

# DIVING INCIDENTS REPORT

Tim Parish - NDC Incidents Adviser

"Good Morning and welcome to the 1993 Incidents Report. For the next 25 minutes I intend to take you through a quick statistical analysis of the incidents in general, then move on to some of the more serious categories of diving incidents and finally to highlight some notable features and trends. The Incident year runs from October to the following September inclusive, in order that we can prepare the report for DOC each year. During this period for 1992/1993 we estimate that roughly 1,750,000 man-dives have been carried out, 250,000 more than in 1992.

This year has been a good one for the Incident Reporting Scheme, with 363 reports received, covering 263 incidents. This is the first for many years in which we have received reports from all our major data sources, and better reporting is the main reason that the number of incidents appears to have grown somewhat, when comparing this year's 263 incidents to last year's 149.

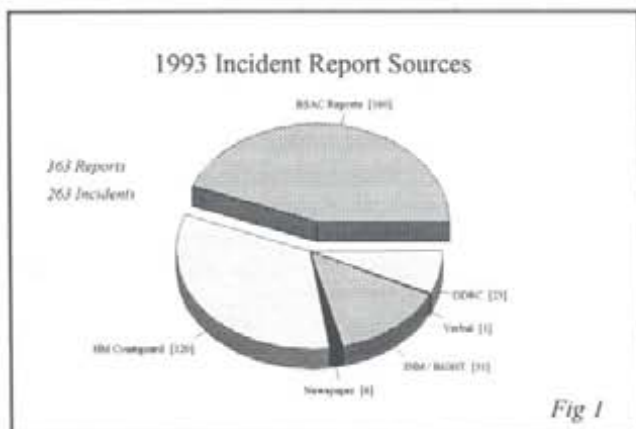


Fig 1

As can be seen from this slide, I received 160 Incident Reports from members or branches, 120 from HM Coastguard, 6 via the Newspaper clippings service, 51 from the Institute of Naval Medicine - who maintain the data for the British Isles Group of Hyperbaric Therapists, 1 verbal report and 25 from the Diving Diseases Research Centre. I would like to extend my thanks to all those people for supplying me with the information.

As you can see, BSAC Incident Reports form just 60% of the actual incidents recorded this year. While this is an improvement on previous years I would still like to see more reporting. I know many BSAC members have been involved in incidents, via the other data sources, but have not received any reports from them. As approximately 75% of the divers in the country are members of the BSAC it would be nice to see the number of Incident Reports approaching that figure. Surely its not too much to ask that all members involved in incidents allow others to learn from their experiences - if we all keep everything secret no-one learns anything.

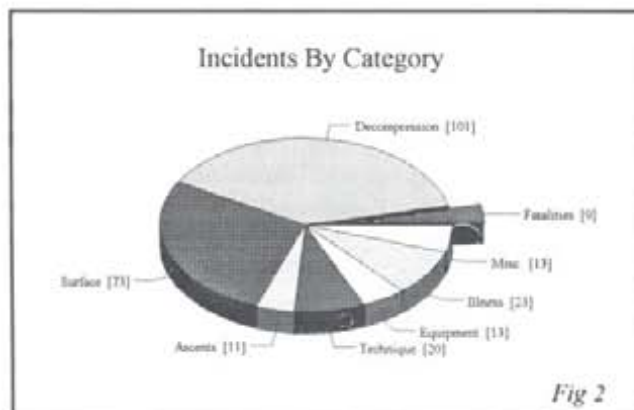


Fig 2

The 263 incidents from this year have been analysed and broken down into the usual eight categories, dependent upon their main cause or effect, as shown on this slide.

Working anti-clockwise and starting with the cut slice:-

- 9 incidents resulted in fatalities,
- 101 were classified as decompression incidents,
- 73 involved either boats or divers on the surface,
- 11 were ascent problems,
- 20 involved diving technique problems,
- 13 equipment problems, mostly free-flows,
- 23 non-decompression related illness or physical injury,
- 13 miscellaneous, which this year includes exploding torches, arguments with the Royal Navy and the like.

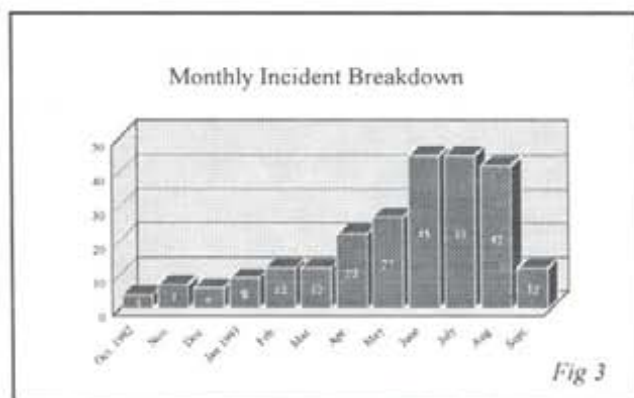


Fig 3

The pattern of incident occurrence this year has followed the general pattern seen every year, roughly profiling the main diving season, although the higher sample size and accuracy of this year's report has smoothed out the summer slope, or should it be slump. As you can see the winter period shows a much reduced number of incidents, increasing towards Spring as divers work off the Xmas pudding and dust off their equipment ready for the new season. April and May are traditionally the start of the diving season and we see a corresponding jump in the number of incidents, the majority of these occurring over the Bank Holiday weekends in these months.

The summer diving holiday season, of June, July and August, sees the majority of incidents with this year June and July sharing 45 each and August trailing in third place with 42. September is always low, partly because most divers are winding down and partly because we can only include September incidents reported by October 31st. Even though the number of incidents is higher than last year the profile is remarkably consistent.

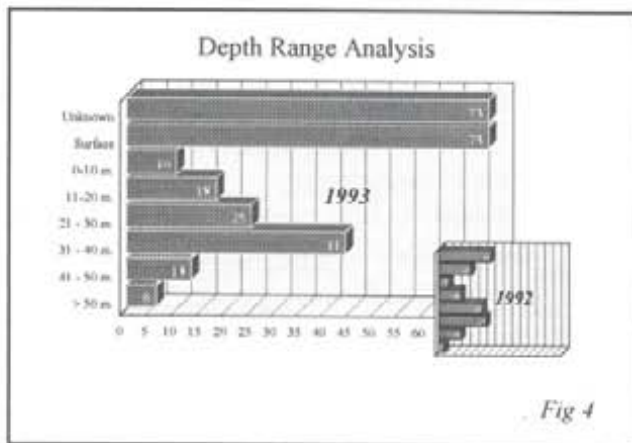


Fig 4

Depth continues to be an increasing factor in the more serious incidents reported. An analysis of depths recorded on incident reports shows the following profile:

Depth Unknown:	73
Surface:	73
1-10m:	10
11-20m:	18
21-30m:	25
31-40m:	44
41-50m:	13
>50m:	6

This year sees a continuation of the trend towards the majority of incidents occurring at deeper depths, which I highlighted last year. The profile shown in this graph peaks in the 31-40m. depth range, indicating the trend towards deeper 'average' club dives. Compare the shape (rather than the numbers) of this year's graph against that for last year. Ignoring the two top rows you can see the increased angle of the curve towards the 'peak' depth range of 31-40m.

When you consider that the 'unknown' figure includes several decompression incidents which were not reported through BSAC Incident Reports it is also reasonable to assume that the largest percentage of these incidents also probably occurred at over 30m.

The analysis of diver qualifications involved in incidents again roughly follows the spread of members at that qualification level, although, unfortunately the zero incident rate amongst trainees of the past two years has not been repeated. First Class divers have also lost their perfect record of last year with 5 incidents in 1993.

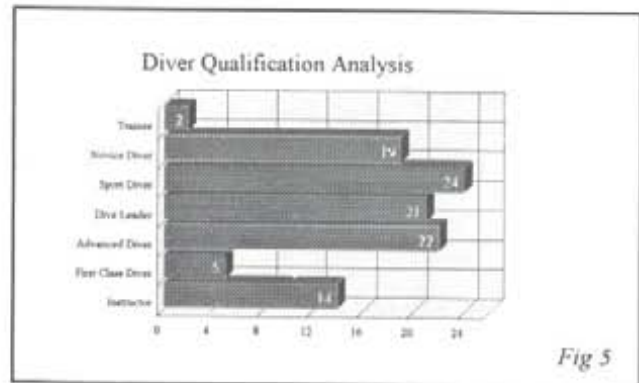


Fig 5

Sports Diver continues to be the grade which appears more incident prone than others, although this year Dive Leader and Advanced Diver are fairly close behind. This particular analysis is always influenced by the number of members holding each grade, and the reduction of the number of Sport Diver incidents is reflected by the relative reduction in the number of Sport Divers in the BSAC. The revised training scheme appears to have removed the blockage that existed at the Sport Diver/Dive Leader level.

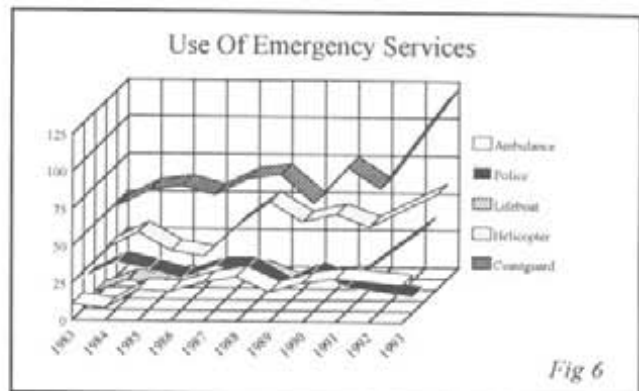


Fig 6

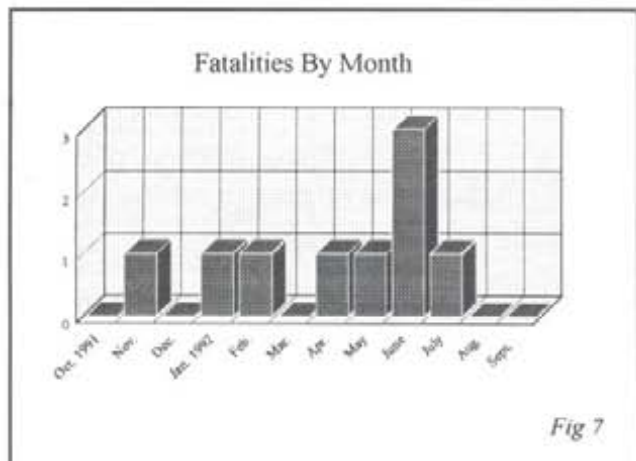
The suspicions I voiced last year, regarding the apparent drop in the use of emergency services, appears to have been well founded. The figures for Coastguard, Lifeboat and Helicopter started to fall in 1991, coinciding with a lack of data from HM Coastguard. That problem has now been resolved and HM Coastguard now have a permanent Sport Diver Liaison Officer, who is a diver himself. This has resulted in accurate details being supplied and a rapid rise in the numbers for the use of Coastguard, Helicopter and Lifeboat facilities.

The actual figures recorded this year were:

Ambulance	25
Police	10
Lifeboat	49
Helicopter	64
Coastguard	120

Comparative data in this area, as in many others, is printed on the back page of this year's incident report.

That's the end of the general analyses I'm going to present to you this morning, what I intend to do now is to look through the more serious incidents in more detail, starting with the fatalities.



My D.O. often thinks that I don't know what day it is, judging from this slide it is evident that occasionally I don't even know what year it is! The dates shown in October and January should read 1992 and 1993 respectively.

There have been 9 fatalities this year, just over half the amount of the last two years, so the news in general is good. Of these nine fatalities only 3 were actually members of the BSAC. Analysing the fatalities by month once again shows the common pattern, following the diving season fairly accurately, with the peak (3 deaths) occurring in June.

There have been several important results from two of this year's fatalities.

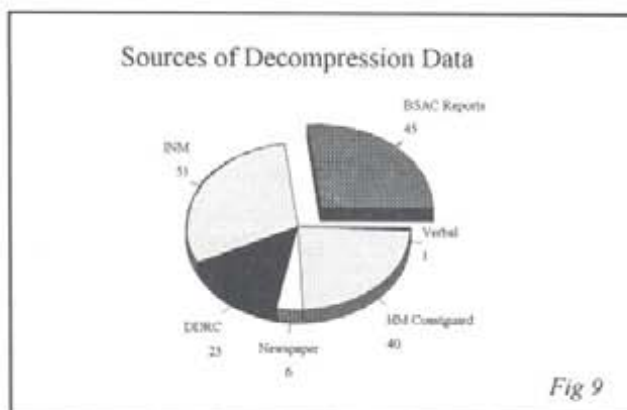
One of the fatalities earlier in the year involved a member of the public attending an 'Introduction to Diving' Course organised by a BSAC Branch. The man falsely signed himself as fit to dive and later had a heart attack in the pool. He had suffered two heart attacks and a triple by-pass operation within the previous two years, was overweight and a heavy smoker! The branch involved was found to be blameless in the incident - in fact they were praised for their attempts to resuscitate the man. However, if that particular club had not 'done things by the book' and no declaration of fitness had been signed, the story may well have been different.

The Coroner's Inquest on another fatality, off Chesil Cove in April, returned a verdict of 'Lack Of Care' against the school under which she was receiving tuition. This verdict opens up that school or instructor to punitive damages claims from both relatives and dependants and is the first time such a verdict has been reached in a diving fatality. Should that verdict start an increasing trend it is important to remember that the branch officers are responsible for the safety of their branch members.

Currently the BSAC's third party insurance would cover you if you had the misfortune to get involved in such a claim - provided that all recommended procedures had been followed. That includes the checking of medical certificates, reporting of incidents, staying within the recommendations of the BSAC as regards depth and ensuring that you cannot be said to have been negligent in your 'Duty Of Care'. NDC and Council will be watching this area with carefully in the future.

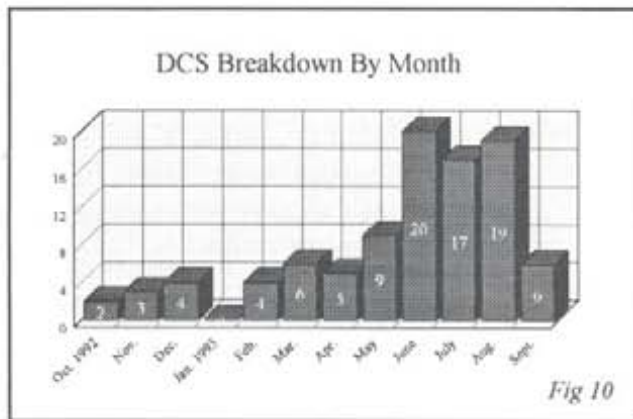


An historical analysis of fatalities when compared to BSAC membership is shown on this slide, BSAC fatalities are shown in red, the total number of fatalities in green and BSAC membership, x 1000, is shown in yellow. This year's membership figures at the time of preparing the report were 50,722. The relative steepness of the yellow parts of the graph give you a indication of the speed with which our membership, and the sport in general, has grown over the past few years. This helps to put the number of fatalities into perspective and shows that this years figures are a great improvement, particularly when compared to the previous two years.

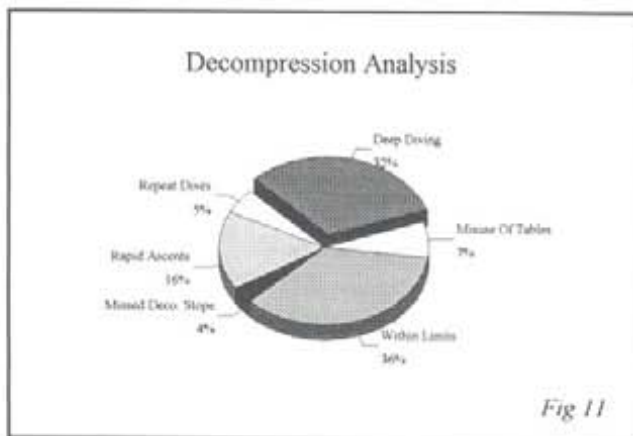


With data from the INM, BIGHT, DDRC and HM Coastguard our picture of decompression incidents is exceptionally good this year, with 168 reports covering 101 cases where recompression was required. The analysis shown in this slide is particularly disappointing. As you can see, BSAC Incident Reports actually account for less than 45% of the incidents that occurred. It would still appear that a minority of divers feel that there is some sort of stigma attached to getting 'bent'. I hope that this will improve over the next few years, as that minority of divers become better educated.

Looking at an analysis of when the decompression incidents have occurred it is fairly obvious, once again, that the bulk of incidents happen in the June, July and August period, with January this year being the only month in which no diver contracted a bend.



What is becoming noticeable is the increasing quantity of DCS incidents with neurological symptoms. I'm not sure whether this is as a result of better diagnosis or as a result of the trend towards deeper dives - however the more worrying aspect of this is the fact that approximately 10% of these leave the casualty with residual symptoms, ranging from sight defects to weakness in the limbs.

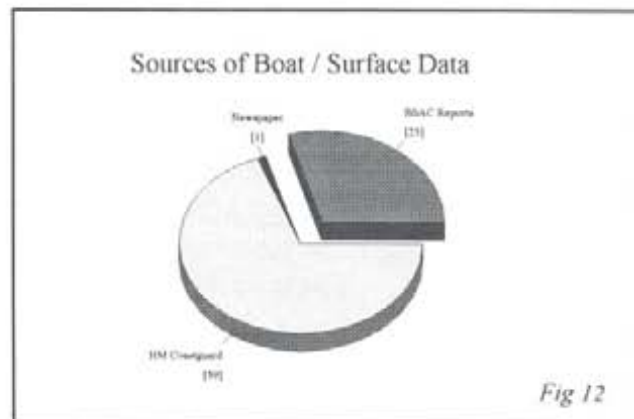


Analysis of factors involved in decompression incidents shows that little change has occurred over the past few years. Deep diving accounts for 32%, Repetitive dives over several days 5%, rapid ascents 16% missed stops 4% and misuse of either tables or computers accounts for the final 7%.

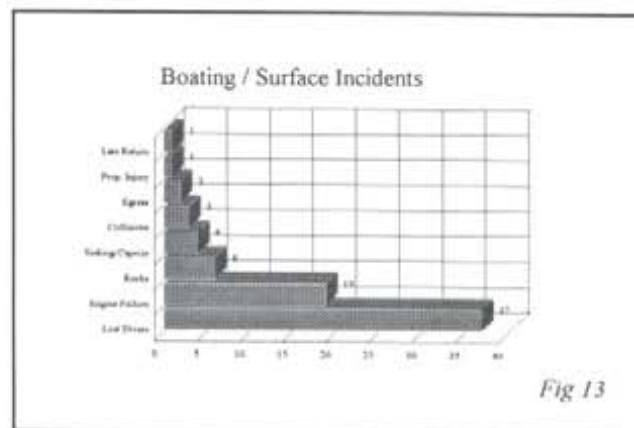
Despite the advent of better decompression tables and dive computers 36% of these incidents are 'within' the limits of those tables or computers, over the past few years this figure has hovered around the 40% mark. While some of the victims of such incidents have later been proved to have had a PFO it is unsure as to whether that was the cause of the incident or not, and many have not had PFO's.

It is obvious that some of the known factors such as dehydration, excessive tiredness etc. are still playing their part in decompression incidents, Unlike a PFO these are factors can all be recognised by a diver prior to the dive - so why aren't they taken heed of?

This year, with the inclusion of the data from HM Coastguard, the number of boating or surface incidents has increased dramatically, with 73 incidents being recorded this year.



BSAC Incident Reports made up less than 35% of the total reports, a sad reflection on the importance with which this type of incident is treated by divers.



An analysis of the type of surface incident is quite interesting, with 6 incidents of boats or divers being dashed into rocks, 19 engine failures and worst of all, a three-fold increase in the number of lost divers over last year. 37 incidents where searches had to be mounted for divers lost on the surface by their cover boat, most involving the launch of a Lifeboat and a Search and Rescue helicopter.

I have discussed these figures with concerned Coastguard officials at Local Search and Rescue committees in both Dorset and Devon & Cornwall. They are fairly convinced that most of these are non-BSAC members, but let's not forget, as far as the press, public and legislation is concerned a diver is a diver - whether he is a BSAC member or not. We need to ensure that this type of incident is a rarity.

During this morning's presentation I have alluded to two growing trends which I think we all need to address. The first of these is the fact that all the evidence points to the average branch's average dive now being deeper than it was a few years ago. There are several things that we, as Diving Officer's and Instructors, need to remind ourselves of and pass on to those under our care and guidance. When carrying out a deep dive:

1. Ensure that the dive is planned thoroughly and that both divers and the Dive Marshall know what should be happening.
2. Ensure that you have adequate air supplies for the dive you are planning.
3. Use a redundant air supply - on a deep dive a separate cylinder / regulator combination should be given serious consideration.
4. Use the shot-line for ascents and decompression stops.
5. Use a weighted bottom line on deep wrecks to ensure your safe return to the shot line
6. The skills required to carry out a deep dive should be gained via extra training, followed by the gradual assimilation of experience.
7. Always carry out 'build up' dives to increase the resistance to narcosis.

The second trend is that of missing divers. A lost diver is not only expensive for rescue services but is potentially fatal for the divers that are left floating around in the sea. The main things I'd like you to take back with you are the importance of:

1. Using SMB's whenever safe to do so, particularly on every drift dive.
2. Keep the cover boat between the divers and the sun - there are regular cases where the diver surfaces within sight of the boat but can't be seen because of reflected glare.
3. Ensure that the divers drift with the current and don't swim across or against it.

4. Be careful how many pairs of divers are put into the water at any one time, limit it to the number you can keep in sight at any one time.
5. Pay attention while in the cover boat and, if one pair is moving in a different direction to the others, don't be afraid of recalling them.
6. Ensure that you are carrying a VHF radio in the boat and, if the worst happens, notify the Coastguard.



I've mentioned many things this morning, but the most important thing to remember is that we, like a doctor or a nurse, have a 'Duty of Care'. All our students and branch members, or most of them anyway, put their trust in us to teach them to dive safely and competently. When we go diving we all trust that, if anything happens to us underwater, our buddy will be able to assist us and ensure our safety. Even if we can do nothing else right, let's ensure that we **KEEP THAT TRUST**.

"Thank you for your attention."

## BSAC SAFETY AWARDS

Tim Parish then introduced the BSAC Safety Awards and Tony Hoile, the National Diving Officer, made the presentations.

"Not all incidents are tales of woe and misfortune. One of the more pleasant sides of doing this job is the annual presentations of Safety Awards.

There are no BSAC Safety Awards this year, but there some Alan Broadhurst Certificates. These are awarded for good diving practice during a diving incident.

During a wreck dive off Littlehampton, this year, a diver had difficulty ascending the shotline. At 10m, he found he could get no further and then he ran out of air. His buddy started to share air with him from an alternative air source but difficulties arose and the diver lost consciousness. The buddy dumped the casualty's weightbelt - but he stayed where he was. The buddy then operated the emergency inflation cylinder on the casualty's BC and still he did not ascend. Luckily, another diver coming down the shotline, realised there was a problem and came across to assist. He put his alternative air source into the casualty's mouth and then felt around his kit and found a thin cord wrapped around the casualty's pressure gauge and leading down to the wreck. He cut this line and the casualty and his buddy both shot to the surface. After 2 breaths of EAV, the casualty started breathing again.

For his part in that rescue, an **Alan Broadhurst Certificate** goes to **Derek Parry** of Cosmos Sub-Aqua Club.

In April this year, 2 divers were diving a wreck off Torbay. At the end of the dive, they returned to the shotline to find that it had dropped off the wreck and into the darkness beyond. One diver went down to ensure that the shot was free and got himself entangled in polypropylene rope. His buddy, realising that something was wrong, went to assist. Due to the casualty's struggling and the amount of rope, both casualty and buddy lost their DVs and masks several times. It took some time to cut the casualty free - working in very poor visibility, with a struggling casualty and so much rope. Eventually, the casualty was freed and made a rapid ascent to the surface. Both divers were incapable of helping themselves on the surface and another diver was put into the water to de-kit the casualty and, with help from others in the hardboat, got him back on board. He was then looked after by another diver. The casualty made a full recovery.

For their parts in the rescue, **Alan Broadhurst Certificates** go to **Ron Moore** and **Fionna Borer**.

Alan Broadhurst Medals are very rarely awarded. They are reserved for a diving rescue where the rescuing diver shows great bravery and may put his/her life at risk in saving the life of another.

For his excellent work in extracting his buddy from the entangling ropes and getting him to the surface on the dive I have just described, I am especially proud to announce the award of an **Alan Broadhurst Medal** to **Tom Burton**."

The Full 1993 DIVING INCIDENTS REPORT is published as the Appendix to these Proceedings