

So, You Want to Technical Dive? A Frank Discussion

Dan Grolemond, PADI/ DSAT Instructor

Been diving for a while, and looking for new challenges? Think that you would like to try technical diving - deep, wreck, or cave diving? Contrary to my belief that most people with the excitement and the basic water skills should try recreational diving, you won't receive any sort of overt encouragement here. In fact, I whole heartedly recommend you drop the idea and continue on with your recreational diving. Why? Because if you do not possess the mental discipline and a "cool" under fire, you may be courting death or serious injury. Unlike recreational diving, technical divers enter an environment that is unforgiving and whose consequences of defeat can be quite large. Being defeated on a recreational dive might mean having to abort the dive. Defeat on a technical dive is likely to mean serious injury or death. And I am not going to *encourage or recommend* that kind of recreational activity to anyone. Recreational diving presents a risk profile that is fairly forgiving of mistakes. It sets boundaries for the diver to help keep them safe such as maximum depths, maximum times, and limitations on equipment. Technical diving, on the other hand, can be brutal to those who do not have the highest vigilance. Once you step across the rec/tech boundary, you will have to set your own limits, and creeping boundaries without training and experience (...let's just go 50 foot deeper this dive) can get you into real trouble. Entering the sport of technical diving should be done only after great reflection.

If you decide, after some honest assessment, to pursue technical diving, then a good instructor can help you develop the basic skills and attitudes necessary to become a good technical diver. But just remember, technical diving is not for every one who possesses a C-card and 100 dives in their log.

First, what is technical diving? The accepted answer these days is a dive in which any of the following occurs:

1. a gas mixture switch is performed - diving using more than one kind of gas.
2. use of O₂ mixes higher than 40%, or diving on any helium based mixture.
3. an overhead restriction that prevents direct access to the surface (this can be a physical overhead such as a cave or wreck penetration, or virtual [physiological] overhead such as a decompression ceiling).
4. diving below 130 feet.

Putting EAN32 in your 6 cu. ft. pony bottle and digging a hole in the sand and getting your computer to read 132 fsw doesn't qualify you as a technical diver. Many technical dives encompass all four of these elements.

There are several important differences between technical diving and recreational diving that you should understand. Technical diving:

1. Is restrictive and procedurally rigid
2. Requires a far greater understanding of the details in order to make an informed choice of dive plans. You can no longer just trust the information you are presented, you must understand it completely - your life will depend on it.
3. Is very expensive. A moderately priced technical kit will run you \$4,000 to \$6,000, while gas fills for a single trimix (a helium based mixture) dive can exceed \$100.
4. Requires greater physical strength and task loading tolerance.
5. Exposes the diver to potentially higher risks than recreational diving.
6. is **not** commercial or military diving, regardless of how much some folks might enjoy the implied association

Tech diving is fairly restrictive compared to recreational diving. In recreational diving, you can roll off the boat and just go see what there is to see. Dive plan? What dive plan?- just come up with 300 psi and don't get too far from the boat. Spot something cool underwater? Then alter your dive plan (if one ever existed in the first place), and just monitor your computer. On a technical deep dive, you are ruled by the tyranny of the clock. You must take your tour, do your tasks, and be back at the anchor line and ready to ascend in say, 25 minutes - not 27. If you lollygag about and make the team a couple of minutes late on a 200 fsw dive, you could cost them an extra 15 minutes of deco time. A mere seven minutes late, and folks will probably not have enough gas to complete their deco unless they are packing large deco bottles! The thing to remember is that safe technical diving is exacting, and the consequences for being inexact can be monumental.

If you recall your open water class, the dive physics and physiology was presented as though the facts were indisputable. *Ascent rates of 60 feet per minute are safe. Reverse profiles are bad.* The truth is that there is little conclusive science behind a lot of current dive procedures, and well meaning, highly experienced divers and physiologists, disagree on some major points like ascent procedures and decompression models. So, what is a tech diver to do? You will have to be comfortable with this uncertainty and still make dive plan decisions. This puts the monkey on your back to understand the alternative theories and decide for yourself. This does not mean that you must become a physician and physicist in order to dive, but it can be confusing for even the most experienced of divers.

What about the physical requirements for tech diving? The required physical skills of technical diving are about as distant from a good recreational diver as a good recreational diver is from a person in Open Water class. Learning to deal with doubles, and deco/stage tanks just takes time. It is no larger leap than you made when first entering the sport, going from swimming in a bathing suit to wearing 70 lbs. of gear. The equipment is unwieldy, and it is hard to nail your buoyancy.

All this, however, assumes that you have the strength to handle the gear, i.e., stand up and move around. A large California ocean kit (techies refer to their gear set as a kit or rig) can weigh upwards of 100 lbs. depending on the size of tanks in your doubles. And that is

without the decompression tanks! Don't worry, you rarely walk around with your deco bottles, though boat dives can be an exception. But if you can't even stand up in your doubles, then you probably don't belong in tech diving.

However, the greatest physical complication is task-loading. In most recreational situations, if multiple problems develop at once, the diver usually has the opportunity to stop and deal with them or abort the dive. In California waters, you may find yourself strapped into doubles and a dry suit, with two, 80 cu.ft. deco tanks slung across your chest sloping back up a wall on your ascent while winding up a reeling that is your link to the anchor line. Now, you have to regulate your buoyancy (dry suit and BC) while your mask is continually flooding and keeping an eye on the reel so it won't jam. If it does jam, you'll have to have the presence of mind to straighten it all out, and still make it to the anchor line on time!

The largest difference between technical and recreational diving is mental, not physical. Can you hold it together when, at the end of your dive, you suffer from a complete silt-out 4,500 feet from the cave entrance, or have a regulator problem on a long decompression. It comes down your faith in your own abilities.

So how do you know if you are really cut out to do this kind of diving? Unfortunately, there is no simple answer. It is a decision you will have to make on your own based on that little inner voice. It should take considerable reflection on the increased risks and costs to arrive at your decision. But ultimately, there is no spreadsheet formula for the optimum conclusion. To decide if this is the kind of diving you want to engage in, you should be very clear about your motives and desires. No one should enter into the technical diving field because it simply seems like something else to do. But the most dangerous reason for entering the tech world is **ego**.

There is a lot of strutting that goes on in dive conversations about deep, dark and dangerous. It is easy to get wide-eyed amazement from even the most experienced recreational divers when you tell them your last dive was to 250 fsw. Though technical divers are portrayed as egotistical (and I have to say it is often true), ego can get you killed faster than anything. Techies must know their limits even better than recreational divers. The best technical divers I know are confident, but understated. They understand that the sport they pursue is dangerous, and they strive to give it the respect that it demands. The *gun-ho, I can do anything* tech diver is a death waiting to happen. So, if what you truly want is just to create wide-eyed amazement in your conversations - buy a Ferrari, and stay out of tech diving.

So what are some of the rational reasons people pursue technical diving?

1. The challenge of dealing with the extreme equipment and environment. The sense of accomplishment of having been there and back.
2. To pursue a specific dive environment such as caves, wrecks or deep reefs.
3. To participate in scientific or exploration activities.

I highly recommend that the prospective tech diver read two recent books that chronicle tech diver deaths and accidents: *The Last Dive* by Bernie Chowdhury, and *Deep Descent* by Kevin McMurray. The chilling accounts of deaths and accidents will make you think carefully about entering the sport.

There are no precise statistics on technical diving risks. It is the same problem in recreational diving. How many active divers are there and how many dives do they make? In terms of the data that I have access to and the estimates of some long-time pros, my own personal view is that technical diving is only slightly more risky than recreational diving when the overall population of divers is examined. Why only slightly more risk with such a dangerous endeavour? Because technical divers are a much higher skilled set of divers. Through planning and training, good tech divers plan for, and rehearse, failures and scenarios that recreational divers don't even consider. This view is confirmed by the fact that insurance companies will insure instructors and students involved in technical diving for very reasonable rates. Two million dollars in liability costs an instructor a little over \$600 per year while diver coverage is as little as \$75 per year. Two million dollars in business liability insurance, for accidents in a small office environment, can cost upwards of \$1500 per year. A sport with huge accident rates would receive no insurance coverage at all. It is also comforting to know that in absolute numbers, there are typically less than 10 technical deaths in a year.

What is your personal risk? That is like asking: what is your personal risk in driving your car? Good drivers fare better than bad. Well, good divers fare better than bad. In order to justify entering into technical diving, you need to have faith in your ability to deal with the situation and to meticulously plan and execute your diving.

Having said all that, I don't want to be overly dramatic. While technical diving is riskier than recreational diving, it is still safer on an annual basis than driving your car!

Still not sure, but would like to try it? PADI has a Discover Tec Diving program that allows you to make a no-decompression dive suited up in a tech kit. It is a good way to try things out with little risk. Additionally, PADI offers an Apprentice Tec Diver program that acquaints the student with basic tech procedures and gear without the risk of decompression dives.

So, think carefully before you commit to enter into this expensive and risky sport. It is not for everyone.

And above all -- Be safe and have fun!

Recommended Reading

Tec Deep Diving, Drew Richardson, PADI International, Inc. (2000).

The Technical Diving Handbook, Gary Gentile, Gary Gentile Publications, (1998).

Technical Diver Encyclopedia, Tom Mount, IANTD, Inc. (2000).

Doing It Right: The Fundamentals of Better Diving, Jarrod Jablonski, Global Underwater Explorers, (2000).

Deep Descent: Adventure and Death Diving the Andrea Dorea, Kevin F. McMurray, Pocket Books (2001).

The Last Dive: A Father and Son's Fatal Descent into the Ocean's Depths, Bernie Chowdhury, Harper Perennial (2001).

The Cave Divers, Robert F. Burgess, Aqua Quest Publications, (1999).

