

Book Excerpt

Chapter 1

Why Investigate Diving Accidents?

When people go underwater, whether it is for recreation or work, there is always the potential they may be injured or killed. Even the most beautiful coral reef located near a “tropical paradise” must be considered a potentially hostile environment, because whenever people dive, accidents are always possible.

In recreational diving, people go underwater to have fun. The training that they receive in their initial diver training course normally includes the basic skills for survival underwater. In most cases, this training is not enough to produce a proficient diver. Only through repeated practice and numerous dives under a variety of conditions does a diver begin to accumulate the knowledge, judgement, and comfort level in the water to handle challenging conditions underwater.

For the purposes of this book, “technical diving” has been included under the heading of recreational diving. In technical diving, people use advanced equipment to reach extreme depths or extend their bottom time beyond what is considered normal for recreational diving. However, the purpose of technical diving is still recreation, i.e., the diver is not being paid for his time underwater.

Between the recreational diver and the hard-core commercial diver lies another category of diver that could be called the “professional diver.” These are people who work underwater, but are not involved in operations such as heavy construction or salvage, and do not have the level of support found in most commercial diving operations. This group might

include public safety divers, professional underwater photographers, marine biologists and archaeologists, seafood divers, and others involved in similar occupations. They are paid to go underwater and perform work, but their tools are usually cameras, collecting nets, rakes, or similar items. Their training usually exceeds that of the sport diver, but does not match that of the commercial diver.

In commercial diving, people go underwater to perform heavy work, usually involving some type of tool, and frequently under demanding conditions. Like recreational diving, the commercial



Fig. 1.1 All diving has a certain degree of risk involved.

Why Investigate Diving Accidents?



Fig. 1.2 Commercial divers go underwater to do many different types of work.

diver's training is usually only sufficient to produce a novice diver. In the commercial world, the novice diver is known as a "tender,"; i.e., a person with sufficient training to allow them to function as an apprentice. It usually takes several years before a new commercial diver has adequate experience and judgement to know what they can and cannot do and when it is wiser to decline to make a dive.

Recreational and commercial diving accidents occur for a variety of reasons. People are human and make mistakes, placing themselves in situations that exceed their training, their personal limitations, and the limitations of their equipment. Divers experience "undeserved" cases of decompression sickness, unprovoked lung over-expansion injuries, and heart attacks that just happen to occur while they are diving. Equipment can fail unexpectedly and weather and sea conditions can change dramatically. External factors, such as boats that suddenly cross through the dive site, can also contribute to injuries and fatalities.

In many cases, there is no one single

factor that triggers a diving accident, but a variety of individual contributing elements that collectively add up to a mishap which usually could have been prevented. When this unfortunate combination of events occurs, the final trigger may obscure the underlying events that had to take place before the accident would happen.

Accident Investigations Satisfy Needs

Diving accident investigations satisfy the diverse needs of different people and various organizations in different ways. While these investigations may focus on specific aspects of an accident, the reports generated by dive accident investigators will usually have many similarities.

At the most basic level, an accident investigation will help to identify why a particular injury or fatality took place. This information will frequently be used to help create regulations or procedures that will help prevent this type of accident in the future. Investigations will

Investigating Recreational & Commercial Diving Accidents

often identify a weak point in training, procedures, or equipment.

Law enforcement authorities with very different responsibilities typically approach diving accidents as though a crime has been committed. Until a death has been investigated, it is usually impossible to know why it has occurred. In many jurisdictions, diving accidents are treated as homicides until proven otherwise.

Another indirect result of dive accident investigations is to satisfy the family's need to know about the cause of death of a loved one. While this is rarely the prime motivation for an investigation, it is one of the more satisfying end results of an inquiry of this type.

Other Types of Investigations

Insurance companies that write policies for dive stores and diving instructors routinely investigate diving accidents. The purpose of these investigations is to collect the facts and document the evidence in the case. These investigations are done under the assumption that litigation will be filed against the insured store or instructor. Attorney-client privilege may extend to the investigator in these cases.

The United States Coast Guard may

investigate diving accidents to ensure that there have been no violations of the commercial diving regulations, rules of the road, or safe boating practices. OSHA, the Occupational Safety and Health Administration, also conducts investigations into some commercial diving accidents. They have their own set of regulations and may levy fines on violators of the OSHA standards.

Litigation frequently occurs following a diving accident, where the family of the deceased or the injured diver attempts to recover damages from the party they believe to be responsible for the injury. Attorneys for plaintiffs may hire their own investigators and/or experts to try to determine the cause of the accident to decide whether they are able to prove "damage" or wrongful death.

Putting Dive Accidents in Perspective

In an average year, there are usually 90-110 sport diving fatalities in the United States, plus many more non-fatal diving accidents such as decompression sickness. The Divers Alert Network (DAN) maintains records on diving accidents and distributes an annual report on fatalities each year.

It's difficult to put this figure in per-

Fig. 1.3 The Divers Alert Network issues an annual report on diving fatalities.



Why Investigate Diving Accidents?

Risk Recognition for Divers and Diving Professionals

If you are professionally employed in diving, be it recreational or commercial, you may, at some point in your life, be involved in a diving accident. The longer you teach diving, or the more commercial diving jobs you perform, the greater the odds are that you will witness or be caught up in the emotional trauma surrounding an injury or fatality. The minute details of the circumstances surrounding the accident will be scrutinized at the microscopic level.

To have a complete record of your actions it is essential to be sure that you complete and maintain all of the paperwork that surrounds your business. This includes, but is not limited to, the following:

- Waivers and releases
- Training records
- Applications for employment and/or training
- Records of personnel testing and/or training
- Equipment maintenance records and receipts
- Air samples
- Sales receipts
- Dive logs
- Physical exam forms

In the event of an accident, you will be asked to produce these documents and in all probability, many others. When an investigation takes place, these records will help to verify what took place in your operation prior to the incident .

spective because the exact number of divers there are in the U.S., or the number of dives they make each year are unknown. There is no central registry of divers, nor any government mandated logbook requirement as there is for aircraft pilots.

Current statistics from the U.S. Sporting Goods Manufacturers Association puts the number of active recreational divers in the U.S. at approximately 2.25-2.5 million divers. If the "average" diver makes approximately 12 dives per year, then it would appear that the number of fatal accidents is approximately one per 200,000 dives.

Scientific divers track the number of accidents among their ranks rather carefully and they have an extremely good safety record. Their organization, the AAUS (American Academy of Underwater Sciences) maintains high training standards and has requirements for routine diving physicals and recertification of their members. It is highly unusual for a scientific diver to die as a result of a diving

accident.

Unfortunately, it is much more difficult to know the total number of accidents for most other types of diving. There is no published annual report on deaths or serious injuries among professional divers, such as seafood divers or public safety divers, although sometimes these incidents are included in DAN's reports. Although OSHA collects statistics on these incidents when the information comes to their attention, they do not have the resources to proactively collect this type of data. Similarly, the statistics on commercial diving accidents are difficult to come by.

Financial Costs of Diving Accidents

The financial costs of even a sport diving accident, whether fatal or non-fatal, can be astronomical. Many different agencies may respond to a diving accident, with varying levels of involvement.

When a diving accident occurs at a



Fig. 1.4 The U.S. Coast Guard is usually the first agency to respond when an accident takes place at a remote location off the coast of the United States.

remote location off the coast of the U.S., the first agency that will usually respond is the U.S. Coast Guard. They will usually mobilize a rescue helicopter with a crew of four. Although they do not bill the public for their response to life threatening emergencies, you can imagine what it must cost to operate these aircraft.

If the accident takes place close to shore, or on the beach, the diver may still require an air ambulance if he needs treatment in a hyperbaric chamber and there is no facility close-by. Air ambulance costs run thousands of dollars per hour and not all insurance policies cover diving accidents.

If the diver is taken to a hyperbaric chamber for treatment, these facilities also operate at a high cost. Most chambers today are associated with hospitals and patients, or their families, are billed for all items used in treatment as well as for medical personnel who attend them. Some insurance policies do not cover diving accidents. Although some people

make dramatic recoveries from diving accidents, other people may need extended treatment or physical therapy.

Aside from the direct costs of dealing with a diving accident, there are also the costs of lost wages as a result of the death of a family provider, the cost of investigating the accident, and the cost of litigation, if it occurs.



Fig. 1.5 Treatment in a hyperbaric chamber is time consuming and expensive.

Why Investigate Diving Accidents?

Human Costs of Diving Accidents

While the financial costs of a dive accident are almost always high, the human costs are frequently higher. The loss of a loved one is irreparable.

For a sport diving instructor who has lost a student, or a commercial diving supervisor who has lost a diver, the toll in lost sleep and self-doubt can be overwhelming. It takes some people many years, if ever, before they can approach these situations with any degree of normalcy again. If litigation follows the accident, the human toll on all those involved escalates. In addition, should an individual be chronically incapacitated, or a child injured or killed, marriages may dissolve with all the attendant hardship associated with divorce.

The investigation, depositions, and courtroom testimony force the survivors to relive the incident over and over again. Even if the persons involved did nothing wrong, every action and response they

made will be scrutinized and questioned. It is a distinctly unpleasant experience for everyone who was present during the event.

Your Dive Accident Investigation

No matter what your purpose in investigating diving accidents, the basic approach will be the same. Certain techniques, procedures, and elements are common to all dive accident investigations.

Almost all dive accident investigations take place days or even weeks after the incident. In many instances, by the time the investigator gets involved, the body will already have been recovered, the equipment disassembled, and the witnesses dispersed to their homes. Unless the case is a fatality and the investigator was part of the team who helped to recover the body, the investigator will nearly always be dependent on the observations of others.



Fig. 1.6 Most dive accident investigations take place after the diver's body has been recovered.

Case History – Recreational Diving Accident

A female diver who was previously certified through a dive store, signed up to take an advanced diving class through the same store. She completed the open-water training for the basic course, but during one of the pool sessions, had an incident occur where she passed out briefly in the pool. The instructor was beside her during the incident and she was immediately revived.

The instructor attributed the incident to the weather, which was extremely warm, and allowed the student to continue the course and become certified. The student was never referred to a physician for examination following the incident.

During one of the advanced open water dives, the student became separated from her buddy and was later found dead on the bottom. In the course of the investigation, the incident during the first open water course was revealed. Subsequently, the store owner made mention that the student was thought to have rented some equipment from another local store.

The investigator traveled to the second store, where information was provided by the second store owner that the student had enrolled in a specialty diving course through his facility. A copy of the diver's student folder at the second store was provided. On the medical statement form the student indicated that she had been taking a prescription drug, Effexor, which is usually prescribed for depression. Side effects of the drug may include dizziness, impaired motor skills, and impaired judgment, all of which could obviously be serious underwater. Equally important, the diagnosis of depression is also critical when investigating an otherwise unexplained diving death. The student never revealed this information to the original dive store and the second store owner had missed this information.

If the second store had not been visited, this vital information would probably never have been discovered. This is just one example of the importance of following up on all potential information that you encounter during an investigation.

Note that with the passage of the Health Insurance Portability and Accountability Act (HIPAA) which went into effect in April of 2003, the collection and dissemination of medical information most likely will be more restricted. This will have a profound effect on investigations and provides for criminal penalties for violations of the law. It will also probably impact the medical history information that sport diving instructors may collect on their prospective students.

This book will help you to learn the procedures you need to conduct effective and complete dive accident investigations. There is no great mystery to this type of work, but you do need to have a better than average understanding of diving equipment, physiology, techniques, and procedures. You also must be tenacious in pursuing every piece of information relating to the incidents you investigate. The skills that you will need to be a successful investigator will be explored in

detail in other parts of this book.

While some people come by these skills and talents easily, others will have to apply themselves to develop the ability to produce professional quality reports. As with most things in life, it all boils down to a question of effort and desire, and how important it is to you to be successful in this field.

