

Deep stops.

Back before 'technical diving' was dreamed up Richard Pyle, an ichthyologist was doing many 180-220 ft dives for fish. He noticed several patterns, fatigue or malaise being the common ones but the symptoms was not consistent; other symptoms were being sleepy. He theorized it was inert gas loading and that when he collected fish these symptoms were not present. Most fishes have a gas-filled internal organ called a "swim bladder" - basically a fish buoyancy compensator. If a fish is brought straight to the surface from 200 feet, its swim bladder would expand to about seven times its original size and crush the other organs. His attempts were to keep the fish alive so he stop and insert a hypodermic needle into the bladder to relieve the pressure; these stops were deeper than the decompression stops. For example, on an average 200-foot dive, his first decompression stop would usually be somewhere in the neighborhood of 50 feet, but the depth he needed to stop for the fish would be around 125 feet. These extra 2-3 min 'deep stops' became a common practice for him and he wrote several papers on the topic.

Safety stops. A safety stop is a decompression stop that is used to further increase the diver's safety in a non-decompression dive, to help prevent decompression sickness. Speaking in terms of static's a safety stop minimizes the likelihood of dcs. In a technical term they help prevent bubble nuclei growth.

To effectively make a deep stop on a dive you half the distance between your first stop and your max depth. This is Pyles method:

- 1) Calculate a decompression profile for the dive you wish to do, using whatever software you normally use.
- 2) Take the distance between the bottom portion of the dive (at the time you begin your ascent) and the first "required" decompression stop, and find the midpoint. You can use the ambient pressure midpoint if you want, but for most dives in the "technical" diving range, the linear distance midpoint will be close enough and is easier to calculate. This depth will be your first deep safety stop, and the stop should be about 2-3 minutes in duration.
- 3) Re-calculate the decompression profile by including the deep safety stop in the profile (most software will allow for multi-level profile calculations).
- 4) If the distance between your first deep safety stop and your first "required" stop is greater than 30 feet, then add a second deep safety stop at the midpoint between the first deep safety stop and the first required stop.
- 5) Repeat as necessary until there is less than 30 feet between your last deep safety stop and the first required safety stop.

For example, suppose you want to do a trimix dive to 300 feet, and your desktop software says that your first "required" decompression stop is 100 feet. You should recalculate the

profile by adding short (2-minute) stops at 200 feet, 150 feet, and 125 feet.

What advantages does either of these 'safety stops' have? For starters it reduces fatigue, sleepiness, tiredness and other similar symptoms felt after a dive. Nitrox is reported to do similar things as well as non-decompression safety stops.