patricia from up-tide. The boat then reported another unconscious diver had surfaced and he was working on both casualties with another diver leaving seven divers still down. R-104 evacuated the unconscious divers to Eastbourne hospital where they were declared deceased. The dive boat recovered the rest of the divers whilst the William and Patricia stood by and then proceeded back to Brighton marina. Sussex police informed and investigating. (Coastguard report). A media report of the pathologist's report put the cause of death in one case as diffused gas embolism caused by pulmonary barotrauma and in the other case water inhalation.

### June 2014 14/087

After descending to the seabed at 12m without any problems a pair of divers were swimming along when the buddy noticed that the other diver was above her apparently struggling with his fin. She sorted out the problem but shortly afterwards the diver was above her again, spinning around and struggling. The buddy grabbed the diver's BCD and brought him back down to the seabed and signalled 'OK'. With no response and the diver showing signs of panic the buddy decided to abort the dive and carried out a controlled buoyant lift on the diver. They became detached from each other as the diver started to bolt for the surface but the buddy grabbed him; his regulator was still in his mouth. She managed to control him for a few seconds between 6 to 8m when he started knocking out her regulator and pulling her to the surface. The buddy struggled free and descended back to the seabed with her computer signalling an alarm for breached ascent rates and required decompression stops even though the maximum depth had been no greater than 12m. At this point she saw the diver's fins slowly sinking and she recovered them. She completed the 3 min stop and surfaced to see the cover boat holding the diver alongside and she shouted for them to give him oxygen. When the buddy got to the boat it became apparent the diver was unconscious, unresponsive and not breathing and she started giving rescue breaths.

Emergency services had been called and the buddy instructed the crew to secure the diver while she de-kitted him. She jettisoned her weights and all of the diver's kit which sank. The crew in the boat and the buddy in the water were unable to recover the diver due to his size. The buddy got into the boat to assist in the recovery but still unable to get him into the boat she re-entered the water and continued giving rescue breaths until the lifeboat arrived. After some difficulty the lifeboat recovered the diver and the buddy boarded the lifeboat and worked with the crew in continuing CPR. On arrival back in harbour an ambulance crew took over but the diver did not recover.

**BSAC Fatalities against membership 1982-2014**  
**(UK fatalities only)**



**July 2014** **14/102**

The casualty and one other student were on a 6m platform with the instructor and a safety diver. The casualty was asked to complete the mask remove and replace skill, which she completed in a controlled manner. The casualty gave an OK signal to the instructor who turned to the next student. Shortly after, the casualty signalled that she wanted to go up. The instructor told the safety diver to take the casualty up to the surface. The instructor stated that this was a seemingly controlled ascent. On the surface, the casualty said she thought she was having an asthma attack and said she had an inhaler in her car. She was being towed to the shore when she became unconscious. Nearby help was summoned and many divers assisted her out of the water, administered CPR and oxygen. They tried to use an AED from the dive site but the battery was not working. After approximately 2 to 3 min the casualty began gasping and was not breathing properly or fully alert. The inhaler for her asthma was retrieved from her car which they administered along with oxygen until the paramedics arrived and took her to hospital. The casualty was taken to hospital but the centre was later informed that she died in hospital the following day. On review of the training records the casualty had medical clearance to dive by her doctor for her asthma. Subsequent unsubstantiated reports suggested that the diver was transferred to a hyperbaric chamber having suffered a hyperbaric injury and cerebral oedema.

**July 2014** **14/113**

The casualty was on a two day boat trip. All divers were qualified divers. Reports from divers on the boat explain that after the dives on day one the casualty complained of feeling ill and was sweating. He was provided with a fan by the hotel to help him sleep overnight. On day two the casualty said he did not feel up to making the first dive but still wanted to make the second dive with the seals. The second dive was to approximately 7m for 40 min. On surfacing from the dive the casualty turned to his buddy and said that he felt unwell and

then he lost consciousness. His buddy provided rescue breaths until the boat arrived (less than 2 min). The casualty was taken on board and provided with oxygen and CPR until a helicopter arrived. It is reported the casualty died in hospital from a suspected heart attack.

**August 2014** **14/135**

A search operation was launched overnight after a swimmer was reported missing. The swimmer had failed to return home after he had gone swimming alone in a river equipped with a snorkel, weightbelt and drysuit. The Coastguard and lifeboat were assisted by the police and a police helicopter in searching the river and along the coastline until 4.30am. The search was resumed early that morning assisted by a search and rescue helicopter. The body of the swimmer was discovered by a lifeboat, recovered and flown to hospital.

**August 2014** **14/130**

A diver and his buddy had completed a night dive from a charter boat on a wreck at 23m. They had ascended the shotline but on the surface the buddy let go of the shot and drifted off. The diver was told to keep hold of the shot whilst the boat picked up the buddy. When the boat returned to the shot the diver was instructed to let go and drift off for pick up but he would not let go of the shotline. One of the divers from the boat swam to him and got the diver to release the shot but, as he was being towed back to the boat the diver lost consciousness. The diver was recovered to the boat, rescue breaths and CPR were commenced and the alarm raised. The Coastguard requested the immediate launch of a lifeboat. The lifeboat, with a paramedic, met the dive boat and the diver was transferred. CPR continued until the lifeboat was back in harbour where it was met by air ambulance medical staff but, despite the efforts of the lifeboat crew and ambulance staff, the diver did not recover. It was reported that paramedics thought the likely cause of death was a heart attack.

**August 2014** **14/131**

An experienced cave diver had been exploring a disused quarry's cave and tunnel system with friends over the past year and was on a dive with two other cave divers. They had swum around 300m into a flooded tunnel to have a look at a dry passage. The diver left the water to explore the passage whilst his buddies waited by the water's edge. The diver turned around and was heard to say something about a problem with gas and then collapsed and fell back into the water. The buddies tried to resuscitate him but were unsuccessful and left to raise the alarm. A helicopter, mountain rescue and cave rescue teams were involved in the efforts to search for the diver and his body was recovered the following day by cave rescue divers. It was reported that the diver had been overcome by poisonous gas within the dry passage. (Media report).

**August 2014** **14/132**

A group of divers were diving over a weekend on a charter boat and this was the first time several of the party had met the others. On the Saturday, several of the group had done three dives during which, because of poor visibility, some pairs had become separated. When this happened they continued their dives independently. On the Saturday three divers from the group had carried out a dive together to 20m but on the ascent the first diver had 5 min of decompression at 5m showing on his computer. The third diver's computer was clear and he had deployed his DSMB so the second diver signalled him to continue to the surface while he deployed his own DSMB and stayed with the first diver who was completing his decompression stop. On the Sunday a shallow dive site was chosen as three dives had been carried out on the Saturday. The same three divers buddied up again with the first diver

leading the dive. The divers descended and reached the seabed at about 14m with visibility around 2m, a slight current and a noticeable 'wash' due to the swell. After settling and exchanging 'OK' signals the divers set off, drifting with the current and 'wash'. The dive leader was in front, the second diver behind him to the right and the third diver slightly behind the second and to his left. All the divers had torches on and the second diver could see the third diver's torch beam from time to time. The second diver could see the dive leader and checked after a couple of minutes that the third diver was still just behind him. When he checked a short time later the third diver was not visible so the second diver attracted the dive leader's attention and they both stopped, looked and shone their torches around to try and attract attention but could not see the other diver. As the visibility was low and the current and 'wash' had moved the divers about, the second diver couldn't tell exactly which direction they had come from. The pair agreed to go ahead with the dive, continuing to drift and ran into another group of divers almost immediately. The pair ascended with 5 min of bottom time remaining and returned to the boat. Their dive duration was 50 min. Once onboard they discovered that the second diver's DSMB had been recovered, slightly inflated and with the reel still coiled. As the rest of the party surfaced the divers grew more concerned, checked with other dive boats in the immediate area and the skipper called the Coastguard. A lifeboat was soon on site followed by a helicopter and four pairs of divers re-entered the water from the dive boat near to where the DSMB had been found to drift with the current in a search. Other divers in the area were also on the look out, both underwater and along the shore line. The Coastguard co-ordinated the ongoing search which involved two other lifeboats, a helicopter and local dive and fishing boats who

worked into the night in an attempt to find the missing diver. This carried on into the Monday and early Tuesday before being called off due to rough seas and poor underwater visibility. A police helicopter had surveyed the coastline but was unable to find the diver. The diver's body was recovered a week later.

### **August 2014**

**14/134**

A trimix diver was on a wreck dive to a maximum depth of 55m. The diver was ascending and at around 24m was breathing heavily and was agitated. He was offered another diver's bailout gas but went for the surface. The other diver tried to hold onto him and slow his ascent up to 7m but then had to let go to complete his own decompression. The diver surfaced, was recovered into his dive boat and airlifted to hospital where he was pronounced dead.

### **August 2014**

**14/137**

A diver got into difficulties at 40m and was rescued by two fellow divers. Police, two helicopters and ambulances attended the scene and the diver was taken to hospital where he was pronounced dead. The two divers who had assisted in pulling the diver out of the water were taken to a hyperbaric chamber for recompression treatment.

### **September 2014**

**14/138**

A major air and sea operation, involving lifeboats, helicopters and a police underwater search team was launched following reports of a missing diver. The underwater search team recovered the body of the missing diver. (Media report).

## Decompression Incidents

### October 2013

**14/221**

A dive boat which had returned to harbour requested assistance for a diver onboard with suspected DCI. The diver was transferred by ambulance to a hyperbaric chamber for assessment and treatment. (Coastguard report)

### October 2013

**14/222**

A dive boat on route back to harbour reported a diver onboard with symptoms of DCI. An ambulance was arranged to meet the boat and Stromness CRT assisted with transferring the diver to the ambulance to be taken to a hyperbaric chamber for assessment. (Coastguard report)

### October 2013

**14/278**

The casualty completed five dives which included a deep diver specialty course over a period of two days. The casualty mentioned that he felt a bit unwell in between the two dives on the second day, but he chose to continue with the next dive. When the group returned to the dive centre the casualty said again that he felt unwell, he was tired and he had a headache. He was advised to rest and drink fluids and to contact the chamber/hospital if any of his symptoms worsened. In the morning the casualty contacted the centre to say his symptoms had worsened and that he was having difficulty getting through to a hyperbaric doctor. The centre put him in contact with a chamber and the casualty was admitted. He received recompression treatment which was successful.

### October 2013

**14/224**

A call was received from a dive boat on route back to harbour with a diver onboard who had suffered a rapid ascent. Although not showing any signs or symptoms of DCI they became increasingly unwell, becoming unconscious before the boat arrived back alongside. An ambulance along with Stromness CRT was tasked to meet the boat and the diver was taken to Stromness Hyperbaric Chamber for treatment. (Coastguard report)

### October 2013

**14/013**

A diver was on a week's diving trip starting on a Sunday with a plan of carrying out two dives a day. The diver opted out of the second dive on the Sunday and the Thursday due to tiredness due to going to bed late the night before. Two nitrox dives were conducted on the Friday with an instructor and two other divers practising accelerated decompression procedures. The first dive was to 35m for a duration of 69 min including 21 min of decompression stops. After a surface interval of 3 hours 8 min he dived again to 25m for 54 min including 16 min of decompression stops. The diver surfaced from the second dive with a slight headache which he put down to dehydration but an hour later he felt a burning, itching rash. He notified the dive manager and instructor and was put on oxygen. The rash subsided and the diver felt better. The diver went out for a meal that evening feeling tired but with no other symptoms. After about an hour the diver felt joint pain in his left knee, shoulder and elbow. A decompression helpline was contacted and an ambulance arranged to transfer the diver to a hyperbaric unit. After consultation with the doctor, DCI was confirmed and put down to the nitrogen load accumulation over the week's diving. The diver was given recompression treatment and discharged by the doctor.

### October 2013

**14/023**

A diver had completed a wreck dive using air to 35m for 37 min

with a 3 min safety stop at 5m. Back on the boat the diver felt a bruise-like pain on his left shoulder and 90 min after surfacing the diver was sick following lunch. There was a slight sea swell and with possible motion sickness, the diver drank two glasses of water to avoid dehydration. After a surface interval of 2 hours 30 min, the diver carried out the second wreck dive of the day using nitrox 27 to 34m for 41 min with a 3 min safety stop at 5m. The boat returned to harbour but a short time later the diver had redness of the skin in the area of the bruise pain on his shoulder and was put on nitrox 50. The diver reported to and was examined by a doctor and advised he should receive recompression treatment, which he had that evening. A later echocardiograph picked up a few microbubbles in the left side of his heart in keeping with a small PFO.

### October 2013

**14/005**

An instructor took two trainee divers acting as a buddy pair on the last of their training dives. They were accompanied by a third diver who was acting as an assistant and safety diver for the instructor. The divers entered the water, descended to 2m and following a check to ensure all were in control, the instructor led the way to a training platform at 6m. On the way one of the trainees lost buoyancy and descended about 1m. Finding herself too heavy she regained buoyancy by adding more air into her BCD and the group arrived at the 6m platform. Checks were made again and the group descended to a 9m platform where further checks were carried out before a descent to 16m. The instructor led the group by descending backwards so he had a good view of all the divers. At 15 to 16m, the instructor turned around and with the safety diver at his side and the trainee buddy pair behind him, led the way along a cliff face. After 15 to 20 sec, the instructor checked his safety diver and turned back to check the trainee buddy pair to find one had disappeared. The remaining trainee was unable to indicate what had happened so the instructor immediately told the safety diver and trainee to buddy up, go to a nearby shotline and wait for him. He then swam back looking for the missing trainee whilst keeping the other two divers in view. Looking up and around he could not see the trainee or any trace of her bubbles rising to the surface. The instructor returned to the shotline and, assuming the missing trainee had surfaced, the divers ascended. The instructor signalled the two divers to carry out a safety stop whilst he continued to the surface to locate the missing trainee. On the surface he saw her about 25m away clinging to a buoy. When he reached her she was out of breath, hyperventilating, frightened and exhausted. The instructor ensured the trainee was positively buoyant and towed her ashore but noticed that her computer was showing 'fast ascent' and a dive duration of 4 min. On reaching the shore the trainee's equipment was removed and she was able to walk out of the water. The other two divers had both surfaced and safely exited the water. The trainee who had the fast ascent was taken to a first aid room and the staff called a hyperbaric unit for medical advice although there were no signs or symptoms of DCI or barotrauma. The hyperbaric doctor instructed an ambulance to attend and made arrangements for the Coastguard to send a helicopter to transport the trainee to a recompression facility. The trainee appeared well, although obviously shaken, and informed the instructor that she had felt too heavy whilst at 16m and added air to her BCD. She had felt herself beginning to rise to the surface and was unable to control the ascent. She could not recall how quickly she came up or if she had held her breath. The trainee complained that her chest felt very restricted but that it felt better, although not completely normal, when she removed her wetsuit. The ambulance arrived and it was agreed that although there were no signs or symptoms, she should be airlifted to the recompression chamber by the Coastguard helicopter. At the chamber the trainee was assessed and was showing signs and symptoms of having

suffered an embolism as a result of her ascent and received recompression treatment.

**October 2013**

**14/019**

Just before leaving harbour for a 30m wreck dive, a diver realised he had forgotten to bring his wing BCD. The boat skipper lent his wing to the diver which was suitable for the diver's intended kit configuration. The diver and his buddy, who was using a rebreather, descended to the wreck, dived without any problems and after 20 min they located the shotline and began their ascent. Ascending for about 2m the diver felt slightly buoyant so stopped and dumped air from the wing BCD via the inflator hose. As he did so he noticed a lot of air being expelled from the valve and realised that he was also pressing the inflate button. Taking his finger off the inflate button he dumped air with no air being expelled from the exit valve. The divers continued their ascent but the shallower they got the more buoyant the diver became and he separated from his buddy. All the diver could do was to hang onto the shotline. He ascended to 5m and tried to hold a stop but after about 30 sec he could not grip the shotline any longer and let it slowly slip through his hands. His dive computer registered his ascent at about 3 min. His dive duration was 23 min to a maximum depth of 31m. Back on the boat and de-kitting the diver noted there was still air in the wing BCD. 20 min later the diver experienced a pain in his lower back and then discomfort in his abdomen, similar to a suit squeeze. A few minutes later his right leg started to go numb and he could not move it without assistance. His left leg also went numb but he could raise it slightly. The pain and discomfort in the diver's back and abdomen went after about 10 min but his legs were still numb. The diver informed the skipper of the situation and the skipper helped remove the diver's drysuit, made him lie on the deck and gave him oxygen. The boat headed straight back to harbour and by the time it had docked the diver had regained the feeling in his legs and felt well. He walked to a lifeboat station, lay down and was then taken by ambulance to rendezvous with a helicopter and airlifted to hospital. The diver was given a thorough examination in the hospital's A&E department and admitted to a ward for observation. He was discharged the following day.

**January 2014**

**14/281**

The casualty made a couple of uncontrolled ascents, but not rapid according to the instructor. One ascent was from 12m and one was from 6m. The casualty was finding the technical diving equipment difficult to use in order to maintain buoyancy control. The next day the centre was informed that the casualty has gone to the recompression chamber with symptoms of DCI. He was successfully treated.

**January 2014**

**14/026**

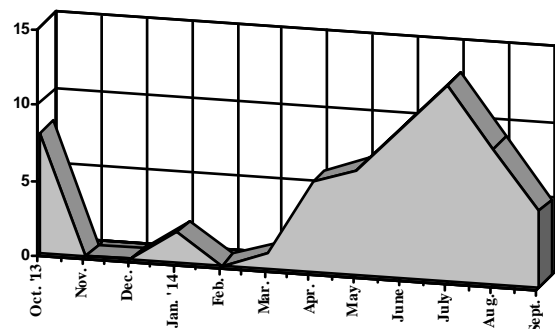
A diver was completing the last dive of a training course. At 10m the exercise was mask clearing but the diver aborted and ascended to the surface to refit her mask and then re-descended to continue the dive which included two AS ascents, one as donor and one as recipient. This was followed by a descent to 21m and the dive was completed, with a total duration of 29 min, without any problems. The diver's suit had leaked and her left arm was wet and cold. Around midnight, the diver had 'pins and needles' in her left leg, calf and hamstring and had pains in her right shoulder blade, left arm and wrist. A hyperbaric helpline was contacted and a doctor rang the diver and advised attendance at a hyperbaric chamber early that morning. It was confirmed the diver had DCI and she received recompression treatment that morning and another session the following day. The symptoms had all cleared and the diver was due to go back to the chamber for assessment two weeks later.

**March 2014**

**14/049**

Two divers had planned a dive to 50m with 4 min of decompression. They descended a shotline marked with underwater strobe lights at 25m and 45m. One of the divers failed to stop his descent completely before lightly touching the bottom causing a slight reduction in visibility due to mud being disturbed. The divers began to explore and after approximately 3 min one of them realised he had become separated from his buddy. He began to search expecting to find him as they were both carrying bright torches. However, due to the darkness, the cold water at 6 deg C and the depth, the diver felt disorientated and affected by nitrogen narcosis. After 3 min the diver had not located his buddy and had reached his planned bottom time so ascended to 25m using a rock wall as reference. At 25m the diver was able to locate the strobe light on the shotline so finned to it and ascended to 6m to carry out decompression now showing as 6 min on his computer. The diver surfaced, with a dive duration of 28 min, and found his buddy waiting in the water. They exited the water and reported to the dive manager. Approximately 5 to 10 min later the diver had a mild ache in his left shoulder but put it down to carrying equipment. On the drive home the diver noticed that his left shoulder was itching. Arriving back at the dive club's kit room with his buddy, the diver inspected his shoulder which was red so they decided to recover an oxygen set from the kit room and drove to the buddy's home. The diver went onto the oxygen and after 20 min the itching had gone and the redness diminished. The diver's buddy contacted a hyperbaric chamber for advice and after the diver spoke to a doctor it was decided there was a strong likelihood that the diver had DCI and should attend a recompression chamber. The diver received three sessions of recompression treatment over the next three days. The diver was awaiting a follow-up check with the diving chamber before diving again.

**Decompression incidents by month**



**April 2014**

**14/046**

The casualty made a confined water dive to 3m in order to complete the drysuit orientation. The group had a surface interval and then went in for a second training dive in a group of five. During the neutral buoyancy swim, the casualty was seen by the instructor to be kicking hard and looking uncomfortable. The instructor approached her and she indicated something was wrong and panicked, heading towards the surface. The instructor tried to slow her ascent but it was a rapid ascent according to the computer alarms. At 5m the casualty spat out her regulator and would not receive the alternate source from her instructor. On the surface the casualty was gasping loudly and then fell unconscious. The instructor towed her to the shore as the casualty fell in and out of consciousness. She was removed from the water and cut out of the drysuit, oxygen administered and

she was monitored for continuous signs of breathing until the air ambulance arrived. The casualty was treated at a chamber for arterial gas embolism.

**April 2014****14/061**

On a sunny, very warm day, two divers had completed a dive to 35m for 25 min. The dive went to plan with no compulsory decompression stops showing on computers but a 3 min safety stop was carried out at 6m. Once ashore one of the divers still felt very hot so decided to get back in the water with just his drysuit and fins to cool off. Back on shore and after a minute or two the diver felt a dull pain in the right hand side of his lower back. The diver thought he may have pulled a muscle when performing cylinder shut down drills on the dive's safety stop but then felt a sudden weakness in his legs, found it difficult to walk and was losing his balance. As the pain increased the diver asked his buddy, who had noticed he was struggling to walk, to get an oxygen kit and notify staff at the dive site. Whilst waiting for the emergency services the diver was administered oxygen. The pain in the diver's back decreased but he began to experience 'pins and needles' in both arms and hands, fingers and ears. When paramedics arrived the diver was given an IV drip while being assessed. An air ambulance was deployed and the diver taken to a hyperbaric chamber where he received recompression treatment and was hospitalised overnight. The following morning the diver was discharged but the diving doctor, noting the diver had a history of migraine with aura, suspected a possible PFO and referred him to a cardiologist. Examination by the cardiologist confirmed this to be the case and was the likely cause of the diver suffering DCI.

**April 2014****14/050**

Two RHIBs with twelve divers were on a wreck site. Two divers had completed their dive on the wreck to a maximum depth of 30m, one of them deployed a DSMB and they began their ascent. One of the divers was struggling to vent air from his drysuit and by the time he reached 15m he was unable to control his buoyancy and made a rapid ascent to the surface. His total dive duration was 29 min. On the dive boat the diver was put on oxygen as a precaution but approximately 10 min later said that he was having difficulty breathing and that he could not feel his legs. The Coastguard was contacted but as a rescue helicopter was at least an hour away refuelling, it was agreed that one of the RHIBs would head back to shore with the diver and his buddy where an ambulance would be waiting to take them to a recompression chamber. Arriving on shore some 50 min later, the diver had regained the feeling in his legs and was breathing more easily. Both the diver and his buddy were taken to the chamber and received recompression treatment with both making a full recovery. The diver was advised not to dive for four weeks.

**April 2014****14/048**

A diver suspected to be suffering from DCI was airlifted to a hyperbaric centre. (Media report).

**April 2014****14/171**

A trainee had completed two days of training dives. Three dives were carried out on the first day and two dives on the second day which were to 7m for 39 min including alternate air source and controlled buoyant lift drills and, after a surface interval of 2 hours 25 min, a second dive to 20m for 25 min with a 3 min safety stop at 6m. The diver had reported feeling a little sick before the first dive and that he had a bit of a 'dodgy' stomach but was happy to do the second dive. The following morning as he was about to go home, the trainee reported to one of the course instructors that he had a headache and felt slightly sick but felt well enough to drive home. The instructor advised him to drink plenty of water and also gave him contact details for a

hyperbaric chamber with instructions that if he felt any worse he should contact them for advice. When the diver got home his symptoms got worse and he had blurred and tunnel vision. He contacted the chamber and was advised to attend. Following assessment, the trainee received two sessions of recompression treatment over the next two days.

**May 2014****14/053**

A diver and his buddy had descended the shotline to a wreck at 31m but had to fight against the current to get down. On the wreck the divers found it hard work until they were inside the wreck. When they exited the wreck the diver was struggling to keep up with his buddy, signalled he had a problem and found himself ascending and unable to do a safety stop. His dive duration was 20 min. Back on the dive boat the diver experienced a headache, pain and 'pins and needles' around the face. The Coastguard was alerted and the diver airlifted to a hyperbaric chamber where he received recompression treatment. (Coastguard report).

**May 2014****14/119**

On the first training dive of the day, at about 4m, an instructor demonstrated partial and then full mask clearing to his two trainees. When one of the trainees removed his mask he swam for the surface. The instructor and other trainee ascended slowly and at the surface the first trainee explained he was having trouble breathing without his mask on. The instructor explained about controlling his breathing and suggested that they have another go. All three descended back down to 4m but exactly the same thing happened again with all three divers returning to the surface. The instructor took the trainees to a shallow area and had the trainee take his mask off and breathe from his regulator with his face underwater but he found this impossible to do. To continue the training session the divers dropped back down to approximately 6m to carry out an alternate source exercise from a stationary position and then had a dive to a maximum of 13m with a gradual ascent and a 3 min precautionary stop at 6m before surfacing normally. After a 2 hour surface interval the divers began the second training dive. One of the skills to be covered was full mask removal so the instructor tried again at the surface to get the trainee to breathe off his regulator without his mask on but he was still having a problem so the instructor decided not to include mask removal during this dive. The skills in the lesson included alternate air ascents from 6m with each student acting as recipient and donor. The instructor did not do a demonstration to reduce the number of ascents but had done a dry run before the dive. Following these four ascents, which both trainees accomplished, the divers dropped down again to 6m and carried out a short dive to a maximum depth of 14m. The instructor deployed his DSMB leaving the reel hanging to carry out a vertical ascent up the line and carry out a planned 3 min stop at 6m. The first part of the ascent to 10m appeared to be normal but the instructor noticed the trainee, who had not had the mask clearing problems, was becoming distressed as he was working hard to ascend but, being in a vertical position, as he put air in his drysuit it was coming out of his shoulder dump. The instructor indicated that both students should be in a more horizontal position but the trainee became more stressed and panicky. The instructor gave him the DSMB line to hold but the trainee appeared to wave it away and was signalling to ascend. The instructor took hold of the trainee and began to ascend using the trainee's suit inflation. The ascent from 10m was fast and back on the surface the trainee took around a minute to recover, clearly gasping for breath. The other trainee had followed the divers up but did not carry out the stop at 6m. Half an hour after the dive the instructor experienced an ache in his right elbow. 3 hours later the elbow ache was accompanied by 'pins and needles' in his right hand which prompted the instructor to call a hyperbaric hotline and he attended a recompression chamber for treatment over the next two days.

### May 2014 14/060

The Coastguard was called to assist a diver who had become unwell on a dive boat. The diver was taken to a nearby pier, then by ambulance to a hyperbaric chamber where the diver received recompression treatment. (Media report).

### May 2014 14/074

A diver had carried out six hardboat dives with no problems and had carried out 3 min safety stops on all dives. On the last day he dived to 12m for 45 min with a 3 min safety stop. After a surface interval of 1 hour 18 min he dived to 19m for 51 min with a 3 min safety stop at 5m. Driving home that day the diver's left arm started to feel stiff and felt like a strained muscle on the inside of his elbow. The next day the arm still ached with mild 'tingling' in the tips of his fingers. The following day the diver's arm ache had spread from the elbow to the wrist and his hand was 'tingling' from his wrist to the finger tips. The diver went to a hospital's A&E department and a doctor referred him to a hyperbaric chamber with suspected DCI. The diver received two sessions of recompression therapy and was advised not to dive for a minimum of twenty-eight days and then needed to be examined by a sports diving medical referee.

### May 2014 14/065

A diver, using air plus nitrox 50 for decompression, was at 40m when his buddy's computer failed and due to the buddy holding onto him they both lost buoyancy control and began a fast ascent. At 12m the diver regained buoyancy and descended back to 22m where he made his gas switch to nitrox 50 and continued his planned decompression stops at 21m for 1 min, 17m for 1 min, 11m for 4 min and 6m for 19 min. The dive duration was 48 min. His dive boat called the Coastguard reporting they had a diver with decompression symptoms following the dive. The diver was airlifted to a hyperbaric chamber and received recompression treatment. (Coastguard report).

### May 2014 14/066

A diver and his buddy had experienced low visibility at 14m so began their ascent after deploying a DSMB. The ascent was normal until 11m but with the low visibility the diver could not see his BCD inflator button clearly as it was next to the deflator button. The diver pressed the inflator by accident and ascended quickly from 11m to 2m before he could dump enough air to slow down. His dive duration was 22 min. The buddy made a normal ascent. Back on the boat the diver, who had no symptoms, was put on oxygen. The Coastguard was contacted and advice given by a dive doctor that the diver should be taken to a hyperbaric chamber for assessment. The diver received recompression treatment. (Coastguard report).

### May 2014 14/072

A Coastguard rescue helicopter was scrambled to airlift a diver from a dive boat. A nitrox diver had lost buoyancy control at 6m and surfaced missing a 15 min decompression stop. His dive duration was 50 min to a maximum depth of 36m. He was taken to a hyperbaric unit and received recompression treatment. The diver thought he had lost control of his buoyancy as he had not released enough air from his drysuit. (Coastguard report).

### June 2014 14/077

Two divers conducted a 34m dive for 36 min with an 8 min decompression stop at 6m. They conducted a second dive to a wreck with a maximum of 26m for 65 min. The buddy was on air and the diver was on nitrox 32 but had set her computer to 'air' to compensate for her buddy's decompression requirements. The dive plan was to reach the stern of the wreck and then ascend but their progress was slowed due to a current. This meant that

before reaching the stern, and being able to start their ascent, the divers were already into their agreed decompression time limit of 5 min. The diver signalled to the buddy a couple of times they were into their decompression and should make their ascent but the buddy wanted to continue. When they reached the stern the diver signalled for the buddy to deploy the DSMB. The buddy descended a little before doing this. The diver stowed away her dive torch ready to assist with the DSMB deployment but then noticed that the buddy had started to fill the DSMB and was having difficulty with his buoyancy whilst doing so. The diver grabbed hold of the DSMB but with the buddy floating up she had to hold onto the wreck to prevent herself going up too. The diver signalled to the buddy to let the DSMB go and that she would carry out a mid-water deployment of her own DSMB. By this time they were into nearly 19 min of decompression. The buddy let go of his DSMB, the divers ascended and, although the buddy was a couple of metres above the diver, the ascent was controlled. However, at 5m the buddy was having difficulty holding his stop and kept having to swim down. The diver managed to hold onto him for about 5 min but their decompression stop had increased to 23 min including a 3 min safety stop. The divers managed to do 10 min of their decompression but with the buddy continuing to pull the diver to the surface, the diver unable to achieve negative buoyancy whilst holding onto the buddy and DSMB, the buddy went to the surface. The buddy remained close to the diver's DSMB at the surface but was tangled in the line of his own DSMB. The diver, thinking the dive boat would be unable to pick the buddy up while she completed her decompression stops, decided to surface. This meant both divers had missed 13 min of decompression. On the dive boat both divers were put on oxygen and a check made to see if either had any symptoms of DCI. The diver had a very itchy red skin rash on her left arm. She had noticed itching in this area prior to the dive but as she suffered from eczema she thought nothing of it but had mentioned it to the boat skipper. When the boat returned to shore both divers were taken to a recompression chamber where the buddy was given another two hours of first aid oxygen and asked to remain on site but the diver received treatment for DCI. As the rash had appeared following her first dive the diver was also medically checked for a PFO but results were found to be negative.

### June 2014 14/237

Dive medical advice was provided to a dive RHIB in the Sound of Mull, for a 50 year diver showing symptoms of DCI. Oban RNLI lifeboat was subsequently launched, recovered the casualty and disembarked him into the care of an ambulance at Oban Harbour. The casualty was taken to the Lorn & Isles Hospital for further assessment. (Coastguard & RNLI reports)

### June 2014 14/190

A dive group on a RHIB requested assistance for a diver. A lifeboat, carrying a diving doctor, met the RHIB. The diver was transferred to the lifeboat which was met by an ambulance and the diver taken to hospital for assessment. It was understood that the diver was then taken to a recompression chamber for further treatment. (Media report).

### June 2014 14/075

Two trimix rebreather divers were on a 66m wreck dive when one of them signalled to his buddy that he had a problem with his rebreather harness. The diver had modified the harness to assist easier entry into the rebreather when kitting up with a single detachable clip on the shoulder strap. The clip had failed and with the anchor points for his left side slung cylinder just below this undone clip, the weight of the cylinder hung from the waist attachment was now at an awkward angle behind him and the rebreather had rotated around his body making the mouthpiece loop difficult to manage. The diver and his buddy spent some time trying to resolve the problem but the buddy indicated that

with 41 min of decompression stops required it was time to ascend. Both divers deployed DSMBs and ascended to 40m where the diver with the harness problem became tangled in his own DSMB line. The buddy untangled the diver from the line but in the process lost one of his fins. The diver then made a rapid ascent to the surface, at some point bailing out onto his diluent cylinder. His dive duration was 33 min. The buddy sent up a lift bag to indicate that he was 'OK' and completed his decompression stops as normal. Meanwhile, the diver was recovered to the dive boat with pains in his legs and blurred vision. He was put on oxygen and a 'Mayday' issued. A ferry had responded to the 'Mayday' and remained on standby near the boat until the helicopter arrived. The diver was airlifted to a recompression chamber and spent nearly two weeks receiving treatment but made good progress, being able to walk well with the only noticeable side effect being that he got tired easily.

**June 2014 14/083**

A diver had completed a weekend's diving and travelled home on the Sunday evening. On the last day he had dived to 30m for 36 min with 3 min of decompression. After a surface interval of 2 hours 20 min he dived to 12m for 15 min with 8 min of decompression stops at 6m. When he got home he had 'pins and needles' in his left forearm. As this was still present on the Monday afternoon he called a hyperbaric facility who advised he attend. Following a consultation the diver was given three sessions of recompression treatment.

**June 2014 14/238**

Plymouth Coastguard and ambulance met dive vessel Maid Maggie at Mountbatten, Plymouth after a diver had become unwell after a recent dive. The diver was taken to Derriford hospital by ambulance for treatment. (Coastguard report)

**June 2014 14/203**

On the first day of a diving holiday a diver did two reef dives, one to 34m for 38 min on nitrox 32 followed by a second dive 2 hours 45 min later to 28m for 35 min on nitrox 35. Conditions were good although the second dive required swimming against a strong current at times. On return to harbour, the diver helped unload a large number of cylinders from the boat carrying them up the harbour steps and to the filling station. It was a very warm day. An hour and a half after the dive the diver felt an itchy shoulder and had a mild rash. The diver called a diver helpline for advice and they asked her to see a doctor at the local hospital. The doctor checked the diver over, conferred with a hyperbaric chamber and said that the diver was fine and to take a couple of days off and start diving again gradually. Three days later the diver did a dive to 20m for 35 min on nitrox 32. An hour and a half later a very mild rash returned. The diver was put on oxygen and given water and the rash went. The diver phoned the hyperbaric chamber and went back to the hospital again, was checked over and advised she was well but not to dive again that week and to seek medical advice on her return home. The diver did so and attended a recompression chamber and was referred for a PFO test which she undertook and was pronounced fit.

**June 2014 14/218**

A diver and his buddy conducted a dive on a wreck at a depth of 24m. After 30 min the divers returned to where the shotline was believed to be but were unable to locate it as a strobe light that had been attached to it had been removed by the owner who had already ascended. The pair was approaching deco time and both had computers that displayed limited deco information so decided to deploy a DSMB rather than spend time searching for the shotline. During deployment one of the divers experienced an initial snatch in the line but then conducted a normal ascent and then spotted the shotline. The diver grabbed the shotline and the pair conducted 5 min of stops at 6m until their computers

cleared. On regaining the charter boat, by a diver lift, the pair de-kitted and stowed their equipment at which point the diver felt sick as there was a bit of swell running. After 20 min the diver suddenly felt sick again and went to the stern of the boat and retched over the side. The diver put this down to seasickness but suffered with the problem for the remainder of the day until the boat returned to shore 5 hours later. On return to shore the diver tried to leave his position at the stern of the boat but was unable to walk. Others on the boat called an ambulance and the diver was assessed and found to have nausea and balance problems. The ambulance transferred the diver a short distance to a site suitable for a helicopter landing and the diver was transferred to a recompression chamber by helicopter during which he received oxygen and was placed on a saline drip. The diver was diagnosed with a severe vestibular DCI and recompressed with some resolution of symptoms. The diver continued to have 2 hour recompression treatments for a further week with gradual improvement in balance.

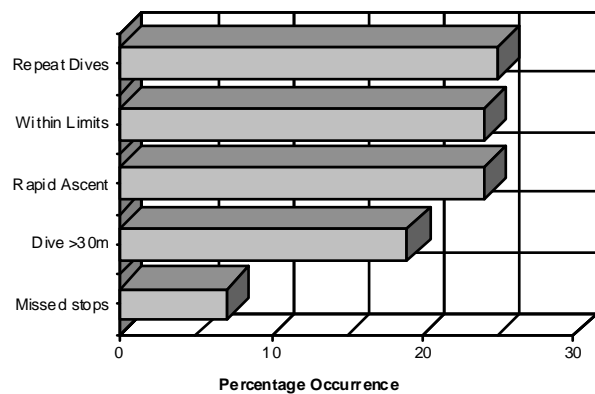
**June 2014 14/243**

MRCC Falmouth received a 999 call regarding a diver with DCI at Porthkerris. The dive master was put in a connect call with DDRC and the casualty evacuated to the hyperbaric chamber at Plymouth by Rescue R-193. Porthoustock Coastguard rescue team collected details. (Coastguard report)

**June 2014 14/244**

Stornoway CG made enquires into the whereabouts of a diver who had contacted the doctor at Aberdeen Royal Infirmary. The diver was located on a dive boat in Loch Aline, Sound of Mull. Loch Aline coast rescue team attended at Loch Aline pier and the diver was taken to Oban by ambulance for treatment. (Coastguard report)

Percentage analysis of factors involved in cases of DCI



**July 2014 14/099**

An instructor and two students, one on a rebreather, were carrying out a training dive on a wreck at a maximum depth of 32m. The instructor carried out a semi-circular search teaching exercise. Towards the end of the lesson one of the students snagged a fin in loose rope from an abandoned shotline and then got his reel tangled in the same rope. At this point the other student, concerned about his air, signalled to ascend. The group had been tasked with ensuring the shotline was free for recovery and to attach a lift bag. The shotline was off the wreck and deeper than the divers so the instructor tied a loop in the shotline to attach the lifting bag. After partially inflating the lift bag the instructor discovered that his equipment and the shotline due to



be recovered had become entangled in the abandoned shotline. The instructor indicated to the student who was concerned about his air to ascend while he and the other student on the rebreather would continue to try and untangle the shotline. The diver who was low on air ascended, completed 5 min of required decompression stops, surfaced without incident and was recovered into the boat. After trying to untangle the shotline with no success, the instructor and remaining student ascended taking approximately 12 min to surface having completed deep stops as well as required decompression stops. Their dive duration was 31 min. The shot was left to be picked up the following day. The dive boat started to travel to a second dive site with two other dive boats. During transit the divers' boat ran out of fuel and stopped to switch over fuel tanks. During this stoppage the first student from the group, who had surfaced alone, requested that his suit be unzipped as his legs were 'tingling' and his suit was too tight. The 'tingling' was noticed approximately 25 min after surfacing. The diver was placed on oxygen and the other boats called to rendezvous whilst the boat transferred the diver to a local hyperbaric chamber. The second boat contacted the Coastguard to inform them of the situation but were advised the chamber was closed and that the diver should be taken to a local marina where emergency services would be waiting. During transit the diver reported feeling nauseous which only lasted a minute but no other symptoms were experienced. A local large charter RHIB had overheard the radio calls and met with the dive boat. The diver was transferred to the larger RHIB for a faster return to the marina where he was attended by paramedics and assessed. By this time all symptoms had disappeared but the diver was found to have a low blood sugar level and a lower than normal temperature. He was taken to hospital by ambulance to be checked out and subsequently he was transferred to a hyperbaric chamber where, even though not displaying any symptoms, he received precautionary recompression treatment. The doctor at the chamber described the results as 'inconclusive' and the diver was released the following day with the advice not to dive for four weeks.

### July 2014

14/095

A diver ascended from a 38m wreck dive and decompressed for 4 min at 20m. The diver deployed a DSMB but it became caught on their BCD and by the time the diver had sorted it out they had dropped back down to the wreck at 38m. Their regulator felt stiff to breathe and when the contents gauge was checked it showed about 5 bar left. The diver tried a swimming ascent but felt it was too hard to swim so dumped their weightbelt but kept the integrated weights in their BCD. The diver swam towards the surface using expanding air in the system to breathe. At the surface the diver orally inflated the BCD and boarded the dive boat. The dive duration was 30 min. The diver was put on oxygen and given water. A call was made to the Coastguard who scrambled a helicopter to airlift the diver to a recompression facility where DCI was diagnosed and recompression treatment given. (Coastguard report).

### July 2014

14/285

The two divers were tasked with searching for a sunken boat between 10 and 15m. During the first dive the pair became separated as there was low visibility. The buddy made an ascent and saw bubbles then went back down to locate the casualty. She still couldn't find the casualty so she aborted the dive and waited for the casualty to surface. They then changed cylinders and made a second dive using a buddy line. The current became quite strong and at the end of the dive the casualty said she was forced into an uncontrolled ascent and cut the lifeline. The casualty said she had made roughly nine ascents during the dives whilst looking for her buddy. It was decided to do no more dives. At the end of the day the casualty began to stagger and had blurry vision. She was referred to the recompression chamber and received treatment, and advised not to dive for one month.

### July 2014

14/108

The skipper of a dive boat issued a 'Mayday' call requesting immediate assistance for a diver following a rapid ascent. The dive was to 18m for 10 min. A Coastguard helicopter was scrambled and airlifted the diver to a hyperbaric chamber. The diver had partially inflated a lifting bag which had become entangled in his BCD and regulator and, despite dumping air from his drysuit and BCD; he could not overcome the buoyancy in the lifting bag and made a rapid ascent to the surface where he felt immediate breathlessness with chest 'rattles'. (Coastguard report).

### July 2014

14/286

The casualty made several dives over the weekend with students completing training dives of various levels. The casualty was a dive master buddied with students on the courses. The casualty stated that during the first dive he didn't have enough weight, and so suffered some drysuit squeeze. He also went up with a student who made an uncontrolled ascent from 6m during a compass skill. The evening of the first day he said he felt aching in his torso but didn't tell the centre or instructors as he thought it was just from the drysuit squeeze. The next day he continued to dive to complete a course as the dive master buddied with the student for two dives. His maximum depth was 21m. On his way home he felt very tired but went to work the next day as normal. The day after he was still aching and when he went into the dive centre to give back rental equipment, he mentioned how he was feeling. The centre manager checked his balance and asked about symptoms, and recommended he call a diving doctor. He called a doctor at the local chamber who arranged for him to be assessed. He was treated in the chamber and advised not to dive for six weeks.

### July 2014

14/107

The skipper of a dive boat contacted the Coastguard requesting immediate assistance for a diver who had made a rapid ascent from a dive to 17m. The dive duration was 34 min. A helicopter was scrambled and airlifted the casualty to a recompression facility for treatment. The diver reported that he had lost buoyancy control on his ascent and snagged his DSMB line. (Coastguard report).

### July 2014

14/106

A diver was believed to have made a rapid ascent to the surface from 28m. With a suspected case of DCI the diver was airlifted to a recompression facility for treatment. (Media report).

### July 2014

14/133

A diver had carried out two dives from a hardboat. The first was a wreck dive to 36m for 65 min with 25 min of decompression stops. After surface interval of 2 hours 16 min he conducted a drift dive to 22m for 22 min with 2 min of decompression stops. The diver was using a new twin-set and on the first dive was slightly overweight but compensated for this with plenty of available buoyancy and he reduced his weighting for the second dive. About 15 min after the second dive the diver started to feel unwell with 'pins and needles' in his hands and feet, fatigue and weakness in his arms and legs. The diver was put on oxygen and fluids and the hardboat skipper called the Coastguard. The diver was airlifted to a hyperbaric facility and, even though his symptoms had resolved by the time he reached the chamber, he was given recompression treatment. Following the chamber's discharge advice the diver did not dive but was in contact with specialist diving doctors about his options for a return to diving. It was thought that the cause of the DCI was a possible remnant of a small hole from his previous operation to close a PFO.

**July 2014****14/111**

A diver had completed one dive to a wreck with a maximum depth of 35m to fix the shotline but, unable to find the wreck, had ascended after approximately 15 min and completed required decompression stops. After a surface interval of 10 min the diver descended onto the wreck at 25m on nitrox. The diver ascended the shotline with 1 min of decompression needed but at 15m he discovered the submerged marker buoy which had been pulled underwater by the current. The diver tried to deploy their DSMB but this was unsuccessful due to the running tide. The diver then began to descend back to 20m so inflated their BCD to re-ascend but this caused an uncontrolled buoyant ascent with the diver missing 4 min of decompression stops. The dive boat called the Coastguard reporting the diver was showing symptoms of DCI. A helicopter airlifted the diver to a recompression facility where they underwent treatment. (Coastguard report).

**July 2014****14/115**

Two nitrox divers completed a 35m dive for 42 min with a normal ascent and 8 min of decompression stops. About 90 min after surfacing one of the divers developed a rash across her shoulders and chest and then experienced visual disturbances and a headache. The diver was put on oxygen and the dive boat skipper alerted the Coastguard who scrambled a helicopter. The diver was airlifted to a hyperbaric chamber where she received recompression treatment. The diver recovered well after the treatment but a subsequent medical examination confirmed the diver had a PFO.

**July 2014****14/117**

A dive boat contacted the Coastguard requesting immediate assistance for a diver suffering from DCI. The diver had completed the first dive on the second day of a diving weekend. The weather was extremely hot. The diver had a disrupted night's sleep after the first day of diving due to a shoulder pain and the heat. On the second day the diver loaded equipment onto the dive boat before it headed out for a wreck dive at 30m. The diver and his buddy began their ascent after approximately 30 min and carried out all indicated decompression stops. Back on the boat, after a total dive duration of 37 min, the diver started to get stomach cramps which were soon followed by a shortness of breath and the diver was put on oxygen. He then began to feel 'pins and needles' in his feet which then progressed to his stomach. A helicopter was scrambled and airlifted the diver to a recompression facility for treatment. (Coastguard report).

**July 2014****14/122**

Two divers had completed a day of wreck diving. The first dive was to 49m for 54 min and after a surface interval of 2 hours 16 min they dived again to 31m for 56 min. Both dives had normal ascents and included accelerated decompression stops using nitrox 50. When they returned to their accommodation that evening one of the divers noticed some bruising on his right shoulder and arm and showed this to his buddy, who was also the dive manager. The buddy advised the diver to call a recompression helpline for immediate advice whilst he secured both their computers and took photos of the bruising. Having related the diving carried out that day, described the symptoms and emailed the photos to a recompression facility, the helpline doctor advised that the diver should be seen as soon as possible at a recompression facility. The buddy immediately took the diver to a hyperbaric chamber, stopping off at their dive boat on the way to collect the oxygen kit. Having breathed oxygen for 30 min and after travelling for an hour, the diver's bruising had almost disappeared. When they arrived at the hyperbaric chamber the diver was diagnosed with skin DCI and given recompression treatment. The diver was discharged the following day and advised not to dive for a month.

**August 2014****14/251**

RAF rescue helicopter R-169 airlifted diver with suspected DCI from a dive boat off Fishguard. Diver taken to Derriford hospital, Plymouth. (Coastguard report)

**August 2014****14/120**

Milford Haven CG tasked Broad Haven CRT, & RNLI Little Haven inshore lifeboat to assist paramedics with the information gathering and transfer of a diver in need of medical treatment by Helimed 57 which then transferred to DDRCC Plymouth. (Coastguard & RNLI reports). The diver was reported to have become separated from his buddy and made a rapid ascent. (Media report).

**August 2014****14/126**

A diver was airlifted to a hyperbaric chamber suffering symptoms of DCI. (Media report).

**August 2014****14/143**

A diver had completed a 21m dive for 60 min, 30 min of which were at depth and the remainder of the dive between 5 and 6m. The diver had a surface interval of 1 hour and 45 min during which, because he was on a diet, he did not eat and missed out on a drink. A second dive was planned to 33m diving in a threesome. One was diving a rebreather, the other with twin 10 lt cylinders and the diver was using a single 12 lt cylinder. The two buddies wanted to dive to 35m and swim some distance before ascending. The diver, with his single cylinder, knew he did not have enough air to complete this. A plan was formulated that the diver would leave the other two at 33m and carry out a slow ascent alone up a slope after deploying a DSMB so that the surface cover would know he was 'OK'. The trio carried out a slow 12 min descent and the diver spent 3 min at depth to say 'goodbye', deployed his DSMB and carried out a slow 15 min ascent. He surfaced after 30 min without a problem and his buddies surfaced 10 min later. The diver returned home but noticed itching on his right shoulder. The itch slowly spread across to his left shoulder and on examination he could see a skin rash. Recognising the symptoms of a skin DCI the diver contacted a hyperbaric chamber who directed him to a local facility. On his arrival, the diagnosis was confirmed and the diver received recompression treatment. Since the incident, a diving doctor has declared the diver fit to dive and confirmed that dehydration was a major cause of his DCI.

**August 2014****14/188**

A dive boat skipper raised the alarm when a diver began to show signs of DCI following a dive to 28m for 33 min. The Coastguard scrambled a helicopter to the boat which airlifted the diver to shore where he was transferred to a recompression chamber by ambulance. (Coastguard report).

**August 2014****14/141**

A group of divers were on a diving holiday and had completed two on the first day. On the second day one diver dived to 38m for 51 min with 13 min of decompression stops. After a surface interval of 2 hours 54 min he dived to 33m for 58 min with 17 min of decompression stops. Both dives were conducted using nitrox 27 with nitrox 50 for accelerated decompression. His computer profiles for the four dives showed no problems. Approximately 1 hour after surfacing from the second dive on the second day the diver rapidly became dizzy and had to sit down. He could feel his condition getting worse and called for assistance. The dizziness became acute and he started feeling nauseous and vomited a couple of times. The skipper and dive manager began preparations to evacuate the diver and he was given oxygen and isotonic drinks. When the boat returned to harbour the diver was transferred to a hyperbaric chamber by ambulance and given two

sessions of recompression treatment. The diver was formally discharged the following day and advised not to dive for twenty-eight days and to seek further medical advice including a test for a PFO.

### August 2014 14/207

Two divers were at 18m when one of them lost control of his buoyancy and made a rapid ascent. Their dive duration was 3 min. The diver said he felt dizzy and sick and oxygen was administered. A hyperbaric chamber was contacted for advice and an ambulance took both divers to a recompression chamber.

### September 2014 14/214

A group of three divers conducted a dive on a wreck to a maximum depth of 24m for a total duration of 36 min including stops of 1 min at 12m, 1 min at 9m and 3 min at 6m. On returning to the boat all divers were well and showing no problems. 20 min after surfacing one of the divers began feeling dizzy and sick and was monitored for 5 min during which time the symptoms worsened. The diver became breathless, lost balance and suffered from extreme fatigue and exhibited rapid eye movements. The Coastguard was contacted reporting a possible DCI. The Coastguard advised return to shore where the boat was to be met by an ambulance to transfer the diver to hospital. A rig safety ship offered assistance as they had a medic aboard and the diver was transferred to the safety ship, assessed and put on oxygen. The diver was then transferred to shore on the safety ship's rescue craft and taken to hospital by ambulance.

### September 2014 14/189

After surfacing a diver complained of a skin rash and the alarm was raised. A lifeboat was launched and met the dive boat. The diver was transferred to the lifeboat and taken ashore to a waiting ambulance which took him to hospital. The diver was later transferred to a hyperbaric chamber for recompression treatment. (Media report).

### September 2014 14/196

A diver was engaged in a trimix course. On the final dive during the last 2 min of a decompression stop at 6m the diver had risen to 4m for approximately 30 sec and, once the stop had been completed, he made a 5 min ascent from 6m. During the dive the diver's dedicated drysuit supply cylinder ran out at 25m. The diver was seen fiddling with the valve but he was stable on the shotline. He connected his backup cylinder supply to his drysuit and signalled it was working. The instructor considered aborting the dive but as the diver still had a primary and secondary buoyancy system via his drysuit and BCD, a dedicated suit feed cylinder was not a requirement. The dive was to 60m for 61 min. After the dive the diver reported that the suit feed had only worked very slowly as it was not the proper connector so he had felt some suit squeeze but continued to signal 'OK' throughout the dive. Subsequent to the dive, as with other deep dives on the course, all the divers breathed a rich gas mix of nitrox 77 for approximately 5 min. The diver left the site some hours later and no symptoms were reported. The instructor was contacted two days after the course by the student who reported that, during the night following the end of the course, he was woken repeatedly by parathesia and pain in his left hand. The diver spoke with a diving doctor and was diagnosed with possible DCI

and attended a hyperbaric chamber. He reported that following recompression treatment his symptoms resolved.

### September 2014 14/217

A diver conducted two dives, the first to a maximum depth of 9m for 54 min with a stop at 4m for 1 min followed 1 hour 25 min later to 10m for a total of 31 min. At the start of the first dive the diver found he was under-weighted and had to pull himself down the shotline and then placed rocks in his pockets and made a normal ascent at the end of the dive. The diver added more weight prior to the second dive but still experienced difficulty getting down and attributed this to not venting his suit properly. At the end of the second dive the diver had become separated from his buddy and deployed a DSMB. During the deployment the line became entangled in the handle of the reel and whilst trying to untangle the line he had an initially fast ascent from 10m and missed all safety stops. The diver did not report the fast ascent at the time because he did not consider it was a problem. That night the diver awoke with tingling in his left hand but thought he had been sleeping awkwardly. The tingling did not go away the next or the following day and so the diver contacted a diver helpline and was advised to attend a recompression chamber where he was recompressed for a 4 hour treatment and the diver was released with no long term effects.

### September 2014 14/211

A group of three divers conducted two dives at an inland site. The first to 18m for 36 min including a 1 min stop at 5m and, after a 2 hour surface interval, to 18m for 46 min including a 4 min stop at 5m. At the end of the first dive, where all three divers were breathing air, they made an ascent in open water. Afterwards one of the divers reported that he had had two faster than normal ascent periods between 9m and 6m and following a 1 min safety stop at 5m again between 5m and the surface. The group had previously planned to practise using a compass and the dive leader agreed to let the two divers do so by swimming at a depth of 2m following their compasses back to shore. For the second dive the diver who had experienced a faster than normal ascent was diving using nitrox 35 as planned whilst the others used air. The dive proceeded as planned and the group returned to a depth of 5 to 6m where they spent 4 min following the contour as a safety stop. The diver again reported a faster than normal ascent going from 6m to the surface in approximately 10 sec. On the surface the group agreed to descend to feed the fish at a depth of 2 to 3m and did so spending a further 10 min at this depth before ascending the slope to the exit point. The following day the diver awoke feeling disoriented and with a mild headache. Remembering his training and the previous days diving he went to A&E and also contacted a local recompression chamber. The symptoms progressed to pains in his shoulders, calves and wrists and the diver was advised to attend the recompression chamber. On arrival at the chamber the diver reported being in some discomfort and feeling detached from his surroundings. The diver was given a 5 hour 30 min recompression treatment followed by a second 1 hour 30 min treatment the following day and was discharged with all symptoms resolved. The diver still complains of mild headaches, reduced mental capacity and mild pains and weakness in wrists and shoulders and was advised by a diving doctor that his problems may be due to nerve damage and that they may take months to resolve fully.

## Injury / Illness

**October 2013****14/215**

A student was attending a try-dive session. She was fitted with a mask and snorkel before sitting on the side of the pool and fitted with fins. She was then assisted to fit an aqualung set and although this was too large she declined to try a smaller size. The instructor completed checks and then kitted up himself in the water. The student then entered the water from a sitting position on the side and the first stage of the regulator hit her on the back of her head causing an abrasion to the scalp and some bleeding. The student was de-kitted and assisted from the pool and given first aid by applying pressure to the wound until the bleeding stopped. The student got changed and was escorted to a chair as she was feeling dizzy, shaky, nauseous and had a headache. The wound was cleaned and dressed. The student was asked if she wanted to go to hospital but she declined. The student later attended A&E and was diagnosed with concussion and was discharged.

**October 2013****14/018**

On the second dive of the day an instructor and trainee had completed their dive and were exiting the water by a ladder, which was a central spine design with rungs either side. The instructor was demonstrating the ladder exit when he slipped and badly bruised both legs. He managed to disentangle himself from the ladder and both divers exited the water. The incident was immediately reported to a staff member at the dive site who indicated this had happened to other divers. On talking to other divers the instructor heard about previous incidents on the same ladder, one reportedly resulting in a broken leg. The instructor contacted the manager of the dive centre in an effort to improve the design of the ladder to avoid other divers suffering similar injuries to himself and those from the other incidents he had heard about.

**October 2013****14/003**

A dive boat raised the alarm reporting they had a diver 'in a bad way' with chest pains. The Coastguard immediately scrambled a rescue helicopter which had to divert to refuel before attending the scene. A local lifeboat station, aware of the incident, offered the services of their lifeboat which carried medical equipment and oxygen and it reached the scene as the helicopter arrived. The lifeboat crew were able to give assistance until the ill diver was airlifted by the helicopter and flown to hospital for treatment.

**October 2013****14/276**

The students were briefed to remove their fins when they got out of the water to practise recovering unresponsive casualties from the water. The casualty got out of the water and got hold of the unresponsive diver's arms to pull them out, without removing her fins. She slipped and landed heavily on her bottom. The casualty was made to feel comfortable and was driven home by her husband. The centre was later informed that she had gone to hospital and was diagnosed with a compound fracture of her spine.

**October 2013****14/279**

A group of nine students were instructed to complete some watermanship skills with a 200m swim and 10 min float in the swimming pool. All completed these and exited the water without any apparent difficulty. Shortly after the instructor gathered the group for a dive briefing. At this point the casualty complained of feeling unwell, weak and faint. He was removed from the group and monitored for any further symptoms. The casualty did not participate in the dive and went home when he felt better. No further problems were experienced.

**October 2013****14/030**

Following a dive to 22m for 36 min, a diver experienced a headache, neck pain and felt sick. The diver was given first aid oxygen but there were no changes to her symptoms. The diver was advised to drink plenty of water and rest but if the symptoms persisted to contact a hyperbaric chamber. The diver was taken home by her buddy and monitored. The diver had recently been discharged from physiotherapy having had neck problems and had experienced migraines when younger.

**November 2013****14/280**

During the third shallow dive of the day, at approx 4.5m, the casualty felt tightness in his chest so went to the surface and rested for approx 10 min. He then attempted to descent a second time but experienced the same problem and so he aborted the dive. The casualty de-kitted and complained of a tight chest and dizziness. He was laid down and oxygen provided for approx 10 min. The casualty advised he was feeling better and was not dizzy. He got into warm clothes and was advised to seek medical attention if the symptoms returned or worsened.

**November 2013****14/017**

An instructor and their trainee entered the water by a stride entry and descended to 3m. The trainee's ears began to hurt, her mask began to leak significantly and she starting rising to the surface. The trainee also felt her BCD was a little tight and this was restricting her breathing. She used to have asthma as a child but it now only manifests as hyperventilation when stressed or nervous. The instructor carried out a controlled buoyant lift to the surface, summoned assistance and towed the trainee to the shore. Surface cover entered the water to help land and de-kit the trainee. She did not require medical attention and was fine once changed and warmed up. She completed the rest of her training course the following day achieving her dive qualification.

**February 2014****14/282**

A diver suffered a regulator free flow, he swapped to his buddy's alternative source and they made a controlled ascent. The following day he completed a successful training exercise without any issues. The next morning before kitting up he explained that he had had a problem with one of his ears the previous evening and had taken pain killers. He was advised not to dive and to see his GP. The casualty subsequently saw his GP and was advised not to dive for a month as it looked as if 'the bone had separated from the ear drum'.

**February 2014****14/034**

About 45 min following a dive to 36m for 37 min a diver was having his cylinder filled when his leg felt 'tingly' with a 'dead' feeling. The diver, finding it hard to stand, sat down. He had been training previously for a triathlon. His legs returned to normal and he felt no other symptoms so he walked to his car carrying his cylinder. The diver was put on first aid oxygen for about 15 min and given advice not to dive for at least twenty-four hours, no heavy lifting and to drink plenty of fluids. The diver left the site on his own.

**February 2014****14/283**

During pool training the casualty signalled distress underwater. The instructor assisted her to swim to the surface and she held onto the side of the pool. She informed the instructor that she could not move her right shoulder as it had become dislocated. The instructor inflated her BCD, removed her weightbelt and assisted her out of the water. Once out of the water the casualty

was able to relax her arm, allowing it to fall back into the correct position. She said this was not uncommon and had happened three years earlier. She was happy to continue with the theory sessions and has reported no further problems since the incident.

### March 2014 14/037

A student sustained a foot injury whilst on a training course. He was standing near another student who was kitting up on a poolside bench. As the kitted diver stood up the bench tipped over resulting in both it and the kitted diver falling onto the foot of the student. Although in pain and his foot beginning to swell it appeared there were no broken bones but an instructor took the student to hospital where his foot was x-rayed. This confirmed there were no broken bones and the student was given painkillers and anti-inflammatories and the instructor took the student back to his hotel. The following day, with some residual pain and bruising but with the swelling significantly reduced, the diver managed to complete the course and by the end of that day was in good spirits and without any pain.

### March 2014 14/206

A student on a wreck diving course injured her ankle whilst carrying full kit prior to a dive. The ankle was swollen and tender and the diver advised to go to hospital for an x-ray. The diver had broken her ankle in two places.

### April 2014 14/045

The Coastguard responded to reports of a diver having difficulties on a dive site. A lifeboat was dispatched and the diver was taken to hospital.

### April 2014 14/047

Two divers had descended to 6m; both signalled 'OK' and descended further to 11m. One of the divers suddenly ascended and the buddy attempted to restrain her. The diver signalled discomfort so both ascended to the surface with a total dive duration of 6 min. The diver complained of a bad headache and dizziness and the buddy towed her to shore where they de-kitted. The diver still had the headache and dizziness so first aid assistance was sought and the diver was put on oxygen for 10 min and hydrated with water. After 30 min the diver's symptoms eased and she was monitored for a further 90 min.

### April 2014 14/208

Two divers were at 18m when one of them had a free flow. The buddy handed his alternate supply to the diver with the free flow and they made a slow ascent to 10m. The diver became unresponsive and they made a fast ascent. Their dive duration was 8 min. On the surface the diver was unconscious and the buddy gave him rescue breaths. The diver was recovered into the boat and he regained consciousness and was given oxygen.

### April 2014 14/232

MRCC Falmouth was informed of a 26 year old female who was feeling unwell after a shore dive at Porthkerris. MRCC Falmouth connected the dive instructor to the duty DDRC doctor for advice. Duty doctor was satisfied the casualty did not require immediate medical assistance and was requested to make her own way to hospital. (Coastguard report)

### May 2014 14/264

Lifeboat launched to help diver with illness. Person brought in. (RNLI report).

### May 2014 14/265

Lifeboat launched to help diver with injury. Person brought in. (RNLI report).

### June 2014 14/086

A dive club had arranged a try-dive event in a swimming pool. The try-dives took place on the left hand side of the pool with all available instructors and the right hand side was left clear for snorkellers or swimmers. All who attended were briefed accordingly. Two snorkellers were buddied together for snorkelling practice and it was reported that one of them received a bang on the head from a cylinder. The snorkeller received on-site first aid and was later taken to hospital where a concussion was diagnosed and she was advised to take a week off work.

### June 2014 14/240

Dover Coastguard received a call from a dive vessel stating that a diver had surfaced and had started to complain of feeling unwell. Dover CG gathered the initial information before contacting the dive doctor for medical advice. The dive doctor called Dover CG back at which point he was put into a connect call with the vessel's skipper. (Coastguard report)

### June 2014 14/241

Belfast CG received a call on VHF from a dive vessel reporting a diver onboard with breathing difficulties and a heart condition in need of immediate assistance. Rescue helicopter R-177 and Kilcreggan Coastguard rescue team tasked to the scene. After advice from Aberdeen Royal Infirmary the casualty was airlifted by R-177 to Southern General hospital. (Coastguard report)

### July 2014 14/176

A student experienced ear problems at 2m on his second training lesson. He surfaced and advised his instructor he was feeling dizzy and nauseous. The student then went to the toilet and was violently ill and taken to a medical centre. The student was advised not to dive for a further two weeks.

### July 2014 14/179

Following two dives, the last to 14m, students were carrying out dry run training in dive compass use. One of the students reported a bad headache 60 min after surfacing from the second dive. The instructor teaching the group contacted a doctor for advice and was advised, as a precaution, to put the student on oxygen and transport her to a hyperbaric facility. When the diver arrived she was examined by the doctor, given pain killers and released. She was advised that it was possible that she had suffered a sinus barotrauma and she was advised not to dive for 48 hours. After a night's rest the diver felt well and reported no further headaches.

### July 2014 14/098

999 call received by Belfast MRCC and details passed to Stornoway MRCC. Diver surfaced with medical problems. Medical advice was provided by the duty dive doctor and evacuation recommended. Oban lifeboat was tasked and they transported the casualty to Oban harbour where they were met by Oban coast rescue team and an ambulance which transferred the casualty to the hyperbaric chamber at Dunstaffnage.

### July 2014 14/289

A diver was in the water at the stern of a dive boat waiting to get into the boat. The vessel engaged reverse propulsion, the diver was trapped under the lift platform and her leg was struck by the propeller. She was taken to hospital and treated for lacerations

to her leg and a broken ankle.

**July 2014****14/109**

Diving with two other divers, a third diver had forgotten his DSMB but had continued the dive reasoning that the other two divers had one. Towards the end of the dive, the diver who had forgotten his DSMB became separated from the others and began a solo ascent and stopped at 6m for a 3 min safety stop. His maximum depth was 18m and the dive duration was 45 min. He surfaced to see a catamaran directly ahead and motoring straight at him. With no time to descend to get out of the way the diver swam between the twin hulls. At some point under the boat he lost a fin and hit his thigh bruising it. The skipper of the catamaran had no idea the diver was there.

**July 2014****14/287**

Following a long surface interval, four students, one instructor, one dive master and one dive master candidate entered the water as a group for the final dive of the day. Sea conditions were good and the water was calm. The group slowly went down the shotline. The casualty was buddied with a dive master. During the descent the casualty did not seem to be adding enough air to his BCD to slow his descent. The instructor prompted him to add air but the dive master needed to add air for the casualty. When they reached the bottom, at a depth of 24m, the instructor noticed that the casualty was finning quite quickly and believed this to be a potential sign of panic. The instructor signalled to the dive master to stop and wait on the line while the instructor attended to the casualty. The instructor swam to the casualty to calm the situation, but the casualty was now panicking and spat his regulator out. The regulator was replaced quickly with no issues or inhalation of water. The casualty signalled to the instructor that he wanted to ascend. The instructor ascended to the surface with the casualty, and at the same time she signalled to the rest of the group to abort the dive and to ascend. The instructor and casualty made a slightly fast ascent as the instructor needed to vent air from her own and the casualty's BCD. Upon surfacing the casualty vomited slightly. He was assisted onto the boat and provided oxygen as a precaution, but he showed no signs of DCI. The emergency services were called and the casualty was transported by the Coastguard to hospital. He was advised that he was not suffering any DCI but did have a barotrauma to his ears. He was advised not to dive for three weeks.

**July 2014****14/209**

A trainee was carrying out a drysuit orientation exercise when he felt sick and, after a dive time of 15 min, signalled to ascend from 5m. The diver reported that he had been sick after a pool training session two days earlier and the following day had felt dizzy and 'odd'. A paramedic checked the diver and an ambulance was called to take him to hospital. An inner ear infection was suspected.

**August 2014****14/252**

Dive vessel requested that an ambulance meet the boat at Neyland marina for a 61yr old male who was suffering from a coughing fit. The Milford Haven Coastguard took medical advice from DDRC to ensure that suitable treatment was being sought for the casualty's condition. On the advice of DDRC the casualty was taken to Withybush hospital for appropriate treatment for suspect pulmonary oedema. Dale CRT attended to obtain details. (Coastguard report)

**August 2014****14/181**

A dive boat arrived at a wreck dive site and waited for slack water. After 30 min a dive leader and his buddy, who had consumed about a litre of water, kitted up but waited another 30 min before they entered the water. They descended to 30m and

carried out their dive and just before their ascent one of the divers deployed his DSMB and had a free flow. The diver started to get a headache immediately on the ascent and it became worse as they ascended. The diver signalled to his buddy, the dive leader, that something was wrong. The pair carried out a 1 min safety stop at 9m where the diver switched to his pony cylinder as his main cylinder was under 50 bar and they completed their safety stop at 6m and surfaced. The divers were recovered to the dive boat and the diver reported his bad headache. The diver was given water and was sick so he was put on oxygen. Neurological checks were carried out, which showed no abnormalities, and several more drinks of water were given. The dive manager had contacted the Coastguard to alert them of the situation and the boat headed back to harbour. The Coastguard confirmed that a lifeboat would meet the dive boat. The diver's headache started to get better and by the time the lifeboat came alongside his headache had completely gone. The diver was transferred into the lifeboat together with his buddy. The diver's kit and computer were also transferred. The divers were taken to hospital, checked out and released that afternoon. The diver was advised that he would need to apply for a new medical prior to conducting any further diving.

**August 2014****14/125**

A group of four divers, buddied up in two pairs, were carrying out a shore dive. The plan was to descend to 15m and carry out a rescue lift exercise and on completion descend further to continue the dive. They had planned to fin out to a small boat to use its anchor chain as a guide for their descent and the rescue lift but to avoid the current that they had begun to experience decided to descend without the mooring as a guide. At a depth of between 4 and 6m one of the divers felt water in his primary regulator and, after a few attempts to clear it, the diver changed to his alternative source regulator but swallowed a considerable amount of water in the process. The diver's buddy saw him shaking a regulator and also that he had no regulator in his mouth so the buddy offered his alternative source but there was no response, he offered his primary regulator but still there was no response. The buddy replaced his main regulator and in the meantime both he and the diver had continued to descend and reached the bottom at 19m. With still no response from the diver, the buddy and one of divers from the other buddy pair carried out an immediate fast lift to the surface. It took effort from both divers to initiate the ascent. On surfacing they shouted for someone ashore to call an ambulance and administered rescue breaths to the diver whilst towing him to the shore. The other diver not involved in the lift had lost a fin on his descent. He had looked up and seen there was a problem but became separated from them when he went to retrieve his fin from the seabed. He then carried out a controlled ascent and surfaced to see the other divers carrying out the rescue tow. He swam quickly to them and was able to assist in giving rescue breaths, whilst one of the original rescuers swam quickly ashore to call the emergency services by mobile phone. On reaching the shore CPR was administered and when signs of life were detected the diver was placed in the recovery position. An air ambulance landed near the site while a rescue helicopter was also scrambled to the area. The Coastguard, two ambulances, police and a lifeboat also rushed to the scene. The diver was taken to hospital by ambulance and made a full recovery. The three remaining divers were also taken to hospital with the two who had carried out the fast rescue lift kept in overnight for observation.

**August 2014****14/254**

Ambulance control requested assistance for a diver in difficulties at Gourrock yacht club. Helensburgh ILB, Greenock and Largs CRT were tasked. Helimed 5 and R-177 also tasked. Diver given initial treatment by a doctor on scene then taken to hospital by ambulance for further medical attention. Two other shore divers safely ashore. (Coastguard report)

**August 2014****14/194**

An experienced gas blender was using a compressor. The system had two separate lines of four filling whips. One bank was for air only to which cylinders that were not oxygen clean were to be attached for filling. The air supply from this line was double filtered from the four high pressure air storage banks and/or the compressor. The second line was for use with cylinders that were oxygen clean. This line could be linked to the high pressure oxygen supply either direct from the 'J' cylinders or a booster pump. Air supplied on this line was from the four high pressure air storage banks and/or the compressor and was double filtered. The operator attached cylinders to the blending whips and opened the cylinder valves. He then opened the supply valve on one of the oxygen 'J' cylinders, opened the relevant valve on the oxygen supply panel and the master oxygen valve that allowed oxygen to be delivered to the diving cylinders. He then slowly opened the oxygen needle valve, which normally allows oxygen to flow into the dive cylinders. At this point there was an explosion and the operator managed to turn off the oxygen supply within about 5 sec but suffered severe burns to his left hand which was turning the needle valve. The operator's burns required hospital treatment and the possible need for skin grafts. The grafts were not required but the operator's dressings were changed daily for the first two weeks following the incident. Subsequent investigation of the oxygen system revealed that the explosion had blasted through the needle valve seat and burnt away the metal. On the rest of the system there was evidence of dirt. It was thought that dirt, including some hydrocarbons, had entered the blending system over the years and gradually built up to a 'critical mass' when the explosion occurred. For many years cylinders that were not oxygen clean and cylinders that were out of date had been connected to the nitrox panel on a regular basis.

**August 2014****14/256**

A dive vessel reported a hypothermic diver aboard and heading for Mountbatten Centre. Plymouth Coastguard and ambulance met the Enfield Explorer and the 60 yr old diver was transferred to Derriford hospital by ambulance. (Coastguard report)

**August 2014****14/192**

On the first dive of a dive trip a diver was feeling slightly cold after 20 min but decided to continue the dive. The diver was wearing a thin wetsuit and had no hood on. The diver ascended with a 3 min safety stop and surfaced at which point she suddenly felt exhausted and had problems getting back into the RHIB. She had dived to 18m for 35 min. Once aboard, the diver turned pale, shivered and felt nauseous. The diver's buddy assessed the situation and instructed the diver to lay down flat and oxygen was administered. The Coastguard was informed about the incident. The diver vomited and felt better right away but stayed on oxygen until the RHIB returned to shore where the Coastguard and an ambulance were waiting. The paramedics ran checks and the diver's body temperature was low at around 34 deg C. The Coastguard contacted a hyperbaric facility to confirm whether there was a need for further tests. In the meantime the diver took a hot shower and changed but still felt weak and cold. The diver attended the hyperbaric chamber and the doctor examined her to check for DCI. The result was that the incident was seemingly caused by seasickness and hypothermia. The diver was told to get some rest and she would be able to dive the following day. The diver did dive the next day but wore a hood and waterproofs to and from the dive site and was fine.

**August 2014****14/193**

A diver and her buddy, both on nitrox 40, were dropped off by their dive RHIB on the shotline marking a wreck. The divers descended but at around 3m the diver realised her mask was not fitted correctly and both returned to the surface. The sea was choppy and the diver had trouble inflating her BCD which made her feel a little panicky. Her buddy assisted with her BCD and her mask strap which had slipped to the top of her head on entry from the boat. With her mask refitted, the buddy indicated to go down but the diver signalled to wait so that she could regain her composure. After about 10 min the diver's breathing was normal and they carried out the dive finishing at the bow of the wreck in 8m. The divers deployed a DSMB, ascended, completed a safety stop and surfaced. The surface conditions had calmed down and the diver felt relaxed as they waited for their RHIB to pick them up about 3 min later. The diver handed in her weights and undid her BCD but as soon as she let her regulator go she felt breathless and shouted to the RHIB's crew to get her out of the water quickly, which they did. As the buddy was recovered into the boat he noticed that the diver was cyanosed and she was put on oxygen. The diver felt better but had a 'tight' chest and was coughing and wheezing. It was decided by experienced divers in the boat that this was not a diving related incident but they would take the diver to a hyperbaric chamber as a precaution. At the chamber the duty doctor said that the diver's ECG indicated a recent heart attack but did not believe this to be the case due the diver's condition at the time. However, as the doctor was not happy with the diver's breathing she was referred to A&E for a chest x-ray and they also concluded from another ECG that the diver had suffered a myocardial infarction, which was backed up by blood tests. The diver was admitted to hospital for constant monitoring. Following an ultrasound scan, it was diagnosed that the diver had a possible Takotsubo cardiomyopathy, a change in the shape of the left ventricle believed to be caused by emotional or physical stress; a temporary condition which is reversible. The diver was discharged two days later with cardiac medication whilst awaiting all the test results and was informed that there was no damage to the heart tissues, she had not suffered a myocardial infarction but a Takotsubo cardiomyopathy.

**September 2014****14/139**

A dive boat contacted the Coastguard with a 'Mayday' reporting an unconscious diver on the surface. The Coastguard scrambled a helicopter. A paramedic on the dive boat treated the diver who recovered quickly and regained consciousness so the helicopter was stood down. A lifeboat escorted the dive boat to harbour where the casualty was transferred to hospital by ambulance. It was suggested that the diver had fallen unconscious due a malfunction of equipment. (Media report).

**September 2014****14/259**

Call from dive vessel informing Dover CG that a diver had surfaced and was feeling unwell, the duty dive doctor was consulted and advised the casualty should be taken to a chamber; R-104 was tasked and evacuated the casualty to Chichester chamber, Eastbourne CRT met with the dive boat on arrival in Eastbourne. (Coastguard report)

**September 2014****14/288**

The casualty was wearing a drysuit and had completed the first dive of a day. The casualty did not report discomfort with her drysuit. On entering the water for a second dive the students were asked to complete a snorkel to regulator exchange. The casualty struggled with this skill and she complained that her neck seal felt tight. Her neck seal was tucked over, so the instructor un-tucked the seal to loosen it. The casualty did not complete the skill however they decided to continue on with the dive. When asked if she was OK the casualty responded 'yes'. The instructor chose to descend with the casualty on her own first to determine if she seemed comfortable and capable in the

water. They descended to a 6m platform and the casualty repeatedly returned the OK signal. The instructor and the casualty ascended to re-join the group waiting on the surface that was supervised by an assistant instructor. The group of six made their descent to the platform together. On the platform the casualty did not look comfortable and so the instructor took her to the surface, leaving the remaining three students with the assistant instructor. This remaining group then joined with another instructor who had already taken a second group of four students down. On the surface the casualty said she felt the neck seal was too tight. The instructor helped her back to the shore and she left the water. When she was assisted out of her drysuit she said she was feeling dizzy. She was laid down and monitored by staff. After 20 min they decided to call an ambulance and the casualty was admitted to hospital. The casualty was released from hospital later that evening. No ongoing problems have been identified as a result of the dive.

## September 2014

14/140

A pair of divers entered the water from a dive boat to dive a wreck at a depth of 29m as part of a no stop training dive. On entering the water they found the tidal flow too strong and one of the pair was recovered to the boat while her buddy remained in the water at the stern of the boat until the tide slackened. Another pair entered, descended the anchor line and deployed a DSMB to indicate conditions were favourable to dive the wreck. The diver, who had been recovered to the boat, entered the water and joined her buddy. On leaving the surface it was clearly heard that the bow of the boat had struck one of the diver's

cylinders but the buddy pair could be seen descending normally down the anchor line. The divers reached the wreck with regular checks of depth and 'OK' signals to each other. On the wreck they made their way to the bow and descended to a depth of 32m in the wreck's scour when the diver indicated that she was not happy and wanted to abort the dive. She began to panic but her buddy took hold of her, led her away from the wreck and carried out a controlled buoyant lift. The pair ascended to 10m, paused to control the ascent and the buddy noticed blood in the diver's mask. The divers surfaced, the buddy called for assistance and the diver was de-kitted and recovered to the boat. Their dive duration was 12 min. She stated that she had hit her head under the boat before descending, had felt sick and 'woozy' and felt overwhelmed during the dive and wanted to abort it. She said she was embarrassed to have aborted the dive and was visibly shocked, shaken and tearful. The diver was reassured and made as comfortable as possible and the boat headed back to shore, having called off all other diving. The diver did not show any signs of DCI but oxygen was administered as a precaution. The Coastguard was alerted and a paramedic was sent to meet the boat. However, concerned that the diver's condition was getting worse, the Coastguard was contacted again and a rescue helicopter was dispatched. The diver was airlifted to a hyperbaric facility where she received further oxygen treatment but was not recompressed as she was diagnosed with a suspected 'whiplash' injury due to her head hitting the boat. The diver was discharged later that evening.



## Boating & Surface Incidents

### October 2013

14/220

A yacht relayed a distress call to Belfast Coastguard from three divers that had become separated from their boat. The yacht stood by the divers until their boat arrived to recover them. (Coastguard report)

### October 2013

14/223

A dive boat reported three divers missing following a wreck dive in Scapa Flow. However, shortly after making the call, the boat reported they had located the divers ashore and were going to recover them back to the boat. Longhope ALB had already been launched to search and continued to assist with recovering the divers to their boat. (Coastguard & RNLI reports)

### October 2013

14/225

A dive boat reported two divers overdue while on a wreck dive. However, shortly after reporting them overdue they were located by the boat. (Coastguard report)

### November 2013

14/226

Brixham Coastguard tasked Salcombe and Torbay Lifeboats, Prawle Coastguard and Portland Coastguard helicopter to a missing diver in the Hallsands area of Start Bay, after a dive boat reported having lost sight of the diver's surface marker buoy. The diver was spotted from shore and recovered by Salcombe Lifeboat, then transferred back to the dive boat. No medical assistance required. (Coastguard report)

### November 2013

14/015

The Coastguard received a report of two missing divers from a dive boat. A lifeboat was called out to help search for the pair and another dive boat also joined the search. The two divers were located on the surface, both were well and no medical assistance was required.

### November 2013

14/261

Lifeboat launched to search for missing diver. One person recovered. (RNLI report).

### December 2013

14/079

An instructor and trainee were shore diving to a wreck with a maximum depth of 20m. Arriving at the wreck the trainee became disorientated in the poor underwater visibility, lost his bearings and left the wreck. A current pushed him further away from the wreck and after a 5 min search trying to relocate it the trainee decided to surface. His dive duration was 10 min. On the surface he was carried by a current running parallel to the shore and he managed to grab hold of a mooring buoy. Unsure of what to do he remained on the buoy. In the meantime the instructor had realised that he and the trainee had separated so headed back to shore. With no sign of the trainee, the Coastguard was contacted and they directed a police helicopter to help with the search. As the helicopter arrived the trainee was seen holding onto the buoy. The instructor finned out to him and helped him back to shore. The Coastguard contacted a hyperbaric chamber and on their advice the trainee was given oxygen for 15 min. Other than being a bit shaken, the trainee suffered no ill effects.

### March 2014

14/228

A 999 call was received from a diver reporting two overdue shore divers. Kyle Inshore lifeboat paged, but stood down after the dive leader called back to say he had located the missing divers. SAR ops terminated. (Coastguard report)

### March 2014

14/038

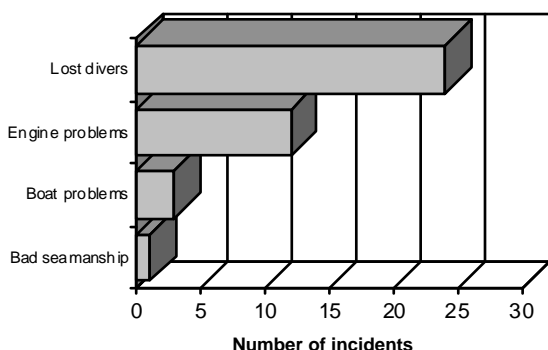
The Coastguard was called to assist a dive boat that had broken down and still had divers in the water. The boat was drifting without an effective anchor. Two lifeboats were launched and one located the dive boat and its two crew members. The location of the missing divers was made easier as they had an emergency VHF radio and were able to be contacted once they had surfaced. The divers indicated that although they were adrift they were together, fit and well. The lifeboat searched and located the divers, marked by their SMBs. The divers were recovered, checked over and found to be well. The lifeboat returned to the dive boat and established a tow to take all the divers back to shore. They were met by the inshore lifeboat which took the boat, crew and divers back to the beach where the boat had been launched allowing the larger lifeboat to return to its station. (Media report).

### March 2014

14/056

Divers were diving on a wreck, from a hardboat, to a maximum depth of 30m. The first buddy pair was dropped on the shot but one of them decided to abort the dive as he was having problems breathing from his regulator. The skipper refused to pick up the pair until all the remaining divers were in the water and wanted them to drift until he was ready. Due to a minor issue it took a while to put all the divers in and by this time the buddy pair had drifted some way from the shot. Within 10 min of putting the last buddy pair in, all the divers discovered they were not on the wreck and due to bad underwater visibility all the pairs decided to abort their respective dives. This meant that there were now six buddy pairs drifting on the surface. Having lost sight of the first pair the skipper called the Coastguard but before the lifeboats arrived on the scene the divers had been located. The lifeboats were asked to stand down but both proceeded to the search area to confirm all was well and no medical attention required. They remained on site until all the divers had been recovered.

### Analysis of boating & surface incidents



**March 2014 14/230**

Shore diver reported overdue following separation. Largs ILB tasked but stood down when diver confirmed resurfaced during information gathering stage. Largs Coastguard on scene confirmed all well and returned to station. (Coastguard report)

**May 2014 14/233**

Torbay RNLI inshore lifeboat and Berry Head Coastguard were tasked to a diver ¼ mile off Brixham Breakwater Beach requiring assistance to come ashore. The dive manager recovered the diver who did not need any medical assistance. (Coastguard & RNLI reports)

**May 2014 14/234**

A call was made via telephone to request assistance after the 6m dive RHIB suffered engine problems near the East Ship channel in Portland Harbour. Calls were made on VHF ch16 and a passing vessel took the dive RHIB, with three persons onboard in tow back to Ferrybridge. (Coastguard report)

**May 2014 14/059**

Two lifeboats were called out after receiving a call from a dive boat saying that two of their divers had failed to surface. The lifeboats began a search of the area and after 4 min the two divers were spotted. When the lifeboats arrived alongside, both divers said they were well and happy to wait in the water to be recovered by their dive boat. The divers said they had surfaced on time but not close to the dive boat and despite waving they were not seen. They had surface marker buoys and had tethered themselves together to making finding them easier. They had drifted nearly two miles from the dive site.

**May 2014 14/235**

One lifeboat launched to search for missing diver. Diver recovered by others. (Coastguard & RNLI reports)

**May 2014 14/266**

Lifeboat launched to assist dive boat with engine problems. (RNLI report).

**May 2014 14/069**

A dive boat reported they had a missing diver. A Coastguard helicopter was scrambled and shore Coastguard units alerted. A navy vessel and yacht in the area joined the search. When the helicopter arrived on the scene the diver was sighted and recovered safe and well to the dive boat. The dive was to a maximum depth of 22m for 33 min. (Coastguard & RNLI reports).

**June 2014 14/071**

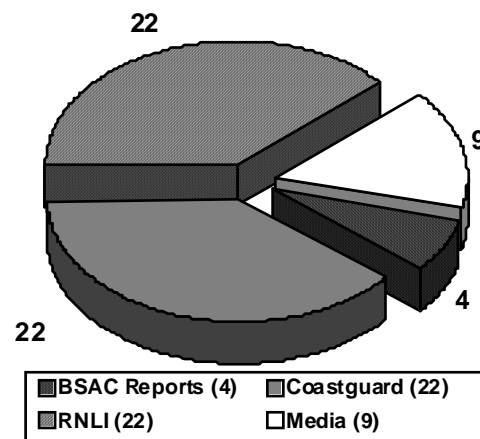
A group of divers had planned a boat dive but on arrival at the launch site it was decided the conditions were too rough and it would be better to dive on a more sheltered site. A site by sea cliffs was selected which meant the boat had to be launched from a different slip. Two of the divers took the boat out to check conditions and, as they were calm, they returned to pick up the divers. Due to low underwater visibility, swell and a current pushing them away from the cliff, one of the buddy pairs decided to abort their dive which was to a maximum depth of 9 m. They deployed a DSMB. On their ascent they were caught in strong current but ascended at a normal rate. When the divers surfaced they could see their boat but they were being quickly swept away. As they drifted behind a rocky outcrop they realised their boat may not have seen them. They began to drift quickly out to sea and tried to swim back to a point where they could see their boat but due to the strong current this was not possible. The dive boat had picked up the last pair of divers but as the buddy pair

were assumed not to have surfaced; it conducted a quick surface search and after about 30 min called the Coastguard to report 'missing divers'. Once the lifeboats arrived and began to search the area, two of the divers in the group were deployed to carry out an underwater search from the shotline. The missing divers kept hold of the DSMB which they had detached from the reel and held it up high with the hope of being spotted. They ditched their weightbelts. They saw small sail boats near the coast so waved the DSMB and flashed a torch but were unable to attract their attention. During the next couple of hours the divers spotted a lifeboat searching the coast and a helicopter searching to the south of them. They drifted further out and tried swimming again which proved useless as they did little more than use up energy. They were then picked up by a current and moved back to the area where they had seen the helicopter searching previously. They saw a lifeboat close to their position and tried to attract its attention without success. Five and a half hours from when they surfaced the divers spotted a helicopter and as it passed closer to them they waved the DSMB and used the torch as a strobe light. The helicopter winchman had spotted the buoy but was unable to make out divers but he asked the pilot to make another pass and saw the strobe flash and the divers. The helicopter winched the divers aboard using a double-strop lift to counter any sudden drop in their blood pressure and lifeboats stood by to make sure they were recovered safely. The divers were taken to a medical facility and, although they had begun to get very cold, they were given the 'all clear' after a few medical tests. Involved in the search were two helicopters, two planes, four lifeboats and Coastguard shore units.

**June 2014 14/242**

Aberdeen MRCC received a call on VHF 16 from the dive boat Pathfinder south of St Abbs harbour reporting two divers 10 min overdue. Divers surfaced shortly after initial call; vessel reported divers required no medical attention. (Coastguard report)

**Boating & surface incident report source analysis**



**July 2014 14/268**

Two lifeboats launched to assist dive boat with engine problems. Craft towed in. (RNLI report).

**July 2014 14/267**

Lifeboat launched to assist dive boat with engine problems. Craft towed in. (RNLI report).

- July 2014** **14/269**  
Lifeboat launched to assist diver. Others coped. (RNLI report).
- July 2014** **14/247**  
Bembridge and both Selsey RNLI lifeboats launched along with Coastguard rescue helicopter CG104 which was scrambled to a report of two missing divers 2nm south of Selsey Bill off a dive vessel. Divers were eventually found by a dive vessel. No medical attention required. (Coastguard & RNLI reports)
- July 2014** **14/270**  
Lifeboat launched to assist dive boat with engine problems. Craft towed in. (RNLI report).
- July 2014** **14/249**  
Little Haven RNLI-ILB, Dale CRT & land ambulance were tasked to a swimmer reported 0.5 mile off St Brides beach. Casualty was assisted ashore by a canoeist no medical assistance was required (believed diver). (Coastguard & RNLI reports)
- July 2014** **14/248**  
Sherringham and Cromer Coastguards investigated a report of missing divers at East Runton; however all divers were accounted for just prior to arrival. (Coastguard report)
- August 2014** **14/250**  
A dive boat reported a diver missing approx 1.5 nm from Sea Palling. The vessel was searching and another vessel was going to leave Sea Palling to assist. As details were being taken the dive boat spotted a surface marker buoy and shortly after recovered the missing diver. (Coastguard report)
- August 2014** **14/121**  
Six divers in a RHIB had completed a dive but as conditions were getting bad with 1m high waves they decided to return to shore. Travelling back with the wind and waves behind them the boat hit a submerged object, possibly a buoy or lobster pot marker, which turned the boat head on into the waves. The waves tore the RHIB's front tubes from the hull and within seconds the divers were up to their knees in water. As the radio was about to be submerged the divers quickly put out a 'Mayday' call. Local lifeboats were scrambled and the divers rescued while a helicopter flew overhead. The divers and the damaged RHIB were taken back to shore. (Media report).
- August 2014** **14/253**  
Two sports divers were reported overdue at Roker. As Sunderland CRT proceeded, the divers returned ashore safe and well. The CRT offered safety advice. (Coastguard report)
- August 2014** **14/255**  
A 999 call was reporting an overdue diver at South Shields. As units were being tasked, a second 999 call confirmed the diver to have surfaced safe and well, requiring no further assistance. (Coastguard report)
- August 2014** **14/128**  
Berry Head Coastguard, Coastguard helicopter R-106, Torbay RNLI lifeboat and inshore lifeboat were tasked to a report of a missing diver off Breakwater Beach, Brixham. Diver resurfaced safe and well as units commenced searching. (Coastguard & RNLI reports).
- August 2014** **14/257**  
Dive vessel Jean Elaine reported an overdue diver in Burray Sound between the islands of Hoy and Graemsay, Orkney. Stromness RNLI lifeboat and Hoy Coastguard rescue team were tasked but soon after were stood down as the diver was located safe and well. No further assistance was required. (Coastguard & RNLI reports)
- August 2014** **14/129**  
The Coastguard received a report that a dive boat had suffered engine failure. A rescue vessel was sent to collect the boat and divers and towed them back to harbour. (Media report).
- August 2014** **14/273**  
Lifeboat launched to assist dive boat with engine problems. (RNLI report).
- September 2014** **14/202**  
A RHIB with three people onboard suffered engine failure due to an electrical fault when they were on a wreck dive site. The Coastguard called a lifeboat to attend the scene and the boat was towed back to shore. (Media report).
- September 2014** **14/201**  
The Coastguard received a call from a member of the public who had seen a man in a boat waving his hands for assistance. It turned out that a diver was adrift in the water and the boat, which had broken down, was unable to reach him. A lifeboat was sent and picked up the diver from the water and took him back to the boat. The diver was unhurt and the boat was towed back to harbour. (Media report).
- September 2014** **14/205**  
A dive RHIB took five divers out for a wreck dive. The wreck was located and the shot deployed well ahead of slack water. Three divers kitted up ready to dive and just before being taken up tide of the shot the cox'n knocked the ignition switch stopping the engine and breaking off the key. On inspection of the spare key in the boat box it was noticed it had a hairline crack so this key was in a fragile condition. After many attempts to start the engine using different keys and discovering that the engine had a plastic cover bolted over the flywheel making it impossible to use the emergency pull cord, the Coastguard was called for assistance. With no divers down and with flat calm conditions the anchor was deployed. A lifeboat arrived and towed the RHIB back to its launch site.
- September 2014** **14/274**  
Lifeboat launched to assist dive boat with engine problems. Craft towed in. (RNLI report).

## Ascent Incidents

**October 2013****14/033**

On a dive to 20m a diver found his BCD was not working so he aborted the dive but made a fast ascent to the surface. His dive duration was 14 min. The diver was feeling unwell and in pain so was administered first aid oxygen for 15 min.

**October 2013****14/277**

The casualty was attempting the mask flood skill at 3m. He was unable to clear his mask and rapidly ascended to the surface. His regulator remained in place and he said that he didn't breathe in any water. At the surface he was taken out of the water and said that he had a headache. He was placed on oxygen and monitored for 20 min. There was no change to his condition and so he was warmed up and given fluids. He was sent home with instructions to monitor for symptoms in case he worsened at home. He came back to the centre following the incident and was well again.

**October 2013****14/275**

The casualty had made one dive previously that day without incident. The casualty entered the water for a pleasure dive in a group of three. They swam on the surface to a buoy which marked a plane tail and then they rested before descending. Once they descended everyone signalled OK and they began to swim the length of the plane. When two divers reached the cockpit they realised the casualty was missing. They swam back along the plane and found the casualty's dive kit tangled up in some rope which was around the first stage, but the casualty was not there. They untangled the dive kit and made an ascent. They found the casualty conscious and getting his breath back after making an emergency ascent to the surface. The rescue boat came out to retrieve the divers. The diver was placed on oxygen and monitored and then he went home.

**December 2013****14/016**

An instructor and trainee were carrying out two experience dives. On the first dive the trainee had experienced some minor buoyancy problems dealing with his automatic dump valve but this did not lead to any uncontrolled ascents. The second dive started in a shallow training area with buoyancy practice before descending to 18m after 21 min. 7 min later the decision was taken to turn back due to the trainee's air consumption and return directly to the exit point. The trainee became concerned and gave the 'something wrong' and 'up' signals and began to ascend. The instructor was able to control the ascent from 15m to 12m but despite manually dumping air for the trainee, a rapid ascent was made to the surface. During the ascent the trainee was hyperventilating and remained responsive but acknowledged 'OK' with further 'up' signals. Their dive duration was 35 min. On the surface the trainee was able to inflate his own BCD and calmed down. Neither the trainee nor instructor felt any physical ill effects. Following a fairly lengthy surface swim back to their exit and shore cover, it was agreed they would complete the dive by descending to a 6m training platform in an attempt to rebuild confidence. This lasted for 6 min with no further problems encountered. Forty-eight hours after the incident the trainee and instructor did not show any ill effects.

**March 2014****14/039**

The Coastguard deployed a lifeboat to attend to a diver who had made a rapid ascent from a wreck dive. A rescue helicopter also attended the scene and the diver was winched aboard for immediate transfer to hospital. The lifeboat remained on the scene until all the remaining divers had safely returned to their dive boats which were then escorted back to shore.

**March 2014****14/170**

Two divers had carried out a dive to 20m for 24 min. After a surface interval of an hour and a half, a second dive was planned for 10m for 30 min. The divers entered the water and the dive manager could see their bubbles on the surface as they swam on the planned route for the dive. 11 min later the dive manager saw one of the divers break the surface in a state of panic, calling and signalling for assistance. Moments later the buddy surfaced and started to give assistance to the diver. The dive manager instructed the buddy to tow the diver to the exit point at the same time raising the alarm for assistance. The diver was beginning to calm down and was assisting the buddy on the tow. On reaching the exit point the divers were recovered, the diver with some assistance but the buddy was fine having made a normal ascent. The diver was mildly shocked and said he felt lightheaded. He was checked for initial DCI symptoms, put on oxygen and taken to an office while calls were made seeking medical assistance. It was during this time that a recompression chamber doctor arrived, who had also been diving on the site, and he gave the diver a neurological and initial medical assessment. The doctor debriefed both the diver and dive manager saying that in his opinion the diver was not showing any signs or symptoms of DCI and although well he had obviously suffered some shock and distress and advised he be checked by another doctor. The diver was taken to a medical centre and after a full examination was confirmed fit and well. The dive had been to 17m for 14 min.

**March 2014****14/229**

999 call requesting assistance for two shore divers in difficulty after a rapid ascent. Portaferry RNLI inshore lifeboat requested and Portaferry coastguard rescue team tasked. Casualties made their own way ashore and on advice from duty dive doctor they were taken via ambulance to the Ulster hospital. (Coastguard & RNLI reports)

**March 2014****14/073**

An instructor was taking a trainee to complete her third open water dive. They were accompanied by another diver who wanted to watch the instructor teaching the lesson. The group entered the water from a beach and descended. On the bottom the diver, who had tried to dive the day before but couldn't get underwater, was struggling to stay down so the instructor gave her a 1 kg 'snap on' weight. The instructor led the trainee and diver a short distance to the edge of a reef. After some time looking around the instructor indicated moving to deeper water, to around 14m, and both the trainee and diver gave 'OK' signals. At 14m the diver indicated she had a problem. The instructor stopped the trainee and signalled to the diver. The diver paused and signalled she was 'OK'. The instructor asked again with the diver giving another 'OK' response. The group carried on with the dive but a couple of minutes later the diver frantically tapped the instructor's shoulder and then bolted to the surface. The instructor tried to catch her but couldn't get to her quickly enough and went back down to the trainee. The instructor and trainee ascended, completed a 1 min stop at 6m and surfaced. The total dive duration was 12 min. The diver had drifted on the surface some 50m away and the instructor could hear her calling weakly for help and trying to wave to the shore party. The instructor grabbed the trainee, who was finning slowly, and towed her towards the diver while he shouted and waved for help which the dive manager on shore ran to get. The instructor reached the diver whose face was blue and she said she was having difficulty breathing. The instructor unclipped her BCD waist strap, dumped her weightbelt and towed her back to shore with the trainee following. The diver was de-kitted and recovered to the shore where the dive manager had returned with the oxygen kit. The

trainee was helped out of the water by other divers and the diver put on the oxygen and monitored. The diver improved and when she felt better was moved to a warm room but kept on the oxygen until she had recovered. It was concluded that the incident was caused by overexertion combined with a tight heavy weightbelt, leading to a shortness of breath and hypoxia, which was resolved by rest and oxygen treatment.

#### April 2014 14/231

999 Call reporting concerns for a diver who had ascended quickly and was in the dive RHIB alongside at Millport harbour. Cumbrae CRT tasked to assist and dive doctor contacted who then spoke to casualty, on scene duty doctor and Cumbrae CRT. Casualty then taken by ambulance to Millport hospital. (Coastguard report)

#### April 2014 14/089

A rebreather diver and his buddy diving nitrox had planned a 55 min 25m wreck dive. They ascended from 24m to 6m at the end of their dive and the rebreather diver checked his buddy's computer which was showing 7 min of decompression stops plus a 3 min safety stop. Until this point the diver was unaware that his buddy had accumulated any decompression time as, diving on a rebreather, he had no mandatory decompression stops. The diver checked the buddy's gas and she was down to just under 50 bar. As a precaution, the diver suggested that the buddy switch onto his alternate source, which was on a long hose. Having done this the buddy ascended slightly to around 4m and the diver signalled her back down to 6m but they 'bobbed up and down a bit' before the buddy signalled 'up'. The diver signalled 'down' and tapped his computer to remind her that she still needed to complete her decompression stops. The buddy then started swimming up, spat out the alternate source and continued to the surface. It was thought that her computer by this time showed a 5 min decompression stop plus a 3 min safety stop. On the surface the diver gave the distress signal and the buddy was recovered onto the boat, put on oxygen and monitored for symptoms. Prior to the dive the buddy had been asked for her gas mix and 'air' was recorded on the dive sheet and she had set her computer gas mix to 'air'. However, when the buddy's partner had surfaced from his dive it was discovered that he had arranged for the filling of her cylinders and she had in fact been breathing nitrox 32, not air. On checking tables and dive planning software, the buddy would have been within the limits of a nitrox 32 no stop dive. By this time the buddy had been breathing oxygen for 30 min and with no symptoms of DCI was taken off the oxygen.

#### April 2014 14/284

The casualty was making her second deep dive of a course. The group descended to 34m and completed skills. They began a swim up a gentle slope towards 27m. At this depth the casualty appeared to be in some distress. The casualty gestured that she needed the instructor's alternate air source which he provided. At this stage the casualty was in a minor state of panic and signalled to ascend. They began to ascend and the instructor tried to control the ascent by dumping air from both of them. They reached the surface in approximately 1 minute. On the surface the casualty was distressed but alert, saying she had struggled to breathe. The boat came to collect the casualty and both were placed on oxygen as a precaution and they were monitored for DCI symptoms. No symptoms occurred and so the casualty was sent home with guidance if she felt unwell later on. Both regulators were checked before and after dive and were working correctly.

#### May 2014 14/052

A diver had completed one dive to 15m for 30 min. The second dive of the day was on a wreck at 32m for 41 min. On the ascent from the wreck the diver missed a safety stop due to insufficient weighting. The diver was administered first aid oxygen and following medical advice was airlifted to a recompression facility. He was assessed and released without recompression. (Coastguard report).

#### May 2014 14/058

A diver was at 20m when he lost his regulator. He quickly ascended to the surface in around 3 min and the dive boat crew following emergency services for assistance. A lifeboat attended the scene and the diver was airlifted to a hyperbaric centre as a precaution. (Media report).

#### May 2014 14/064

An instructor and trainee were carrying out an experience dive as part of the trainee's diving course. The plan was to follow a guide rope laid from the shore to an underwater feature at 14m and then return to shore. The divers followed the rope and at 12m the trainee attempted to clear water from his mask but this resulted in some water being inhaled making him cough. The instructor attempted to calm the trainee but this was met with 'up' signals and the trainee began to ascend. The instructor was able to arrest the trainee's ascent by dumping air from the trainee's shoulder dump and a normal ascent rate was carried out to 6m. At 6m the ascent rate increased as the trainee was still finning upwards. On reaching the surface the instructor inflated both their BCDs and the trainee calmed down and was able to breathe normally. The dive duration was 13 min. The divers returned to shore and neither suffered any ill effects following the dive.

#### May 2014 14/219

Two pairs of divers planned to dive a known wreck. The wreck was snagged using a grapple to hook into the wreck. The first pair planned to descend and ascend the shotline as one of the divers had not dived recently in the UK and was a little cautious as she had not dived in a drysuit this year. The pair went to a maximum depth of 32m and had accumulated around 5 to 7 min of required decompression stops before starting their ascent up the shotline. The pair ascended to their deco stop depth whilst still on the shotline. Before they could complete their required stops the second pair of divers sent up the grapple using a lifting bag. This resulted in both of the first pair being pulled off their stops. One diver ascended 2m before regaining control but the other diver made an uncontrolled ascent to the surface before she realised what had happened. Her buddy terminated his dive to look after her and both were recovered by their cover boat and given oxygen and fluids. At the time neither diver suffered any signs or symptoms of DCI but both experienced chest tightness over subsequent days. The emergency services were not called.

#### May 2014 14/100

At the end of a 28m wreck dive a nitrox diver was on his ascent when he activated his DSMB by mistake at 23m. He made an uncontrolled rapid ascent to the surface in less than 30 sec and missed a 1 min decompression stop at 6m. Back on the boat he was given first aid oxygen which he remained on throughout the 2 hour transfer to a hyperbaric facility during which time he showed no symptoms of DCI. With the increased risk of DCI due to the uncontrolled ascent, missed decompression stop and having consumed alcohol the night before the dive, the diver underwent recompression treatment and was advised not to dive for at least a month and not until after review by a diving doctor.

**June 2014****14/236**

Plymouth RNLI lifeboat and inshore lifeboat assisted a dive boat having a diver aboard who had made a rapid ascent near Plymouth Breakwater. Diver taken to ambulance at Millbay Docks for ambulance transfer to DDRC, Derriford. (Coastguard report)

**June 2014****14/081**

On the second day of a boat diving weekend, having carried out two dives the previous day, a buddy pair were diving a wreck at 31m. One of the diver's computer gave an alarm 17 min into the dive and the diver mistook this for his 'depth alarm' which was set for 30m. The alarm was the decompression warning for mandatory stops. 35 min into the dive and having deployed their DSMB, the divers began their ascent which was uneventful and controlled until around 15m. At this point the diver saw the shotline over his shoulder and swam towards it. When he grabbed hold he turned and waved to his buddy but she had her back to him and was concentrating on reeling in the DSMB. The diver decided to abandon the shotline and re-join his buddy. From about 12m the buddy began to rise at a faster rate and was focused on the DSMB reel and slack line. The diver could see the buddy attempting to dump air but could not see any being released from her drysuit or BCD. Her ascent rate increased until she surfaced. The diver could see his buddy on the surface but did not know whether she was in trouble or not. He could hear boat activity nearby and decided to ascend to ensure his buddy was safe. The dive duration was 41 min. Back on the dive boat it was established that the buddy had made a rapid ascent and both divers had missed around 15 min of decompression. They were immediately put on oxygen, the boat returned to shore and the divers were taken to a hyperbaric facility for assessment. They were later discharged as neither showed signs or symptoms of DCI and did not require recompression treatment.

**June 2014****14/070**

A diver had made a rapid ascent and the Coastguard was contacted. Lifeboats attended the scene and the diver was transferred to a hyperbaric chamber. (Media report).

**June 2014****14/175**

Two divers were carrying out a wreck dive and after 28 min of bottom time and a maximum depth of 31m they decided to begin their ascent. Both of the divers' computers indicated a 2 min stop at 9m which had cleared to 1 min when they arrived at the stop. The divers then ascended to 6m with one of the divers' computers indicating a 4 min stop which both carried out. At the end of the 4 min stop, the diver's computer indicated a 3m stop for 9 min which the diver was not expecting. He indicated this to his buddy who showed that his computer was indicating the same. They stayed at 6m until their dive time was 41 min and decided to abort the rest of the decompression stops and surface. The diver reasoned that his computer had been set to a low 'conservative' level and knew that the tables would only have given him a 3 min stop at 6m. Back in the dive boat the diver told the dive manager that they had missed the 3m stops. Neither had DCI symptoms but both were put on oxygen. The Coastguard was contacted and an ambulance met the divers when the boat returned to shore and transferred them to a hyperbaric chamber. Following examination the doctor decided there was no need for any recompression treatment and the divers were discharged.

**June 2014****14/094**

Back on their dive boat following a 35 min drift dive in 30m, a pair of nitrox divers informed their dive manager that they had missed 4 min of decompression stops, a 1 min mandatory stop and a 3 min safety stop. They had ascended normally to 6m and

then had been unable to do their stops. One diver was put on first aid oxygen and the second diver told to carry on breathing his nitrox while a second oxygen set was made ready in 2 min. With both divers on oxygen they were monitored for symptoms of DCI but there were no apparent signs. The Coastguard was contacted advising them of the incident and that the dive boat was immediately returning to shore. A hyperbaric chamber had been contacted and although the divers were not showing apparent signs of DCI both were recommended to attend for recompression treatment.

**June 2014****14/105**

A diver's computer began giving decompression warning information at around 23m on an ascent from a 35m wreck dive. His back-up computer exhibited the same warning. The diver and his buddy became briefly pre-occupied with this which delayed their ascent and accumulated more decompression time than planned. On the ascent and due to loss of the buddy's buoyancy control, the divers missed their decompression stops by 7 min on the diver's computer and 2 min on the buddy's. Their dive duration was 40 min. Both divers were administered oxygen onboard their dive boat but no DCI symptoms were exhibited by either diver.

**July 2014****14/093**

Two divers were carrying out their first dive of the day on a wreck. They descended to 30m and then ascended along the side of the wreck reaching 25m in 15 min. They found an opening in the side of the wreck and although not discussed on the dive brief, agreed to go in. Keeping the exit point in view and with the wreck structure limiting movement the divers decided to exit. One of the divers exited and stayed by the opening shining his torch to guide his buddy out in the poor visibility. After about a minute the diver realised the buddy had not moved with only her head out of the opening and saw the buddy was trying to look up as if something was holding her cylinder. The diver swept his hand over the buddy's cylinder and felt a stretched cable had snagged it. The diver signalled the buddy to stop pulling and signalled her to go back in and he followed. Checking that the buddy was free of the cable the diver signalled for them to exit the wreck. The diver had 100 bar remaining and the buddy 40 bar and they had both descended back to 30m. The diver had difficulty deploying his DSMB and as he had used up more of his air he signalled they should ascend without the DSMB. The ascent was controlled up to 20m when the buddy ran out of air and switched to the diver's alternate supply. They continued to ascend to 11m by which time the diver's computer indicated a 5 min decompression stop at 3m. With about 10 bar left the diver made the decision to continue their ascent to the surface missing the decompression stop. Their dive duration was 36 min. The divers were recovered to their dive boat and had no symptoms but did not dive again that day. Back on land the buddy complained of a neck ache but felt it was muscular. As a precaution a hyperbaric chamber was contacted and they asked her to attend. Following assessment the buddy was found not to be suffering from DCI symptoms and was sent home.

**July 2014****14/127**

A diver and his buddy, who was relatively new to a drysuit and UK diving conditions, carried out a dive to 16m. The buddy's buoyancy had been fine throughout the dive but 20 min into the dive and earlier than planned, a decision was made to abort the dive and carry out an immediate direct ascent. This was due to the buddy's low air, approaching 50 bar, and poor visibility which prevented them finding the route back to shore. After ascending together to approximately 10m the buddy disappeared in a layer of low visibility. The diver continued to ascend and began his 3 min safety stop at 6m assuming the buddy was nearby in the low visibility. After approximately 2 min the buddy reappeared beside the diver who was alerted to a possible rapid ascent by audible

warnings from his buddy's computer. The shore cover had seen the buddy surface and then re-descend. The diver inspected the buddy's computer and indicated an immediate return to the surface. Back on shore the buddy looked 'grey/green' and had two swollen black eyes. He said he had been feeling unwell all day and his mask had been on too tight causing mask squeeze. He was asked about his ascent rate and control when he became separated from the diver and he indicated he had been using the bubbles to judge his ascent rate and not his computer. The diver was told to rest and was monitored. His eyes returned to normal and after 10 min he said he was feeling fine. The divers left the site but checked on the buddy's condition the following day and he confirmed he was well.

### July 2014 14/118

A diver normally dived on a rebreather but as this was being serviced she carried out a wreck dive to 28m on open circuit equipment. She had underestimated the weight required with a single cylinder and descended without a problem but felt under-weighted. The dive plan was that the buddy pair should return to the shotline but due to the poor visibility they could not locate it. The diver ascended quickly from 10m and was too buoyant to hold a safety stop at 6m. The diver's buddy followed her to the surface instead of doing a stop. Their dive duration was 30 min. The divers were given fluids and put on oxygen and the Coastguard was notified of the incident. No ill effects were experienced.

### July 2014 14/182

Three divers were diving together on a training course. On the third dive of the third day they dived to 14m. One of the divers had a problem with his BCD which suddenly inflated and remained on constant inflate leading to an uncontrolled ascent from approximately 10m. Throughout the ascent the diver exhaled whilst pulling the shoulder dump on his BCD. The diver surfaced, was advised to disconnect the BCD's low pressure hose and he was recovered into the boat. His dive duration was 15 min. The diver's computer was checked to see if there were any problems and the diver monitored for any problems but he stated he felt fine.

### August 2014 14/191

A buddy pair descended down the shotline to a wreck with a maximum depth of 28m. At the bottom the visibility was very poor and dark. The divers moved away from the shot to leave space for other divers and lost sight of the shotline. At this point one of the divers realised he was running out of air so he grabbed what he thought was his pony regulator. He signalled to his buddy he had a problem but did not give an 'out of air' signal. He then checked the contents of his main cylinder and seeing it was almost full assumed he had a problem with that cylinder's regulator. He checked his pony cylinder contents and saw that this was empty. He began to panic and signalled his buddy to ascend. The buddy deployed his DSMB and the diver took the buddy's alternate air regulator and breathed from that. The buddy made a controlled ascent reeling in the DSMB line with the 'out of air' diver tightly holding on to him and trying to read his computer with a torch. The diver had a cuff dump and could not easily raise his arm to dump air from his drysuit. The buddy managed to hold onto the diver until 12m where his ascent became rapid with his computer going into 'lock out' but the buddy, being slower, showed a good profile. The conclusion of the divers after the incident was that the diver had descended on his pony as both his regulators looked the same and were fitted side by side. When he ran out of air he went for his pony cylinder regulator which was in fact his main cylinder's regulator and the cylinder was almost full. Neither diver suffered any ill effects but the diver changed the colour of his pony regulator.

### August 2014 14/180

Two divers had dived a wreck at 33m and at 15m had deployed a DSMB when one of the divers got cramp in his left leg. He tried to stretch the cramp out but this did not alleviate the discomfort but kicking his leg did. As he kicked he became buoyant and began ascending to the surface. He then descended back down to his buddy who realised the diver was having problems. The buddy took hold of the diver and controlled his buoyancy as he was struggling to hold a neutral position. The pair ascended to 6m, conducted the relevant decompression stops and surfaced at which time the diver's cramp subsided. Their dive duration was 41 min.

### August 2014 14/258

Dover MRCC were alerted to a diver having missed stops following a 26m dive, as a precaution the diver was administered oxygen and examined by paramedics once ashore. (Coastguard report)

### August 2014 14/185

A dive leader and two other divers descended to 23m, one of them with an SMB. When they reached the seabed they all signalled 'OK' and began their dive. They met another group of divers who had found an unidentified metal object and the divers helped to uncover the object from the seabed reducing the surrounding visibility. It was during this time that the diver, who had the SMB, felt his mask being removed but was unaware how this happened. He then found himself beginning to ascend so breathed out and dumped air from his BCD. He could feel the SMB's line so used this to ascend as he no longer had hold of the reel. The diver surfaced, signalled he was 'OK' even though he had no mask. He was recovered to the dive boat and said he had made a controlled ascent, which his computer confirmed. Back on the seabed, the dive leader had looked around and could only see one of his two buddies coming towards him holding the SMB reel in one hand and a mask in the other. The dive leader knew that it was the other buddy who had started the dive with the SMB and the diver he could see still had his mask on. The dive leader signalled asking where the other buddy was and the diver signalled back indicating he had gone up. The dive leader assumed the buddy who ascended was in trouble and aborted the dive. Both divers ascended and were recovered into the dive boat. On the dive debrief the buddy, who had ascended with the dive leader, explained that after helping uncover the object on the seabed and answering a signal from the dive leader to continue their dive, he had come out from some silt and noticed his buddy had the SMB line hanging loosely around his head. As his buddy seemed completely unaware of this, the diver swam above him to sort the line out before the buddy became entangled. In so doing he managed to make it worse by getting the line wrapped around the end of the buddy's mask strap. The diver instantly took off the buddy's mask hoping he would just sit on the bottom and allow him to sort out the problem quickly but the buddy began to ascend slowly holding the SMB line. The diver watched him ascend, took control of the SMB reel and was holding this and his buddy's mask when he made his way to the dive leader to let him know what had happened. On the dive debrief the diver admitted that while trying to sort out the tangled line, removing his buddy's mask without signalling to him, was an error of judgement.

### September 2014 14/198

Following a wreck dive to 33m a diver on nitrox 30 and his buddy on air made a rapid ascent to the surface. On surfacing they promptly descended to 6m to conduct an extended safety stop. Their dive duration was 42 min. The dive boat was on station at all times as was a lifeboat. Following the dive both of the divers' computers were clear and they did no further diving that day and no further action was taken. The rapid ascent was a result of

problems encountered with mid-water deployment of their DSMB.

**September 2014**

**14/197**

After two dives from a RHIB during the day, a diver carried out a night dive from a hardboat. As she was entering the water the DSMB reel caught on the boat, the diver hit her right hip against the back of the boat and fell into the water. The diver was assisted back into the boat and checked her equipment. The cummerbund on her BCD was undone and the pinch clip over this had snapped. The diver decided to continue the dive with the broken clip and she and her buddy entered the water, swam to the shotline and descended to 23m. On the ascent and at 15m

against a wall, the diver was in a horizontal position and found herself too buoyant with the BCD inflated. She could not find the bottom dump valve so tried to dump air from the shoulder dump but wasn't able to deflate the BCD adequately. The diver attracted her buddy's attention by grabbing his arm but he was unable to take hold of her BCD as the diver's buoyancy increased. The buddy watched the diver ascend as he could see the glow stick attached to her kit and happy that she had broken the surface, he continued with a gradual ascent. By the time he reached the surface the diver was being helped aboard the hardboat. The diver's computer indicated a dive duration of 20 min, a fast ascent from 9m, and an extended no-fly time to 14 hours together with a recommended extended surface interval.

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## Technique Incidents

### October 2013

**14/001**

Following an incomplete buddy check a diver entered the water without her weightbelt. On the bottom when the diver realised she had no weightbelt and was disorientated due to the current, she became agitated and needed a moment to settle down. The diver calmed down but was unsure how to signal to her buddy which led to some confusion. The dive was completed without further incident or illness. The dive was to 29m for 40 min including 5 min of decompression stops.

### March 2014

**14/112**

An instructor, assistant instructor and two trainees were diving as a group of four. The dive objective was for the assistant instructor to conduct training under the direct supervision of the instructor. The plan was that the group would dive together in two buddy pairs, the instructor with one trainee, the assistant instructor with the other trainee. During the buddy check between the assistant instructor and trainee it was found that the trainee's primary regulator would not exhale correctly which was due to a sticking exhaust valve. The problem was resolved and the buddy check completed. All four divers waded out from the shore in shallow water whilst breathing from their regulators. After fitting fins and with fully inflated BCDs the group floated out over a small drop off of approximately 3m. The assistant instructor instructed his trainee to slowly dump air from her BCD to enable a buoyancy check and correct weighting configuration. The trainee descended rapidly to 4m due to being slightly over-weighted closely followed by the assistant instructor. The trainee was unable to breathe from her regulator or inflate her BCD and began to panic. The assistant instructor tried to inflate the trainee's BCD and the trainee took the assistant instructor's alternate source. The buddy pair surfaced, followed by the other buddy pair. The assistant instructor towed the trainee the short distance back to shore. The trainee was shaken, breathless and unwilling to continue with the planned dive. No fault could be found with the regulator.

### June 2014

**14/104**

Two divers stopped a lifeboat exercise for more than 20 min after diving across the bottom of a slipway. 'Luckily the lifeboat was launching for an exercise so no lives were put at risk by these two very careless divers' said a lifeboat spokesman and 'luckily the divers were spotted by the lifeboat crew before it launched the boat'. (Media report).

### August 2014

**14/199**

A diver was carrying out the first dive on the sixth day of a diving trip. The planned depth was to 35m and the diver was carrying a 15 lt cylinder of air attached to which were a 3 lt cylinder of air, a 3 lt cylinder of oxygen for use at 6m, as well as a side slung 3 lt cylinder of nitrox 52 for decompression. The diver had planned the dive with these gases to increase safety with his computer set to 'air'. All cylinders were appropriately marked with maximum operating depth as were the regulators. Erroneously, before jumping off the boat, the diver put the wrong second stage, the pure oxygen, into his mouth and descended rapidly. At a depth of about 30m the diver noticed his supply of 'air' running out as breathing became difficult. The diver realised what had happened and that he was breathing oxygen at a partial pressure of 4 bar. He immediately switched to his pony cylinder of air and ascended to 20m and then switched to his main cylinder. Apart from shock, an adrenaline 'rush' and dismay at his mistake, the diver experienced no ill effects and completed the dive without further problems for a duration of 51 min.

### August 2014

**14/142**

A buddy pair, one using a rebreather and the other nitrox 27 with nitrox 50 for accelerated decompression, were diving a wreck in 39m in a flood tide. They became separated from each other when the nitrox diver was caught in a current and drifted away from the wreck. Realising that a separation had occurred both the divers began their ascents. The rebreather diver used the shotline and, with less decompression requirement than his buddy, surfaced first and reported the separation time, depth and location to the dive boat. The buddy who had drifted off the wreck deployed a DSMB and surfaced a short time later but with no name on his DSMB the diver could not be identified until he surfaced.

### September 2014

**14/216**

A pair of divers descended to a wreck to a maximum depth of 20m. The pair moved over the starboard side of the wreck and one diver monitored the other whilst he recorded a maximum depth of 20m on his computer. The pair then switched places and once the second diver had recorded his maximum depth over a period of about 30 sec he looked up and could no longer see his buddy, who had swum off assuming the second diver was following. The second diver waited 30 sec and then deployed a DSMB and made his way to the surface. The first diver deployed his own DSMB and ascended a short time later and surfaced within 15m of his buddy. The dive was aborted and no ill effects were experienced.

## Equipment Incidents

### November 2013

**14/151**

A diver was diving with two others and carried out a regulator ditch and retrieve exercise. The regulator started to free flow so the diver bailed out onto his alternate source while one of the other divers turned his cylinder off and then back on. Due to the free flow the diver was left with 70 bar so the group aborted the dive and surfaced without further problems. The dive was to 15m for 21 min.

### December 2013

**14/044**

A buddy pair had descended a shotline to a wreck at 21m. As the visibility was poor one of the divers clipped his distance line onto the shotline but whilst attaching it he knocked his auto air valve on his BCD and it went into an irresolvable free flow. The diver and his buddy made a controlled ascent to 6m, carried out a 2 min safety stop and made a controlled ascent to the surface with a total dive duration of 11 min. The buddy pair were picked up by the waiting dive boat that had witnessed the excessive air loss. The diver's air pressure gauge showed zero when checked on the boat although at no time had the diver difficulty in breathing.

### January 2014

**14/025**

During a dive to 34m, water temperature 7 deg C, a diver experienced a regulator free flow which did not stop until his main cylinder was empty. The diver switched to his pony cylinder and he and his buddy made a controlled ascent and carried out a 3 min safety stop at 6m. His total dive duration was 16 min. Throughout the stop the diver monitored the air gauge on his pony and was prepared to switch to his buddy's octopus regulator if required.

### January 2014

**14/154**

Whilst preparing his rebreather for a refresher dive, a diver discovered during the negative inflation check that the hose was not remaining collapsed for more than 5 min. The diver decided not to dive with the unit and on subsequent investigation a small nick was discovered in the inner bag on the inhalation side of the counter-lung.

### January 2014

**14/152**

Two rebreather divers were descending a shotline to the seabed at 19m. On the way down at 8m one of the divers had a 20 sec alarm on his handset and two red lights in his head up display. By the time the diver had checked the handset, the alarm had stopped and two green lights were showing on the head up display. The divers continued their descent to 19m but with visibility less than 1m they decided to abort the dive. A normal ascent was made to 6m to undertake a 3 min safety stop. During the stop the diver's unit gave an alarm and the head up display showed two red lights. When he checked the handset the diver saw he had a high carbon dioxide warning and immediately switched to his air bailout cylinder. The divers completed the safety stop, surfaced and were recovered to the dive boat. The dive duration was 14 min. The scrubber unit had a further 55 min of life remaining when the dive was undertaken. Carbon dioxide sensors had been fitted to the rebreather unit in the previous week and further monitoring of the sensors was being undertaken.

### February 2014

**14/040**

Three divers were carrying out a 36m dive. One of the group was diving on his CCR and began to have visual disturbances and felt unwell. He signalled to the other two divers to ascend but as they did so the visual disturbance did not resolve and the

diver had a painful headache. The diver deployed his bailout cylinder and his visual disturbance ceased. However, after a few breaths the regulator free flowed. The diver tried to manage breathing off the regulator but the free flow was so strong it was blowing the regulator from his mouth and lifting his mask from his face. Realising he was at 26m with gas in his drysuit and wing BCD, he needed four hands to commence a safe ascent, one to control the bailout regulator, one to keep his mask on and regulator in his mouth, one to dump his BCD and drysuit and one to dump the CCR counter-lung. The diver went onto his on-board diluent gas, a 3 lt cylinder now at 70 bar. He signalled to his buddies that he was out of air and one of them deployed his AS allowing the rebreather diver to control his buoyancy for the ascent. All three divers ascended with no further problems nor missed stops. Their total dive time was 20 min. The CCR diver received first aid oxygen suspecting he had experienced carbon dioxide poisoning. After 20 min on oxygen his headache lifted but returned after about 10 min so he had another 20 min session on oxygen. When the CCR unit was inspected it was found that the scrubber had slipped from its 'shelf' and its velcro band had failed allowing the inhale gas hose, routed from the top of the scrubber, to collapse and severely restrict the gas flow. As a precautionary measure no further diving took place that day.

### March 2014

**14/043**

On a diving course a diver had descended with a group to carry out a training dive to a maximum depth of 35m. 13 min into the dive and with approximately 150 bar remaining in one of his twin-set cylinders he decided to switch regulators whilst following a distance line reeled off from the shot. On the switch over the regulator went into free flow and unable to stop it, the diver decided to switch back to his first cylinder and turn off the valve of the free flowing cylinder. As soon as put the first regulator back in his mouth, it also went into free flow. At this point the diver was engulfed in bubbles and could not see his gauges or buddies. The diver ascended doing his best to retain control and ran out of gas approximately 3m from the surface. On reaching the surface the diver manually inflated his BCD and summoned assistance. His dive duration was 11 min. A full neurological check was carried out and as a precautionary measure the diver was put on oxygen. A diving doctor was contacted and they were advised that the diver was taken off the oxygen and that no further treatment would be required unless he experienced any symptoms. The diver suffered no ill effects and no further dives were undertaken.

### March 2014

**14/168**

A diver had completed a dive on a rebreather for 64 min and, after a surface interval of 75 min, prepared for a second dive. When the unit was switched on it displayed 'must calibrate'. The diver did so and the number two cell failed with a reading of '68' and remained at that figure during calibration. As the unit failed the calibration the diver was unable to dive with the unit. A cell checker was used and the cell failed. Water was noted on the face of the sensor and the other two cells had water spots. The cell was left to dry overnight and when tested again it passed the test.

### April 2014

**14/169**

An instructor was working with four students to progress their diving skills and carry out DSMB training. The group were supported by another instructor acting as a rescue diver. At the start of the dive the students practised DSMB deployment from a static position at 6m without fully inflating the DSMB. The group then did a short exploratory dive to 14m before ascending to 8m where two of the students were to carry out full inflation of

the DSMB sending it to the surface. One of the students, using his alternate source to inflate the DSMB, completed the exercise but his alternate source went into free flow. He and the instructor attempted to stop it without success so the instructor signalled for all the group to ascend with the rescue diver monitoring the other students. The instructor could see that the student's contents gauge was dropping rapidly because of the free flow but he was still breathing from his primary regulator. The instructor took hold of the student's BCD and they began the ascent with the instructor holding his alternate source in front of the student should he need it. At 3m the student checked his contents gauge and switched to the instructor's alternate source for the remainder of the ascent. All the divers surfaced and exited the water with a dive duration of 40 min.

### April 2014 14/057

A dive leader and two newly qualified divers were carrying out a dive on a wreck at a depth of 21m. The aim of the dive, as part of a training week, was to extend the depth experience of the two divers working together as a buddy pair. At 20m and approximately 10 min into the dive, one of the buddy pair became increasingly uncomfortable about his regulator's wet breathe making him cough. He signalled 'out of air' to the dive leader and took the dive leader's alternate supply. The divers made a controlled ascent together including a 3 min safety stop at 6m. With potential surface traffic and to alert the surface cover of their ascent, the dive leader deployed his DSMB. The divers surfaced with a total duration of 16 min and were recovered without any problems. Inspection of the regulator revealed that the exhaust valve diaphragm had partially unseated and folded back on itself allowing water into the regulator.

### April 2014 14/062

A rebreather diver, following full pre-dive checks and CCR calibration, entered the water on a low PO<sub>2</sub> set point of 0.7. Following shallow water buddy and leak checks, the diver descended to 6m, checked CCR displays and descended to 21m having changed the set point at 18m to 1.3 PO<sub>2</sub>. Shortly after changing the set point the 'high' alarm triggered with cell 1 reading 1.4, cell 2 reading 1.7 and cell 3 reading 1.3. The diver immediately did a diluent flush and all the O<sub>2</sub> cell levels fell, the alarm stopped but cell 2 increased again triggering the alarm at 1.7 PO<sub>2</sub>. The diver again carried out a diluent flush, the cell levels dropped and the alarm stopped. The diver changed the CCR onto a low set point and ascended to 6m then to the surface where he carried out another calibration on the surface with all cells showing 0.98 PO<sub>2</sub>. The diver re-descended and stayed on the low set point for 30 min whilst staying at 6m and then descended again to 20m to check cell 2. The cell again increased to 1.7 PO<sub>2</sub> once the high set point was activated so the diver did a diluent flush, changed to a low set point and ascended to 6m. He then re-descended a third time to 20m where the same situation occurred so ascended to 6m and stayed on a low set point for the remainder of the dive. His total diver duration was 58 min.

### April 2014 14/054

An instructor and his student carried out a dive to 20m for 23 min with 3 min of decompression stops. Following a surface interval of 1 hour they conducted a second dive to 20 min for a duration of 13 min. During this second dive at a depth of 14m they carried out an 'out of air' drill. The student took the instructor's alternate air source which immediately went into free flow. The pair safely ascended to 6m and carried out a 1 min safety stop with the instructor using the student's alternate supply. The divers surfaced with no ill effects.

### June 2014 14/078

A rebreather diver was on the final day of a week's diving. She dropped down the shotline to a wreck and at 15m immediately felt breathless with her heart pounding. The diver tried to calm down and checked her handset to see the oxygen set point change to 1.3 PO<sub>2</sub>. The diver continued to descend to 30m and indicated to her buddy that she was not very happy with her head spinning and still breathing heavily. They stopped for a few seconds and then the diver indicated it was 'OK' to carry on to 40m although she still felt dizzy and lightheaded. At 40m the diver indicated to her buddy for them to turn back and they slowly ascended up the wreck. At 35m she felt she was about to pass out and was breathing heavily as if she was on the wrong gas. The diver was determined to retain her mouthpiece and bit down hard on it fearing that if she passed out she would lose it. She deployed her DSMB and began to ascend quickly and became separated from her buddy. At 12m her head became clearer and she slowed down to complete her decompression stops although still wanting to take the mouthpiece out and go up. On the surface she returned to the dive boat and once aboard removed the mouthpiece and was breathing very heavily. The diver's breathing returned to normal but she still felt confused and had a severe headache with the light hurting her eyes. She fell asleep for about 15 min and the headache and light aversion lasted for about an hour and then faded away. The diver recovered but contacted a hyperbaric unit who confirmed the symptoms she had experienced were a 'classic carbon dioxide hit'. The rebreather was checked and no faults found but although there was a carbon dioxide sensor fitted it had not given a warning.

### June 2014 14/110

During a training dive a student was very tentative and the instructor aborted the dive early. On shore and having de-kitted, the student left his equipment unattended and stood up on a wooden platform about 1m off the floor. The kit fell off the platform and landed directly on the first stage causing the alternate source regulator to 'shear off'. The cylinder was quickly shut down. No-one was injured but as a result of having no alternate air source, the second planned dive was cancelled by the instructor.

### June 2014 14/090

During his descent on a wreck dive a diver experienced a trickle of water in his mask which he cleared. On reaching the bottom of the shotline at 32m, the mask was flooding and the diver was unable to clear it despite checking the skirt and that his hood was not trapped. The diver and his buddy agreed to abort the dive and made a normal ascent to 9m at which point the diver made a rapid ascent to the surface. His dive duration was 6 min. He was recovered by the dive boat and put on oxygen as a precaution. A neurological examination was conducted and he displayed no symptoms of DCI. A subsequent examination of the mask showed that the frame had separated from the skirt. The design of the mask had the strap attached to the skirt rather than the frame so tightening the mask would tend to pull the skirt away from the frame.

### June 2014 14/088

Three divers were carrying out a dive in cold water, 6 deg C. They reached a maximum depth of 23m at which point one of them experienced a regulator free flow when the purge button bumped into something on her shoulder as she turned her head. The diver switched to her alternate supply but this also went into free flow. The nearest of her two buddies joined her in a controlled ascent and at 14m when he saw the diver's air was running low, gave her his alternate supply but shortly after that regulator also began to free flow. At this point the diver was unable to control the onset of panic and tried hard to surface. The two buddies held onto the diver to control the ascent and

one of them also managed to grab hold of a nearby shotline. They surfaced with a total dive duration was 9 min. On the surface the diver was coughing and could taste blood in her mouth. One buddy towed the diver to an exit point whilst the other alerted the surface cover and they both de-kitted and got the diver out of the water. She was immediately put on oxygen and complained of a pain on her lower left side. After 30 min the diver showed no signs of improvement and the pain in her side seemed to be getting worse so a hyperbaric help-line was called and they advised that the diver be taken to a hospital A&E department as soon as possible whilst keeping her on the oxygen. One of the buddies also went to the hospital as he was complaining of a pain in his arm. The other buddy appeared to have suffered no ill effects. The diver and buddy had chest x-rays, were checked by doctors and both were discharged later that evening having been given the 'all clear'.

**July 2014****14/103**

A diver was tying his cylinder set to the railings of the dive boat after a dive. As he leaned against the set to stop it falling forwards the low pressure hose blew off and the regulator with the end of the hose travelled 2m across the boat. The set was turned off as fast as possible.

**September 2014****14/212**

Two students and an instructor began to descend for a second dive of the day for a training exercise. The previous dive had been to 16m for a total duration of 34 min. During the descent, at a depth of 10m, one of the students noticed that his dive computer was not working. He signalled this to the instructor and the dive was aborted. The group conducted a normal ascent, tried to reset the computer at 6m but without success and so completed a safety stop and surfaced. The total dive duration was 13 min to a maximum depth of 18m. Subsequently the battery in the computer was replaced but the computer was found to be unserviceable.

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## Miscellaneous Incidents

### October 2013

**14/020**

On a pool training night a cylinder, BCD and regulators were lowered into the pool. The cylinder caught the edge of the pool's 'scum' channel causing damage to one glazed tile.

reported body. The search was called off and no one had been reported missing. Believed to be related to incident reports 12/015 (where the diver was lost) and 14/246.

### November 2013

**14/260**

Lifeboat launched to assist diver. False alarm. (RNLI report).

### July 2014

**14/245**

Sennen lifeguards reported three possible overdue divers. Sennen ILB self launched whilst information was being gathered. Lifeguards quickly located the divers safe and well. Land's End CRT were tasked and subsequently stood down. (Coastguard & RNLI reports)

### November 2013

**14/227**

Brixham Coastguard tasked Looe Coastguard to investigate a report of two divers in difficulty 100m off Talland Bay, Looe. The divers self recovered and were met on the beach by the Coastguard who gave them safety advice. (Coastguard report)

### July 2014

**14/246**

Salcombe RNLI Lifeboats were tasked following reports of a possible body in the water in Start Bay. The all-weather lifeboat recovered the body and confirmed it to be a deceased diver and in poor condition. Taken back to Salcombe and passed to the Coroner. Believed to be related to 12/015 and 14/092. (Coastguard report)

### June 2014

**14/239**

Angle RNLI were paged but stood down after a yacht reported seeing a diver drifting around St Annes Head. After a few minutes the dive boat appeared, looking for the diver, diver was then recovered safe and well. No further action required. (Coastguard report)

### August 2014

**14/272**

Lifeboat launched to assist diver. False alarm. (RNLI report).

### July 2014

**14/092**

The alarm was raised after experienced divers reported sighting the body of a diver on the seabed. A large air and sea search was carried out and police divers carried out underwater searches over a two day period but failed to find any sign of the

### August 2014

**14/271**

Lifeboat launched to assist diver. False alarm. (RNLI report).

## Overseas Incidents

### Fatalities

#### March 2014

**14/035**

A dive group had completed a 30 min 30m wreck dive. They returned to base and during the 2 hour surface interval had prepared equipment for the second dive on the wreck as well as having lunch. Walking back to the dive boat, a rebreather diver told one of the others in the group that he had an acid taste in his mouth. The second dive was split into two groups, six divers who agreed to penetrate the large upper deck of the wreck to carry out a swim through and two divers who decided they would stay on the outside of the wreck. The larger group was led by the most experienced diver on this particular wreck site and the rebreather diver, a senior instructor who was also very experienced on the site, was to 'shepherd' the group from the back. Descending the shotline to the wreck at 20m, the dive leader noticed the rebreather diver holding back on the descent and signalled if he was 'OK'. The diver responded that something was wrong and continued to hold onto the shotline. The dive leader kept the two groups together and then repeated the 'OK' signal to the diver. He responded he was and left the shotline to join the group waiting on the wreck. The time for the rebreather diver's descent with the pauses was approximately 10 min. The group did a slow swim, between 8 to 10 min, to the entry point to the upper deck where the dive leader signalled he was entering the wreck and were they all 'OK', which they confirmed. Inside the wreck the dive leader looked back to the entry point and saw the rebreather diver signal the two divers who were staying outside the wreck, checking they were 'OK' to continue their dive. The dive leader led the group through the upper deck, maximum depth 30m, arriving at the exit point about 10 min later. Three of the group were with him and he assumed the other two, including the rebreather diver, had swam more slowly and dropped back. When he looked back inside the wreck he saw a torch violently waving and realising there was a problem, he swam in towards the torchlight. The second to last diver in the group had noticed the rebreather diver on his left hand side on the swim through but then he felt a heavy weight on his back and a hand trying to grab his hoses so assumed the rebreather diver was trying to get to his alternate supply. Then there was a large explosion of bubbles and the diver thought it was he who had a problem with either his regulators or twin-set manifold. He checked his contents gauges and as they were stable assumed the rebreather diver had a problem. At some point during this the diver's main regulator had been pulled from his mouth but he had managed to retrieve his alternate source. Still with a heavy weight on his back he thought he was entangled in wreckage and swam hard to a vehicle tied to the deck as something to hold onto believing he would have to de-kit himself. Once he had a hold, the weight came off his back and he turned around to find the rebreather diver without his breathing loop in his mouth and unconscious. The diver grabbed him by his harness and tried to lift him by his drysuit without success so held onto the vehicle to stop them both sinking further. Realising he needed help he laid the rebreather diver on the vehicle but maintained a grip on him as he waved his torch violently and shouted for help through his regulator in the direction of the other divers. When the dive leader arrived he immediately took his own alternate supply forcing it into the rebreather diver's mouth and purged the regulator to try and get gas into him but there was no response from the diver. At this point the rest of the group, knowing there was a problem, joined the dive leader. They all began to assist by trying to inflate the rebreather diver's drysuit and wing BCD without success and the dive leader tried to lift him but was unable to do so because the rebreather diver was negatively buoyant. As there was another nearby exit point, the group lifted the rebreather diver and took him out of the wreck. The diver

leader continued to purge the regulator in the diver's mouth throughout the rescue. To recover the diver to the surface the divers had to remove his rebreather and weightbelt and he ascended to the surface. The group used a shotline nearby, carried out decompression stops and all ascended safely with a total dive duration of 58 min. On the surface the cover boat had immediately seen the diver floating on the surface, picked him up and commenced CPR while they returned to shore. A second boat collected all the other divers and when they arrived back on shore, the police, ambulance and a doctor from the hyperbaric centre were already in attendance. The diver was taken to hospital and declared dead on arrival. A post mortem discovered that the cause of death was a blockage of the trachea by food, leading to asphyxia. Previously he had had an acid reflux problem.

#### June 2014

**14/084**

A group of divers was carrying out a week's diving. They had already conducted five to six dives each over the two preceding days. The local weather conditions were not ideal for diving so the group, on advice from a local dive centre, travelled to an area with more sheltered diving before deciding on one shore dive site where other divers were already conducting dives in what were considered favourable conditions. The group entered the water and split into buddy pairs. 30 min into the dive, which was conducted between 10 and 15m, one diver was seen to be descending rapidly and before her buddy could respond another pair from the group descended and found the diver unresponsive in a depth of 35m. The pair conducted a controlled buoyant lift and the diver's buddy surfaced shortly after. While the rescue pair commenced a tow of the diver towards an exit point, the diver's buddy gave in-water rescue breaths. During the course of the dive the weather conditions had deteriorated significantly and surface conditions made exit from the water difficult and exhausting. Other divers from the group, who had surfaced earlier and already exited, assisted to recover the diver and commenced CPR. A diver in the group alerted emergency services and a rescue team arrived including a helicopter and rescue vessel. One of the rescue divers who had assisted with the controlled buoyant lift and tow had considerable difficulty in exiting the water and was later taken to hospital. The other rescue diver, who had also assisted with the lift and tow, was not seen exiting the water. When it was noticed he was missing an immediate surface search was conducted by the rescue vessel. The search located the missing diver on the surface; the diver was unresponsive. The diver was recovered and CPR attempts made. Both divers who received CPR did not recover and were pronounced deceased.

#### July 2014

**14/091**

Two pairs of divers were diving on a wreck at a maximum depth of 42m. Approximately 18 min after the divers had entered the water, a yellow SMB appeared and 7 min later the second pair surfaced. They signalled 'OK' to the dive boat which was approximately 20m from them. Before the dive boat could pick them up they were seen to signal a 'descend' to each other and left the surface. It was assumed the divers had missed some decompression and were returning to complete it. Just as they descended the first pair of divers surfaced up the shotline and were picked up but as they boarded the boat from the dive lift, one of the second pair of divers unexpectedly re-surfaced alone, regulator out and he appeared unconscious. The skipper manoeuvred the boat to bring the dive lift nearer to the unconscious diver and one of the first pair re-entered the water and swam to the diver. The diver was recovered to the lift with some difficulty due to his size and then into the boat; his weightbelt was missing. CPR and oxygen were administered and

a 'Mayday' call was immediately made. A local angling boat's skipper, who was also a 'first responder', called the dive boat and offered assistance which was accepted. A rescue helicopter arrived on the scene and airlifted the unconscious diver to hospital where he was later pronounced dead. The other diver from the second pair had not surfaced and an initial underwater search was unsuccessful. After a six hour surface search and an underwater search on the next slack tide, the body of the diver was found and recovered.

### July 2014 14/096

One of a pair of divers got into difficulties close to the shore after reportedly being struck by a 'freak' wave. Emergency services were alerted and a Coastguard helicopter was sent to the scene. The diver had been taken ashore by his buddy where CPR was applied. A lifeboat transferred the diver, with the crew continuing to apply CPR, to a landing site where the diver was airlifted by helicopter to hospital where he later died. The buddy was also airlifted to hospital suffering from shock and hypothermia and later discharged. (Media report).

### July 2014 14/101

On the second day of a week of hardboat diving, the morning dive had been postponed because of weather conditions but the forecast indicated they would improve later in the day. A dive site was selected for the afternoon dive which was in the lee of an island and offered a sheltered site from the wind and swell. Four pairs of divers entered the water. The last pair to enter carried out a dive to a depth of 25m for 40 min. With 100 bar remaining the dive leader deployed her DSMB but this was aborted due a reel jam so her buddy successfully deployed his DSMB and both ascended and completed a 3 min safety stop at 6m. The buddy's air at the safety stop was between 60 and 70 bar. From the time of entry to surfacing the wind direction had changed resulting in the dive site no longer being in the lee of the island and the swell height had increased. The other three pairs were picked up by the boat without incident. The last pair had surfaced too close to rocks to be safely picked up by the boat so the decision was made to tow them away from the rocks before attempting retrieval. The buddy pair held onto the rails either side of the boat's stern ladder platform but during the tow they both found it difficult to maintain a hold and the dive leader was also becoming distressed. Once in clear water, as the buddy was tired but not voicing any discomfort but the dive leader was exhausted, she was recovered into the boat first with significant assistance due to the swell. The buddy had difficulty holding onto the ladder in the swell, lost contact but regained it again and the other divers attempted to help him out of the water but he was very tired, could not get his feet on the ladder and lost his grip again. A rope was thrown to the buddy which he held onto but he had removed his regulator saying he had no air. The divers on the boat towed the buddy to the stern platform to get him out of the water but with his head periodically dipping underwater and getting weaker, he lost contact with the platform and the rope, appeared to be struggling for consciousness and drifted away from the boat. One of the divers jumped in to retrieve the buddy, attempted to give rescue breaths and inflate his BCD but his cylinder was empty. Another diver jumped in and they both managed to get the buddy onto the stern platform and then into the boat where all the divers took turn in CPR with oxygen administration. The emergency services had already been called. The dive boat made its way to shore and a lifeboat and helicopter arrived. The buddy was airlifted to hospital but did not survive.

## Decompression Illness

### October 2013 14/010

A diver had completed eleven dives on a diving expedition. On the day in question he dived to 30m for 35 min with 5 min of decompression stops. Following a surface interval of 2 hours and 48 min he dived again to 31m for 40 min with 11 min of decompression stops. He returned to his accommodation following the day's diving, felt tired and went to sleep but on waking he had a slight sensation of 'pins and needles' in the tips of his fingers and felt queasy. The diver was taken to a medical centre and although his condition remained stable he still had the feeling of 'pins and needles' in his fingers. The diver was placed on oxygen and although the 'pins and needles' decreased he had a slight pain in his right wrist. 20 min later both the wrist pain and 'pins and needles' had gone. A doctor carried out a neurological examination and found no abnormalities. The diver was taken off oxygen and monitored to see if his condition changed. A hyperbaric chamber was contacted and they advised that the diver should be seen by a specialist diving doctor. The diver was taken to a local hyperbaric chamber by ambulance and, following further assessment, the diver received recompression treatment.

### November 2013 14/011

A diver had completed twelve dives on a nine day diving expedition. Her computer confirmed that she had not carried out any dives requiring decompression stops and she had done a minimum of 3 min safety stops at 6m on each dive as well as taking the fifth and eighth days off from diving. On the last day she completed one dive to 12m for 47 min with 3 min of safety stops at 6m. The diver had no problems following any of the dives. On the evening of the day after diving had finished, with a surface interval of 29 hours, the diver boarded a flight home. Some 30 min into the flight the diver experienced 'pins and needles' in her fingers and, later in the flight, experienced some 'tingling' in her feet and ankles. As the diver considered the 'pins and needles' were due to the uncomfortable seating on the flight, she stood up and walked around and the 'pins and needles' went away. After the flight had landed and on the way home the diver still had the sensation of 'pins and needles'. She mentioned this to a fellow diver, who had been the deputy dive manager for the expedition. He carried out some basic neurological tests which appeared normal and advised the diver that if the 'tingling' did not go away by the following morning she should report to an Accidents & Emergency department. The next day the diver was still experiencing 'pins and needles' and went to hospital but on route noticed a slight 'niggle' developing in the right bicep and shoulder. At the hospital the diver was put on oxygen and the initial examination revealed 'low carbon dioxide levels in her blood'. The attending doctor contacted a hyperbaric chamber and the diver was referred to them for further assessment. The hyperbaric doctor assessed the diver and advised recompression treatment and even though the dive profiles did not indicate a risk of DCI, it could not be ruled out. Following treatment the diver returned home but the next day contacted the chamber to say that the treatment had not resolved 'the 'pins and needles' and the doctor suggested the cause may be a trapped nerve. The diver returned to the chamber for further treatment but the sensation of 'pins and needles' was not resolved and the diver was referred for further examination.

### February 2014 14/157

Two trimix divers had carried out a 58m wreck dive and on their ascent at 18m had switched to their nitrox decompression gas. On their decompression stops at 6m whilst looking for the dive boat, one of the divers became tangled in his DSMB line, his mask fogged up and he became inverted. His buddy tried to hold

him at 6m but also became tangled in the DSMB line and both divers made an uncontrolled ascent to the surface. Their dive duration was 32 min. The buddy gave the distress signal, shouted for help and towed the diver to the boat. Both divers were recovered to the boat and reported they had missed decompression stops, the diver had missed 3 min and the buddy had missed 11 min. The divers were administered oxygen and fluids and monitored for any symptoms of DCI. A hyperbaric chamber had been contacted and transport for both divers was arranged. Both divers were examined and the doctor became concerned about the rashes on the divers and diagnosed skin DCI. Both divers received recompression treatment.

**May 2014****14/174**

A diver had completed a wreck dive to 20m for 22 min with a controlled ascent including a 3 min safety stop at 6m. The dive boat returned to a marina for cylinders to be changed and a brief for the second dive. As the boat left the marina it was noticed that the diver had a rash on his chest and closer examination revealed a rash in the area of his kidneys and on his upper arm. The diver was immediately put on oxygen and the boat returned to the marina. A local hyperbaric facility was contacted and they advised immediate attendance so the diver was transferred by car as the fastest method to the chamber. During the journey the diver was still on oxygen and it was noticed that the rash was reducing. At the chamber the diver was examined and received recompression treatment. The diver was discharged and directed not to fly for two days and it was suggested he investigate the possibility of a PFO.

**September 2014****14/195**

On a diving holiday, a nitrox diver had completed two dives, the first to 31m for 69 min on nitrox 32 and, after a surface interval of 2 hour, the second to 30m for 51 min on nitrox 34. The diver had consumed a small bottle of water plus a cup of coffee during the surface interval and drank another bottle of water after the second dive. Whilst having lunch, approximately 20 min after surfacing from the second dive, the diver developed a tickly cough which continued for approximately 1 min before subsiding. Shortly after this a colleague noticed that the diver's eyes were unfocused and staring blankly while the area around her nose and mouth was starting to turn blue. He asked if everything was alright and the diver assured him that all was well but she had difficulty when she tried to stand up. At this point the colleague asked the diver to sit back down and rest while he summoned help. The diver was put on oxygen and the colour around her nose and mouth eventually returned to normal but her condition began to deteriorate with laboured breathing and she lost consciousness. The dive boat contacted a hyperbaric chamber as DCI was suspected and they made arrangements for the diver, unconscious but still on oxygen, to be met by an ambulance and taken to hospital. The diver was then transferred to the hyperbaric chamber for recompression treatment.

**Illness / Injury****October 2013****14/012**

A diver was diving with two others on a training dive and, acting as the dive leader, was the first to enter the water. Stepping off the top of the dive boat's ladder to do a giant stride entry, the diver lost her footing and fell forward into the water. She did not completely clear the boat and banged her right buttock on the top post of the ladder. Two divers were returning to the boat on the surface and one of them provided immediate assistance to check the diver was not badly injured and to give reassurance and support. Once it was confirmed that the diver was not badly hurt and able to complete the dive, the other two divers entered the water. At the start of the dive the injured diver reported some

minor discomfort but once the dive progressed she experienced no pain or discomfort. On the ascent and completing a safety stop at 6m, the diver started to feel some pain and discomfort again but was able to exit the water into the boat as normal. During the surface interval a bruise started to form and a cold compress, a frozen water bottle, was applied to reduce the swelling and pain. The diver was happy to complete the second dive of the day with no pain or discomfort. The diver returned home and feeling very tired, lay on a bed but when getting up to answer a phone call she felt drowsy and dizzy. She returned to bed and the dizziness passed. During the evening the drowsy and dizzy feeling would come and go in 'waves' and whilst sitting down and talking to friends, the diver fainted. The diver was attended to by a qualified nurse who coaxed her back to consciousness and then laid her flat. After a few minutes the diver returned to full consciousness with no dizziness but was still feeling tired. She was very thirsty and over the next two hours consumed around 3 to 4 lt of water. When she woke the following morning the diver was still thirsty and drank lots of water. The pain from the injury had not changed but there was some seepage from the impact area and the diver's dizzy feeling had changed to a 'not with it, not fully focused distant feeling'. The diver's blood pressure was checked and found to be abnormally low and the nurse was consulted. The low blood pressure could have been caused by losing about a litre of blood to the swelling and there was concern about the seepage and heat in the bruising. An antibiotic cream was prescribed along with a course of tablets to be taken if the heat inside the bruised area got any worse. The diver took anti-inflammatory painkillers and, following a few hours of sleep, the dizzy feeling had cleared and only the pain of the bruise remained. The following day the swelling had started to reduce and the diver's blood pressure returned to normal.

**October 2013****14/145**

A trainee could not clear his ears when trying to descend to 4m. He stopped the training session and complained of a noise in his ears. The trainee was seen by a doctor and found to be well but was taken off the diving course.

**October 2013****14/144**

An hour after a trainee had completed a morning pool training session, she fainted in a cafeteria. The trainee was helped up by members of the public but collapsed again. She was unconscious for no more than 3 sec and came to lying on the floor face up. An instructor checked her awareness and asked a fellow instructor to call an ambulance. The trainee was helped up into a sitting position but felt nauseous. It was discovered that the trainee had not eaten or drunk anything that day and was suffering menstrual cramps and pain. While waiting for the ambulance the trainee was sick but remained conscious and started to drink sugary drinks and water. When the ambulance arrived they confirmed the trainee had a low blood sugar level and low blood pressure. The trainee was taken to hospital, checked over and discharged.

**November 2013****14/149**

An instructor and two trainees were descending on a dive when, at 2m, one of the trainees indicated he had discomfort in his ears. The instructor took the group to the surface and tried to descend again but the trainee still had an ear problem. The trainee was helped to exit the water and taken to a medical centre. He was told not to dive again for a week.

**December 2013****14/021**

A diver had been booked into hospital to have a kidney stone removed but as the operation was still several weeks away he believed himself fit to dive. The diver attended an organised shore dive at a local lake. The changing area was a ten minute



walk from the lake and the water temperature was expected to be 4 deg C. Kitted up for a winter dive the group of divers walked to and entered the lake. Approximately 40 min into the dive, the diver reported he was uncomfortable so the dive was aborted and all returned to shore. On the shore the diver was in extreme pain and discomfort and had experienced a full drysuit flood with water going through his dry-glove seal. The cold water had triggered extreme discomfort to the diver's kidneys causing the pain. The diver was helped back to his car, changed into dry clothing, the car heater put on and he took pain killers. He explained that on the dive everything was fine, even the drysuit flood, until it reached his kidneys causing a feeling of cramp and he could no longer concentrate or function properly.

### January 2014 14/027

Following the second dive of the day on a liveboard boat the crew were fitting charging hoses to the cylinders as soon as they had been strapped into their holding bays. Divers were still de-kitting, changing and sorting out equipment as the crew began charging the cylinders. A cylinder connector exploded, shot off hitting a diver on the forehead and threw her backwards. The diver was caught by two crew members and the diver's buddy organised a cold water compress and ice to be applied to the site of the injury. The buddy monitored the diver for the rest of that day and evening in case of complications. The result of the injury was swelling, discomfort and bruising which lasted for several days.

### February 2014 14/165

Two divers and an instructor were on their second dive of the day and carried out training skills which included a controlled buoyant lift for each diver from 10m to 6m. Ear clearing was not an issue during these lifts but on an ascent one of the divers had the feeling that air was coming out of his ear. He asked the instructor to investigate and he confirmed this was the case and the group aborted their dive, carried out a safety stop and returned to the surface. The dive duration was 30 min and the maximum depth was 11m. Whilst de-kitting the diver was requested to clear his ears which he did without difficulty although he could now hear air escaping from his ear. A diving doctor was contacted but said hospitalisation was not necessary and painkillers should suffice. The diver was unable to dive for the remainder of the dive trip and advised to see a doctor when he returned home.

### March 2014 14/085

A group of divers on a diving holiday entered the water as part of a guided party. Two nitrox divers buddied together and one of them lost his regulator when entering the water which caused him to cough. The party descended and the buddy pair were the last to do so. 'OK' signals were exchanged at 5m and 10m. By the time the buddy pair had reached 15m, the diver who had the regulator problem on the entry found he had difficulty breathing. When his buddy gave an 'OK' signal the diver gave a 'I have a problem' signal. The buddy swam to the diver and when he repeated 'I have a problem' the buddy immediately started a controlled buoyant lift. The buddy looked towards the dive guide to tell him there was a problem but by the time he focused back on controlling the lift, neutral buoyancy was lost and the pair made an uncontrolled ascent to the surface. On the surface the buddy made both himself and the diver positively buoyant and towed him towards the dive boat but the diver was able to climb the ladder into the boat unaided. It was subsequently discovered that he had a chest infection, symptomless before the dive.

### March 2014 14/210

A diver was on a week long liveboard trip. The incident occurred on dive fifteen of the week, which was the third dive on that day. During the dive to a maximum depth of 23m, the diver

had intended to practise using his camera but in addition to technical problems with the camera he also found that he had to work hard to maintain his position whilst using the camera. The camera subsequently shut down and whilst trying to resolve it he experienced a significant dizzy spell which he was unable to clear. He then experienced a strong pain in his left ear accompanied by a high pitched whistle. The pain and whistling increased and then faded and disappeared. The diver signalled to his buddy and deployed a DSMB to provide a reference point and aborted the dive. The pain increased again and on returning to the boat blood was seen coming from the diver's left ear. On returning to shore the diver visited a hospital and was found to have a little clotted blood in his ear canal but his ear drum was normal and no other damage was visible. The diver flew home as planned and did not experience any further adverse effects.

### April 2014 14/063

On a Monday, the third day of a holiday diving trip, two divers took part in a shallow reef dive which was the first dive that day in a group led by a dive guide. On kitting up one of the divers said that he sometimes got anxious and his buddy made it clear that if he felt uncomfortable during the dive they could end it early. The divers entered the water from the shore but about 7 min into the dive at around 3m, the diver signalled to his buddy that he wasn't feeling right and signalled the dive guide that he didn't feel well. The dive guide signalled the buddy pair to go back. Back on shore the diver apologized for ending the dive early saying he felt anxious underwater. A second reef dive was planned to a maximum depth of 16m for 20 min. The buddy pair kitted up quickly and sat in shallow water trying to stay cool while they waited for the rest of the group. The group moved out to deeper water but an 'O' ring started leaking on one of the group's first stage so he returned to shore to sort it out. The rest of the group agreed to wait on the surface for the diver to return which meant bobbing up and down in the waves for around 5 min. Once the diver had re-joined the group they all descended to 16m. 12 to 14 min into the dive the diver signalled his buddy that he didn't feel right so the pair signalled the dive guide they were returning to shore. The divers did a 3 min safety stop at 6m but when they surfaced found they were some distance from the shore. They swam back on the surface for about 5 min, reached the shore and de-kitted. The diver again said he wasn't comfortable underwater and felt anxious so thought it best to end the dive early. He also said bobbing around on the surface prior to the dive began to make him feel seasick. The diver did not dive on the Tuesday but spent the day on a hardboat and it was observed he did not drink much water during the day. The diver spent the following day in the hotel and felt unwell. He spoke to the dive centre who arranged for him to be taken to hospital where he was rehydrated by IV, given anti-sickness tablets and discharged with instructions to drink plenty of water. His room mate noticed he did not take the tablets, the diver claimed they made him nauseous, nor was he drinking enough water despite encouragement. The diver continued to vomit and experienced diarrhoea and on the Friday he was taken back to the hospital, re-hydrated again with an IV and given anti-sickness tablets to ensure he was safe to travel home. The doctor issued the diver with a certificate to travel. After arriving home the diver was still unwell and was subsequently hospitalised with an underlying and undiagnosed medical condition, exacerbated in part by the heat and dehydration on the dive trip, and was undergoing further treatment.

### May 2014 14/172

A trainee diver had completed two dives. Two days later he reported having soreness and pain in his outer ear. The trainee went to a medical centre who treated him with ear drops and tablets diagnosing a possible ear infection. They also advised the trainee to stay out of the water for two days.

**July 2014****14/177**

A diver was at the front of a dive boat holding a small plastic water bottle with his right hand and trying to cut a hole in it with a diving knife for the purpose of improvising a small float. While attempting to cut the bottle the knife went straight through it and pierced the diver's hand through the palm beneath the index and middle finger to the back of the hand. He shouted straight away that he had cut his hand and a diver sitting next to him grabbed it, raised it up and applied pressure to the wound. Another diver got the first aid kit and started to help the diver by applying medical dressing pads and a bandage in an attempt to stop the bleeding. After a few minutes the bleeding had not stopped so a second bandage was applied which helped stem the bleeding. The wounded diver was at this time very pale and was moved from the front of the boat and into shade at the stern and given water. Divers who were still in the water were recalled and the boat returned to shore. The diver was transferred to hospital.

**July 2014****14/178**

On a diving expedition a diver was operating a nitrox compressor assisted by another diver. As he changed the hoses the operating diver inadvertently opened the tap to an unconnected hose causing it to release gas and 'jump' hitting the assisting diver's head with the DIN connection. This caused a 2 to 3mm cut which was bleeding. Local treatment was applied and the diver taken to hospital. A doctor cleaned the wound and pronounced the diver fit to dive as no further treatment was necessary.

**July 2014****14/124**

Following a wreck dive to 41m for 60 min, including 9 min of decompression stops, a rebreather diver experienced breathing difficulties when exiting the water into the dive boat. The diver's computer and handset were examined and downloaded with neither showing ceiling violations, a rapid ascent or missed decompression stops. Emergency oxygen was administered and when the boat returned to harbour the diver was taken to hospital where he was treated in the casualty department. The diver's diagnosis was given as 'immersion pulmonary oedema' and he was kept in hospital overnight for observation and discharged the following day.

**September 2014****14/183**

Following a non-diving day on a training course and at the course meeting, a trainee complained about a cold and being unable to equalise his ears. Prior to this the trainee had carried out pool and open water training and reported no problems. The trainee was taken off the remainder of the course.

**September 2014****14/184**

A trainee had carried out a morning pool training session and following the classroom session that afternoon, had complained about a 'throb' in his left ear. The trainee was referred to hospital where a doctor diagnosed the beginning of a middle ear infection. The trainee was given nose drops and told not to dive for the remainder of the training week. The following day the pain had gone but equalisation was still not possible.

**September 2014****14/204**

Three divers were diving a wreck. There were already divers from another boat in the water so one of the divers carried their shotline down the other group's shotline to tie onto the wreck. The current was very strong and the other two divers took a long time to descend and reached the deck of the wreck where the first diver had tied off the shotline. After a minute diving along the wreck one of the two divers who had descended slowly decided to return to the surface as her heart was pounding and she was wary of strenuous dives due to having had a skin DCI earlier in

the year. She was seen back to the shotline by her buddies. The buddy pair continued the dive and returned to the shot with about 7 min to ascend showing on one of divers' computers, the other diver's computer did not show any decompression. Due to the current the ascent was strenuous and at about 8m one of the divers started to feel as if he had fluid in his lungs and knew he was getting pulmonary oedema having had it before on dry land eight years previously in a non-diving incident. At 6m the diver switched to nitrox 80 and decided to stay with his buddy as it would have been difficult to communicate the problem, he wanted to stay together and arrive at the surface with his buddy's computer clear. He also knew that oxygen was the medication required and he would need help from his buddy on the surface. Arriving at the surface, the dive RHIB was very close and the diver communicated he needed oxygen and this was given in-water. The dive was to 36m for 22 min. He was assisted with kit removal and helped from the water while a 'Mayday' call was immediately made. The diver who had aborted the dive also recognised it was pulmonary oedema and unlikely to be DCI having confirmed both divers' dive profiles. A charter boat arrived in response to the 'Mayday' call and it was decided to transfer the diver and his two buddies to this as the RHIB still had divers in the water. The charter vessel made its way to harbour but on the way was met by a lifeboat and the divers were transferred. A helicopter arrived and airlifted the diver to hospital and the lifeboat dropped the other two divers at the harbour. At the hospital the diver was examined and diagnosed with immersion pulmonary oedema brought on by the exertion of the dive and the fact that the diver was on beta blockers, which could predispose this condition. The diver was kept in hospital for observation and tests for a week. It was diagnosed that there had been slight damage to his heart and rest for a month was prescribed.

**Boating and Surface****March 2014****14/002**

A 6.5m RHIB with eleven divers onboard was reported to be taking in water in rough seas. A 'Mayday' was issued and a fishing trawler went to assist and the local lifeboat arrived. The lifeboat took the RHIB under tow to a nearby pier where eight members of the dive team safely made their way ashore. The lifeboat then escorted the RHIB with remaining divers back to harbour where it was safely retrieved from the water.

**Ascents****November 2013****14/009**

A diver surfaced alone and gave the 'help' signal to his dive boat approximately 20m away. The boat pulled alongside and the diver indicated he had experienced heart palpitations underwater and had made an uncontrolled rapid ascent from approximately 10 to 11m. He had dived to a maximum depth of 14m for 35 min. The diver's equipment was removed in the water and he managed to climb into the boat with assistance but it looked as though something was wrong with his right arm. The diver was laid down and given oxygen but said he still had heart palpitations. He responded to all verbal and touch contact, although not totally coherently, but his right arm grip was very weak. The shore contact was called and an ambulance requested to meet the boat on its return. The diver was kept on oxygen whilst the remaining divers in the water were recalled and the boat returned to its shore base. The diver climbed out of the boat himself but still could not maintain a grip with his right hand. The ambulance crew assessed the diver and confirmed that he had an irregular heart beat so took him, accompanied by his buddy, to hospital. At the hospital an ECG was taken and the

diver's condition diagnosed as a 'temporary heart block'. Within one hour the diver was released as his vital signs were back to normal and the strength in his right arm had returned but he was reminded of the symptoms of DCI, advised to go home, rest and stay well hydrated. He was also given an oxygen set and advised to use this at home. The buddy, reporting on the incident, said that the diver had shown signs of anxiety, was fiddling with his equipment longer than normal before the dive and on the descent had difficulty ear clearing. They both spent extra time between 5-10m to ensure his ears had cleared. With an 'OK' from the diver, the pair continued their dive with the buddy leading about one metre ahead. The buddy regularly checked the diver's air consumption, which was not being used quickly, but about a minute after the last time he had checked, the diver had disappeared. When the buddy looked up he saw the diver above him on the surface with the boat close by. The buddy deployed his DSMB and carried out his normal 3 min safety stop at 6m during which he heard the diver recall procedure.

### **December 2013 14/187**

Two nitrox divers were carrying out distance line training and alternate source ascent drills at 12m. One of the divers was regularly adjusting his buoyancy not realising that the inflation valve was continuously inflating his BCD. The diver became buoyant and was held back from surfacing by his buddy. It was not immediately obvious to the buddy that there was an inflation valve problem. The buddy aborted the dive and assisted the diver to the surface avoiding a rapid ascent by dumping air from his BCD. On the surface, with the diver's BCD still inflating, the problem was apparent, the hose was disconnected and the divers were recovered to their dive boat. On closer examination it was discovered that the valve had become unserviceable and required replacing.

### **February 2014 14/153**

After a no stop wreck dive to 22m three divers were ascending and one of them carried out a mid-water deployment of his DSMB from 10m as part of a training exercise. The diver did not realise that he had ascended during the drill and continued to float to the surface, pausing briefly at 2m. The other divers followed him up. Their dive duration was 29 min. The diver had breathed normally while he ascended and showed no signs or symptoms. All three divers were monitored during the evening and reported themselves well.

### **May 2014 14/173**

Two divers, one using nitrox, planned a wreck dive with simulated decompression using tables but with each diver using their dive computer to ensure they remained within no stop limits. The plan included ascending using a DSMB with the simulated decompression stops for 1 min at 9m and 6 min at 6m. The divers arrived at their maximum depth of 27m and carried out a short swim to the wreck against a current. The time on the wreck was cut short as one of the divers was reaching the last third of his gas supply and both divers began their ascent. During the ascent at 20m the divers deployed a DSMB but shortly after one of the divers lost control of his buoyancy and started to ascend quickly. His buddy signalled for him to slow down and dump air from his BCD but the diver panicked and accidentally pressed the inflation button whilst at the same time attempting to fin downwards and he continued to ascend. The buddy continued his ascent following the dive plan whilst he watched the diver on the surface, who signalled to him that he was 'OK'. His dive duration was 11 min. The dive boat recovered the diver and placed him on oxygen. The buddy arrived on the surface a few minutes later, was recovered to the boat and treated for mild shock. As soon as all other divers were back on the boat it made its way to shore where emergency services were waiting. They checked both divers but only the one who had made the rapid ascent was taken to hospital. Following a full neurological

examination and reviewing the diver's computer profile the doctors saw no reason to admit him to a hyperbaric chamber and he was discharged.

### **September 2014 14/200**

An instructor and two divers conducted a 30 min wreck dive to a maximum depth of 20m using computers and a table profile of no decompression stops. At the end of the dive the instructor deployed a DSMB at approximately 14m before starting the ascent. It became obvious that the ascent was into a current and the instructor had one of the divers hold onto her arm while she held onto the arm of the other diver to keep the group together. At 11m one of the divers' masks flooded and they lost control of their buoyancy which caused the group to ascend rapidly to the surface. None of the divers showed symptoms of DCI at the surface. A later neurological check was conducted and none of the divers showed any symptoms of DCI or any ill effects from the dive.

## **Technique**

### **December 2013 14/022**

A dive club were on holiday and using a hardboat on the first day of diving. The moderate sea swell made conditions less than ideal and it was difficult for the divers using hired equipment to carry out a proper buoyancy check prior to diving. One of the divers had not dived for some time prior to the trip and had experienced buoyancy and ear problems on the first dive of the day and had also used his air quite quickly. One kilogram was added to his weights for the second dive. The second dive involved swimming through a shallow cave system with an air space above at the start of the dive. The dive was led by an experienced local guide who also acted as a buddy to the diver who had experienced problems on the first dive. As the dive progressed the diver continued to have problems with buoyancy and this became worse as his cylinder emptied. On the return stage of the dive during the shallow swim through the cave the diver surfaced in a chamber with the guide and was unable to regain negative buoyancy to exit the cave. Another buddy pair surfaced to see what the problem was. It became clear that the diver had used almost all his air and was buoyant on the surface. Another pair of divers also arrived on the surface in the cave. It was agreed that most of the divers would return to the dive boat with the dive guide, collect a fresh cylinder and additional weights and return to enable the diver to descend and make a safe exit from the cave. The most experienced instructor in the group agreed to remain in the cave, on the surface, with the diver. Conditions on the surface were a little uncomfortable due to the swell and the diver's cylinder fell to 20 bar whilst keeping station away from the cave's rocky edge. The instructor encouraged the diver to climb out of the water and sit on the rocks. This made it easier for the diver to change cylinders and add weights when they arrived about 10 min later. At no point did there seem to be any real danger and there was no panic. The diver was escorted back to the boat and all the other divers returned safely. The dive was to a maximum depth of 15m for a duration of 40 min.

### **January 2014 14/164**

A diver was decanting from a cylinder to his twin-set to use on the second dive of the day. He accidentally decanted one hundred percent oxygen into his cylinders that were intended for air. This was done through pure error as the supply cylinder he used, which was green, was only marked in pen as being pure oxygen. There were three other green supply cylinders on the boat but the diver failed to see the writing on the cylinder he used. Realising his mistake, the diver immediately put his twin-set out of action and conducted his dive using a fresh cylinder

which was analysed before use.

**February 2014****14/156**

A buddy pair had completed a 50m wreck dive and on the ascent at 15m had switched to their nitrox 50 decompression gas. They arrived at 6m to complete their decompression stops and while carrying out his stops at 5.8m one of the divers noticed that his dive computer was counting down the decompression with every minute flashing red. When he got to the last minute of his stop a yellow warning flashed on the screen saying 'error missed deco'. The diver showed his computer to his buddy and the message went off the screen and was replaced by 'decompression clear'. Back on their dive boat the buddy pair checked their dive profiles which were exactly the same and with nothing unusual. Instructors on the boat discussed what had happened but nobody had seen the computer messages before. The buddy referred to the computer manual, went through the screen warnings and the divers figured out what had happened. The diver had his computer set on 'CEIL 6m' but had carried out all his decompression at 5.8m and his computer was flashing red as a warning and as he remained above 6m, the computer then showed the 'error missed deco' message.

**Equipment****November 2013****14/148**

An instructor and two trainees were carrying out an open water dive when one of the trainee's BCD began to inflate without any operation of the inflator valve. The instructor took the trainee to the surface and he was helped to exit the water. On investigation it was found that the inflator valve was faulty but this had not manifested itself on the buddy check.

**February 2014****14/155**

Following a wreck dive to 40m for 83 min and at 8m on the ascent a rebreather diver noticed two solid red lights on the head up display and an audio warning. The handset indicated 'scrubber failure' and the temperature stick was all white. The diver immediately bailed out onto his 10 lt cylinder of air. Subsequent actions included switching the handset and backup dive computer into open circuit mode and although clear of decompression, a 3 min safety stop at 6m was carried out. Following the dive the rebreather unit was examined and the scrubber found to be heavily clumped towards the lower part. The scrubber had been filled prior to the dive from a brand new 5 kg box with an expiry date of 2016.

**February 2014****14/158**

Following a reef dive to 30m and on the ascent a diver carried out a mid-water deployment of his DSMB at 23m. As the diver filled the buoy using his alternate source it inflated but did not ascend even though the diver's thumb was fully pressing the release trigger. The diver realised the reel was jammed, let it go and the DSMB shot up to the surface. The diver and his buddy surfaced with a total dive time of 39 min and, back on the dive boat, they recovered the DSMB. They carried out an inspection of the reel and found that the line had tangled itself around the arm of the reel.

**February 2014****14/186**

A rebreather diver descended onto a wreck, reached his maximum planned depth of 32m and then started to ascend back up the wreck. Whilst at the maximum depth and after 22 min the rebreather handset gave a scrubber warning and need to ascend. The diver bailed out onto his 10 lt air cylinder and decided to abort the dive. With a large amount of bailout gas the diver ascended slowly and included a 3 min safety stop. After

surfacing the diver stripped down the rebreather to check the sorb and temperature stick. There were no problems found so he repacked the sorb and carried out his setup and pre-dive checks to get ready for the second dive of the day during which he had no further problems with the scrubber.

**February 2014****14/162**

Three rebreather divers were descending to carry out a deep dive but at 15m one of the diver's handset gave a carbon dioxide warning so the diver switched onto his air bailout cylinder and the divers decided to abort the dive. They made a slow ascent and were recovered back onto the dive boat with no problems. Their dive duration was 7 min. After a surface interval the diver changed the carbon dioxide protector filter and checked the scrubber which was all fine. He re-assembled the rebreather, carried out all pre-dive checks and did a second dive with no problems.

**February 2014****14/159**

Three rebreather divers were descending together on a planned 30m dive for 60 min. Approximately 5 min into the descent at 18m one of them noticed two flashing red lights on the head up display and heard an audio warning. The diver checked the handset which indicated a cell warning detected by both controllers. The diver carried out two diluent flushes but this did not rectify the problem. Rather than suppress the warning the diver decided to abort his dive and signalled his intention to his two buddies who had just deployed a DSMB. Made possible by the excellent underwater visibility, the diver slowly ascended the DSMB line maintaining physical and visual contact with his buddies. On the surface he indicated to both the boat cover and his buddies below that he was 'OK'. His dive duration was 11 min. At this point the buddies continued with the dive while the diver was recovered to the boat. Following a debrief on the boat it was agreed that this had been a poor decision and all the divers should have ascended together.

**February 2014****14/160**

Three rebreather divers had carried out a 39m dive. On the ascent, 50 min into the 60 min dive and at 10m, one of the diver's head up display illuminated with two solid red lights and an audio alarm was heard. The handset indicated a carbon dioxide alarm and to bailout so the diver immediately switched to his 10 lt side slung bailout cylinder of air. After approximately 30 sec the alarm ceased, two green lights returned on the head up display and the handset indicator cleared. The diver cautiously returned to the rebreather and completed the remaining 10 min of the dive without further incident. The CCR scrubber had been freshly packed before the incident and the CO2 sensor protector had been used for approximately 8 hour.

**February 2014****14/163**

Two rebreather divers were on their second dive of the day, a 30m wall dive for a planned dive time of 45 min. 25 min into the dive and at 25m, one of the divers could hear excessive water within his breathing loop. After carrying out a couple of clearing drills the diver then got a scrubber warning to ascend. The diver and his buddy ascended and returned to their dive boat. Back on shore the diver dismantled his rebreather and discovered there was an unusual amount of water within the lungs. The head and sorb were quite damp, apparently caused by a leak in the loop which activated the scrubber warning.

**February 2014****14/161**

Two rebreather divers were 30 min into a planned night dive to 25m for 60 min when one of them heard an audio alarm and noticed two solid red lights on his head up display. The handset indicated a carbon dioxide alarm and to bailout. The diver immediately switched to a side slung 10 lt air bailout cylinder.

After approximately 30 sec the alarm ceased, two green lights returned on the head up display and the handset indicator cleared. The diver cautiously returned to the rebreather and completed an ascent without incident. The CCR scrubber had been used for two previous dives that day for a total of a 120 min. The incident was believed to be due to a high work rate as the diver had been finning quite vigorously whilst towing an SMB for approximately 5 min before the alarm occurred.

## February 2014

14/042

An instructor and two students diving on nitrox were on a wreck dive with a maximum depth of 35m. During the ascent at 20m and as part of a training exercise one of the students deployed his DSMB. The reel's ratchet trigger broke and the remaining part jammed the spool of the reel which caused the diver to ascend rapidly. The student immediately abandoned the reel and re-descended to the course instructor and other student where he deployed his back-up DSMB. The instructor checked that the affected student's decompression profile was not compromised and all three ascended on individual DSMBs. They switched to decompression gas and completed their dive according to the most conservative computer profile, which gave longer stops than the affected diver or Instructor. Their total dive duration was 52 min with 9 min of decompression stops. There were no symptoms shown by the affected diver.

## March 2014

14/167

A nitrox diver emerged from a wreck; in doing so he banged his regulator on the wreck due to the effect of the current. The diver felt a mix of dive gas and water in his mouth. His buddy made his alternate source available while the diver checked his equipment. He was carrying a pony cylinder and octopus to which he switched. The pair ascended to the top of the wreck, located the shotline and made their ascent including a 3 min safety stop at 6m. Their dive duration was 43 min and their maximum depth 25m. Back on the dive boat, the diver found that the tie wrap securing the mouthpiece on the regulator was missing.

## March 2014

14/166

During equipment preparation for a nitrox dive from a liveaboard, the high pressure hose attached to a contents gauge ruptured close to the gauge attachment point.

## June 2014

14/114

A diver on a trip abroad was sitting in the saloon of the dive boat when she received a call on her mobile from the UK Coastguard to say her personal locator beacon was transmitting a distress call. Her mobile phone number was the first number on the contacts list. On opening the unit it was found that it had partially flooded which had increased pressure inside the unit to depress the activation button. This had resulted in a false distress call being sent. The batteries were removed from the unit to prevent further transmissions and the Coastguard confirmed cancellation of the distress call. There were no obvious reasons for the locator beacon to flood and the unit was returned to the manufacturers.

## INCIDENT REPORTS

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

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

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

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

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

<http://www.bsac.com/incidentreporting>

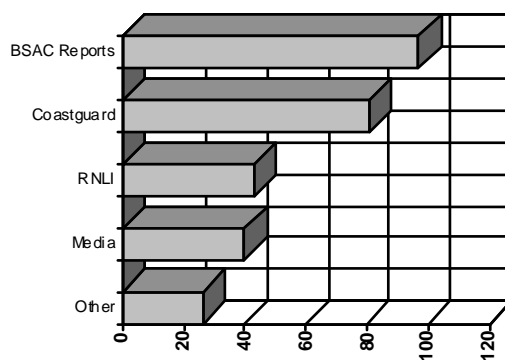
or by phoning BSAC HQ on **0151 350 6200**

## Numerical & Statistical Analyses

### Statistical Summary of Incidents

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Incidents Reported	439	465	453	409	498	499	437	401	416	453	412	405	377	335	277
Incidents Analysed	417	458	432	392	445	474	418	377	381	409	393	392	346	311	265
UK Incidents	384	433	414	366	423	441	379	349	359	381	364	375	314	263	216
Overseas Incidents	33	25	18	26	22	33	39	28	22	28	29	17	32	48	49
Unknown Locations	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UK Incident - BSAC Members	113	122	149	162	154	160	148	120	129	120	116	193	133	104	101
UK Incident - Non-BSAC Members	52	94	55	74	72	65	50	61	65	29	30	94	40	38	30
UK Incident - Membership Unknown	219	217	211	130	197	216	181	168	165	232	218	88	141	121	85

### UK Incident Report Source Analysis



Total Reports: 287  
Total Incidents: 216

### History of UK Diving Fatalities

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

\* 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**

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