

The HangLine

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Murphy's Law and Technical Diving

The term was made famous in 1949 by Captain Ed Murphy, an Air Force engineer working on an experiment to determine how much force a person can stand in a crash. It came about after some wires on a piece of equipment were installed backwards. What Murphy actually said was;



would become the first of many 'wise' decrees later known as 'Murphy's Law'. We think Captain Murphy must have been a diver as well. In fact he must have been a seasoned technical diver because his other principles are incredibly relevant to typical problems experienced by extended range divers.

Murphy's Law states that...

"If that guy has any way of making a mistake, he will."

{Referring to the assistant who installed the wires} Nonetheless the remark began what

Everything takes longer than you think.

This is especially true if you think the task you plan to complete under water (such as photographing an octopus or raising an outboard motor with a lift bag) can actually be accomplished in a predetermined period of time. Always count on an objective requiring twice the amount of time to complete than estimated.

If there is a possibility of several things going wrong, the one that will cause the most damage will be the one to go wrong.





It is never the smaller more trivial aspects of a dive plan that give us grief. Of course not, that is why they are trivial or minor in nature. Of all the hoses that can rupture on a dive, the high pressure hose will be the one to go. The high pressure hose is just as reliable as any of the other hoses but it is the hose that will give the most grief to a diver.

If there is a worse time for something to go wrong, it will happen then.

This rule suggests that a high pressure hose will not rupture on the surface or at the end of the dive, it will likely occur when you are at the furthest point from the exit in a cave or the deepest point in a deep dive. If something can go wrong, it will go wrong at the most in-opportune time, like a fin strap breaking on the one dive in the last ten years you forgot to bring a spare.

If anything simply cannot go wrong, it will anyway.

Keep in mind that a dive plan can never be fool proof. The same goes for dive gear. Despite our efforts to try and reduce the number 'failure' points in our equipment, no piece of equipment is totally infallible. We once heard about a skydiving student who quit his lessons before making the first big jump. It was after his instructor stated that the only way to absolutely guarantee a risk free jump was to not make the jump. The student died in a car accident twenty minutes later on the freeway driving home from the sky diving school.

If you perceive that there are four possible ways in which a procedure can

go wrong, and circumvent these, then a fifth way , unprepared for, will promptly develop .

The message here is to keep an open-mind and continue to reassess every aspect of your dive plan; before, during and after the dive. Train yourself to be flexible in the water, capable of calmly managing anything that comes up.

Left to themselves, things tend to go from bad to worse.

Do not ignore the little problems that you discover. That high pressure hose or o-ring seal that has a tiny trickle of bubbles coming from it might look harmless yet it is irresponsible to discount that at 3000 feet inside of a cave it will rupture.

Mother Nature is a bitch.

It is arrogant and naïve to think that you can control or predict Mother Nature. The answer is simple, respect the environment you are in by trying to learn as much about it as you can, and then presume you know nothing.

It is impossible to make anything foolproof because fools are so ingenious.

This rule was written especially for divers who own rebreathers and underwater cameras. Technology has significantly improved the dependability of dive gear to a point where we begin to convince ourselves that nothing can possibly go wrong. Yet despite the vast improvement in equipment design we still manage to find





ways to flood our camera housing or snag a 'snag-free' cave reel. Nothing is fool proof.

Every solution breeds new problems.

Many manufacturers discourage modification to their equipment because it can cause other problems. Equipment modification can be a very useful and valuable method to 'tweaking' your personal gear, however make sure you test it in a controlled environment and ask yourself how your modification may cause other problems..

Personally we believe that Murphy's Law is directly related to Dalton's Law of Partial Pressure in that the increase in pressure caused by deep diving increases the potential problems insinuated by Murphy (PPML), just as it increases the partial pressure of Oxygen (PPO₂) and Nitrogen (PPN₂). As we descend beneath the surface, the pressure on our bodies increases 1 ATM every 10 meters (33 feet) of salt water. That means that at 46 MSW (150 FSW) there is 5.55x more pressure exerted on our body and we believe a 5.55x increase in probability that Murphy will be there on our dive. Don't think so? Consider the following;

While a diver is cruising along a deep wall at around 46 MSW (150 FSW), a strong current begins to build, and before long his regulator begins to free-flow (the water at depth is cold and he is breathing hard causing his first stage to freeze). While switching to the long-hose on his dual outlet manifold, the force of bubbles, current, and tangled neck lanyard, take his

mask off. As he fumbles for his spare mask, the diver inadvertently knocks one of the two clips of his stage bottle free and the imbalance of weight has swung the diver in such a position that he cannot dump air from his BC. He now begins to ascend rapidly because the current has lifted him a bit, the unreleased air in his BC and drysuit expands rapidly and he is breathing even faster and shallower, making his lungs more positively buoyant. While he is trying to reach for his stage bottle, his reel comes undone and sinks to the bottom. The second clip on the side mount now comes undone and the stage bottle sinks away, ripping the regulator from the diver's mouth as it snags on the long hose. The quickly ascending diver now blows his deco profile and not only seriously risks a DCS hit (about a 99% chance) but because the whole event took less than 20 seconds, an embolism as well (a rapid ascent from 46 MSW (150 FSW) with uncontrolled breathing).

~ The Gang at DFP

