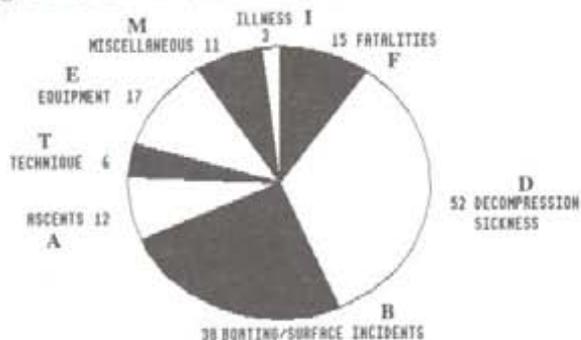


# DIVING INCIDENTS

## D. Shaw - NDC Incident Adviser

"Last year I classified all incidents under the eight categories shown in the 1986 Diving Incidents Breakdown (Fig. 1). As you can see, there were a total of 154 reported incidents compared to 165 last year. It is valid to compare 1985 and 1986, as the weather in the UK was of a similar poor standard. One can assume that the same amount of diving took place. The classification is not as simple as it appears, because the cause of a bend may well have been due to a rapid ascent, for instance, or a buoyant ascent may have been due to an aborted dive, in itself the result of a regulator malfunction, and so on. In all cases, I have taken the main outcome of the incident before classifying it into bends, ascents, equipment, etc.

Fig 1 1986 DIVING INCIDENTS BREAKDOWN



The 1986 Incidents Analysis (Fig. 2) shows the breakdown into our A to D classification. A similar pattern to last year has evolved, with an equal split between those incidents where injury or illness were caused and those of a more minor nature, or where people got away with it. There was one more fatality than in 1985, but of the 15 only 6 were BSAC members. Although even one death is too many, people ought to realise that the BSAC has approximately 70% of amateur divers as members, yet we only account for 40% of the deaths.

Fig 2 1986 INCIDENTS ANALYSIS

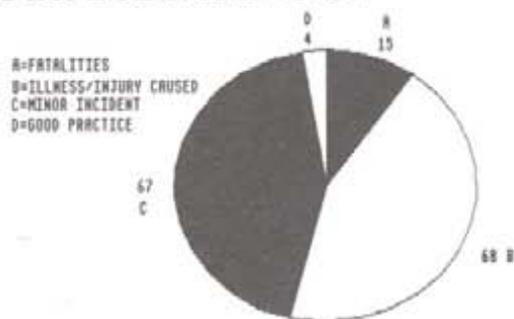


Fig. 3 shows a comparison of all incidents in 1985 and 1986. The letters along the bottom refer to incident categories (see Fig. 1) and the numbers up the side the actual total for each. As you can see the pattern is very similar.

Fig 3 INCIDENTS COMPARISON 1985/86

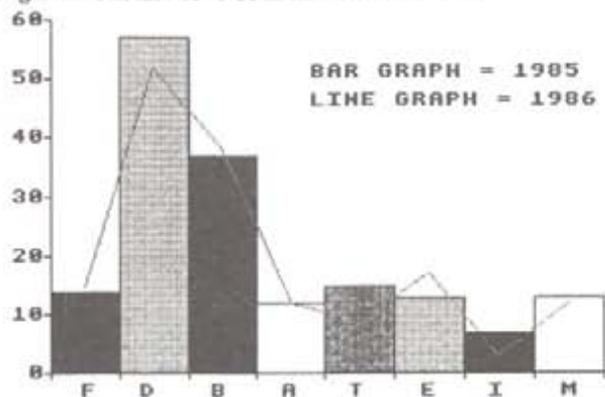
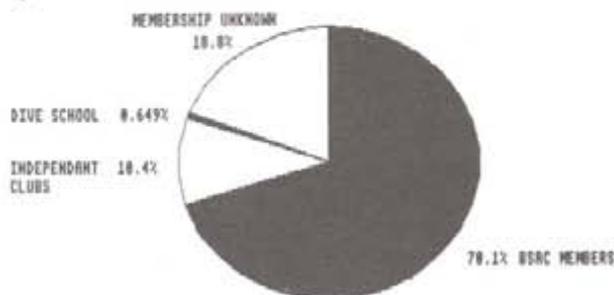
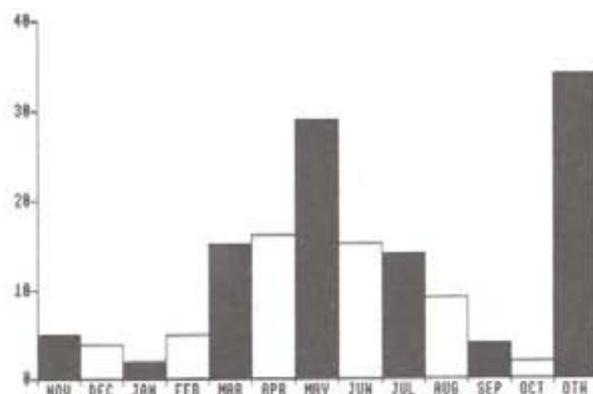


Fig 4 INCIDENTS BREAKDOWN



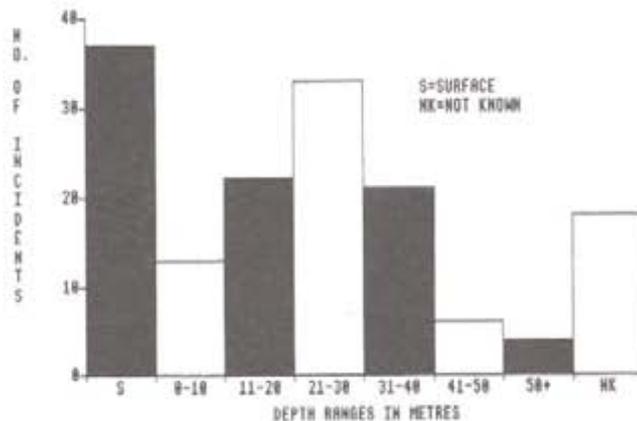
The Incidents Breakdown (Fig. 4) shows a breakdown by membership, and again shows an almost identical pattern to 1985, with 70% of the reports concerning BSAC members - you can count on one hand the number of reports we receive from non-members. We obviously hear of fatalities which occur to non-members and also receive Coastguard incident reports which sometimes identify membership.

Fig 5 1986 MONTHLY BREAKDOWN OF ALL INCIDENTS



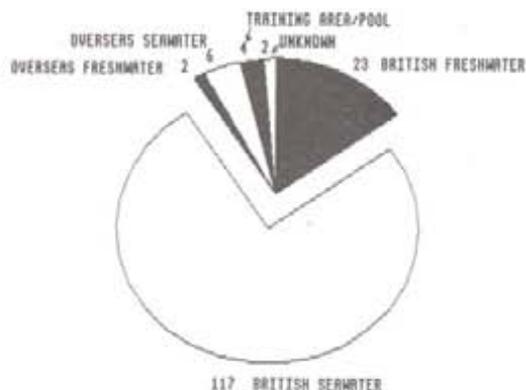
The 1986 Monthly Breakdown for all Incidents (Fig. 5) shows a predictable trend, with the usual upsurge in May when many divers 'come out of the cupboard'. There were a few more incidents in March and April this year, and less of a bulge in September.

Fig 6 1986 DEPTH RANGES AND INCIDENT OCCURRENCE



The 1986 Depth Danger and Incidents Occurrence (Fig. 6) shows, again, that the surface is the place you are most likely to be involved in an incident. The next most likely is if you are diving between 20 and 30 metres. This must reflect the amount of diving which takes place between these depths, as the more diving that takes place, the greater will be the number of incidents.

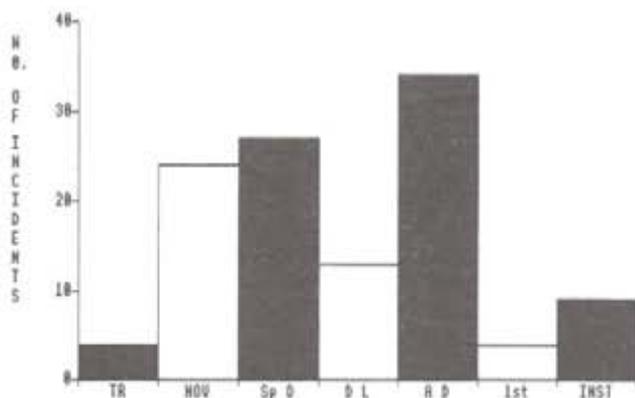
Fig 7 LOCATION OF INCIDENTS



The pattern of Location of Incidents (Fig. 7) again reflects the amount of diving taking place. As you can see, diving off the British Coast took the lion's share, followed by British freshwater. It is true to say, however, that our data capture for the less serious incidents isn't as effective for overseas Branches and there must be several that go unreported each year. The message must be that we would like to hear from you if there is anything to report.

The most popular locations for incidents again reflect the amount of diving which takes place. Scotland, apart from Scapa Flow, accounted for 15% of all incidents, while Devon and Cornwall accounted for 13%. Scapa Flow, arguably Britain's most popular deep water sea dive site, accounted for 10 reported incidents. There are some bends in Scapa which need to be added to the list, but so far we have had no details from the recompression chamber in Aberdeen. Scapa Flow knocked Stoney Cove into second place, as the single location with the greatest number of reported incidents. Swanage in Dorset had 8 incidents, three of them on the wreck of the 'Kyarra'. Once again, however, you need to appreciate the thousands of successful dives which took place, in these locations, before you form opinions about the notoriety of the site.

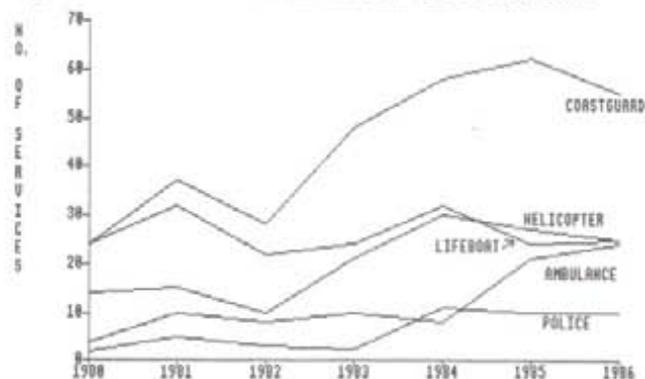
Fig 8 QUALIFICATION OF DIVERS (94 REPORTS)



The Qualification of Divers (Fig. 8) again shows that trainees are the safest people to dive with and Advanced Divers, again, the category with the greatest 'hit rate'. Before you go rushing off with the idea that the Advanced Divers in your Branch are risky people to be with, you must appreciate that there are probably more Advanced Divers taking part in 'serious' diving, in which the list of potential problems is greater. None of the fatalities involved an Advanced Diver and only 21% of the bends cases involved an Advanced Diver.

Divers' Use of Emergency Services (Fig. 9) shows a very similar trend to last year, with a slight drop in the number of incidents involving the Coastguard service.

Fig 9 DIVERS' USE OF EMERGENCY SERVICES



Having described briefly the overall patterns for the year it is time to reflect on the lessons to be learnt from this year's incident categories, starting with Fatalities - Monthly Breakdown (Fig. 10). As I said earlier, the total of amateur fatalities for 1986 reached 15, with six of these being BSAC members, compared to eight last year. Here you can see the pattern for the year, again one which is fairly predictable.

Fig 10 FATALITIES—MONTHLY BREAKDOWN

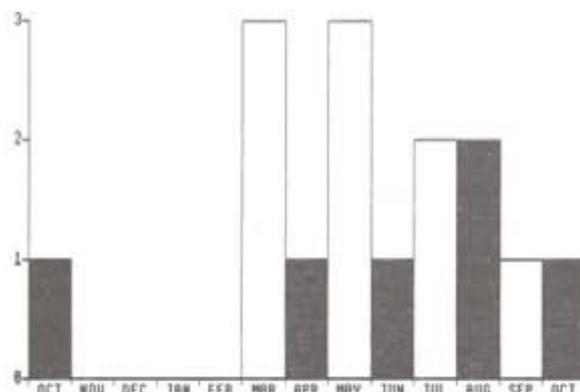
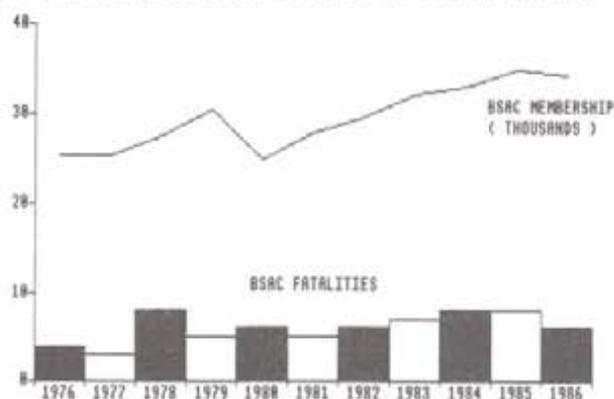


Fig. 11 shows BSAC fatalities against membership totals. It is estimated that BSAC divers complete 700,000 dives each year, so you had a 0.00086% chance of having a fatal accident whilst diving in 1986, which perhaps puts the figures into perspective. Of the BSAC deaths, one was a fatal heart attack which occurred in the boat after an uneventful dive, another involved a possible brain haemorrhage after a normal dive. While this information puts into perspective the deaths figures, there is no reason to be complacent, as the other four BSAC fatalities and some of the non-BSAC deaths, involved novice divers, either as the deceased or as the buddy. Poor dive management or practice was involved in all of these incidents. There is strong evidence in this year's analysis that novices are diving in conditions and to depths beyond their capabilities, with tragic results.

Fig 11 1976—1986 BSAC FATALITIES AND MEMBERSHIP



I would like to quote from a logbook entry, which says 'felt incredible to be actually diving at last.' The girl who wrote that, in April of this year, was dead two months later, the result of arguably the worst case of dive mismanagement and ultimate tragedy in 1986.

This dive involved two inexperienced female student divers, who had not dived below 20m, being paired together to dive a wreck at 32m. One of them had an 8 litre cylinder! They were given a reel to act as distance line from the shot, having used a similar reel before with difficulty. This dive plan was formulated only to satisfy the Dive Marshal, who wanted a dive with 'decompression' stops, and their's was the only possible pairing to allow him to do this. Before the dive they were reminded of the lecture they had received on Deep Diving, with all the extra precautions to be taken, and the fact that they 'were bound to be nervous down there.' After a short time into the dive, the two girls began to run short of air and in winding themselves back to the shot, became entangled in the distance line. They became further entangled in the shot line, were very short of air and eventually one of them inflated an ABLJ. They were found by another diver ascending up the shot after his dive, suspended and restrained by their tangled distance line at a depth of 15m. He cut them loose and at the surface one was dead and the other suffered an embolism. It is particularly heart breaking to read that logbook entry when you realise that such a needless death could have been easily avoided.

The dive clearly contravened all advice given in the Diving Manual or the 'Safe Diving Practices' booklet. Diving Officers and Dive Marshals must realise that what they are looking at in the 'Safe Diving' booklet is the nearest thing we have to a 'Diving Rulebook'. It is the one document that solicitors and barristers home in on when they want to know what the BSAC, as a governing body, recommend to be safe diving practices. The dive I have described clearly contravened the advice given in the section on buddy diving.

It is only fair to warn Diving Officers at this Conference, so that they may spread the word, that the BSAC will not protect any person who clearly does not follow our Safe Diving recommendations. To do so would completely undermine our credibility as the governing body. If you do not follow our advice you are on your own, either in a Coroner's Inquest or in court.

In another BSAC fatal incident, the deceased left this novice buddy, without warning and disappeared inside some wreckage at 38m! After waiting several minutes, the novice assumed that his buddy had exited elsewhere and as he was short of bottom time, surfaced. After another group of divers unsuccessfully searched the wrong site, the body was eventually found by a third group of divers. The message is very clear, take great care how and where novices dive.

In another fatality it was clear that the Dive Marshal did not know the diving experience of all on board their charter vessel, when the decision was taken to dive a 40m wreck - they had originally planned to dive to 20m. The diver who died on the subsequent dive had had virtually no experience in UK waters and only limited warm water experience.

Another message from this year's tragedies is that if a diver fails to surface there is not much point in sending for the Coastguard, firing a flare or waving down a passing yacht. If someone is trapped on wreckage the only people who can save them are divers, with air, who can descend immediately. Some evidence received this year indicates that people have not gone in to search as they were 'out of bottom time' or 'a little low on air.' In this situation, where your buddy's life is at stake, the last thing you should debate is the danger in picking up a bend. Worry about that later, you are the only person who can effect a rescue.

The importance of medical screening was highlighted in the death of a deaf and dumb diver who was taken on a night dive, in a trio, with only two torches between them. The deceased was carrying 18 kg of lead and was using a wet suit. During the latter part of the dive he got into difficulties. One of his

buddies inflated his own ABLJ and lost contact. The post mortem showed that the subject had suffered an asthmatic attack which probably accounted for his problems. He was a lapsed BSAC member who had developed asthma in recent years and had had no medical clearance, but there is some evidence that the other divers were not aware of this.

A diving tragedy in any club is very traumatic and leaves a lasting impression to all members. Families of those involved need all the support they can get and local Branches must rally round, if they are unfortunate enough to suffer such an event. In two of the BSAC fatalities this year, the support from the Branch has not been very forthcoming and both Mike Holbrook and myself have been involved with bereaved relatives following a death, because those involved at Branch level were not communicating. In one of these cases matters were made worse when the local newspaper mounted a crusading campaign against the Branch. In another tragedy, the diver who died was self employed with a wife and two children to support, and because this body had not been recovered, life insurance payment was being withheld. The family had difficulty establishing facts which would have helped their case and complained that no one was telling them anything.

This is not good enough. Families have the right to know the truth about what happened and the only ones who can give this are those who were involved in the dive. Unfortunately one cannot wake up one morning to find that all problems have gone away; responsibilities have to be faced. The public automatically think we have a court of enquiry following each diving death, perhaps on similar lines to when there is an air crash. Although BSAC Regional Coaches always get themselves involved with the Branch and sometimes the bereaved relatives, to date such an enquiry as outlined above has not been automatic. After this year's experiences we may have to think carefully about future procedures along these lines.

\* \* \*

If we now have a closer look at the other categories in the incident breakdown, and look first of all at incidents involving doubtful techniques, there are only six which I highlighted as technique problems in their own right. Having said that, one can analyse technique problems which made way for more serious results; for example rapid ascents, fatalities and bends. Overweighting is still a problem, as you will see as you go through the individual precis of reports starting on page 8. We would ask people to remember that ditching a weightbelt is still an effective way of achieving positive buoyancy.

Incidents which involved equipment include several high performance regulators going on 'free flow' while people were diving in low temperatures in last winter's cold spell. Modern equipment is very reliable if maintained correctly, and very few incidents occur where the equipment fails entirely. Several divers have not got the message, however, whilst using dry suits with attached close fitting hoods. 'Reversed' ears with this type of suit is something to beware of.

\* \* \*

Incident reports are not all gloom and doom and I occasionally get the diver with a real sense of humour. One which comes to mind, involving equipment, was a problem a neoprene dry suited diver encountered with an ageing zip, over two dives. On both dives the zip gave way and flooded the suit. I quote from his report:

Dive 1 "Besides the chill of intruding water the suit remained at least as effective as a standard wet suit. Had this occurred with a membrane drysuit this report would have been a lot shorter i.e. Zip burst—dive aborted."

Having gone through this experience, our hero was not easily put off and having mended his zip, went on a later dive.

Dive 2 "Again it went as I descended the shot line but on this occasion it opened for a greater distance at the opposite end. I concluded that the zip was well and truly knackered."

Having again completed his dive with a flooded suit, our intrepid diver encountered problems regaining access to the boat when his open zip acted as a scoop for water. He realised that, the poorer the suit's fit, the more water it contains and the harder it is to get into the boat. He concluded that this problem is:

"Simply resolved once in the boat if you are fortunate enough to have a couple of gorillas in your surface support team who are capable of picking you up by the ankles and shaking the water out."

\* \* \*

Boating and surface incidents continue in number two category, in terms of numbers of incidents. Apart from the usual capsizing occurrences in yet another summer affected by high winds, there have been two incidents where divers have been chopped by an outboard propeller.

As you read the printed reports, you will notice references where the Coastguard has been critical of divers/boat skippers not raising the alarm soon enough. No one likes the embarrassment of initiating a search and rescue, but in many cases an early alarm call will save many hours of searching. In one of these incidents, the diver himself, phoned the Coastguard to say he was OK having been swept ashore losing contact with the charter vessel. This was the first time the Coastguard knew that anything was amiss. The Coastguard was highly critical of the charter vessel skipper in not raising the alarm sooner.

This is not the only example of your need to take care in your choice of skipper when chartering a vessel for diving purposes. A charter skipper had an involvement in one of this year's fatalities, when he persuaded the dive marshal of a group to have their second dive on a 40m wreck, instead of one half that depth, because the latter would have meant a longer 'steam' in adverse tidal conditions. The boat had several novices on board, one of whom died on the resultant deep dive. A stronger-willed dive marshal, of course, would not have agreed such a plan. Another skipper gave decompression advice to a group who later exceeded their bottom times. It was later discovered that the skipper was using amended US Navy tables as the basis for his advice. One charter boat skipper, through reckless seamanship, managed to attempt to anchor his vessel up tide of a group who were diving a wreck, using inflatables. His boat drifted on to the anchored inflatables, snagged one of the diver's SMB, dragged him up and finally crushed the inflatables, ripping off one of the painters in the process. Unfortunately for him, his victims turned out to be a well-known Police Branch of the BSAC.

By far the worst 'skipper' incident, and one which nearly had tragic results, involved a pair of divers who were asked to clear the shot, being the last pair down. The wreck they were diving on was at 32m and one of the divers found the shot jammed in a narrow hole. After two attempts to free it he decided on one final effort. As he attempted this, the 25 kg shot flew up and hit him in the face shattering his mask. His face was badly cut and he had difficulty staying conscious. The skipper had switched on his power winch to free the shot! The diver's buddy was hanging on the line and was rapidly whisked upwards. The shot narrowly missed her on the way to the surface. The stricken diver made 12-15 attempts to surface but was caught in something he couldn't see. He finally reached the surface, only realising he was there when the red mist in his eyes became a lighter shade of pink. Both divers were treated for decompression sickness.

There's nothing like personal recommendations when choosing dive skippers. Others are to be avoided like the plague.

Finally on boating incidents, there has been a recent report of two divers being violently wound to the surface, by their SMB lines, by two aggressive fishermen who accused them of pot robbing. The divers became very entangled with their SMBs and were left to drift helplessly when the fishermen drove off in their boat.

Incidents on ascents without involvement in decompression sickness reached the same total as last year. There was one classic 'Incident Pit' situation when an attempted assisted ascent became a buoyant ascent, resulting in one of the divers becoming unconscious near the surface. This incident involved an SMB line tangling around the shotline, a regulator being on the wrong side for sharing and excessive breathholding. Much air was used on the dive trying to repair a faulty weightbelt clasp.

\* \* \*

Illness, apart from those cases which led to a death, continues to be a small section. The most unusual of the three reported involved a diver who became seriously ill after a dive in polluted water. He had a small cut in his lip and, it is believed, contracted an infection. He was in hospital for several days and at one time received intravenous penicillin.

While we are talking about illness I would like to bring in a personal note here and talk about irritation of skin moles and wetsuits. It is worth noting that in the last two years I have had two operations for cancer which originally developed after a mole on my hip was irritated by the inside stitched seam of my wet suit. This developed into what is medically known as 'malignant melanoma' and involved me in losing a large chunk of my hip and having to have a skin graft. I later had a second operation for a secondary tumour in my lymph gland.

I would not have thought it particularly significant for other divers, but I recently found out from my consultant that she has been dealing with another patient who developed a malignant melanoma, again possibly attributable to wearing a wet suit. The result of my experience was that several GPs in the Doncaster area were inundated by diving friends of mine, who all suddenly developed itching moles. Before GPs throughout the country have a similar experience, do not be alarmed. I mention this only to say that it is worth wearing a tee shirt or tights, if you have a mole anywhere on your body liable to irritation by a suit seam.

The Miscellaneous section contains four examples of good practice, ranging from the successful rescue of a Spanish diver from 15m, to a Branch co-operating with local police, in an overseas location, to search for a sunken speedboat and body.

\* \* \*

I have purposely left the subject of decompression sickness until last, as again it shows some interesting analyses. Dr Peter Wilmshurst, Medical Adviser on NDC, has been more successful in getting details from MOD chambers this year. It has certainly been a quieter year for bends from chamber evidence received with slightly fewer reported cases in 1986 than in 1985. Going on the number of reports received this year, you had a 0.007% chance of picking up a bend, although this figure is obviously much greater depending on the type of diving you practice. The pattern for the year showed the predictable rise at the beginning of the UK diving season, peaking in May and June. (Fig 12).

Fig 12 DECOMPRESSION SICKNESS MONTHLY BREAKDOWN

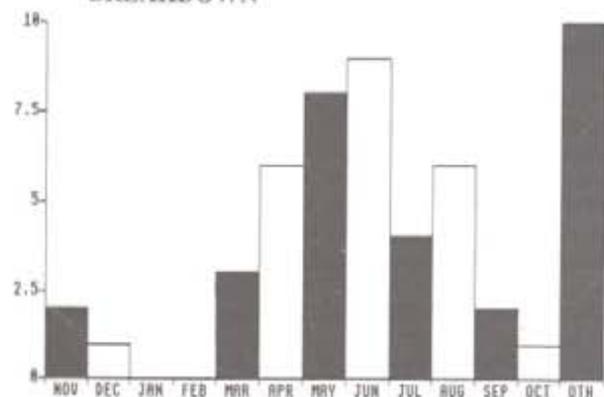
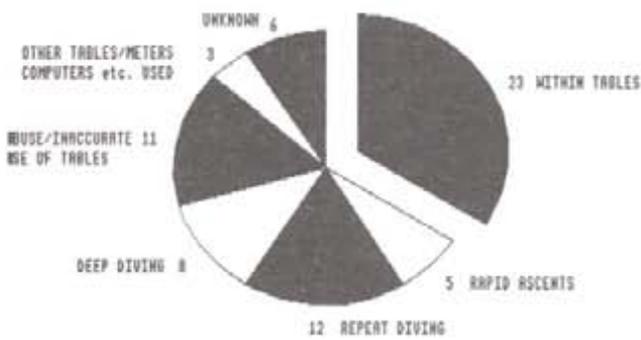


Fig 13 DECOMPRESSION SICKNESS ANALYSIS



Analysis shows a surprisingly (Fig 13) number of hits on dives within the tables. Several of these were embolisms which occurred with normal ascents. Although not always evident from reports, there is the suggestion that medical reasons, such as chest infections, may be contributory factors – another reason why it is unwise to dive after such complaints. Evidence from some reports suggests that too much repeat diving takes place early in the season when some divers are not fit to dive after the winter layoff. In some of the bends within the tables it is probable that we do not have enough dive detail and it may be that other factors are involved. In spite of this, it just proves again that no table gives absolute guarantees against bends.

We have a worry that divers still ascend too rapidly, although they would perhaps consider it normal practice. Those who have used decompression computers are all appreciative of the slow, controlled ascents which the machines teach you to adopt. A 10m per minute ascent rate, for the whole ascent, is essential while using a computer.

How many divers cannot control their buoyancy over the last critical 10m, and accelerate? One only has to witness popular dive sites and see how far out of the water some divers surface, many with quite full ABLJs, to realise that the final stages of many ascents are not controlled properly.

Other bends, after seemingly innocent dives, are the results of nitrogen build up after a protracted period of diving. Locations like Scapa Flow, where there is the ideal opportunity for two 30m+ dives per day, have highlighted this possibility. Our current table was never designed to be a repeat diving table and the somewhat arbitrary way in which we calculate repeat dives is a compromise. Nitrogen accumulation does not mysteriously disappear with a few hours sleep at night and those

groups who dive close to the tables or with stage decompression stops are proving this with a few unexplained bends. Late nights and alcohol abuse are also contributory factors.

Deep diving beyond 40m accounted for only 8 of reported bends and repeat diving another 12. We still hear of reports of divers being treated and receiving no further information. Events at Scapa Flow attracted the attention of the National Press and TV and yet I received very few reports following such incidents. As far as the BSAC is concerned, in terms of reaction and action to be taken, if we have not had a report, they have not happened.

Finally in this report, I need to talk a little about crocodiles. At least one of our African Branches loses the occasional diver to crocodiles, usually when swimming in restricted visibility and engaged in spearfishing – the blood and entrails may have something to do with aggressive crocs. We were asked for advice on how to avoid such occurrences and as crocodiles are not a problem in the canals and rivers of South Yorkshire, I knew I would have to do some research.

Crocodiles affecting diving areas can roughly be split into two species. The salt water or estuarine crocodiles which inhabit the tropical waters of Northern and Eastern Australia and Indonesia are now a protected species in some areas, because man picks on them more than they on us. As some of you know, I am a keen marine biologist and it will come as no surprise that I have found that the salt water croc comes in two sizes, big ones and whoppers. Their length can exceed 6m and they are definitely to be given a wide berth.

The Nile crocodile is the type that causes problems for our spearfishing divers and they have rather nasty eating habits. They lie in wait for their prey at waterholes, drag their victims underwater to drown and then drag the carcass to their riverbank larder to hang for a while, before eating. Sometimes they pick on the wrong animal. One surprised croc found itself dangling 5m in the air when it grabbed the head of a drinking giraffe. Another was recorded as mistakenly grabbing the leg of a bull elephant when the latter went for a drink. The elephant, who was somewhat niggled at this interruption, dragged the croc out of the water to allow his wife to splat it by stamping with her forelegs. The enraged tusker then threw the croc several metres into the branches of a nearby tree. They don't always get it their own way – perhaps we should teach elephants to dive and act as a crocodile deterrent.

That concludes my report and I would like to thank you all for listening and hope that much of what I have said is thought provoking. I would also like to thank all those who sent in reports in 1986 and hope none of you has to send any in 1987."

## APPENDIX 1

## INCIDENTS

Incidents have been grouped according to type under eight categories:

**Fatalities, Decompression Sickness, Ascents, Boating/Surface Incidents, Technique, Equipment, Illness and a Miscellaneous Section containing False Alarms, Net Entanglement, Ear Problems, etc.**

The nature of many diving incidents, of course, involves an 'Incident Pit' situation with more than one cause. A bend may have been the result of a buoyant ascent which may, in turn,

have been the result of a regulator malfunction. In this example you will find the incident listed under 'Decompression Sickness'.

Each report has a date listed, together with its reference number. The depth is given in the report, only when it is relevant, as is other information such as qualification of the diver, location, etc. The only 'Letter Code' attached to each incident report, relates to membership:

**B = BSAC Member. I = Member of Independent Club or Non-BSAC Diver. U = Membership unknown.**

### FATALITIES

**16/86 Oct., 1985. FATALITY.** In swimming pool when BSAC members, involved with a Local Authority snorkelling course, had a member who suffered a massive heart attack. Absence of any medical screening, prior to the course. **I.**

**44/86 March, 1986. FATALITY.** When a novice in a trio ran out of air while under ice WITHOUT ROPES. Attempted to share but panicked, became separated and was lost. Body recovered shortly afterwards. **I.**

**47/86 March, 1986. FATALITY.** In the swimming pool when the subject was taking part in rescue lift training. **I.**

**63/86 May, 1986. FATALITY.** In 2m of water when completely untrained diver drowned in surf, while supposedly testing equipment. Subject was knocked over by a wave while 'ducking' his head underwater. **I.**

**65/86 April, 1986. FATALITY.** After uneventful dive to 30m for 20 min in tropical waters. Subject collapsed on shotline at 3m on ascent. Brought to the surface but could not be revived. Illness involved and unusual dive practices not thought to be contributory. **B.**

**67/86 May, 1986. FATALITY.** Solo diver died while working on some moorings in 4m. Found not wearing lifejacket with cylinder waistband undone and with weightbelt undone but hooked over cylinder. Cylinder was 80% full. **I.**

**69/86 March, 1986. FATALITY.** After failed attempt at sharing after a dive to 20m. No further details. **I.**

**74/86 May, 1986. FATALITY.** 54 year old diver suffered a fatal heart attack in the dive boat, following an uneventful dive. **B.**

**80/86 June, 1986. FATALITY.** Two inexperienced divers were paired up to dive on a wreck at 34m. Neither had been below 22m before. They were using a distance line attached to the shotline and after a few minutes the leader became entangled in it. While they were untangling it the other diver ran out of air. While attempting to share, the leader became further entangled in the shotline. One of the lifejackets was inflated and both divers rose to about 15m when the line arrested their ascent. They were both found in this situation unconscious, by another diver, who cut them loose and rose with them to the surface. The leader was treated for an air embolism and the other diver was pronounced dead on the surface, by the time the helicopter arrived. **B.**

**119/86 July, 1986. FATALITY.** After novice diver became distressed on wreck dive in poor visibility at 34m. Subject was seen with arms 'flailing'. Buddy inflated his ABLJ and during the ascent let go. The deceased did not reach the surface. Wreck known to have nets and other obstructions on it. **B.**

**122/86 July, 1986. FATALITY.** After experienced diver left his inexperienced buddy and entered wreckage at 38m without a signal. Buddy waited several minutes outside and then surfaced, as he thought the deceased had left the wreckage by another exit and surfaced. When the body was found his depth gauge max. depth indicator read 46m. Earlier in the week the deceased had entered wreckage alone, for several minutes without his buddy knowing where he was. **B.**

**124/86 August, 1986. FATALITY.** When novice was taken to a wreck at 38m+. The dive boat skipper had persuaded them to dive this one, rather than a shallower wreck (20m) because it meant less of a steam against the tide!!! During their ascent something went wrong for the novice and he never surfaced. His buddy has little recollection of the events that occurred on the ascent. **B.**

**127/86 August, 1986. FATALITY.** When partly trained diver and his buddy dived in very rough seas against all advice. They had apparently tried several locations before finally diving from some rocks. The deceased was smashed against the rocks, became unconscious and drowned. **I.**

**140/86 Sept., 1986. FATALITY.** Involving deaf and dumb diver who went on a night dive to 20m in a trio, with a camera and only two torches between the three of them. Deceased had 18 kg. of lead on his weightbelt, using a wet suit!!! When he got into difficulties, his buddy(s) could not release his weightbelt or inflate his ABLJ. One of the buddies, inflated his own ABLJ but lost contact with the deceased.

The deceased was a lapsed BSAC member who had developed asthma in the last two years and the post mortem showed he had suffered an asthma attack. He had no diving medical clearance since he developed this complaint and his buddies did not know of it. The police diver who found the body with weightbelt attached, said that he simply "Flicked the buckle and it fell off." **I.**

**153/86 Sept., 1986. FATALITY.** After dive on a wreck 72m to the bottom and 63m to the top. The plan had been to descend together, as a buddy pair, go their separate ways with a distance line and meet at the bottom of the shot at the end of their dive. When the deceased's buddy reached the shot the

deceased had already ascended in order to decompress. The deceased was seen to 'arch backwards' from the decompression stop and sink. His buddy needed to complete a lengthy decompression schedule and had insufficient air to descend and attempt a rescue. The deceased was reported to be 'an experienced deep wreck diver'. **I.**

## DECOMPRESSION SICKNESS

**11/86 August, 1986.** Bend after a diver had repeatedly dived for flatfish using "2 cylinders of 95 cu ft and half of a 120 cu ft cylinder". Two other divers with him appeared unaffected. **U.**

**14/86 Sept., 1985.** Bend after dive to 45m for 17 mins. Divers did not tie off to shotline, lost it and had to undergo mid-water decompression which was difficult to control. Bend in the elbow. Diver had had such pains before but they had previously gone away. **B.**

**17/86 Oct., 1985.** Suspected pulmonary barotrauma after diver surfaced spitting blood from 12m dive with normal ascent. Had suffered a chest infection, in India, some months previously. **I.**

**20/86 July, 1985.** Bend and suspected embolism after dive from a charter vessel. Diver had gone back into water in an attempt to recompress. Taken to chamber by helicopter. Coastguard report only no further details. **U.**

**21/86 Oct., 1985.** Mild bend after dive to 34m. Faulty gauge gave reading 2m shallower than this. On ascent one of the divers experienced severe ear pain and had to descend again to relieve symptoms. No stop time had been exceeded at the start of ascent. Symptoms appeared about 45 mins. after surfacing. **I.**

**23/86 Oct., 1985.** Mild bend after dive to 25m for 29 min., followed 5 hrs. later by dive to same depth for 27 min. in overseas location. 10 mins. decompression at 3m carried out on the 2nd dive. Treated successfully with O<sub>2</sub> on the surface. Recompression not required. **B.**

**24/86 Nov., 1985.** Mild bend after training drill (Assisted Ascents) was complicated with a regulator malfunction and subsequent buoyant ascent. Further diving took the profile beyond no stop times. Cold water and altitude were contributory factors. **B.**

**28/86 Nov., 1985.** Suspected embolism after dive to 14m for 28 mins. followed 2 hrs. 32 mins. later by dive to same depth for 17 mins. On reaching the beach after the 2nd dive, the subject had cramp like pain in his right leg and was unable to move his right arm. He had to be carried for treatment. 5½ hours of recompression required. **B.**

**30/86 July, 1985.** Diver suffered severe itching and irritation after dives to 22m. Possible skin bend or wetsuit allergy. **B.**

**32/86 Sept., 1985.** Rescue services recovered diver with bends symptoms and arranged for treatment. Coastguard report only. **U.**

**35/86 Sept., 1985.** Diver with possible bends was reported from a charter vessel. Coastguard report only. **U.**

**36/86 July, 1985.** Trio dived to 53m. symptoms of narcosis ignored at 40m and dive continued. One of the divers felt 'light headed' and a feeling he was going to 'pass out'. Faster than normal ascent carried out to first decompression stop. Divers drove home over 1000' hills. Symptoms appeared 24hrs later and subject was treated for suspected cerebral bend. **B.**

**38/86 Dec., 1985.** Type 2 bend after dive to 32m for 22 min. with correct decompression stops and normal ascents. Subject had symptoms within minutes of surfacing but they eased, only to re-appear some hours later. Subject has permanent nerve damage and will not be allowed to dive again. **B.**

**49/86 April, 1986.** Father and son both suffered Type 2 bends after dives within tables (25 mins at 25m) on first trip after winter 'lay-off'. Father was heavy smoker and slightly obese. Both advised to give up diving. **B.**

**50/86 April, 1986.** Type 2 bend after dive to 33m for 16 mins with normal ascent. 3 hour delay before recompression. Heavy smoker and had been drinking heavily the night before. Advised to give up diving. **B.**

**59/86 March, 1986.** Buoyant ascent and embolism after dive to 57m in drysuit, not wearing lifejacket. Regulator inlet filter

was clogged and had not been serviced for 7 years. Equipment described as being in 'appalling' state. Buddy suffered Type 2 bend. Both required many hours of recompression. Subject 1 advised to give up diving. Subject 2 had history of excessively deep diving and had previous bend in December 1985. **B.**

**60/86 April, 1986.** Bend after dive to 33m for 17 min. with normal ascent. Joint pain in left arm appeared two hours later. Depth gauge reading 3m shallow was blamed for divers being deeper than they thought. Dizziness experienced on dives following the incident. Referral to BSAC Medical Referee. **B.**

**61/86 April, 1986.** Air embolism after dive to 26m for 20 mins. with normal ascent. Symptoms appeared on the surface. Successfully treated. **B.**

**70/86 April, 1986.** Type 2 bend after dive to 37m for 10 mins. and just over 1 hour later to same depth for 8 mins. Decompressed about 8 mins. at about 5m. Wearing two decompression meters and justified his profiles because his new meter gave the same readings as his old one which had 'been knocked about a bit'. Report states 'It is unlikely he will dive again unless he is contemplating a divorce'. **U.**

**76/86 May, 1986.** Bend after diver ran out of air after 9 mins. at 34 m. Rapid ascent, lost consciousness at 20m. Pins/needles developed after 30 min. on surface. **U.**

**83/86 May, 1986.** Diver suffered middle ear embolism and cerebral bend after an uneventful dive to 34m. He had problems with 'sticky' ears all the way to the surface from 28m. It took 4 mins. to get to 10m. Symptoms were slightly delayed but he collapsed as the boat was docking in the harbour. Subject had had a possible fractured skull some years earlier. He was treated with oxy-helium mix and passed out several times during the 7 days of treatment. He was sent home and later collapsed at home. The local hospital doctors did not seem to believe that he may have decompression sickness problems and "Spent most of the time trying to prove he was a junky" or was "putting it on". They did not contact the hospital where he had previous treatment. He still has little energy, experiences a burning sensation in his back, has lapses of memory and has very little energy. **B.**

**87/86 May, 1986.** Bend after diver had had two days of diving and on one day exceeded his no stop time. Doctor's report only no further relevant details. **U.**

**88/86 March, 1986.** Bend after a suspected too rapid ascent. Ambulance took a long time in arriving. No further details. **I.**

**92/86 June, 1986.** Bend after dive well within no stop time at 26m. Diver had been banned from diving by one diving doctor but sought another medical opinion which cleared her. She had a history of 'skin bends' and severe itching with dives up to 22m. She has now given up diving. **B.**

**93/86 June, 1986.** Type 2 bend after a dive to 38m for 12 mins. followed 3½ hours later by dive to 12m for 8 mins. Ascent was normal. **B.**

**94/86 May, 1986.** Diver with bends sent for recompression treatment. Coastguard report only, no further details. **U.**

**95/86 June, 1986.** Diver with suspected bends taken to hospital for tests. Coastguard report only, no further details. **U.**

**98/86 May, 1986.** Diver with bends symptoms and was recompressed for Type 1 knee bend. Coastguard report only, no further details. **U.**

**108/86 March, 1986.** Embolism after dive to 32m for 15 mins. followed by same profile after 6 hour interval. Normal dive with slow ascent, due to subject's ears giving problems. Subject had remnants of a cold when he dived. **B.**

**110/86 June, 1986.** Diver suffered Type 2 bend after dives to 28m for 20 mins. followed 2½ hours later by dive to same depth for 8 mins. Subject had had spinal bend two years previously. Recommended not to dive again. **B.**

**115/86 June, 1986.** Skin bend after experienced diver dived to 50m for 15 min. The ascent included a 5 minute stop at 15m as well as stops at 10/5m. No medical treatment required. **B.**

**117/86 July, 1986.** Bend after dive to 32m and total duration of 25 min. Evidence that subject's depth gauge was reading shallow and that the pair had something of a 'Yo Yo' ascent. Diver had fallen heavily against the boat fuel tank on the return journey and subsequently suffered back pains. **B.**

**120/86 July, 1986.** Minor bend after dive to 15m for 37 min. Dives previous day to 25m and 32m, within tables. **B.**

**121/86 July, 1986.** Bend after dives to 40m and 10m with 3½ hour interval using decompression computer, in clear, warm water. Subject had dived to 45m the previous day. **B.**

**125/86 May, 1986.** Type 2 bend after normal dive to 34m for 16 min. Subject suffered oxygen poisoning during treatment and had lingering shoulder pain which was treated successfully using drugs and physiotherapy. **B.**

**126/86 August, 1986.** Bend after dive to 46m for 15 mins. Subject missed 5 min. decompression at 5m. Normal ascent and previous dive 2 days before. **B.**

**128/86 July, 1986.** Severe Type 2 bend requiring weeks of treatment after a dive to 42m for 16 min. with recommended stops. Diver had been diving, using decompression stops, on the previous day. Bend within the tables but possibly due to build up of residual nitrogen. **B.**

**129/86 May, 1986.** Bend after dive to 17m for 24 min. Diver had undertaken marathon run 7 days before, 10 mile run 3 days before, had two jobs and had had little more than 4 hours sleep in the two nights leading up to the dive. **B.**

**132/86 April, 1986.** Bend after diver took part in training drills to max. depth of 20m. He completed 3 ascents in 40 mins., two of which involved rescue drills and a practice assisted ascent. The water was very cold. **B.**

**133/86 June, 1986.** Type 2 bend/embolism after novice dived to 38m for 10 mins. bottom time. Normal ascent with a short decompression stop at 5m. Diver lost right arm and leg movement and power of speech in the dive boat. **B.**

**135/86 June, 1986.** Bend after dive to 30m max. for 18 mins. bottom time. Most of the dive was spent at 25m. The dive was at the end of a week in which the subject had dived once a day to a maximum of 30m, but within no-stop times. Subject had been up since 0315 and had suffered several 24v electric shocks on the handrail of the yacht, prior to the dive. **B.**

**139/86 August, 1986.** Bend after dive to 26m for 25 mins. followed 3 hours later by 30 mins at 9m. Slow ascent on first dive but diver had felt slight discomfort in his legs after about 15 mins. of surfacing. No discomfort felt after second dive. Symptoms delayed several hours. **B.**

**143/86 Sept., 1986.** Divers finishing a wreck dive at 33m were trying to free the shot, which was wedged in a hole in the wreck. The skipper had asked them to do this. As one of the divers was trying to free it, the rope flew out of the hole and the diver was struck in the face by a 25kg shot. The skipper had switched his power winch on!!! The diver's face mask was smashed and the glass cut his face. Semi conscious, he made approx. 12-15 attempts to ascend but was entangled in something. He eventually reached the surface, only realising that he was there when the red mist in front of his eyes became lighter. His buddy had been holding the shotline and was only narrowly missed by the shot as it was winched to the surface. Glass was extracted from Diver A's eyes, at the surface and both he and his buddy were recompressed, as both showed signs of decompression sickness. **B.**

**145/86 Sept., 1986.** Diver who was paralysed down one side and had lost his speech, was airlifted to a chamber for treatment. Coastguard report only, no further details. **U.**

**146/86 August, 1986.** Bend after uneventful dive to max. depth of 32m for 18 mins. Precautionary stop at 5m for 5 mins. Only 14 mins. spent at 32m and normal ascent. **B.**

**147/86 May, 1986.** Type 1 Bend after dive to 23m for 23 mins. Normal ascent. Two dives of 40 mins. duration on the previous day, one to 15m. **B.**

**148/86 June, 1986.** Bend after reported dive to 30m for 20 mins, although there were conflicting reported depths from the rest of the group. Novice diver involved and rapid ascent reported. **I.**

**149/86 August, 1986.** Embolism after dive to 20m for 20 mins. with normal ascent. Extreme cold involved. **B.**

**150/86 August, 1986.** Type 1 bend after dives to 45m with stops for 5 mins. at 10m and 20 mins. at 5m and again to 45m with stops for 5 mins. at 10m and 30 mins. at 5m. Bottom time and surface interval unknown. Normal ascents. **B.**

**151/86 August, 1986.** Type 1 bend after dive to 30m for 20 mins. and 17m for 34 mins., both no stop dives but surface interval not known. Diver used PADI tables. **I.**

**152/86 Sept., 1986.** Bend after dive to 28m for 22 mins. No evidence of rapid ascent. **B.**

**154/86 Oct., 1986.** Type 2 bend after wreck dive to 28m for 28 mins. Diver seen "staggering with legs numb, one side of his face collapsed." Symptoms delayed 3 hrs. **I.**

#### BOATING/SURFACE INCIDENTS

**2/86 April, 1985.** Divers picked up in rough water, on a shore dive, after they unsuccessfully tried to exit from the water. **U.**

**3/86 Sept., 1985.** Diver suffered a ruptured bicep muscle when the boat he was a passenger in suddenly changed direction to pick up one of their party who had fallen overboard. **B.**

**7/86 August, 1985.** Member of public contacted Coastguard when some divers he had observed, appeared to have failed to surface. Divers found by lifeboat but were "Rather abrasive, replying they could swim wherever they liked without telling anybody." Coastguard report only. **U.**

**8/86 August, 1985.** Coastguard alerted after 999 call reported divers in difficulty in fast moving water. All divers were recovered by their own boats and had not been in difficulties. False alarm with good intent. Coastguard report only. **U.**

**9/86 August, 1985.** Diver picked up by passing vessel after he had become separated from his buddy. The buddy raised the alarm. Coastguard report only. **U.**

**10/86 August, 1985.** Lifeboat launched after dive boat was overdue. Two out of the five aboard had become separated, had ditched their equipment and swum to shore. Found safe and well. Coastguard report only. **U.**

**12/86 Sept., 1985.** A diver called the Coastguard saying that he was O.K. having become lost whilst diving from a charter vessel. This was the first the Coastguard knew there was anything wrong. The dive took place in a tidal stream in an area high in risk and the skipper failed to contact the emergency services. Critical report by the Coastguard. **U.**

**13/86 Sept., 1985.** Passing yacht picked up two divers who had become separated from their boat. Coastguard report only, no further details. **U.**

**15/86 Sept., 1985.** Divers lost without SMB's in very poor surface visibility. Picked up by passing yacht who didn't radio in because of difficulties navigating back to port in thick fog. **B.**

**25/86 Nov., 1985.** Pair of divers were swept out to sea after sea conditions worsened while they were submerged. SMB was inadequate. Found safe and well by their boat, at the base of some cliffs, some 10 miles away. **B.**

**26/86 Dec., 1985.** Inflatable boat anchor came adrift on a site close to the shore, with an offshore wind. Engine wouldn't start due to fuel line blockage. Flares were fired and a nearby fishing vessel radioed another boat to give assistance. Engine was eventually started. **B.**

**31/86 Oct., 1985.** Divers lost by boat and rescue services were alerted. They were found safe and well. Coastguard report only. **U.**

**33/86 Oct., 1985.** Rescue services alerted by flare when a solo diver was lost by the cover boat. Found by helicopter. Coastguard report only. **B.**

**34/86 Sept., 1985.** Divers lost having been swept away in tidal stream when their boat was anchored. Coastguard highly critical of the party as they elected to motor to shore for a 999 call some 45 mins. after the air was calculated to have run out, for the missing divers. Both cover boats carried flares but they were not used. Coastguard report only. **B.**

**45/86 Dec., 1985.** Divers lost by their cover boat when their SMB proved inadequate. Diver attracted attention by firing personal flare. **B.**

**52/86 March, 1986.** Lost divers rescued by helicopter after alarm had been raised. Lifeboat was also launched. Cover boat lost sight of SMB and were also confused by unpredictable tidal stream. **B.**

**56/86 Feb., 1986.** Diver badly shaken up with cuts and bruises after he attempted to climb rocks in rough sea. Poor

underwater navigation had led pair into this situation. Subject's ABLJ fasteners had been ripped off and his suit, etc., badly damaged. **B.**

**64/86 May, 1986.** Diver rescued by helicopter after being swept by the tide in poor visibility and choppy seas. Helicopter spotted his SMB after passer-by reported the diver being swept away. Coastguard critical of decision to dive in such poor conditions. **U.**

**71/86 April, 1986.** Divers swept away by tide after being asked by local fishermen, to look for lost lobster pots. Promised boat did not materialise so divers swam out from shore while fishermen kept a "watchful" eye on them. They were swept away, hung on to post and a passer-by called the Coastguard. **B.**

**77/86 April, 1986.** Outboard motor would not start after journey to dive site through rough seas. Boat towed back by other boat. Engine restarted after being thoroughly dried out. **B.**

**78/86 March, 1986.** Outboard motor cut out and would not start. Anchor was dropped but fouled lines and was lost. Other boat sent to inform Coastguard who launched lifeboat. Boat towed by lifeboat as sea conditions worsened. One of divers taken to hospital suffering from hypothermia and dehydration, following violent sea sickness. Electrical component fault was later found. **B.**

**81/86 May, 1986.** Diver suffered lacerations to the scalp when the boat reversed into him on the surface. The gear change was worn and it was difficult to achieve neutral. The boat had been pushed towards them by a wave. The boathandler had inadvertently gone into reverse when trying to find neutral. **B.**

**91/86 May, 1986.** Two divers were swept away from their cover boat when sea conditions and surface visibility suddenly deteriorated. Solo boathandler lost sight of SMB and the boat suffered damage when it was slammed by a large wave. Divers clung to lobster pot and were found 3 hrs. later. **B.**

**96/86 May, 1986.** Two divers were reported missing and lifeboat requested to launch. Missing divers were found safe and well before lifeboat was launched. Coastguard report only. **U.**

**97/86 May, 1986.** Three divers were picked up by a second yacht after their yacht, being sailed single handed, was unable to pick them up. "Mayday" call alerted lifeboat and other vessels who picked the divers up. Coastguard report only. **I.**

**99/86 May, 1986.** Divers reported being swept out to sea but they reached shore safely, without help. Coastguard report only. **U.**

**100/86 May, 1986.** Diver reported missing but he was later found safe and well by the cover boat, on some rocks. Coastguard report only. **U.**

**101/86 May, 1986.** 999 call received reporting a diver who had surfaced but failed to come ashore. He later reached the shore safely, without assistance. Coastguard report only. **U.**

**103/86 May, 1986.** Two divers reported missing and ILB was launched. They were later reported found safe and well. Coastguard report only. **U.**

**104/86 April, 1986.** Two divers reported in trouble, helicopter scrambled but divers helped to safety by member of the public. Coastguard report only. **U.**

**105/86 May, 1986.** Divers without SMBs were swept away from their boat by the tide. They fired personal flares to attract attention. Boat cox did not take account of tidal flow and was looking in the wrong position. Coastguard criticism of cover boat not raising the alarm soon enough. Coastguard report only. **U.**

**109/86 July, 1986.** Diver suffered severe cuts from a boat propeller when he was thrown over the side by an unexpected lurch of the boat as it travelled at about 20 knots. Another diver was thrown clear of the craft and suffered no injury. **B.**

**111/86 June, 1986.** Divers in inflatables, wishing to dive a wreck, were harassed by a fishing boat who proceeded to grapple with an anchor over their dive site. Police were very reluctant to take down any details, when the incident was reported to them. The local Harbour Master was similarly unenthusiastic. **B.**

**112/86 May, 1986.** Boat capsized in rough water after the

outboard motor stopped and the anchor failed to hold. Crew escaped with minor injuries. **B.**

**131/86 May, 1986.** Inflatable boat capsized in surf after the divers were returning from a dive. 7 divers and kit were thrown overboard and one diver was severely grazed around the eye when a cylinder hit him as he was thrown. **B.**

**134/86 June, 1986.** Charter vessel skipper dropped his anchor "upwind" of a dive party who were anchored over a wreck, using inflatables. The large boat drifted onto the anchored inflatables and while doing so snagged the SMB of one of the divers and winched him to the surface. One of the inflatables was damaged when the painter was ripped out by the collision. Possible legal action against the skipper of the charter vessel. **B.**

**136/86 July, 1986.** Inflatable and "speedboat" encountered two "freak" waves and the speedboat's engine failed. The boat was broached and the occupants thrown into the sea. The inflatable picked up two of the people but clipped its propeller on rocks. The cox put out a "Mayday" call and they were rescued by the ILB. **B.**

**144/86 Sept., 1986.** Divers at 12m, using an SMB, were hauled rapidly to the surface, by two aggressive fishermen, who demanded to know if they were diving on "pots". The SMB line entangled one of the divers very badly and the fishermen drove off to let them drift. **B.**

### ASCENTS

**1/86 March, 1985.** Assisted ascent after diver ran out of air due to a faulty contents gauge. Situation made more difficult by the diver failing to give the out of air signal. In reaching for his buddy's spare mouthpiece he accidentally purged his dry suit and they sank to the bottom. A successful ascent on the second attempt. **B.**

**5/86 July, 1985.** Buoyant ascent from 20m after 64 year old diver panicked and was seen to be trying to wind himself up the SMB line. Direct feed on the subject's jacket was of a home made high pressure type and could not be controlled. **B.**

**19/86 Oct., 1985.** Assisted ascent with difficulties became a buoyant ascent which resulted in one of the pair becoming unconscious near the surface. He recovered once in the boat. Incident pit situation with an SMB which tangled round the shotline and the rescuing diver, a regulator mouthpiece which was on "the wrong side" for sharing and excessive breathholding while giving the mouthpiece to the buddy. Much air consumed during dive by attempting to repair a faulty weightbelt clasp. **B.**

**53/86 April, 1986.** Female diver, in a trio, made a rapid ascent from 15m after a dive to 30m+. Gave a shout for help and then sank. Body recovered after about 5 mins. submersion and appeared "dead". After 10 mins of resuscitation she recovered and was taken to hospital. It is believed she made a full recovery. **B.**

**58/86 April, 1986.** Diver made a buoyant ascent after a dive to 30m+, when his regulator went on "free flow". His cylinder was empty when he surfaced. **U.**

**72/86 April, 1986.** Emergency ascent after regulator went on "free flow" at 25m in cold water. Buddy hung on to ABLJ strap to slow ascent but had to let go after sinus head pain. Both survived without further problems. **B.**

**84/86 May, 1986.** Divers planned to dive to bottom of wreck in 49m and ascend up previously located SMB line. Unpredicted tidal stream meant they could not swim against it. They had difficulty rising from the bottom and it took 7 mins. to reach 20m when one of them ran out of air. He inflated his ABLJ and started to breathe from it but failed to control a buoyant ascent. Over the last 10m it was uncontrolled. The other diver ascended normally to 5m where he completed 3 mins. decompression. Both divers survived unharmed but another dive boat had prematurely alerted a nearby chamber. Both divers were eventually kept in a local hospital overnight, for observation, and released next day. **B.**

**86/86 June, 1986.** Controlled assisted ascent necessary after the rubber mouthpiece separated from a novice's second stage,

during a dive to 23m. Two mouthfuls of water were ingested before he realised what was happening. **B.**

**89/86 April, 1986.** Diver ascended too rapidly and complained of pains in the chest. Recompression brought no relief and straining of the lung tissues and surrounding tissues was diagnosed. Pain subsided over the next 3/4 days. Cold hands was blamed on the inability to control the ABLJ on ascent. **B.**

**90/86 June, 1986.** Ascending after a dive to 30m a diver was negatively buoyant. Lifejacket buoyancy did not seem to work so he ditched his weightbelt. On board the boat he complained of chest pains and a slight taste of blood in his mouth. Symptoms did not worsen and no further treatment was needed. **B.**

**107/86 July, 1986.** Novice diver ran out of air during dive to 23m. Assisted ascent which became buoyant when rescuer's direct feed kept leaking air into ABLJ. **B.**

**130/86 June, 1986.** Faulty inflation valve on dry suit caused uncontrolled buoyant ascent. Manufacturers were contacted as 3 others had the same design fault. An improved model is now on sale. **B.**

### TECHNIQUE

**6/86 August, 1986.** The same diver as in incident 5/86 dived in a trio in poor visibility. He became separated during the dive and carried on alone. The other two surfaced and the alarm was just about to be raised when the solo diver surfaced totally unaware of the concern he had caused. **B.**

**46/86 March, 1986.** Divers became trapped under ice but were rescued safely. NO ROPES USED!!! **B.**

**62/86 May, 1986.** Diver overexerted himself, flooded his mask, panicked and had to be rescued with the use of an ABLJ, during a dive to 32m. Subject was unconscious on surface and successful EAR was applied. Subject's feet were elevated, oxygen administered and then transferred to hospital. No visible after effects. **B.**

**114/86 June, 1986.** Novice ran out of air during wreck dive to 28m. Octopus rig used on ascent but novice did not dump lifejacket buoyancy and it is thought his previous training for these drills was inadequate. **B.**

**118/86 July, 1986.** Novice diver was overweighted and had a constantly flooding mask at 18m. She subsequently panicked and headed for the surface. Buddy controlled her ascent although she has almost no recollection of the incident. **B.**

**137/86 July, 1986.** Not an incident as such, but a group of mixed experience exceeded no stop times on a sloping bottom. Lesser experienced diver in pair did not inform leader they were deeper than planned. Skipper of their charter vessel had "advised" them of stops but it later turned out that he was basing his judgement on USN tables. An incident waiting to happen. **B.**

### EQUIPMENT

**4/86 May, 1985.** Diver in a dry suit became inverted and buoyant when his direct feed couldn't be switched off at 30m. Buddy unzipped him to let excess air out. Cause found to be the pressure from his lifejacket activating the inlet valve, once buoyancy had been introduced to the suit. **B.**

**27/86 Sept., 1985.** Divers, in dark conditions became entangled in their buddy line and one of them had to transfer to "pony" bottle after running out of air. Eventually released by another pair of divers. Evidence of narcosis involvement. **B.**

**41/86 Feb., 1986.** Regulator went on "freeflow" during dive to 15m in water of +2 degrees temperature. **B.**

**42/86 Feb., 1986.** Regulator went on "freeflow" during a novice's first dive to 30m in cold water. Ascended OK but diver lost 160 bar in 1 minute on ascent. **B.**

**43/86 Feb., 1986.** Regulator went on "freeflow" during a 4m dive under 14 in. ice. Divers were roped together and to the surface and they surfaced successfully. Stand-by divers not required. Water temp. -2 degrees. **B.**

**48/86 March, 1986.** Regulator went on "freeflow" during dive to 18m. Water temp. +2 degrees. **B.**

**51/86 March, 1986.** Diver flooded dry suit when his direct feed became unattached at 12m. Buddy replaced it and used ABLJ to surface safely. Tensile spring clip on direct feed assembly had stretched and exerted very little tension. **B.**

**55/86 March, 1986.** Diver became lost under ice when the knot in his surface line came loose. A well organised dive, where prompt action and search, by standby diver prevented what could have been a serious incident. **B.**

**57/86 March, 1986.** Diver's regulator went on "freeflow" on a dive to 15m in water of near freezing point. At 10m on ascent, the air flow ceased entirely and they had to make an assisted ascent to the surface. Regulator had been serviced 7 days previously. **B.**

**73/86 April, 1986.** Diver suffered perforated eardrums after dive with close fitting dry suit hood. No symptoms or pain felt on the dive. **B.**

**79/86 May, 1986.** Two divers had blood in their ears, following dives in dry suits with very tight fitting hoods. **B.**

**82/86 May, 1986.** Diver suffered burst eardrums having experienced difficulties clearing his ears on descent. He was wearing a drysuit with an attached close fitting hood. **B.**

**85/86 May, 1986.** Novice diver's regulator suddenly failed during a dive among gullies at 13m. Surges were experienced. She inflated her ABLJ with direct feed but breathed it as fast as it was being inflated. Emergency cylinder was used eventually to raise her to the surface in a controlled fashion. At the surface she released her weightbelt which then snagged on the dangling regulator second stage she had spit out. The cover boat came to the assistance and her ABLJ was fully inflated to support her. **B.**

**123/86 August, 1986.** Diver used ABLJ breathing device after regulator began free flowing at 22m. Normal ascent to 6m when the air flow from regulator ceased. Fitted with anti-freeze unit. **B.**

**138/86 July, 1986.** Persistent diver had zip failure with his dry suit, over two dives to 6m. On the first he carried on without discomfort. On second dive, when it happened again, he concluded the zip was beyond repair. Difficulty getting into boat when the open zip acted as a scoop for water. **B.**

**141/86 July, 1986.** Zip "popped" on a dry suit, when the diver jumped into the water from a charter vessel. Suit flooded but diver recovered safely. On investigation it was discovered that the zip flap had been pinched between the teeth. **B.**

**142/86 July, 1986.** Regulator malfunctioned on "freeflow" and after investigation it was discovered that heavy corrosion had occurred on the first stage valve stem. **B.**

#### MISCELLANEOUS

**18/86 Oct., 1985.** Aural barotrauma after second descent

within a few minutes. Disorientation after the ear drum burst. **B.**

**22/86 July, 1985.** In overseas water a snorkeller, diving alone, was recovered from 5m of water, by a British diver and breathing was restarted. Subject unconscious in hospital. No further details. **I.**

**29/86 Dec., 1985.** Diver suffered hypothermia after spending 45 mins. at 6m in a flooded quarry. This was his first U.K. dive, having trained overseas. He was using a borrowed wetsuit. **I.**

**37/86 Nov., 1985.** Diver gave successful C.P.R. to collapsed subject in railway station after he observed others giving it incorrectly. Example of good practice/training. **B.**

**39/86 Jan., 1986.** Local Overseas BSAC branches gave local police assistance and successfully recovered a body, following the capsizing of a speedboat. Swimline search in the open sea. Boat later recovered from seabed. **B.**

**40/86 Jan., 1986.** Two divers went to the aid of a fisherman who was clinging to some wreckage in very rough seas. Divers went to help in an inflatable. **I.**

**66/86 March, 1986.** Diver surfaced out of breath after an uneventful dive in cold water, wearing a wet suit. Could not breathe properly until she reached the shore. Slightly overweighted for dive and following day suffered "flu" type symptoms. **B.**

**68/86 April, 1986.** Diver on holiday, rescued Spanish diver in difficulties, in 15m of water. Unconscious diver, with mouthpiece displaced, had no operable lifejacket and weightbelt had to be ditched to retrieve him. Subject handed over to his surface party and he was taken to hospital. **B.**

**75/86 April, 1986.** Diver rescued by members of the public after being trapped in kelp. **U.**

**113/86 June, 1986.** Diver suffered perforated eardrum after dive in drysuit with attached tight fitting hood. **B.**

**116/86 July, 1986.** Diver suffered burst eardrum after being kicked during a game of octopush. **B.**

#### ILLNESS

**54/86 Nov., 1985.** Diver became seriously ill and was admitted to an isolation hospital several days after a river dive. It is believed he contracted an infection through a cut in his lip, by diving in polluted water. At one time in his treatment he was given intravenous penicillin. **B.**

**102/86 May, 1986.** Diver fainted after being caught in kelp in 2m of water. Diver was feeling ill before the dive. Taken to hospital for observation but later discharged. Coastguard report only. **U.**

**106/86 Feb., 1986.** Trainee acting as a "body" in the pool had some form of "seizure" and convulsions. He has since been referred to a neurological specialist. **B.**

#### APPENDIX 2

### HISTORY OF DIVING FATALITIES

YEAR	MEMBERSHIP	DEATHS		YEAR	MEMBERSHIP	DEATHS	
		BSAC	NON-BSAC			BSAC	NON-BSAC
1959	2,615	1		1974	22,150	3	(11)
1962	5,023	1		1975	23,204	2	
1963	5,255	1		1976	25,310	4	
1964	5,571	2		1977	25,342	3	
1965	6,813	3	(0)	1978	27,510	8	(4)
1966	7,979	1	(4)	1979	30,579	5	(8)
1967	8,350	1	(6)	1980	24,900	6	(7)
1968	9,241	2	(1)	1981	27,834	5	(7)
1969	11,299	2	(8)	1982	29,590	6	(3)
1970	13,721	4	(4)	1983	32,177	7	(2)
1971	14,898	0	(4)	1984	32,950	8	(5)
1972	17,041	10	(31)	1985	34,861	8	(6)
1973	19,332	9	(20)	1986	34,210	6	(9)

## RECORD OF MAJOR FACTORS OCCURRING IN INCIDENTS, 1983—1986

Code Item	1983	1984	1985	1986	Code Item	1983	1984	1985	1986
1 Aborted dive	17	13	8	6	33 Malice	1	2	1	3
2 Assisted ascent	9	8	7	9	34 Motor	7	11	12	3
3 Buoyant ascent	9	9	19	14	35 Narcosis	2	1	6	8
4 Emergency ascent	7	8	6	4	36 Out of air	7	8	8	9
5 Other ascent	1	1	1	0	37 Pre-dive check	1	8	4	1
6 Aural barotrauma	10	10	5	6	38 Repetitive diving	3	19	7	1
7 Pulmonary barotrauma	2	4	10	8	39 Ropes	2	1	2	3
8 Boat trouble	15	28	13	4	40 Rough water	5	10	17	14
9 Fatality	9	13	14	15	41 Bad seamanship	7	10	10	5
10 Good practice involved	11	5	6	6	42 Good seamanship	0	0	2	1
11 Illness	11	8	6	13	43 Separation	12	19	14	7
12 Injury	25	24	4	6	44 SMB absent	6	15	7	5
13 Lost diver(s)	21	31	18	21	45 SMB inadequate	5	1	1	4
14 Resuscitation	4	3	2	5	46 Solo dive	5	9	2	4
15 Unconsciousness	7	7	5	5	47 Three diving together	8	8	2	7
16 Embolism	0	7	10	10	48 Training drill	3	11	1	4
17 Lifejacket	4	28	3	5	49 Training inadequate	16	9	12	10
18 Breathlessness	8	29	5	5	50 Sharing	4	5	4	5
19 Buoyancy/weight	4	7	16	10	51 Deep dive (30m plus)	30	50	41	43
20 Carelessness	14	9	13	29	52 Low vis. underwater	1	2	4	2
21 Reg. performance	10	17	2	11	53 Disregard of rules	20	34	14	22
22 Equipment—faulty	24	2	16	18	54 False alarm	2	3	6	4
23 Equipment fitting	2	2	6	7	55 Cold	8	4	5	13
24 Equipment use	9	8	12	4	56 Dry suit	2	5	13	9
25 Equipment wear	1	5	2	4	57 Divers underwater	127	132	117	117
26 Equipment inadequate	3	5	2	3	58 Divers on surface	15	73	48	37
27 Fire/explosion	0	2	0	0	59 SMB contributed to problem	—	—	3	2
28 Foul air	1	1	2	0	60 Low surface visibility	—	—	2	2
29 Fuel	0	1	3	1	61 Nets	—	—	2	1
30 Hypothermia	3	2	6	2	62 Boat propeller	—	—	1	2
31 Decomp. sickness	38	72	57	52					
32 Ignorance	11	11	19	27					

### STATISTICAL SUMMARY OF ACCIDENTS AND INCIDENTS

ITEM	1982	1983	1984	1985	1986	ITEM	1982	1983	1984	1985	1986
Incidents reported	149	142	213	165	154	Recompressed	33	33	67	54	45
Incidents analysed	148	142	211	164	154	Depth reported	24	28	63	45	45
British incidents	126	126	200	160	146	30m or deeper	14	18	45	25	27
Incidents abroad	10	9	11	5	8	Attempted recompression underwater	3	3	5	1	1
Location unknown	12	7	10	0	0	BSAC Members	18	22	34	38	37
BSAC Members	108	112	138	118	107	Definitely NOT BSAC	8	2	3	11	7
Non-BSAC Members	15	6	15	17	19						
Membership unknown	26	24	74	29	28						

All the above reports are based on information received between October 22nd, 1985 and October 15th, 1986.

## BSAC SAFETY AWARDS — 1986

The Alan Broadhurst Certificate is awarded for good diving practice in the quick reaction to an emergency situation, thus preventing a serious accident, and for the use of good diving practice in an attempt to save life. The National Diving Officer, Mike Holbrook, presented Alan Broadhurst Certificates to:

**Corporal Mike Godden, RAF Brize Norton**, who was diving as part of an expedition in Spain, came across a Spanish diver in 15m who was in trouble with his regulator missing, and whose buddy was trying to revive him. Mark took over, ditched his weightbelt, raised him to the surface and revived him — all the right actions. The victim recovered and was taken to hospital.

**Barry Fulbrook, Eltham**, in Scapa Flow had problems with his buddy at 32m as a result of which the buddy went unconscious. Barry carried out a copybook controlled buoyant rescue and secured the buddy on the surface, when the surface team took over. The buddy recovered with nothing worse than a bad experience.

**Peter McDermott, University of Sussex**, was the diver who came across the two divers entangled in their distance and shot line in the fatality/embolism incident described in the Incident Adviser's Report. He cut them free and tried to ensure their exhalation during the rescue ascent. The survivor of the tragedy owes her life to his actions.

**David Hilton, Burton-on-Trent**, was diving in fresh water when his buddy panicked and lost both mask and regulator. He carried out a perfect rescue, impressing the observers on the surface with his speed and sureness of action.

The BSAC Safety Award is made to members who by their skill and quick reactions to emergencies have attempted to save life. Their efforts need not involve diving. The NDO presented BSAC Safety Awards to:

**Colin Fenwick, Chelsea College**, who came across someone in the street who had collapsed. He took over and carried out