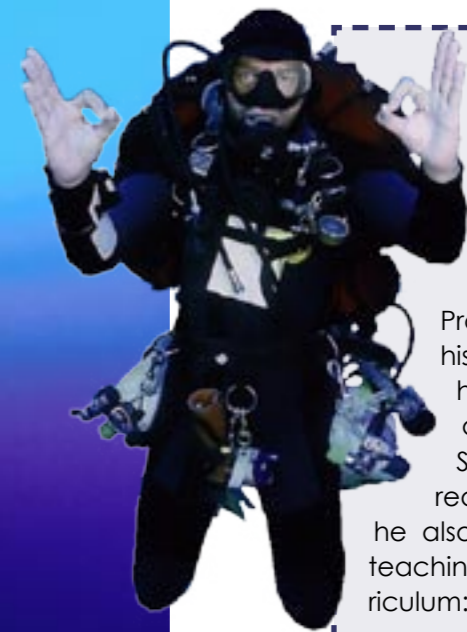




# technical matters

Leigh Cunningham

Now, what if a hose bursts?



Leigh Cunningham is the technical manager and TDI Instructor Trainer for Ocean College, Sharm El Sheikh.

Probably best known for his records - Leigh once held the record for the deepest dive in the Red Sea - and attempts of reaching extreme depths, he also has a wide range of teaching credentials to his curriculum:

TDI instructor trainer, DSAT Tech Trimix instructor, PADI MSDT IANTD Technical diver instructor CMAS 3 star instructor.

**When divers run out of gas in open water it can only be down to two possible explanations. Either they haven't been monitoring their pressure gauges and plainly run dry. Or they have suffered some equipment malfunction such as a regulator free flow or a split hose which are technical breakdowns that can happen even to the most conscientious, experienced and well trained diver.**

**But how do we prepare for these eventualities? Do we just rely on our buddy to sort us out? And is that a wise policy?**

Training agencies differ in the degree of self sufficiency training at recreational levels. Most of them instruct divers to, when in a situation where they run low or out of gas, to swim to their "buddy" and share gas from an alternate second stage, or octopus as it is widely known. This obviously requires that the buddy is within swimming distance, which is why we are also taught to keep fairly close together in buddy pairs should anything of this sort happen, however unlikely it may seem.

According to conventions, the alternate second stage, or octopus, should be clearly stowed in the imaginary triangular area between the chin and the lower corners of the rib cage from where it can easily be seen and grabbed in case it is needed. If, however, the diver low on air is too far away from his buddy, the next option would be to swim directly to the surface while exhaling or perhaps breathing from a free flowing regulator. In either case a difficult task. So much for the theory.

### In reality

In my experience, however, in the real world of diving things may be a lot different. One of the most commonly seen deviations from recommended practice are divers stowing their alternate air source octopus in a BCD pocket or have it dangling freely somewhere behind them. Sad but true. Secondly, buddy pairs, once they are beyond their basic training course rarely do a proper buddy check before entering the water ensuring that they know the whereabouts of the very alternate air source that they may urgently need later. And thirdly, they are rarely looking at each other when one runs out of gas. The victim of an out of gas situation will already be under significant stress and only more so if he also has to swim some

distance to reach his buddy. If he then, on top of everything else, also has problems locating a not so clearly seen alternate second stage, the situation will very soon, needless to say, become very serious if not already.

### CESA

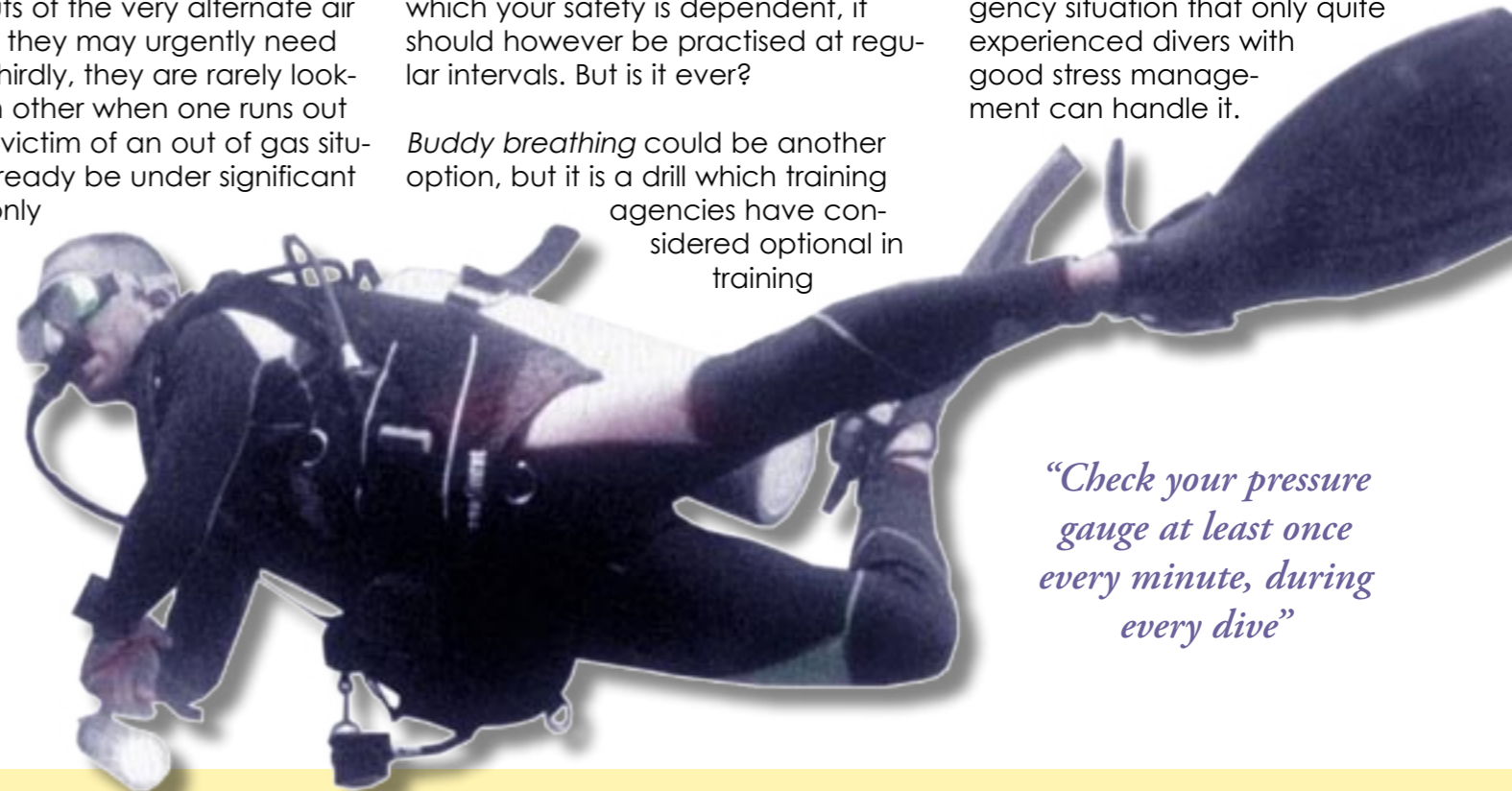
Another option may be performing a controlled emergency swimming ascent (CESA), this is, however, a skill we practice only once during basic training—unless we become instructors ourselves. As with any other skill upon which your safety is dependent, it should however be practised at regular intervals. But is it ever?

*Buddy breathing* could be another option, but it is a drill which training agencies have considered optional in training

for many years now. It is certainly a good exercise and eye-opening experience to practise under controlled circumstances. But as the training agencies also came to realise over time, it is also a drill so fiendishly difficult and stressful to perform under a real emergency situation that only quite experienced divers with good stress management can handle it.

# Solo or not?

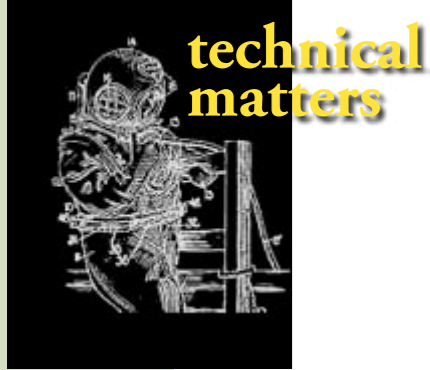
Text: Leigh Cunningham. Photos and graphics: Peter Symes



*"Check your pressure gauge at least once every minute, during every dive"*

Solo or Not?





Besides, if a skill is optional, most instructors will not practice it with students and few divers, whatsoever, will keep on practising the skill after training.

Usually mentioned in an open water course is the possible advantages of a pony bottle or a small spare air cylinder, but a mention is usually all it gets.

**Buddy check**

The buddy check gets more than a mention, and is in fact mentioned and practiced every day during basic training. Buddy checks should be a standard procedure for novice divers only. Experienced divers at all levels should not need a buddy check. Why? Basically because you must always be the one responsible for your own life support systems. It should never be up to another diver/buddy to check your life support system (scuba unit) is functioning how it should be. It's your life on the line. All divers diving together should however be aware of their partner's

specific equipment configuration, especially where their alternate air sources are, which type of releases are on the BCD/harness and what type of weight system, integrated or weight belt, they use.

In my humble opinion, for the vast majority of divers the buddy system as we know it, is seriously flawed!

**What if...?**

Here is a little reality check: If a diver runs out of gas and swims some distance to reach and share gas with their buddy and the buddy is unaware of the problem, what is most likely going to happen is that the diver who is out of gas is going to grab the first second stage they see and know is working, which is the one the buddy is already breathing from.

With this in mind, a better method of training and diving would be for divers to normally breathe from the longer of the two hoses (the one we would usually consider to be the alternate second stage, or octopus) and stow the other second stage (on the shorter of the two hoses) under the chin with a bungee cord around the neck.

What would then happen in the aforementioned scenario is that the diver who is out of gas would take the second stage from his buddy's mouth. The buddy would then replace this second stage with the alternate second stage, which is easily located just inches away right under the chin. The out of gas diver would then also be breathing from the longer of the two hoses, making gas sharing much more comfortable

But you are *still* dependent on your buddy. A different and bet-

ter approach to prevent out of air situations is to have another air source on board yourself. Depending on your style of diving, it need not be a twin tank with manifold. A pony bottle or spare air cylinder would still be a great help for many recreational divers. A little spare air tank doesn't hold much but a couple of extra available breaths may make for just the essential difference. Also ask your buddy to carry some extra air supply of his own.

Is this your buddy?

**Heard it before?**

Does all this start to sound familiar? Well it should, if you have been reading my series. We are revisiting the "redundancy ethic", I wrote about a couple of issues back. In the world of technical training, this approach to diving is the standard procedure and has been for many years. Put simply, according to the "redundancy ethic", anything that could possibly malfunction with a risk to your life as the result, should be duplicated with an independent back up system. While you may share together with someone, pretend that you will be diving alone and prepare and kit up accordingly, and dive within your limits.

We don't call it "Solo" diver training however. A more accurate term would be "following the laws of common sense". The technical diver is taught during formal training that the possibility of being split from the dive group or buddy always has to be taken into consideration. A diver may even have to complete a lengthy decompression obligation alone after being split from the rest of the dive team, so back up sys-



That good trusted old regulator. When was it again you had it serviced?

How far can you venture and still see yourself safely out of trouble in the unlikely event of a equipment malfunction?





and appropriate configuration for the type of dive along with "planning the dive and diving the plan". The technical diver does not have the option of a direct ascent to the surface after an equipment malfunction without getting seriously bent or even end up dead.

Ok, we are not all technical divers but the issues at hand applies to everyone. Even for the recreational diver in the 20-40 meter range, running out of gas due to a regulator malfunction or otherwise only to realise that the buddy is out in the distance swimming away from you, can have catastrophic affects. If you don't carry backup, a direct swim to the surface may then be your only option to prevent drowning, but at the same time more than likely lead to a series of recompression treatments and an abrupt end to your diving career. For all divers, whether adhering to the buddy system or not, if there was more emphasis on redundant systems during training, and their use after, less divers

would get bent or dead due to an out-of-gas situation.

### Diving solo

Maybe it should also be stressed that "diving solo" in this context isn't the same as diving alone. Diving is a social undertaking, and we like to share experiences under water. It doesn't

mean either that the proximity of your diving partner can't add to your safety, because help or just an extra pair of hands can indeed come in handy. It is about a mindset. Are you prepared, equipped and capable to independently take care of your own safety and not to make someone else responsible? A little mental exercise can come in handy here: Ask yourself whether you would be comfortable assuming responsibility for your buddy and getting him/her safely out of the water in case he has an accident. Maybe he is panic-prone, who knows? This is for qualified and dive professionals only, who, when you come to think of it, always have to dive solo when doing classes as they can't rely on anyone else to rescue them.

Do you bring your family on a dive vacation and do you dive with your kids? They are most likely not physically strong, trained or mentally prepared or mature enough to deal with any incidences. They can't be expected to react as fully capable buddies. Here too, you are in reality diving solo even though you may not be aware of it.

Do the right thing and be safe. ■

Where is that buddy when you need him?



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