

Undercurrent®

The Private, Exclusive Guide for Serious Divers

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Lighthouse Reef, Belize, C.A.

— *by land and by sea*

Dear Reader,

Had you rounded the tip of Northern Caye by boat one evening in early September, you would have happened upon twenty people, their bodies glowing chartreuse and scarlet, ripping flesh from the bones of barbecued pigs and dancing frantically in the radiance of a bonfire. It was merely a bunch of divers and staff celebrating the end of a "damn good week".

Damn good weeks occur when the divers who have befallen each other, happen to click. Sure, diving counts. Food too. But, the people create the vibes. Typically, most travelers remain aloof the first night, cautiously sniffing out each other. The first dive is the icebreaker. Two or three couples take a liking to one another. Single people seek buddies. By the third day, small groups blend into a larger group, becoming homogeneous, excluding the patently obnoxious — the turkey we all worry we won't be able to get away from. (Truth is, there aren't many of these diving birds and when they do fly in, the group generally builds itself a barricade.) Finally, a damn good week ends in celebration and promises, invariably unkept, to stay in touch.

I had one of those weeks at Lighthouse Reef, with a lawyer and his med-tech companion, a comely young couple about to move to China for six years, an insurance mogul and his diving wife, a piano tuner/PADI instructor, a mortgage broker, a fund raiser, a business consultant, a school teacher, a reporter, and a roving German anthropologist (and his partner) who's paid handsomely to keep away from his family's business. Upper middle class coterie, it seems, but then \$1200 for six days of diving would exclude most wage earners.

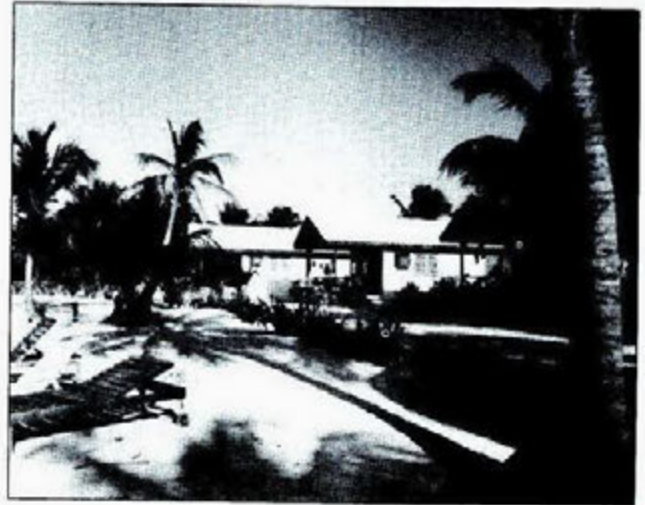
Lighthouse Reef covers a lot of ocean about 70 miles off the coast of Belize, beyond the Turneffe Islands. The landscaped, manicured resort lies on a sandy beach on Northern Caye, giving divers access to Half Moon Caye, Lighthouse Caye and the Blue Hole. After a 20 minute flight from Belize City, the twin engine Otter taxied to a halt on a sand runway cut out of the jungle, 100 yards from the bar. It's all so romantic. But, your romance may be cooled by the accommodations. To one side of the small main dining room, sit five tin-roofed

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boxes with porches, smelling of their cold cement construction, simply decorated, somewhat dark, with tight windows to maintain the conditioned air. They're fine for sleeping, but you'll spend your waking hours on your porch or outside. Nearby, a large quonset hut houses all the equipment. The dock extends from the beach, where boats moor nearby.

Walk 50 yards to the other side of the dining building and you'll discover three lovely air conditioned chalets that were surely designed for Cape Cod. Replicas of old English furniture, Levelored windows, double entry doors with curtains, overstuffed chairs in floral patterns, Victorian wall paper and Casablanca fans gave the chalets a 'bed and breakfast' ambiance. Two houses are divided into two units and the third (The Villa) has two bedrooms, a living room with an open kitchen, an overstuffed chair in one bedroom, a couch in the other. Charming and comfortable, indeed, but the porch would seem better adorned with a pair of skis than drying lycra. Picky me; I missed the tropical ambiance.



CEMENT CABANAS

The dining building, with three sets of doors opening to the sea, has just enough tables for 20 or so guests and a couple of staff. Before dinner, I'd sidle up to the bar for a beer (if Godfrey isn't there, pour your own) and appe-



VICTORIAN DUPLEX

tizers (for example, melted Campbell Cheddar Cheese soup for dipping fritos), certain to find Shawn Houwk, our dive boat captain, and his lady, Ellen, perhaps watching Indiana Jones on the VCR. A good natured, garrulous American expat, he worries that he's getting a paunch from all the good beer and food over his 17 years in Belize. He owns the Dulce, a just about 40 foot "workboat" he calls it, with twin diesels, plenty of space for divers, a platform in the center on which cameras and butts are placed, tubs for masks and cameras, and a sun deck above on which all the beauties bathed between dives.

Several of our readers have complained about the boats of Lighthouse Reef. Bruce N. Barker (Seattle) who was there in July writes: "The big boat broke down early in the week. They moved us to a smaller boat, which also needed repair-- we had to sit in the extreme bow of the boat to hold it down to reduce the pounding in the chop, but we were beaten

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up anyhow. The big boat would be overcrowded with 10 guests aboard. The next boat would take a max of six. What would they do with 20 people? What they do is hire Shawn, an independent contractor, to work the Lodge from time to time. He makes a living with the Dulce, occasionally transporting the British military, hauling cargo, developing a little resort he says he has a piece of. Lighthouse could use him full time.

Shawn and Andy Stockbridge, the instructor, know the reefs well, but it doesn't make much difference since most dives are at mooring balls, many of which are used by the Aggressor and the Wave Dancer. Diving follows a schedule that deviates little from week to week. All stays are from Saturday evening to the next Saturday morning. Sunday, it's a one tank morning dive and two in the afternoon in nearby waters-- very good if you haven't done much diving, average on Belizean terms. All day three-tank trips on Tuesday and Thursday; other days, two AM dives, lunch, one afternoon dive (Friday excepted), and a night dive. Seventeen tanks, en toto.

Monday, it was Abyss West, where sensuous soft coral trees rose from the reef like holiday decorations in a ritzy department store. Great schools of blue chromis and bogia streaked along the wall (it drops from roughly 35-100+ feet, typical of the diving here). I encountered two lizard fish chasing each other at amazing speeds for short distances, then stopping abruptly. One sank its teeth into the rear quarter of the other. Every few seconds, the victim struggled to free itself, opening its mouth wide to emit what I imagined was a silent scream. Between screams it didn't look stressed-- but what fish does? Soon, the two were off, darting across the reef. Is it a game? Do fish play? Is it a fight? Mating?

Dulce's ladder is tough to climb with gear; it needs more rungs. Boat hand Chris helped me off with my gear, just as he had helped me don it. The laid back crew occasionally needed to be reminded to hand a camera or to install tanks higher in the pack. No big deal. Curly-haired Andy, a quietly efficient and pleasant Britisher in his 20's, gave good briefings. After the first dive, he granted total freedom to computer divers, suggesting depths, logging depths and times afterwards, but not editorializing about safety. Guided dives on request. (Previous divemaster, Texan Dennis Payne, is now on-site manager. Always helpful, in his quiet way he kept things moving right along.)

Water temperature 83-84 degrees, no currents, visibility typically Belize, 40-80 feet, one day 100. On a second dive, I saw a cobia, a couple of crabs and lobsters, two sizeable trunk fish, and, what's this? A spotted moray free swimming with a grouper? Indeed. The grouper went into a hole and the moray followed. Then the moray left and the grouper followed, both disappearing into another coral head. Then, a trumpet fish swam alongside a Bermuda chub, and a barjack swam with another chub. What's this pairing thing?

After two morning dives, the boat returned for lunch: fried fish, cooked ahead of time so it can be served quickly, rice and beans, and coleslaw, with oatmeal cookies for dessert; seafood chow mein with fresh carrots, and cabbage on spaghetti (the vegetarian version with avocado). Pizza the alternative. Another day, hamburgers.

The pleasant dining building is perched on water's edge. Overhead fans pump cool breezes through the open room. Aside from breakfasts (Sugar Pops and kiddy

LIGHTHOUSE REEF CARIBBEAN SCALE

Diving for Beginners	★★★★
Diving for Experienced	★★★★ 1/2
Accommodations	★★★ (★★)
Food	★★ (★)
Ambiance	★★★★ 1/2
Money's worth	★★★★

★ poor, ★★ fair, ★★★ average, ★★★★ good, ★★★★★ excellent

cereal, except for granola, eggs, fresh fruit—one day, canned fruit—pancakes, huevos Rancheros, fried jack), meals were disappointing. Typical dinners: meat lasagna; sauteed vegetables—zucchini and carrots seemed ubiquitous — cold mashed potatoes on a vegetarian plate. Another night, grilled shrimp, old and stiff, and another night, large shiny stone crab claws, frozen so long that the meat stuck inside the shell like matted spider webs. A thin, rare, tasty, gamey T-bone steak with roasted potatoes one night was some consolation. An effort at something remotely Belizean — beef fajitas, the beef oddly in a gravy, with a good salsa was tasty, thanks to thick wheat tortillas. Dessert was often cheese cake, served one night with key limes, another with blueberries, another with cherries.

The food problems are attributed to the distance from Belize City, but I don't buy it. Just about every day a plane arrived that could have been carting

comestibles. After all, Manta Resort (which gets supplied once a week), Turneffe and St. Georges, are all on remote barrier reef islands, yet turn out meals that shame these. My bet is that the fault lies with a tight budget, inept planning and purchasing, and an unschooled chef. The food, the troublesome boats, limited rental gear in poor shape —would this not suggest a tightfisted owner?

Insurance is no Assurance

When the *Little Cayman Diver* went on the rocks last Christmas and the *Coralita* blew up at the dock in Australia a few months later, both owners assumed the insurance would get them back in business rapidly.

LCD owner Winston McDermot told us, "we recovered less than hull value from Lloyd's of London. We had to put every dime of our savings back into the new boat. I was just at the point of having the LCD fully paid off, and now I owe more than I did when I started." Lloyd's also refused claims for passenger belongings and gear.

Alby Ziebell's insurance carrier wants to settle for \$250,000 less than the *Coralita* was insured for (\$1 million plus). Ziebell says he had to foot the bill himself to raise the vessel so that the police could prove that there was no skullduggery involved. He hopes to get a new boat, but can do so only after settling with the insurers.

People who made trip deposits are clamoring to get paid off, but Ziebell hasn't come through. "When the insurance company demanded that we raise the *Coralita*," Ziebell told *Undercurrent*, "it took almost everything we had. We have dropped our 800 number and the dedicated fax line and we don't have any salaries right now."

Ziebell told us that his attorney "is handling customer complaints. I assume that he has sent out letters to everyone who had a deposit."

Not so. One *Undercurrent* reader has sent one letter and two faxes, all unanswered. When we tried to call Ziebell again, his answering machine replied with a series of beeps indicating that the message tape was full. That's no way to treat customers whose continuing business will be essential to the success of Ziebell's next craft.

C.C., travel editor

Tuesday, it was a full day trip and Shawn was eager to get underway. But damned if there wasn't a dolphin under the boat, and three people were snorkeling side by side with it. Shawn asked them to leave the water, saying confidently "it would still be there when we returned". They did so, grumbling. Traveling at 11 knots, it's 15 minutes short of two hours to Long Key, with the first dive at the Aquarium, a second along the way, lunch, and a third on the way home. The wall began at 30 feet and was loaded with tube sponges— a yellow beauty with nine pipes —dangling rope sponges, large basket sponges. Deep sea gorgonia and black coral bushes abounded. Twenty feet below me, a sizeable manta ray floated past. Schools of chromis and bogia and Creole wrasse were everywhere, and small Nassau groupers, black groupers the size of fireplugs, and a school of jacks swam up. A barracuda attacked and swallowed what appeared to be a chromis, then spit it out. It swam away, apparently unharmed. In the shallows, grew tall strands of varied

soft corals. Lunch was two cheese and meat sandwiches, Pringles and potato salad, then a dive at Silver cave, where the silversides no longer swim.

Shawn was right. The dolphin was there when we returned. I looked into her eye, watching her squint like a purring cat as I scratched her belly. She put

her muzzle against the snorkel in my mouth. A kiss? I swam into clearer water, pointing my camera. She put her face in mine. At times I could hear a soft purr, and I tried to click and purr back. As I climbed the ladder to exit, she pushed on my foot with her snout, as a cat would to urge you to open the refrigerator door. She was there other days as well, and I took as many dolphin portraits as I had in my career. Shawn says she's often around, as other magazine writers have attested.

During the week, we took two dives at Hanging Gardens, which is festooned with sponges, gorgonia, and black coral bushes the size of Christmas trees. Along the wall, bar jacks pursued ocean triggers. The jacks turned on each other, pressing their full mouths together, then swam side by side, darting and weaving, but keeping parallel. Then, off again after another ocean trigger. I encountered thousands of bait fish swirling within two feet of my lens. In a hole, a black grouper expelled water to stir up the sand to hide itself from my groping hand, then grunted audibly as I tried to touch it. Some divers saw a nurse shark. I didn't.

Thursday diving was the highlight. Now, I've talked with divers who think little of the Blue Hole dive ("there ain't a damn thing to see"), but they miss the point. Blue Hole diving is an inner experience. I'm free to experience myself as I drop into nothingness, where the morning sunlight from the surface turns gradually to twilight. I feel less and less in control as the nitrogen drips into my system, relaxing me and adding to the eeriness. I make a magical connection with the Blue Hole. Above me, divers are paddling around, bumping into each other, trying to photograph. Thousands of exhaust bubbles stream to the light, wriggling like sperm through the lattice lip of an overhang. After 9 minutes at 143 feet, I rise slowly to the surface. Stoked!

Next, it's Half Moon Caye, a lovely dive to 100 feet, visibility 70 feet. We anchored on a sand bottom, near the wall. At 40 feet, the bottom gave way to a lush reef, from which sizeable soft coral bushes pushed to the sky. Cuts and canyons run through the reef, permitting a zig zag dive from the wall to the shallows and back again. A spotted eagle ray glided below, then winged over the reef into the shallows. A number of sponges hosted brittle stars, sometimes in thick layers. A large Southern stingray lay in the sand, only his tail exposed.

Ikelite Aquashot Housing Malfunction

Dear Undercurrent,

I have been using the Ikelite Aquashot camera housing with the Fuji Flash cameras and it functioned well to at least 100 fsw.

But, with the Kodak Flash cameras, it did not function below 25 fsw and leaked on one dive to 130 fsw. While in Bonaire, I discussed this problem with three other Aquashot users who were having the exact same problem I have had below 25 fsw with Kodak cameras.

George Lowe, Jackson, MS

Dear George,

Ike Brigham, president of Ikelite, told *Undercurrent* it was a tough problem to locate, but they found that the housing compressed near a shim glued to hold the camera in place, preventing the film from advancing.

The leak, Ike says, is caused by the way the user assembles the camera. "I thought that we had written the instructions clearly," he said. "But hell, I don't read instructions so I don't know why I should expect anyone else to," he admitted.

"We bought several Kodak cameras at two different stores and did not have any problems with one batch and had several problems with the other batch. I don't know if Kodak varies the size of these cameras. We have tried to find out but all we get is a request to change the color of our housing and drop the yellow." Ike too finds no problem with the Fuji camera.

Ikelite offers a free update kit. Write or get one from an Ikelite dealer. It takes about five minutes to install. Ikelite Underwater Systems, 50 West 33rd Street, P.O. Box 88100, Indianapolis, IN 46208.

PS: If you're in the field, you might try removing the shim on the left hand side of the rear of the housing. Cut it in half and place the pieces lengthwise, one at the top center and the other at the lower left-of-center of the housing. This should relieve the pressure on the camera and film.

Ben Davison

A dozen jacks swimming with a purpose known only to them, split to pass on both sides of my head.

We tied up to the Caye's rickety dock and went ashore for a fried chicken and potato salad lunch laid out on picnic tables. Here, Wildlife Conservation International sponsors a Booby Bird sanctuary. A shaky platform rises 15 feet to bring visitors eye level with scores of red foot boobies. They ignored us while they preened and napped, preparing for their next ocean run.

On Friday, after two ordinary morning dives, it's an afternoon trip to nearby Lighthouse Caye, to climb the 100 foot tower for a bird's eye view of the cayes. The Lighthouse manager makes coconut oil by boiling the juice of grated coconut. \$5/bottle.

Saturday morning's 7 AM departure comes early. Some people are headed home while others are off to Belize's interior in search of birds and jaguars. In Belize City, we parted for good, exchanging business cards and vague promises to see each other along the diving trail. It was a "damn good week".

Will it be good for you, too? On a Caribbean scale, the diving can be five stars, but I felt short changed on days other than Tuesday and Thursday; by staying closer to home the other three days, you miss some of the super stuff the liveaboards get to every day. And, I'm troubled about the difficulties people report about the boats. Accommodations, three stars in the cottages, five stars in the villas (for an extra \$50, don't hesitate). Food: two stars some meals, three others, once or twice four stars (the Friday barbecue was a winner). Money's worth for me? Forget the food and it's just about five stars -- that is, if your group is as good as mine. And the dive boat runs.

C.C., travel editor

Divers Compass: Prices include air between Belize City, room, all meals and 17 dives: \$1200/person for the Cabanas, \$1250/person for the junior suites and \$1325/person for the "Villa." Singles add on is \$400. At the price, opt for the best rooms; Call 1/800/423-3114 (713/987-4045) for reservations. . . .Rooms come with refrigerators stocked with soft drinks, juices, Beliken beer, candy bars, nuts, and crackers, all at reasonable prices. . . .The glow of the dancers at the bonfire came from light stick liquid some of the more boisterous poured on us; we were told it washes right out. Not so. Any tips?Tanks were aluminum 80's, filled to 3000 psi. . . .We were required to show c-cardsThe resort suggests tips of \$80.

The Wave Dancer

Dear Reader,

Consider these comments from your fellow subscribers:

"Have been on the Isla Mia, Aquanaut, Little Cayman Diver, Kona Aggressor, Sea Dancer, and The Wave Dancer is the best." (Terry and Andy Joseph, New York).

"More space and luxury than Belize Aggressor for about same price." (Eugene Levin, Sunnyvale, CA).

"Boat accommodations are luxury - cabin space great and comfortable, service and dive assistance perfect. Great photo support. This boat will set a new standard for the liveaboard industry." (B.R. Bendush, Indianapolis).

With these comments in hand, one of our long time reviewers hopped aboard The Wave Dancer in June, diving for the week at the reefs reached by the boats of

Lighthouse Reef Resort: Long Cay Wall, the Blue Hole, Pinnacle, Silverside Cave and the Aquarium - while foregoing lesser dives I took. Water temperature: 82 degrees. Visibility: between 70 and 100 feet. Here is his report:

* * * * *

When I received a white fleece bathrobe to wear when walking between my cabin and the dive deck - and then received a warm towel after each dive - I knew exactly what our reader from Indianapolis meant when he said The Wave Dancer "will set a new standard for the liveboard industry."

An aluminum hull 125 foot by 25 foot modern boat, she was built in 1975. Christened the Super Squirrel, she served as a restaurant boat before being acquired and refurbished by Peter Hughes and his partner, John McMillin.

The Wave Dancer is spacious, no doubt about it. With ten roomy air conditioned staterooms with private heads and showers, she accommodates 20 guests. Choose from three types of cabins: those with queen beds, those with upper and lower beds, and those with side by side twin beds.

I've dived from 18 liveboard boats. None has a comparable dive deck. Each diver has a dive bin to store dive gear and clamps to hold two 80 cubic foot aluminum tanks, which get pumped up to a cool 3200 psi. A nearby head obviates the need to doff wetsuits to answer the call of nature back in your cabin. Two warm freshwater showers provide rinses after each dive. A couple of steps down from the Main Deck is the dive platform, where a rack for fin storage means no need to carry fins up and down the stairs for each dive. A crew bubble watcher was always present to assist with cameras, lights and fins.

Except for the limits imposed by your computer, your own good sense, and the closing of dive operations between midnight and dawn, diving is indeed unlimited. The usual procedure calls for moving the boat to a new dive site at 7:00 a.m. and, over coffee, a thorough briefing by Belizean Divemaster Carlton Westby. Rules are simple: Dive with a buddy, don't exceed 130 feet, hang for at least 3 minutes after every dive (a unique hang bar, a rigid trapeze, hangs 15 feet under the dive platform), and no diving after drinking.

This boat is geared for serious shooters. Four portable light tables in the salon help you sort your slides after daily E-6 processing. On the dive deck is a roomy work table with a large box of tools for loan, and a specially designated camera table, jealously guarded from non-shooters with salt or soft drinks.

Put yourself in this picture.

Mouth wide open, a look of surprise, as if the beautiful lady next to you is giving you a goose.

Yes, that's Alan Baskin and his wife Eve, advertising their fine British Virgin Island's dive operation in the pages of Skin Diver magazine.

For a million bucks, you can put yourself in that picture, either as the goose or the gander. That's what the Baskins are asking to get out of their business.

Baskin, who recently spent a couple of months in convalescence, told us that "when you're busy all the time, you don't have the time to think about what you want to do and where you are going. I'm into my 60's and have had a lot of time to think. Do I really want to work this hard until they carry me off? I don't think so."

Alan says business this year has been "very good with 47 percent repeat business so our customers must like what we are doing. We have begun to dive on the West side of Tortola and have found some interesting sites that no one has dived before. I've got ten instructors and like what we do but I think I've got to slow down.

"Tortola's paradise. It has little or no crime. A hundred percent employment. The island's larger than St. Thomas but with only 8,000 people. I don't think I could go back to having to wear shoes and socks every day; once a year at DEMA is enough for me."

To put yourself in that picture, contact Alan at P.O. Box 108, Tortola, BVI, or call him at 809-494-2858. Since Baskin is building a home on Tortola, you can most likely count on him to guide you through at least your first year with the operation.

And, tell him Ben Davison sent you. Maybe you'll get a free t-shirt.

Photo Pro Steve Furber and Vicki Viebrooks, went out of their way to assist the photographers on board and there was no pressure to "sell" photography merit badge courses.

Let me give you a brief rundown on just a couple of our dives that C.C. didn't get from his land-based operation. This is why I prefer liveaboards.

At 6:00 a.m., the Dawn Patrol got into the water just as the reef's night shift checked out and the day shift began. What a sight! Several large grouper had made their home under the boat and were busy gobbling up still-drowsy reef fish. Competing with them were a pack of horse-eye jacks and large barracuda, feeding lustily. The wall was alive with sponges, gorgonia, whips and fans, black coral and feeding brain, flower and star corals, all illuminated by the rising sun. Pederson cleaning shrimp had opened their cleaning stations for the day's business and their first customers had already lined up for their grooming. Yellow headed jawfish blew the accumulation of night sand from their burrows. Indigo hamlets, blue parrotfish and golden coneys seemed to glow in the dawn during the time betwixt night and day. Although this dive was earlier than the normal diving hours, Vicki got up to be the obligatory "bubble watcher," and even managed a weak smile and a "good morning" over the first cup of coffee.

**WAVE DANCER
CARIBBEAN SCALE**

★★★★★

* poor, ** fair, *** average, **** good, ***** excellent

Steve, an avid photographer, spent almost two hours on one dive trying to get just the perfect shot of a male jawfish shifting the eggs in his mouth; a few tossed the eggs around to keep them oxygenated. Not jealous of the

shot, he helped my buddy try for a close up (Not the procedure I have seen on some other boats where the resident pro is interested only in adding to his own portfolio).

At the Cathedrals, we encountered mantas. The night dive here (we made night dives every night, an advantage of liveaboard diving) was enlivened by the large tarpon on prowl under the boat, flashing in and out of our dive lights like Cruise missiles zooming through the blue.

With unlimited diving, you must have ample fuel. Maria Toucan and Maria Solomon, good-natured Belizeans, worked long hours to provide great meals and baked bread and pastries. Full breakfasts were aimed at American appetites and included papayas, bananas, pineapple, mangoes and grapefruit. Lunches: spaghetti with salad and garlic bread; deli sandwiches with fresh baked bread; burritos, tacos, enchiladas and tamales; and soups such as turkey and conch. Dinners: shrimp kabobs with rice creole, salad and glazed carrots; roast turkey with all the trimmings; breaded grouper with oyster sauce, rusty potato sails, and fresh green beans. A Belizean specialty night included Belize beef stew with beans and rice, cole slaw and home made corn bread. Desserts: flan, coconut custard pie, chocolate coronary, pina colada cake and lemon meringue pie. Meals were served in the air-conditioned salon, at a mix of tables, banquettes and chairs; or one could step outside for al fresco dining and schmoozing. A large cooler chest here was filled with soft drinks and beer and wine, all complimentary - no chintzy tabs run for libations on this boat.

Just like our travel editor, I too had a "damn good week" - with a LOT more diving. On most liveaboards, after partying the last night, I find myself nudged out of my cabin at dawn on the last morning and then dropped at the airport to spend hours waiting for my flight. Not here. After Friday's diving, we returned to Belize City and checked into the Radisson Fort George Hotel, a first class hotel, where we relaxed and enjoyed a good meal with the friends we had made during the week - all part of the Wave Dancer tab. The next morning, I slept

late and took the complimentary shuttle to the airport. Indeed, the Wave Dancer will set a new standard for the liveaboard industry.

Divers Compass: Peter Hughes Diving: 800/932-6237, FAX 305/669-9475; 1993 prices from \$1495 to \$1595, depending upon cabin; for 1992, they're \$100 less; gratuities extra; single supplement 50 percent more, but if the staff is allowed to find another single of the same sex, to share your quarters, you save. . . . The salon has a 32" color television, VHS, SuperVHS, and 8mm decks, CD player, and cassette deck. . . .Chaise lounges on the sky deck permit soaking up the sun or the stars; being two decks away from the sleeping quarters, those who engaged in "party till you drop night" up there, didn't faze the sleepers below. . . .Thursday night slide show featured the best of the shots by the guests. . . . There is plenty of oxygen on board, fire extinguishers in each cabin (perhaps in remembrance of a fire several years ago on the Sea Dancer, and two 25 person liferafts.

How Dive Computers are Being Misused

Karl E. Huggins, one of the developers of dive computer technology, writes frequently about how dive computers are being misused — and how to use them properly. These cases of misuse come from his presentation at NAUI's International Conference on Education.

Galapagos

During a 14-day trip, nine divers using dive computers were monitored with a Doppler ultrasonic bubble detector to check for "silent bubbles." A tenth diver followed the U.S. Navy tables.

When compared to the tables, 52 of 65 computer dives omitted decompression required by the tables. The maximum omitted decompression time for a single dive was 71 minutes. The average was 23 minutes. For an entire day, the maximum omitted decompression was 145 minutes; the average was 46 minutes. The maximum time extended past the No-Decompression limits was 55 minutes on a single dive; the average was 24 minutes.

The depth range was divided into quarters (0-25%, 25-50%, 50-75%, and 75-100% of the maximum depth) and the amount of time spent in each quarter was computed.

- The divers spent 49 percent of the dive time in the deepest 75-100 percent of their dives.
- 26 percent of the dive time was spent in the 50-75 percent range.
- 16 percent of the time was in the 25-50 percent range.
- Only 9 percent of the time was spent in the shallowest quarter of the dive.

The computers were not being used to make a short excursion to a deep depth followed by the remainder of the dive in shallower water. At least one diver made no attempt to perform the deepest part of the dive first and then work shallower.

The results of the Doppler monitoring indicated

one definite and three possible cases of Grade I bubbles, although no DCS symptoms were observed.

Andrea Doria

Mike Emmerman reported divers doing a 210 fsw dive, waiting four to six hours, and then doing the dive again! Some would do two dives a day, and others did three, three days in a row. Over half the divers used dive computers. Some used dive computers that had maximum depth ranges that were shallower than the depths of the dives. Of the 16 divers on the trip, six had definite symptoms of DCS. While these six divers expressed some concern for their condition, none sought treatment immediately following their dives.

San Diego

Dr. Tom Neuman at the University of California (San Diego) related a case of DCS where the diver reported his first dive was to 254 fsw, and his second to 160 fsw after a 3-1/2 hour surface interval. His computer could not confirm the depth, since its maximum recording was only 230 fsw.

Caribbean Vacation

A 26-year-old male diver made a no-decompression multi-level dive to 140 fsw for 56 minutes. Four hours later, he made a second dive to 160 fsw for 47 minutes. The diver became fatigued, but he took a third dive to 47 fsw for 67 minutes following a three-hour surface interval. That night, he had a restless sleep, cold sweats, and minor pain in the elbow.

In the morning, the fatigue and pain remained, so he dived to 65 fsw for 40 minutes. During the dive, he had relief from the pain and concluded that he was probably bent. The next morning, the pain and fatigue remained along with a headache. He flew back to the States and sought treatment four days after the dive series. He had no residual problems.

Why Computer Users Get Bent: Part II

— Techniques to Avoid Injury

The first part of this story, discussing the incidence of decompression sickness among computer divers, appeared in the previous issue.

Whether using a computer or dive tables, it's important to go to the maximum depth early in the dive and progressively work shallower. The ascent rate should never exceed 60 ft/minute and should preferably be 30 ft/minute or slower, when shallower than 100 ft. (Faster ascent rates have often been used successfully while at depths beyond 100 ft, but the rate must be slowed when approaching 100 ft.) In addition, a diver should endeavor to end all supposed no-decompression stop dives with a safety stop between 10-30 ft (preferably at 15-20 ft) for at least 3 minutes. These, and other, safe diving practices are summarized below.

Recommended Practices for Computer Diving

- Ascend slowly. Never exceed the ascent rate recommended by the computer, and generally ascend at about 30 ft/minute or slower when shallower than 100 ft.
 - Go to the maximum depth early in the dive and progressively and slowly work shallower. (TABLE I). End the dive with at least 3 minutes at 10-30 ft (preferably at 15-20 ft). Avoid rectangular dive profiles. (TABLE II)
 - Do not dive to the limits given by computers. Like
- dive tables, they do not cater to individual susceptibility to bends. Be more conservative with each repetitive dive.
 - Reduce the limits progressively for each dive in a series of repetitive dives, especially when making repetitive dives over several days. Also reduce the limits if you make multiple ascents within a dive or if you become cold, anxious or exert yourself.
 - Avoid using the computer for repetitive dives beyond 100 feet, especially those with rectangular profiles or requiring a mandatory decompression stop(s). If planning to conduct a deep or decompression stop dive using a computer, back it up with a second computer (with similar decompression algorithms) or with tables, where possible. However, when planning deep or decompression dives, consider using a conservative set of tables, such as the DCIEM Tables, to plan the ascent.
 - If your computer fails during a no-stop dive, and you don't have a back-up, ascend slowly to 20 ft and spend at least five minutes there before surfacing. If a mandatory stop(s) was indicated before the computer failure and you cannot remember it, spend as much time at around 20 ft as possible (unless deeper stops were previously indicated), leaving enough air to return to the boat. Do not re-enter the water for at least 18 hours, or

Table I: LAST DIVE THE DEEPEST

FIRST DIVE DEPTH = 90 ft	SECOND DIVE DEPTH = 100 ft	THIRD DIVE DEPTH = 120 ft
Allowable no-deco. time:	Allowable no-deco. time:	Allowable no-deco. time:
<u>Tables</u>	<u>Tables</u>	<u>Tables</u>
U.S. Navy Tables = 30	U.S. Navy Tables = 3	U.S. Navy Tables = 0
DCIEM Tables = 20	DCIEM Tables = 9	DCIEM Tables = 5
<u>Computers</u>	<u>Computers</u>	<u>Computers</u>
Solution = 23	Solution = 13	Solution = 6
SME-ML = 23	SME-ML = 16	SME-ML = 10
Aladin Pro/Monitor II = 20	Aladin Pro/Monitor II = 12	Aladin Pro/Monitor II = 6
Micro Brain Pro Plus = 15	Micro Brain Pro Plus = 12	Micro Brain Pro Plus = 8
Datamax Sport/Pro = 25	Datamax Sport/Pro = 12	Datamax Sport/Pro = 0
Skinnydipper = 23	Skinnydipper = 16	Skinnydipper = 10
Bottom time = 18	Bottom time = 16	Bottom time = 10
Ascent time = 3.5		
Stops required = none	Stops required:	Stops required:
Surface Interval = 32	<u>Tables</u>	<u>Tables</u>
	U.S. Navy Tables = 15 min at 10 ft	U.S. Navy Tables = 15 min at 20 ft
	DCIEM Tables = 5 min at 20 ft + 10 min at 10 ft	+ 31 min at 10 ft
	<u>Computers</u>	DCIEM Tables = 5 min at 20 ft + 10 min at 10 ft
	Solution = 9 min at 10 ft	<u>Computers</u>
	SME-ML = none	Solution = 18 min at 10 ft
	Skinnydipper = none	SME-ML = none
	Aladin Pro/Monitor II = 7 min at 10 ft	Skinnydipper = none
	Micro Brain Pro Plus = 4 min at 10 ft	Aladin Pro/Monitor II = 3 min at 10 ft
	Datamax Sport/Pro = 4 min at 10 ft	Micro Brain Pro Plus = 5 min at 10 ft
	Surface Interval = 32	Datamax Sport/Pro = out of range

Note: These dives were conducted in a pressure chamber. When planning dives, a diver should always do the deepest dive first and make subsequent repetitive dives progressively shallower. The simulated dives were conducted in this manner to investigate how the various computers would respond to this particular (undesirable) diving situation.

for the time needed for the dive computer to totally off-gas (had it not malfunctioned), whichever is longer.

- If using a dive computer for multi-day, repetitive diving, take a 24 hour break every 3rd or 4th day to allow your body to rid itself of some of the extra nitrogen it has accumulated.
- Do not begin to use a dive computer if you have dived in the previous 24 hours.

A healthy, sensible and knowledgeable diver can usually (but, of course, not always) use certain dive computers relatively safely on dives to 100 feet, where the user gradually works his/her way back to the shallows. The key to safe diving with a computer probably lies in the user having a thorough understanding of his computer, including its shortcomings (they all have them), and the safe diving practices required to minimize the risk of DCS. Algorithms will continue to be modified to address current shortcomings and the safety of the devices will continue to be enhanced.

* * * * *

John Lippmann is a Master SCUBA Instructor and is the author of "The DAN Emergency Handbook", "Deeper Into Diving" and "The Essentials of Deeper (Sport) Diving", published by Aqua Quest Publications. These books may be found in dive stores or ordered from *Undercurrent* by using the enclosed brochure.

Table II: RECTANGULAR DIVE PROFILES

(The times given are in minutes)

FIRST DIVE DEPTH = 120	SECOND DIVE DEPTH = 100
Allowable no-deco. time:	Allowable no-deco. time:
<u>Tables</u>	<u>Tables</u>
U.S. Navy Tables = 15	U.S. Navy Tables = 11
DCIEM Tables = 10	DCIEM Tables = 10
<u>Computers</u>	<u>Computers</u>
Solution = 11	Solution = 17
SME-ML = 10	SME-ML = 19
Skinnydipper = 10	Skinnydipper = 19
Aladin Pro/Monitor II = 12	Aladin Pro/Monitor II = 15
Micro Brain Pro Plus = 8	Micro Brain Pro Plus = 12
Datamax Sport/Pro = 10	Datamax Sport/Pro = 15
DC-11 = 6	DC-11 = 9
Bottom time = 10 min	Bottom time = 18 min
Ascent time = 3.6*	Ascent time = 2.3
Stops required:	Stops required:
Micro Brain Pro Plus = 1 min at 10 ft	<u>Tables</u>
DC-11 - 1 min at 20 ft + 2 min at 10 ft	U.S. Navy Tables = 15 min at 10 ft
Surface interval = 60 min	DCIEM Tables = 5 min at 20 ft + 10 min at 10 ft
* During another, otherwise identical, series of tests I released the pressure in the chamber to simulate an ascent rate approaching 30 m/minute. All the computers gave the same repetitive dive times as they would have if the correct ascent rate had been adhered to. None of these computers reduced the allowable times for the following repetitive dive(s) to try to compensate for any extra bubble formation occurring as result of a faster than recommended ascent. This emphasizes the importance of not exceeding the ascent rate recommended by the computer.	<u>Computers</u>
	Solution = 1 min at 10 ft
	SME-ML = none
	Skinnydipper = none
	Aladin Pro/Monitor II = 2 min at 10 ft
	Micro Brain Pro Plus = 3 min at 10 ft
	Datamax Sport/Pro = 1 min at 10 ft
	DC-11 = 1 min at 20 ft + 13 min at 10 ft

Andrew Wreaks Havoc In Key Biscayne Sanctuary

— Iniki Hits Hawaiian Reefs

Hurricane Andrew, which hit southern Florida on August 24, generated tidal surges that kicked up tons of sediment, sheared off sea fans, and overturned coral heads. It also snapped sunken ships in half, moving some of them hundreds of feet.

Paige Gill of the Key Largo Marine Sanctuary, said that "Andrew did extensive damage to the reef structures in Key Biscayne Sanctuary," south of Miami. Alan Bunn, manager of the Key Largo National Marine Sanctuary, said that "there are places where it looks like water spouts came through and laid open the reef as thoroughly as a ship grounding."

Gill says that Andrew "came in so fast that it was like a knife cutting through the corals with little damage outside the immediate vicinity of where the eye passed through. . . in Pennekamp — Key Largo Marine Sanctuary — you would have to be very familiar with the area to notice anything."

Bunn said "we didn't anticipate that elkhorn coral with six or eight branches would be sheared off at the stalk. And that those stalks would then tumble and roll and do damage elsewhere on the reefs."

Robert Aranoff, who operates two dive boats out of Miami Beach, said that "one reef I visited in water 40-45 feet deep near Government Cut looked like it had been bulldozed. Large chunks of soft and hard corals had been broken off and large rocks overturned. The habitat was turned inside out," he said.

The hurricane's force reached more than 200 feet down, tossing and twisting steel-riveted shipwrecks around like toys. Dade county artificial reef coordinator Ben Mostkoff said reports of artificial reef damage were gloomy. "Some wrecks are apparently flattened, reduced to plates of steel," he said.

Pompano Beach diver Wayne Harland said he was startled to discover that Andrew had sheared in two the wreckage of the *Jay Dorman*, a 130-foot steel schooner sitting in 80 feet of water. "There's 75 to 100 feet between the bow and the stern," said Harland. "It looked like somebody cut it with a torch."

Diver Harley Brown was equally surprised by the fate of the 240-foot freighter *Jim Atria*, which used to be in 117 feet of water laying on its port side. The wreck is now sitting upright, about 100 yards from its original site, but

reportedly none the worse for the move.

The *Almirante*, a 210-foot steel freighter, "looked like it was hit by a tidal wave," said Aranoff, a Miami Beach dive captain. "It is one of the saddest sights I've ever seen. The wreck used to have tremendous coral growth on it, but now there is nothing left at all. It used to look like a forest, but now it's covered in murky silt."

The *Sheri Lyn*, a 235-foot freighter sunk in 95 feet of water off Key Biscayne, was broken in half. The *Proteus*, a 200-foot freighter off Key Biscayne, has been pushed 100 yards closer to shore. The stern is ripped off and the deck is lying in the sand. The *Narwal* has been reduced to rubble off Haulover Beach and Miami's most popular diving wreck, the *Orion* tugboat, lost its pilot house.

"...Andrew had sheared in two the wreckage of the Jay Dorman, a 130-foot steel schooner sitting in 80 feet of water."

To some, there is a bright side. Bunn said, "Hurricanes can disseminate and propagate corals and can move rubble and sand and give coral room to grow."

Eugene Shinn, a geologist with the U.S. Geological Survey, said that the hurricane cleansed coral of potentially fatal algae. "The reef has been thoroughly blasted," Shinn told *The Miami Herald*. "The fleshy algae everyone has been worried about has been scoured off. There are acres and acres of clean boulder coral."

Even so, the clean up would only be short term. The cause of algae growth and coral death is largely due to the pollutants in the water from development and, it seems, Floridians are intent on rebuilding.

As of October 1, we were unable to get any direct readings on the reefs of Kauai, hit with the eye of hurricane Iniki, but Lanai, 175 miles to the southeast of Kauai, had extensive reef damage. John Naughton of the National Marine Fisheries Service, says it "looked as if someone had driven a bulldozer over particular areas of reef at the 40- to 60-foot depth range."

Iniki dragged and broke up two planes that had been used as artificial reefs, said Naughton.

Naughton told *Undercurrent* that it will take a while

Recalled at Birth

That brand spanking new Nikonos RS was delivered to dealers in early August all over the country. The motorized, auto-focus, single lens reflex camera represents the most radical improvement in underwater cameras since Nikon bought the rights to the Calypso camera from Jacques Cousteau in 1963 and re-christened it the Nikonos.

Within weeks, Nikon recalled it. Seems the auto-focus failed.

Frank Fennell, General Marketing Manager, said that the mechanical drive of the electrical focusing system jammed in about ten percent of the camera bodies. Nikon replaced the new bodies with even newer bodies at its own expense - including shipping charges. Some owners did not want to part with the underwater SLR that they had anticipated since its announcement in January. When they did, however, Fennell said Nikon shipped a new RS body almost immediately after receiving the original.

For information, call Nikon at (516) 547-4392. Or call their customer relations office at 1-800/NIKON-US. The recall applied to those cameras with serial numbers below 2000500.

PS: Coming up, *Undercurrent's* review of the new RS.

before Kauai can be surveyed because local facilities were destroyed. "We plan to secure a liveaboard as soon as possible to survey the damage. However, from what I've seen at Lanai, I expect the damage to be extensive."

Michael Gough, owner of Dive Kauai told us, "we just got phone service on September 29. Right now, the word is that there was extensive damage to our corals but what that means is not known because none of our boats has been out. Our harbor is still blocked with debris.

"Whatever damage the news has shown you is not exaggerated; in fact, it is worse in some areas. Only six percent of the island has electricity. I don't know if my compressor is working and won't know until we get power.

"It is my guess that we are out of business for diving for three to six months. I don't know how long it will take us to get things going and we don't know the extent of the damage to the reefs. Then it is the start of winter and the only sheltered area is on the other side of the island, a 45 minute ride away. Its all going to take some time."

—Reported from AP and UPI *Undercurrent* interviews

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