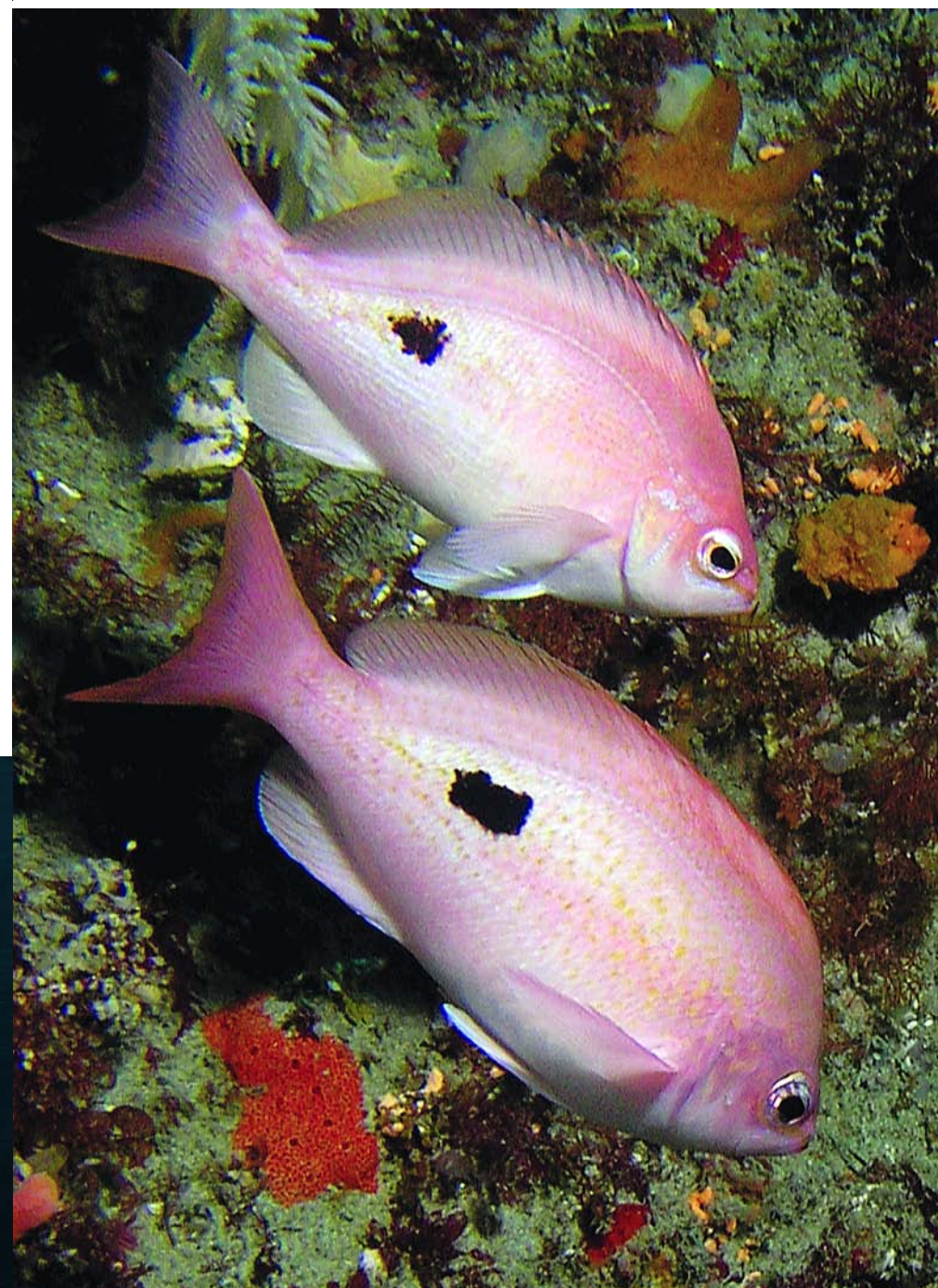


+ IT ALL STARTED WHEN I PASSED MY CAMERA UP TO THE BOAT AND CLIMBED OUT... FIFTEEN MINUTES AFTER EVERYONE ELSE. MY FELLOW DIVERS PRETENDED NOT TO MIND. THEY SMILED BRAVELY THROUGH SHIVERING TEETH. ISN'T STANDING AROUND IN THE WIND WAITING FOR SOME TWIT WITH A CAMERA TO FINISH HIS UNPLANNED DECOMPRESSION STOPS EVERYONE'S IDEA OF THE PERFECT WAY TO FINISH A DIVE?

THE COST OF A DIVE

: JOHN SILBERBERG

This leatherjacket swam away when I entered her territory. Shortly afterwards, she overcame her apprehension and investigated me. Interaction with fish requires patient and often extended observation. Olympus C770uz, PT-022. Manual, f5.6@1/80, ISO64. Inon D2000, sTTL.



pricing dives°

Just five minutes into the dive, I lost the rest of the group. I stopped to take photos, they didn't. The dive guide wasn't worried. He saw me stop and knew I would be some time. I was set up to dive solo (twin tanks and appropriate safety gear) so he carried on.

For underwater photographers, useable bottom time is everything. It might be difficult to return to the dive site, or the conditions might never be as good. More bottom time means more photo opportunities, and improves the chances of taking a great photo.

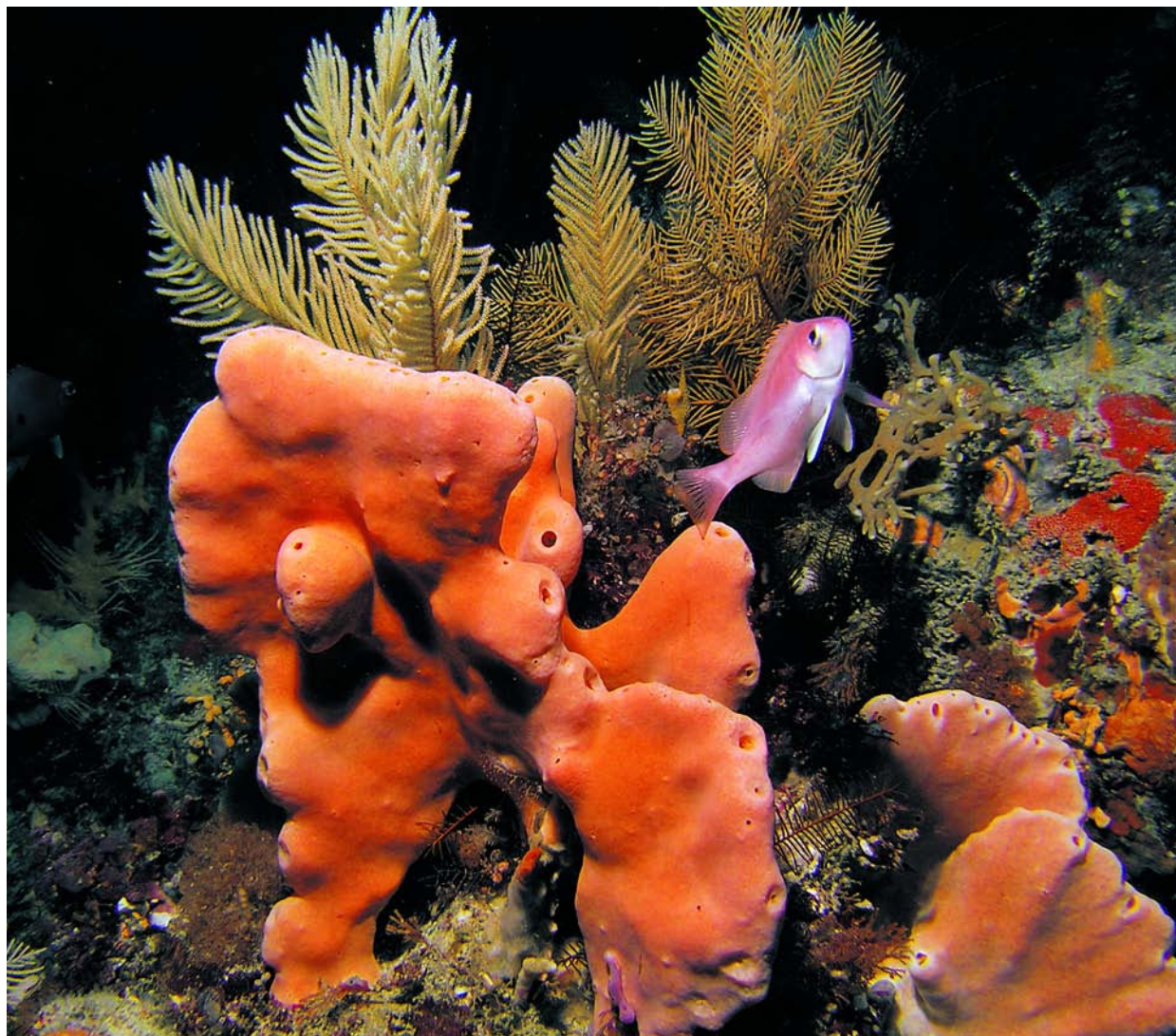
Afterwards I started thinking about how much the extra bottom time is worth to me. As the credit card-advertisement says – priceless. But I was starting to wonder if I was better off paying extra to do a boat trip where I could spend even more time on the bottom?

So What Does It All Cost?

I decided to analyse what it costs me to go diving. Not wanting to scare myself too badly I only looked at the cost per dive. I didn't include equipment, training, maintenance, travel, accommodation or food. What I did include are tank fills, air or nitrox, and the boat ride. The choice of diving style also affects the cost of a dive;

Top: This pair of butterfly perch was my reward for the time spent seeking photo opportunities. More bottom time means more photo opportunities. 34m. Olympus C770uz, PT-022. Manual, f5.6@1/80, ISO64. Inon D2000, sTTL.

Bottom: Reds and oranges dominate this outcrop of rocky reef. Used by deep dwelling sea life for camouflage, these colours are the first to be absorbed as sunlight passes through water. It takes the artificial light of a strobe or torch to highlight their vibrancy. Olympus C770uz, PT-022. Manual, f5.6@1/80, ISO64. Inon D2000, sTTL.



Top: Butterfly perch were swimming laps around this sponge. When I approached, they swam away, but after a few minutes became accustomed to my presence. I made this photo 5 minutes after exceeding the no-deco limit. Initially, I didn't plan to exceed the NDL, but with plentiful air supply, the great conditions justified the extra time required to decompress safely. 34m. Olympus C770uz, PT-022. Manual, f5.6@1/80, ISO64. Inon D2000, sTTL.

Bottom: Red finger sponges rise above the seabed and sway with the surge. Formed by a colony of tiny animals, they work together to siphon nutrients from the water. Photographers need many minutes of bottom time to experiment with lighting and composition on these challenging subjects. 33m. Olympus C770uz, PT-022. Manual, f5.6@1/80, ISO64. Inon D2000, sTTL.

Opposite: Butterfly perch are the most common schooling fish seen by divers at Bicheno. Seemingly attracted to the divers' presence, they are cooperative photographic subjects. 33m. Olympus C770uz, PT-022. Manual, f5.6@1/80, ISO64. Inon D2000, sTTL.



so I compared no-deco single and twin tank diving with planned-deco using up to two deco gases.

As a baseline for all this, consider the upfront cost of a no-deco single tank dive versus planned-deco with twin tanks and a stage bottle. Assuming a single air fill for \$10, twin tank fill for \$20, nitrox at \$22 and a boat ride for \$50, the simple dive is \$60 and the deco dive is \$92.

That's a big difference in total cost and makes the deco dive look expensive. But look at what happens when we factor in depth and bottom time:

At 33 metres, the no-deco limit is 12 minutes (DCIEM). So the dive actually costs \$60/12 min = \$5 per minute. I use a very conservative setting for my deco software and breathe a lot of gas underwater so I only get 36 minutes at 33 metres on a planned-deco dive. But this equates to an actual cost of \$92/36 min = \$2.56 per minute. This is almost half the

cost of a no-deco dive. In fact, I could pay up to \$138 for the boat trip on a deco dive before the cost reached \$5 per minute. For less conservative divers the savings can be even bigger.

When I found this out, I was amazed. It just didn't seem right. How could 'expensive' tech diving provide better value than the no-deco single tank dive most people do. Intrigued, I ran the numbers for several different depths. There was a definite trend. As the depths get deeper or the boat trip more expensive, planned-deco dives are better value than no-deco single tank dives.

Shore Diving.

For shore dives to less than 30 metres, a big (15 L/125 ft3) single air tank is the way to go. At shallow depths, the amount of gas available usually controls the dive time. If it costs the same to fill a big single tank as a standard single tank, the big tank represents better value. For shore

dives to deeper than 30 metres, planned-deco with twin tanks maximises the bottom time and minimises the dollars per minute. Nitrox doesn't add up for shore diving. The cost per minute is slightly cheaper on no-deco dives between 27 and 33 metres, but only if the nitrox fill costs less than one and a half times an air fill. For deeper dives, planned-deco using air is better value.

Boat Diving.

On a boat dive, twin tanks rule, OK! Once the cost of the boat trip is more than the cost of a twin tank fill then twin tanks can be the cheapest way to dive. (If anyone knows of boat dives for less than this, can they tell me, please?) In shallower waters (less than 18 metres) where the amount of gas available governs the dive time, no-deco twin tank diving is the best value. As the depth increases, planned-deco diving with twin tanks is the most cost effective. As the price of the boat trip increases, the introduction of oxygen rich deco gases spreads the high upfront fee over even more bottom time. Of course, this all depends on finding a dive boat that is happy to wait around for the extra time it takes to decompress and surface.

Is It Worth It?

To this, there is no simple answer. It is something that divers must evaluate for themselves. They must weigh the increased risk of decompression illness associated with long and deep diving, against the attractions of the dive. And then there is the commitment to extra training and equipment that is essential for planned-decompression diving. Most training agencies consider a course in decompression procedures and the use of twin tanks to be minimum requirements. Add on accelerated decompression and mixed gas and watch the bank account suffer!

Is it the trip of a lifetime to some little known wreck? Is taking photos of a shy, just-discovered species an important life goal? Ultimately, the decision to maximise bottom time needs careful consideration. But if the objective of the dive justifies getting the best value for every diving dollar, then yes, it is worth it.

During the trip to shore, I showed the others some of my pictures – to take their

minds off it all. They oohed and aahed in the right places, but I suspect they didn't really forgive me for making them wait. If they're reading this, thankyou for your patience. I'm sorry!

AUTHOR JOHN SILBERBERG

He's a Master Mariner who spends his life on, under and by the sea. He lives with Sandra and their two beautiful daughters on the East Coast of Tasmania. In 2005, he discovered underwater photography and started writing about his diving experiences. His favourite diving is amongst the deep sponges off Bicheno in Tasmania. A self-acknowledged gear freak, he loves deep diving and the challenge of taking photos underwater. John gratefully acknowledges the support of Adelaide-based Sea Optics - Check out their great range on www.seaoptics.com.au



NOTES ON METHODOLOGY

For no-deco dives, I use a Surface Air Consumption (SAC) of 21 litres per minute (LPM) and a reserve pressure of 50 bar. I use safety stops of one minute at 9 metres then three minutes at 6 metres then five minutes at 3 metres. (Some may consider this too conservative but if I'm diving to the limit, that's the way I dive!) For no-decompression limits (NDLs), I use the most conservative figure from PADI RDP, PADI Wheel, DCIEM and USN Tables.

For deco calculations I use GAP software (Product 2.3 Build: 1655) set to RGBM +2. I use a SAC of 22 LPM at depth, 20 LPM at deco and the rule of thirds.

For nitrox dives, I assumed EAN40 as the richest mix.

For the cost of deco gas, I assumed 2.2 times the cost of an air fill. Finally, a cautionary note – the intention of this article is as a general guide and I accept no responsibility for how the information is used. All care, but no responsibility. Decompression diving has a higher risk of DCI than remaining within no-decompression limits. Do not dive beyond personal training, experience and comfort levels.