The Quest for Perfect Buoyancy

For many divers, perfect buoyancy is a lifetime quest for a nirvana where they have acquired the gift of remaining completely motionless in the ocean in any position, relaxed, effortlessly neutral, a passive observer instead of a harbinger of doom for the marine life around them.

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Does this describe someone you know? Here are five tips to help you on your way to your own personal neutral nirvana.

1. Lose That Weight

The number one reason why many people find it difficult to attain perfect buoyancy is that they dive over-weighted and have to compensate for this by adding unnecessary air to their BCD. The excess air moves around within the cell as they swim and change position in the water and this makes it very hard for them to maintain their balance.

It also means they cannot become horizontal in the water as the weight around their waist carries their legs down while the air in their BCDs is around their shoulders and lifts their head up. It is this phenomenon that gives new divers that less-than-attractive seahorse posture.

How do you know if you are carrying too much? At the end of a dive when you have 50 bar or so in your cylinder, position yourself at safety stop depth, three to five metres, remove all the air from your BCD and try to remain neutrally buoyant. If you find yourself sinking and have to add air to your BCD to remain neutral you are carrying too much weight so get rid of it. If you find yourself tending to float to the surface then you are not carrying enough weight. Easy!

Mini-tip: if you have a lot on your belt and you worry that if you ever lost it you would be in risk of a runaway ascent, spread the weight about. Slide a kilo on your tank cam band, add small weight pouches to your harness or get a BCD with integral weight pockets. But don't attach too much weight in places where it can't be dumped. You would still need to be able to swim to the surface and keep yourself afloat there in the event your BCD were ever to fail.

2. Get Well-Acquainted with Your BCD

Once you are weighted correctly you only need to make small adjustments to your BCD from time to time primarily to compensate for the effect of changing depth and pressure on your wetsuit. But this fine-tuning is an advanced skill in itself and requires that you know your BCD well.

Spend time studying it, hold it up in front of you, turn it around and imagine where the air sits in the BCD when you are underwater. It will always gravitate to whichever part of your BCD is closest to the surface. Ask yourself which way you would need to turn your body in different situations so that the air is close to one of the pull-dumps and you can release it.

Learn where the controls are and practice using your BCD in a variety of situations until it becomes instinctive. For example, pretend you are in an environment such as a wreck or a cavern where you cannot make yourself vertical in the water and practice what you would do in such circumstances; roll your right shoulder down so your left shoulder is uppermost and use the pull-dump or dip your head and use your "tail dump", would be my suggestions.

Remember, if your inflator hose is on your left shoulder and, while underwater, you raise it above your head to release the air, this will only work if your left shoulder is the part of your body closest to the water's surface. Otherwise air will remain trapped within the BCD no matter how fiercely you depress the button.

Finally, learn how to vent your BCD completely; you would be surprised how many divers fail to do this and consequently add unnecessary weight to their belt in order to descend giving themselves the problems we discussed in Tip One above.

3. Learn to Breathe

Adopting a long, slow, steady breathing pattern when you dive will benefit you in many ways. It will help to prevent the onset of stress and ensure you have a clear head if a potentially stressful incident arises. It will even reduce your air consumption. But most of all it will help you develop the ability to ultra-fine-tune your buoyancy by lung control, exhaling just a little more completely in order to drop a few centimetres to examine something on the reef or inhaling fully in order to rise slightly in the water to swim over an obstacle.

The ideal breathing cycle for the diver begins with a long exhalation with the stomach contracted so that the lungs are compressed by the diaphragm allowing as much of the tension-inducing carbon dioxide as possible to be expelled. This is followed, after a brief pause, by a long sustained inhalation with the diaphragm extended to allow the lungs to expand as much as possible. Breathe in for at least five to seven seconds and breathe out for seven seconds or more. This will give you a breathing cycle of 15 seconds or more and means that you will be taking a maximum of four breaths a minute.

It takes a little practice to master; after all you have been breathing like a land-dweller for the whole of your life up to this point. The key is to breathe by moving your diaphragm rather than your chest and this is something you can practice anywhere, even at your office desk or while watching TV. When you exhale, compress your stomach muscles so that you expel as much air as possible from your lungs then, on inhalation, relax your stomach muscles, (push your gut out, no-one's watching) so that you allow your lungs to expand. Breathe deeply, continuously and SLOWLY. Sip the air as if it is a fine wine, don't guzzle it like beer!

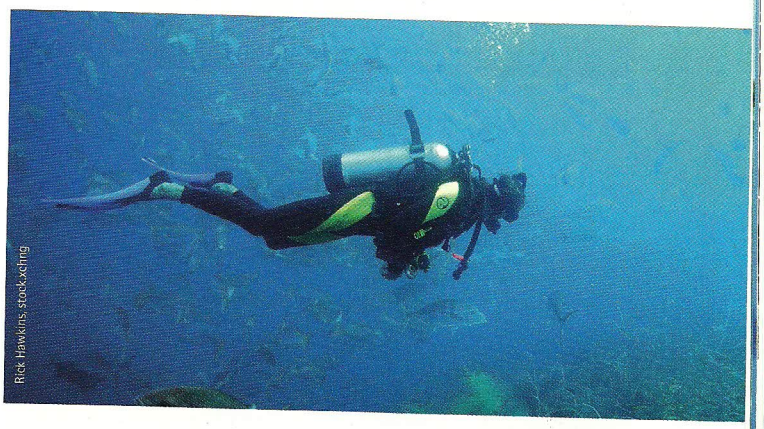
6 STEPS
ROUTINE FOR A PERFECT DIVING BREATH

1. Inhale deeply, sipping slowly
2. Inhale for five to seven seconds
3. Allow your lungs to expand, pushing your stomach out
4. Pause briefly for one second at most
5. Exhale fully and slowly for seven seconds or more
6. Suck your stomach in compressing your lungs as you exhale

Start all over again

REMEMBER
Your stomach should move while you breath, not your chest.

PRACTICE, PRACTICE, PRACTICE!



Diver poised above fragile coral, perfectly horizontal, fins raised.

4. Change the Way You Move

When you are diving, only move when you need to go somewhere. If you are not going anywhere keep your fins still. This is harder than you may think; many divers are unaware that, once underwater, they flap continuously. Your fins are for propulsion and occasionally for balance; they are not a buoyancy control device.

Practice remaining completely motionless in mid-water and take full advantage of the three dimensions you can move in. If you find yourself slowly moving in an unplanned direction, roll with it then turn your body gradually until you are back on equilibrium. You will feel an almost uncontrollable urge to kick: resist it! Instead, you can change your position in the water by dipping a shoulder or using breath control to make yourself more or less buoyant.

Keep your arms tucked in and hands still. They are not for buoyancy control either. As a diver, you move your arms only to signal. The closer your arms are to your body the easier it is to maintain perfect buoyancy and balance.

5. Stay Focused

Finally, be aware at all times of where you are in the water. Get in the habit of glancing quickly and frequently at your computer to check your depth. This is a good reason to have a unit on your wrist where your watch normally is. The underwater environment is disorientating even when visibility is good, and the deeper you are, the less you will sense changes in depth by the change in pressure in your ears.

Good luck in your quest! AD