

## Discussion

Small surveys suffer from two weaknesses. They may not be representative of a larger population, and they estimate parameters with wider confidence intervals than larger studies.

One can have some confidence that around twelve percent of present Auckland open water trainees are asthmatic or have a history of asthma. The same figure has been obtained by two dissimilar methodologies. In the first, the information provided to, and by, a medical practitioner who in most cases presumably knows the candidate was relied on. In the other, information volunteered by the trainee was collected.

The aim of this study was to determine whether there are enough asthmatic open water trainees to make the gathering of a cohort for prospective study a feasible proposition. For this purpose a sample of eighty four is not small. It is, however, difficult to ascribe a rigorous confidence interval to the estimate as the "consecutive sampling" methodology is quite distinct from the simple random sample, and other standard techniques for which theory on the distribution of sample variance is established.

The results have been submitted for publication because they provide denominator information which has been missing from the debate about asthmatics and fitness for scuba diving. They may also encourage other researchers to seek out and study asthmatics who dive. These small surveys provide no information on the diving behaviour of asthmatics who complete open water training.

An immediate consequence of any future study confirming that around twelve percent of novice recreational divers have asthma or a history of asthma, while about half that proportion have current asthma, would be that asthma is not a contraindication to diving. There may be an increased relative risk (and there may not be) but in absolute terms the risk is small. It is easy to speculate that in a diving population of 150,000, if even one third of these are active, and 5% of those have asthma, there may be 10,000 to 50,000 dives a year made in New Zealand by asthmatics.

Finally, if 6% of divers are current asthmatics and if their diving behaviour can not be distinguished from non-asthmatic divers, then asthmatics are not over-represented in diving fatalities. The ANZ series of 100 dead divers<sup>10</sup> identified nine as having pre-existing asthma. Treating this as a series of Bernoulli trials with the probability of success at any one trial being 0.06, there is a probability of about 15% of nine or more successes, i.e.  $p=0.15$ , which is not significant. A Bernoulli trial in this instance is exactly analogous to tossing a coin with the probability of a "head" (being asthmatic) equal to 0.06. The experiment consists

of 100 such tosses, where each toss corresponds to a diver death. Asthmatics are over represented in diver deaths if the probability of the observed number of asthmatics in a series of diver deaths is less than 0.05, given that asthmatics form 6% of the live diver population. The observed number was nine and the conclusion is that asthmatics are not over represented in the ANZ series if the proportion of asthmatics in the live diver population is 6%

## References

- 1 Farrell PJS and Glanvill P. Diving Practices of scuba divers with asthma. *Br Med J* 1990; 300: 166
- 2 Martindale JJ. Scuba divers with asthma. *Br Med J* 1990; 300: 609
- 3 Wall SJ and Gunnyeon WJ. Scuba divers with asthma. *Br Med J* 1990; 300: 609
- 4 Melamed Y, Shupak A and Bitterman H. Medical problems associated with underwater divers. *NEJM* 1992; 326: 30-34
- 5 Martin L. The medical problems of underwater diving. *NEJM* 1992; 326: 1497
- 6 Smith TF. The medical problems of underwater diving. *NEJM* 1992; 326: 1497-8
- 7 Jenkins C, Anderson SD, Wang R and Veal A. Compressed air diving and respiratory disease. A discussion document of the Thoracic Society of Australia and New Zealand. *Med J Aust* 1993; 158: 275-279
- 8 Edmonds C, Lowry C and Pennefather J. *Diving and Subaquatic Medicine*. 3rd edition Butterworth-Heinemann, 1992; 461-7
- 9 Gorman D. (Ed) *Diving and Hyperbaric Medicine* (second edition)
- 10 Edmonds C and Walker D. Scuba diving fatalities in Australia and New Zealand. 1. The human factor. *SPUMS J* 1989; 19 (3); 94-104

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## THE REGULATION OF RECREATIONAL SCUBA DIVING IN QUEENSLAND

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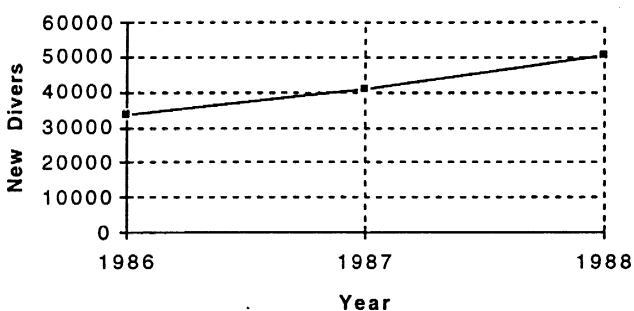
### Introduction

Few activities can match scuba as an "out of this world" experience, and few countries can match Australia

for prime diving attractions. As a result, scuba has become a popular recreational pastime for thousands of Australians and a major tourist attraction for both local and international holiday-makers. Between 1986 and 1988 Australian scuba training agencies issued diver certification to 124,840 entry level divers.<sup>1</sup> During that period the growth of new diver certification averaged over 26% per annum from a 1986 baseline of 33,550 certifications. This growth is demonstrated graphically in Figure 1. These statistics understate the number of divers that ventured below Australian waters during that period as they do not include foreign certified tourists undertaking recreational dives, or already certified local divers. There is evidence that the annual number of overseas divers is high. For example, the 1991 International Visitors Survey confirmed that scuba diving was one of the most popular activities enjoyed by international visitors to Australia that year.<sup>2</sup> It has been conservatively estimated that in 1991 alone, there were 677,767 scuba dives conducted in Queensland waters.<sup>3</sup> Other sources claim that in the year ended June 1990 as many as 884,000 recreational scuba dives were conducted in Queensland.<sup>4</sup>

FIG 1

**GROWTH IN NEW DIVER CERTIFICATION  
BETWEEN 1986 AND 1988**



But the popularity of scuba diving belies the fact that it is a dangerous activity for inexperienced and unfit divers. Every year thousands of newly certified divers are let loose into Australian waters. Some of these progress to become experienced recreational or professional divers. But many, following an initial burst of enthusiasm for their new sport, become infrequent holiday divers with half-forgotten skills, poorly maintained equipment and declining physical fitness. Diver certification is no guarantee of diver safety or ongoing diver competency. Each year hundreds of divers are injured, and occasionally some are killed, by avoidable accidents. Many of these accidents are attributable to diver error resulting from lack of proper training, inexperience, and improper supervision.

The value of the sport as a source of tourist income is partially dependant on these dangers being adequately managed. Media reports of diving related injury and death

tarnish the image of the sport and effect the scuba diving industry economically. But these economic benefits are not the only justification for regulating diver safety. Clearly, scuba accidents impose a high social, emotional and financial burden to the injured, their families and the taxpayer. While these factors are strong arguments for greater regulation, there is concern in some sectors that over-zealous or inappropriate management of the sport may also reduce its value as a recreational pursuit while not significantly increasing its safety. The object of this paper is to examine the efficacy and extent of safety regulation of the Queensland scuba diving industry and the means by which this regulation operates.

### Scuba safety record

In the period between 1955-89 there were 164 scuba related deaths in Australia.<sup>5</sup> Between 1985-89, forty deaths were recorded in Australian waters from scuba incidents.<sup>5</sup> Unfortunately, (and notwithstanding the efforts of data collecting projects such as DAN, DES, and Project Stickybeak and the Queensland Division of Workplace Health & Safety), there are large gaps in the available mortality/morbidity data on recreational diving. In consequence, the reported incidents of death and injury might significantly understate the actual level of injury that is sustained in this activity. Fortunately, the level of mortality has not increased proportionately to the phenomenal growth in the sport over the last three decades.<sup>5</sup> This relative decrease in mortality is largely due to the increased emphasis placed on diver training during that period. But, as stated by Dr Douglas Walker, the instigator of Project Stickybeak; "...however rare a fatal diving incident may be, even a single death would be excessive if it is avoidable".<sup>5</sup> As avoidable death and injury still continue to occur, continuing emphasis must be placed on improving scuba safety. What place does the regulation of scuba diving and diver training have to play in pursuing this goal?

### Current Queensland regulations

When non-lawyers speak of regulation they usually use the word to mean government regulation. But government regulation, in the form of Acts of parliament and subordinate regulations are merely some of the means by which the activities of citizens are regulated. In this paper the term regulation is used in this wider sense.

The regulatory structures that govern the operation of the dive industry operate in layers. Each of these layers depend on incentives towards useful conduct for their operation. These incentives evolve from market forces, the threat of civil litigation, and criminal sanctions. Each of these types of regulation are discussed in greater detail on the following pages.

#### PRACTICES OF DIVER TRAINING AGENCIES.

The first layer is governed by the internal rules, policies and practices of the individual diver training agencies such as the National Association of Underwater Instructors (NAUI), the Professional Association of Diving Instructors (PADI), Scuba Schools International (SSI), and the National Association of Scuba Diving Schools (NASDS).

These associations self-regulate through prescribing the prerequisites for diver certification, training and advancement within each of the respective bodies. While these internal rules do not have the force of law within the industry, they nonetheless play a pivotal part in the safety of the industry as a whole. Further, the rules relating to safe diving practices do influence the courts in determining what a given dive instructor or dive master "knew or ought to have reasonably known" when deciding whether that person was guilty of negligence. A fuller discussion of the concept of negligence appears below.

#### STANDARDS ASSOCIATION OF AUSTRALIA.

The second layer consists of the "best practices" recommendations of the Standards Association of Australia, commonly known as Standards Australia. While these standards also do not have the force of law, they are given legal or quasi-legal status in one of two ways. First, they are regularly used by courts as a bench-mark when determining whether or not particular conduct amounts to negligence. Second, some statutes and regulations incorporate the recommendations of Standards Australia when specifying standards of conduct required by certain sectors of the community. For example, r259 of the *Workplace Health & Safety Regulations 1989 (Qld)* requires an employer to comply with AS 2299-*Underwater Air Breathing Operations*, and AS 2815-*Training & Certification of Occupational Divers*. In addition, r260 requires that scuba instructors conducting entry level certification ensure the student is certified fit to dive in accordance with the AS 4005.1-1992 *Training & Certification of Recreational Divers*. A failure to meet these standards can, in such cases, result in criminal sanctions or in civil action for breach of statutory duty. Further, the safety recommendations of health and safety legislation will usually be construed, in civil litigation, as imposing a minimum standard of care for the purposes of common law negligence actions.

#### REQUIREMENTS OF COMMON LAW

The third layer having a regulatory effect on the industry is the common law itself. Common law actions enable a person injured by another's conduct to claim damages against the wrongdoer. Usually these damages are compensatory in nature, but in rare cases the court may also impose an award for aggravated or exemplary damages that are designed more to punish the perpetrator

than compensate the victim. Irrespective of the nature of the damages awarded, these awards always serve double duty by simultaneously compensating the victim and punishing the wrongdoer. In this way, the spectre of the common law encourages useful and safe conduct within the community.

There are a number of common law theories of action that are relevant to the recreational dive industry. Perhaps the most common of these remedies are based breach of a duty of care owed in either tort or contract.

The tortious duty of care broadly extends to benefit all those who may foreseeably be injured by an individuals acts or omissions. Whilst the tortious duty extends to a wide group, the contractual duty is limited to the parties to the contract. The duties owed under both contract and tort may usually be modified by agreement between the parties, although statutory limits do exist on how far liability can be reduced in this manner.

The standard of care required in any case will vary dependant on the level of skill and experience possessed by the individual and the degree of danger inherent in the activity.

The minimum standard of care expected is to exercise the knowledge, skill and foresight of the ordinary person engaged in that occupation or role. This standard is an objective one, and it will be arrived at on the basis of industry accepted practices and standards. In many cases it can be difficult to discern just what the commonly accepted standard of practice may be. This is less of a problem in the diving industry than it is in many others as the courts will readily refer to the objective standards imposed by the internal rules and practices of the diver training organisations and the recommendations of the Australian Standards. These minimum standards of care will be increased where a party possesses special skill and knowledge over and beyond that expected of the ordinary diver. If a person possesses special skill and knowledge then they are obliged to use it. The more skill and knowledge that is possessed by an individual, the greater the level of care that will be expected from him or her.

A dive shop owner or dive charter operator will not escape liability by employing employees with inadequate skills or experience as the standard of care required also varies dependant upon the magnitude of risk inherent in the activity. Scuba diving is a dangerous activity and a high degree of care is expected by the courts. The magnitude of the risk is determined by the gravity of harm posed and the likelihood of that harm occurring. Whether or not a person has failed exercise reasonable care in a given case will often depend on the burden involved in eliminating or minimising the risk.

## REQUIREMENTS OF STATUTES

The fourth layer of regulation comprises statutory based actions by victims for compensation. These are a hybrid form of action based in statute but giving rise to actions similar to those developed by the common law. There are three categories to be considered under this heading.

First, is the situation where legislation directly confers a right on an injured person to claim compensation. The federal *Trade Practices Act 1974*, the state *Fair Trading Acts* and *Sale of Goods Acts* all confer rights on individuals who are injured or otherwise suffer loss following the supply of goods and/or services. Their operation, whilst often fraught with technicality, creates a wide net of liability that catches most dive training and dive tour operations. While dive operators may minimise and even avoid liability under the *Sale of Goods Acts* through contractual exclusion clauses, they cannot escape the consumer protection provisions of the *Trade Practices Act*. This is because this Act specifically restricts the power to contract out of the liability it imposes.<sup>6</sup> One consequence of this is that they cannot escape, by contractual exclusion, the obligation under s 74 of the Act that services be rendered with “due care and skill”. As this contractual warranty is contiguous with the common law duty of care, the inability to contract out of the *Trade Practices Act* also prevents any exclusion of the congruent common law duty. After all, if a person is party to the contract, the warranty to exercise due care cannot be excluded. If the person is not party to the contract, then *ipso facto*, he or she cannot be affected by any contractual exclusion contained in it.

Second, is the case where the legislation does not directly confer a right to sue but where it clearly imposes a duty of care on some persons for the benefit of others. Breach of the legislation will give rise to an action for damages for “breach of statutory duty”. There is an ongoing controversy as to the genealogy of the action for breach of “statutory duty”. Most decisions in the UK and Australia attribute its origin to a “presumed” intention on the part of the legislature to create a civil remedy for breach of a statutory provision.<sup>7</sup> But in the USA it is considered to be nothing more than a court adopting the statute as setting the minimum standard of the tortious duty of care.<sup>8</sup>

Whatever its origin, the breach of a statutory duty of care gives rise to a right to damages at common law. Furthermore, the existence of a statutory standard elevates the liability from one of mere negligence to one approaching strict liability, or liability without fault. The logic behind this proposition is the maxim that everybody is presumed to know the law. If a person is presumed to know the law, then it can be no answer to say that the requirements of the statute were neither foreseen nor reasonably foreseeable.

One by-product of the controversy over the parentage of the statutory duty action is the question as to whether or not a person can contract out of a statutory obligation. The prevailing opinion in Australia and the UK is that a party cannot contractually exclude liability for breach of statutory duty. Although, curiously enough, liability can be reduced by contributory negligence and can be totally negated by voluntary assumption of risk. The two notions do not sit well together.

Third is where an Act confers authority to make subordinate legislation to establish codes of practice to be followed by a particular group or industry. This is a more recent approach and represents a hybrid between an action for breach of statutory duty and a statutory right of action conferred directly by the legislature.

Codes of Practice do not usually rely on in legislative sanctions for enforcement. For example, s 34(8) of the Queensland *Workplace Health & Safety Act 1989* states: “A person shall not be liable to any civil or criminal proceedings by reason only that the person has failed to observe any provision of an approved code of practice”

It follows that a breach of a provision in a Code of Practice cannot give rise to an action for breach of statutory duty. But the terms of a Code of Practice will influence common law courts when seeking to ascertain the minimum standard of care expected in a applicable industry. In this sense, Codes of Practice have regulatory effect in the same manner as do the Standards published by the Standards Australia. Of particular importance to the recreational diving industry in Queensland is the *Code of Practice for Recreational Diving* that came into effect on the 11th December 1992.<sup>9</sup>

## REQUIREMENTS OF THE CRIMINAL LAW

The final layer comprises legislation enforceable by criminal sanctions such as imprisonment or fine. For example, Part II of the *Workplace Health & Safety Act 1989 (Qld)* imposes duties on employers at a “workplace” to ensure the health and safety of employees and others and imposes criminal sanctions for breach. The term “workplace” is defined to encompass “premises” where work is or is likely to be performed and the vicinity around the premises where plant or equipment is kept. The term “premises” is defined to include “any vehicle, vessel or aircraft”, “...any installation on land, on the bed of any waters or floating on any water”, and “...any structure or area, enclosed or otherwise, ...wherein or whereon any plant is, or is erected, kept, used, worked or in operation.” The term “plant” in turn is defined widely so that it would clearly cover any equipment supplied by a scuba operator to instructors, dive masters or customers at a workplace. (See section 6 of the *Workplace Health & Safety Act 1989*). A breach of the Act may simultaneously impose criminal liability, confer a right to sue for damages for breach of

statutory duty, or be relied on by common law courts as evidencing a breach of a tortious or contractual duty of care.

Section 9 of the act provides that an employer who fails to "... ensure the health and safety at work of all of his employees, ... commits an offence". Section 10 imposes duties on employers to ensure that "... persons not in his employment and members of the public" are "... not exposed to risks arising from the conduct of his undertaking". Section 11 requires persons who have control over premises or plant to ensure that the "... premises and means of access thereto or egress therefrom" are "safe and without risks".

Whilst the provisions of the Queensland *Code of Practice for Recreational Diving* cannot of themselves create civil or criminal liability, they can be applied parasitically to make a defendant criminally liable unless he or she satisfies the court that the Act had in fact been complied with. This in turn will give rise to an action for damages for breach of statutory duty as the provisions of s 34(8) referred to above will not apply in such a case. This is because it could not be said that liability was claimed "only" on grounds that a person had "failed to observe" a provision of the "Code".

**Gaps In The Regulatory Cover.**

While the existing levels of regulation may appear daunting, they do have deficiencies that make them less effective than first appears. Some of these problems are set out below.

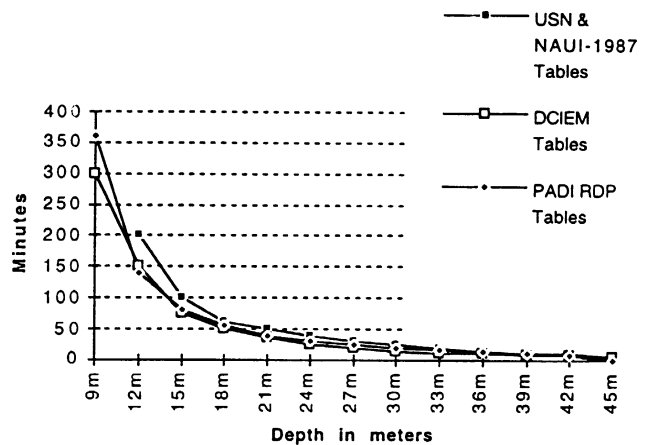
**PROBLEMS WITH THE SELF-REGULATORY MODEL**

The politics of self-interest is a major problem as each of the diver training organisations is a business enterprise that compete against the others for clientele. Then there is the competition between dive shops, often belonging to the same organisation, in an area. As a result, open co-operation in order to improve diver safety by adopting common "best practices" is limited to those instances where these agencies do not have a major clash of interest or philosophy. One example of this is found in the failure of the various dive organisations to agree on and endorse a common set of conservative no-decompression tables.

For example, until 1990 NAUI manufactured and marketed to its members dive tables utilising the US Navy Tables.<sup>10</sup> Since 1990 NAUI has employed a modified version of the US Navy Tables. PADI recommends and markets tables developed by the Diving Science and Technology Corporation (DSAT), a PADI affiliated company. Each of NAUI, PADI and most other dive training agencies profit from the sale of their own tables to their divers. Naturally, they are reluctant to forego this

income in order to adopt a different set of dive tables. This is notwithstanding the availability, since 1983, of more conservative tables produced by the Canadian Defence and Civil Institute for Environmental Medicine (DCIEM).<sup>11</sup> Figure 2 is a comparison of these tables.

**FIG 2  
DIVE TABLE COMPARISON**



Surprisingly, little litigation has resulted so far over the differing levels of safety represented by these various types of tables. One exception was *Andrewartha -v- Coolangatta Dive & Rawlins* that came before the Queensland District Court at Southport in 1994. In that case, in which I appeared as counsel for the plaintiff, a diver got bent on a dive planned and supervised under the NAUI 1990 tables. The diver claimed damages for negligence on the basis that the dive should have been planned and conducted in accordance with the more conservative DCIEM tables. The action against the dive master settled for \$80,000 plus costs and the claim against the dive charter company resulted in a no-contest verdict of approximately \$300,000 plus costs. Since the *Andrewartha Case*, which involved injury sustained in 1990, the federal *Trade Practices Act 1974* has been amended to impose on manufacturers and suppliers strict liability for dangerous and defective goods, (see Part VA). Merchandise such as dive tables and dive computers are clearly goods under the Act. In consequence, divers who suffer the bends through relying on less conservative tables will, in future, have a better target when seeking to recover compensation for their injury.

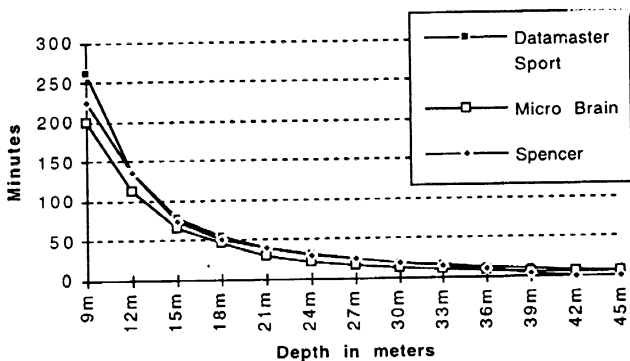
The inability of the diver training organisations to co-operate is reflected in all regulations that the interested organisations have had a part in formulating. For example, Australian Standards are formulated by a committee composed by representatives of the various state and federal regulatory bodies and the various industry bodies. As a result of the differences between the states and between the industry bodies, neither Standards Australian

nor the Queensland legislature endorse any particular set of dive tables as a minimum safety standard.

For example, Clause 3. 9 and Appendix B1 of AS2299-1990 require that occupational diving be conducted in accordance with decompression tables “approved by the relevant authorities”. The Standard then goes on to specify that the US Navy tables, the RN and the RAN tables, and the DCIEM tables are examples of tables that have such approval. Some of these tables, such as the US Navy tables, are less safe than others, such as the DCIEM tables. And there is also a great deal of variation in the safety of different dive computers (see Figure 3).

FIG 3

VARIATION IN DIVE COMPUTERS



This absence of a uniform standard for decompression tables is carried through to the Queensland *Workplace Health & Safety Regulations 1989*. These regulations incorporate AS 2299 and require divers to adopt a set of dive tables that is approved by the Australian Standard. Similarly, the *Workplace Health & Safety (Recreational Diving) Code of Practice 1992* also fails to establish a minimum safety standard for dive tables. The Code merely provides that recreational dives be “... planned consistently and conservatively” according to a set of “recognised” tables. But the Code then prescribes that the “... tables approved by a scuba training organisation” and any “... dive computer used in accordance with manufacturers instructions”, are recognised for the purposes of the Code, (see clause 2. 2(m) of the Code). But what is conservative under one set of tables may be less than conservative under another. But diver training organisations should draw little comfort from this legislative dithering. The level of care required by Standards and Codes of Practice are merely floors, not ceilings. An individual can still incur legal liability even if they have complied with the minimum standards required by legislation.

Those working within the industry are aware of and express concern over the lack of cooperation between the diver training agencies, industry representatives, and government agencies.<sup>12</sup> But the lack of cooperation is an

intractable problem that will not be solved merely by awareness. In the writer’s view, this is an area where self regulation and consultation has failed. The only suitable response to this failure is direct legislative intervention.

THE COMMON LAW

For defendants, the common law is not as scary as it seems. The common law is uniform and flexible, but it is also slow, expensive and unwieldy in action. It is not unusual for an injured party, depending on the court jurisdiction involved, to wait between 3 and 5 years for a trial. In the meantime, the victims of the accident are left injured, often unable to work, and at the mercy of a legal system that cannot properly satisfy their needs.<sup>13,14</sup>

The injured plaintiff must sue if he or she wishes to be compensated for the injury. But when they resort to the legal system for assistance they encounter a number of barriers. Most injured plaintiffs are either out of work because of their injury, or were not in a good financial position to begin with. First they must find a lawyer willing to accept their case. This is difficult unless they have an excellent case and the lawyer is willing to spec his or her fees on the outcome. But even then, few lawyers will gladly fund expenses. Second is the threat posed by the English Cost Rule. That rule provides that the loser in court will have to pay the major part of the winner’s costs. These costs could amount to many thousands of dollars on top of the expenses they must pay out to prosecute their case. This rule is a daunting threat as a middle class plaintiff risks losing everything if the case is lost.

The result is that many plaintiffs with legitimate claims do not sue. And most of those with excellent cases settle out of court for a less compensation that they really deserve.<sup>14</sup> These facts, and the ready availability of insurance, all operate to eliminate much of the incentive to improve safety within the diving industry. Nonetheless, some cases are brought and there is no doubt that they have an beneficial impact on the behaviour of the industry as a whole.

THE HUMAN FACTOR IN DIVER REGULATION.

The Queensland Workplace Health and Safety Legislation has received considerable criticism from many in the recreational diving industry. A recent survey of Queensland dive operators and dive instructors has gauged the extent of this concern.<sup>15</sup> Of the respondents surveyed, 48% considered the legislation to be unnecessary and unrealistic; 19% considered it to be complex and bureaucratic; 24% reported encountering difficulties in dealing with diving inspectors; and 27% had experienced difficulty in implementing the requirements of the legislation.<sup>15</sup> Indeed, the majority of the responses to the legislation were negative.

While the survey indicates great dissatisfaction with the legislation, this does not mean that the criticisms identified in the survey are all justified. There may be ulterior motives behind why many in the dive industry oppose greater regulation. Work within the diving industry does not pay well. But for the positive lifestyle factors associated with diving work, few would continue working for the money per se. Any regulation that impacts negatively on these lifestyle factors will make work in the diving industry less attractive. It is therefore to be expected that new legislation like, the *Workplace Health and Safety Act 1989* and the *Workplace Health and Safety Regulations 1989*, will receive a poor reception.

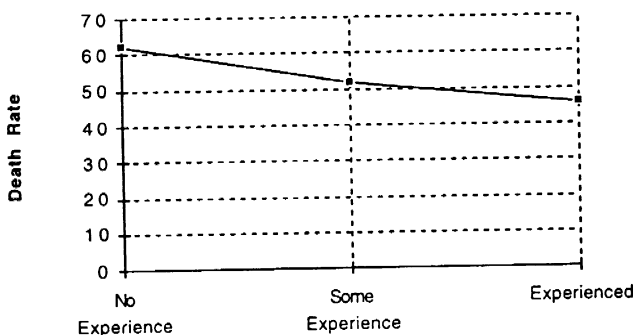
To what extent ought regulatory authorities take dive worker job satisfaction into account when designing regulations. On one view, the maintenance of the lifestyle rewards should not have priority over the safety of the diving public. But on another level, how great is regulatory compliance likely to be if those within the industry resent and oppose the very legislation they are required to implement? In all regulation, the weak point is always the human factor. At the end of the day it is people, and not legislation, that prevent accidents. Legislation merely provides another incentive for people to adopt safer practices. Only time will tell how effective the Queensland Workplace Health and Safety legislation is likely to be in achieving this goal.

**LACK OF SKILL AND FITNESS REGULATION.**

There is little doubt that most diving incidents are avoidable with greater skills and training. Figure 4, which is based on information from Project Stickybeak reported in *Scuba Safety in Australia*,<sup>1</sup> demonstrates a clear correlation between the level of diver experience and the rate of diver fatalities.

**FIG 4**

**RELATIONSHIP BETWEEN DIVER EXPERIENCE AND DIVER DEATH RATES**



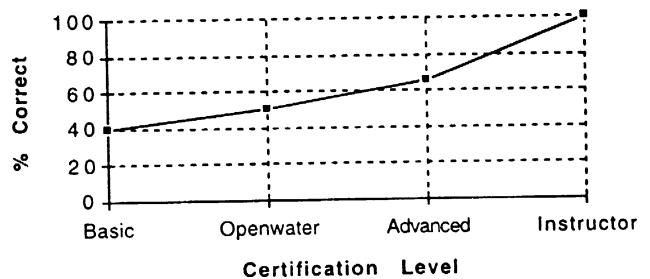
One cause of scuba injury and death is decompression sickness. Figure 5 identifies the main factors contributing to the incidence of this condition.<sup>16</sup> Virtually all of these factors may be reduced by ensuring that minimum diving skills remain current.

This highlights the main weakness in the current regulatory regime. There is no legal requirement that a diver maintain a base level of diving skill by conducting a minimum number of dives per year. Clearly, divers do dive when their base skills are rusty. For example, one 1992 study found that 15% of divers diving from one dive charter boat had not dived at all in the preceding 12 months.<sup>17</sup>

Once a diver is certified he or she is entitled to dive. Few dive operators insist that dive clients produce log books to demonstrate the proficiency and currency of the client diver's skills. But there is little doubt that divers' skills do deteriorate over time. A survey of SPUMS members conducted in 1988 revealed an abysmal lack of knowledge in the use of decompression tables.<sup>18</sup> This survey revealed a direct correlation between proficiency in table use and diving experience. The results of this survey are set out in Figure 6.

**FIG 6**

**DIVER EXPERIENCE AND DIVE TABLE PROFICIENCY**

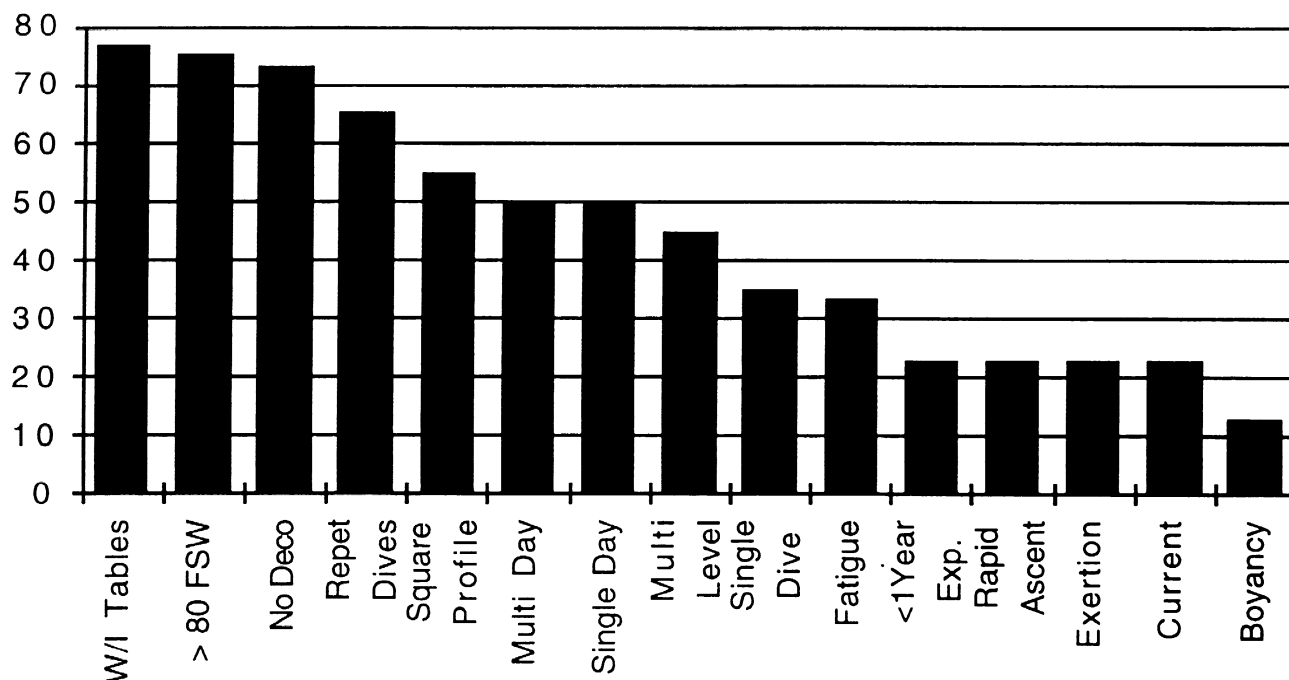


A further problem is the absence of any requirement that divers undergo regular diving medical assessments. While a diving medical is compulsory for initial certification, once divers are certified they need not again to demonstrate he or she remains medically fit for diving. Clearly, an individual's fitness to dive is not a constant. It changes with age, intervening injury, illness and the nature of the diving activities being undertaken.

**Conclusion**

There is no doubt that scuba diving has become safer over the last three decades. While reliable statistics do not exist, some studies have demonstrated that scuba diving is presently safer than many other sports.<sup>19</sup> While these facts are cause for celebration they are not cause for

FIGURE 5  
DECOMPRESSION SICKNESS PROFILE



complacency. Avoidable scuba accidents do continue to occur, and when they do occur, they result in an unacceptably high cost to life and health.

Most of the past improvements in scuba safety have resulted from better training and fitness on the part of those involved in the sport. But the impressive gains of the past are unlikely to be repeated in the future without greater co-operation between the diver training agencies and greater ongoing supervision over the currency of diver fitness and skills. These two factors are, in the writers opinion, the areas that show the most promise for further gains in dive safety.

It is essential that diver certification and medical fitness be subject to regular review. This may be achieved without direct legislative intervention only if all diver training agencies were to adopt minimum and uniform standards to regulate certification currency. In the writers view, it is also a priority that diver training agencies achieve similar uniformity on other currently non-uniform practices, such as decompression table use and dive computer use. The foregoing need not impose unnecessary red tape or financial burden. The requirement for ongoing certification review would likely increase the level of work available for the Queensland dive industry and this ought to cover the cost of implementing new rules.

#### References

- 1 Wilks J, Knight J and Lippmann J. Eds. *Scuba Safety in Australia*. Melbourne: JL Publications, 1993
- 2 Bureau of Tourism Research. *1991 International Visitor Survey*. Canberra: Bureau of Tourism Research, 1991
- 3 Wilks J. Calculating diver numbers: critical information for scuba safety and marketing programs. *SPUMS J* 1993; 23 (1): 11-14
- 4 Queensland Dive Tourism Association. *Dive Tourism Accident Bulletin Number 2*. Brisbane: QDTA, 1990
- 5 Wilks J, Knight J and Lippmann J. Eds. *Scuba Safety in Australia*. Melbourne: J.L. Publications, 1993: 53-63
- 6 *Trade Practices Act 1974 (Cwth)*, ss 68 and 68A
- 7 Flemming JG. *The Law of Torts*. 4th Ed Sydney: Law Book Company, 1971: 122
- 8 Thayer. Public wrongs and private action. *Harv L Rev* 1913; 27: 317
- 9 *Workplace Health & Safety (Recreational Diving) Code of Practice Approval Notice 1992* (Subordinate Legislation No. 414)
- 10 Lippmann J. *Deeper into Diving*. Melbourne: JL Publications, 1990; 237
- 11 Canadian Defence and Civil Institute for Environmental Medicine, *DCIEM/Canadian Forces Table 1*. 1983
- 12 Wilks J and Beecham V. Consumer perceptions of



- workplace Health and Safety legislation. *J Occup Health Safety - Aust NZ* 1993; 9 (3): 229, 235
- 13 Davis R. Negotiating personal injury cases: a survey of the attitudes and beliefs of personal injury lawyers. *Australian Law Journal* 1994; 68: 734, 740-744
- 14 Davis R. Why are plaintiffs the losers in negotiations? *The APLA Update* 1994; 3 (April): 4
- 15 Wilks J and Beecham V. Consumer perceptions of workplace Health and Safety legislation. *J Occup Health Safety - Aust NZ*, 1993; 9 (3): 229
- 16 Divers Alert Network. Report on 1988 diving accidents, reported in figure 5.1.1 in Lippmann J. *Deeper into Diving*. Melbourne: JL Publications, 1990; 73
- 17 Wilks J and Christie L. Natural observations of diving incidents. *SPUMS J*, 1992; 22 (3): 143-147
- 18 Knight J. SPUMS members and the tables. *SPUMS J* 1988; 18 (3): 115
- 19 Wilks J. Scuba diving safety: a letter to the Editor. *Med J Aust* 1992; 156 (April 20): 580

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## LEGAL RELEASES IN RECREATIONAL SCUBA DIVING

Bill Turbeville

### Introduction

There are two opposing views of legal releases in scuba diving. They can be considered as a necessary shifting of risk or unconscionable shafting of the diving public. Those that require the diver to sign away all rights arising from the dive instructor's or operator's negligence produce the most emotion.

### The Madison Decision

On July 29, 1986, Ken Sulejmanagic signed up for a scuba diving course at his local YMCA in Southern

California. During the initial enrolment procedure, Ken, who was nineteen years old at the time, was asked to sign a document entitled "NAUI Waiver, Release And Indemnity Agreement". The document Ken signed provided in relevant part as follows:

For and in consideration of permitting (1).....to enrol in and participate in diving activities and class instruction of skin and/or scuba diving given by (2).....the Undersigned waives and relinquishes any and all actions or causes of action for personal injury, property damage or wrongful death occurring to him/herself arising as a result of engaging or receiving instructions in said activity or any activities incidental thereto wherever or however the same may occur and for whatever periods that activities or instructions may continue, and the Undersigned does for him/herself, his/her heirs, executors, administrators and assigns hereby release, waive, discharge and relinquish any action or causes of action, aforesaid, which may hereafter arise for him/herself and for his/her estate and agrees that under no circumstances will he/she or his/her heirs, executors, administrators and assigns prosecute, present any claim for personal injury, property damage or wrongful death against.....or any of its officers, agents, servants or employees for any of said causes of action, whether the same shall arise by the negligence of any of said persons, or otherwise. IT IS THE INTENTION OF (1).....BY THIS INSTRUMENT, TO EXEMPT AND RELEASE (2).....FROM LIABILITY FOR PERSONAL INJURY, PROPERTY DAMAGE OR WRONGFUL DEATH CAUSED BY NEGLIGENCE.

Ken proceeded through his scuba diving course, apparently without mishap, and completed all requirements except for one open water dive which he had missed. On November 15, 1986, Ken went on a make-up dive with his instructor and a recently certified diver in the ocean off southern California. During the course of the dive, Ken ran low on air. Rather than terminating the dive at that point, Ken's instructor elected to accompany him to the surface and instruct him to swim to the dive buoy that had been anchored at the site prior to the commencement of the dive.

The instructor then returned to the bottom to continue his dive with the other diver, which lasted about another ten minutes. When the instructor and his buddy surfaced, Ken was no where to be seen. They were approached by another diver who asked if "they had been the ones yelling for help," which immediately led the instructor to believe that he had a significant problem on his hands. A search was made and Ken's body was located on the bottom. All resuscitative efforts failed and it was determined that Ken died from asphyxiation secondary to salt water drowning. Ken's parents promptly brought suit for the wrongful death of their son against the YMCA and Ken's instructor. Both defendants filed a motion for summary judgment basically stating that whether their actions