With any adventure, there's almost always a pivotal moment when the hypothetical meets the reality and the full magnitude of what you are trying to do becomes apparent. At Bikini Atoll that moment was during my first dive on the 'nuclear fleet' when, as I descended the mooring line, the wreck of the USS Anderson appeared before me.

A Sims-class destroyer, the Anderson lies largely intact on her port side in 52m of water and, viewed from above, her 107 metre length stretched out into the distance. The line was attached to one of the propellers and our intent was to go around the wreck and use the mooring line for the ascent.

We had done our dive planning around a bottom time of 30 minutes, which meant a fairly significant decompression obligation of 46 minutes. But with twin 11-litre cylinders of air in a sidemount configuration, plus one 11-litre cylinder with 50% oxygen and another with 90% oxygen, I was carrying enough gas for both me and my dive buddy (in the case of an emergency) to safely complete that obligation.

I had successfully completed all my training to dive to 55m on air and then use 50% and 90% oxygen mixes for the decompression stops from 21m, and I had practiced diving technically on sidemount extensively on my Solomon Islands 'warm up' trip for Bikini.

Plus, I had put myself through a lot of exercise with daily Crossfit sessions to get as physically fit as possible and (the hardest part...) not a drop of beer had passed my lips for a week before.

But all that preparation and practice was on the hypothetical side of the equation, and as I headed deeper, I knew this was where it got very real!

The rubber meets the road

The reality side of the equation was that I about to enter into some pretty serious decompression requirements and was diving in one of the most-remote locations in the world.

Above me was our boat, the Pacific Master, extensively equipped to dive Bikini Atoll, with a very experienced crew that really inspired confidence, but what would happen if something unexpected went wrong or I screwed up?

The nearest recompression chamber was 30 hours away in the US military base on Kwajalein, but technically that was a restricted area and access was not certain, in which case it was Honolulu or Australia...

As I arrived on the bottom and adjusted my trim, I clearly remember thinking I am good as I had done everything I could to prepare for this moment – or thought I had!

Did you know?

The USS Anderson (DD-411) was a Sims-class destroyer that served the United States Navy during World War Two. Named after Rear Admiral Edwin Alexander Anderson, the ship played a significant role in several key naval battles.

Don Silcock reveals some of the lessons he learned from his first trip to Bikini Atoll, when he was diving open circuit on air – and why he will be returning once he has got trained up to an appropriate level on a CCR

Photographs by Don Silcock

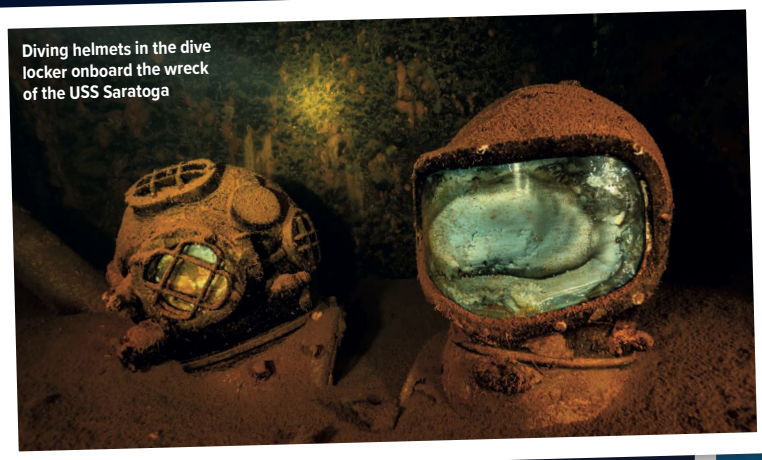
DIVING Bikini Atoll *on air*

Diving deep on air

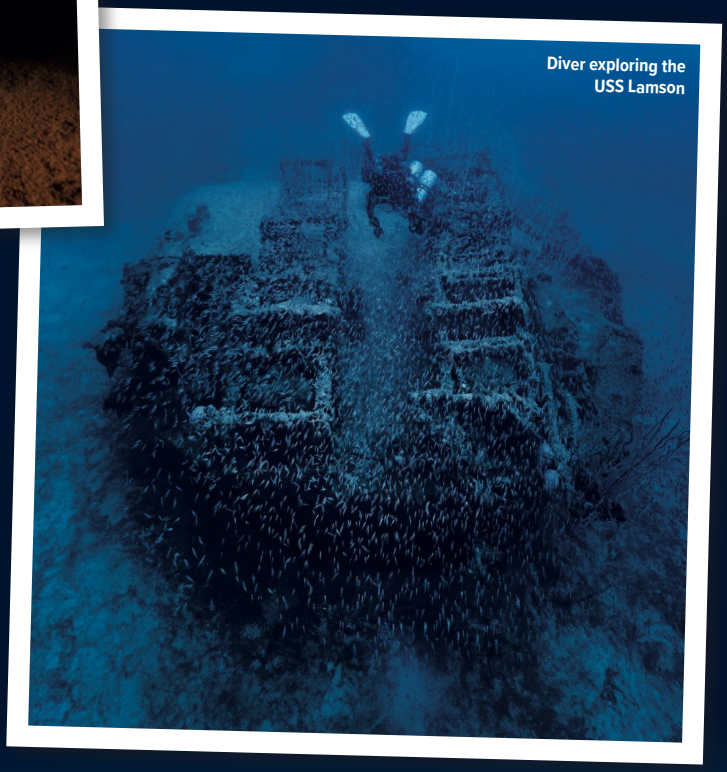
My decision to dive Bikini Atoll on air was based on two things - timing and cost. Firstly, I did not really have the time to get trained in what is generally referred to as 'mixed gas' or 'trimix' diving, where helium is added to the gas mix to reduce the amount of nitrogen.

On the cost side, the war in Ukraine and the sanctions on Russia effectively removed one of the main producers of helium from the market, driving the already high price of the gas through the roof and into the stratosphere!

So even if enough helium could be sourced, diving with it in an open-circuit configuration at Bikini would have required the sale of at least one kidney... Which left two options – dive on air, or go the rebreather route and get trained on a CCR - with the former meaning the risk of decompression sickness was higher and nitrogen narcosis would be an issue, and going to CCR meant selecting a unit, going through the initial MOD 1 (air diluent) training and then MOD 2 (trimix diluent), which introduced timing issues again. This made diving on air the only logical option.


Diving helmets in the dive locker onboard the wreck of the USS Saratoga

> "At Bikini my oxygen gas bill was three times that of the CCR divers combined helium and oxygen bills!"


Diver exploring the USS Lamson

Nitrogen narcosis

I read a lot about decompression sickness (DCS) and nitrogen narcosis before I went to Bikini and the one thing that really stood out was neither is a linear reaction, as individual physiology can greatly impact whether you get bent or narked. There are several things you can do in advance to minimize the risk of DCS, such as adopting conservative Gradient Factors, resting a lot and drinking lots of water.

During the dive you must follow the dive profile closely, stay calm and relaxed as possible, plus avoid strong currents and heavy finning. When it is time to ascend and start the deco stops, you obviously must follow the plan and complete them all properly and I always spent an extra 15 minutes at 6m on 90% oxygen as a final purge of my system. Post dive you must avoid heavy lifting or anything strenuous, drink more water and rest.

However, with nitrogen narcosis there is little you can do to minimize its impact or when it hits you, and it really does appear to be a function of your specific physiology. That said it does produce two types of reactions when it hits and you either remain calm or get anxious. In the 55m training dives I felt calm, relaxed, and in control when narcosis set in around 40m.

At depth in Bikini, I had the same sense of calm, but I later realised that in fact I was not really in control at all. Rather I was in a kind of nitrogen narcosis induced 'auto-pilot' mode, were I seemed to be doing the right things, but how I would have reacted to a real emergency is anybody's guess!

Why dive deep?

I got into technical diving so I could dive deep more safely and embark on some wreck diving adventures in Bikini Atoll and Truk Lagoon. When I look back at what I did to prepare for and then dive the nuclear wrecks of Bikini Atoll, I believe I made logical and rational decisions overall.

It was a great and almost life-changing experience and I am determined to do more, but it's eminently clear to me that I need to move on from diving those depths on air and the way forward is to switch to a rebreather.


Divers on the line during decompression

The USS Anderson is an impressive wreck to explore

Photographic opportunities are plentiful

The captain's desk on the USS Saratoga

Diver on the props of the IJN Nagato

> "I was in a kind of nitrogen narcosis induced 'auto-pilot' mode, were I seemed to be doing the right things, but how I would have reacted to a real emergency is anybody's guess!"

Moving to CCR

If you would have asked me just three years ago, would I ever consider moving to a rebreather I would have laughed at you because they seemed like death machines! But the more exposure I have had to them, the more I understand how they work and how they can enable safer deep diving.

It's now very clear to me that reducing the amount of nitrogen in the gas you intend to breathe at depth and replacing it with a much safer inert gas like helium is the way to go. It greatly reduces the decompression obligations, eliminates the narcotic impact of nitrogen and, believe it or not, is cheaper as the amount of helium and oxygen used on closed circuit is a tiny fraction of what is used/wasted in open circuit. At Bikini my oxygen gas bill was three times that of the CCR divers combined helium and oxygen bills!

But you absolutely have to know how to prepare, maintain and dive a CCR as they are less forgiving that open circuit equipment – but those are stories for future issues of the magazine! ■

Don Silcock

Don is Scuba Diver's Senior Travel Editor and is based on Bali in Indonesia. His website has extensive location guides, articles and images on some of the best diving locations in the Indo-Pacific region and 'big animal' experiences globally.

www.indopacificimages.com