$2,000,000 man

Oceanic founder and president Bob Hollis has made a major investment in rebreathers. What does he know that the others don't?

aquaCORPS: Right now, Oceanic is the only major sport diving company to make a big push into rebreathers. What do you know that the others don't?

Hollis: I don't believe there are any major dive companies out there willing to undertake the development program that we've gone through. We have a background in electronics—that's been the missing ingredient in closed-circuit systems. It's also taken resources far beyond what I ever imagined. If I'd known, four years ago, that we were going to drop over $2 million into this deal, I'm not sure that we would have done it. Who's ever made that kind of commitment to a development program for any particular product? That includes decompression computers or any type of regulator—you're only going to spend maybe $150,000 developing a regulator.

Rebreathers are a big undertaking. But on the other hand, I think that's where the frontier is.

You've been involved in rebreathers for a long time.

I can't remember the exact year, but I can still recall first reading Hans Haas' book about diving in the Red Sea with that little O_2 unit. At the time, I was building underwater photographic equipment, and it was easy for me to build a shallow-water O_2 rebreather. As an underwater photographer, I was always eager to swim out and photograph sea otters, but I was never able to get close enough for a really good photograph. The rebreather allowed us to get real close. It was a great experience that ultimately got us involved in the Electrolung [The first electronic rebreather developed by Walter Stark that was introduced to the US market in the 1970s. See "Electrolung," N7/C2]. Beckman Instruments had just undertaken the project and were going to be introducing units on the market. We trained on them down off Catalina. Paul Tzimoulis, the editor of *Skindiver* magazine, was there, and so was John Clark and a couple of other guys from Beckman. We dove the units in Monterey Bay and later in the blue holes in British Honduras with Cousteau's *Calypso* anchored overhead. Eventually we went on to film an old Bon Air windjammer laying in about 230 f/71 m of water. We did have a couple of bad experiences, though. My partner almost bought it on the damn thing. The electronics weren't reliable at all. It was ahead of its day.

My understanding is that there were several accidents, and Beckman eventually pulled the product from the market. How do we avoid that from happening again? Are things different now? How do you see all that shaking out?

The O_2 sensor technology is a lot better today than it was then. The other thing about the Beckman unit was that you could accidentally touch off the O_2 addition valve and you didn't know what the PO_2 level really was. As I recall, water could also get into the canister pretty easily, and then into the breathing loop—that's a very hazardous thing.

I don't want to get involved in analyzing the rebreathers of the past too deeply from the design point of view, but we've learned something over the last twenty years. We're keenly aware of the issues involved, and have tried to engineer around them. Whether we have provided the opportunity for the thing to be bulletproof, I'm not sure.

We're diving the units every day and learning more all the time.

How do you see the rebreather market evolving?

There are certainly a large number of technical divers who are interested. They fall into a lot of classifications: wreck divers, cave divers, marine biologists who want to dive a little deeper collecting certain specimens, underwater photographers who're doing things a little bit beyond the normal... Then there's the nitrox community. There were only a bare handful of stores that had a nitrox program in the US five years ago, compared to hundreds of retailers now, and the numbers are increasing every day. The opportunity for rebreathers is now; there is significant, significant interest in the recreational community.

Let me add, though, that we're not only going to build units for the recreational dive community, we're going to build for the militaries and for commercial operations, as well. It's hard to say where this technology is going to take us. We recently received a contract from Oceaneering, and they are tied to the Marshall Space Flight Program. These units are going to get involved in the astronaut training program. We're also building above-water rebreathers for the fire and public safety markets.

What's your next step?

Our initial thrust is to create a training program. We're not going to just go out and sell units into the recreational market without making training available. So, we're creating an organization called International Training and Technology (ITT) to get instructors established internationally in the US, Australia, Asia, and in England.

We're not setting up ITT to compete with any of the existing training organizations. I would like to believe that PADI, NAUI, and SSI are going to look at the newer technologies and embrace them, and potentially look to ITT to transfer some of its education to them. ITT may go away. It may continue. But in the beginning, we're going to create this training organization so we can train instructors, and have them in place *prior* to selling the units into a retail organization.

Our vision is to create retailers that employ instructors who have gone through the ITT training program, and are going to have units available for sales, rentals, or for training use. We're not interested in going out and just selling a lot of units at the beginning. We want to work into this program gradually, and create a training organization that provides education and safety criteria.

You've made a huge investment in rebreathers. Where would you like to see it go? What are your wildest dreams?

At the core of it, I'd like to build a very small, lightweight unit that could be used anywhere on the planet. It's user friendly. It provides additional time underwater, and minimizes decompression. You'd dive with an elevated amount of PPO_2 in the breathing loop, and you've got a clear head underwater. There's no bubbles, so you can get close to marine animals.

If we can design a unit that's very safe to use and user–friendly and take advantage of the issues that I just outlined, that's my vision. Make it easy. To go one step further, we'd put diver information in a heads-up display. We're working on heads-up displays using holographic technology. It's not too far off. Whether all of the information that's really required for a rebreather will be available through a heads-up display, I'm not sure yet. But I'd like to think that we're going to be able to get it in. Electronic technology is moving so rapidly; it's hard to keep abreast nowadays with everything that's happening.

On the flip side of that, what are your biggest worries?

It's no different than designing a regulator, dive computer, or a BCD. You hope that every component part works on every dive, that there are no errors in judgment, or human error, and that there's not going to be an accident. Everybody worries about product liability. It's a concern on a day-in, day-out basis. We're living in an environment where there are so many lawyers in the US, creating laws and winning judgments in court. We're trying to design and develop a product that allows divers to dive safely and to be free of concerns. I think we are milestones ahead of where they were twenty years ago. That's very evident.