

Ideal Trim

By Jason Caldwell

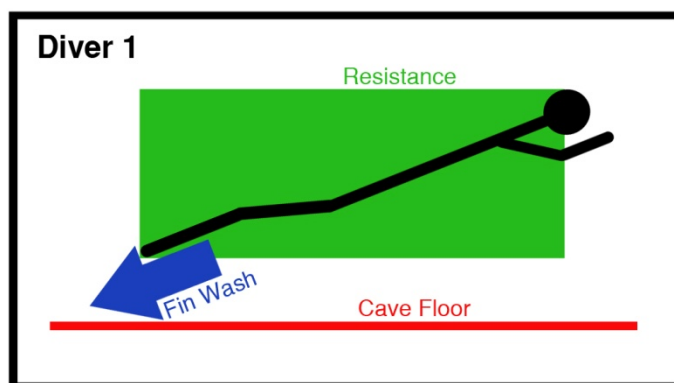
There is often a lot of discussion between divers on what constitutes good and bad trim. Why is trim even important I hear people ask? This article will try to explain a few of the reasons why ideal horizontal trim is important and show a few techniques to allow you to achieve and maintain it.

What is ideal trim?

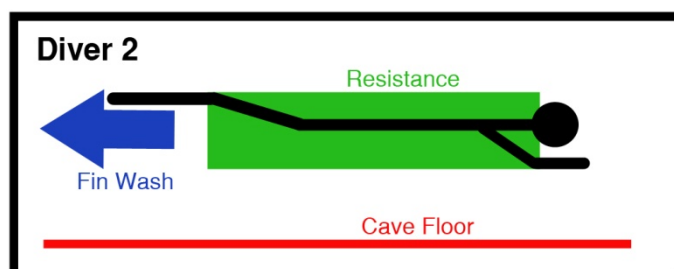
Being in ideal trim is diving in a horizontal position with your body parallel to the floor of the cave whilst presenting the minimum amount of physical resistance to the water ahead of you as you move through it.

Why is this important?

Diver 1 shows commonly observed trim and how much of the body area is presented to the water as the diver moves forward.



Diver 2 shows ideal trim position and presents substantially less resistance to the force of water as they move forward.



The benefits of ideal trim include:

- Less gas usage throughout the dive
- An ability to be able to move quicker through the water with less effort
- Increased manoeuvrability - Being able to turn around quicker to assist a diver behind or ahead of you

- Less silt disturbance, as fin wash is not pushed towards the floor of the cave but behind the diver
- Better general visibility of your surroundings in all directions

How do you achieve ideal trim?

Achieving ideal trim is a combination of physical techniques and equipment set-up. When the entire combination of these are used, ideal trim is not only easy to achieve, it is very easy to maintain throughout your diving. Anyone can have nice trim for a moment, but it takes practice and effort to maintain it.

Equipment

Initially, it is important to set your equipment up to allow you to have your weight as evenly distributed as possible. This is best achieved conducting a balance test. Balance tests are done by starting in a horizontal position in a fresh water site like a sinkhole and remaining perfectly still. You may tip forward, backward or stay perfectly level. Have a buddy help you, so you know that you are indeed level. Make sure that if you normally have a light, a reel or something else on your equipment, that you do this test with all of that in its normal position, as every part of your equipment configuration impacts on your trim position.

Placement of tanks, tank bands and weighting systems play a huge part in how easily horizontal trim is achieved.

Many divers are head heavy, and this results in them having to compensate by dropping out of ideal trim or they will tend to nose dive. This can be due to tank bands being too low or choosing higher mounting holes in their back-plate or soft-pack. It is often done to allow one to reach their tank valves easier. The top tank band should be mounted as high as possible, which is just before the tank shoulder curve. It allows the tanks to sit closer to the diver's centre of gravity. The top section of a scuba tank, where the valve screws in, is considerably thicker than the walls. This along with manifolds/valves and regulators makes the upper portion of a twinset heavier than at the base. V-weights can also contribute to this, as they put the weight in the upper portion of the tanks. Tail weights offer a great alternative and are mounted from the bottom band bolt hole to within 20mm of the base of the twinset. Even if you don't require weight in fresh water, you may find that 1 or 2 kilos on a tail weight make all the difference when it comes to achieving ideal trim position. Divers often use heavy 'old style' rubber fins to further change this centre of balance point. Ankle weights should be avoided at all costs as they are a band aid solution to the larger issue and reduce the finning efficiency whilst increasing muscle fatigue.

Divers who are feet heavy are often wearing a weight belt and may find that a tail weight can benefit them too. Sometimes a smaller tail weight with a medium V block weight will assist in finding their ideal level balance point. Other methods involve changing soft packs and aluminium back plates for stainless steel models.

Once you are satisfied your tanks are in the right position, try adjusting weighting configurations till you feel more comfortable in the level position. Check and recheck until you are able to remain motionless and yet stay in relatively ideal trim position.

Physical Techniques

While equipment configuration plays an important part, there are a number of ways you can adjust your body position to make subtle changes to your trim. You may need to do this in addition to adjusting your equipment.

Some techniques for achieving ideal horizontal trim are to:

- Keep your head up with your eyes looking in a forward position
- Contracting the lower lumbar region (arching your back) and gluteus-maximus muscles (buttocks) to ensure your knees are level with your torso
- Keep your fins flat and parallel with your torso to ensure they assist with control and stability

This does take work to maintain and can often result in one having a slight aching in the lower lumbar region after the dive. In time and with practice, these muscles grow stronger and this mild discomfort will become less or nonexistent.

If you are head heavy, you can extend you feet out and move your arm position back to change your centre of balance point. Equally, if you are feet heavy, you can tuck your legs up a little and extend your arms forward.

What else impacts on trim?

- Using your drysuit as you main point of lift has an impact on trim. A drysuit will tend to collect gas in the shoulder region and make your feet drop down. A wing is designed to sit under your tanks and lift them evenly without automatically dumping gas like a drysuit can. Use your wing as your primary lift device, whilst simply putting enough gas in your drysuit to allow you to be warm whilst having a full range of movement.
- Tight undergarments and tight drysuits can make a diver need to compensate by having to add too much gas during the dive to be able to move freely. Check these are fitting correctly on dry land whilst not wearing tanks or a harness, by squatting down on the ground and reaching behind your back. Any tight areas around the knees or arms will be further compounded on the dive.
- Task loading the diver will virtually always compromise their trim position with the knees dropping and fin wash hitting the cave floor. This can add to an already small problem in a cave situation as the silt cloud begins to surround the dive team. Staying higher in the water column can help minimise this situation.

Are there times when you need to drop out of trim?

Yes, there are times and places where dropping out of trim makes perfect sense.

- When you are motionless on deco, dropping out of trim may be a little more comfortable
- When you are moving in a narrow inclined tunnel, you need to move out of trim to negotiate the passage

Where possible, stay in ideal trim and you will find it becomes easier in time.

Conclusion

If you can work to maintain ideal trim, you will find that you become more efficient in your gas usage, be able to react to your buddies much easier, have a lot better overall visibility, you will create less silt and will be able to cover more distance with considerably less effort. Remember, it will take practice and effort, but the rewards extend well beyond those contained within this article and will stay with you forever.