



Annual Diving Incident Report

BSAC Incident Report 2022



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Introduction

The incident report for 2022 recreational diving occurring in the UK and Overseas.

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

The contents of this report are split into an overview of the year and then the details of eight incident categories plus some historical analyses. Within each category, the incidents are listed in the order of occurrence, not necessarily that of Incident Reference.

They are laid out in the following form:

Month / year of incident

Incident reference

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 significant cause or effect. For instance, an incident involving a fast ascent, causing decompression illness, will be classified under 'Decompression Incidents'.

Please read the details in this report and use the synopses to learn from them. The individuals who have provided this information have had the courage and generosity to record their experiences for publication so that we can use this information to avoid similar problems.

Finally, if you are unfortunate enough to have an incident, please help us maintain the most comprehensive recreational diving incident reporting system in the world by reporting it using our Incident Report form, available via the BSAC website or from BSAC HQ. As always, your anonymity is assured, and great care is taken to preserve the confidentiality of any personal information recorded in the BSAC Incident Report database.

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Acknowledgements

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

- Maritime & Coastguard Agency
- MOD Superintendent of Defence Diving
- PADI Europe, Middle East and Africa
- Royal Society for the Prevention of Accidents
- Scottish Sub-Aqua Club
- Sub-Aqua Association
- CFT – Coomhairle Fo-Thuinn – Irish Underwater Council
- RAID – Rebreather Association of International Divers
- IANTD – International Association of Nitrox and Technical Divers
- WAID - Water Incident Database
- Alison Dando for proof reading this report
- and, in particular, all of those divers and other sources who have taken the trouble to complete incident reports and share their learning experience with others

Cover photograph by Simon Rogerson

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Analysis of the incident database

BSAC is the National Governing Body for the sport in the UK, and an important component of our role for the last five decades has been to report annually on the UK diving incidents in the UK. The BSAC incident report is intended to help support diving agencies and rescue services in providing information to help inform strategic decisions and to provide information to divers on emerging trends and factors associated with incidents.

We collect data on all recreational diving incidents in the UK; the data is supplied by divers of all diving affiliations, by diving agencies in the UK and Eire and the rescue services who have been involved in the support of divers. Data is supplied by annual reports from the Maritime & Coastguard Agency, the RNLI, MOD Superintendent of Defence Diving, PADI Europe, Middle East and Africa; the Water Incident Database (WAID) and the Royal Society for the Prevention of Accidents. In addition to receiving reports from agencies, BSAC uses a media searching service to gather reports of incidents in press clippings and online media. Most of the incidents are reported through the Incident Reporting forms, which are provided online on the BSAC website. Often, an incident is also independently reported with appropriate anonymity by rescue agencies or features in a press report. Therefore, each year, the data is carefully triangulated by a process of detective work using the date, location and description of the incident to ensure that there is no duplication in the final report. Figure 1 shows the sources from which the reports are derived.

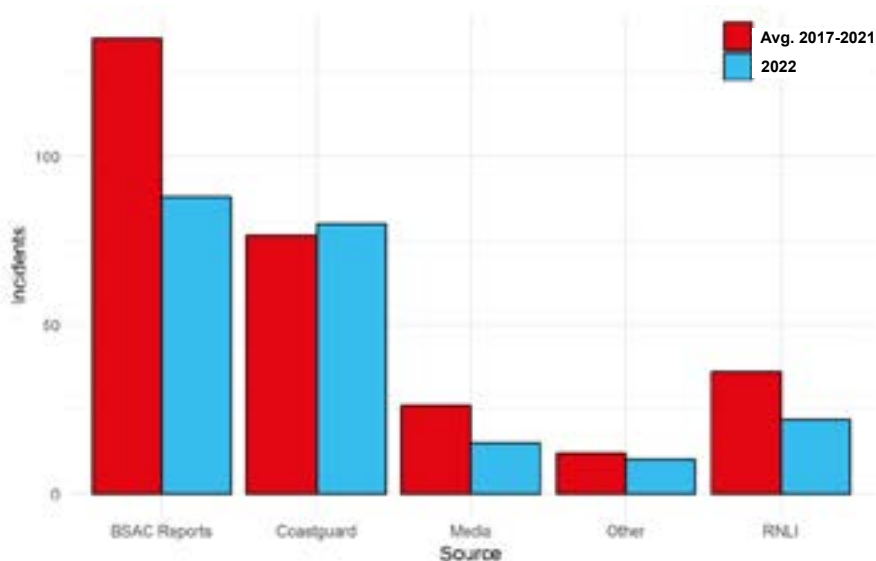


Figure 1. The source of reports contributing to the BSAC Incident analysis

The BSAC does not report on incidents which are wholly commercial in nature such as incidents involving professional scallop fishermen or operational work dives in harbours, incidents involving this type of activity is managed by the Health and Safety Executive (HSE). It does, however, include all recreational instruction dives even when a commercial instructor is involved as these incidents are important for our learning and to inform the development of future training programmes.

In the calendar year of 2022, we have recorded 248 incidents including 66 classified as overseas (Figure 2). As shown in Figure 2, the number of incidents reported since 2014 have remained remarkably static apart from the year of the pandemic when significantly reduced number of incidents were reported linked to the restrictions on diving activities due to the COVID 19 pandemic.

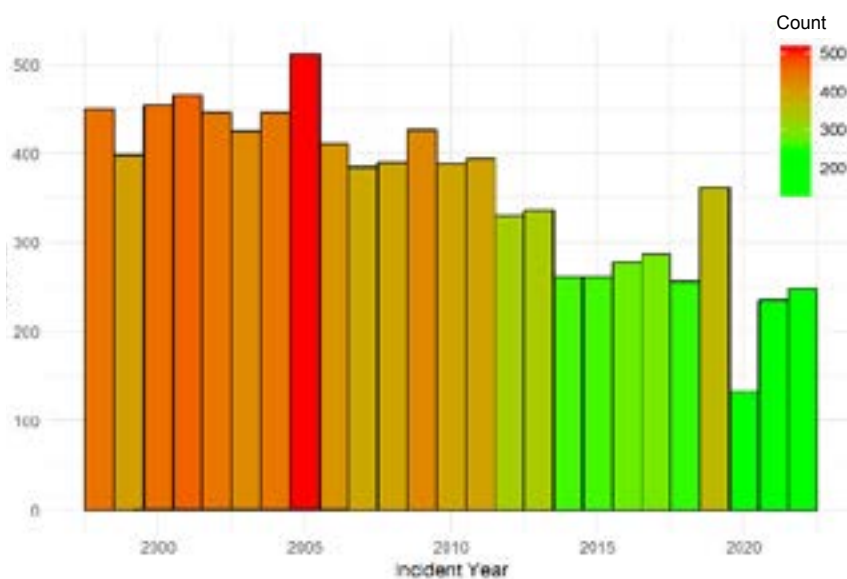


Figure 2. Total number of UK and Overseas reported incidents

Incidents by Month

The number of incidents reported occurring in each month of the year is shown in Figure 3. This figure repeats the finding of previous years in that the distribution of incidents across the calendar year appears to follow the months of the years where most diving occurs. Put straightforwardly, the more diving activity, the more incidents occur. One success story associated with the reporting of incidents is that we used to highlight a peak of incidents in April and May which was attributed to poor preparation for early diving in the season. Each year the Incidents Advisor report at the BSAC Diving Conference included a request for more caution at the start of the diving season. Now, we no longer see any indication of the spring peak that was common prior to 2008.

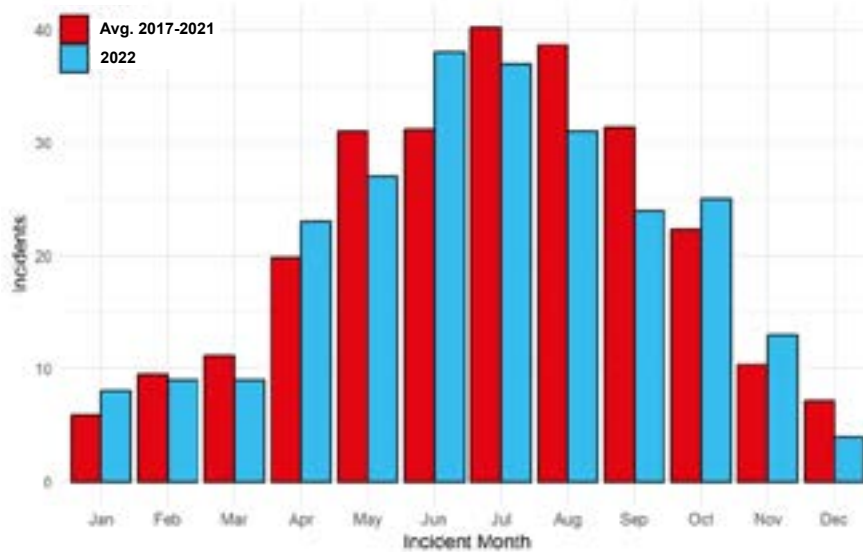


Figure 3. Number of Incidents occurring in each month of the calendar year

Incidents by Category

Each incident in the database is categorised into one of eight classes by identification of the most serious attributable factor. For example, if a fast ascent results in a DCI event, then the incident is reported as a DCI; however, if a fast ascent results in no serious ill effects, then the incident is classed as an ascent-related event.

Incidents which cannot be attributed to a factor are placed in the miscellaneous category. The ascent category involves incidents where divers have made an abnormal ascent but survived and avoided DCI or another injury.

In 2022, the pattern of distribution of incidents across the different classes appears not to have significantly changed. Figure 4 shows that there were fewer ascent-related incidents and DCI events reported, offset by an increase in equipment, injuries and miscellaneous events. The slight rise in equipment-related incidents was repeated this year. It is worthwhile reading the synopses to learn from some of these events as there is a predominance of events involving free-flows which did not develop into more serious incidents due to the presence of alternate sources of gas and vigilant buddies. This year, we see several reports of false alarms with good intent from the MCA and a smaller number of instances where accident-avoidance advice has been given to divers. It is worthwhile noting that our emergency services are always prepared to assist us and would rather an early call, which turns out to be not needed, than a late call from which it is much harder to recover the situation to a positive outcome. We are extremely grateful for the unconditional support all the emergency services provide when we make that call for help.

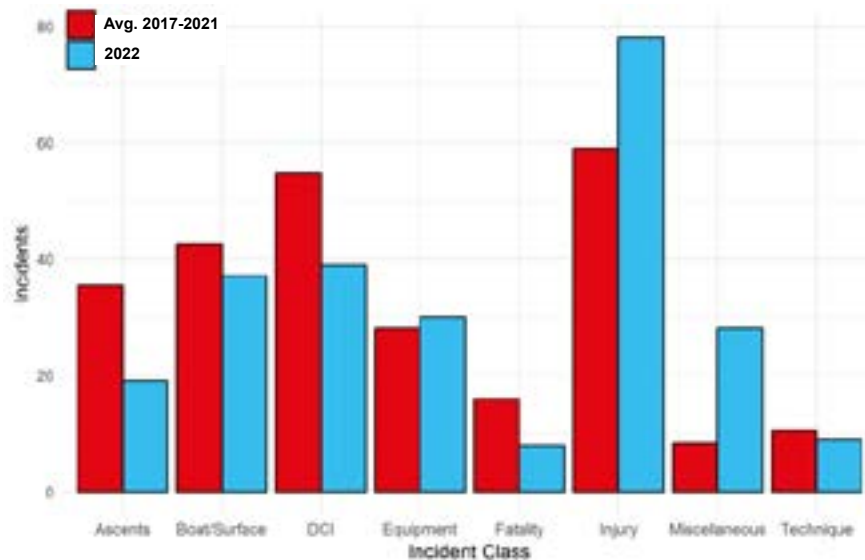


Figure 4. Reported incidents by category

Regrettably, there were 6 incidents resulting in 6 diver fatalities this year; more detail on these fatalities is given later in the report.

Incident Depths

The incident report provides an overview of the information provided on the depth of the dive on which the incident occurred and the depth at which the incident began. Often, because of the limited nature of the report provided to BSAC from some agencies, this information is unknown. This year we see a significant rise in the number of reports from which it was impossible to glean this information.

The maximum depth of the dive during which incidents took place, categorised into depth range groupings, is shown in Figure 5. The data from this year follows the pattern identified in previous years where it is common that the symptoms of DCI become apparent on the surface and other surface incidents involve boats and boating incidents and divers who are lost. Incidents do not always occur at the deepest point of the dive.

Figure 6 shows the depths at which incidents started; these again follow last year's reporting of a significant decrease in the proportion of incidents starting on the surface and a reflected increase in the number of incidents at which the starting depth is unknown due to the number of reports provided by the emergency services where this data are not recorded.

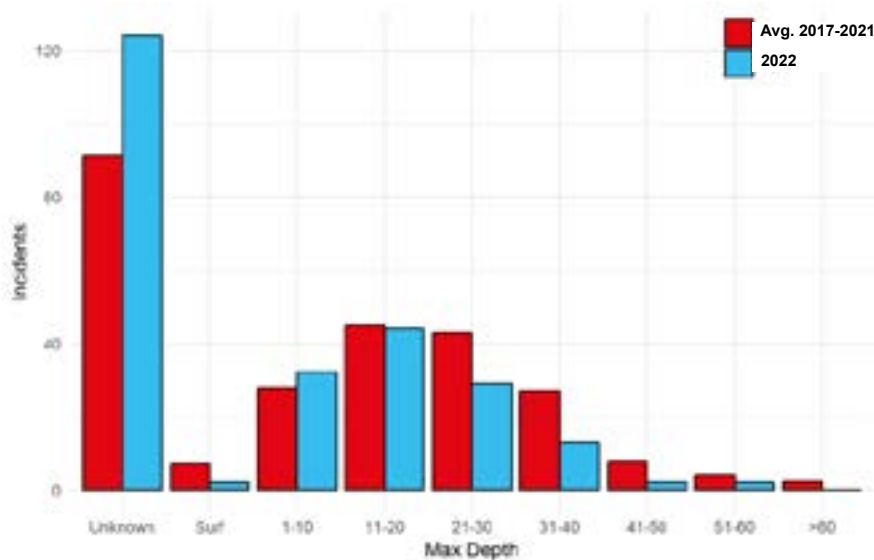


Figure 5. Maximum dive depth (m) in which incident occurred

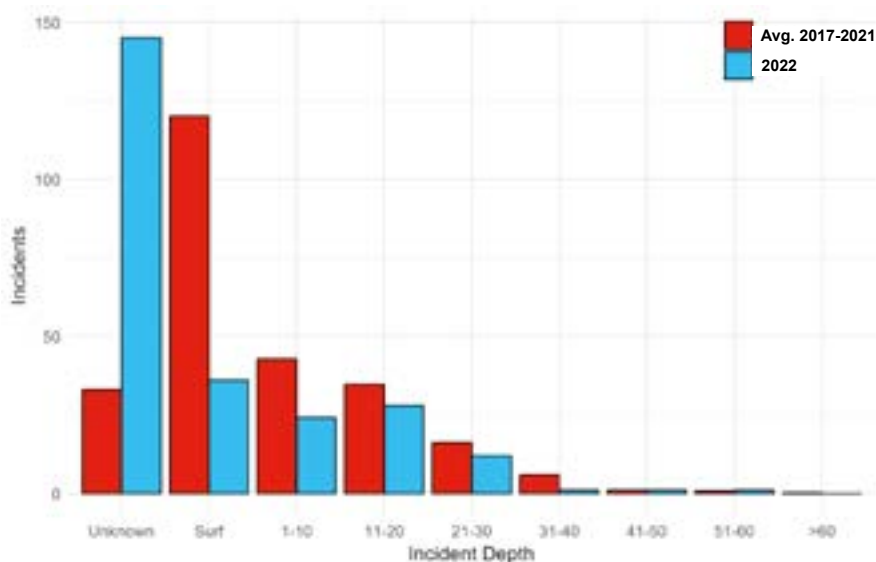


Figure 6. Depth (m) at which incident started

Diver Qualification

This year we continue to present the amended analysis of diver qualification limited to the diving qualification of the casualty only. Figure 7 shows the diving qualification of those BSAC members who were the subject of reported incidents. The proportion of each diver qualification involved in the diving incidents has changed in 2021 and is perhaps more in line with expectations in that one might surmise that more experienced divers are fewer in number and less likely to be the casualty in an incident.

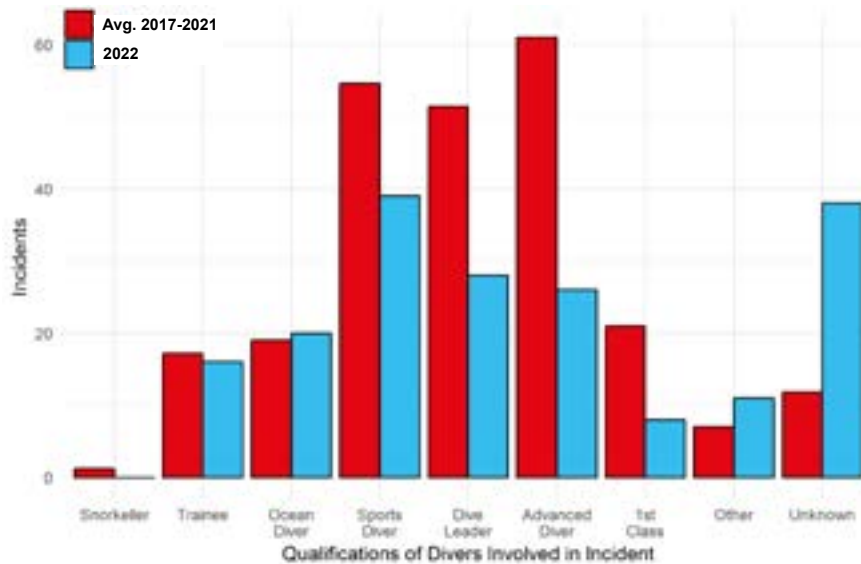


Figure 7. Qualification of the casualty in the incident

Divers' Use of Emergency Services

This section reports on the extent to which divers have needed to call upon the assistance of our emergency services; the Coastguard, the RNLI and Rescue Helicopters. (Figures 8, 9 & 10). In 2022, the Coastguard were called upon 80 times to assist in the rescue of divers; 63 of these were in June, July, August and September.

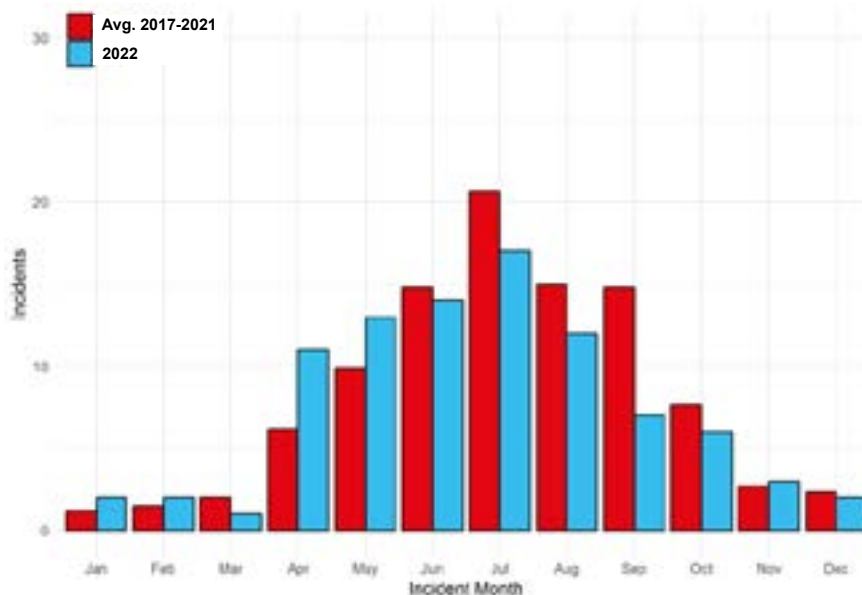


Figure 8. Incidents involving the UK Coastguard Agency in each month of the incident year

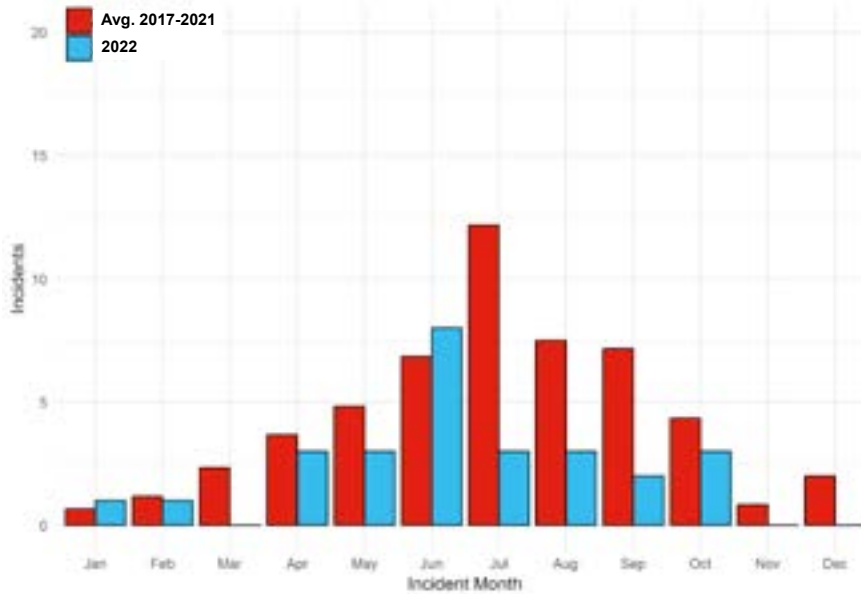


Figure 9. Divers' use of RNLi facilities in each month of the incident year

In 2022, the RNLi were called 27 times to help in the rescue of divers. 16 of these were in June, July, August and September (Figure 9). Also in 2022, helicopters were called 13 times to help in the rescue of divers. 8 of these were in June, July, August and September (Figure 10).

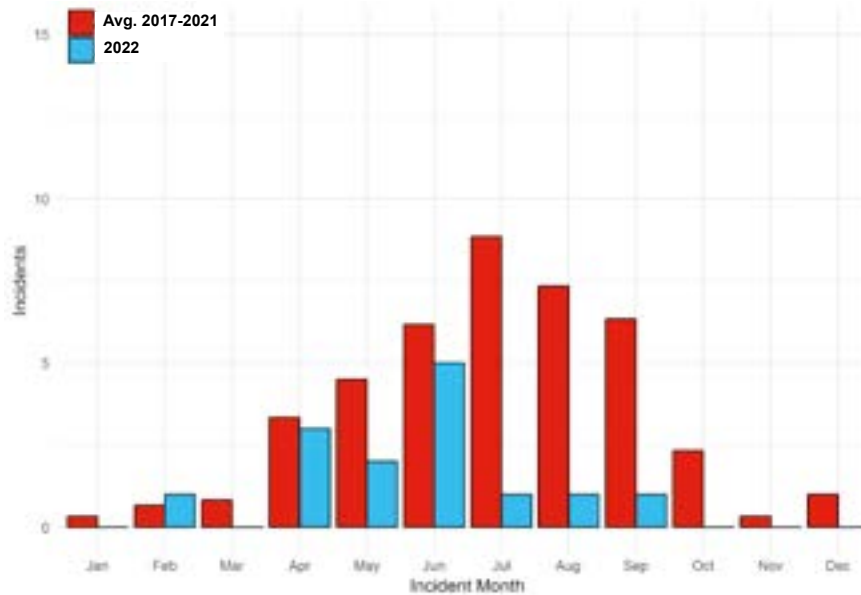


Figure 10. Divers' use of SAR helicopters in each month of the incident year

Long term trends in the classes of incident

This year we continue the analysis of the data using BSAC membership numbers as a proxy for the level of diving taking place in the UK and then present these data using a 5-year rolling average. This analysis is designed to highlight any long-term trends in the factors associated with incidents that may merit the attention of those agencies designing training programmes.

Figure 11 shows that the incidence of fatalities has remained sadly resolutely stable over the analysis period. Likewise, the number of incidents associated with equipment and technique, while relatively low, has not changed over the analysis period. It remains the case that there continues to be a downward trend, especially over the last 10 years of the incidence of decompression illness, ascent-related events and boating and surface incidents, even when accounting for an evident reduction in the amount of diving in the UK over that time.

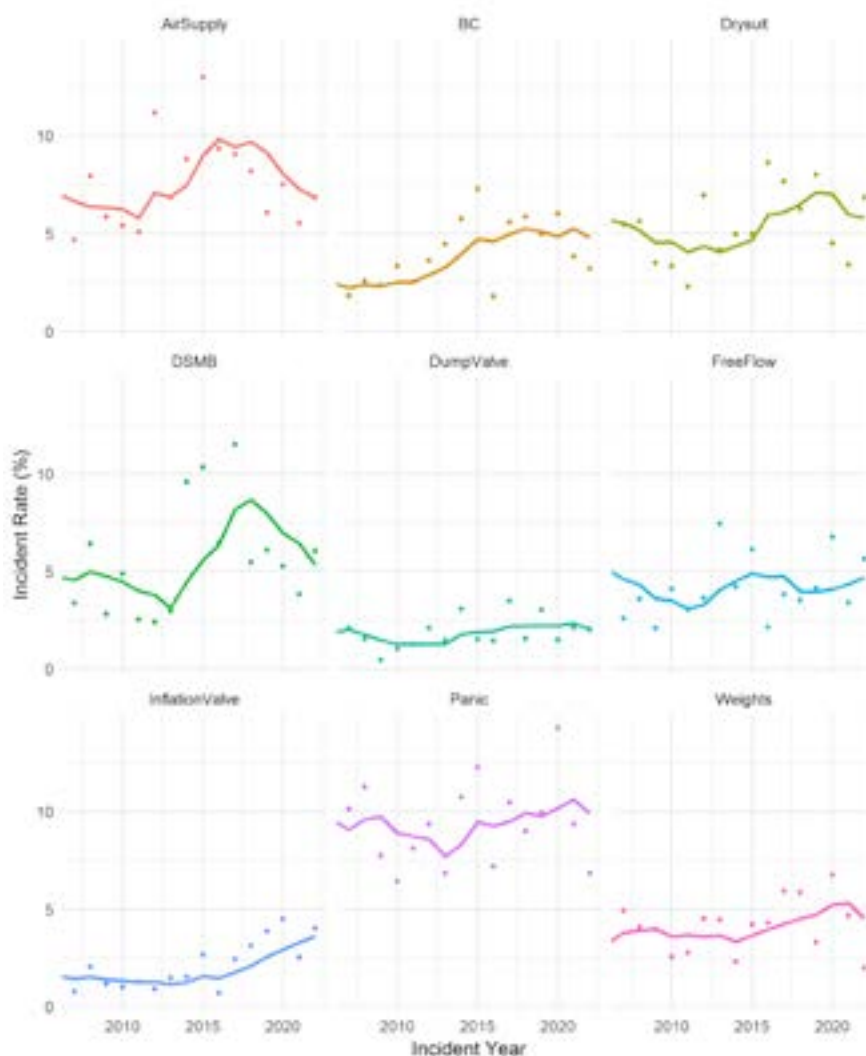


Figure 11a. Incident rates linked with an indicated causative factor using BSAC membership as a proxy for estimated participation in the sport. Trendlines are a 5 year rolling average.

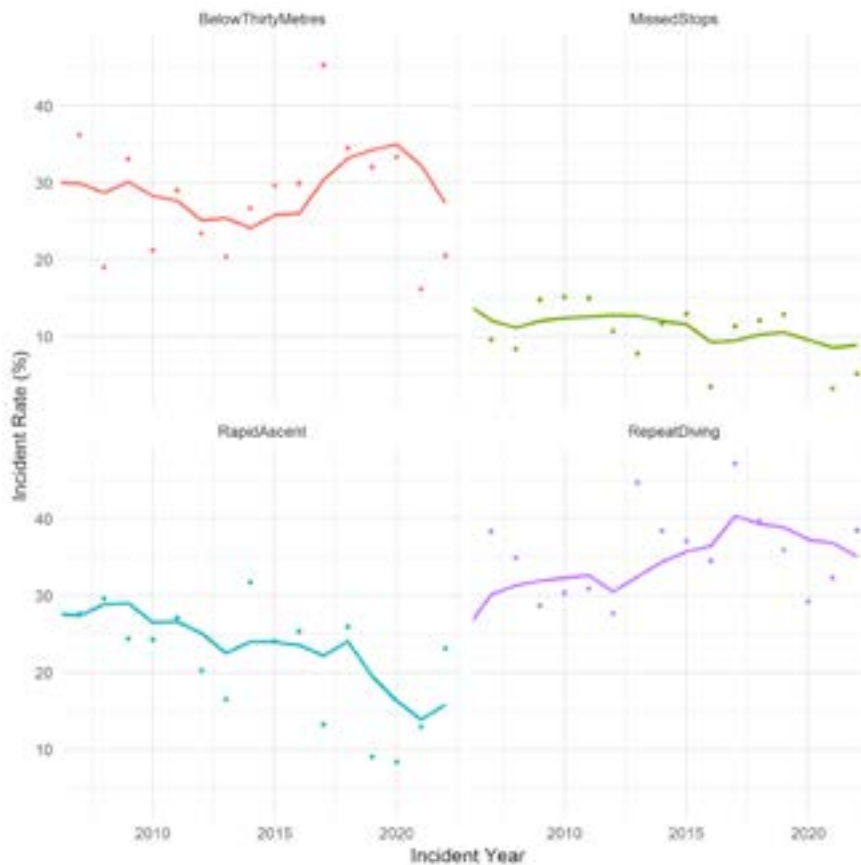


Figure 11b. DCI incident rates by factor involved, using BSAC membership as a proxy for estimated participation in the sport. Trendlines are a 5 year rolling average.

The stochastic nature of the data and the small numbers of incidents associated with any one associated factor make it difficult to draw out any concerning features about which we need to act on an annual basis. To highlight any worrying (or indeed positive) trends, we use BSAC membership numbers as a proxy for the level of diving taking place in the UK and then present incident rates using a 5-year rolling average. This analysis is designed to highlight any long-term trends in the factors associated with incidents that may merit attention of those agencies designing training programmes and issuing safety advice.

Figure 11a shows that there may be a slight indication of a rise in events involving inflation valves, and attention to the servicing of these is highly recommended as often these escape annual servicing of regulators. Figure 11b shows the number of DCI incidents associated with causative factors; it is noticeable that these have not risen significantly over the analysis period. In addition, the trend showing a reduction of incidents involving the DSMB continues, although a thorough reading of the synopses will still show that accidental entanglement with DSMB lines still features in some incidents.

Immersion Pulmonary Oedema (IPO)

Routinely, when there is an indication that Immersion Pulmonary Oedema is a possible factor in the incident, we note this in the database. If more evidence becomes available after the publication of the incident report for that year, for example, we often receive medical confirmation or the coroner's report indicates IPO, we do amend the database so that the record will contribute to any longitudinal analysis. Figure 12 will, therefore, reflect additional information that has been reported in previous years.

Figure 12 shows that there were nine incidents this year where there were one or more of the following identifying factors present:

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

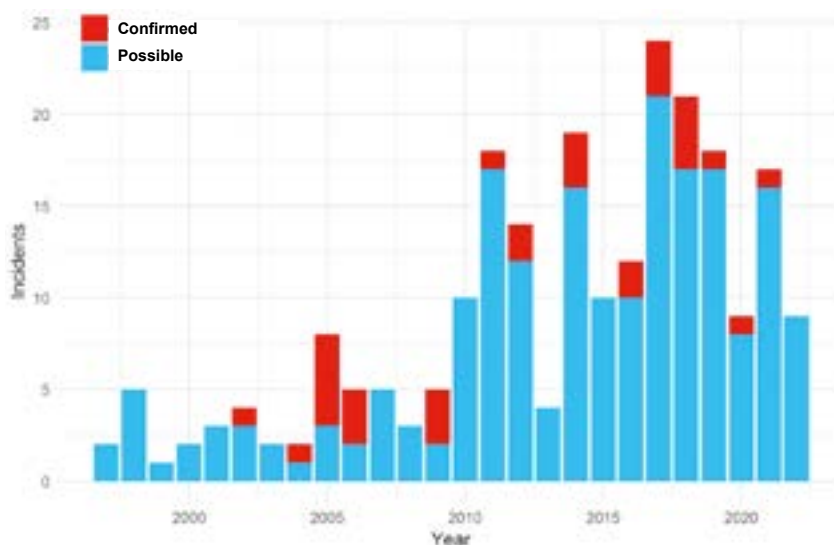


Figure 12. The frequency of confirmed and possible cases of IPO 2010 to 2021.

BSAC has now embedded in its training materials to say that if you experience breathing difficulties underwater, you should terminate the dive and ascend safely and exit the water. In addition, if you recognise any of the above factors in a buddy, then assist them from the water as quickly as it is safe to do so. Once out of the water, the casualty should sit, be given oxygen and medical advice sought. It is hoped that the early identification of problems which may indicate an IPO may reduce the chances of an incident becoming more serious.

Fatalities

Sadly, 6 fatal incidents occurred in the UK during the 2022 incident year involving the death of 6 divers.

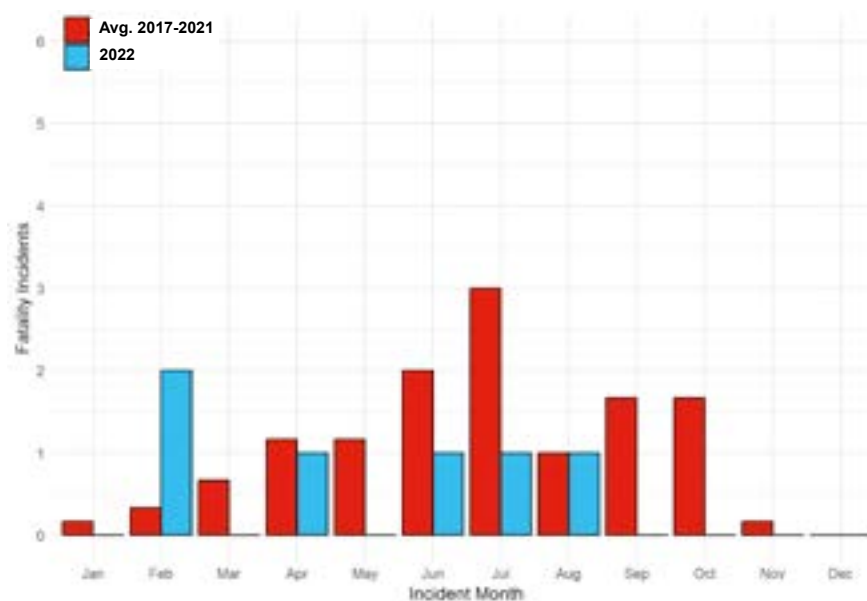


Figure 13. Fatal incidents in 2022 by calendar month compared to previous 5 years.

Analysis of the fatal incidents showed that the average age of the people who sadly died was 55.5 years. In five of the six fatalities, the person was unconscious in the water and in four of the fatalities, there is enough information to indicate that medical causes were a noteworthy factor.

Conclusions

Key conclusions of the 2022 BSAC Incident report are:

- The number of incidents continues to be closely linked to the amount of diving occurring, and diving activity has returned to pre-pandemic levels in 2022.

- Very sadly, this year there were 6 fatalities resulting from 6 diving incidents. This is the lowest number of diving fatalities in a normal diving year since 1977 and equals the number of fatalities during the first year of the pandemic. Whilst this could be interpreted as positive, the stochastic nature of the number of fatalities each year means that it is not possible to say that this is an emerging trend. Any medical incident in water can have a negative outcome when compared with a similar event on land, depending on the circumstances and the opportunity for a timely rescue.
- Some incidents could possibly have been circumvented had those involved followed a few basic principles of safe diving practice. 'Safe Diving' published by BSAC summarises all of the key elements of safe diving practice. In addition, many of the unavoidable incidents are prevented from escalating into something more serious by the prompt utilisation of rescue skills and the rapid support of the rescue services. Examples of all these can be found in the synopses provided.

Synopses

Fatalities

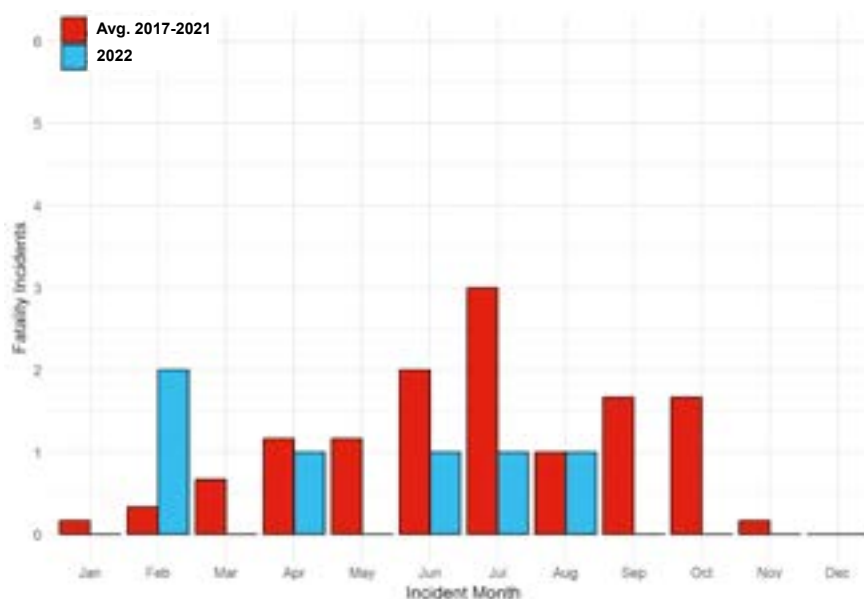


Figure 14. The month of occurrence of fatalities

February 2022

22/002

Two divers had completed one short dive together. The pair exited the water to allow one of them to change his cylinder and add more weight as he had been slightly underweighted the previous dive. The pair started a second dive descending to a reef with one slightly ahead of the diver who had changed his cylinder. They were at a depth of around 9m when the visibility deteriorated to 1m, and when the leading diver turned around, he could not see his buddy, and so followed the lost buddy procedure and surfaced. On surfacing, he could not see his buddy but could see two figures on shore waving at him. The two were other members of the dive party, and they informed the diver that they had seen the buddy surface close to the rocks and had been swept onto the rocks by a wave. The shore party rushed to the location and reported the diver was seen to go under and that he was bleeding from his head and was without his mask or regulator. The leading diver made his way towards the area where his buddy had sunk and commenced a search. The emergency services had been called, and the police arrived on scene approximately

10 min after the call. The leading diver exited the water shortly after as he was low on gas, just as one of the shore party, who had kitted up, was entering the water to commence an underwater search. The tide had turned and visibility had deteriorated considerably to less than 1m. The search diver surfaced on the west side of the bay and noticed the missing diver being washed about on the opposite side of the bay. He started to make his way towards the casualty but was intercepted by an inshore lifeboat. Meanwhile, the leading diver had spotted his buddy on the surface, re-entered the water, swam to him, made contact and inflated his BCD, and given rescue breaths before towing the casualty back to shore, where the emergency services took over resuscitation attempts. CPR was continued on shore by paramedics, but the diver did not survive. A coroner's inquest recorded a verdict of accidental death.

February 2022

22/004

A group of divers were debriefing their second dive of the day when a shout for help was heard from the lake. The group went to investigate and

found an unconscious diver being towed towards the slip by his buddy. One member of the group went to alert the site staff while the others made their way to the water's edge. The buddy stopped towing when he saw the group, and one of them waded into the water but without fins was unable to reach the pair and so shouted to the buddy to continue towing. Another, taller member of the group managed to reach the casualty and part-waded/part-towed him towards the slip and, once in shallower water, was assisted by the other diver from the group. The casualty was de-kitted and then recovered from the water by 4 members of the group. The site staff arrived with an AED, oxygen kit and first aid kit and the casualty was cut out of their drysuit and undersuit. CPR with oxygen-enriched rescue breaths were initiated by the site staff, and then a member of the group took over chest compressions while a member of staff began to prep the AED. AED pads were attached to the casualty but 'no shock advised'. Rescue breaths were stopped as the casualty's lungs were not inflating, and the abdomen was expanding indicating that gas was going into the stomach. Checks indicated that the casualty's tongue was blocking the airway and his head could not be tilted back due to a swollen neck. As site staff went to get an intubation kit and the CPR continued with continued efforts to get a neck extension, the AED continued to report 'no shock advised'. As the intubation kit was being prepared, an ambulance first responder crew arrived and took over control of the casualty and the rescuers were stood down and returned to their vehicles. The casualty was reported to have a faint pulse at the time of being transported to hospital by ambulance and was later reported to be stabilised in Intensive Care Unit at hospital. The casualty unfortunately passed away in hospital.

April 2022 **22/011**

A group of 3 students were undertaking a training dive from a boat with an instructor to a maximum depth of 5m. The group descended the shotline to a sandy bottom. The instructor indicated that the first skill they would practise would be neutral buoyancy. Each student was asked in turn to adjust their drysuit valve and perform a fin pivot. The instructor noticed that one diver was

struggling with his buoyancy and went to help him. While the instructor was adjusting the diver's trim, the diver suddenly bolted to the surface. The instructor gathered the other two students on the shotline and ascended. He found the diver lying on his back on the surface and not breathing. Rescue breaths were provided and the boat came alongside. Working with the skipper of the boat, they were eventually able to get the diver into the boat, and CPR was performed while heading to the shore. The diver was recovered onto a beach by the emergency services and was attended to by ambulance, lifeboat and Coastguard teams and a rescue helicopter but was subsequently pronounced deceased.

June 2022 **22/190**

A diver, who had not dived for over a year, went in for a dive with another diver in shallow water of approximately 3m. The buddy turned round and found the diver floating on the surface and pulled him from the water, not breathing. The emergency services were called, and the Coastguard tasked a lifeboat and other resources to attend. The diver was declared deceased at the scene. (RNLI report).

July 2022 **22/049**

A diver was reported to have entered the water from a beach using a full wetsuit, mask, fins, snorkel and wearing a weightbelt. Sometime later, the diver was spotted floating unresponsive at the surface and was found to not have his weightbelt on. The emergency services were called, and the diver was declared deceased at the scene. (Media report).

August 2022 **22/068**

A diver and his buddy entered the water for a shore dive and descended to a maximum depth of 40m, and then ascended by the same route with no abnormal circumstances. On surfacing at their exit point, they met two other divers, one of who had lost a fin in about 1m of water. The diver's buddy helped the diver remove his fins and then submerged to look for the missing fin in the shallows. The diver said he was extremely cold and was told to go ashore by the other two

divers while they continued looking for the fin. The diver was approximately 1m from the shore when he turned and said something was up and he didn't feel well. He stumbled and was caught by one of the other divers, who shouted for assistance as the diver was now unconscious. On surfacing, his buddy noticed something was up on the shore and, on exiting the water, realised it was his buddy who had collapsed, was unconscious and was being attended to by another group of divers, which included a doctor, paramedic, and a nurse practitioner. The diver had been placed on oxygen and the Coastguard and ambulance had been called. The buddy de-kitted and went to fetch the diver's medical bag, which included an insulin test kit, as it was suspected he may have had a hypoglycaemic fit. Tests showed this was not the case. An ambulance arrived and took over care of the diver, who remained unconscious and transported the diver to hospital. The diver died later in hospital.

Decompression incidents

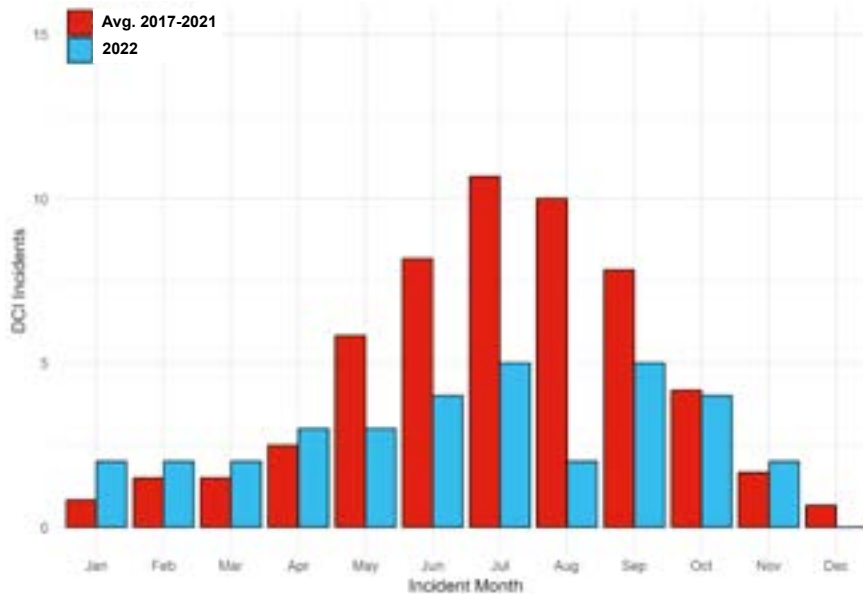


Figure 15. The month of occurrence of DCI

January 2022

22/001

A student on a training dive to a maximum depth of 10m. On returning to a depth of 4m to practise skills, the student started to have buoyancy issues with their drysuit causing him to ascend to just below the surface and then back down again but did not break the surface. Approximately 10 hours after the dive, the student began to feel unwell with nausea, which increased overnight, and he developed pain in his wrist, so he sought medical attention. The diver was treated in a recompression chamber with one treatment of six hours and three shorter follow-up sessions over the next three days.

of 'brain fog' as well, which was not normal for her. She contacted a recompression chamber and was advised to attend, and she received recompression treatment. The reason for the DCI was attributed to the fact she had become quite cold while in the water. The water temperature was recorded as 6 deg C.

January 2022

22/018

A diver had completed two dives the previous day without incident, but after leaving the water from the second dive, had a slight headache. The following morning, the diver woke up with back pain and fatigue but attributed this to sleeping funny during the night, and she often felt fatigued. She went for a dive to a maximum depth of 7m and a total duration of 32 min. The next morning she woke with the same pain and fatigue but also with confusion and complained

February 2022

22/005

During a night dive, at a depth of 21m and 10 min into the dive, a diver felt that her regulator was free flowing. She was unable to see her buddy and so ascended alone. On surfacing, she attempted to inflate her BCD but was unable to keep her head above water and was unable to orally inflate her BCD. Meanwhile, her buddy had noticed her signal that there was a problem but was unable to assist before the diver made a rapid ascent and did not witness any signs of a free flow. The buddy made an ascent at the maximum rate indicated by his computer and omitted any safety stops. On surfacing next to the diver, he found her on her back making weak incoherent noises, breathing from her regulator and conscious but not fully alert or responsive. The buddy fully inflated her BCD, ensuring she remained on her back with her head out of the water. The buddy shouted to raise

the alarm and the on-site rescue team attended and recovered both divers from the water. On checking the diver's equipment, the rescue team reported a slight free flow from the diver's regulator and the gas supply was turned off. After the incident, the diver reported suffering from a migraine and was taken to hospital by ambulance and then referred to a recompression chamber, where she received treatment.

February 2022

22/136

A diver had undertaken two deep dives with a short surface interval. After the second dive, the diver felt dizzy and sick and was grey in colour. He was responsive and alert, and oxygen was administered by the site rescue team. The diver was transferred to a recompression chamber by ambulance.

March 2022

22/141

Following a dive to a maximum depth of 22m for a total dive duration of 40 min, a diver complained of a loss of feeling in his leg and felt sick. He was administered oxygen by the on-site staff for 20 min, and emergency services were called, but advised of a 2 hour wait. A recompression chamber was called, and the doctor advised that buddy could drive the casualty to the chamber for assessment as symptoms had subsided and they were now off oxygen.

March 2022

22/122

A diver had completed a training dive in a group of 5, with all skills completed without incident. The dive required approximately a 100m surface swim out and back to the exit steps. As the diver exited the water, he exhibited signs of fatigue as well as having a pale, white complexion. The diver acknowledged that he was feeling unwell and breathing heavily after the surface swim out but didn't notify the instructor or safety diver. The diver's buddies and instructors helped him from the water and called for help from the dive site staff to administer emergency oxygen. While on emergency oxygen, it was noticed that his neoprene neck seal was tight and was taken off emergency oxygen while it was removed and then immediately resumed the oxygen. It was

suspected that he suffered a carotid sinus reflex due to the tight neck seal as his colour began to come back from a pale white to a fleshy pink almost immediately. The emergency services were called, and an ambulance arrived within 8 min. The ambulance crew exchanged his oxygen mask with one of theirs. They escorted him into the ambulance, and, after speaking to a specialist diving doctor, they transported the diver to a recompression chamber for assessment.

April 2022

22/012

A pair of divers conducted a boat dive to a maximum depth of 22m. Approximately 42 min into the dive, both their dive computers showed that they had exceeded the no-deco dive time. The lead diver signalled to his buddy that they should ascend and deployed a DSMB from depth and commenced an ascent with an indicated time to surface of 12 min, including a deep stop at 10m. On reaching 10m, the pair completed a stop for 1 min and then recommenced their ascent. As they reached 7m, the buddy was unable to vent the gas from his suit quickly enough and made a rapid buoyant ascent directly to the surface, missing the remaining required decompression stops. The lead diver completed his decompression stops at 4m while monitoring his buddy, who was waiting above him close to the DSMB. After surfacing and reuniting with his buddy, the pair were recovered aboard the boat. At this point, the buddy's computer alarms had switched off and the computer was locked out. The crew were informed of depth, time and gas out but were not informed of the missed decompression. On return to harbour and disembarking, the buddy was washing his kit and the lead diver mentioned to another of the group the rapid ascent, which was overheard by the boat skipper, who checked with the buddy how he was feeling. The buddy reported he was feeling fine and he was lucky to have missed so much deco and "might have got away with it". The buddy went to the toilet and immediately afterwards felt dizzy and unwell. The other divers in the group got him to lie down and called 999 for an ambulance, plus called the skipper back too. The buddy was helped to remove his drysuit, moved away from the wet area and placed on oxygen. The skipper notified

the emergency services and the Coastguard tasked a rescue helicopter to transfer the diver to a recompression chamber. By now, the casualty had started vomiting and reporting that every time he opened his eyes the world was spinning. The divers kept the casualty warm, kept oxygen supply going. An ambulance transferred the casualty to a helicopter landing site and he was airlifted to a recompression facility. The diver was diagnosed with a vestibular DCI and received two recompression treatments and was discharged the following day. The diver was continuing to take anti-emetics, and is walking with sticks as he is unsteady on his feet. The long term prognosis is not yet known.

April 2022 **22/123**

After surfacing from the first dive of the day in a swimming pool, an instructor started to develop symptoms of DCI. During a surface interval, the symptoms got gradually worse. The instructor called a recompression facility and was advised to attend for treatment with them the same day. The instructor went back to the chamber the next day for a second treatment. The instructor was discharged and advised not to dive for 4 weeks.

April 2022 **22/196**

Coastguard received a report of diver suffering from DCI. (Coastguard report).

May 2022 **22/197**

Coastguard received a report of diver suffering from DCI. (Coastguard report).

May 2022 **22/198**

Coastguard received a report of diver suffering from DCI. (Coastguard report).

May 2022 **22/024**

A diver and her buddy started the first dive of the day, descending a shotline to a maximum depth of 28m. As the pair reached the bottom and let go of the shotline, the diver began to drift upwards. Her buddy swam towards her and tried to her

control her ascent. At 15m, the diver was able to reach the shotline again but continued to be pulled up by the air in her drysuit. She managed to slow her rate of ascent, but it remained faster than normal and she ascended direct to the surface with a total dive time of around 7 min. Her buddy ascended at a faster rate than indicated by his computer, alternating between yellow and green, but was unable to catch the diver and once he could see she was at the surface when at 8m himself, he slowed his ascent back into the green and surfaced omitting safety stops. On the surface, the diver indicated that she had been unable to dump gas from her drysuit but that she was OK and had breathed normally during the ascent. The pair aborted the dive and reboarded the charter boat they were diving from. After a surface interval of 127 min, the pair were happy to dive again and prepared for a wall dive. The pair descended a shotline to 22m and enjoyed a good dive without incident before preparing to ascend after about 45 min. The diver's buddy had accumulated 4 min of decompression stops as they started their ascent and the pair had agreed to conduct decompression stops at 6m. The buddy deployed a DSMB and the pair ascended to 6m, where the diver had 3 min of required decompression and her buddy 2 min. During the stop, the diver's legs began to float up, and her buddy helped her a couple of times to bring them back down again. Then suddenly the diver started rising quite fast and was fighting to stay down, her buddy went to assist but both divers ended up on the surface omitting 2 and 1 min of deco stops respectively. On the surface, the pair checked that each other was OK and re-descended back to 3m within 15 sec, where their computers indicated 3 and 2 min decompression stops required, respectively. The pair completed 3 min of decompression stops and 1 min 30 sec of safety stops before making a controlled ascent to the surface. On getting back aboard the charter boat, it was reported that the diver had lost buoyancy control because her cylinder had come loose, but she reported she felt fine. Within a couple of hours of surfacing, the buddy felt dizzy with some minor aches in his left shoulder and knees, but these subsided without any treatment.

The pair travelled home separately, and during the journey home, the diver experienced tremors and contacted a recompression chamber and was told to attend and received treatment. When he heard of this, the buddy contacted an emergency helpline and was advised that he had nothing to worry about and advised to drink plenty. The diver had a second precautionary treatment.

June 2022

22/199

Coastguard received a report of diver suffering from DCI. (Coastguard report).

June 2022

22/051

A diver had completed a previous dive to a maximum depth of 12m for a total dive time of 46m. After a surface interval of 180 min, she started a second dive of the day, with two other divers, to a maximum depth of 20m. Towards the end of the dive, the diver lost control of the ascent from 10m. She could not dump gas quick enough from her drysuit and made a rapid ascent, surfacing with a total dive time of 51 min. The diver boarded the RHIB, along with the other two divers. 20 min after surfacing, she complained of neck and backache. Once ashore, she removed her drysuit and was administered oxygen. A recompression chamber was consulted for advice and the diver was transported to a chamber for treatment. She was recompressed for 5 hours on table 6. The pain in her neck was still present, but there was no longer a backache. She was further recompressed for 2 hours the next day and made a full recovery and sent home. She was on oxygen for the journey from the harbour to arrival at the chamber, via a second stage diving regulator on demand. Fluids were also administered, and chamber had confirmed she could eat in the car on the way there. The diver confirmed that she suffers from backache. There were no other symptoms.

June 2022

22/040

Two students were with an instructor for a depth progression dive. The descent following a slope progressed in 5m increments with checks made to ensure both students were OK, including a pause to allow one student to resolve an ear

clearing issue before progressing deeper. At around 30m, the student had problems clearing her ear again and had to ascend slightly to clear it. The instructor was ahead at this point and had continued to descend, so the pair tried to catch up and signalled using their torches but did not get a response, and the instructor disappeared from view. The students tried descending deeper to look for the instructor but could not relocate the instructor. They then decided to ascend but lost control of their buoyancy and sank, reaching a maximum depth of 34m, then regained control and ascended normally to 15m before they lost control again and ascended faster than normal direct to the surface. On the surface, they raised the alarm because they had lost sight of the instructor. The site rescue team attended and the students reported a faster than normal ascent but did not display any symptoms and were able to swim to the exit point unaided. The site rescue boat remained on the scene looking for signs of the instructor but could see no signs of bubbles. They had established that the instructor was experienced and had plenty of gas. Other members of staff checked the missing diver's car and found his surface support, but there was no sign of him. Approximately 10 min after the students had originally raised the alarm, the instructor was found on the side, having swum back underwater to the exit point alone. The rescue team was stood down. Around 30 min later, the two students went to the on-site shop and reported they did not feel very well. They were taken to the first aid room, placed on oxygen and a diving doctor was contacted for advice. The students were advised to attend a recompression chamber where they received treatment, with a further follow-up recompression treatment the next day.

June 2022

22/143

Two divers had conducted a wreck dive to a maximum depth of 28m. They deployed a DSMB and started a steady ascent. Then at 16m, one diver started rapidly ascending to the surface. His buddy was about a metre away and decided to go with him as he didn't know if he had a problem as it had all happened really quickly. The diver did manage to get buoyant on the surface, and his

buddy had hold of him and checked they were both buoyant. The diver threw his regulator out on the surface and felt like he had to take a deep breath. His buddy managed to recover and hand his regulator back to him, which he managed to put in his mouth and start breathing off it again. The diver managed to get onto the boat lift himself, and the buddy made sure he wasn't going to fall backwards. Once aboard, the diver got to the bench, sat down and said he felt ill before he lost consciousness for a very short time. He was laid on the deck of the boat and the boat crew started him on oxygen and he came round quickly. The Coastguard was called, and they tasked a lifeboat and helicopter. The lifeboat attended and assisted with the transfer of a paramedic from the helicopter onto the dive boat. The paramedic and both divers were then winched from the dive boat onto the helicopter for transfer to a recompression chamber. The diver was given recompression treatment. The buddy was OK and felt fine and had no issues but went into the chamber as a precaution.

July 2022 **22/200**

Coastguard received a report of diver suffering from DCI. (Coastguard report).

July 2022 **22/056**

A diver had been on a week-long diving trip on a liveaboard. She had completed 2 dives a day, except for days 2 and 3 when she completed one each of those days. All limits were observed, deco stops adhered to and no rapid ascents. On the final day, the diver felt sore and itchy and so phoned a recompression chamber for advice and went onto oxygen. On being advised to attend the chamber for assessment, it was found that a rash had appeared from spine to belly and she had increasing pain at the top of her belly. The diver received one recompression treatment which resolved all symptoms with no further effects.

July 2022 **22/075**

A diver and her buddy completed a first dive to a maximum depth of 18m for a total duration of 38 min, including a safety stop at 6m for 3 min. After a surface interval of 129 min, the pair conducted

a second dive to a maximum depth of 18m for a total duration of 47 min, including a safety stop at 6m for 3 min. After a further surface interval, the pair conducted a further dive to a maximum depth of 14m. At the end of the dive, the pair started to ascend, but then the diver experienced pain in her ear following a re-occurrence of ear barotrauma, and she didn't dump air from her drysuit on ascent due to ear pain and missed 6m safety stop. The diver was treated for DCI.

July 2022 **22/142**

The day after an uneventful dive, a diver felt unwell and was referred to a recompression chamber where she received treatment over the next 2 days.

July 2022 **22/201**

Coastguard received a report of diver suffering from DCI. (Coastguard report).

August 2022 **22/086**

A diver and her buddy had entered the water for the first dive of the day to a maximum depth of 24m. One of the divers had a problem with her drysuit inflation valve, so they aborted the dive and surfaced with a total duration of 9 min, including a safety stop at 6m for 2 min. After a short surface interval, where the diver's equipment problem was resolved, the pair entered the water again for a slow drift dive along an underwater wall at around 17m, although visibility was poor. After approximately 10 min, the diver reported she had 70 bar remaining, so the dive was terminated, with the buddy controlling the reel and the diver filling a DSMB as previously agreed, while they were still drifting. After about 2 min, the buddy saw that the diver had become entangled with a loose lobster pot rope. At that point, the buddy stopped the DSMB deployment and disentangled himself first, as one foot had been caught up after the problem was spotted. He then started to remove the rope from the diver's main pillar valve and her pony, during which time both divers drifted down to 35m. The diver's DSMB had also been dropped and drifted into the wall, so the buddy retrieved it. At this point, the buddy noted that the diver's

breathing had become very rapid and she was very agitated, and the buddy immediately started to lift her using a controlled buoyant lift, at about 17 min into the dive. The ascent was controlled direct to the surface and completed at 20 min. During the ascent, the buddy noted at one point that the diver had no regulator, but it was then replaced by the diver almost immediately. It was later explained by the diver that she had run out of gas in her main cylinder and switched to breathe from her pony cylinder. The buddy had intended to pause the controlled buoyant lift at 5m so a safety stop could be made, but it was apparent that the diver was still in some distress, so it was continued to the surface, omitting the planned safety stops. On the surfacing, the boat was fortunately nearby and was immediately summoned. The diver was secure on the surface and managed to make her way to the boat lift, with her buddy following shortly after. The diver had to be supported by other divers aboard as she was unable to stand unsupported, so was laid on the deck, then immediately put on oxygen, looking very pale. One of the divers was a qualified doctor and took charge of looking after her while the remaining divers were recovered as they surfaced. The dive boat skipper notified the Coastguard that an ambulance would be needed and then headed to the harbour, where the emergency services were present, arriving within 5 min. The diver was stretchered off the boat into an ambulance, where other checks took place. She was then taken to the local island hospital, who decided to transfer her by paramedic car to hospital on the mainland. She was kept in for 36 hours and treated for DCI with two sessions in a chamber as a PFO was suspected. The buddy had no symptoms, and both dive computers showed no warnings after the event.

August 2022

22/091

On a diving trip, a diver with the same buddy throughout had completed two dives a day, with extensive use of accelerated decompression, over the first three days. On the fourth day, the diver completed a first dive to 41m, using nitrox 30, for a total duration of 78 min, including decompression stops of 12m for 3 min, 9m for 6 min and 6m for 20 min using nitrox 58 for decompression. After a surface interval of 216

min, the diver completed a dive to a maximum depth of 31m using nitrox 30 and with a total dive time of 68 min, including decompression stops at 6m for 13 min. About 15 min after surfacing, the diver complained of elbow pain, a red skin patch on the upper arm and slight marbling on the right chest. The diver was immediately put on oxygen, and the skipper contacted the local hyperbaric chamber for advice. The buddy, who had used nitrox 30 for the dive and nitrox 64 for decompression, experienced no symptoms. Once back ashore, the buddy accompanied the diver to the hyperbaric chamber, where she was diagnosed with DCI and was treated for 4.5 hours. Both divers had the same computer running Buhlmann ZHL-16C GF 50/80, with safety stop disabled. Both divers had similar dive profiles, similar gas mixes, and similar equipment. In January 2023, the diver was diagnosed with a small PFO.

September 2022

22/069

A diver had completed 8 dives over the preceding days of a diving trip, with one dive on the morning of the day before. On the last day, she had completed a first dive to a maximum depth of 18m for a total duration of 40 min, including safety stops at 5m for 5 min. After a surface interval of 113 min, the diver completed a dive, which was to include planned decompression stops for experience dives, to a maximum depth of 27m with a total duration of 39 min, including decompression stops at 6m for 6 min and safety stops between 5m and 3m for a further 5 min. The following day, the diver experienced shoulder pain but chalked this up to sleeping poorly and "general aches and pains". The diver had a history of suffering shoulder/neck pain from bad sleep, which happened every few years. The diver drove back home, which took 11 hours, and she found the shoulder was increasingly stiff - but this is normal in the car they used on long journeys. Over the next few days, the shoulder pain was getting worse, despite pain killers. The diver phoned a hyperbaric chamber and was advised they were 50:50 on whether it was DCI or muscular skeletal injury, but she was advised to attend the chamber and received recompression treatment that afternoon.

September 2022**22/127**

A group of 4 students, with an instructor and safety diver, were doing a deep speciality dive. All divers were on open circuit, either twin-set or sidemount, and had torches. Once in the water, the groups descended and followed the slope and then a cliff face until they reached 34m, and it was checked the group were together, which they were and confirmed okay. Shortly after, the safety diver signalled that he had lost sight of one diver in the buddy pair he was supervising. After a quick look around, it was clear the missing diver was not with the group. Signalling they would abort the dive, they began a controlled direct ascent to the surface. At 6m, the remaining group completed a safety stop with the safety diver while the instructor surfaced and could see the missing diver exiting the water at the exit point. Surface cover signalled to say the diver was okay. On exiting the water, the instructor checked with the diver that they were okay and that they were not feeling any symptoms of any kind. They confirmed they were okay, and they understood to get oxygen immediately if they felt anything. On further questioning, the diver confirmed that they had experienced a sudden loss of buoyancy and begun an ascent to the surface. The diver stated that by the time she realised she was ascending, they were unable to release air and control their ascent. It was advised that due to the rapid ascent, she should not dive again that day. During the drive home, symptoms of DCI began to show and it was decided that the diver should go to a chamber for checks; recompression treatment was undertaken as a precaution.

September 2022**22/191**

A lifeboat was tasked to assist a dive vessel which had reported an ill diver aboard with DCI. The lifeboat attended and escorted the vessel back to harbour. (Coastguard & RNLI report).

September 2022**22/070**

A diver had completed a first dive to a maximum depth of 18m. At the end of the dive, the diver started to deploy his DSMB, and as he did so, his buddy started to ascend and was quickly out of reach and then lost sight of him. The diver

continued to deploy his DSMB and ascended, completing a safety stop of 3 min at 6m before surfacing with a total duration of 33 min. On surfacing, the diver could see his buddy being recovered by the RHIB. The pair discussed the dive and circumstances during the surface interval, and the buddy said he would have preferred to ascend a shotline and so they planned to do this on the next dive. After a surface interval of 220 min, the pair conducted a wreck dive to a maximum depth of 21m. During the descent, the buddy made a slow start and then accelerated rapidly and hit the bottom upside down. During the course of the dive, the buddy lost and then retrieved and refitted one of his fins and his mask seemed to frequently fill with water. At the end of the dive, the pair deployed a DSMB together, with the buddy filling the buoy as he had more gas remaining in his 15 lt cylinder. The pair then began their ascent together. The diver briefly looked away for a few seconds while his attention was on reeling in the SMB line, and when he looked up, there was no sign of his buddy. The diver continued his ascent and completed safety stops of 3 min at 6m before surfacing. On the surface, the boat crew checked he was OK and then continued their attention on the diver's buddy, who had surfaced quickly and was being administered oxygen. The boat crew had notified the Coastguard, who had tasked a helicopter to airlift the diver to a recompression facility.

September 2022**22/202**

Coastguard received a report of diver suffering from DCI. (Coastguard report).

October 2022**22/203**

Coastguard received a report of diver suffering from DCI. (Coastguard report).

October 2022**22/204**

Coastguard received a report of diver suffering from DCI. (Coastguard report).

October 2022**22/080**

A dive had completed two days of diving, with two dives per day. On the second day, the first

dive had been to a maximum depth of 31m with a total duration of 52 min. After a surface interval, the second dive was to a maximum depth of 31m with a total duration of 52 min. Eight hours after surfacing, the diver complained of slight 'pins and needles' in her right hand and a hot sensation in her right elbow. The diver was alert, fine in herself and in positive humour. The diver was given oxygen for a period of 90 min, which induced a slight improvement in symptoms. The diver was then given nitrox 50 to breathe on the expiry of the medical oxygen. The Coastguard was informed, and due to the remote shore location of the accommodation, the Lifeboat service attended and transported the patient to hospital and the recompression chamber, where she underwent several hours of recompression over the next 5 days.

October 2022

22/166

Following a day's diving on a training course, a trainee diver began to feel unwell around 2100 hours. He believed it to be a cold and went to bed. The condition worsened overnight, and after speaking to a colleague, the student contacted a recompression chamber for advice. He was told to attend the chamber and subsequently received recompression treatment.

November 2022

22/130

After surfacing from the 5th dive of the day, an instructor started to develop mild symptoms of DCI. He was advised to call the chamber; however initially refused to do so. The following day, symptoms worsened, and the instructor called the chamber that evening. He was advised to visit the chamber the next morning. Two further treatments were carried out over the succeeding two days. The instructor returned to work three days later but had been advised to remain dry for a minimum of 4 weeks and will require a medical before being allowed to dive again.

November 2022

22/205

Coastguard received a report of diver suffering from DCI. (Coastguard report).

Boating and surface incidents

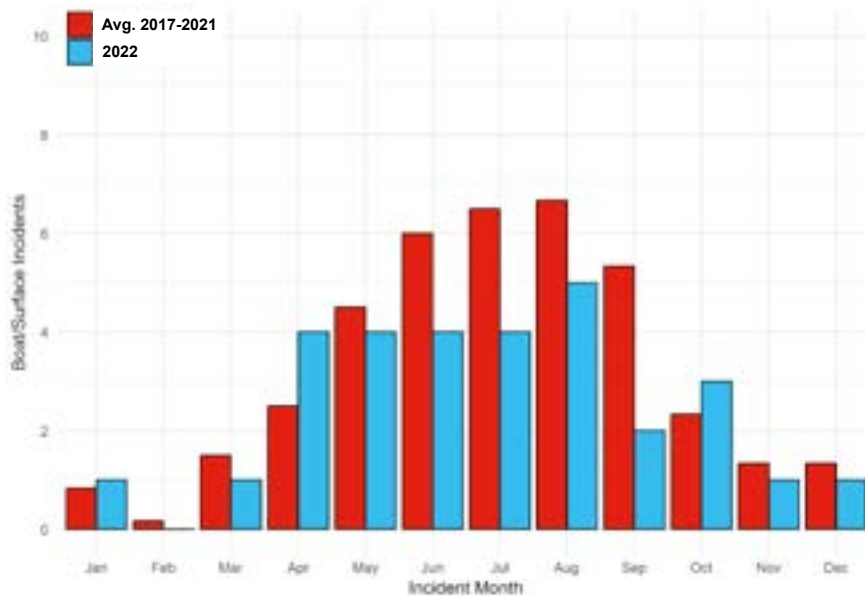


Figure 15. The month of occurrence of Boat or Surface incidents

January 2022

22/178

An RNLI lifeboat was launched to assist a vessel, which had reported a missing diver. The diver was found safe and well and the lifeboat returned to station. (RNLI report).

March 2022

22/206

Coastguard received a report of diver overdue and missing. (Coastguard report).

April 2022

22/210

Coastguard received a request to respond to a diver in the water. (Coastguard report).

April 2022

22/222

The Coastguard responded to reports of a diving vessel with machinery failure. (Coastguard report).

April 2022

22/017

Two divers entered the water in a sheltered cove due to the water conditions where wave action was marginal, but the shelter provided allowed diving. Underwater visibility was 2m and there was a swell, but the pair had changed their plan on the advice of others in the group to avoid an

area of severe wave action at depth. The pair were navigating by following a compass bearing underwater and planned to reverse this to return to the harbour for exit. Wave conditions deteriorated during the dive and contributed to a northward current, which was not apparent to the divers due to the swell and affected their navigation. The pair inadvertently entered a wide channel between two rock formations and entering this, they encountered a deterioration of wave conditions with white water along the channel. Due to the conditions, the pair became separated. One of the divers was pushed to the surface by the waves and was close to being thrown onto the rocks. They inflated their BCD and swam on the surface to calmer water to wait for their buddy to surface. The buddy surfaced a short time later, again close to rocks, but struggled to inflate their BCD and was getting a wet breathe from their regulator, and began swimming towards the rocks. The other diver shouted to advise them to swim towards them and into the calmer area, which they did. When the two divers met up, the buddy had managed to inflate their BCD and indicated they were OK but were shaken and hyperventilating. The other diver towed them for around 80m towards the harbour entrance, by which time the buddy was sufficiently

recovered to fin back to the exit themselves. Inspection of the equipment after the dive found that sand from the disturbed water had entered the second stage of the regulator resulting in the wet breathe and use of the purge button had been unable to clear it. The BCD inflation hose had also become detached.

April 2022

22/229

The Coastguard responded to reports of a diving vessel which was overdue. (Coastguard report).

May 2022

22/021

A RHIB with five persons aboard, one instructor and 4 four students, was returning to harbour after conducting a training course in the boat. One of the students was at the helm as they entered the river estuary travelling at a speed of about 10 knots. The student had completed a boat handling course the previous year and was considered experienced at handling the boat. As they entered the river, ahead was a large commercial vessel leaving port and setting up a large wake consisting of three large waves. The RHIB turned to port in order to ride the wake at an angle. Advice was given to the crew to 'hold tight' and all were holding onto a strong point. The RHIB had reduced speed to around 8 knots when it hit the first wave and became airborne, hit the top of the second wave and then slammed into the third wave. The helmsman put the boat into neutral and the RHIB stopped. Two of the other students were found to be lying in the bottom of the RHIB, both complaining of a broken ankle. The aluminium bar they had both been holding onto had snapped and was bent. The helmsman was instructed to head back to harbour while members of the crew attended to the casualties, both of whom were in pain and suffering from shock. The female casualty then said she felt sick and dizzy and fainted but recovered consciousness after 30 sec. The emergency services were contacted by mobile phone and an ambulance requested. On arrival at the beach where the boat had launched, the group were advised by the medical services to recover the vessel from the water before transferring the casualties. The soft sand prevented recovery at the original launch site and at a second alternative. The boat was eventually recovered with the

assistance of two trucks recovering the RHIB with casualties aboard up to the road. The casualties were attended to by paramedics and others, and the port tube of the RHIB was deflated. The male casualty was assisted into a wheelchair, and the female was assisted onto a stretcher and transferred by ambulance to hospital. The male casualty was treated for a broken tibia and discharged. The female casualty dislocated her ankle and broke her tibia and was kept in hospital for observation and further treatment.

May 2022

22/209

The Coastguard responded to reports of a diver cut off or stranded. (Coastguard report).

May 2022

22/221

The Coastguard responded to reports of a diving vessel drifting or dragging anchor. (Coastguard report).

May 2022

22/182

A lifeboat was returning to station following a previous call when they were tasked by the Coastguard to assist a dive vessel, which had reported two divers were well overdue. A Coastguard helicopter had also been tasked to assist. While searching, a member of the lifeboat crew spotted a strobing light approximately 3km north of the lifeboat's position. The lifeboat headed for the light making fast but safe speed in case either of the divers were in the water. On arrival, the crew located the divers on the beach. Due to the shallow rocky access to the beach, a crew member swam ashore and checked the divers were OK, which they were, but had become separated from their dive boat due to weather conditions. Both divers were well but were starting to get cold and so were taken aboard the lifeboat, and their dive boat skipper was informed they had been recovered safely. The lifeboat returned to station with the divers aboard, and their dive boat followed back to station. (Coastguard & RNLI report).

June 2022

22/235

The Coastguard responded to reports of a diver in difficulties on a personal watercraft. (Coastguard report).

June 2022

22/183

An RNLI lifeboat was launched to assist a dive vessel, which had broken down. The lifeboat attend and took the vessel under tow back to harbour. (Coastguard & RNLI report).

June 2022

22/050

A diver surfaced from a dive and when the boat went to pick up the divers, the charter boat drove over this diver, and she had to go under the boat to avoid it. The propeller was in neutral, the skipper then went around and repeated the same again. On the third attempt, he picked up the diver. No divers were injured. There had been no boat brief from the skipper. The diver stated that the skipper came in too fast to pick her up, there was no apology and the skipper was not that bothered.

June 2022

22/185

A lifeboat was tasked to a report of 8 divers requiring assistance. (Coastguard & RNLI report).

July 2022

22/207

Coastguard received a report of diver overdue and missing. (Coastguard report).

July 2022

22/048

Coastguard tasked a lifeboat to attend a dive vessel with 9 divers aboard, which was aground on a sandbank. The lifeboat attended and assisted with refloating the vessel. The vessel then made way back to harbour and the lifeboat returned to station. (Media report).

July 2022

22/223

The Coastguard responded to reports of a diving vessel with machinery failure. (Coastguard report).

July 2022

22/224

The Coastguard responded to reports of a diving vessel with machinery failure. (Coastguard report).

August 2022

22/225

The Coastguard responded to reports of a diving vessel with machinery failure. (Coastguard report).

August 2022

22/211

Coastguard received a request to respond to a diver in the water. (Coastguard report).

August 2022

22/212

Coastguard received a request to respond to a diver in the water. (Coastguard report).

August 2022

22/073

A 7.5m dive RHIB, with five divers aboard, broke down approximately 1.5 miles from shore. A call for help was made and the lifeboat was tasked to attend and towed the disabled boat back to harbour. The breakdown was later found to be due to a fuel pump issue, which has since been resolved. (Media report).

August 2022

22/213

Coastguard received a request to respond to a diver in the water. (Coastguard report).

September 2022

22/226

The Coastguard responded to reports of a diving vessel with machinery failure. (Coastguard report).

September 2022

22/192

An RNLI lifeboat was launched to assist a dive vessel, which had broken down. The lifeboat attended and took the vessel under tow back to harbour. (RNLI report).

October 2022

22/193

A RNLI lifeboat was launched to assist a dive vessel, which had broken down. The lifeboat attended and took the vessel under tow back to harbour. (RNLI report).

October 2022**22/230**

The Coastguard responded to reports of a diving vessel sinking or taking on water. (Coastguard report).

October 2022**22/194**

An RNLI lifeboat was launched to assist a dive vessel, which had gone aground. The lifeboat attended and, once it had refloated, escorted back to harbour. (RNLI report).

November 2022**22/227**

The Coastguard responded to reports of a diving vessel with machinery failure. (Coastguard report).

December 2022**22/228**

The Coastguard responded to reports of a diving vessel with machinery failure. (Coastguard report).

Ascents

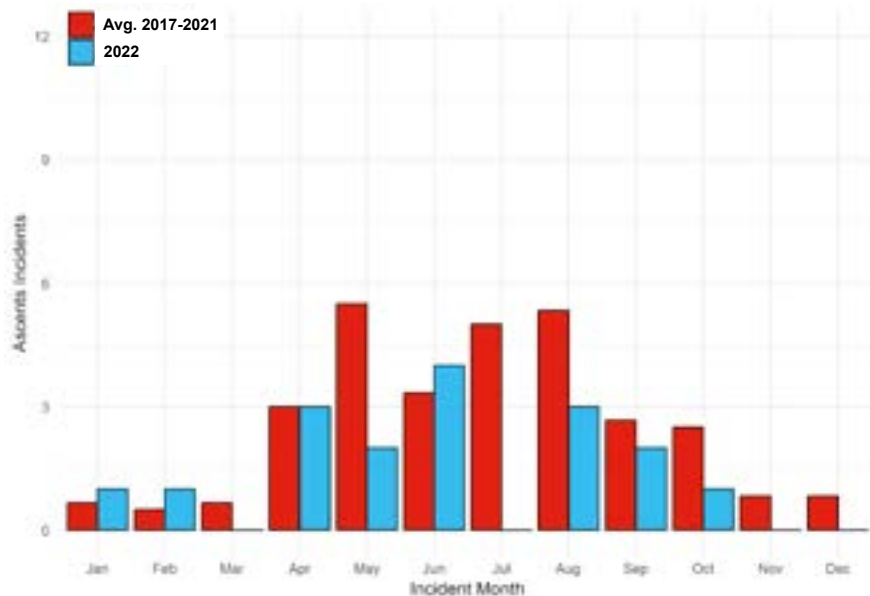


Figure 16. The month of occurrence of Ascent related incidents

January 2022

22/003

Two students were undertaking training with an instructor for a second-level course. They completed a first dive to a maximum depth of 20m with a total dive duration of 36 min, conducting training in compass and DSMB without incident. After a surface interval of 96 min, the group entered the water to repeat the exercises. The group navigated towards a wreck using a compass and then used a reciprocal to return to their starting point. The students were to prepare their DSMB for deployment by attaching them to a secure fixing point, and after deployment, the intent was to conduct simulated stops at 9m and 6m. During DSMB deployment, one of the students had difficulty with her buoyancy and became slightly inverted. The other student assisted her, and both returned to neutral buoyancy. The instructor called a halt to the exercise and began to recover the students' DSMBs, which were still attached but not inflated. Whilst the instructor was recovering the DSMBs, the student who had experienced difficulty with her buoyancy had indicated she wanted to ascend and her fellow student decided to conduct a controlled buoyant lift and proceeded to do so without alerting the instructor. The controlled

buoyant lift was conducted directly to the surface in a fast ascent and omitted any safety stops. On realising the students had gone to the surface, the instructor conducted his own ascent direct to the surface, omitting any safety stops and found the students waiting. The group spent a few min resting on the surface to ensure assistance was not required and then conducted a gentle surface swim to a jetty and exited the water. None of the divers reported any adverse symptoms of DCI over the next 30 hours.

February 2022

22/006

A group of 5 divers, consisting of two instructors and three trainees, descended to a maximum depth of 12m. They then proceeded to a training platform at a depth of 7m and were practising buoyancy skills. At 16 min into the dive, a gas check was conducted and all students responded to indicate they had 100 bar or more remaining. Shortly after this, one of the students panicked and bolted for the surface. One of the instructors followed the trainee to the surface while the other remained with the other two students. On surfacing, the instructor found the student was panicking and out of gas. The instructor

provided his AS to the student and towed him to shore where, after recovery from the water, the shore team administered oxygen and aftercare, including an off-duty paramedic who was also on site diving. The student was escorted home and advised to attend his GP to be checked over.

April 2022

22/025

An instructor was taking two trainees for their third open water lesson accompanied by an assistant. After completing some initial training on a platform, the group moved off on an exploratory dive. On reaching a large sunken plane, the assistant led the group through the inside of the plane followed by the two students, with the instructor bringing up the rear. On exiting the plane, one of the students had a mask flood, which she struggled to clear and began to panic. She signalled to the instructor she wanted to ascend and attempted to locate her BCD inflator but was unable to locate it and operated her suit inflate and began to swim to the surface. She was followed to the surface by the assistant, who surfaced at the same time, but the instructor did not surface until some 5 min later.

April 2022

22/087

A group of divers visited a small coastal bay for a day of shallow shore diving. By chance, a second group of divers arrived later that day with a RHIB. While the second group prepared their RHIB, divers in the first group entered the water. The first divers to return reported reasonable visibility and a limited swell within the bay but a strong current at the end of the bay. During the day, the dive managers of both groups worked together with the first group's spotters, pointing out divers underwater so that the RHIB driver would avoid them. Later that day, with several other divers underwater, an instructor reviewed a student's progress toward his next diving qualification. The student said that he had been taught how to deploy a DSMB and was competent in that skill, so the instructor asked him to do so on a dive that day. They entered the water and descended, reaching a maximum depth of 12m. After swimming out a fair distance, the pair encountered a current. The instructor turned around to navigate back but realised that the

student's poor finning technique meant that the route back was obscured by sand and silt. The instructor invited the student to deploy his DSMB. The trainee took it out but believed it was broken and handed it to the instructor to fix. As the DSMB weighed 2 kg, the student became lighter and started to rise to the surface, inadvertently ending the dive. The instructor followed, and the pair reached the surface, where they discovered that the current was stronger and had taken them around the corner of the bay. Meanwhile, back on shore, the other divers had left the water. The dive manager, who was not diving due to illness, went snorkelling. The assistant dive manager noticed that the instructor and student had not returned and sent two members of the group out across the cliffs to look for the pair. The instructor started finning toward the headland, cutting across the current. Noting that the student would not respond to his calls and seemed unsettled, the instructor towed the student toward shore. They gained a purchase on the headland just around the corner of the next bay. The instructor began finger-walking around the short rock to get clear of the current, but the student refused to follow. The instructor found safe water on the other side of the rock, back in their entry bay, now in vision of both student and shore cover. The dive manager, who was snorkelling, swam over to the instructor and he agreed to swim to the student, who had now entered the next bay and did not appear to be paying attention to anything. The student ignored calls from the instructor, dive manager and shore party and continued to swim into the next bay, hitting rocks as he got shallower. The student then crawled over rocks back into the correct bay. The instructor noted the second group preparing to launch their RHIB, and he returned to shore, relying on the dive manager to continue to monitor the student, and asked if they could assist in recovering the student diver, which they did.

April 2022

22/139

A diver was underwater when their drysuit valve stuck, and they made a fast, uncontrolled ascent direct to the surface, missing 3 min of decompression stops at 9m. The diver was administered oxygen for 20 min but no symptoms

of DCI appeared, so they were advised to rest and drink fluids.

May 2022

22/023

A pair of divers were conducting a wreck dive at a maximum depth of 20m. Towards the end of the planned dive at a depth of 18m, one of the divers started an unintended ascent and while not fast, he was unable to stop the ascent. His drysuit was fitted with both a shoulder and cuff dumps; the shoulder dump was open, and the cuff dump only started venting around 6m during the ascent. The diver suffered no ill effects.

May 2022

22/026

A pair of divers entered the water for a second dive of the day, descending to a maximum depth of 20m. The pair had been swimming aimlessly around a shelf and towards the end of the dive, descended to a depth of 17m and deployed a DSMB. The less qualified diver had never ascended up a shotline or DSMB previously, and during the ascent, he had difficulty dumping gas from his drysuit and the ascent began to speed up. His buddy dumped his reel and held onto the diver with one hand while dumping his own buoyancy from his wing to slow the ascent. The pair ascended directly to the surface from 15m in approximately a minute, omitting any safety stops. Neither diver displayed any symptoms following the dive or over the next 2 days.

June 2022

22/029

A student entered the water with two instructors in order to conduct some training drills. On descending to the planned depth of 4m, they found that a surface layer of algae reduced the visibility to less than 1m. The lead instructor took the group to the bed of the quarry at a maximum depth of 14m, where the visibility was found to be about 2m. The group then conducted a number of skills, which the student performed well and appeared relaxed. The group then began mask clearing exercises, with the first two exercises performed successfully. On the third exercise, the student removed his mask but struggled to refit it properly and inhaled water before fully clearing the mask, indicated to surface and then

immediately started a rapid ascent. The lead instructor grabbed the student to slow the ascent but was unable to stop the ascent completely as the student was in a panic and finning hard towards the surface. At a depth of 3m, the instructor lost his grip on the student but followed him to the surface, maintaining sight of the student throughout. At the surface, the student was agitated but no longer panicking but removed his poorly fitted mask and lost it. The instructor made sure the student was buoyant, reassured him and towed him to a ledge at 1m to allow him to rest. The student reported no ill effects, but the instructor requested oxygen and the student breathed oxygen by demand valve for 10 min and completed 2 incident questionnaires, one at the start and one at the end of oxygen provision. The instructor also breathed oxygen as a precaution through a constant flow mask for 10 min and completed his own questionnaires. The third diver in the group conducted a normal ascent and completed a safety stop of 3 min at 6m. Neither diver showed any ill effects. Total dive time for instructor and student was 10 min.

June 2022

22/042

Two divers were diving a shallow reef from a boat at a maximum depth of 18m. After approximately 25 min, they each had gas contents at 100 bar of air and they ascended slowly to approximately 11m. They decided to deploy the DSMB, but the diver carrying it struggled to remove it from her pocket, causing a bit of stress. Working together, they successfully deployed the DSMB and began to reel back in for the ascent. The line wouldn't reel back in and they both became stressed. One diver began to have a panic attack and her buddy began to wrap the line around her hand as they ascended instead of reeling back in. The panic of the DSMB issue and their air becoming low at about 60 bar caused them to have a progressively faster ascent finning up. They elected to omit the recommended three-minute safety stop at 5m. On arrival at the surface, they made themselves safely buoyant and the buddy asked the diver if she was okay, to which she said, "no". The dive boat collected them and assessed that the diver needed first aid. The diver was later unable to remember much of the boat ride back to shore.

The boat and shore team was well-equipped with off-duty doctors and marine medics. The team put the diver on oxygen and conducted a neurological assessment. Although the diver doesn't remember much, their notes indicate she was alert throughout and had no major medical issues except some weakness in her legs. She stopped oxygen therapy and was monitored ashore for signs of other illnesses. A doctor and the club both recommended that the diver attend a telephone appointment with a chamber. Following that appointment, she has now been told not to dive for six months, then have another appointment before resuming diving.

June 2022

22/041

A diver and her buddy were at the end of a dive to a maximum depth of 14m. At a depth of 11m, the diver deployed a DSMB, but the line from the reel caught on the handle of the reel and jammed. The diver was too slow to let go of the reel and was dragged up. She managed to slow the ascent somewhat and her computer did not signal an alarm or lock out. After surfacing, she was recovered aboard the boat and breathed nitrox 32 for 30 min as a precaution. She suffered no ill effects.

June 2022

22/137

A diver was diving a wreck at a depth of 22m when she was unable to get air out of her wing, which was new, and experienced a rapid ascent with a total dive duration of 42 min. The diver was given oxygen by the on-site staff, who also advised to monitor for symptoms and keep fluids up.

August 2022

22/058

On the first dive of a diving trip, a pair of divers descended onto a wreck to a maximum depth of 32m. A short way into the dive, one of the divers dropped weights from his weight harness. The diver attempted to recover the weights, which resulted in a feet-first uncontrolled ascent to the surface. His buddy ascended, and the pair rejoined on the surface. Both were recovered aboard their dive boat and put on oxygen as a precaution. Neither diver showed signs of DCI. Both divers did not take part in the second dive on the day. No signs of DCI developed.

August 2022

22/065

Following a dive on an offshore reef to a maximum depth of 22m, a diver contributed to preparing a DSMB at the end of the dive by filling the tube with air while the diver leader held the reel. The dive leader signalled to ascend and next saw the diver rising rapidly. The dive leader ascended, following the diver towards the surface, but at a safe rate and with a precautionary stop for 3 min at 5-3 m depth. The diver was recovered by the covering boat and was given oxygen and water but assured those aboard that she was OK. The diver explained afterwards that she had put air into her BCD but could not find the release toggle to control the ascent.

August 2022

22/063

A diver was diving off a hardboat on a scenic reef dive with a planned maximum dive time of 60 min. The site was quite small and the group were all photographers and were effectively solo diving, although the group of three divers in the water were keeping a rough eye on each other. After approximately 30 min, the diver was starting to get cold, so decided to surface. He intended on deploying his DSMB and then waving off to the other divers so they knew where he had gone. The DSMB being used was one inflated using a low pressure hose. The diver inflated the DSMB using the low pressure BCD feed from a mid-water hover position from approximately 17m. Trying to ensure a 'good fill', the diver kept the low pressure feed attached until the DSMB was pulled out of his hand. On releasing the DSMB, the strap which attaches the DSMB to the reel snagged, pulling both the diver's regulator out of his mouth and his mask entirely off his face as the DSMB shot to the surface. Cold water shock produced an involuntary breath which, on sensing he was just inhaling seawater, he was just about to stop. The diver recalls the desire to breathe was becoming increasingly overwhelming, and he had to work hard to keep panic at bay. The diver made a conscious decision to grab his alternate source rather than try to locate my primary regulator. He could also sense he was ascending and made a conscious decision to sort out something to breathe first and sort his buoyancy later. Initially, he inserted his AS upside down, and given he

really needed to breathe by this stage, he held the purge button, which enabled him to take a couple of quick breaths before righting the regulator and breathing normally. The diver could sense he was ascending quickly now and opened his drysuit valve and vented from his BCD. However, this was not enough to stop his ascent, and on breaching the surface, he found his mask floating next to him. The diver replaced his mask, swapped back to his primary regulator and signalled to the boat. The boat had seen the diver's DSMB surface, closely followed by himself and promptly picked the diver up. On getting back on the boat, the diver explained what had occurred to the skipper and to his own wife, who had decided to sit out the dive. The diver declined any oxygen in favour of a sandwich and hot chocolate. No further diving was conducted that day, and no ill effects occurred from the uncontrolled ascent.

September 2022

22/067

Two divers, both using nitrox 32, conducted an uneventful dive to a maximum depth of 30m. On ascent, one diver missed 3 min of the decompression stop due to loss of buoyancy control. He assumed it was a safety stop that he had missed. His buddy was using nitrox 50 for his stops. Back aboard the dive boat, the diver didn't notice the warning on his computer and his buddy was unaware of the computer lock. The pair conducted a second dive after a surface interval of 300 min to a maximum depth of 35m. While the dive itself was uneventful, the diver only noticed that his computer was 'locked out' mid-way through the dive. He carried on with the dive. On ascent at a deco stop, the buddy was again using nitrox 50 for his decompression, with the diver using his nitrox 32 back gas. The pair completed 15 min decompression stops but the diver again missed a total of 9 min of stops and surfaced after a total dive time of 60 min. Back aboard the dive boat after surfacing, the buddy was heard telling Diver A to 'fess up'. The magnitude of the incident was realised when the boat came back to shore, and decompression tables were consulted. The diver was debriefed over the incident but had no symptoms of DCI and drove home with someone in the car with him. The next day the

diver messaged to say that he was fine with no symptoms and apologised to the dive group.

September 2022

22/128

The diver was diving with a buddy, having completed a shallower dive earlier in the day. The dive was unremarkable, and the pair were heading for the ascent point. The diver was slightly further behind their buddy, maybe 2m, and slightly higher, maybe 1m, and the buddy watched to see if he would catch up. The diver started drifting up, and the buddy thought he was correcting his buoyancy but followed. The diver had air trapped in his feet and was trying to fin down. At this point, the diver's boots came off his feet, making it very difficult to correct the inversion. He tried to roll but was unable to get his feet down and ascended to the surface, exhaling on the ascent. He knocked out his regulator on rolling and couldn't find it, so inflated his BCD while searching for his regulator. On arrival at the surface, he fully inflated his BCD and located and breathed from his regulator. The site staff raised the alarm and deployed the safety boat. The crew were talking to the diver and assessing responsiveness. The diver was assisted into the boat and taken to shore, where he received oxygen, and a recompression chamber was contacted for advice. After a period of breathing oxygen, the diver was able to walk with assistance to the first aid room, where he sat on oxygen until the chamber called to confirm the diver could stop breathing oxygen and go home, monitoring for symptoms. The diver then stayed with the buddy until approximately 5pm, when he confirmed he felt fine and would be happy to drive himself home. He confirmed his arrival at home via text message and then confirmed he was fine the following morning.

October 2022

22/133

A diver made a fast ascent from a depth of 21m. Their fins came off their feet, and they knocked their own regulator out of their mouth while disorientated but managed to inflate their BCD and fit their own AS while ascending too fast. The diver was unresponsive at the surface but quickly recovered and was badly shaken but otherwise OK.

Technique-related incidents

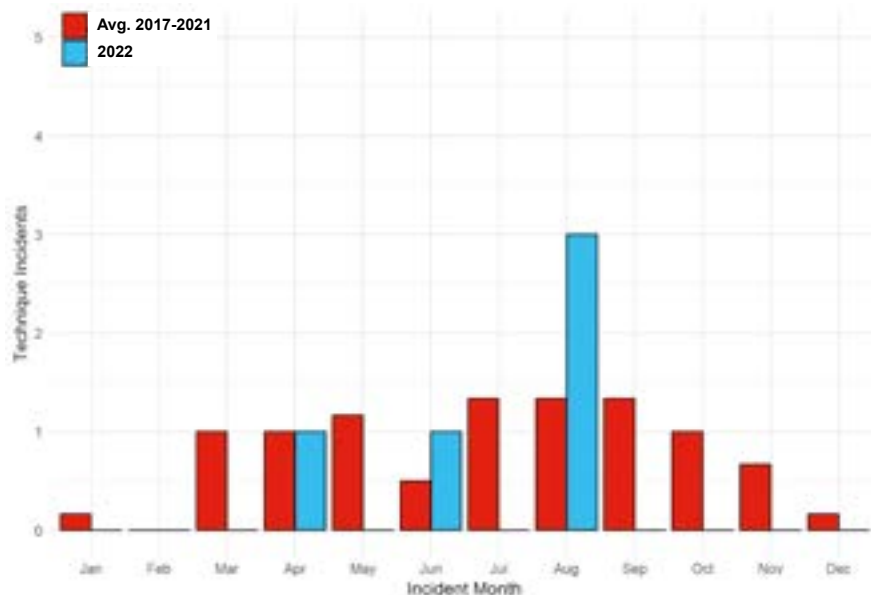


Figure 17. The month of occurrence of technique related incidents

April 2022

22/013

A newly qualified side-mount diver jumped into the pool at the start of the session without fins. They were wearing a new neoprene drysuit, extra 4 kg weight and only the top of their 12 lt steel cylinders were clipped in. The diver was immediately inverted feet up, with the two cylinders dragging the diver's head to the bottom of the pool. The diver panicked, hoses became tangled around the diver's neck and they began thrashing about. An instructor from the other side of the pool managed to de-kit and push the diver to the side of the pool, where the diver was assisted out onto the poolside by others.

June 2022

22/094

Two divers entered the water with a plan to dive for a maximum time of 45 min. When the pair did not surface on time, the dive manager noted that someone had deployed a yellow DSMB. He interpreted this to be a signal of distress underwater, which should prompt a response from those on shore, although other members of the group claimed to have never heard of this convention. After a further 5 min, the dive manager asked other members of the group to act

as lookouts, but a member of the group insisted that the instructor was "sound" and would have everything in hand. Other group members agreed, so, despite the dive manager's wishes, nothing was done. Another five min passed. The dive manager asked other members to alert the site staff that divers were missing underwater and that they may need to begin a search in the vicinity of the yellow SMB. However, group members said the dive manager was overreacting, again citing the competence and experience of the instructor and did nothing. The yellow SMB moved out of the dive manager's sight. With other divers in the water and no one else prepared to act as lookouts or to take over the management, the dive manager remained where he was. Fifteen min later and 25 min after the planned maximum dive time, the dive manager spotted the pair removing their kit by their cars. They explained that underwater, the buddy had attempted to deploy an orange SMB, but the line had snapped upon deployment. The instructor then deployed his own yellow SMB. The pair surfaced to retrieve the orange SMB but could not see it. They returned to a depth of between 6m and 8m to look for the SMB, but could not find it, so they surfaced and left the water at the nearest point of egress. They later

found that a swimmer had taken the orange SMB and handed it to the site's staff. The instructor claimed not to be aware of the convention that a yellow SMB indicates distress underwater.

August 2022

22/064

A diver had completed a wreck dive using a rebreather with trimix 17/39 diluent. At the end of the dive, he successfully deployed a DSMB from the top of the wreck at 46m with an indicated time to surface of 39 min. The diver became separated from his buddy due to the current and poor visibility. During the ascent, at a depth of about 30m, the diver dumped buoyancy from his suit and experienced an uncontrollable descent to the seabed at 60m despite remedial suit and wing inflation. The diver reeled in his DSMB to about 10m above him without resistance and, believing it was leaking, deployed a second DSMB and started to ascend again with time to surface now indicated as 78 min. The diver maintained his ascent to 1m below indicated ceiling using continuous decompression as indicated by his computers. The more cautious ascent added a further 12 min to the time to surface. The diver maintained a maximum PO2 manually throughout to try and accelerate his decompression obligation. This eventually resulted in a CNS alarm being triggered. The dive boat maintained contact with the diver's DSMB and signalled by revving engines. When the diver had 20 min of deco remaining, another diver from the group entered the water to check on him. The diver surfaced with a total runtime of 135 min and boarded the dive boat via the diver lift. The diver was monitored for the following 48 hours, and no signs of DCI were noted.

August 2022

22/061

A diver conducted a wreck dive from a boat to a maximum depth of 26m. The dive was completed as normal, until DSMB deployment. Buddy had 80 bar in a 15 lt cylinder when the pair prepared to ascend. Following the boat skipper's instructions, both divers had to deploy their own DSMB. One diver assisted her buddy to deploy his, then deployed her own. The pair agreed to start the ascent, and the diver ascended about 4m, but her buddy appeared very confused. He did not begin

to reel in his line and seemed unaware that he should be ascending. After a minute, the diver tugged on his line to get his attention and indicate he should start to ascend, reel in his line and follow. The pattern of behaviour continued during the ascent; he kept stopping reeling in his line, resulting in the DSMBs becoming tangled with each other so that the diver had to keep stopping her ascent to untangle them. The buddy also struggled to maintain buoyancy, appearing both too heavy and too light at times during the ascent. When the pair reached 5m, and the diver indicated to do a safety stop, the buddy was unable to hold this and ascended directly to the surface. Buddy was fine and unconcerned about the ascent upon questioning when back on the boat but had surfaced with only 10 bar.

August 2022

22/062

A diver had conducted a previous dive to a maximum depth of 32m for a total dive time of 32 min. After a surface interval of 142 min, the pair entered the water from a boat to dive a wreck at a maximum depth of 21m. The boat skipper required all divers to deploy their own DSMB before ascending. Having changed buddies from the first dive, where he struggled with deploying his DSMB, the diver was asked by his new buddy if he was OK to inflate his own DSMB and offered him her spare, but he wanted to use his own DSMB. The pair were the last of the group to enter the water and their descent proceeded OK, but the shotline was not on the wreck; other divers had reeled off in the direction of the wreck. Visibility was poor and the buddy noted that the diver's gas was down to 140 bar, but they both had torches on and followed the line to the wreck. After some time exploring the wreck, the buddy noted the diver was down to 100 bar, which they had agreed would be the point they would start an ascent, and so they moved away from the wreck and other divers. The diver was seen to dump a lot of air from his drysuit and started to deploy his DSMB. He took some time to unroll his DSMB and then struggled to inflate it as the air he was purging from his AS wasn't going into his DSMB. He did eventually manage to inflate his DSMB and his buddy quickly deployed hers, and they started their ascent. On the early ascent, the buddy

noticed that the diver looked very heavy and was finning a lot. As a precautionary measure, she swapped to breathe from her short hose regulator just in case the diver ran low. The buddy had plenty of gas in her twin sidemount cylinders of nitrox 32. At about 12m, the buddy asked the diver if he was OK, and he indicated that something was wrong and that he had 30 bar remaining. The buddy immediately gave him her long hose regulator, which the diver put into his mouth upside down. The diver was able to sort himself out and was breathing from her gas but was sinking. The diver appeared to be doing nothing about this, so his buddy grabbed his BCD and slowly started to inflate it to initiate a controlled buoyant lift. It took a while to add enough air just to make him neutrally buoyant. At this point, both of divers stopped reeling in their DSMBs but both kept hold of their reels. The buddy continued lifting, using the diver's BCD towards the surface. At about 5m, the diver removed her hand from his BCD, but he then started to sink again, so she grabbed his BCD again and continued to lift them both to direct to the surface, omitting safety stops. She made the diver buoyant at the surface and then herself. The pair were both picked up by the boat, with the diver exiting first. By the time the buddy got on the lift, she had her DSMB line wrapped around her and the skipper needed to remove this for her. On the boat, the diver was concerned that they hadn't completed a safety stop. His buddy explained to him that he was breathing her gas and being lifted to the surface by her and, therefore, it wasn't appropriate to do a safety stop, especially as neither of them had any deco stops to do. She also told him he had been breathing nitrox 32 since she had donated gas. The diver did not dive again that weekend.

Equipment-related incidents

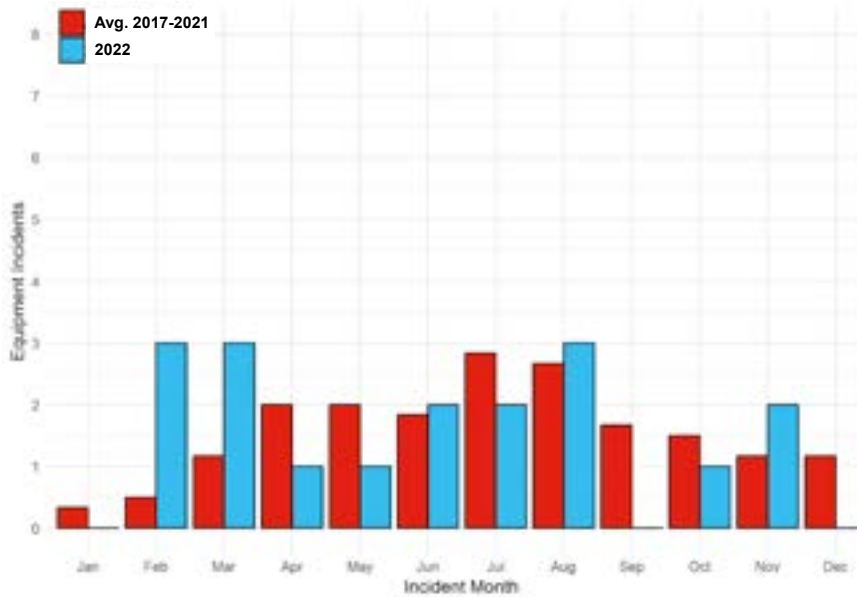


Figure 18. The month of occurrence of equipment related incidents

February 2022

22/120

A group of three divers planned to explore a small wreck at a depth of 16m and then descend to a maximum depth of 26m. Surface temperatures were cold, and the water temperature was 9 deg C and so the pre-dive briefing emphasised the risk of free flow. After swimming out on the surface to a marker buoy for the wreck, the party descended the shotline with regular checks during a slow, steady descent. At a depth of 16m, the two more experienced divers left the line preparing to navigate to deeper water, when they noticed that the remaining diver had stayed on the line, appearing to collect himself. The other divers stayed within reach and, after a couple of breaths, checked if he was OK, to which he pointed to his regulator and then at one of the other diver's AS. The other diver immediately handed over his alternate source, and as the casualty started breathing from it, the other diver noticed that the casualty's regulator was free flowing. They tried to sort the free flow for a few seconds but did not succeed and began an AS ascent. At 6m, they stopped and attempted to stop the free flow again, but when that failed and noting pressure gauge for the shared cylinder read around 60 bar. They omitted a safety stop and surfaced with a

total dive time of 6 min and swam to shore. At the surface, they were able to stop the free flow.

February 2022

22/008

A pair of divers had completed two previous dives the same day without incident. The first dive was to a maximum depth of 21m for a total duration of 32 min followed, after a surface interval of 162 min, by a second dive to a maximum depth of 6m for a total duration of 32 min. After a surface interval, the pair entered the water and conducted a dive to a maximum depth of 21m. As the pair approached a 6m shelf towards the end of the dive, one of the diver's regulators began to free flow. His buddy, who had not witnessed a free flow previously, was unsure what to do and was about to signal her buddy on what he wanted when she lost buoyancy control and ascended directly to the surface, omitting a safety stop with a total dive time of 32 min. Her buddy was able to ascend safely. The water temperature was reported as 6 deg C.

February 2022

22/016

A group of three divers had conducted the first dive of the day to a maximum depth of 15m and

a total duration of 30 min, including a safety stop of 3 min at 6m. After a surface interval of 60 min, the group entered the water for a second dive to a maximum depth of 20m. They swam underwater towards a wreck. Just a few metres short of the wreck, one of the diver's regulators went into free flow and one of his buddies immediately offered his AS, which the diver switched to. The buddy then turned off the diver's cylinder. After a minute, the buddy turned the cylinder back on but the regulator continued to free flow, and so it was turned off again. As they were close to the wreck, the group navigated to the fixed shotline to manage their ascent and ascended to 6m, where they conducted a safety stop of 3 min. During the safety stop, the cylinder was turned on again, and the regulator operated normally so the diver switched to this for the final ascent. Water temperature at 20m was recorded as 4 deg C.

March 2022

22/135

During a training dive to a maximum depth of 14m, a student's regulator began to free flow and she went onto the instructor's AS. On surfacing, the student was given oxygen as a precaution but displayed no adverse symptoms.

March 2022

22/007

A buddy pair entered the water at an inland site and descended to a depth of 10m, where one of the divers experienced a regulator free flow. His buddy provided an AS, and the pair conducted a normal ascent and terminated the dive with a total dive time of 8 min. The water temperature was 9 deg C. The regulator was sent to the manufacturer for examination.

March 2022

22/146

During a descent for a dive, the regulator on a diver's pony cylinder began to free flow. Their buddy turned the cylinder off, and they ceased the descent to allow the regulator to stabilise. The cylinder was turned back on, and the regulator remained fine for the rest of the dive. On surfacing, the regulator was checked for water ingress while the valve was closed and all was fine.

April 2022

22/019

An instructor with a student on their final qualification dive were at a depth of 9m when the instructor's high pressure hose blew out from the first stage with a consequent rapid loss of gas. When the instructor realised what had happened, they alerted their student who was leading the dive slightly in front. The student provided their AS and then managed an ascent direct to the surface. The pair surfaced safely after a total dive time of 35 min.

May 2022

22/195

A pair of divers completed a first dive to practise rescue skills at a maximum depth of 6m for a total duration of 33 min, including a safety stop at 3m for 1 min. After a surface interval of 150 min the pair entered the water for a training dive including DSMB deployment and simulated deco stops. After a short exploratory dive they proceeded to a maximum depth of 21m. The student deployed her DSMB inflating it carefully using her AS, as the water temperature was 8 deg C. After a successful deployment the instructor noted that there were bubbles coming from the student's AS. The instructor tried turning the mouthpiece down but the bubbling continued and so the instructor signalled to ascend and the pair moved to a nearby wall and commenced to follow the wall up. Initially the student was winding in their reel on her DSMB but was starting to panic and then dropped the reel, so the instructor recovered it and the pair continued to ascend along the wall. Shortly after the student signalled that she was 'out of gas' and the instructor immediately provided her AS, which the student took and began breathing from it, while the instructor held onto her. The pair continued to follow the wall shallower, although the student was becoming increasingly panicked and the instructor had to hold onto her to prevent her from rushing to the surface. After a slow controlled ascent the pair surfaced with a total dive time of 23 min. As the student was unable to inflate her BCD the instructor supported her using her buoyancy and partially inflated the student's BCD orally. The pair exited the water and the instructor removed the student's equipment and monitored her for 15 min, but the student insisted she was okay and didn't require oxygen.

The pair remained on site for around 150 min with the instructor regularly checking on the student, who remained okay. After departing the site the instructor checked on the student again later that evening.

June 2022

22/030

A pair of divers were descending in a quarry with a water temperature at depth of 10 deg C. As they reached 12m, the AS of one diver began to free flow and they stopped their descent at 14m. Despite efforts to stop the free flow, it continued and the pair aborted the dive and ascended together directly to the surface. The pair surfaced without problem with a total dive time of 10 min, and the diver recorded having used 140 bar from his cylinder. The regulator was sent for servicing.

June 2022

22/036

A diver checked his equipment prior to a dive, including checking the air and didn't detect any problems, although it was quite windy on the surface. The diver was using a full face mask, which had an ambient breathing setting, which allowed him to breathe normal air on the surface. On commencing the dive and descending to 6m, the diver noticed an odd smell and taste and so returned to the surface, as his buddy was also struggling to get his buoyancy right. On the surface, the diver switched back to the ambient breathing setting while his buddy composed himself. The pair then descended again to 6m and this time the diver began to feel sick and realised there was something wrong with his air and they aborted the dive. Back ashore, the diver got another member of the party to check his air, as he was feeling quite nauseous. They confirmed the air was bad and the diver was placed on oxygen for 5 min. The oxygen helped the diver clear their head and they packed up their equipment and drove home, still feeling a little sick. At home, they slept for a couple of hours, after which their head had cleared. The cylinder was returned to the filling station, where it was acknowledged there had been a problem with one of the filters, but it had not been considered to have affected this particular cylinder. The filling station cleaned the cylinder and valve and refilled it.

July 2022

22/045

A group of 3 divers were diving an offshore reef from a boat; two were using nitrox 32, and the third was using air. After deploying a shotline on the site, the group waited a long time for the water to go slack and then went in with the tide still running a little but it was fine once on the reef. After approximately 23 min, it was pointed out to one diver that his BCD pocket had come open and he stopped to correct it and became vertical. This caused gas to escape from the shoulder dump of his drysuit, and he fell onto his back and started to descend. The diver on air noticed this and went to assist and help close the pocket and restow any equipment. The air diver then started to deploy his DSMB and gave the reel to the diver who had had the problem to help him focus. At that point, the current caught the group and carried them off the wall. As the air diver tried to fill the DSMB, the diver with problems was several metres below him and descending rapidly, dragging the air diver down on the DSMB line. He appeared to be putting gas in his suit, which was immediately coming out of the shoulder dump. The air diver followed him down to 31m, where he managed to stop his descent and lift him back to 25m by putting some gas in his BCD. Once he was stable, the air diver finished launching the DSMB and started a controlled ascent. On checking the diver with the problem's gas, it was noted that he only had 20 bar in his main cylinder, so got him to switch onto his pony. At 6m, the air diver's computer was advising 3 min of deco stops. The diver with problems seemed a lot calmer and appeared to be in control, so the pair stopped for a full 6 min before ascending. The air diver exited the water with 40 bar in his main cylinder and 200 bar in his pony, while the diver who had had problems had 20 bar in his main cylinder and 150 bar in his pony. In the meantime, the third diver had been taken by the current, separated from the other two, and missed his safety stop on the way to the surface. None of the divers experienced any ill effects.

July 2022

22/106

On the second dive of the day, a diver was filling her DSMB when her AS began to free flow. Having failed to stop the free flow, she then noted low

contents on her air gauge and finned to the surface, omitting a safety stop. Oxygen was administered as a precaution. (Eire).

August 2022

22/057

Three divers were all using rebreathers for a dive on a wreck to a maximum of 29m. One of the divers had needed to change the mouthpiece on his bailout valve (BOV), overnight having bitten through one. He believed it was appropriately affixed with a cable tie. From the beginning of the dive, he had a trickle of water into his loop, which is believed was due to an incorrectly affixed mouthpiece. He tried several times to clear the loop following his training. However, after 10 sec it was wet again. He therefore decided to bailout onto open circuit and the group aborted the dive and made a safe ascent, with a pause at 21m for him to change onto his stage cylinder, which contained nitrox 50, to provide a better deco gas. The group were able to make a safe, controlled ascent and completed a 3-minute safety stop at 6m, and surfaced with a total dive time of 27 min.

August 2022

22/083

Two divers were diving a wreck at a maximum depth of 28m. As one diver's computer was just going into deco, he indicated to his buddy that it was time to ascend. The buddy got out his DSMB and inflated it, but the buoy became detached from the line and shot to the surface. The diver then deployed his own DSMB and had exactly the same thing happened. The diver always carried a spare DSMB with a 10m length of line on a drop weight, so they ascended to 10m and he deployed the spare DSMB. By now, the pair needed to do 6 min of stops and completed them without further problems. The diver surfaced with 65 bar remaining in his 12 lt cylinder. On surfacing, the divers were picked up by the dive boat and their 'lost' buoys were sighted and recovered.

August 2022

22/066

Following a dive to a maximum depth of 16m, a newly qualified diver, on his first sea dive with an experienced buddy, deployed his DSMB. During the ascent and at a depth of around 6m, his weightbelt had come loose and was hanging

around his thighs so he struggling to stop it falling off. The pair started a safety stop at 3m and the diver realised his air was very low. The diver signalled 'Up' to his buddy, who still had safety time on their computer, indicated 'No'. Safety stop completed, on surfacing the diver tried to inflate wing and had no air to inflate, and was dipping below the surface, trying to recover weightbelt which was now around his knees. The skipper and others on the RHIB shouted at the pair to manually inflate the wing and hold onto boat. Both divers were safely recovered to the boat.

October 2022

22/076

A diver and his buddy were diving an artificial reef when the diver lost his weightbelt and made an uncontrolled ascent to the surface. During the ascent, one of his fins became detached, but he managed to grab it on the surface. He was recovered into the dive vessel, and as he was climbing the ladder, his buddy surfaced, concerned that she had lost him. She was reassured that he had surfaced and was in the process of boarding the boat. The cox'n then recovered the buddy and she helped the cox'n carry out a casualty assessment, which found minor tingling in the shoulder and feet. The diver was placed on oxygen for 30 min and given 500ml of water to drink, and no further symptoms developed.

November 2022

22/085

A diver had completed the first dive of the day without incident to a maximum depth of 24m for a total dive time of 49 min, including a safety stop at 6m for 3 min. After a surface interval of 100 min, the diver conducted a second dive with two buddies to a maximum depth of 24m. Towards the end of the dive, the diver started to deploy a DSMB. While deploying the DSMB, the AS regulator used for inflation started to free flow which could not be stopped. An ascent to the surface was carried out but faster than within acceptable limits. The diver's dive computer showed no requirement for decompression. The diver exited the water and breathed from a cylinder of nitrox 50 for 15 min as a precaution. No further problems were encountered.

A diver, using a full-face mask, and his buddy had completed a dive to a maximum depth of 18m for a total duration of 33 min. After a surface interval of 110 min, the pair entered the water again and went to a maximum depth of 17m. Towards the end of the dive, they had planned to allow the diver to practice DSMB deployment. In preparing to deploy, the straps fell off the DSMB and so he restowed it. The instructor then demonstrated using his own DSMB and then passed the reel to the diver so that he could continue to the surface. During the ascent at around 7m, the diver's regulator became detached from the full-face mask, causing the mask to flood. The diver removed the mask but dropped it. Noticing this, the instructor immediately prepared his own AS to give to the diver should it be necessary; however, the diver immediately switched to his own AS, which was located at his shoulder. The diver then continued his ascent direct to the surface without fitting his spare mask. He explained later he decided to surface immediately rather than delaying to fit a mask. On surfacing, the diver fitted his spare mask and confirmed that he was OK. Another diver had picked up the mask and returned it to the diver shortly after. The diver was monitored, and oxygen was available but not required. Examination of the regulator and mask indicated that the tie wrap securing it was missing.

Illness or injury-related incidents

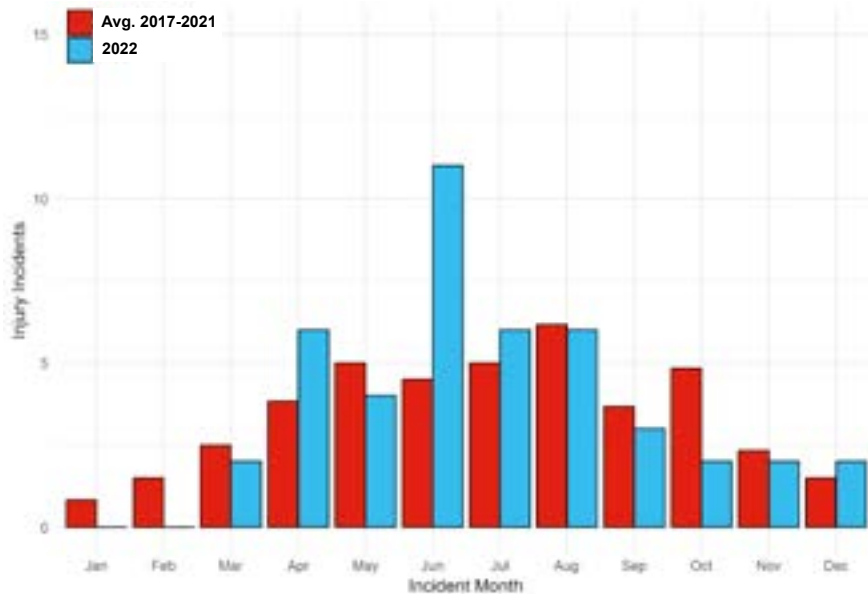


Figure 19. The month of occurrence of incidents involving injury

March 2022

22/121

A student was with an instructor and three other divers. The group entered the water and swam around 50m on the surface to a buoy marking an underwater training platform. The instructor signalled to descend, and all students had been briefed to hold onto the line during descent. On reaching the platform, the instructor found that only 2 students were with them and could see the student and her buddy were still on the surface. The instructor ascended and reassured the student and decided to descend with her one-to-one. The student descended to just under 3m and then signalled to the instructor that something was wrong, and he could see panic in her eyes. The instructor and student then ascended together with a total underwater time of just a couple min. The student said she was very anxious and did not want to try again, so the instructor towed the diver back to the entry/exit point, speaking to her the whole way to keep her calm. He then passed her into the care of the surface support, who continued to get her out of the water. Once on the surface and changed, the student indicated that she had been experiencing quite a high anxiety level in the week leading up to the dive due to university. Her ears started to hurt as she descended, and when she tried to equalize as she

had been instructed, she experienced pain. When speaking on the surface, she was embarrassed that her anxiety got the better of her and that she was freaked out because her ears were hurting and she did not want to perforate an eardrum. The surface support suggested that she do another pool session at a later date and come back to the lake when the water was warmer so that she would not have to be in a drysuit, hood and gloves. She agreed, got her belongings together and drove away.

March 2022

22/095

One evening, snorkellers and divers from two clubs came together for a two-hour session of training in a swimming pool. At one end of the pool, an instructor and three dive trainees went through their sheltered water training; at the other end, a group of snorkellers practised octopush. Partway through the session, some of the snorkellers were talking about octopush technique while treading water by a wall of the pool. One of the snorkellers noticed a dive trainee at the far end of the pool. The trainee's mask was around her neck, her face was partly submerged and she appeared to be panicking, trying to keep her head above the water but slowly sinking.

The snorkeller swam 25m as fast as he could, seeing the trainee sink underwater as he swam. He reached the trainee just as her instructor and the other trainees surfaced a few metres away. The snorkeller, himself a trained diver, inflated the trainee's BCD, laid the trainee on her back and towed her to the nearest poolside. After the session, the trainee was unable to give a coherent account of how she came to be on the surface.

April 2022

22/020

A group of three divers conducted a dive to a maximum depth of 21m. During the dive, one of the divers experienced a slow leak in his drysuit affecting his buoyancy and temperature, and so, after 20 min, he signalled he wanted to ascend. The diver deployed his DSMB, and the group started to ascend, but the diver had difficulty controlling his buoyancy due to the amount of water in his suit and so their safety stop was terminated after 2 min. On surfacing, the diver remained face down and there were no obvious signs of breathing, and so one of his buddies gave a distress signal. She then righted the diver and noticed his regulator was in place and he was breathing. The diver required assistance to stand on the dive vessel diver tail lift and, once at deck level, required assistance to step aboard but was able to support himself on the rail whilst the skipper removed his fins. Once the first of his buddies was aboard, she assisted the diver to de-kit, and the third buddy also assisted once he was aboard. The diver required assistance to walk to the central bench and he was assisted by his buddies and the skipper to remove his drysuit and undersuit as quickly as possible. The diver was given dry clothing, including a thermal hat, wrapped in a sleeping bag and was conscious but non-responsive and was shivering violently, with a purple skin tone. Additional clothing was provided and, after the recovery of the rest of the dive party, the boat made best speed back to harbour while the skipper notified the harbourmaster. On passage back to harbour, the diver started to hyperventilate and was placed on oxygen. A Coastguard rescue team was out on exercise and met the boat as it reached harbour and provided first aid. Two hours after surfacing, the diver had stopped shivering and was able to walk unaided.

The diver was driven to hospital and was assessed for diving-related injury by a doctor from the nearby chamber, who confirmed there was no diving-related injury. The diver was assessed in A&E and was discharged later the same day.

April 2022

22/010

A diver was preparing to enter the water, walking down steps fully kitted minus hood, mask and fins when he slipped on a weed-coated step and went down to the ground. The diver reported having broken his right lower leg and the emergency services were called while first aid was administered. Due to the tide coming in, the diver had his leg immobilised using blankets from a vehicle and was placed on a storm shutter and extracted from the steps, then transferred to a safe place in the nearby carpark. He was administered oxygen and given water. Due to delays in the ambulance attending, a Coastguard rescue team was deployed, and the casualty was transferred to a local pub function room where he awaited ambulance arrival. He was subsequently transferred by ambulance to hospital, where an X-ray confirmed a fracture to the tibia and fibula.

April 2022

22/140

Following a dive to a maximum depth of 34m for a total dive duration of 45 min, including 2 min of decompression stops, a diver complained of a warmth and 'pins and needles' in his right leg. He was administered oxygen by the on-site staff and no further symptoms developed.

April 2022

22/179

Two RNLI lifeboats were launched to assist a vessel, which had reported a diving incident. On site, the crews worked alongside a Coastguard team and rescue helicopter. The casualty was airlifted to hospital for treatment. (Coastguard & RNLI report).

April 2022

22/090

On the third day of a diving trip, the trip organiser, who had not been diving due to ill health but had snorkelled the previous day, went into a drying room to collect equipment for the group. With

several items in one hand, he tried to remove a weight harness by pushing it up and over the line on which it was hanging and catching it in his empty hand as it fell. However, as the organiser pushed upward, a metal buckle attached to the harness swung over the line and struck him in the face. The organiser noticed straight away that he was bleeding from his left eyebrow. He sent urgent messages to another diver on-site. The diver arrived within minutes and administered first aid. The organiser did not enter the water for the rest of the trip.

April 2022 **22/124**

Following two training dives in a group of six to a maximum depth of 6m without incident, a student's partner contacted the dive centre on her behalf to report that she was experiencing joint pain. The dive centre provided details of all dives to the staff of a recompression chamber, who then treated the diver. On discharge, the diver was advised to contact a doctor for potential medical reassessment before resuming training. Doctors subsequently concluded that the joint pain was likely due to a soft tissue strain and not DCI.

May 2022 **22/132**

A freediver practising at an inland site cut their head on zebra mussels during a normal ascent.

May 2022 **22/215**

The Coastguard responded to reports of a diver in need of medical assistance. (Coastguard report).

May 2022 **22/028**

A student was preparing to enter a swimming pool for a training session. The instructor had already entered the water. As he made his way towards the edge of the pool, the student fell forwards when he bent to pick up his fins and hit his head quite hard against the pool surround. The club's pool lifeguard and another member witnessed the fall and quickly made their way to the casualty, raising him into a sitting position and preventing his buddy from pulling him to his feet. The student complained of hitting his forehead and the back of his head, and he also had bruising to his knees and

one elbow. The student's equipment was removed and he was sat in a chair for 10 min, and another of the dive group located an ice pack, which the student applied to his own head. The student did not lose consciousness and remained alert and responsive but was advised not to dive again that evening.

May 2022 **22/216**

The Coastguard responded to reports of a diver in need of medical assistance. (Coastguard report).

June 2022 **22/034**

An instructor was taking a student for an experience dive. The instructor entered the water first with a giant stride off a small pier with a drop of approximately 1m to the water, then signalled the student to follow. The student entered the water and upon surfacing, was in difficulty and some pain. The instructor towed the student to a beach exit point, de-kitted both divers in the water and assisted the student out of the water. It was discovered that the student had recently suffered a tendon injury while on holiday in a non-diving-related incident. The additional stress of a stride entry on the tendon caused it to rupture. After some hours rest, the student reported the pain had subsided and made their own way home, with the advice that medical treatment was sought as soon as practicable. A subsequent visit to hospital followed, where it was confirmed that an Achilles tendon had ruptured.

June 2022 **22/027**

A pair of divers went for a shakedown dive prior to a dive trip, one diver using CCR and the other a twin-set and a 7 lt deco cylinder with nitrox 50. The pair entered the water and descended to 6m, pausing to conduct bubble checks. They then descended at a leisurely pace to their planned maximum depth of 20m. After a couple of min at 20m, the rebreather diver started to cough through his CCR loop. The rebreather diver then indicated to turnaround and, as they followed the slope up, the coughing became more noticeable, frequent and forceful. His buddy then offered an AS, but the rebreather diver chose to switch to his own open circuit bailout at a depth of 12m and

then tried to ascend quickly to the surface. His buddy grabbed him and tried to slow his ascent to around 13m/min to the surface. On surfacing, both inflated their own BCDs, and the rebreather diver was conscious and responding to verbal commands. He took off his hood and was coughing white froth, which then changed to pink froth and the diver started to look pale. The buddy began to tow the diver towards shore and offered him his nitrox 50 to breathe, which the diver took but was not able to use fully due to excessive coughing. On arrival at the exit point, they were met by the on-site rescue team, who took over and removed the diver from the water and de-kitted him. The diver was coughing up more strongly pink froth and looked white/blue with bloodshot eyes. The rescue team cut the diver's drysuit away and administered oxygen and placed him in the recovery position. The emergency services had been called, and both an air ambulance and a road ambulance promptly arrived and paramedics took over first aid. The diver was evacuated to hospital by road and was initially tested for evidence of IPO. Eventually the diver was diagnosed with an aortic dissection and, following an operation, was making a full recovery.

June 2022 **22/031**

A diver using a rebreather with trimix 21/16 diluent and his buddy were diving a wreck at a maximum depth of 46m. The diver had been swimming horizontally on the wreck with some small variations in depth when he experienced an unusual episode of vertigo while at a depth of 42m. The diver became disorientated and held onto the wreck, during which time air migrated within his drysuit to his legs and he became inverted. His buddy noticed the inversion and assisted him to regain his orientation, and the vertigo disappeared. The pair continued the dive without further incident and surfaced after a total dive time of 71 min.

June 2022 **22/208**

The Coastguard responded to a request to support medical transfer of a diver in need of medical assistance. (Coastguard report).

June 2022 **22/037**

A diver had experienced difficulty at a depth of 23m on a wreck dive. The diver made a controlled ascent with his buddy but became unconscious on the surface and was recovered aboard a dive vessel. A call was made to the Coastguard and a lifeboat was tasked to attend. On arrival at the dive vessel, two crew members boarded and assessed the casualty, who had regained consciousness and was being given oxygen. His buddy was also checked and found to be OK. A helicopter was requested to evacuate the casualty as quickly as possible to hospital. (Coastguard & RNLI report).

June 2022 **22/096**

A diver had completed the first dive of the day with her buddy to a maximum depth of 29m with a total dive time of 59 min, including decompression stops at 6m for 1 min and 3m for 6 min plus an additional 4 min safety stop. After a surface interval of 140 min, the pair entered the water again and descended a steep slope to a maximum depth of 25m. After about 5 min, the buddy started to ascend back up the slope when he noticed the diver was whirling round and round in a cloud of stirred-up silt with a feet-up buoyancy issue. The buddy went over and immediately tried to help her bring her feet down. He could feel her struggling but couldn't see a thing. The pair started to rise, and as the buddy's head was level with her knees, one of the diver's fins popped off and floated away. The buddy started dumping air from his own kit to slow the ascent, but the ascent continued and the pair surfaced about a minute later. The buddy started talking to the diver but quickly realised that she wasn't responding. She was floating on her back, with her face just under the sea surface, second stage mouthpiece in her mouth but with no second stage attached. The buddy moved to raise her head up and to call the boat for assistance, which was only a short distance away. The sea was calm, but there was no response from the boat to his signalling, so the buddy shouted and the skipper responded, and the boat started coming over. The diver was still unresponsive, and the skipper shouted to keep her head up. Once alongside, the diver lift was lowered and the buddy manoeuvred the

diver onto it and knelt beside her and both were lifted to deck level. The skipper then dragged the diver aboard, removed her kit and started compressions while her buddy de-kitted. The diver was unconscious, unresponsive and blue/black in the face. The buddy then suggested the skipper call the emergency services and took over chest compressions while he did this. The buddy administered a couple of rescue breaths, and resumed chest compressions, calling to the diver at the same time. After a couple of min, the diver started to show first signs of recovery - improved colour and signs of breathing for herself. She was placed into the recovery position, maintaining a neck extension and a pillow of soft dive bags. The buddy cut the diver's latex neck seal with his dive knife, and the skipper returned with an oxygen kit and they started administering oxygen via continuous feed mask. The diver's breathing was improving all the while, albeit laboured and with a horrible wheeze that sounded painful, and she was vomiting at intervals also, which was mopped and cleared as necessary. They were advised that lifeboat and helicopter assistance would be arriving in 15 min, during which time the diver showed continuing signs of improvement, including becoming responsive to speaking/hand squeezes but occasional vomiting still. The skipper tried a diver recall signal to all the other divers, which was unsuccessful, which was probably the best result with the lifeboat and helicopter now approaching. The lifeboat came alongside and transferred the diver and her buddy aboard, ready for transfer to the helicopter. The diver was subsequently winched onto the helicopter, which landed at a local airport for onward transfer by ambulance to a local hospital. The buddy was transferred back to the lifeboat station to be taken by ambulance to the same local hospital for tests. The buddy was kept on oxygen and under observation for 6 hours before being discharged and advised not to dive the following day. The diver made a full recovery and was discharged after 4 days in hospital.

June 2022 **22/043**

A diver had completed a previous dive to a maximum depth of 20m for a total duration of 44 min. After a surface interval of 274 min, the

diver completed a second dive to a maximum depth of 17m and a total duration of 22 min. On recovery aboard his dive boat, the diver appeared to be struggling and not his normal self. He reported that during the dive, he experienced visual 'floats'. He was placed on oxygen on the shore after a ten minute drive on the boat; there was an initial evaluation with no symptoms other than a headache. A Diver Helpline was called and the on-call hyperbaric doctor conducted an assessment over the phone. Their advice was an assessment from a medic was required and they liaised to find the nearest medical centre able to do this. Meanwhile the Coastguard and ambulance were contacted. The diver's condition was monitored throughout and oxygen continued to be administered. A lifeboat boat arrived and two crew members carried out an assessment and helped coordinate with the ambulance service. The RNLI crew were advised on the condition and dives. An ambulance arrived, paramedics conducted their assessment and prepared a stretcher. The diver was taken to the medical centre as advised by the hyperbaric doctor where a medical assessment took place. Following the medical assessment and consultation with the hyperbaric doctor, the diver was discharged without further treatment.

June 2022 **22/184**

An RNLI lifeboat was launched to assist a vessel, which had reported a diving incident. The lifeboat crew assisted the diver. (RNLI report).

June 2022 **22/035**

Following a previous dive to a maximum depth of 6m and total duration of 22 min, and a surface interval of 209 min, a student entered the water with 2 assistant instructors supervised by an instructor to conduct controlled buoyant lift training from 6m. As they approached the surface, the student appeared to be breathing heavily and had a distressed look on her face, but this was not initially concerning. Upon reaching the surface, the student initially looked fine but quickly started saying she was unable to breathe, and one of the assistant instructors turned to assist and found that the student had not fully inflated her BCD, so assisted in inflating. The instructor approached

and could see the student was showing signs of Hypoxia with blue lips and pale skin and called for help. The others then began to tow the student to shore, where they were met by others who had waded in to meet them, and they removed kit from the student and lifted her onto dry land. Oxygen was administered and drysuit partially removed, the student quickly started feeling better and regained normal colour. An ambulance arrived and the student was admitted to hospital. Examination at hospital found that the student had a chest infection.

June 2022

22/039

A rescue helicopter airlifted two divers from a dive vessel who required transfer to hospital. A Coastguard rescue team was requested to set up a landing site for the helicopter to land and transfer the casualties to ambulance for onward transfer to hospital for assessment. (Media report).

June 2022

22/125

A student was on a training dive at a depth of 6m on a training platform and, approximately 7 min into the dive, was practising mask removal. The student became unusually stressed despite successfully mastering partial and full mask clear on the previous dives and in the pool during the confined training. The student became increasingly panicked and made a gesture to ascend. The instructor assisted this by maintaining direct physical contact to ensure the correct ascent speed was maintained and also that the student's regulator remained in his mouth. During the ascent, the student made some large and fast circular motions with his arms in an attempt to swim up faster. Upon surfacing, the student promptly said that he had dislocated his shoulder, given he had previously injured the same shoulder in the same way 7 years prior. The instructor successfully removed all of the student's equipment, which allowed them to get him out of the water and an ambulance was called. The surface cover kept the student as comfortable and hydrated as they could while waiting for the ambulance to arrive. The student was diving in a drysuit, which the paramedics had to carefully cut off for them to examine his shoulder. The student was taken by ambulance to hospital, requiring an X-ray and the dislocation reset.

July 2022

22/044

A broken down boat had been recovered onto a trailer on a pebble beach. The boat's owner decided to extract the vessel from the water without using the approved site tractor method. A tow rope to the trailer from the front of a vehicle was used to allow the boat owner's vehicle better traction at the top of the slipway. A bight was placed in the tow rope and an assistant was told to hold the rope off the ground while the towing vehicle applied tension. The assistant put his hand in the bight to get a better purchase. As tension was applied, the bight closed quickly, causing a minor hand injury to the assistant.

July 2022

22/217

The Coastguard responded to reports of a diver in need of medical assistance. (Coastguard report).

July 2022

22/218

The Coastguard responded to reports of a diver in need of medical assistance. (Coastguard report).

July 2022

22/219

The Coastguard responded to reports of a diver in need of medical assistance. (Coastguard report).

July 2022

22/052

Two lifeboats were launched to respond to reports of a freediver who had experienced difficulties in the water while freediving from a small RHIB and was reported to be unconscious. The two lifeboats carried out a search of the area, along with a rescue helicopter and quickly located the freediver. The freediver was given emergency first aid and taken back to harbour by one of the lifeboats, where he was transferred by ambulance to hospital for treatment. (RNLI report).

July 2022

22/054

A Coastguard rescue team was tasked to meet an injured snorkeller who had been on a shark snorkelling excursion. The snorkeller was reported to have been bitten in the leg by a shark while swimming with them. After rendezvousing with the injured diver, she was handed over into the care of paramedics. (Coastguard & RNLI report).

August 2022

22/126

A student was on a training dive on a 5m platform with an instructor. When the student was trying to complete mask removal and replace, he panicked and swam to surface removing his regulator. The instructor held him and controlled the ascent, the student swallowed some water and spat out on surface. On recovery from the water, after a while the student reported had tingling in his hands and had experienced temporary loss of vision. He also vomited and complained of a headache. The student was placed on oxygen and the emergency services called. The student was checked over by paramedics and given all clear.

August 2022

22/187

A lifeboat was tasked by the Coastguard to assist a local dive charter vessel, which had an unwell diver aboard. The lifeboat launched and met the vessel outside the harbour, where the diver and their buddy were transferred to the lifeboat, where the crew provided casualty care. The lifeboat returned to station and were met by a Coastguard team. The divers were transferred to the care of the ambulance service. (Coastguard & RNLI report).

August 2022

22/158

A diver lost consciousness during a training dive. They were recovered to the surface by their buddy and recovered onto the dive boat, where first aid was administered, and the diver regained consciousness.

August 2022

22/159

A diver was unable to clear their ears on descent and aborted the dive at a maximum depth of 9m.

August 2022

22/059

An instructor surfaced from a dive feeling nauseous and vomited. The instructor and her student surface swam 25m back to shore and exited the water. After de-kitting, the instructor reported feeling unwell, overheating and fainted. On regaining consciousness, she was promptly assisted to remove her drysuit and given oxygen as a precaution whilst being monitored. The instructor made a full recovery and a check on her welfare was made mid-afternoon.

August 2022

22/060

A student undergoing her first open water training dives conducted two dives. The first was to a maximum depth of 6m for a total duration of 29 min and, after a surface interval of 114 min, a second dive to a maximum depth of 14m for a total duration of 30 min. At the start of the 2nd dive, the student completed two AS ascents from less than 6m but there was nothing else remarkable about the day. Later that evening, her father reported she had complained of pain in one ear on the way home, getting steadily worse. A recompression chamber was called for advice, and the doctor, in turn, rang the diver and her father. After a follow-up call the next morning the doctor concluded she had suffered a reverse blockage in her ear that had since resolved and gave appropriate advice. She fully recovered and attended a swimming pool skills session the next day with no problems.

September 2022

22/138

A diver had completed two dives without incident, the first to a maximum depth of 17m for 19 min and a second to a maximum depth of 7m for 24 min. Following the dives, the diver complained of blurred vision, pain in the left arm and chest. He was placed on oxygen, and an ambulance was called, which transferred the diver to hospital, where he was reported to have had a heart attack.

September 2022

22/092

A diver completed a first dive to a maximum depth of 12m with a total dive time of 32 min, including a safety stop at 6m for 3 min. After a surface interval of 100 min, the diver conducted a further dive to a maximum depth of 3m with a total dive time of 7 min. The sea was choppy in open water but calm in the lee of the island. After surfacing, the diver was holding onto the RHIB ladder when he became nauseous. The diver got himself aboard, was sick, tidied up his kit and was sick again. On arrival back in harbour, the diver was seen by a diver, who was also a GP, on the harbourside then an ambulance called. The diver was diagnosed at hospital that he had had a minor stroke in the left cerebellum, affecting his balance. He was kept in overnight, given medication and discharged the next day.

September 2022

22/081

Two divers were with an instructor practising recovery of an incapacitated diver using a controlled buoyant lift. The lift became uncontrolled and a rapid ascent resulted, and both divers surfaced. Soon after the dive, one of the divers became aware of a pain in the ear. No immediate medical attention was sought, although the diver later visited a GP and a perforated ear drum was diagnosed. The other diver did not suffer any ill effects.

October 2022

22/079

A group of three divers entered the water for an exploratory dive to a maximum depth of 17m. As the group descended, one of the divers was having issues and didn't look 100% OK. Her buddies signalled to see if she was OK and she indicated she was having problems with her ears but continued to descend. On reaching the bottom, she regained her composure and signalled OK. The group then continued with their planned exploratory dive until reaching their agreed turnaround plan on reaching 100 bar. They navigated their way back to close to their exit point. As they started to ascend a small cliff face, another diver in the group had a problem with her drysuit inflation valve jamming open, and she shot upwards and was quickly lost from view. One of her buddies started to ascend after her, and after a short ascent could see she was on the surface. He then noticed that the diver who had originally had ear problems was not with him, and so he re-descended to try and find her. He quickly located the missing diver, who had gone down and was now on the bottom. He tried to descend quickly down to her but then had ear problems himself following the repeated descents and ascents. As the third diver reached the first diver, he was joined by another pair from the group who were swimming along the bottom. On making contact with the diver, they found her unresponsive and her eyes were closed. They then raised her to the surface with a controlled buoyant lift. On surfacing, they shouted for help and a site rescue boat came to them. The divers in the water removed the diver's weightbelt and BCD and swam to the exit point with these while the rescue boat recovered the diver aboard. On recovery

back to shore, the diver was taken to a first aid room for treatment. The two buddies had blocked ears, which took some time to clear but otherwise had no lasting problems. Total dive duration was 28 min.

October 2022

22/077

During a dive to a maximum of 6m, a trainee diver became momentarily nonresponsive but seemed conscious throughout, and he was assisted to the surface by his two buddies. The diver was towed to the exit point, where he was de-kitted, and he was able to make his own way out of the water with assistance. It was noticed that he had blue lips, and when questioned about the dive, he was confused about the timescales, as he thought it was 30 min when in fact he was underwater for just 6 min. A check was made on him 30 min later and he was fine and coherent and made his own decision not to dive again that day.

November 2022

22/129

A student was on a deep diving course with an instructor. On entering the water, they did a buoyancy check, descended to 6m to do some final checks before dropping to 24m and carried out further skills. They ascended to 12m and hit turn pressure and time marks, which the student indicated. The student's foot came out of her drysuit boot and she started to struggle. The instructor tried to help, but the student's mask and regulator were knocked off. The student solved the problems but had lost control of her buoyancy and surfaced. The student was slightly panicked, hyperventilating and had cut her lip. The instructor calmed her down and then helped to tow the student back to shore. During the tow, the student noticed that her shoulder was hurting. The staff at the dive site helped to get her out of the water, and the student put her shoulder back into socket.

November 2022

22/089

An experienced diver was at a shooting club range when one of the members slumped forward in his chair, appearing to be unconscious and had urinated. The diver went to the door and instructed someone to call an ambulance. He

then returned to assess the casualty with another club member and having done so, called for the centre's defibrillator to be fetched. The pair placed the casualty on the floor, and the other member checked his airway while the diver made the casualty's rifle safe. The casualty was not breathing and the AED arrived at this time, so the diver attached the AED pads and waited for analysis. A shock was advised and administered, and after analysing again, CPR was advised and commenced, and after 30 compressions, two rescue breaths were administered. The casualty gurgled and his head was turned to clear froth and saliva from his mouth. The casualty then started to breathe again on his own and was placed in the recovery position. The casualty was monitored until the ambulance arrived and transported the casualty to hospital.

December 2022

22/131

Following a dive in cold water, a diver fainted after entering a warm room. It was suspected he had a drop in blood pressure and quickly recovered.

December 2022

22/220

The Coastguard responded to reports of a diver in need of medical assistance. (Coastguard report).

Miscellaneous

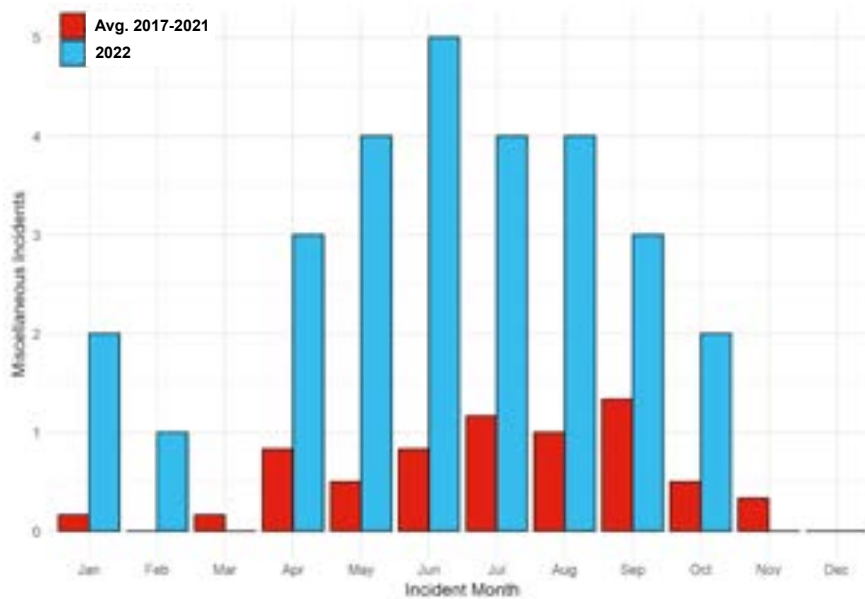


Figure 19. The month of occurrence of incidents for which there is not enough information to be able to attribute to another category.

January 2022

22/239

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

January 2022

22/240

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

April 2022

22/236

The Coastguard gave accident prevention advice to divers. (Coastguard report).

February 2022

22/241

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

May 2022

22/244

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

April 2022

22/015

An RNLI lifeboat was launched to respond to a report of two swimmers appearing to be waving in distress. As the lifeboat was on route, news was relayed that the swimmers were safe ashore and were, in fact, divers who were OK and had not been in difficulty. The lifeboat stood down and returned to station, recording a false alarm with good intent. (Coastguard & RNLI report).

May 2022

22/245

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

April 2022

22/243

The Coastguard responded to a call which turned

May 2022

22/246

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

May 2022

22/247

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

June 2022

22/237

The Coastguard gave accident prevention advice to divers. (Coastguard report).

June 2022

22/248

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

June 2022

22/249

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

June 2022

22/250

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

June 2022

22/251

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

July 2022

22/252

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

July 2022

22/253

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

July 2022

22/231

The Coastguard was requested to assist other authorities with a diver. (Coastguard report).

July 2022

22/053

An RNLI lifeboat was launched following a report of two snorkel divers in trouble in the water, struggling against the tide to return to shore. On arrival on scene the crew discovered the divers were actually a pair of crab pot markers, so the lifeboat stood down and returned to station. False alarm with good intent. (Media report).

August 2022

22/254

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

August 2022

22/255

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

August 2022

22/256

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

August 2022

22/238

The Coastguard gave accident prevention advice to divers. (Coastguard report).

September 2022

22/232

The Coastguard was requested to assist other authorities with a diver. (Coastguard report).

September 2022

22/257

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

September 2022

22/258

The Coastguard responded to a call which turned out to be a False Alert with Good Intent - FAGI. (Coastguard Report).

October 2022

22/233

The Coastguard was requested to assist other authorities with a diver. (Coastguard report).

October 2022

22/234

The Coastguard was requested to assist other authorities with a diver. (Coastguard report).

Overseas incidents

Fatality

March 2022

22/009

An instructor was teaching a rebreather course to one student at a depth of 53m in a lake. He started to experience a problem with breathing from his rebreather and bailed out onto open circuit and commenced an ascent. At 30m, he lost consciousness and was lifted to the surface by his student. On the surface, the instructor was unresponsive, and the pair had surfaced some distance from shore. The student towed the instructor back to shore, but despite resuscitation attempts, he did not survive.

May 2022

22/022

A diver was reported missing after his car was discovered near a dive site with his clothes inside but his diving Equipment, including a scooter, missing. Searches continued by the Coastguard and others, including a drone, to search the coastline but failed to locate the diver. Searches were hampered by rough seas, and underwater searches by police and local dive teams were delayed. (Media report). (Eire).

DCI

July 2022

22/108

A diver had a fast ascent from 12m. He was recovered aboard the dive boat and placed on oxygen for 30 min and reported feeling fine but was advised not to do the second dive. Later that evening, the diver noticed he had developed a rash and contacted a recompression chamber for advice. He attended A&E for assessment and was referred to a recompression chamber for treatment. (Eire).

September 2022

22/074

A diver had been diving the previous two days using a rebreather. On the third day of diving, the diver completed a first dive to a maximum depth of 31m with a total dive time of 31 min, including a safety stop at 6m for 3 min. After a

surface interval, the diver conducted a dive on a wreck to a maximum depth of 41m. After making a slow, steady descent to his maximum depth, the diver progressed shallower to around 28m. He then descended again to around 38m about 40 min into the dive and then made a slow ascent, completing 8 min of required decompression and 5 min of additional stops, all at 6m. During the dive, he had some buoyancy issues as he was not used to diving in a wetsuit, but this was +/- 1m. 15 min after surfacing, the diver felt itching and skin hardness around the stomach area. The skipper put him on oxygen, and later, on the way to hospital, the diver experienced slight dizziness and some visual disturbance. After assessment at hospital, the diver was transferred by ambulance to a recompression chamber where he was treated on US Navy Table 6. He spent the night at hospital and was put on US Navy Table 5 the next morning. The doctor diagnosed a skin DCI and recommended no diving for 3 weeks and that the diver get checked for a PFO.

September 2022

22/084

A diver conducted a dive to a maximum depth of 28m. As the diver approached 6m for his decompression stops, he started to become buoyant and drifted to the surface. He then re-descended to try and do stops but could only manage around 1 min and then ascended again, missing 4-5 min of indicated decompression. He waited for his buddy to complete his stops and then exited the water. After about 1 hr, the diver started to experience symptoms of dizziness, nausea and disorientation, and at this point, the missed stops were identified for the first time. The diver was given oxygen for about 45 min. An ambulance was called, and the diver was placed on a saline drip and transported to a recompression chamber, where he received a total four treatments over 4 days for an inner ear vestibular DCI, with apparent resolution.

October 2022

22/078

Following two previous days' diving, with two dives a day, a diver had completed a first dive on day three to a maximum depth of 40m for a total duration of 47 min, including 7 min of decompression stops at 6m, using nitrox 29.

After a surface interval of 83 min, the diver conducted a second dive using nitrox 29 to a maximum depth of 40m for a total duration of 43 min, including 8 min of decompression stops at 6m. There were no incidents on any of the dives, but the diver considers he probably didn't drink enough water on the 83 min surface interval between dives. After the second dive, the diver started to feel dizzy and lightheaded on the way back to harbour and then developed a ticklish cough and pain in the top of his stomach, and the colour drained from his face. The diver was given rehydration salts and water and put on oxygen within 10 min of symptoms developing. He was taken to hospital for chest X-ray tests before being referred to a recompression chamber. Assessment before entering the chamber showed a tremor in the diver's ring hand fingers. The diver received recompression treatment of 5 hours in the chamber and then a further two hours the next day. The diver was then discharged with no travel over 300m for 72 hours, and no diving until after the end of the month and a 'fitness to dive' medical.

October 2022 22/165

A diver completed a dive to a maximum depth of 20m and had an abnormal ascent. On surfacing, the diver was found to have a skin rash on his back and, following advice from a medical officer, was transferred to a recompression chamber for treatment.

Boat/Surface

May 2022 22/181

A lifeboat was launched to provide assistance to a dive vessel. Others coped, and the lifeboat returned to station. (RNLI report). (Eire)

May 2022 22/103

A dive boat had deployed two divers. As one diver passed across the stern of the boat, an onshore wind blew the boat towards the diver and the diver was hit on the thigh by the idling propeller. The diver suffered no injury other than a slight cut in his drysuit and continued his dive without problems other than a slight leak in his suit. (Eire).

July 2022 22/107

A dive boat was making its way to a dive site when an engine/electrical failure caused the journey and the dive to be aborted. The Coastguard was alerted, but no help from them or other boats was required. (Eire).

July 2022 22/111

A dive boat had divers in the water when fire was spotted at the base of the engine, with the metal having a red glow and a smell of burning rubber. The main engine was switched off and an auxiliary engine was started but cut out repeatedly. The divers surfaced, returned to the boat and were recovered aboard. The auxiliary engine continued to cause problems, and the boat was towed back to harbour by the Coastguard. (Eire).

August 2022 22/186

An RNLI lifeboat was launched to assist a dive vessel, which required assistance. The lifeboat attended and took the vessel under tow back to harbour. (RNLI report). (Eire).

August 2022 22/161

Diving activities were being conducted from a dive RHIB when the engine failed. Divers were recalled and the second boat used to assist in the recovery of the divers and to tow the disabled craft back to harbour.

November 2022 22/214

Coastguard received a request to respond to a diver in the water. (Coastguard report). (Eire).

Ascents

May 2022 22/097

A diver had problems with his BCD during a dive and was unable to control his buoyancy, resulting in an uncontrolled ascent from 5m. The diver was given oxygen as a precaution, but no further treatment was necessary. The BCD was reported to have been around 25 years old. (Eire).

July 2022

22/055

A diver was having buoyancy problems on a dive to a maximum depth of 11m with two buddies. Initially, she thought this was nerves and shallow breathing as a result of the buddy group of three divers assigned for the dive. While initially she thought she was just nervous, about 10 min into the dive, the inflator button on the BCD she was using jammed. The diver didn't respond in time to detach the BCD inflation hose and elected to dump air continuously to slow her ascent. Visibility was poor, and the diver's buddies didn't notice the diver's ascent for some time. When the diver reached the surface, the club boat didn't see her immediately, so she inflated her DSMB and was back in the RHIB before her buddies reached the surface. None of the divers experienced any adverse physical effects.

Technique

January 2022

22/144

Diver lost buoyancy control during ascent while using a DSMB during a training dive as they became fixated on using the reel, resulting in them delaying dumping gas from their BCD. They made an ascent direct to the surface but not rapid.

June 2022

22/032

A pair of divers entered the water to dive a wreck from a charter vessel. Both divers swam on the surface for 20m with regulators in, breathing normally before descending the shotline. Around 10m deep, one diver felt his airflow was restricted and gave the out of gas signal to his buddy who was with him on the shotline. The buddy offered his AS, which the diver took and switched to breathe from it. Both divers took hold of each other and, while composing themselves, descended unintentionally to 16m. During this time, the buddy turned the diver's cylinder valve to what he thought was the fully open position. Unfortunately, he mistakenly closed the valve fully but the diver was breathing off his buddy's AS, and the pair ascended to the surface. On the surface, the buddy fully inflated his BCD using his inflator hose and the diver fully inflated his BCD orally. Both divers were assisted out of the water by

the boat crew. The boat crew checked the diver's cylinder and found that the valve had been turned fully off, and checks on the diver's regulator found it to be in full working order. Both divers did not go back into the water, rested and ensured they were not dehydrated. They did not suffer any ill effects on the day of the incident or the following day.

July 2022

22/156

A group of divers had dived a wreck from the shore. During the swim back to shore underwater, the group were affected by the surface current pulling on their SMB, and as a result, they missed the exit point. The group had to return to the exit point, swimming on the surface.

December 2022

22/093

Three divers had completed a first dive to a maximum depth of 20m for a total duration of 57 min, including a safety stop at 6m for 3 min. After a surface interval of 93 min, the group carried out a second dive to a maximum depth of 24m at a site with a series of caves and swim-throughs. Towards the end of the dive, one diver showed the others she was on 50 bar just as they were heading into the final cave. One of her buddies thought they should surface, but the third diver had already entered the cave, and so they followed. As they caught up with her and as they exited the cave, the first diver was now down to 30 bar. One of the divers deployed a DSMB, and the diver low on gas ascended with her to a safety stop at 6m. The other diver, seeing she was low on gas, offered her AS, as she had 80 bar remaining, but the diver wanted to stay on her own regulator. The group completed their safety stop and surfaced without any problems, but it was noted by the dive manager that the first diver was very low on gas after returning to the boat.

Equipment

May 2022

22/101

A qualified but inexperienced diver was practising using an SMB when, at the end of the dive, they didn't reel in the line producing lots of slack line in which they became tangled. The diver was a bit panicked and went from 70 bar to 10 bar and did not fully complete a safety stop. (Eire).

May 2022

22/102

A diver's regulator started to free flow during a dive. As the diver had spent the last 20 min between 6m and 3m, there was no need for a safety stop, and so after a couple of unsuccessful attempts to control the free flow, the dive was aborted, and a direct ascent to the surface was made. (Eire).

July 2022

22/046

During descent on the shake-down dive on the first dive of a trip to Norway, a diver found difficulty getting gas from their CCR unit. This was exacerbated with depth, and so an ascent was made to a shallower depth where further in-water checks were made to confirm whether the breathing loop had kinked or twisted, which it had not. A bubble check also proved inconclusive. A repeat descent was made down the shotline in an attempt to determine the cause. The diver indicated gurgling was heard and their buddy checked the inflation valves on the counter-lungs, which were found to be only loosely attached and likely allowing the counter-lungs to take in water. The dive was aborted, and both divers returned to the boat via lift where it was identified both counter-lungs had partially flooded, preventing breathing gas from circulating effectively. The diver's unit was disassembled to be checked for any further flooding and found to be fine. The unit was re-assembled, all joints checked for tightness and positive and negative checks passed satisfactorily. No ill effects were experienced and diving recommenced that same afternoon. It is surmised that the inflation valves became loosened during transit, yet initial positive and negative pressure tests had held.

July 2022

22/047

Part way into the 7th dive of a week-long dive trip, a diver experienced cold water entering their drysuit sleeve. This was determined to be from a rupture in the exterior dry glove. The diver immediately felt cold and indicated aborting the dive and attempted to seal the hole with the other hand to prevent further water ingress. Both divers attempted to return to the shotline for an ascent, however, they had drifted off and were out of sight of the wreck, which by now had lower horizontal visibility from silt disturbance. The buddy deployed a DSMB from mid-water to assist with referencing the ascent and made firm contact with the D-ring of the diver's harness to prevent separation. There were no decompression penalties incurred, and a slow ascent was made to the surface from 6 m. At the surface, both divers signalled and made their way back to the boat lift and exited the water. No ill effects were felt by either diver and the diver's drysuit and undersuit were subsequently dried before the next dive. On the boat, it was determined that the reason for the internal wrist seal not preventing water from entering the suit was the use of thin straws to allow equalisation of the suit gas to/from the dry glove system.

September 2022

22/071

A diver had completed a first dive on holiday to a maximum depth of 20m and a total duration of 44 min using nitrox 32, during which the diver felt that his inflation hose appeared to be sticking. During the surface interval, the diver mentioned this to the guide who examined the valve, said it was sticking and took it apart and advised the diver he had repaired it. After a surface interval of 137 min, the diver went out on the dive centre RHIB again for a 20 min boat ride to the dive site. The wind had picked up for the second dive and the sea was quite choppy. The diver began to feel seasick during the boat ride and this feeling worsened as they waited about half an hour for other divers to clear the water. Just before the dive, the buddy pairings were reorganised and the diver was advised that she was now in a group of three, not a pair. The dive guide said the diver should get in the water first as she wasn't feeling so well and checked the diver's equipment with

her and the diver, then entered the water to wait for the others. The diver waited in the water 5-10 min for all the other divers, she felt better and was happy to continue with the dive as the seasickness seemed to have passed. Half an hour of diving passed by without any issue, and the diver was enjoying the dive and admiring the great variety of fish they could see, and she kept nearby her buddies, who were both using cameras. Then at about 10m, the diver felt as though she was losing control of her buoyancy and tried to dump air using the inflator hose valve but this did not work and she began to ascend, lost control and ascended to the surface. The diver surfaced just the other side of the buoy from where they had descended, about equidistant from the boat. The diver shouted to the boat skipper that she was OK, swam to the boat, and removed her BCD, tank and weights but stayed in the water, floating on a lifebuoy as she had begun to feel sick again. The other divers began to surface approx. 10-15 min afterwards. Once aboard the boat, the dive guide checked the diver's dive computer and saw that she had not come up too quickly and there was no other issue to give concern regarding a DCI or other complication. The two divers that she had been diving with advised that they had not noticed her ascent and did not notice that she was missing from the group for approximately 10 min.

September 2022 **22/115**

A pair of divers ascended to 5m at the end of an uneventful dive, well within no decompression limits, to conduct a safety stop. One of the divers deployed a DSMB using their AS, which began to free flow. The diver checked their contents gauge and noticed it was noticeably reducing and showed it to the buddy, who then offered an AS, which the diver then switched to. Both then made a normal ascent to the surface. (Eire).

October 2022 **22/170**

A diver's dive computer failed while underwater. Diver switched to secondary means.

October 2022 **22/171**

A diver's dive computer flooded and failed while underwater. Diver switched to secondary means.

October 2022 **22/173**

A diver's dive computer failed while underwater. Diver switched to secondary means.

October 2022 **22/172**

A diver's dive computer failed while underwater. Diver switched to secondary means.

November 2022 **22/119**

A student was undertaking open water training during a dive to a maximum depth of 19m. Whilst conducting regulator removal and recovery, the regulator began to free flow. The diver then switched to their own AS. The buddy released their own AS and prepared to offer it to the diver, but the diver started to make a rapid ascent to the surface. The buddy ascended in a controlled but faster than normal ascent, omitting safety stops. The pair were recovered aboard their dive boat and placed on oxygen until both cylinders were empty. Both divers were monitored, and no symptoms of DCI developed. (Eire).

November 2022 **22/168**

During a training dive, a student's BCD failed at the inflation button connection and became detached from the BCD, resulting in total loss of buoyancy while conducting a simulated decompression stop at the end of the dive. The student was assisted to the surface and supported by the buddy using the fully inflated DSMB. Divers returned to the boat and isolated the equipment to be sent for checking.

Injury

January 2022 **22/145**

Diver lost buoyancy control during ascent while using a DSMB during a training dive as they became fixated on using the reel, resulting in them delaying dumping gas from their BCD. They made an ascent direct to the surface resulting in ear damage.

April 2022 **22/147**

During a forward roll entry, a student's BCD

inflation hose became detached from the BCD. The instructor made contact and ensured the student was buoyant at the surface. During this process, the student removed their regulator to talk and inhaled water. The dive was abandoned and a medical centre was contacted for advice.

May 2022

22/100

A diver was helping prepare a boat for launching and was using a knife to cut a tie wrap holding the trailer board. The knife slipped and ran across the diver's hand, making a deep cut in the left thumb. The cut was dressed to stem the blood flow, and the diver attended A&E for assessment. It was subsequently identified that the injury had cut a tendon, requiring surgery to re-attach. (Eire).

May 2022

22/098

A diver was preparing to dive and was lying down in around 1m depth of water. She reached down with her leg bent to fit her fin when she felt something tear in her knee. She aborted the dive and was assisted from the water and left to rest. It transpired that she had suffered the same problem previously and had medical investigations. It was understood that the diver needed a procedure to correct the problem. (Eire).

May 2022

22/099

A diver was returning to diving after some years. He was buddied with an active diver and the pair had descended to a maximum depth of 18m. When they commenced their ascent, the returning diver found the ascend hard going and had to fin hard and was gulping air while maintaining a correct ascent rate. As the pair reached their safety stop depth, the diver signalled to his buddy that he wanted to continue to the surface. On surfacing, the diver was quiet and then belched and felt better. It is believed the diver had gulped air into his stomach during ascent, which had subsequently expanded on ascent. The diver was found to be over-weighted, making it difficult for them to ascend. (Eire).

June 2022

22/033

A diver had completed a dive to a maximum depth

of 6m, with a total duration of 45 min. The diver was exiting onto a beach and went to climb some rocks when he lost his balance and injured his left ankle. On removing the diver's equipment, it was evident that the ankle was quite badly injured. The dive centre staff immediately called for an ambulance and assisted the diver to a comfortable position close to the water, and a lifeguard provided an umbrella to provide shade to the casualty. Approximately an hour after calling the ambulance, they arrived, placed the casualty on a spinal board and took him to the local hospital. Following examination, the diver was found to have fractured his tibia and fibula and underwent surgery.

June 2022

22/148

A diver failed to equalise the pressure in the diving mask, although he did clear the ears on descent. On arrival at their maximum depth of 20m, he stopped and felt discomfort, then remembered to equalise the mask. No redness or bruising of the eyes was noticed as the diver was wearing sunglasses just after completion of the dive. Later, when looking in a mirror, did he notice bruising and discolouration and reported it to the organiser. The diver was put on oxygen, and a medical centre was contacted for advice.

June 2022

22/104

During a lecture, one of the students was asked to lay on the ground for a role-play exercise. Once the exercise had finished, one of the assistants offered a hand to help the student up off the floor. The assistant was unaware that the student was still recovering from repair surgery on his wrist 12 weeks previous. The following day, the student noticed his wrist was painful and had decreased mobility. He contacted his diving officer and advised that surgery may be required subject to assessment. (Eire).

June 2022

22/105

While putting the trailer on a car for towing, the jockey wheel lost traction and the trailer fell, landing on the left big toe, resulting in a break. (Eire).

June 2022

22/157

When conducting a stride entry, a diver sustained a strain/injury resulting in severe bruising and swelling of their right leg. The diver sought medical advice and was suspended from diving and signed off work for 4 weeks.

July 2022

22/149

A trainee diver sustained sinus bleed during a dive to 18m. The diver sought medical advice and was advised to refrain from diving for 3 days.

July 2022

22/150

A trainee diver sustained an ear injury during a dive to 18m. The diver sought medical advice.

July 2022

22/151

A trainee diver sustained sinus bleed during a dive to 16m. The diver sought medical advice.

July 2022

22/109

A diver was using a new drysuit and the dive had progressed as normal until he lost control of his buoyancy at a depth of 11m. His buddy tried to assist the diver with his buoyancy but then lost control of his own buoyancy, and both divers made a rapid ascent direct to the surface. On the surface, both divers were initially fine, but then the buddy briefly lost consciousness for 30 sec. Both divers were recovered aboard the boat and placed on oxygen. The Coastguard was contacted on route back to harbour, and the group were met in the harbour by an ambulance crew, who took over control. The diver with the new drysuit was checked out and was passed fit to leave, the buddy was taken to hospital for observation and released the next day. (Eire).

July 2022

22/152

A trainee diver sustained sinus bleed during a dive to 17m. The diver sought medical advice.

July 2022

22/155

Two divers suffered from jellyfish stings during a dive. Both were given first aid treatment.

July 2022

22/153

A trainee diver sustained an ear injury during a dive to 18m. The diver sought medical advice.

July 2022

22/154

A trainee diver sustained an ear injury during a dive to 19m. The diver sought medical advice.

August 2022

22/160

A diver entered the water for a dive using a forward roll. The entry was not well executed, and the diver landed on their side, and water pressure caused ear pain. The diver was referred to a medical centre, who advised the diver to refrain from diving for 2 weeks.

August 2022

22/112

A pair of divers were at a depth of 25m following along a slope. One diver deployed a DSMB to allow the boat to track them and indicated to their buddy to ascend the slope to 20m. At that point, the buddy began to descend down a steep slope and was quickly lost from view. The lead diver knew the slope was steep at that point and did not know how deep the buddy was dropping and started to panic and decided to ascend to raise the alarm. Their ascent was rapid, and they called the boat over and reported what had happened. The diver was very worried and distressed about their buddy. However, the boat crew could see the buddy's bubbles, and as the bubbles were getting bigger, they reassured the diver the buddy was on their way back to the surface. The buddy, on seeing the signal to ascend to 20m, had dumped gas from their BCD but had released too much, which caused them to sink rapidly and lose sight of the other diver. They had descended to 30m before regaining their buoyancy control and had looked around but could not see the other diver. They initiated a separation procedure and ascended at 10m/min, omitting their safety stop. On recovery aboard the boat, they felt fine. Shortly after both divers were back aboard, the first diver was still very distressed and started to feel unwell and was placed on oxygen while the boat returned to shore. Once ashore, the diver was assessed and found to have symptoms of headache, nausea, rapid breathing, shock and

distress and tightening of the chest. The diver's computer recorded an average ascent rate of 14m/min. The diver was monitored and symptoms all started to ease, so oxygen was stopped after about 45 min. The diver was monitored throughout the rest of the day, with no further symptoms reported. (Eire).

September 2022 **22/164**

During descent on a dive, an instructor had difficulty maintaining a normal breathing rhythm and felt close to panic and stressed. The dive was aborted at a maximum depth of 3m, and the diver was advised to attend a medical centre to be checked over. The diver was found to be well and was advised to not dive the following day. The equipment was checked and no faults were identified that could have contributed to the problems.

September 2022 **22/113**

A diver had completed a dive without issue. On returning home and showering, they noticed some lines and purple marks across both upper arms and shoulders. They attributed this to suit squeeze, even though they had not noticed any squeeze during the dive. The diver went on oxygen for an hour and the marks stayed the same, with no pain or other symptoms of DCI. As a precaution, the diver took photographs of the marks and sent them to a diving doctor who confirmed it as suit squeeze. (related incident 22/114). (Eire).

September 2022 **22/114**

A diver was assisting with the recovery of an inflatable when they felt a pain in their back and so stopped lifting and went home to rest. The following morning, they were stiff and had breathing difficulties while showering. The diver was referred to A&E by their GP and underwent scans, X-ray, ECG and other tests, and due to previous diving and medical history (see incident no. 22/113), was being referred for recompression. Further discussion with a senior doctor put the cause down to intercostal muscle pain, and recompression was not indicated. After a day of rest and the diver was OK again. (Eire).

September 2022 **22/116**

An instructor was taking a student for their first boat dive with the sea state described as lumpy. They reached a maximum depth of 10m, and after 15 min, the student signalled that they were unwell. The instructor deployed a DSMB, and the pair ascended at a normal rate and omitted a safety stop. On surfacing, the instructor signalled to two snorkellers from their group who were nearby that the student was unwell. One of the snorkellers swam back to the boat and the other went to assist the instructor with the student, who was stable on the surface with an inflated BCD but feeling a bit queasy. On being assisted back to the boat, the student was able to get themselves back aboard and complained of feeling nauseous, possibly seasick, and was given a warm jacket. The student was feeling much better by the time the boat returned to harbour. (Eire).

September 2022 **22/162**

Following a diving trip, a diver reported ear pain and some loss of hearing. On consulting a medical centre, they were diagnosed with ear barotrauma.

October 2022 **22/169**

A diver entered water using a forward roll but went off course and caught his head on a rock, sustaining a small abrasion and swelling. The dive was aborted and the diver was advised to refrain from diving for the rest of the day.

October 2022 **22/163**

Following a dive, a diver reported a headache and did not complete the second dive. Sometime later, the diver reported that the headache was much worse. A medical centre was contacted for advice and the diver was taken to local hospital and assessed. Results of examination and tests showed as not being DCI and most likely to be dehydration, causing a migraine. The diver suspended from diving for rest of the trip.

October 2022 **22/175**

A diver was unable to clear their ears during descent at a depth of 3m and the dive was aborted.

October 2022

22/174

A diver complained of sinus pain and a headache following a dive. Suspected sinus barotrauma caused the headache.

October 2022

22/176

During a dive, a diver suffered minor pain and following the dive their hearing was reduced.

October 2022

22/082

A diver had completed a dive to a maximum depth of 12m for a total duration of 60 min without incident. About 60 min after surfacing, during a surface interval, the diver slipped on loose soil, falling and causing a slight fracture to a bone in her right wrist. The wrist was put in a cast and is expected to recover in a few weeks.

November 2022

22/118

A group had been undergoing snorkel training in a swimming pool, including breath hold exercises. Towards the end of the session, one of the group noticed another member in a sitting position in the corner of the deep end of the pool. Initially, it was thought that they might be practising breath holding, but then it was noticed he was tensed and starting to spasm. The observer immediately swam down and recovered him to the surface and swam him to the shallow end, where another member helped recover the unconscious casualty onto the pool deck. They were joined by an instructor and a pool lifeguard, and another lifeguard was sent for an AED and to call an ambulance. The casualty was rolled onto his side and checked for breathing, which was difficult due to the spasming and he had agonal breathing with his mouth closed. The casualty was then rolled onto his back and attempts were made to open the mouth to give rescue breaths, but he was still seizing and the mouth couldn't be opened. The lifeguard then checked for breathing, gave two rescue breaths and chest compressions were started. Shortly after, the casualty started breathing again, and after approximately 1 min, was fully conscious, breathing normally and talking. A doctor who had been swimming in another pool came along and advised raising the casualty's legs and administering oxygen, which

was done. An ambulance arrived and took the casualty to hospital for checks. He was released early the next morning and was expected to make a full recovery. (Eire).

November 2022

22/167

A diver reported ear pain post a dive to 6m during a training dive. He was assessed by medical staff and taken off the training course.

November 2022

22/177

Following a dive, a diver identified a rash on their arm and reported to a medical centre. The diver was advised that the rash was not diving related and they were able to continue their diving holiday.

History of previous UK diving fatalities

Year	Membership	BSAC	Non-BSAC
1965	6,813	3	-
1966	7,979	1	4
1967	8,350	1	6
1968	9,241	2	1
1969	11,299	2	8
1970	13,721	4	4
1971	14,898	0	4
1972	17,041	10	31
1973	19,332	9	20
1974	22,150	3	11
1975	23,204	2	-
1976	25,310	4	-
1977	25,342	3	-
1978	27,510	8	4
1979	30,579	5	8
1980	24,900	6	7
1981	27,834	5	7
1982	29,590	6	3
1983	32,177	7	2
1984	32,950	8	5
1985	34,861	8	6
1986	34,210	6	9
1987	34,500	6	2
1988	32,960	10	6
1989	34,422	4	8
1990	36,434	3	6
1991	43,475	8	9
1992	45,626	9	8
1993	50,722	3	6

Year	Membership	BSAC	Non-BSAC
1994	50,505	6	6
1995	52,364	9	9
1996	48,920	7	9
1997	48,412	4	12
1998	46,712	5	14
1999	46,682	9	8*
2000	41,692	7	10
2001	41,272	10	14
2002	39,960	3	7
2003	38,340	6	9
2004	37,153	4	18
2005	37,185	5	11
2006	35,422	4	11
2007	34,857	8	5
2008	34,325	6	5
2009	32,790	8	9
2010	32,229	7	7
2011	30,909	5	7
2012	29,632	9	7
2013	28,728	5	9
2014	28,375	5	11
2015	27,803	3	5
2016	27,346	5	7
2017	26,774	2	13
2018	26,717	8	9
2019	27,000	10	3
2020	21,594	2	4
2021	22,047	8	8
2022	22,540	0	6

**1999 figure corrected from 9 to 8 due to a double count discovered in 2010.
1998 figures onwards are calendar year figures; 1965 to 1998 are October 1st to September 30th figures.*

List of abbreviations used in this and previous incident reports

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



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