
group, mentally awarding myself the gold medal in the 300-meter platform dive.

During the surface interval, I got to see a rare (and very endangered) Hawaiian monk seal parked on a ledge. These creatures occasionally buzz the dive groups.

On the trip home, we stopped for a school of dolphins that were quickly identified as not dolphins — the dorsal was all wrong and they were too big. After a couple of almost-close encounters in the water, it was a search through the critter books. The best anyone could do was Cuvier's beaked whale, or perhaps some other kind of beaked whale. This was an important litmus test for a dive operation: (1) if they see some unusual critter in the water, do they stop to check it out? and (2) having done that, do they rummage through the literature until they're satisfied they've found what they saw? Bubbles Below passed with flying colors (with Ken calling Linda at home on the cel phone, saying, "She's the marine mammal expert").

The next day it was to Mana Crack along the western edge of the island. This is their other "special" dive, a rift in the reef that provides some excellent terrain. I found these dives, too, to be very enjoyable, but not substantially better than a good day at one of Kona's better (and closer) sites. This time Linda was running the group. She and Lisa Choquette of Kona's Dive Makai (whom I consider to be one of the best divemasters around) have a lot in common. Linda loves the little critters out there and knows every one. Each hole and crack in the reef ridge was carefully inspected. Linda timed the dive to end at a large amphitheater where a school of gray reef sharks occasionally hang out. Alas, the

sharks were not in residence, but it was a fine dive nonetheless.

Toward the end of the dive, Linda suddenly went berserk, pointing at a small fish swimming around the reef. I looked, but all I saw was something that looked like an oddly shaped pennant butterfly. When we returned to the boat, Linda whooped with delight. We had seen a Hawaiian morwong, which is simply not seen around any main Hawaiian island except Kauai and is rare even there. "Next time you see Lisa Choquette, be sure to remind her she's never seen one," demanded Linda with a giggle.

Beyond Beyond

I asked Linda, "Is there anything, um, further out?" knowing that the northwestern chain of Hawaiian Islands disappearing into the setting sun is renowned for its shark populations. She smiled and got a faraway look in her eyes. "Kaula. It's a few miles beyond Niihau. That's where Marjean got chased out of the water by gray reef sharks. We don't get there often." Marjean, the amiable and terribly competent captain, piped up, "I go there every chance I get."

K. L.

Bubbles Below can be contacted at 808-822-3483. If you're diving Niihau or Mana Crack with Bubbles Below, stay on the southern side of the island, where they pick up passengers for those dives. The crossing to Niihau is very weather susceptible and they understandably ask you to agree to a regular two-tank dive with them if they can't get across the Kaulakahi Channel. As it is, Niihau diving is restricted to the summer months.

Ditty Bag

Postmarks

More feedback on computer diving

In the October issue of In Depth, under the title "Computing Your Way into Trouble?" we published excerpts from the 1995 workshop sponsored by the Underwater Hyperbaric Medical Society. We focused on Dr. Carl Edmonds's outspoken comments against divers placing their trust in dive computers because in this industry the only place you can read a controversial remark is a nonadvertising publication like In Depth/Undercurrent. Good

controversy should raise a few eyebrows, and this one did. Last month Bret Gilliam, current CEO of UWATEC (a dive-computer manufacturer) and vice chairman of NAUI's board of directors, took issue with a number of points and we printed his response. Shortly thereafter, we also heard from Dr. Peter Bennett, executive director and founder of Diver's Alert Network, and John Lewis, co-author of Recreational Diver's Guide to Decompression Theory, Dive

Tables, and Dive Computers, *as well as from several In Depth readers.*

Better Computers

Dear John Q. and Ben,

With all due respect to Carl Edmonds and Peter Bennett, I believe that their remarks and conclusions could use a bit of clarification.

During the 1987 AAUS Symposium on Dive Computers, Carl Edmonds was the first to point out that many (no, *all*) dive computers had an inadequate memory when it came to repetitive diving deeper than about 100 feet. He demonstrated that with surface intervals as short as 30 minutes these dive computers allowed as many as five or six repetitive dives with *zero* consideration for residual nitrogen.

Since that time, there has been an evolution in dive computers with an increasing number of algorithms that deal with repetitive diving in a more logical manner.

At the time of the symposium, the test data available came primarily from the U.S. Navy Experimental Diving Unit. However, in 1989, Dr. Michael Powell presented results of an extensive set of tests (750 Doppler-monitored, NoD, multilevel, repetitive dives) that is the basis of algorithms used in dive computers distributed by Oceanic (Prodigy, Pro, DataTrans), US Divers (Matrix, Scan\$), Sherwood (Source), and Dacor (Omni, Quantum Loop). These dive computers are designed to replicate the performance validated by Powell, including descent time.

Your article reports that cases of DCI in computer divers increased by 45 percent from 1987 to 1991, also pointing out that

live-aboard divers have many fewer incidents of DCI than divers on day boats, and speculates that this could be the result of divers on day boats using their dive computers to inappropriately reduce surface intervals. I believe that there is another explanation for these observations.

The only surprise about the increased incidence of DCI among computer divers is that it was not much greater when one recognizes that the sales of dive computers increased by more than a factor of ten during this period. In addition, my experience is that on day boats dive computer users are a distinct minority (typically less than one out of five divers), whereas on live-boards every diver has one.

An alternative explanation is that the extensive use of dive computers on live-aboards is directly responsible for their lack of DCI incidents and that the converse is true for day boats.

John E. Lewis, Ph.D.

A Growing Awareness

Dr. Peter Bennett, executive director DAN, also believes that there could be another explanation for the increased number of DCI incidents:

“The figures you quote imply that the incidence of decompression sickness is increasing, when in fact there is no evidence to support this. From 1986 through 1994 the number of cases reported to DAN has about doubled, but this has coincided with an extensive education effort on the part of DAN to make divers more aware of symptoms of decompression sickness and to report them. Since we have no data on the actual numbers of dives done without symptoms, we cannot tell whether this represents an increased incidence or an increase in the number of

reported cases. In 1995, 1,132 cases were reported to DAN, compared with 1,164 in 1994. So for the last two years, at least, the number of reported accidents has remained essentially the same.”

Older and Wiser

And our readers' reactions to trusting or not trusting their dive computer?

Dear Ben and John,

Reading your article about dive computers, their misuse and resulting problems, reminds me of a conversation I had with an “old” (he’s 65, I’m 55) friend of mine. He laughingly noted that he’ll only do his banking with a living teller, while our kids will only go to an ATM. Naturally, the teller has the greater likelihood of making an error, but we older guys don’t trust the machines!

Perhaps therein lies the problem with computers. I’ve noticed that the majority of those on my dive trips who seem to want to “push the limits” on their computers are younger. They have a lot of faith in the device. Of course, the ATM *knows* how much money is in the account. But since dive computers don’t have a probe shoved up anyone’s ass, their estimates of remaining time at depth are just that — a guess. True, it’s probably a better presumption than you or I might make using tables (which also guess), but it’s still just a guess.

Assume your airplane’s fuel gauge reported remaining gas based on time and altitude alone, without really knowing what’s in the tank. Might a pilot not tend to be just a little conservative — perhaps assuming as much as 20 percent less fuel remained than was displayed on the gauge? I use a dive computer the same way — I knock off 20 percent. So far I’ve been okay. I suppose I’m old enough to realize that there’s

always another dive; this one doesn't have to last forever.

Andrew Marias
Encino, California

Surface Interval Problems

Dear John Q. and Ben:

I am no expert. I have been diving since the 1970s. I had a lot of dives on the tables, but for the last ten years I have used the SkinnyDipper and now the Monitor II. I figure that doing the dive with a dive computer is probably safe. It doesn't matter what algorithm a dive computer uses. It's safer than trusting divers of today to remember and use the dive tables. The trouble comes with the surface interval. Anything less than 2 hours puts you at risk. Just look at the good old navy tables. At 90 feet, with a 30-minute dive, it isn't until about a 2-hour surface interval that you get 10 minutes of adjusted maximum time back at 90 feet.

If you max out at 60 feet, you have to have a surface interval of 55 minutes just to get 8 more minutes at 60 feet. No one does this type of second dive at a resort. A 2-hour surface interval would give you 24 minutes — a fair dive on the tables.

Resorts would rather limit your dive time and depth than give you a fair surface interval. I have to dive a live-aboard or walk off the beach somewhere like Bonaire to get the surface interval time I want.

Nowhere in the dive industry should there be thinking that you let your computer plan all your diving. You have to use your brain too!

It seems I am in the same camp as Dr. Carl Edmonds. What wonderful company.

Peggy Bowen
Oakhurst, New Jersey

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