

# Undercurrent®

*The Private, Exclusive Guide for Serious Divers*

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## Pirates Point, Little Cayman Island

*—no advertisements required*

Dear Friend,

"I sell advertising for Skin Diver magazine," she told me. A super diver with whom I had been buddied for the day, she was recruiting advertisers for Skin Diver's annual Cayman issue. "I've gotten Sam McCoy and the Southern Cross Club, but I haven't signed up Gladys yet. She says she doesn't need to advertise because of repeat business and good writeups. I told her she can't count on Undercurrent or others showing up to write about her."

No, Gladys can't. Had not a small group canceled just before I called —less than two weeks before my early June arrival — I wouldn't have gotten on the eight seat plane from Grand Cayman.

Gladys Howard came to Little Cayman in 1986, after running a cooking school and catering service in Tyler, Texas for 30 years. Trained as a Cordon Bleu chef, she scouted the Caribbean for a little place to ply her trade. When she discovered ramshackle Pirate's Point, she snapped it up, converting it to a comfortable and folksy retreat now accommodating 16 guests. My little room, in a circular triplex was something one might expect to find in Tyler in 1956 — phony bleached-wood paneling, K-Mart mirrors, a small table and chest for storage, louvered windows, fans, and a giant bed. As the last room available, it was adequate. But go for the duplex, especially the two new superb duplexes on the beach, with tile floors, a king size bed, a round table for sitting or writing, louvered windows on three sides, a large shower and separate toilet. As I sat on the porch in an evening breeze, chatting with two divers staying there, the coast seemed wild and primitive, with small shrubs dotting the sand and the water breaking fifty yards off shore.

The centerpiece of Pirate's Point is the cozy main lodge. In the evening, guests gather for drinks (pour your own) amid a imaginative decor designed by other divers. You see, each year Gladys awards a free week to the diver who fashions the winning piece de resistance from flotsam and jetsam found on the island. Adjacent is the dining area, light and airy. Serve yourself, then join a table of six, while a staff member serves as a wine steward. Within a day, I felt right at home with Gladys, her family of divers and her cheerful staff.

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Having dived Little Cayman's Jackson Bay and Bloody Bay Wall before, I knew what to expect - damn good diving, among the best in the Caribbean, along a couple of miles dotted with mooring balls. At Pirate's Point, it began during a session with burly Tom Gotterup, Gladys' dive instructor, and a retired New York cop. He asked a number of questions - e.g., when's the last time you were diving? - while I filled in the forms. One question gave me pause: "Do you take any prescription medicine?" Now I know that many folks don't think about the effect of pressure on their prescriptions, but it seemed a little personal. "Yes, sir, I take one little pill to prop up my potency, another to mask my hysteria, another to dam my incontinence, and a fourth to suppress flatulence." So I told him "I just say no to drugs." Wouldn't you?

Diving began at 10:30 AM, when someone rang the gong to get things started. We divers piled into the back of a flat bed, for the five minute ride to the cement pier to board the Yellow Rose of Texas, a 32 foot boat equipped with racks holding aluminum 80's (filled a tad short of 3000 psi). It was a little tight with a full complement of divers; no big deal - the trips to the moorings last from 2 to 20 minutes.

For newcomers, Tom began the dive by explaining how to use the white oxygen tank, how to start the boat in an emergency, how to radio for help. "Folks, if a diver is hurt, we'll try to get you out. We'll start the motor three times. Hear that and get on board fast. But remember, rise at 60 feet per minute. If we have to leave you, don't you worry. We'll call other boats and they'll be here in no time. Inflate your BC and float on the surface. Don't swim to shore. Suppose we leave four divers and we get back and there are two. We ask where the other two are and they say 'well, they swam ashore.' Did they see them climb out? Well, they didn't. Then we got real trouble, folks.

"We've only had three bends cases. Two of your cases were using computers, both were within the limits of the Navy Tables. It takes up to three hours to get a plane here and take an injured diver to the chamber in Cayman. One guy who got bent didn't tell us until after dark. Now. There are no lights on the runway, so we had to line up cars and turn on their headlights."

He sets the stage for conservative depths, but times as long as your air lasts. One day, the first dive was 70 feet, the second 50 feet, but I dropped to 70 and stayed an hour. No complaints from him - or me. You see, the wall starts in 20 feet of water. And what a wall it is. At one briefing, Tom said: "here, unlike at other sites, there is no sand below us. Behind me is the wall. The bottom is 6000 feet, but some people have told me it's only 5,432 feet. Either way, if you see sand, you've gone too deep. Don't even think about coming back. Out there on the wall, you'll find your snapper, your grouper, your chromis. In the shallows, here, you'll find your yellowtails, your parrot fish, your trumpet fish." And plenty more. In a week, you're bound to see eagle rays and turtles, perhaps a shark, and all the other critters you can imagine.

At Deep Cascades, beautiful mounds of luscious corals in inverted saucers are stacked one upon the other. Called "Dollie Parton," by lithe Laurie Krause, a labyrinth of caves and crevices run between two large conical mounds. Laurie led us to a cave at 85 feet, so narrow that I had to arch my back to move through it. On the second dive, at Marilyn's Cut, I cruised the wall at 60 feet, then

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burned off nitrogen at 30 feet, doing macrophotography: a white nudibranch, a shrimp so tiny thousands would be required for a meal, goby protruding from yellow sponges.

"Fisheye fun-to-see," began with a drop to a sand bottom at 45 feet, then a slide along the coral finger to 75 feet. We entered a 30 foot tunnel, each spaced six feet apart, touching not the coral on the sides, which one can damage, or the sand below, which if stirred up will cloud the water. Between breaths, when my bubbles clustered at the ceiling and stopped gurgling, it was dead silent. A rope sponge dragged across my forehead. I kicked so carefully that I stopped moving forward, and had to sweep my leg more to propel myself. Eventually, I emerged to a canyon of beautiful corals. At 100 feet, the eye of a French angel swiveled with my every move.

We entered another passage, four feet wide. Though I was impressed with the skills of all the divers, the one ahead of me overcompensated his buoyancy so as to not stir up the sand. His tank clanged against the ceiling. As he emerged, Tom signaled him to roll on his back and look upward at the sunlight streaming over the lip of the wall through gorgonia. The diver turned, giving a little flutter kick to exit the cave. Now oblivious to what's behind him, his head was aimed directly at a ragged piece of hard coral. Tom expertly reached out and yanked him out of danger. Below sat a two foot Nassau grouper, directly on top of a cluster of pipe organ sponges. We finished off in the flats at 40 feet, then hang three minutes as advised. Visibility: 100 plus feet; other times it dropped to 60-70 feet.

In the shallows at Coconut Grove, hundreds of fish hovered. Black durgeon congregated on a coral head, rising to dismiss their congregation as I arrived. A pair of squid kept a five foot distance from me. Their little fins, reminiscent of truncated humming bird wings, whirred rapidly. Their ten tentacles, bunched together, hung limp before them. One lifted the bunch, like an elephant ready to trumpet. Their color turned from gray, to brown, then gray again; scores of aqua dots accented their bodies. I inched within a foot to watch the colors of both squids change in unison while they chatted with one another in a language of pastels only they understood. At once, their bodies turned translucent. Their tentacles stiffened. They darted backwards and away. They had had enough.

For a night dive at the pier, there was enough light from the reflective sky to see our gear. I dressed quickly because mosquitoes buzzed me unmercifully. Underwater, an octopus changed from red to white to match the sand, and back to red again once ensconced under the rocks. I chucked the chin of a sleeping parrot fish and watched a lobster walk upside down on the roof of a small cave. A three foot eel snake buried his nose in a hole to root out some critter. Turning off my light, I watched my fins stir up bioluminescence. Ahead, specks sparkled like fire flies. Above, the half moon shone through the surface, guiding my way back to the dock. As I climbed out, a small octopus reached up to cling to Tom's foot. Not a bad night dive, but other spots would offer much better, no doubt.

Tom and Laurie, who are getting married, are moving on in September, perhaps to another lodge on Little Cayman. Gladys said she'll miss them, but has already hired replacements. She employs another couple, Ed and Gay Morse, who too lead dives competently. With Gay at Barracuda Bight, I moved to the edge of the wall and, at 30 feet, saw a little hawksbill turtle flapping effortlessly within six

Pirates Point, Little Cayman	
Diving for Beginners	★★★★★
Diving for Experienced	★★★★★
Diving for Gorilla Divers	★
Snorkeling	★★★★★
Ambiance	★★★★★
Accommodations	★★★(★★)
Food	★★★★★
Money's worth for two tank divers	★★★★★
★ poor, ★★ fair, ★★★ average, ★★★★ good, ★★★★★ excellent	

feet, and then flying away. Hundreds of Creole wrasse swarmed in the deep azure, as we moved slowly against a slight current. Here the wall is festooned with big basket sponges, long tube sponges, chartreuse tube sponges. In the shallows, I watched a Nassau grouper roll his eyes as he's worked over by several tiny cleaner wrasses. His ginger body, mottled with zig zag stripes, lightened and darkened, as if reflecting some secret orgiastic pleasure. Beneath me, an octopus the size of a soft ball scurried across the coral. Like the grouper, he too changed colors, then tucked himself into a hole the size of a half dollar.

If there's a downside to diving with Pirate's Point, it's that you're limited to only two tanks a day in these waters. After the first dive, the boat moves to a second mooring for an hour's surface interval, where each day we downed one can of fritos, one of pretzels, and a dozen apples between us. After

## When One Computer is Not Enough

Ever wonder what computers the pros use? Here's what a few told us.

*Bill Loven, Producer of PBS series "Return to the Sea:"*

"I use the U.S. Diver's Monitor 2. I had one of the early Edge's and got bent, not because the algorithm was wrong but it had a faulty pressure transducer. So I looked around for a more conservative computer and got the Monitor.

"For quite a while, I carried both computers and then one day checked them and found that the Edge told me that I could go straight to the surface and the Monitor 2 told me that I had to spend 15 minutes at 10 feet. Since then I've relied on the Monitor 2.

"I need an electronic buddy that does the calculations for me. I don't have the time to worry about the shots and keep track of other things. One of the nice features of the Monitor 2 is the Rate of Ascent beeper makes a loud noise whenever you rise too fast. When I hear it, I know what to do without looking at it."

*Karl Huggins, co-developer of America's first real computer, the Edge:*

"I dive my own tables. However, I do carry an Orca Delphi and a Sherwood Solution. I use the computers for back-up in case I vary from my dive plan and also because both of the computers provide profiles of the dive. I can download this information into my personal computer and develop a data base of dive profiles."

*Chris Newbert, author of "Within a Rainbowed Sea", the all time best selling marine photography book.*

"I use three computers: the Edge, Delphi and Marathon. The Edge and the Marathon are bullet proof. Nothing ever seems to go wrong with them. I've used my Edge for six years without any problems and that's a lot when you dive as often as I do.

"The Delphi, when it works, is easy to read. It gives you the most complete information of any computer. It is lighter than the Edge and bigger. But the bigness doesn't matter because it just hangs off the high

pressure hose like a console so it doesn't seem big.

"My wife found a Marathon on the ocean bottom and brought it up. It was covered with growth, but we cleaned it off, put in new batteries and it works just fine."

*Milledge Murphy, Professor of Clinical Psychology and President of the National Cave Divers Association.*

"I use the tables. I have used computers in the past but got bent twice and gave them up."

*Rick Frehsee, award winning photographer and contributing editor of Skin Diver.*

"I use three: the Edge, Skinny Dipper and Suunto. I've used the Edge the most because I've had it longer and am used to it. I always carry a Skinny Dipper because they are everywhere; if I have a problem, I can rent another one and not lose any dive time.

The Suunto is compact and gives me all the information I need. It's easy to read and doesn't get in the way."

*Ken Loyst, author of "Dive Computers; a Consumer's guide," and Editor of "Discover Diving."*

"I carry five computers: Monitor II, Beauchat Aladin Pro, Suunto Solution, Scubapro DC 11 and Oceanic's Data Max Sport. I do a lot of deep diving and the Monitor II and Aladin Pro are the same units so one backs up the other. They both will handle depths to 330'. The Solution and the DC11 have different algorithms and I used them as a double check on the first two.

For shallow dives, I use the DataMax Sport. All of them are compact and so do not take up much room."

There you have it. One computer is no longer enough; serious divers tote one or more additional instruments to back-up the first.

So do I. I'm no pro, just another sport diver. But I use a Delphi and carry a retooled Skinny Dipper in the pocket of my BC.

*Ben Davison*

the second dive, we returned for lunch, about 3 pm. One day it was as late as 4 pm. Dinner came at 7:30. In between, I would laze about in the hammock or grab one of the rusty gearless bikes for a ride along the quiet roads. Little Cayman is flat, scrubby and barely inhabited (although new houses are being constructed and property is up to \$2000 a beachfront foot). Inland salt pools look like strip mining remnants; sticks abut; trees lie half covered; an occasional discarded beer can reminds one that the island is populated. Egrets dig in the ponds, frigate birds fly overhead. On the windward side, lies the barrier reef, constantly boiling as the waves cross. On the leeward side, the water is flat, at times nearly still.

With such a chef as Gladys, dinners are a big deal, lunches bigger yet. For example, roast beef fajitas, rare or well done, with sauteed green peppers and onions, black beans and rice. Another night, Vietnamese spring rolls for appetizers, followed by exotic sweet and sour soup, rice, and a wok-prepared vegetable dish, accompanied by chop sticks. Passable white wine or pink zinfandel accompanied. Another night, it was turkey breast from a roll, dressing, mashed potatoes with a bright yellow float of butter, asparagus slathered in melted cheese, and a salad. This is Southern style Cordon Bleu, where butter is the staple (thankfully, bread seldom accompanies meals). Nothing is greasy, but if you walk by the buffet table to smell the aroma, you're bound to inhale a hundred calories. Desserts top it off: Solid peanut butter bars with chocolate or chocolate mousse, for example.

Lunches: Lamb curry with two chutneys and a relish, a broccoli and bacon salad, a crunchy salad of radishes, onions, celery, mushrooms, and Texas bars - praline bars in another world. And a knockout of a Caymanian lunch: lightly battered conch fritters; ground chicken in a half moon pastry shell; fried plantain; red cabbage coleslaw with sunflower seeds and ramen noodles; a green salad with artichoke hearts, raisins and olives; key lime pie and tamarind tea. "Now, be sure to try this," she would urge in her twangy Texan drawl. "This is special." Served outside, under a sprawling sea grape tree, 100 feet from the beach, lunch was indeed special.

Breakfast, served at 8:30 (coffee is ready at 7 a.m.) might be pancakes or French toast or a mush special: "Pour some melted butter in the bottom of your bowl," Laurie said, "then put in the mush. Put the fruit on next, then top it off with brown sugar." Skipping the butter, I went for the mush and fruit, a thick compote, sugary and delectable. That and two blueberry muffins and I was stuffed till midway through my second dive.

There you have it. Five star diving, if you can get by with two tanks a day. Five star cooking - if you're not on a diet or have cholesterol problems. New five star accommodations, five star ambiance, and five star stress reduction.

That's why, Gladys says, she has an occupancy rate of ninety percent. And that's why you'll never see an advertisement for Pirate's Point. It's true that she just can't expect Undercurrent to show up to write about her. But, her satisfied customers are all the advertising she needs.

Ben Davison

Divers Compass: Pirate's Point runs \$1300/week, for three meals, two boat dives daily, (\$35 extra for night divers) and an open bar stocked with beer, sodas and spirits; write Pirates Point Resort, Little Cayman, BWI; call or fax 809/948-4210. . . Little Cayman can be reached from either Grand Cayman or Cayman Brac; after landing on the grass runway, the plane taxis to a halt on the islands main road; should a car come by, it drives around. . . They make 2000 gallons of fresh water a day and the showers were hot. . . Pirates Point has shut down its generator now that Little Cayman has public power; charge your strobe in your room. . . Mosquitoes and

sand fleas can be troublesome. . . . No air conditioning, but the trade winds help keep it cool; June days were scorchers, but nights were easy sleeping. . . . Readers have complained that when Gladys wasn't around, the food suffered; she has trained her staff to solve that problem, adding a charming Canadian elf, Gail Hanniford, to assist her. . . . grab a bike or take a walk to great snorkeling; or snorkel right off the dive boat, since the shallows are nearby. . . . Though you might find a spare tube of sunscreen, bring everything you need; some rental gear is available, including night lights. . . . Gladys closes September 14 to October 10. . . . There can be winter storms, down from the states. . . . The rooms are without keys, gear is left on the diveboat overnight, and tanks are left on the pier. Little Cayman, the universe's last honest place.

## Little Cayman Diver II? MyIrma?

*-nope- Winston's Boat*

Dear Reader,

Anytime you travel on a new dive boat, there's bound to be confusion. Even evil little spirits - duppies, as Jamaicans call them. Confusion begins here with the name of this craft. The reservations office calls the boat MyIrma. The owner registered it in the Cayman's as Little Cayman Diver II. Everybody in the Caymans calls it the Little Cayman Diver. The reservations office phone message says "the Little Cayman Diver II is operating the Motor Vessel MyIrma."

We'll just call it Winston's boat, until everything gets squared away. Winston McDermott bought this craft after his original LCD suffered a mortal wound last winter, hitting a reef while seeking calmer waters. Winston's boat, a converted 85 foot personal yacht, is beautifully decorated with plenty of teak and trim, fully carpeted and air conditioned. She carries only ten guests with a crew of four. The comfortable salon has the dining table with a settee and chairs, a large sofa and settee area, a wet bar with soft drink dispenser, an entertainment area with big screen TV and VCR and stereo equipment. Above the main deck is a Bimini-covered lounging area, as well as a deck for tanning.

Five cabins below the main deck are roomy as cabins go; least desirable is Cabin 1, with two "V" berths. I bunked in 3, with an upper and lower, and a single bunk. Amenities include four storage drawers, a roomy closet, storage space between head of bunks and wall and bathroom entered from cabin. Because

the linen closet is in this cabin, twice a crew member needed to get something out of the closet or walked through my cabin to enter the engine room. No problem for me. Cabin 4, originally part of the owner's cabin, has a bathtub! Towels and linen are changed during the week.

Last year, one of our writers complained of excessive rules on the original LCD. It doesn't seem to be the case on Winston's boat. It's ok to dive with computers, of course, as no arbitrary times and depths were stated by dive-masters, other than citing Cayman's Dive

Operators 110 foot limit. Buddy up, but it's ok to stay under the boat in shallows even though your buddy has come up. Log all dives (strangely, each guest must initial the log sheets at the end of the week, allegedly for DAN's review if a diver is injured).

### WINSTON'S BOAT

#### (CARIBBEAN STANDARDS)

For Experienced Divers	★★★★★
For Photographers	★★★
For Beginners	★★★★★
Accommodations (some cabins better than others)	★★★★★
Food	★★★ (1/2)
Ambiance	★★★★★
Money's worth	★★★★★

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

Dive operations normally start at 8 a.m. and finish at 9:30 p.m., though requests for "Dawn Patrol Dives" at 6:00 a.m. were honored. Good humored Captain Russ Loggins briefed us at each site, with prepared charts and sketches and plenty of information about what critters to expect. The crew slipped my aluminum 80 on my back as I sat on the dive platform. This is service with a smile, although putting 10 divers into the water necessitates some courtesy and takes some time. After an easy exit up the dive ladder, they helped me off with my tank, then pumped it to 3300 psi for the next dive.

Now, I need not belabor Little Cayman diving. My editor was garrulous enough in the previous piece. Diving is so dramatic and fish-filled that two dives daily is an injustice; on Winston's boat, you can get four, five or six, with frills unavailable from a land-based operation. For example, every night powerful underwater lights attracted a large manta to fly Immelmans, Double Shunts, Loops, and Inverted Rolls around me. One night at twilight, divemaster Rick Sanders, a budding marine biologist, showed me the courtship and mating of rare peppermint bass. He had been watching the courtship for two weeks and judged the timing of the event perfectly. I saw a large reef shark on my last dive, but only nurse sharks before. Eagle rays were common, as were turtles. Never got a "Grand Slam" - manta, shark, turtle - on a single dive, however.

A full load of serious shooters would have problems on Winston's boat. The table on the dive deck is small and no work tables are inside. Three fully rigged photographers on this trip meant no room for others without major shifting. O-ring greasing and lens changing required sitting on the carpeted floor in the salon or in staterooms. With no E-6 processing available, one day photographers ferried their film to the nearby Aggressor for developing.

Chef Jason Dietsch is no Gladys Howard, but he puts out plenty of decent vittles. Breakfast: Pancakes, French toast, eggs, cereal, fresh milk, bananas, plums, raisin muffins. Lunch: Chili dogs or Chicken wings with salad, fruit with chocolate and/or whipped cream; Deli sandwiches and fresh fruit. Cheeseburgers with onions, tomatoes, potato chips; chinese noodles in soup with fresh fruit. Dinners: Chicken with mozzarella cheese and two kinds of pasta with sauce, salad; Stir-fry beef with broccoli and rice. Wednesday: Pasta with shrimp, pasta with scallops and mushrooms, pineapple. Thursday: Honey mustard chicken on yellow rice, brussel sprouts, fresh salad. Desserts - fresh fruit with whipped cream or chocolate sauce, ice cream cake, bananas in graham cracker crust served with chocolate sauce - were usually served after the night dive. Cakes, cookies, and fresh fruit were available after dives.

Being the second full week of operation, the crew fought the duppies as best they could. The brand-new dinghy leaked (but dinghy diving is unnecessary), soft drinks had to be brought over from Brac by boat mid-week, drinking water was less than perfect -- a new part was required to improve the desalinator, and water backed up in some showers .... small stuff, the kind you expect on the first few voyages.

## U.S. Divers Regulator Alert

Owners of any U.S. Divers regulator should check the second stage where the hose joins the regulator housing for cracking in the plastic.

Several regulators have been returned to USD with cracks varying from hairline to some large enough to see through to the in-let housing.

Apparently these regulators have been damaged by exposure to silicone spray or alcohol, which are destructive to plastic. It is also possible that the in-let fitting could be tightened too much. USD is also testing to determine if molding problems might also have caused these problems.

A U.S. Divers representative says the cracks are not life threatening and no accidents have been reported.

Cracked regulators will be refitted by your U.S. Divers dealer at no charge to the customer. For further information, call Customer Service at 714/540-8010.

But, there would have been a mutiny had my mongo dive buddies been here. For whatever reason, no mind-altering beverages were on board. No one breathed a word, when I signed up for the cruise. Not forewarned, the mongos would have at the very least commandeered the dinghy and bought up Sam McCoy's stock for the week. Had Dan Quayl arrived to deliver his "happy camper" speech, the mongos -- no happy campers without a sundowner or two -- would have ground him into a turkey pie and had him for lunch. As it turned out, we tourists were a sober lot, so there were no complaints. Winston's boat will eventually serve beer and wine, but for now BYOB if you enjoy spirits other than duppies.

Winston's boat? She's a fine boat. For me, she and the Aggressor are the only way to dive Little Cayman.

J.G.

Divers Compass: Book through Little Cayman Diver (MyIrma2), P.O. Box 280058, Tampa, Florida 33682-0058. Telephone 800/458-2722 or 813/932-1993. . . .Prices range from \$1,395 to \$1,595, depending on cabin; next year, \$1595 all the way. Discounts for repeat or consecutive trips. . . .Dive/deck towels are not provided, a chintzy policy at this price . . . .Board late Sunday evening, finish early Sunday morning. Air service from various points on East Coast into Grand Cayman (Cayman Air, American). . . .Oxygen and first-aid kit on board.

## For Sport Divers, Nitrox is Safer

*—and it's here to stay*

A great debate rages in the diving community. Should divers be able to decrease their risk of bends by up to fifty percent? Should nitrogen narcosis be expunged?

Some people don't think so. They refuse to endorse or even acknowledge that any mixture other than compressed air is good for sport divers. Even though a gas called NOAA Nitrox I — 32 percent oxygen and 68 percent nitrogen (compared to 21 percent nitrogen and 79 percent oxygen in compressed air) — is superior for divers.

In fact, 8000 sport divers have been certified in the use of this mixture. None has been bent (although sport divers on other mixtures have).

### **Nitrox: What it is and does**

Nitrox is both oxygen-enriched air and nitrogen-reduced air. That means lowered risk of nitrogen narcosis and less decompression debt. Users claim it reduces the fatigue felt after multiple dives in one day, which some consider to be sub-clinical DCS.

NOAA, the National Oceanic and Atmospheric Administration, has been using it since 1970, without incident. Cliff Newell, Deputy Diving Director, told *Undercurrent*, "we recently had three divers working on air at 70 feet for 40 minutes — 10 minutes less than the US Navy tables allow — for the first dive. Two got bent. We've never had one case of bends on Nitrox." Wherever Nitrox is available, NOAA uses it.

There is a downside. Because of the increased oxygen, Nitrox I should not be used deeper than 130 feet. As depth increases the partial pressure of oxygen increases,

causing potential central nervous system toxicity and possible convulsions leading to drowning.

At deeper depths, the advantage of Nitrox I diminishes. (See table). At shallower depths, the superiority of Nitrox I in extending bottom time, without incurring any additional decompression debt, is obvious. Furthermore, if Nitrox I is used on standard air tables, the margin of safety is even greater.

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*"A 60 minute dive on air turns into a decompression dive after 60 minutes; on Nitrox I, another 40 minutes is possible before incurring the same decompression debt."*

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A 60 foot dive on air turns into a decompression dive after 60 minutes; on Nitrox I, another 40 minutes is possible before incurring the same decompression debt. Diving on Nitrox I to 60 feet for 60 minutes, gives a 40 minute safety margin, an increased safety margin of 66 percent. No new tables have to be learned or any fancy computations made. Just change the mix of the gas used.

Or, the Equivalent Air Depth can be used for dive planning, extending bottom time without any more decompression liability than air. For example, a dive with



Nitrox I to 130 feet is equivalent to 107.3 feet on air — or for table purposes 110 feet. The no-decompression time for 110 feet is 20 minutes. The same dive on air to 130 feet would provide a no-decompression time of 10 minutes.

## Nitrox Training

Retired NOAA Deputy Diving Director, Dick Rutkowski is responsible for bringing Nitrox to recreational diving. In 1985, he established the International Association of Nitrox Divers (IAND) in Key Largo, Florida, to teach and certify instructors, divers and shops about mixing and using nitrox.

In 1988, Ed Betts established another nitrox training agency — American Nitrox Divers International (ANDI), in Freeport, New York. Combined, these two agencies have trained 200 instructors and 8,000 divers and support 34 filling stations in the U.S.

## Training Agency Resistance

Nitrox I initially met with resistance from training agencies. They seemed to react without knowing enough about it, but were also concerned about their role in controlling it.

Who will set the standards of training? Who will set the standards for the fill stations? What's the potential liability in teaching Nitrox I? Will divers have the discipline to stay within the limits of Nitrox I? How will the diver know what the mix is?

When the so-called "technical" divers — cave and wreck divers — went for Nitrox, some dive leaders reacted negatively. After all, they reasoned, these technical divers are daredevils and high risk takers.

Furthermore, Nitrox I is often perceived as being for deep diving. Mention Nitrox and the initial reaction is "why do I need it; I don't dive deep." With a 130 limit, that's a false perception.

Other resistance stemmed from a fear of fire. Homebrewer's (people who mix their own gas) typically put in oxygen first, then top it off with compressed air. Pumping pure oxygen risks the potential for fire or explosion if the equipment is not free of hydrocarbons from an oil lubricated compressor or lubricants used on o-rings or tank valves. A fire in the tank, valve, or compressor hookup probably would not cause an explosion but it would destroy all the soft materials within the valve or compressor hookup.

Certified fillers face virtually no risk of fire. If a tank were filled from pressurized pre-mixed Nitrox I containers, such as a cascade system, the oxygen content would never exceed 40 percent, so there is virtually no fire risk. OSHA regulations do not require specially cleaned equipment for mixes below 40 percent oxygen. And Cliff Newell told us, "NOAA does not clean any of the regulators either going from air to Nitrox or from Nitrox back to air."

So, while the agencies fretted about control, Rutkowski and Betts moved forward, cornering the mar-

ket. Today, the instructional agencies have recognized the training, gas analysis, and mixing procedure standards established by IAND and ANDI. NAUI and NASDS have established Nitrox I as either a distinct certification or a specialty course with those instructing such courses to be certified as instructors by either IAND or ANDI.

## Manufacturers Resistance

Some manufacturers were concerned that their tanks, valves, BC's and regulators may be damaged by the extra oxygen in Nitrox I. DEMA went so far as to send out an insert with the 1992 trade show directory warning about the dangers of Nitrox I. However, Bill High of NOAA conducted a ten year study of tanks using nitrox and found no degradation of the metal. Cliff Newell says NOAA has found no damage on valves, regulators or BC's.

## No decompression times on Nitrox I

US NAVY - Air		NOAA Nitrox I	
Depth	Time	Depth	Time
30' and above	unlimited	40'	unlimited
40'	200 minutes	50'	200 minutes
50'	100 minutes	60'	100 minutes
60'	60 minutes	70'	60 minutes
70'	50 minutes	80'	50 minutes
80'	40 minutes	90'	40 minutes
90'	30 minutes	100'	30 minutes
100'	25 minutes	110'	25 minutes
110'	20 minutes	120'	25 minutes
120'	15 minutes	130'	15 minutes
130'	10 minutes		

This table assumes a square dive, i.e., all time is spent at the deepest depth.

Most of the manufacturers have backed off their initial reaction, but U.S. Divers and Sherwood still state that their gear is not to be used with nitrox. Jim Clymer, Technical Advisor at USD, told *Undercurrent* that they have no objection to Nitrox, but they've not done their own testing on the effects of excess oxygen on metal and lubricants.

## Split Medical Community

The medical community seems split. DAN's Executive Director, Dr. Peter Bennett, in an article in *Alert Diver*, states that DAN feels strongly that Nitrox I is "inappropriate for the vast majority of recreational divers."

Dr. Richard Vann explained this position to *Undercurrent*. "DAN is not against Nitrox. But it's too complicated for the average recreational diver," he said. "It takes more training, the gas has to be analyzed correctly and there must be strict adherence to depth control. Nitrox has been used successfully by scientific, commercial and military divers, but these divers had extensive training, the dives are carefully planned and there is strong surface support for them. None of this is available to the recreational diver."

"If someone takes additional training in Nitrox, that person has by definition moved from being a recreational diver to a higher level of skill," Vann says. "When we refer to the recreational diver, we mean those who have met the minimum certification level—in short, the lowest common denominator. This group should not use Nitrox because they really do not fully understand the risk in using air and certainly do not understand oxygen toxicity."

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***"...beginning divers should use Nitrox I. Air should be reserved for experienced divers."***

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Dr. Kelly Hill, a NAUI Instructor and hyperbaric physician, thinks otherwise. In an article in *Sources*, he speculates that beginning divers should use Nitrox I. Air should be reserved for experienced divers. He reasons that the depth limit for Nitrox is 130 feet, taught as the safe limit to recreational divers. Hill says if it is too complicated to teach Equivalent Air Depths, "don't do it. Have people use the air tables/algorithms, and by doing so, they have an even greater margin for error."

### Chambers

Rumors abound that a bent Nitrox diver cannot use a chamber. In fact, officials at the chamber on Grand Cayman came out against Nitrox. Dick Rutkowski told us that their concern was that a Nitrox bends case could not be treated like a usual case of the bends. "They got bad information," he said.

For a bent diver, there is no difference in the chamber treatments. Dick Dunford, Director of Chamber Operations at Seattle's Virginia Mason Hospital told *Undercurrent* that they treat nitrox and air divers in the same manner. "It doesn't take any longer to treat a Nitrox diver than an air diver," he said. "What determines the treatment is the extent of the problem and this is determined by a medical evaluation."

Nitrox divers do have to keep in mind not only the amount of nitrogen absorbed (just as air divers), but also the accrued oxygen. Dr. Bill Norfleet told us, "exposure

to concentrated doses of oxygen over time can 'burn' the lungs. Continued exposure would begin to limit vital capacity and in an extreme case cause death." The risk is tiny. A Nitrox I diver making four dives to no greater than 90 feet and staying within the no decompression time frames would be exposed to only 10 percent of the therapeutic maximum. Many chamber treatments have longer sustained oxygen treatment than a diver is likely to experience.

### Nitrox is here to stay

Thirty-four Nitrox I stations are currently operating; four more open each month. An initial investment in equipment can run around \$50,000. Nitrox fills sell for \$6-\$10, plus \$2 for a Nitrox tank rental. A Nitrox I-certified diver verifies the contents of his mix with a portable analyzer he fits over the valve. All fills must be accurate within one percent.

Traveling divers will find Nitrox I in Nassau in the Bahamas and Grand Cayman. The market seems to be individual divers, not resorts. After all, would one expect them to grant all that bottom time?

Without a major technical advance, it's unlikely that liveaboard boats will carry Nitrox I. Oxygen tanks need to be stored in a safe area, not in engine rooms. A cascade system might weigh more than the boat. Peter Hughes looked into putting Nitrox I on both the *Sea Dancer* and *Wave Dancer*. "We pump 100 tanks per day and don't have the room to safely store pure oxygen in the quantities we would need. And it's unlikely that we could get enough pure oxygen on a regular basis in Belize or the Caicos."

Several companies, ORCA included, are developing Nitrox dive computers. But for those whose primary concern is safety rather than extended bottom time, any standard computer will fill the bill. Dive on a computer set up for standard air, but breath Nitrox I and take advantage of all the safety that this gas can provide.

Regardless of the resistance, Nitrox I makes diving safer. Bret Gilliam, once the director of diving operations for the *Ocean Spirit* and the record holder for the deepest air dive ever, says "if everyone used Nitrox and treated it like normal air, we wouldn't have one case of the bends a year."

Ben Davison

## Why Divers Die: Part III

*— a father's daughter, another father's son*

This is the third of several installments of *Why Divers Die*, based on reports of the 1990 Report on Diving Accidents and Fatalities, by the Divers Alert Network (DAN) and the National Underwater Accident Data Center. We take all responsibility for editorial changes and errors.

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### Drowning Deaths

The majority of the drowning cases were associated with running out of air, due sometimes to entrapment in a cave, a wreck, under ice or being lost. Many divers ran out of air unexpectedly and were unable to rescue themselves. Some drowning victims had air available in their cylinders, but did not use it.

Several drowning incidents involved a mismatched buddy pair consisting of an experienced diver with a novice. A father dived with his daughter on her first open ocean dive. While he was spearfishing, she disappeared and her body was never found.

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***“One individual was discovered at 110 feet with a fully inflated BC and empty air tank. He was wearing a 35-pound weight belt.”***

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A similar incident occurred with a buddy team of father, son and mother. The mother was inexperienced and became separated from the other two, ran out of air and drowned.

An experienced diver was diving with his fiancée who had been certified for four months. They surfaced 200 feet or more from the boat and resubmerged to swim to the boat. They became separated, and she was discovered later on the bottom at 73 feet with an empty tank.

A 14-year-old boy was untrained and diving with his stepfather. The child developed an unknown problem that was followed by panic, unconsciousness and drowning.

### **Embolism**

In deaths stemming from cerebral embolism, rapid ascent was the cause in three cases. In one case, a panicked diver struggled against rescue assistance. Another panicked diver struggled against buddy breathing and rescue. One diver attempted to assist another diver who was out of air. The diver in trouble survived, and the rescuer died.

### **Alcohol and Drugs**

Alcohol or other drugs contributed to eight deaths. One individual was discovered at 110 feet with a fully inflated BC and empty air tank. He was wearing a 35-pound weight belt. Blood alcohol level was .19.

While a friend observed from shore, a 32-year-old male made a 10-15 foot dive alone. He was using borrowed equipment. Although instructed only to use the equipment in his backyard pool, the victim went diving in a river. The witness on shore saw the diver in distress at the surface and then sink. It took twelve hours to locate him at which time he was found to have 1500 psi in his tank. He was not using a BC, and his tank and backpack were found away from his body. His mask and fins were not located. His urine was positive for methamphetamines and cannabinoids.

A 35-year-old uncertified male was collecting artifacts around a pier at a depth of about 10-20 feet with 5-foot visibility. There was a moderate current. He was not wearing a BC but had on a full wet suit and 21 pounds of weight. He was diving with a friend, but they were not diving as buddies. He surfaced and yelled for help. A

surface observer threw a float to him that he was unable to reach. He did not release his weight belt and submersed again. His body was located 14 days later. Upon inspection, his regulator free flowed and needed repair. He was intoxicated.

Four young men had been drinking and diving. After the dive, a 20-year-old man developed distress at the surface. His friends on the boat could not pull him in due to a strong four knot current. He also could not inflate his BC with a power inflator or CO<sub>2</sub> cartridge. There was air left in his tank. He had 14.5 pounds of lead weight and was not wearing a wet suit. His body was found four days later. The autopsy indicated the diver was intoxicated.

One of the unqualified cave diver fatalities occurred in an individual with a history of depression who was on Benzodiazepine and fluoxetine. The blood of a 34-year-old drowned female was transporting two prescribed addictive psychotropic drugs and two prescribed analgesic medications.

## **Tekna I Beam**

Dear Undercurrent,

“In three years I’ve flooded three separate Tekna I-Beam lights. Tekna was good about replacing the first two, but I have yet to return the third. Flooding has occurred in depths ranging from 24 feet to 150 feet and always after no more than five dives from the time of purchase. “I am careful to grease my O-rings because I am used to doing it with my camera gear, so I know that wasn’t the problem.”

*Dr. Michael Smith, Pasadena, CA*

Dear Dr. Smith,

Tekna has shut its doors. Ray-O-Vac bought the Tekna name and line of lights in 1990, but the I Beam had already been discontinued — largely because of problems like yours. Ocean Edge bought the rest of the Tekna line, with the exception of the Diver Propulsion Vehicle, which will spend eternity in limbo.

After our call to Ray-O-Vac, John Dagget of their public relations staff found two I Beams in their inventory. He called to say he will send them to you. But that’s the end of the supply. Forever.

*Ben Davison*

A 35-year-old male had dived 20-30 times. He had been drinking and made a shore entry with a certified diver. He signalled to his buddy that he was returning to shore. When his buddy returned, he found a law officer performing CPR. The regulator was hard breathing, overweight, not wearing a wet suit and was wearing 18 pounds of lead weight. His blood was positive for alcohol, and urine was positive for cannabinoids.

### **Accident Scenarios for Noncertified Divers**

An uncertified 22-year-old male made a shore entry dive with a certified dive buddy. The uncertified diver

was missing ten minutes into the second dive. The dive profiles were 25 feet for 10 minutes with a 2-hour surface interval followed by a 25-foot dive. He was found on the bottom with 2,000 psi left in his tank.

An uncertified 62-year-old male with two years of diving experience and about 40-50 dives was an active individual with a history of heart disease. He made a 60-foot dive for about 5 minutes with his son, came back to the surface and lost consciousness. His son reported that he had not made a rapid ascent. The autopsy reported hypertensive cardiovascular disease was present.

An uncertified 39-year-old male was collecting artifacts off the Florida Keys when he came up to tell the people on the boat that he found something. They next noticed him floating face down at the surface. He had a medical history of chest trauma with a punctured lung.

Two certified adults were diving with a 14-year-old male in 10-15 feet of water. The youth was using a horse collar BC but no power inflator. The regulator mechanism that holds the diaphragm down was bent, possibly

allowing water to enter. His buddy saw the diver panicking with his regulator out of his mouth trying to get to the surface. The dive buddy's attempt to assist the diver was unsuccessful.

A 21-year-old male was diving with a certified friend. His friend set up the equipment with the BC backwards. They were gathering golf balls from a course pond and were not using fins or a depth gauge. The visibility was poor, and they were not using the buddy system. A topside witness saw the diver surface, take off his mask and go back under. The witness also saw that the rope that secured the bag of golf balls was wrapped around the victim's neck. He had air left in his tank.

A 20-year-old male, who had made about six dives, made a shore entry with two certified divers in a calm cove. They swam toward the opening of the cove and surfaced because of increasingly rough water. The waves knocked the victim into rocks causing him to lose his regulator. He drowned.

Continued next issue.

## Freeflow



■ This is the dawning of the age of Aquariums, Aquariums... The \$14 million Oregon Coast Aquarium is the latest. Existing aquariums are expanding; the landmark Monterey Bay aquarium is planning a \$60 million expansion. New aquariums are coming to Tampa, Fla.; Cleveland, Ohio; and Charleston, S.C. Novelist Ken Kesey (One Flew over the Cuckoo's Nest), attending the opening of the Oregon aquarium, said people are tired of craning their necks at the space shuttle. "I believe we've been led astray by looking up. All we do is bump into stuff," said Kesey. "Thoreau said 'In wildness is the preservation of the world.' About the only wildness left is in the sea. There's something about the ocean that puts you in your place. We need to be put in our place."

■ Maybe this will: Lurking on the bottoms of estuaries along the Eastern Seaboard, are countless numbers of "phantom" algae that can burst from their suspended animation inside a cyst, swim up in the water, and release a poison that kills fish by the millions. The mysterious microbes have been responsible for at least nine major fish kills in North Carolina's Pamlico Sound. In one outbreak in the Neuse River, the microbes killed more than a billion menhaden, which had to be removed from beaches by bulldozers. It is likely that the swimming algae, which was discovered in 1988 but is yet unnamed, has caused many fish kills, but has remained unimplicated because of its blitzkrieg attacks and rapid retreats. When biologists sample

the water where a fish kill has just happened, they often find nothing unusual. Within an hour or two of the last fish's death, the swimming algae fall to the bottom, secrete a cyst around themselves and go dormant. A result of pollution? No one knows, for sure.

■ What goes round, comes round. Off the coast of Tanzania, a shark recently killed five fishermen in separate attacks. Environmentalists said fishermen using explosives to catch fish had destroyed coral reefs that had once kept the sharks out of sheltered fishing waters.

■ Exploiting the environmental movement is big business. Picture this. A rod with a lanyard on one end and a small chrome ball on the other. Called the "rapper," it's advertised by Sub Sea Enterprises as "the perfect tool to fend off a reef in surging or unstable conditions...a safe way to keep a safe distance between man and nature...an ecological minded photographer's best friend...made of the highest quality materials and manufactured with pride." The \$29.95 it would cost me to buy this substitute for a finger will be put to better use in the coffers of Greenpeace, who never needs a finger substitute when it comes to telling exploiters what they think.

■ In July, NASA aquanaut, Richard Presley, broke an undersea habitation record, spending 60 days in a scuba divers' lodge submerged at Key Largo, Florida. The Jules Verne Lodge is usually rented to divers as an underwater hotel. Presley's comforts included a VCR, sound system, a bathroom with shower and a kitchen with microwave oven. He never surfaced, but swam daily in the lagoon, what NASA called underwater spacewalks. NASA scientists wanted to see how humans deal with stress in confinement and wanted to test space gadgets, such as a wristwatch sleep monitor and stress-measuring computers. Pressley said he also tried underwater bowling across the top of the habitat.