

# Out of Control

Buoyancy control, perhaps one of the more confounding aspects of safe diving, is the subject here. Regulating buoyancy is not always easy, especially for beginners, and even experienced divers can lose control of it from time to time. Unfortunately, when buoyancy becomes a problem, peril may follow.

## Diver 1

That's what happened a few years ago to a 24-years old open-water certified diver. According to the DAN Report on Decompression Illness, Diving Fatalities and Project Dive Exploration (the 2004 edition based on 2002 data), this diver had received her certification seven months before the accident. In that time she had completed 15 dives. The trouble started when she was diving with a buddy at a depth of 60 feet (18 meters). The buddy experienced difficulty with his weight belt, and, while trying to assist him, she dropped her regulator from her mouth. Her buddy tried to help her, but his own situation wasn't improving. He lost his weight belt and had to surface. On the way he lost a fin, and his cylinder became detached from the tank harness.

It's unclear what exactly transpired next, but about 15 minutes later, she was found unconscious on the bottom with her regulator out of her mouth. She had made her final dive. We don't know the experience level of the surviving buddy or why he had such difficulties on this dive. Neither do we know what caused the diver to lose her regulator and be unable to recover it. It appears that the pivotal problem around which the tragedy unfolded was the surviving buddy's difficulty with his weight belt. Once you've lost or dropped a weight belt, there's no turning back. The beltless diver is positively buoyant and will most likely end up at the surface sooner rather than later.

As this accident illustrates, dealing with any other problems can become impossible when buoyancy control is lost. Problems with weight belts can take many forms. The first stems from the simple fact that as a diver descends, the wetsuit compresses, and unless it is adjusted, the belt becomes loose. In some cases, a loose belt can rotate around the diver's waist, positioning the buckle behind the diver's back. When that happens, it's nearly impossible to make further adjustments or to ditch the belt. At other times, divers slip up and accidentally drop their belts while attempting to make those needed adjustments.

## Diver 2

A completely different problem comes when a weight belt (or weight) is suddenly and unintentionally dropped during a dive. While the problem can arise from a diver's failure to make careful and timely adjustments to belt tension during the dive, it can also arise as the result of an equipment malfunction or failure. Consider the diver who had purchased a new pocket belt and had just made his second dive with it. At the conclusion, he noticed that the stitching on one of the pockets had failed, and the two-pound weight was dangling precariously from what remained of the pocket. It was a close call, indeed.

Had the failure occurred any sooner or progressed any further, a serious accident could have happened. While it's easy to assume that the diver's belt was faulty, we shouldn't overlook the possibility that a close examination of the belt before the second dive might have given the diver a clue that the belt was literally coming apart at the seams. Certainly any new weight belt should be durable enough to survive two dives, but we should never assume that because a piece of equipment is practically new that it is in good working order.

### **Diver 3**

Another case involves a diver who was wearing a borrowed weight belt. While attempting to ascend from a depth of about 35 feet (10 meters), the diver realized that he was unable to kick hard enough. Rather than ditching the weight belt – and risk losing it – the diver used the auto inflator to help himself ascend. Such incidents point out a common malady among divers – they worry more about the equipment they are wearing than about their own safety. While nobody wants to lose a perfectly good piece of dive gear, we would do well to remember that the whole purpose of our dive gear is to keep us alive. If that means we lose the gear in the process of staying alive, then so be it! Over-weighting is another oft-ignored issue. When divers carry more weight than necessary, they also carry more air in their buoyancy compensation devices (BCDs) than needed.

As the diver changes depth, the resulting change in buoyancy is greater. For example, consider a diver who is overweighted by 3 pounds (43.75 oz.) and offsets that with enough air to generate 3 extra pounds of buoyancy at depth. When that diver ascends, this extra air expands, making him more buoyant than he would be if he had been properly weighted to begin with. If he descends, that air compresses, and more air must be added to remain neutrally buoyant. As a result, it is more difficult to control buoyancy throughout the course of a dive, and the potential of overcontrolling or losing control is heightened. Weight belts are not the only problem when it comes to buoyancy control. Buoyancy problems can also develop as a result of a BCD failure or malfunction. The underlying cause may be a manufacturing defect, design flaw or maintenance oversight as in the following case.

### **Diver 4**

The 35-year-old open-water certified diver with more than 100 logged dives experienced a “near miss” while on a training dive that was part of a program in advanced-diver certification. It was the second dive of the day, and the diver had begun ascending from a depth of 83 fsw (25 msw) when he realized his buoyancy was improperly adjusted. As he tried to inflate his BCD with the auto-inflator, bubbles gushed from an open port on the device. About that time, the instructor approached the diver with a spring-valve seat and screw-on cover for the BCD overpressure relief system in his hand. Apparently, the relief valve cover had been loose and fell off during the dive. Fortunately, the diver was able to continue his ascent and reassembled his BCD after he left the water. It’s common for divers to give themselves “mental head-slaps” when situations such as this occur, but in reality, such situations can be much more serious than we like to admit. Perhaps the only thing separating this final incident from the fatal injury of our first report’s victim is dumb luck, and that’s nothing to trust your life to. By looking at these accidents and incidents, we can fine tune our procedures and attitudes, and enjoy safe diving.

### **About the Author**

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