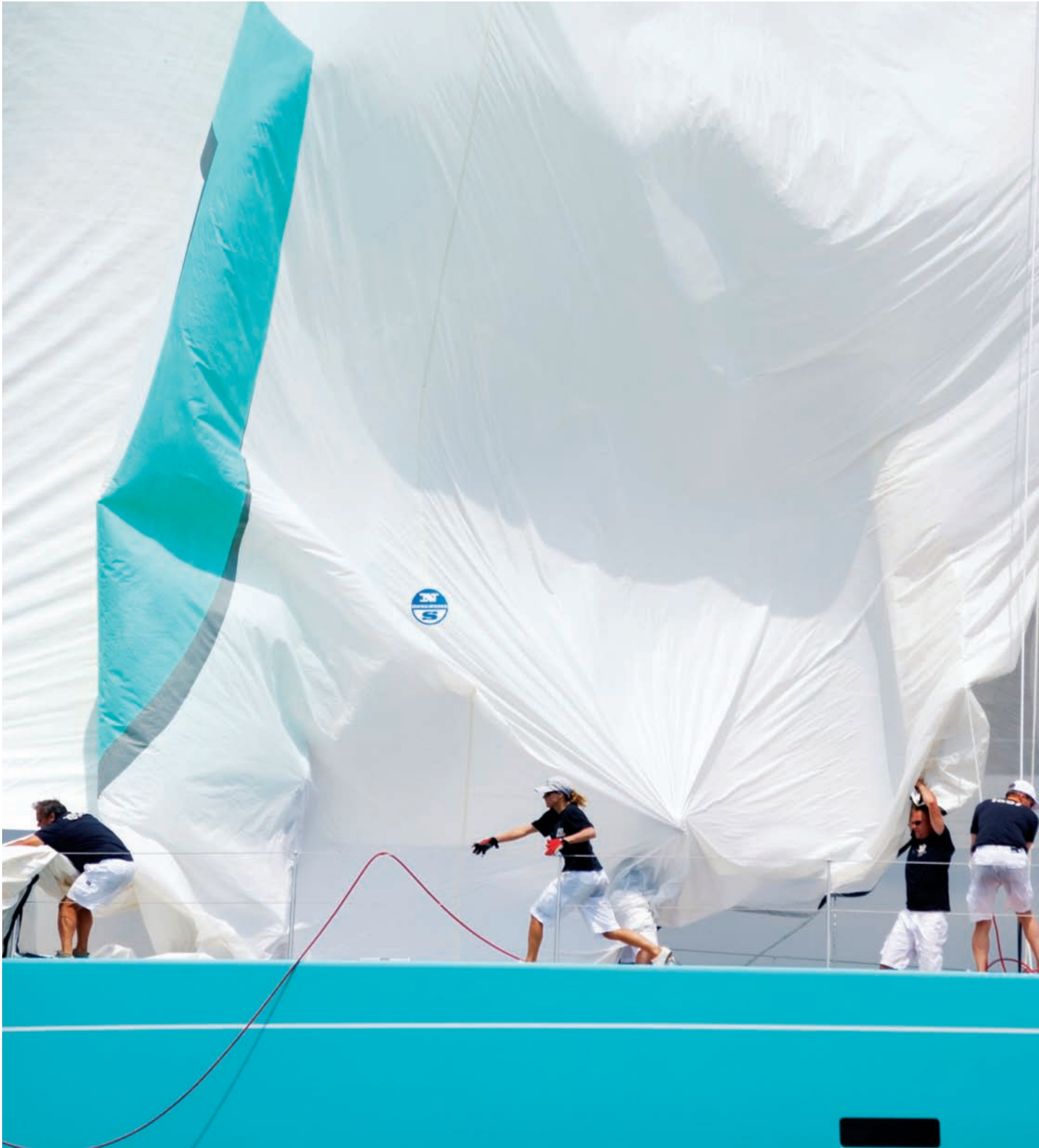


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REPORT



Crossing to the dark side

An introduction to rebreather diving, by Captain Mike O'Neill of M/Y Lady Michelle

Having spent many years diving the reefs and wrecks of the Caribbean, Bahamas, Florida and beyond, I was keen to expand my diving knowledge and abilities, and to explore the fantastic wrecks that are beyond the limitations of recreational diving.

The next big step for me was Closed Circuit Rebreather (CCR) diving – considered by some as ‘the dark side’ of diving. Compared with standard open circuit diving – where the diver breathes compressed air from a cylinder and then exhales the exhausted air into the water in the form of bubbles – with a CCR, the diver breathes in a closed loop where air that is exhausted from the lungs passes through a CO₂ scrubber, which removes excess carbon dioxide. Before the diver breathes in the same air again, it is injected with a small amount of oxygen to replace the oxygen absorbed by the diver’s lungs. The huge advantage is that a CCR reuses the same air continuously. Very little oxygen is needed from its small cylinder as no air is expelled (lost) into the water, resulting in much longer dive durations.

An added advantage is that the percentage of oxygen injected into the breathing loop is automatically varied to maintain a constant PO₂ for the current depth, which essentially is similar to an automatically and continuously optimised Nitrox mix; the result being that the percentage of oxygen is optimised for the depth you are at and changes as your depth changes, resulting in much reduced decompression commitments.

I had been contemplating switching to CCR for some years now, but found the costs involved too prohibitive. So I continued diving with conventional scuba and took a technical diving course (Helitrox and Decompression Procedures) last year with NAUI technical and cave diving instructor Leslie Pittaro. Being able to dive deeper without the restrictions

imposed by recreational dive tables was a new and exciting experience. After the courses, Leslie and I continued to dive together and we often discussed the virtues of CCR diving and how it would open up a whole new world of deeper wreck diving.

When Leslie emailed me one day to announce that she had purchased a CCR, I could resist no longer. I decided to take the plunge and ordered my Megalodon CCR from Fill Express in Pompano Beach and signed up for the class with instructor Jill Heinerth. Tony and the guys at Fill Express were very helpful and delivered the unit very quickly. Before I knew it I had hired a Hummer (long story for another day) and found myself on a road trip to High Springs, Florida.

The first day of the class was spent at Jill’s home going through the physiology of CCR diving, as well as learning how to assemble and maintain the equipment. I felt like a fifth grader all over again. Our first dive saw us practising our skills in the shallows of Ginie Springs. Coming from the warm South Florida weather, it took a little getting used to the cooler High Springs climate (32°F/0°C one morning). For the first dives I used my drysuit, but struggled to deal with now three buoyancy elements – wing, counter lungs and drysuit. Once I ditched the drysuit and switched back to my trusty wetsuit, I was much happier in the water, albeit colder, and managed to get on top of my buoyancy issues a lot quicker.

I was told that converting to a rebreather is like learning to dive all over again. They were right! As mentioned, buoyancy is a big issue. In a nutshell, when diving regular open circuit, if you take a deep breath from your regulator, the volume of air in your lungs increases and your buoyancy increases and vice versa when you exhale. With this in mind you can fine-tune your depth control by using your breath.

Using a rebreather, however, this theory goes out the door because the volume of air in your ‘lungs’ remains constant. As you breathe out the air does not escape in the form of bubbles, but is retained within the counter lungs of the rebreather. When you inhale, that air volume moves back into your lungs. The result is that if you are slowly sinking, and you take a deep breath, you will keep sinking and probably hit your head on the wreck.

Our deeper training dives were conducted in Blue Grotto and 50-Fathom Grotto. Having never done any cave diving, this was a whole new world for me. Going 36.6 m (120 ft) down into a dark pit and swimming around old cars and satellite dishes did not excite me too much, but I just accepted it as a training dive and a new experience. The positive side was that diving the Springs was so convenient and civilised. You park your car next to the water, set up your gear on a picnic table, and then casually walk over to the spring entrance and hop in at your leisure. No long rough boat rides out to the dive site only to fight with your gear on a bouncing deck! And the cherry on the top for me was that you’re diving in fresh water, so no need to wash all the salt off when you’re done. In all honesty, I could see myself getting into the cave-diving world quite easily.

Back to the course, after five days of class work and diving, Jill happily certified us as CCR divers. When I first signed up for the class, I naïvely had no idea who Jill was. Jill is a renowned underwater videographer, has been diving rebreathers since the early days of their development, and is considered worldwide as an authority on CCRs. I could not have picked a better instructor. Her vast CCR knowledge and experience, along with her very reassuring teaching style, turned a daunting class into a most enjoyable and educational week. At first I was sceptical about CCRs, but having completed the course with Jill I feel [cautiously]



confident in my rebreather and in my abilities as a rebreather diver.

Back in South Florida I was eager to try out my rebreather in the ocean. For my first dives I took it easy, exploring Fort Lauderdale’s wrecks and reefs while practising my newly acquired skills. My first observation was that the fish were much friendlier as there were no bubbles to chase them away. After a few weeks a group of us headed down to Key Largo to dive the Spiegel Grove, where the rebreather really kicked into gear. At an average depth of 30.5 m (100 ft), we spent over an hour exploring the wreck with only about ten minutes of decompression time. Had we been diving on regular open circuit we would have either run out of air on the wreck, or run out of air during an exceptionally long deco stop.

Most recently I was fortunate enough to dive Aliwal Shoal off South Africa’s east coast. The purpose of the dive was to video tiger sharks, known to frequent the area. Before we even splashed in we were met by about 20 blacktip sharks, which proved more of an annoyance than anything else. Before we entered the water our DM from African

Watersports, Walter, gave us an in-depth briefing: “If the shark gets too close for your comfort, blow lots of bubbles through your regulator”, he told us. At this point, I am thinking, “I can’t blow bubbles, I’m on a rebreather! Oh well, I’ll just wing it”.

Once in the water we were met by four large 4-m-long female tiger sharks, which luckily seemed more interested in the bait bucket than us. On more than one occasion they inspected us from very close range and I found that being the only diver on a rebreather and not blowing bubbles, the sharks seemed quite comfortable getting really close to me. This proved to be amazing for my video work and was a truly awe-inspiring experience.

All in all I am extremely happy with my decision to make the change to a rebreather, and am looking forward to some new and exciting dives coming up that were previously out of my reach.

For further references:
www.intotheplanet.com
www.customrebreathers.com
www.shadowdivers.net

