

Grand Turk, British West Indies

Ready For The Right Business

I must admit to being a bit surprised when I landed on the Grand Island of Turk, 550 miles southeast of Miami. I suppose I had expected some sort of resorty look--at least somewhere on the island--but what I found was a scrubby little islet with several distinct features unusual to the Caribbean.

From the air, Grand Turk struck me as a Falklands-like outpost with houses clustered in a central city, then scattered over brushy terrain and dominated by a large, circular, gleaming white dish antenna manned by the U.S. Air Force, whose personnel seem to spend most of their time hanging out on base, away from the local people. Once on land, I was struck by the low and moderate income appearance of the people and their dwellings. But the feeling was more urban Mexican than Caribbean. Cinderblock houses were in pastels, some appearing well-kept and run by people of modest income, while others were overrun with pecking chickens, decaying cars, and dusty foliage. People walking the roads were laconic but polite; women dressed always in skirts, the men in pants and shirts. It is a personally clean, polite, perhaps Christian-like culture, though not immune to the crimes of the Twentieth Century.

When I arrived at my hotel, the Salt Raker Inn, I soon got my third vision of Grand Turk, for at cocktail hour the pleasant little backyard bar quickly filled with a dozen plus businessmen, some local, some from the States, some from the motherland, England, who chatted vigorously about the day's dealings. The president of an American mining company was here to negotiate a lease for offshore mining; an official from a Stateside shipping line had been traveling the islands, collecting past bills and arranging future business; a local accountant met one client and passed out business cards to others; the owner of the Turk's Head Hotel, one of four hotels on the island, sipped

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spirits with an American who had been visiting the island because of its "offshore banking," which means that the banks, by law, keep their records from prying IRS agents. As it turned out, during my five nights at Grand Turk, two weeks before Christmas, my buddy and I were the only tourists in the hotel!

The slate blue and white, two-storied main house of the Salt Raker might be situated in New England. It's right across the road from the beach, and



THE SALT RAKER INN

surrounded by foliage, flowers and fences. Upstairs are two large rooms, decorated as if by a college student scraping together whatever he might find, while six more rooms are in a one-story, funky motel-like cluster. But, by all accounts, this is a pleasant little country inn, made comfortable by the friendly attention of proprietors Doug and Angela Gordon (who may have sold out by this writing). The outside bar and dining area is cozy and comfortable. Meals here turned out to be somewhat of a family affair, with the opportunity to dine by yourselves or join with others. The service was pleasant and uncharacteristically prompt. The food is island fare,

which doesn't mean "native," but rather simply prepared and sufficient food, and a bit expensive (\$15/person for dinner, \$5 for breakfast). The highlight at dinner was a fresh green salad (mustard greens, radishes, carrots, lettuce), a rarity on Caribbean islands, but possible because two Americans are experimenting with hydroponic agriculture on a nearby Cay. The first night only two meat dishes were offered, so my nonmeat-eating buddy requested an alternative and received an excellent slice of fresh grouper; my steak was decent. The main course another evening, a seafood gumbo served with rice, broccoli and corn, was first-rate, and another fish meal (we were told it was American cod!) was fine. My major complaint was the coffee; it was either inexpensive instant or boiled-down grounds. Yuk. Lunches might be hamburgers, salads, fish and chips or chowder, and breakfast were eggs any style, pancakes or french toast.

There are two other hotel options for divers. The Turk's Head seemed to be running at half speed, with meals served infrequently, but a large bridal suite there is the "best room" on the island. The other option in the Kittina, next to the dive shop, but for my book it's really kind of a "joint." The motel-style structure has motel-style rooms, circa 1968. The grounds are grubby. The breakfast and lunch area is not particularly pleasant, the food not special, the bar dark and seedy, and the bar bathrooms gross. The place gives me a bad feeling, and since it's only a few bucks cheaper than the Salt Raker, it's a much too depressing place to hang out in on a tropical island. It's the Kittina that does all the dive advertising in Skin Diver, but let me put you on notice. One need not stay at the Kittina to dive.

The Salt Raker is but a five-minute stroll to the dive shop. I had no diving reservations, so I showed up bright and early for my first day for the 9:30 a.m. dive. The operation, called Turks Island Divers, is run from a run-down house across the road from the beach. I introduced myself to Mike Spillar, a lanky, slow-talkin' Texan who had been diving down here for four or so years; he seemed genuinely delighted to have two more customers for his morning dive.

He directed me to Sheila Peary, a recently trained PADI instructor who assists him when he needs help; she requested our c-cards and had us sign release forms, indicating our willingness not to prosecute if we get beaten up beneath the surface.

Spillar has a few sets of rental gear and 3000 psi tanks which he pumps to 2800 or so. We piled into his rickety truck (every vehicle on Grand Turk seemed rickety; the salt air plays hell with bumpers and mufflers), and drove less than ten minutes to the mooring spot for his uncovered 30-foot, slow moving dive barge. We toted our gear to the beach and waited for Spillar to swim to his barge, untie it, fire it up, and head into the beach for loading. Each day, twice a day, it would be the same ritual for each single tank dive, which meant that a lot of time could get used up hanging around, as it did one afternoon when he took half an hour or so to ensure that the boat was moored firmly enough to withstand a forthcoming storm.

I had great expectations for these dives. When our reviewer first visited here four years ago--before other dive publications and operations had publicized it--he reported that in many respects it surpasses other Caribbean walls--including the famed Cayman Wall. Spillar headed us to our first site, called "The Pits," and within fifteen minutes we arrived for our first dive, even though his 13-year-old assistant had to steer the boat with his feet, since the mechanism had failed a week earlier. We were given a good briefing, and told that on this first dive we would be required to dive together. Assuming our prowess was proven, we would be able to move out on our own on later dives. "Fair enough," I responded, and dropped overboard.

Indeed, the reef was alive! The top of the wall began in about forty feet of water, and the flats leading to it were filled with colorful varieties of hard corals, and plenty of gracefully swaying corky sea fingers, gorgonia, and other soft coral. And the fish were plentiful, so very plentiful. Within the first five minutes of my dive I spotted virtually the full range of common tropicals that one comes to expect over the course of a week, but may never see in the abundance that I saw here: squirrels, blueheads, snappers, grunts, damselfish, parrots, wrasses, and so forth. But they seemed larger, more alive, and in greater variety and hue than I recalled in most other spots. I dropped to 80 feet, following Sheila, who led the dive, and here the wall was filled with beautiful and colorful sponges, wirecoral, and hard coral varieties. As I moved back up to forty feet dozens of Atlantic Spadefish coasted by, swimming, as they do, angled curiously downward. An occasional Nassau-grouper appeared, two large grey angels meandered past, and a number of large midnight parrotfish, one certainly approaching their maximum length of 2½ feet, nibbled on coral heads. At the dive's conclusion I hung for five minutes at ten feet on the weighted line that Spillar provides. At the surface someone above lifted my tank and weight belt away, and it was then an easy climb aboard by sitting on the submerged dive platform.

Shallow afternoon dives are no problem here. All one needs to do is anchor at the edge of the wall, swim the top of it, and not drop over. That afternoon we dived in 40 feet of water, with the usually lush coral gardens, sizeable ocean and Queen triggers, and a black durgon which, while watching me with

GRAND TURK BRITISH WEST INDIES

Diving for Beginners	★★★★
Diving Potential for Old Pros	★★★★½
Diving Services For Old Pros	★★½
Beach Snorkeling	★★
Hotel Meals	★★★★½
Hotel Otherwise	★★★★½
Moneysworth	★★★★½

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

with swiveling eyes, allowed me close enough to clearly see every thin line in the iridescent blue cobweb pattern on its forehead. Damn, if I hadn't left my camera in my room! On another afternoon boat dive at the "coral gardens," my buddy and I dived without accompaniment (which was fine with me), while Spillar worked on his tiller above. A number of 5-10 pound groupers--Nassaus and Reds--were about, while 50 more or more blue-striped grunts hovered in tight formation over a large coral head. A scrawled filefish danced before me--this time I had my camera--and a large trunkfish allowed me up close. Along the reef there are occasional large sand valleys, and while I chased a small green turtle into a coral head I found myself passing over a garden of eels below. Hundreds of E.T.-like heads dipped back into their holes as I passed, rising only after I was well out of sight. I finally settled on the bottom and crawled C.I.-style to get close, but my patience ran out as they intuitively knew when I was about and refused to show their ornery little faces.

Finally, I might mention another morning dive, where I slid down a tight tunnel through the reef, to emerge at about 75 feet, before cruising the wall. A dark shape appeared far below (Mike later claimed it was a shark of some sort), but along the wall the most ferocious creatures I saw were the few barracuda who gnashed their teeth harmlessly in the distance. At the end of this dive I encountered a large grouper, perhaps 50, 60 or even seventy pounds which, I suspect, was on its way to becoming a jewfish. I got within spearing distance so it's good for the fish that Spillar allows no spearing or collecting from his boat.

Yet with all this fine diving on a wall that runs as close as a couple of hundred yards offshore, I left disappointed due to cancelled dives and failure to get to the best spots, spots which even Spillar himself admits are the tops. Mike is an amiable fellow, friendly, helpful, and good-humored. He even took my buddy and me on a truck tour of the island. But we would rather have been diving. Mike Spillar, I suspect, makes life easy for himself--at least as easy as he can--which is possible with no competition breathing down his neck. My complaint is that I had hoped for eight dives and got five. One was appropriately cancelled because of bad weather, the second cancellation was questionable, and the third cancellation, in the opinion of several of us customers-in-waiting, was spurious. Spillar claims that he can't move his barge to the shore for loading when the surf is up, but for one, and perhaps both cancellations, the surf differed little from days we dived (and a local later told me he had heard we hadn't gone diving because Spillar had business to attend to). It would also be possible to load the barge with the aid of a shore-loaded dinghy, and if necessary divers could even swim the 30 yards to the moored craft. You see, I'm not talking about ten-foot rollers; the two-foot crests on cancellation day were inadequate for body surfing. On the days we did dive, Spillar never ferried his craft more than a mile in either direction from the mooring, so we missed the best sites, such as the Aquarium. Surely there are an abundance of good sites within the two-mile stretch we covered (although one was inferior), but when I read about certain gems in Skin Diver--or have them reviewed by our earlier Undercurrent reviewer--and hear about them from the skipper, then I'm disappointed when I don't get there. Had Spillar offered as his excuse the problems with his craft, I might have been more accepting.

Grand Turk Reservations

An outfit which bills itself as the *Turks and Caicos Reservation Center* (in Coconut Grove, Florida) is operated by the people who own the Kittina. They don't always have accurate information about hotel rooms on Grand Turk or on other islands and, as you would expect, try to direct callers to the Kittina. We recommend that you avoid this service (unless you wish to stay at the Kittina), and either let your local travel agent handle reservations or call the hotels directly.

Instead, I can only surmise that an aggressive divemaster who knew that he had to perform each day, day in and day out, to improve his clientele and bring people back, would have treated me to a different week.

With all this criticism, I still recommend a trip to Turk for ardent divers who have not tested the Turk Wall. Mike will get you to it, that's for sure, and if you wave this article at him you might get first-class treatment, for he certainly is an amiable fellow. And the pleasant, albeit funky, Salt Raker is a comfy little home. There's not much to do on Turk, other than snorkel out a couple hundred yards to poke around the little reefs offshore, make the cocktail hour swing, or dine at the recently constructed Le Papillon, which offers marginal French (Canadian) cuisine (\$40-\$50 for two with a tip and wine) in a romantic seaside setting, three minutes up the road from the Salt Raker. After dinner, co-owner Xavier sings and strums Hank Williams songs on his guitar, while his inebriated guests try to sing along.

As I left Grand Turk, further evidence of the emphasis on business and commerce appeared. Just as I was about to board the Air Florida flight for home, the woman handling the boarding sent four men on first, and then explained; "They landed their plane on a Middle Caicos road; we suspect they came to pick up drugs. They had none with them, but their only cargo was hundreds of plastic bags." She pointed at a small four-engine plane on the edge of the runway, marked with the identification of the Turks and Caicos National Airways. "We got that plane from the last drug smugglers. We have a new one now," she said. "No trial?" I asked. She just smiled.

Divers Compass: Air Florida serves Grand Turk from Miami on a somewhat irregular schedule; the fluctuating fare runs about \$250 round trip. . . .don't expect beach chairs, sunfish, or beachside bars. . . .don't expect regulator repairs, spare parts for Nikonos, or o-rings for your inflator; bring everything you're apt to need. . . .The water can get chilly in the winter; in mid-December it was 77° and dropping; visibility ran to 70-120 feet; best diving is summer or any time other than winter. . . . My rate at the Salt Raker was \$56/double, plus 5% government tax and 10% gratuity (Salt Raker Inn, P.O. Box 1, Grand Turk, Turks and Caicos Islands, BWI; Phone 2260). . . .Mike Spillar charges \$25/tank, \$45 for back-to-back dives, and slightly reduced rates on packages-- but he doesn't give refunds on the package for bad weather (P.O. Box 119, Grand Turk, Turks and Caicos Islands, BWI; phone 2396).

U.S. Navy Depth Gauge Tests: Part III

12 Deadly Assumptions About Imprecise Instruments

In the last two issues of *Undercurrent* we reported, in detail, the U.S. Navy laboratory tests of commercially available depth gauges. In this last article of the series we are listing those gauges which, in our view, demonstrate serious discrepancies in their ability to record true depth during some phase of their testing: at depths up to 130 feet of sea water, at three temperatures (32°F, 70°F and 90°F), and on ascent and descent.

We are listing those gauges which registered, on one or more readings:

*Four or more feet shallower than true depth; or

*Seven or more feet deeper than true depth.

Our selection of error is arbitrary, and we don't

believe we have been particularly conservative in listing these gauges as those demonstrating "serious error." For example, the U.S. Navy tables -- and all sport diver diving codes -- state that should a diver exceed the depth limits by one or more feet during a specific time interval he should read the tables as if he had gone ten feet deeper when determining his position on the no-decompression tables.

During at least one phase of the Navy test, 12 of the 28 gauges tested registered a depth of four or more feet shallower than true depth. A good number of sport divers fudge a bit when reading their gauges and interpreting the tables -- fudging while employing these gauges only means one is fudging with his good health.

	10'	20'	30'	40'	50'	60'	70'	80'	90'	100'	110'	120'	130'	
DACOR LFG 150	5	4	4	4	5	5	5	5	5	5	5	7	8	D70°
DACOR LFG 150	5	5	5	5	5	5	5	5	5	6	6	8	8	A70°
DACOR LFG 150	5	5	6	6	6	6	7	7	8	9	9	10	11	D90°
DACOR LFG 150	4	4	4	4	5	5	6	6	6	8	8	9	10	A90°
DACOR SFG 150	3	3	3	4	4	4	5	5	5	5	7	8	9	A70°
DACOR SFG 150	4	5	5	5	5	5	6	7	8	9	10	11		D90°
DACOR SFG 150	3	4	3	3	5	5	5	5	6	6	7	8	10	A90°
DACOR LFG 300	5	5	5	5	5	5	5	5	6	5	6	7	7	D70°
DACOR LFG 300	6	5	7	5	7	5	7	5	8	6	7	8	8	A70°
DACOR LFG 300	6	5	5	5	7	7	8	7	8	9	9	9	9	D90°
DACOR LFG 300	5	4	5	3	4	3	5	4	6	5	6	7	8	A90°
FARRALLON 04-1610	-4	-3	-2	-2	-3	-4	-4	-5	-5	-5	-5	-5	-6	D32°
FARRALLON 04-1610	-3	-2	-2	-1	-1	-2	-3	-3	-5	-4	-5	-5	-5	A32°
FARRALLON 04-1620	1	1	4	5	7	5	5	5	5	5	5	5	5	D70°
FARRALLON 04-1630	6	7	6	7	6	2	2	1	1	1	1	0	2	D32°
FARRALLON 04-1630	7	8	7	7	6	6	7	2	3	1	2	1	4	A32°
FARRALLON 04-1630	2	1	1	0	0	0	-1	-3	-4	-4	-5	-2	-2	D70°
PRINCETON TECTONICS DC-10	2	4	4	4	5	5	5	7	8	7	8	7	7	A70°
SAS 2069	-4	-2	-2	-2	-1	-2	-1	0	0	0	-2	0	-1	A90°
SCUBAPRO 28-012	-1	0	-3	0	0	0	-2	-3	-3	-2	-4	-3	-5	D32°
SCUBAPRO 28-503	4	4	5	5	6	7	5	5	5	6	6	2	2	A32°
SCUBAPRO 28-507	2	2	2	1	2	1	1	-1	-1	-3	-4	-3	-5	D70°
SCUBAPRO 28-507	0	0	0	0	0	0	0	0	1	-2	-5	-5	-8	A70°
SCUBAPRO 28-849	-1	-1	-2	-3	-3	-3	-3	-4	-5	-5	-5	-5	-5	D32°
SEAQUEST 8010	0	1	4	2	7	2	3	2	3	0	0	-4	-5	D32°
SEAQUEST 8010	0	2	4	3	1	2	4	4	2	0	0	-3	-4	A32°
SEAQUEST 8010	0	-5	5	4	5	3	5	5	5	5	2	-2	-2	D70°
SEAQUEST 8010	3	5	5	5	5	5	5	5	5	9	2	0	-1	A70°
SEAQUEST 8012	5	4	5	5	7	8	7	8	8	8	8	7	5	D90°
SEAQUEST 8012	1	1	-7	3	5	5	7	5	5	5	5	5	4	A90°
SEAPRO DM-250	-10	-20	-11	-11	-10	-11	-15	-10	-12	-14	-15	-15	-15	D32°
SEAPRO DM-250	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	A32°
SEAPRO DM-250	5	5	6	6	6	7	6	7	7	6	6	6	5	D90°
SHERWOOD DG350	4	5	5	5	5	7	8	7	8	8	8	8	8	D70°
SHERWOOD DG350	5	5	7	8	8	9	8	9	9	9	9	9	9	A70°
SHERWOOD DG350	5	6	7	8	8	8	8	9	8	9	9	9	9	D90°
SHERWOOD DG350	1	4	4	5	6	8	7	8	7	8	8	8	8	A90°
SPORTSWAY 1406	-5	-4	-2	-2	-3	-3	-3	-4	-9	-4	-4	-2	-2	D70°
SPORTSWAY 1406	-5	-4	-2	-1	-2	-5	-5	-5	-10	-11	-2	-1	-0	A70°
TEKNA T-2600	0	-1	-2	-2	-3	-4	-3	-3	-3	-2	-1	0	0	D70°
TEKNA T-2600	-1	-2	-2	-3	-3	-4	-3	-3	-2	-1	-2	0	0	A90°
U.S. DIVERS 7043	20	20	15	17	7	2	2	2	1	2	1	2	2	A32°
WHITE STAG 51246	-5	-5	-5	-5	-5	-5	-6	-5	-5	-6	-6	-6	-6	D32°
WHITE STAG 51246	-5	-5	-5	-5	-5	-4	-5	-5	-5	-5	-6	-6	-6	A32°
WHITE STAG 51247	-10	-10	-10	-10	-9	-9	-3	-8	-9	-9	-10	-10	-10	D32°
WHITE STAG 51247	-10	-10	-9	-10	-9	-9	-8	-8	-9	-9	-9	-8	-10	A32°
WHITE STAG 51247	-7	-3	-2	-1	-1	-1	-1	-1	-1	-2	-3	-2	-3	D70°
WHITE STAG 51247	-6	-1	-1	-1	0	-1	-1	0	-1	0	-2	-1	-3	A70°

These gauges, for the test panel shown, have one or more readings that are seven or more feet deeper than true depth, or four or more feet shallower than true depth. The figures at the right of the column indicate the test conditions for each panel. For example, D70° indicates that the panel applies to the descending test in 70° sea water.

Gauges which read deeper than true depth provide a built-in safety margin, unless one uses the guide for decompression. Nevertheless, we have selected seven or more feet of error for our listing here.

The figures shown here are for a single, brand-new gauge, and therefore they do not statistically represent the readings of a full range of production for any given model. Nevertheless, one must realize that just as another gauge of the same model may be more accurate than the Navy test gauge, another may be even less accurate. What is important is to recognize the wide range of error and note that no manufacturer produces consistent and accurate gauges across the full line -- or even within the full production range of a single model.

From the test, then, we may offer these generalizations about commercially available depth gauges:

*One cannot assume that a commercially purchased gauge is accurate. Conversely, one must assume that a commercially purchased depth gauge is inaccurate, and can be inaccurate by as much as ± 10 feet, or even more.

*One cannot assume that a depth gauge, once calibrated, will remain calibrated beyond a single use. Although depth gauges do not give precise readings, they are precision instruments; any rough handling is likely to further distort the readings.

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Undercurrent Travel Questionnaire

Response Requested

Mail to: *Undercurrent*, PO Box 1658, Sausalito, CA 94965

Location being evaluated _____ Would you return? _____

Date of your trip _____ Hotel _____ Dive shop _____

What other resorts have you dived? _____

fish size tropical fish kinds of tropicals hard coral soft coral sponges, gorgonia... caves, ledges... wrecks sharks shelling snorkeling from boats water temperature visibility	<input type="checkbox"/> large ones plentiful <input type="checkbox"/> abundant <input type="checkbox"/> impressive variety <input type="checkbox"/> plenty and colorful <input type="checkbox"/> plenty and colorful <input type="checkbox"/> very nice <input type="checkbox"/> good variety <input type="checkbox"/> exciting <input type="checkbox"/> a couple for fun <input type="checkbox"/> excellent <input type="checkbox"/> some of the best <input type="checkbox"/> 80° + <input type="checkbox"/> 90 ft. or more	<input type="checkbox"/> a few big ones <input type="checkbox"/> not bad <input type="checkbox"/> fairly interesting <input type="checkbox"/> o.k. <input type="checkbox"/> o.k. <input type="checkbox"/> pretty average <input type="checkbox"/> some of interest <input type="checkbox"/> worth a tank or two <input type="checkbox"/> none <input type="checkbox"/> o.k. <input type="checkbox"/> not bad <input type="checkbox"/> 74°-79° <input type="checkbox"/> 50-90 ft.	<input type="checkbox"/> too small to eat <input type="checkbox"/> sparse <input type="checkbox"/> common ones only <input type="checkbox"/> kind of a bore <input type="checkbox"/> kind of a bore <input type="checkbox"/> not much <input type="checkbox"/> none worth diving <input type="checkbox"/> none <input type="checkbox"/> too many <input type="checkbox"/> none or prohibited <input type="checkbox"/> nothing to see <input type="checkbox"/> less than 74° <input type="checkbox"/> less than 50 ft.
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rules for experienced divers guides for new divers diving frequency night diving boat diving beach diving dive shop manager air quality air fills rental gear repair capability	<input type="checkbox"/> no restrictions <input type="checkbox"/> top-rated <input type="checkbox"/> 3 or more tanks/day <input type="checkbox"/> frequent <input type="checkbox"/> two tanks under \$25 <input type="checkbox"/> as good as the boats <input type="checkbox"/> a great person <input type="checkbox"/> no problems <input type="checkbox"/> 3000 psi + <input type="checkbox"/> everything you need <input type="checkbox"/> can handle anything	<input type="checkbox"/> a little tight <input type="checkbox"/> acceptable <input type="checkbox"/> 2 tanks per day <input type="checkbox"/> 1-2 times/week <input type="checkbox"/> \$25-\$35 for two <input type="checkbox"/> fair possibilities <input type="checkbox"/> just does the job <input type="checkbox"/> I wondered <input type="checkbox"/> 2250 psi + <input type="checkbox"/> tanks, wt. belts... <input type="checkbox"/> some repair capacity	<input type="checkbox"/> treated as a novice <input type="checkbox"/> lousy <input type="checkbox"/> one per day <input type="checkbox"/> none <input type="checkbox"/> over \$35 for two <input type="checkbox"/> no way <input type="checkbox"/> a real bastard <input type="checkbox"/> I worried <input type="checkbox"/> short-changed often <input type="checkbox"/> bring everything <input type="checkbox"/> pray nothing breaks
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hotel food nearby restaurants accommodations car needed nightlife locals weather insects	<input type="checkbox"/> gourmet <input type="checkbox"/> must try <input type="checkbox"/> luxury <input type="checkbox"/> of no use <input type="checkbox"/> swinging <input type="checkbox"/> helpful, friendly <input type="checkbox"/> great every day <input type="checkbox"/> none	<input type="checkbox"/> not bad <input type="checkbox"/> adequate <input type="checkbox"/> o.k., decent <input type="checkbox"/> only for touring <input type="checkbox"/> enough <input type="checkbox"/> no complaints <input type="checkbox"/> o.k. <input type="checkbox"/> now and then	<input type="checkbox"/> ugh! <input type="checkbox"/> better off fasting <input type="checkbox"/> far below par <input type="checkbox"/> a daily must <input type="checkbox"/> dead <input type="checkbox"/> hostile <input type="checkbox"/> many bad days <input type="checkbox"/> too many bites
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Comments and comparison to other places visited: _____

Circle the number of stars applicable to your experience, from 0 to five (for the tops)

Diving for beginners	★ ★ ★ ★ ★
Diving for old pros	★ ★ ★ ★ ★
Beach snorkeling	★ ★ ★ ★ ★
Hotel meals	★ ★ ★ ★ ★
Hotel otherwise	★ ★ ★ ★ ★
Moneysworth	★ ★ ★ ★ ★

Location being evaluated _____

Date of your trip _____ Hotel _____ Dive shop _____

What other resorts have you dived? _____

fish size	<input type="checkbox"/> large ones plentiful	<input type="checkbox"/> a few big ones	<input type="checkbox"/> too small to eat
tropical fish	<input type="checkbox"/> abundant	<input type="checkbox"/> not bad	<input type="checkbox"/> sparse
kinds of tropicals	<input type="checkbox"/> impressive variety	<input type="checkbox"/> fairly interesting	<input type="checkbox"/> common ones only
hard coral	<input type="checkbox"/> plenty and colorful	<input type="checkbox"/> o.k.	<input type="checkbox"/> kind of a bore
soft coral	<input type="checkbox"/> plenty and colorful	<input type="checkbox"/> o.k.	<input type="checkbox"/> kind of a bore
sponges, gorgonia...	<input type="checkbox"/> very nice	<input type="checkbox"/> pretty average	<input type="checkbox"/> not much
caves, ledges...	<input type="checkbox"/> good variety	<input type="checkbox"/> some of interest	<input type="checkbox"/> none worth diving
wrecks	<input type="checkbox"/> exciting	<input type="checkbox"/> worth a tank or two	<input type="checkbox"/> none
sharks	<input type="checkbox"/> a couple for fun	<input type="checkbox"/> none	<input type="checkbox"/> too many
shelling	<input type="checkbox"/> excellent	<input type="checkbox"/> o.k.	<input type="checkbox"/> none or prohibited
snorkeling from beach	<input type="checkbox"/> some of the best	<input type="checkbox"/> not bad	<input type="checkbox"/> nothing to see
water temperature	<input type="checkbox"/> 80° +	<input type="checkbox"/> 74°-79°	<input type="checkbox"/> less than 74°
visibility	<input type="checkbox"/> 90 ft. or more	<input type="checkbox"/> 50-90 ft.	<input type="checkbox"/> less than 50 ft.

rules for experienced divers	<input type="checkbox"/> no restrictions	<input type="checkbox"/> a little tight	<input type="checkbox"/> treated as a novice
guides for new divers	<input type="checkbox"/> top-rated	<input type="checkbox"/> acceptable	<input type="checkbox"/> lousy
diving frequency	<input type="checkbox"/> 3 or more tanks/day	<input type="checkbox"/> 2 tanks per day	<input type="checkbox"/> one per day
night diving	<input type="checkbox"/> frequent	<input type="checkbox"/> 1-2 times/week	<input type="checkbox"/> none
boat diving	<input type="checkbox"/> two tanks under \$25	<input type="checkbox"/> \$25-\$35 for two	<input type="checkbox"/> over \$35 for two
beach diving	<input type="checkbox"/> as good as the boats	<input type="checkbox"/> fair possibilities	<input type="checkbox"/> no way
dive shop manager	<input type="checkbox"/> a great person	<input type="checkbox"/> just does the job	<input type="checkbox"/> a real bastard
air quality	<input type="checkbox"/> no problems	<input type="checkbox"/> I wondered	<input type="checkbox"/> I worried
air fills	<input type="checkbox"/> 3000 psi +	<input type="checkbox"/> 2250 psi +	<input type="checkbox"/> short-changed often
rental gear	<input type="checkbox"/> everything you need	<input type="checkbox"/> tanks, wt. belts...	<input type="checkbox"/> bring everything
repair capability	<input type="checkbox"/> can handle anything	<input type="checkbox"/> some repair capacity	<input type="checkbox"/> pray nothing breaks

hotel food	<input type="checkbox"/> gourmet	<input type="checkbox"/> not bad	<input type="checkbox"/> ough!
nearby restaurants	<input type="checkbox"/> must try	<input type="checkbox"/> adequate	<input type="checkbox"/> better off fasting
accommodations	<input type="checkbox"/> luxury	<input type="checkbox"/> o.k., decent	<input type="checkbox"/> far below par
car needed	<input type="checkbox"/> of no use	<input type="checkbox"/> only for touring	<input type="checkbox"/> a daily must
nightlife	<input type="checkbox"/> swinging	<input type="checkbox"/> enough	<input type="checkbox"/> dead
locals	<input type="checkbox"/> helpful, friendly	<input type="checkbox"/> no complaints	<input type="checkbox"/> hostile
weather	<input type="checkbox"/> great every day	<input type="checkbox"/> o.k.	<input type="checkbox"/> many bad days
insects	<input type="checkbox"/> none	<input type="checkbox"/> now and then	<input type="checkbox"/> too many bites

Comments and comparison to other places: _____

Circle the number of stars applicable to your experience, from 0 to five (for the tops)

Diving for beginners	★	★	★	★	★
Diving for old pros	★	★	★	★	★
Beach snorkeling	★	★	★	★	★
Hotel meals	★	★	★	★	★
Hotel otherwise	★	★	★	★	★
Moneysworth	★	★	★	★	★

PLEASE RETURN THIS TO:
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SAUSALITO, CA 94965

Name _____
Address _____
City _____ State _____
Zip _____ Tel. _____

Continued from page 6

*One cannot assume that because a depth gauge is 5 feet "off" at 30 feet, it will be five feet "off" at 100 feet. In fact, some gauges vary in accuracy by as much as six or seven feet in only a ten-foot change in real depth.

*One cannot assume that a gauge's reading on ascent will be the same as the reading on descent. Even at a depth of ten feet, a gauge which gives an accurate reading on the way down may be off by three or six or even ten feet on the way up.

*One should not use a depth gauge as the sole depth criterion for any decompression stop. A number of gauges give readings which err by ± 5 feet (or more) at the normal stop distances of ten to fifty feet. An unstretchable line with weights marking true depths should be used as a guide.

*One cannot assume that the more skilled a diver, the more accurate his depth gauges. Dive masters and instructors, regardless of when they had their gauges last calibrated, will universally claim that their gauge is correct and yours is incorrect -- even if their gauge was manufactured in 1972, purchased from a native, and has never left the island.

*One cannot assume that a reading in fresh water or at higher altitudes will be the same as a reading in

sea water. Depth gauges measure pressure, not depth. Fresh water is less dense than sea water, while the higher the altitude, the less dense the air. Therefore, readings in either circumstance will be less than true (and there are fresh water tables, at various altitudes, which take these factors into account).

*One cannot assume that a gauge will be accurate at all temperatures. Variations by as little as 10°F can affect the gauge's reading significantly.

*One cannot assume that a zero reading on the surface will mean an accurate reading at other depths. There is often no relationship between a surface reading and readings at various depths and temperatures.

*One cannot assume that the more he pays for a depth gauge, the more accurate it will be.

*One cannot assume that because a manufacturer has a highly rated regulator or a highly rated buoyancy compensator, it will have accurate depth gauges as well.

*One cannot assume that a gauge, once calibrated, will give a perfect reading. The accuracy of calibration is a function of the accuracy of the master calibration gauges, and many people performing tests have less-than-perfect instruments.

ANDREA DORIA: The Final Chapter

I recently had the opportunity to preview Peter Gimbel's (*Blue Water, White Death*) latest movie, *Andrea Doria: The Final Chapter*.

Summer before last, Gimbel organized an expedition to dive the *Andrea Doria*, which has been deep in the North Atlantic for more than 25 years. He was interested not only in learning the secret of its sinking (it was struck by the *Stockholm*, but its sinking was a surprise), but also to retrieve two on-board safes which, allegedly, held "fortunes."

Gimbel's feature-length film, largely a story of his effort to retrieve the safes, builds tension as the divers challenge the cold North Atlantic, its foul weather, and its awesome depths. The intense human drama provides many poignant moments. It's easy to understand the stress of being ensconced in a tiny decompression chamber for weeks at a time, and the profound obsessions of the divers as they pursue their purpose.

Gimbel's divers, with heroic effort, succeed in retrieving one safe. But after a great deal of soul searching they call off their hunt for the second, concerned that having pushed themselves to the limits of their physical and psychological endurance, it would only be a matter of time before someone would fail to return.

Equally as gripping as the search for the safes is the second story line -- why the *Andrea Doria* didn't remain afloat after impact. It had been rumored that due to safety violations the impact flooded her generator room, cutting off power and shutting down her pumps. Had the boat been properly constructed, it was said, this could not have happened. During the moment when Gimbel and his divers reveal what happened in that thick North Atlantic fog, when the *Stockholm* rammed the *Doria*, my heart was pounding and my palms were sweating. Great detective stuff!

Unlike a kid with a wrapped Christmas package, Gimbel has unusual patience. He has yet to open the *Doria's* safe, instead exploiting the mystery of its contents to build suspense and publicity for his film. He is not saying when he will open the safe, but it will no doubt be tied into the release of his film. The original plans were to show the film exclusively on a prime time network slot; however, Gimbel recently told *Undercurrent* that the film may receive some limited play in theatres in major U.S. cities. Regardless, when the safe is opened, it's bound to be surrounded with hoopla and hype. For Gimbel's sake, I hope it's overflowing with more than mud and North Atlantic sea water.

So, keep your eye out for *Andrea Doria: The Final Chapter*. It's great entertainment.

—C.C.

**One can assume that his depth gauge is a necessary and useful instrument which will give an estimated reading of his depth. Read your depth gauge not as the gauge on a gasoline pump, which ticks off gallons and tenths of gallons, but as the gauge on an automobile, which gives only a general reading about whether the tank is approaching empty. A failure in accuracy of 10 feet, 8 feet, or even six feet, can mean, at certain depths and time limits, a bend hit. The gauge you currently own -- or the one you're about to buy -- will be sufficiently inaccurate at some depth, sooner or later, to cause you serious problems if you are pushing the tables.*

So why fool around? No matter how much you do

to insure that your gauge is perfectly calibrated, it won't be. When you buy a gauge, there'll be no sheet enclosed indicating the accuracy of the tests on this specific model.

Manufacturers continue to have us all believe, through their advertising, that their models are as precise as a gasoline pump gauge, when we now know they only produce dashboard gauges. Most dive shop owners don't calibrate gauges, and many who do have calibration gauges that are not much more accurate than the depth gauges themselves.

So, be cautious. Don't let your ignorance of the limitations of your own depth gauge cause you to run out of gas.

Free Diving Animals

The Limits Of Women & Men, Porpoises & Penguins

All mammals -- including humans -- have a curious physiological response when they dive into water: circulation to the "unnecessary" parts of the body shuts down, permitting the heart and the brain to survive the longest. By shutting down the peripheral circulation, the so-called "diving response" reduces the body's oxygen need and increases oxygen extraction from the blood. And, by shutting down the circulation to the periphery, the core temperature is maintained. Of course, anyone who gets into the water in Victoria, (southern Australia), shuts down his peripheral circulation very smartly -- in a wetsuit I can last for about three-quarters of an hour before my core temperature has dropped to the point where I start to shiver.

Immersion Responses In Man

When one gets into water in a vertical position, hydrostatic pressure compresses the legs and abdomen and forces blood from the periphery up into the chest. This results in a number of physiological reflexes. First, receptors monitor the size of the great veins in the chest. If they get stretched, the brain reckons that there is too much blood and takes steps to get rid of fluid. As a result, about half an hour after one gets into the water there is an overpowering urge to dampen your wet suit even more. It is a very comfortable dampness because it is warmer than the water.

Lung Changes

Vertical immersion puts blood into the chest. The lungs become stiffer; airway resistance increases up to 58%, resulting in an increase of 60% in the work of breathing. Underwater, the work of breathing is

even further increased by the inefficiencies of the diver's breathing apparatus.

As lungs become stiffer, it becomes more difficult to take a breath. Capacity drops 3% to 10%; the residual volume decreases by 4% to 17%; the expiratory reserve volume (the maximum you can exhale) decreases by 50% to 74%.

Gastro-esophageal Pressure Changes

Another consequence of immersion is gastro-esophageal pressure changes. If you weigh divers during a dive, (as the Swedes have done), you find that they get lighter toward the end of a dive. Every time a diver equalizes, he swallows a little bit of air. It goes down into the stomach much more easily in the water than in air because the pressure differentials are much reduced.

"If you weigh divers during a dive (as the Swedes have done), you find that they get lighter toward the end of a dive."

We normally have a quite reasonable pressure gradient between gastric esophageal pressures. If we stay upright underwater that increases, but if we invert ourselves, as most of us do at some stage in a dive, that pressure difference decreases tremendously. With the body upside down in the water, the pressure to keep gas out of the stomach is not there. Thus, people who come out of the water feeling slightly bloated have every reason to feel that way, if they have been swimming upside down.

Cardiovascular Changes

Cardiovascular changes occur in humans, dogs, beavers, hippopotamuses, or any other mammals in water. Heart size increases in humans by 50%, compared with out of the water. Peripheral resistance decreases and peripheral circulation increases. As revealed in physiological tests, the nitrogen excretion rate is increased by 40% during the first 30 minutes in 35 °C water, and by 27% over 7 hours. In 37 °C water there is an even greater increase in excretive rate.

So perhaps one could say that the sensible thing for the diver to do while decompressing is to sit in a bath of warm water. This is based on the idea that you get rid of the inert gases better if you are warm and immersed to the neck. What happens when you warm a cooled body during decompression is a gamble. I am not volunteering to be the first experimental subject.

[Editor's note: In the August issue of Undercurrent, Dennis Graver, PADI training director, writes: "Anything that stimulates the circulation such as a hot shower, or vigorous exercise, should be avoided -- up to 12 hours -- after any diving where decompression sickness is even a remote possibility."]

Responses Acquired With Diving Practice

Any mammal improves his or her diving ability with practice. There is evidence that groups of humans that breathhold dive for their living have higher hemoglobin levels, bigger lungs and a better breathing efficiency than those who do not. People who breathhold dive for a living can hold their breath longer, and so can tolerate a larger oxygen debt. They can also tolerate cold better.

Aquatic Mammals

Specialized aquatic mammals are better at diving than we are. They are especially adapted to life in the water. Whether beavers, or sea otters, seals or whales, they have a nice rounded body contour for efficient swimming. They also have various anatomical changes that help. Their chest walls are easily compressed. They have lungs that collapse and expand easily. They have adaptations in their blood vessels which allow blood to be shunted into the blood vessels in the thorax, so that their lungs do not get stiffer. When they dive, they shut down their renal circulation and don't urinate.

They also have certain mechanisms for avoiding barotrauma. As they descend, blood is shunted into the lining of their middle ear, which swells out and completely displaces any other air. They can also adapt to avoid decompression sickness and nitrogen narcosis. As they go down, their lungs collapse and gas is pushed into the nonrespiratory airways. Here it

has no exchange with the blood, so the P_{N2} does not rise, and they do not develop nitrogen narcosis. Neither do they take up any extra gas. They also have a high hemoglobin level, and so carry a lot more oxygen and are able to utilize venous oxygen reserves. The circulatory shutdown shunts blood to the heart and brain.

Because they shut down the peripheral circulation they are tolerant of the cold, but are not impervious. A whale, for example, survives in the Antarctic because it is protected by nearly a foot and a half of blubber, which insulates the heat-producing organs inside.

TABLE I
BREATH-HOLD DIVING TIMES
(IN MINUTES)

Man	3.5
Dog	4
Porpoise	6
Killer Whale	12
Beaver	15
Grey Seal	20
Harbour Seal	23
Manatee	30
Weddell Seal	43
Blue Whale	50
Sperm Whale	75
Bottlenose Whale	120

Breath Holding

Table I compares breathholding times. Dogs perform better than humans, while the beaver can last longer than either. The porpoise, a very specialized aquatic mammal, can breathhold only twice as long as a human, though they are about the same size. And then there's the bottlenose whale, which can dive for two hours without surfacing.

Deep Diving

Man is a poor performer in the depth stakes. The 100 m record was attained after a long work-up with special equipment to get Jacques Mayol down quickly. He reached it in a very spectacular series of dives. We know that sperm whales dive to 1,000 meters because some have been found dead at the depth, entangled in submarine cables.

TABLE II
DEPTH OF DIVES
(IN METERS)

Man	100	Weddell Seal	550
Grey Seal	134	Bottlenose Whale	825
Harbour Seal	250	Sperm Whale	1000
Porpoise	305		

Respiratory Rate

One of the major modifications in aquatic mammals is their remarkably slow respiratory rate at rest. A human sitting on the beach sunning himself breathes fifteen times a minute. A California sea lion sitting on the beach sunning himself breathes six times a minute. The dolphin needs to take only three or four breaths a minute, and the killer whale breathes four times in five minutes, at the surface.

Besides their slow respiratory rate, diving mammals have, relative to man, reduced ventilation. This is not surprising, as their relative lung capacity is also reduced. We humans are pretty inefficient. We require to change 12 liters of air per minute per 100 kg. Porpoises need only 6 liters per minute per 100 kg. The bottlenose whale, which can dive for two hours, needs only 3 liters per minute per 100 kg.

The bottlenose whale, per pound, uses a lot more oxygen than we do -- nearly three times as much. Yet he can dive much longer. His high hemoglobin level allows him to take up a lot of oxygen. He has a lung which collapses when he dives, and so prevents him from developing nitrogen narcosis, decompression sickness, or barotrauma, while still providing enough oxygen for him to make long, long dives.

Slower Pulse

When an animal puts its face into water its heart beat slows. The vital spot is the snout, the beak. If you push a duck's beak into water, its pulse rate goes down. If you push a human's nose into water, his pulse rate slows to 40 or 50. The rate is slower in cold water than in warm. The porpoise, when his face is out of water, has a pulse rate of 60. He puts his face under water and it drops to 30. The hippopotamus divides his pulse rate by approximately 10 when he puts his face under water, as do the beaver, the seal and the whale. The penguin goes from 200 to 20 with immersion. When the heart rate plunges, the oxygen lasts longer; it will not be pumped around the body so quickly.



TABLE III
PULSE RATE WITH IMMERSION

	Resting Pulse Rate	Immersed Pulse Rate
Man	75	40 to 50
Porpoise	60	30
Penguin	200	20
Sea Lion	95	20
Whale	100	12 to 24
Hippopotamus	100	10 to 20
Beaver	75 to 90	10
Seal	70 to 140	7 to 14

The scuba diver with a mask on does not develop as slow a pulse as he would with his mask off, though covering the beak area does not cancel the reflex. The rate at which the heartbeat slows is greater in cold water than in warm water.

Conclusions

Obviously, humans are not really suited to be breathholding diving mammals. Neither are they suited to being scuba diving mammals, unless they have adequate insulation to prevent them from getting cold, and unless they stay within the limits of experimentally determined safe diving habits, i.e., the diving tables. There is a lot that is unknown about humans' physiological reactions in the water, but we do know what is a relatively safe exposure to depth. Even Navy divers, who are usually 19 to 30 years old, should keep inside the limits set down for Navy divers. We need to keep in practice to keep our diving adaptation. And we need to be confident in the water, so that we may enjoy our holidays, enjoy our diving, pick up large scallops, and keep our heads down when a motor boat goes overhead.

The author, Dr. John Knight, lives in East Melbourne, Australia, and is President of the South Pacific Underwater Medicine Society, in whose journal a version of this work first appeared.

If we were to give an award for creativity in instruction, it would go to Sil Falcone and Gary Beiter, partners in Scuba-rific, a shop in Davie, Florida. They're offering a course to local residents and police and fire department members on how to escape from a car should it careen off a road or bridge, and land in a canal or the sea. Falcone got the idea for the course when he lost a wheel on his own car and nearly ended up in the drink. For starters, they recommend leaving windows open to permit water to fill the car partially and equalize pressure, so the doors may be opened easily.