

# The world as it is

## British Sub-Aqua Club (BSAC) diving incidents report 2010

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### Summary of the 2010 report prepared by Colin Wilson

The BSAC has collated an annual report on diving incidents for over 20 years. This information is collected from voluntary incident reports by their membership and from a number of other sources.<sup>1,2</sup> Summaries for years 2005 to 2009 have been discussed previously in this journal.<sup>3</sup> The report primarily covers the United Kingdom (UK) incidents though there is a small overseas section of reports from BSAC members only.

There were 364 UK reports for 2010, below the 10-year average of about 400. The sources of information remain fairly consistent, giving some degree of confidence in assessing trends. As in previously discussed reports, there are limitations to the completeness of the data, though it is reasonable to accept the number of fatalities recorded as accurate. The decompression incident reports may not include patients who directly refer themselves to recompression facilities avoiding reporting by emergency services unless they submit a report themselves. There are an unchanged number of short reports from emergency agencies described as “*diver illness and injury*”, the bulk of which were probable cases of decompression illness (DCI). Three-quarters of the reports occurred in the northern hemisphere summer.

There continues to be a decline in ascent incidents (strongly associated with DCI) since their peak in 2006. This supports the benefit of strong campaigning and improved training of divers to pay more attention to their buoyancy. Depth of incidents ranged from the surface to a fatality at over 60 metres’ sea water (msw). In the UK, the Coastguard was involved in 235 (65%) of the diving incidents, 107 involved the Royal National Lifeboat Institute (RNLI) and helicopters dealt with 112. The RNLI are mainly tasked to assist disabled boats, search for missing divers and recover those with DCI. Helicopters also support these searches for missing divers and help to transport those with DCI to recompression facilities. This summary focuses mainly on fatalities and cases of DCI.

### Fatalities

With 17 recorded fatalities there has been a small rise in recorded diving deaths above the 15.8 10-year average. There are often multiple contributing factors and these are summarised as follows:

- three died of natural causes of whom two had heart attacks. Though data are insufficient, an additional two cases probably also had heart attacks;

- ten cases involved some kind of separation:
  - four were during the ascent;
  - two cases were diving with three or more divers;
  - two had difficulties during the dive and made solo ascents, one of these was diving to over 60 msw;
  - two divers had difficulties during the dive where separation occurred;
  - one became entangled in the shot line during ascent;
  - one was thought (wrongly) by his buddy to have aborted the dive;
- two cases involved a rapid ascent with probable barotrauma;
- two cases ran out of breathing gas;
- one case was a solo snorkel diver who was spear fishing.

The method of collecting this information means that defining the specific root cause from the chain of events can be difficult, unlike the more in-depth analysis carried out on Australian diving fatalities.<sup>4</sup> Over the last 14 years, deaths from divers using rebreathers have been over-represented, averaging 12.2% (range 0% to 33.3%) deaths. In this report for 2010, it was pleasing to see there were none. Increasing age carries more risks to divers with eight (47%) deaths over the age of 50. The average age of fatalities is 50.5 years, compared to an average diver age of 38 years in a recent BSAC survey.

From the fatalities section:

#### Case 1

*“After a training dive to a maximum depth of 10 msw for a duration of 55 min a group of four divers surfaced without problems after completing a safety stop. The group were approximately 15 msw from shore. One of the divers indicated that he had lost his weights. The lead diver told the others to return to shore and he would recover the weights. The lead diver descended to the seabed at a depth of approximately 2 msw and located the weights approximately 5–6 msw away. He recovered the weights and swam back along the seabed until in a depth of around 1.5 msw. At this point he came across one of the other divers on the seabed. The diver failed to respond to signals and was recovered to the surface where the lead diver signalled for assistance from the others. The casualty was recovered to the shore, his equipment removed and CPR conducted for 20–30 min until an ambulance arrived. The diver did not survive.”*

#### Case 2

*“After a 20-min dive to a wreck at 60 msw a diver surfaced rapidly and missed all required decompression stops. The*

skipper of the boat saw the diver come out of the water “like a torpedo” and then fall back face down in the water. The diver was then seen finning to try and get back down, he then raised an arm to signal distress and then went motionless. The skipper positioned his boat beside the diver, lowered the stern lift, with himself on it, and used the boathook to pull the diver alongside. The diver grabbed the lift handle and his grip couldn’t be released; this gave the skipper some difficulty in getting the diver onto the lift. The skipper cut off the diver’s equipment and began CPR. The Coastguard was contacted, a rescue helicopter was scrambled and the diver airlifted to hospital but he did not recover.”

### Decompression incidents (DCI)

In 2010, there were 105 cases of DCI in 98 reports. Apart from 2007, this is the lowest number recorded for 14 years. Where possible to elicit, the analyses of the causal factors associated with these incidents were:

- 29 repetitive diving;
- 23 rapid ascents;
- 18 diving deeper than 30 msw;
- 15 missed decompression.

This does not include reports from the RNLI of undefined “diver illness” where there may have been DCI.

From the DCI section:

#### Case 3

“A pair of divers were ascending after an uneventful wreck dive to a maximum depth of 36 msw. At the first of three decompression stops at 9 msw one of the divers kept turning away from his buddy where he would normally have made eye contact. Afterwards it was explained that his delayed SMB line kept pulling him round. After surfacing, the diver was very quiet and said he felt dizzy. His buddy instructed him to inflate his BCD more and go to the boat first. As the boat approached, the diver drifted past the tail lift and when doing so shook his head and went face down. His buddy swam after him and turned him over and pulled him to the tail lift. At this point the diver’s body had gone completely stiff which created great difficulty in recovering the diver onto the lift. The skipper of the boat and the buddy managed to get the diver onto the lift and recovered into the boat. The buddy was then recovered into the boat and given the oxygen kit by the skipper who then alerted the Coastguard. The skipper had to recover other divers who were surfacing. The buddy started to administer oxygen to the troubled diver but it became apparent that resuscitation was required and the buddy started to administer CPR. CPR was successful and the diver was airlifted to a recompression chamber where he was recompressed and, within 3 hours, was able to stand and reported feeling normal.”

#### Case 4

“Prior to a dive, a diver felt sick due to the rough surface conditions. Once on site, he wanted to get in the water as quickly as possible in the hope he would feel better in the water. Underwater, the feeling of sickness eased slightly but

the diver was not enjoying the dive. Despite his discomfort he continued with the dive because it counted towards his speciality training. At the end of the bottom time the diver deployed a delayed SMB with some difficulties which he resolved. During the ascent, at a depth of 5 msw, his computer was indicating 6 min of decompression stops. The diver was diving with nitrox 32 and should not have required stops. Due to feeling unwell he surfaced and missed decompression stops. Once back on the boat, the diver collapsed and could not feel his fingers and toes. He was placed on oxygen and airlifted for recompression treatment.”

From the Technique Incidents section the following case demonstrates a near-miss situation:

#### Case 5

“Two pairs of divers were to dive from a boat. After the first pair of divers had entered the water the second pair began kitting up. One of the divers discovered that his side-slung decompression cylinder containing nitrox 80 was missing and a similar cylinder containing air remained in the boat. This meant that one of the first pair of divers had unknowingly taken the decompression mix on a dive to 33m. The dive manager deployed a thunderflash to recall the divers. The first pair surfaced having reached a maximum depth of 25 m. The divers were recovered to the boat and the incorrect cylinder identified. The diver confirmed that he had not breathed from it.”

It is heartening to see that the incidents of DCI appear to continue to fall, though avoidable errors still occur. The lessons from previous reports appear to have been learned. Brian Cumming and the BSAC team’s efforts producing these reports are again commended and should be digested by all divers, diver educators and diving physicians.

### References

- 1 BSAC diving incident report archive 1980 to 1999. Available from <<http://www.bsac.com/page.asp?section=2619&sectionTitle=Diving+Incident+Report+Archive>>.
- 2 BSAC annual diving incident report 2000 to 2009. Available from <<http://www.bsac.com/page.asp?section=1038>>.
- 3 Wilson CM. British Sub-Aqua Club (BSAC) diving incident report 2009. *Diving Hyperb Med.* 2011;41:36-7.
- 4 Lippman J, Walker D, Lawrence CL, Fock A, Wodack T, Jamieson S. Provisional report on diving-related fatalities in Australian waters 2006. *Diving Hyperb Med.* 2011;41:70-84.

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### Key words

Recreational diving, accidents, diving deaths, abstracts