

undercurrent®

THE PRIVATE, EXCLUSIVE GUIDE FOR SERIOUS DIVERS

P. O. Box 1658, Sausalito, California 94965

Cable Address: Gooddiving

Vol. V, No. 4

April 1980

Two Neighbors On Grand Cayman

The Casa Bertmar; The Sunset House

On Grand Cayman, about a mile south of Georgetown and a quarter mile apart, sit two tourist havens, one a small diving hotel, the other a small hotel with diving. Both are less expensive than most other Cayman operations, take divers to similar dive spots, and are good choices, especially for new divers. Yet they differ substantially from each other. We sent an associate to the two establishments for a comparative review. Here is what he found:

When I was a kid, I loved summer camp. I was outdoors all day, away from the pressures of school and my family. I would be involved in endless sporting activity, sometimes competing lustily with friend or foe, at other times just enjoying myself in individual activity. Camp fostered friendships and love affairs, but there was also great suffering--like having to walk to the outhouse in the middle of night or facing frisbee-like pancakes in the morning. Everyday we would have to complain about the food. But everyday was also special, and when my stay would end and my new friends and I would exchange addresses with each other, vowing to write and return next year, we never suspected that these precise moments would never repeat themselves.

Such were the feelings evoked during my stay at Casa Bertmar, an adult camp for scuba divers. The motel-style facility is small (15 rooms, relatively spartan appointment), with the living quarters, dining room, bar, deck and dive shop all connected--a setting which indeed promotes intimacy. The guests are nearly all divers; so, the conversation, whether over dinner or while lounging at ocean's edge, is about "creatures I've seen" and "dive resorts you just gotta visit." There is always activity--boat dives in the morning, shore dives in the afternoon (it's simple to find a buddy), and dives at night. Those who don't dive become the gallery, kibitzing no matter what the circumstances. Before the first day was over, I felt as comfortable as if I'd been there a week.

Camp has its disadvantages, not the least of which is lack of privacy. It was

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difficult at Bertmar to get away from the group. Everyone seemed to learn everyone else's business quickly. As a sense of humor was essential--the prideful were quickly put in their place. The staff sometimes forgot that I and others were guests and that service is essential. The food was plentiful, but more on the order of camp food compared to other resorts I've visited. Breakfasts were standard, and although French toast was supposedly available each day, one might hear complaints if it were ordered. Cheeseburgers and sandwiches could be bought at the bar for lunch, and the dinners were relatively ordinary--for example, iceberg lettuce salad, fish, rice and overcooked corn-on-the-cob (or an undistinguished, however hearty, beef stew) and pie. Dinner would open with soup and the standing joke was to guess how many days the same soup could be added to, reused, and relabeled. Nevertheless, the diving and services were good and, after all, that's what I came there for.

In contrast to the Bertmar, a camp for divers, is the Sunset House, a resort with a dive operation for those who care to partake. The complex, with many clusters of well-appointed rooms and apartments, has much more of a romantic tropical look to it than the Bertmar. The pleasant dining room (it seats 100) overlooks the ocean. The open bar frequently had a mix of couples, young singles, or locals sipping tonics and playing backgammon or dominoes. There are divers, but they don't dominate, and some even bring their teenagers or young children for their stay. Both the Sunset and the Bertmar have rocky shores; there's decent snorkeling and beach diving from both hotels. Sunset food was superior. Breakfasts were tastier, lunchtime sandwiches more elaborate, and dinner better prepared. For example, native-style kingfish was accompanied with fried plaintains and other native vegetables, the salad had more components, and the turtle soup did not appear to have started days ago as vegetable. Even a few locals showed up at dinner time. Shorts, by the way, are not permitted at dinner.

The Sunset recently has added several rooms and apartments and a new dining area; the owners admit they have a staff shortage and must work 16 hours/day to keep the operation from breaking down. I spoke with several divers who had been here many times before, and each lamented the changes; yet, never having been here before, the problems seemed less severe to me than to the return customers.

Diving: Overall, Cayman diving is easy and pleasant diving, with generally interesting landscape, a variety of sponges and corals (the abundance of which varies from site to site) and a good variety of fish. The best diving at Cayman is on the more spectacular North Wall, where one is apt to see larger fish, perhaps more unique creatures, and surely more dramatic scenery. Divers from Bertmar and Sunset are occasionally taken to the North Wall, but most of the sites are west and south, where a diver may have similar experiences to the North Wall, but with much less frequency, and might even be taken on a boring dive or two. With few exceptions, sites selected by Bertmar and Sunset House guides are identical. (During my ten-day overall stay, I was taken to the same sites by both operations.) So, I will describe a few typical dives I took before I differentiate between the services.

At Eagle Ray Rock, I cruised through splendid gorges at 100 feet and enjoyed the plentiful corals and gorgonia at the top of the reef, although the fish life was quite common (wrasses, squibbles, parrots) and not abundant. At Galleon Reef I sat in a huge basket sponge at 30 feet amidst yellow tube sponges looking like organ pipes and purple fans swaying before the white sand background. The fish were typical, but a goldentail eel, trumpets and large parrots were additions. Caribbean Reef, off 7 Mile Beach, was a rather undistinguished dive, but a trumpet fish piggy-backing on a Coney made for a strange sight. Hell Rock was a fine dive, with

Undercurrent (ISSN: 0192-0871) is published monthly by Atcom, Inc., Atcom Building, 2315 Broadway, New York, NY 10024, (212) 873-3760. Second-class postage paid at New York, New York. This guide is available to the diving public by mail subscription only. To maintain

its independence, *Undercurrent* carries no advertising.

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caves and large coral heads. I found a couple of five pound groupers in one cave, a balloon fish, head down in a hole and oblivious to everything, and a large puffer fish, which another diver inflated before setting free. Trinity Caves and Devil's Grotto provided spectacular caves and chutes with a plethora of varied fish, again with the fascinating backdrop of coral and sponge varieties. And of course, there's the wreck of the Balboa, now mainly a junk pile, where annoying sergeant majors eat divers alive in search for free handouts of junkfood, which the dive guides often provide. The plentiful herds of grunts and goatfish among the rubble provide nice photos for the folks back home, and in one small wreck compartment, my buddy and I found trapped air where we could remove our regulators and tell stories. Later I was to learn that dive guides empty tanks there so tourists may get their kicks. The Balboa is Cayman's Disneyland for divers.

Although a new boat is expected any day at the Bertmar, diving during my stay relied on the 36-foot Gypsy, which would depart each morning at 8:30 for a two tank dive, returning about 1 p.m. With as many as 19 divers aboard (maximum is 25), two guides and three crewmen, the boat was crowded, but gearing up for a dive was efficient, thanks to the help of the crew. On my initial dive I was given a brief check-out at the anchor line, accompanied down to 100 feet to ascertain my competence, then set free to swim about with my buddy, normally within eyesight of one guide or another. Before each dive we received a complete orientation to the site, and after the second dive we were required to hold at 10 feet for 3 minutes. Three guides accompanied us at one time or another. I found Jeff (a relatively quiet fellow) and Phil (much more gregarious) careful, courteous and friendly, but shop manager Pete was often taciturn and intimidating, as if he were troubled about something. In the afternoons or evenings divers are free to pick up tanks for beach dives, where one may swim out a short way to visit Waldo, the 7-foot tame moray eel which, during my stay, searched for morsels in a BC pocket by wrapping himself around a very surprised diver. That scene's worth the price of a trip. The Bertmar offers complete rental gear for unequipped divers and fills their aluminum 80's to a generous 3200 psi.

The once-efficient dive shop at the Sunset has fallen behind the hotel's expansion and during my stay could not easily handle the people who had come to dive. The hard working crew busted their buns to get the job done, but a lack of planning and experience seemed to be wearing nerves thin. I experienced minor problems-- they lost the record of my dive reservations and prepayment for one trip, for example, but after searching for several minutes accepted my word--while other divers reported to me that on one dive there were insufficient backpacks, while on another they came up short on tanks. The problem stems from expansion, small quarters and inexperienced personnel. The most senior member of the dive operation has been at Sunset but seven months. Steve, the new manager, seemed to be doing a credible job and I would hope and expect that once the flood of tourists wanes, he'll be able to better organize his crew for next winter's surge.

I must say, however, that I was put off with the Sunset's policy for new divers, which again reflects their workload. For my checkout, I was told I would have to join the regular AM two tank boat dive, but I would not be permitted in the water for the first deep dive. I would be checked out on the second, shallow dive. Although I wished to visit the deep site since I had not been there before, I was sufficiently annoyed to scrub my day's dive, especially since the shallow dive was a boring site I had previously visited. On the following day rough winds cancelled the deep dive; so, the boat was sent for two dives at shallow sites and, to my surprise, there was never any mention of a checkout. Had I been aboard with a group of my California gorilla buddies, we would have surely mutinied. The boat trips, however, went smoothly; the guides were always helpful and friendly, and their large, roomy dive barge (they also have a landing craft) made diving easy. There's plenty of rental gear, including regulators, and they pump their 80 cubic foot tanks to 3200 psi.

Rates: From April 15 to December 14, air-conditioned rooms, double diver occupancy, with breakfast and dinner, are \$110 at the Bertmar and \$101 at the Sunset (even better rooms in the addition run \$111). The Bertmar permits a diver to use tanks day or night, as frequently as he cares to at these prices, while the figure quoted for the Sunset covers only two tank boat dives. Both hotels require the 5% government tax to be added, but the Bertmar adds a 15% gratuity to the entire hotel bill, while the Sunset leaves tipping to individual discretion, a practice I strongly favor.

Alternatives: Since one need not be staying at these hotels to dive with them, there are other alternatives. The Sunset frequently sends people to the Ambassador, about 3/4 of a mile away, if it cannot accommodate them. I found a surly staff in this motel-like row of apartments (some are not air-conditioned), which is not on the beach and, at \$40 double/night, definitely overpriced. For the same \$40 tariff, one can stay at the lovely Seaview, on the ocean's edge, a brief walk from either the Bertmar or the Sunset. In the Seaview's lobby, with its potted plants, overhead fans, and tiled floor, one might expect to see Sidney Greenstreet, attired in his white suit, holding forth. There's a lovely courtyard and pool, pleasant and clean rooms, and a friendly staff. Breakfasts and lunches are served, and for dinner, one might consider an inexpensive Caymanian meal at Welly's Cool Spot, about \$15 for two, or drop \$75 on the gourmet fare at the gracious Plantation House.

Conclusion: For the person who comes to Cayman to live and breathe diving, the Casa Bertmar prevails over the Sunset House. For the person who comes to take a couple of tanks a day and recline, the choice is the Sunset House, regardless of the expansion problems, which I would expect to be solved. And for the person who comes to relax away from 7 Mile Beach, dive two or three times a week, and simply pass the time, then I would recommend the Seaview, where the manager can arrange dive trips to the North Sound, or you can easily stroll down the street to the dive shops at the Bertmar or the Sunset when you get the calling.

Divers' Compass: Cayman, a modern island, has supermarkets, cocktail lounges, rental cars, plenty of places for suntan lotion, film, and postcards. . . the visibility ran over 100 feet on some days, but dropped to 50 when the wind picked up; summer is best, but the weather is hot; winter time requires wet suit tops. . . equipment sales, service and repair is nearly as available on Cayman as it is in the Florida Keys. . . a special air fare from San Francisco or Los Angeles now gets West Coast divers to Cayman and back for \$299 via National, making it cheaper than a flight to Hawaii. . . acceptance of credit cards seems to be disappearing; bring enough travelers checks to cover all expenses. . . for nondivers, Cayman doesn't offer much in the way of shopping, nightlife, or other resort amenities.

Dear Undercurrent

At 125 Feet My SOS Meter Fell Apart

Dear Undercurrent:

I began a drift dive to 125 feet off Anacapa Island in Southern California and when I reached the bottom I realized that the front plate and internals of my Scubapro Automatic Decompression Computer had fallen off. Since I had the instrument strapped to my ankle, I was unaware that it was lost until I looked for it.

The following day I visited the Scubapro office in Compton and met with Sam Ichikawa, Technical Ser-

vice Manager. I told him I had purchased the meter 2-3 years ago. He asked if it had ever been serviced and I answered that nowhere in the instructions does it say that the meter should be checked once a year. He also told me that under no circumstances should the meter be used as the sole instrument. Again, I indicated to him that this was not clearly spelled out in the instruction booklet. When asked if I had the serial number, I replied that I didn't. Nevertheless, he provided me with a new meter at no extra charge. I contacted the dive

shop owner where I purchased the meter and he told me that he had seen "two or three come apart." I had never been contacted by Scubapro nor the Dive Shop to explain that my meter should be checked once a year or that it could fall apart.

In my case tragedy was avoided. I feel that this problem should be brought to the attention of my fellow divers and that *Undercurrent* should be the vehicle to get the ball rolling.

Sincerely,
Joe Korpiel
Canoga Park, CA

Joe Korpiel's difficulty with the SOS meter raises a problem far more serious than simply having the meter fall apart. More about that later. As to the specific problem, we contacted Sam Ichikawa to hear Scubapro's side.

Scubapro is the U.S. distributor of the SOS meter, which is manufactured in Italy. Ichikawa said that Korpiel's problem was "fairly common" about five years ago, when the meter was housed in a brass case. A mild blow to the side of the meter could easily pop open the case, permitting the workings to fall free. After Scubapro complained to SOS, the U.S. meters were put in welded stainless steel housings. Ichikawa said that Scubapro had explained the problem to its dealers, who were instructed to replace the case at no charge if they found cracks in the solder.

Ichikawa said that SOS still ships soldered meters to the Caribbean. Many American divers who purchase their meters there complain to Scubapro if they have a problem, but Scubapro has no responsibility under their warranty since the retailer purchased the meters directly from SOS. Scubapro, however, will repair the meters for a labor and material charge.

Korpiel's letter raises a far more serious problem with the meter—the tendency for many divers to rely solely on the meter to monitor their dives to avoid decompression. Beginning in April, 1976, *Undercurrent* ran a series of articles detailing the serious faults of the meter—along with Scubapro's silence about those faults. There was a great deal of evidence that divers were getting bent using the meter because its limits permitted divers far more bottom time in certain dives than did the Navy tables. Although Scubapro certainly knew what kind of table profile the meter followed, it did not disclose this information to divers and Scubapro spokesmen dodged many questions from *Undercurrent* about the meter's problems. Sometime after our article appeared, the instructional manual was changed, but we still feel they have not taken all the steps required to make diving with the meter safe. Scubapro's silence about the problems remains, at best, irresponsible.

The main problem with the meter is that it provides far too much bottom time at depths beyond 100 feet and that for repetitive dives the bottom time permitted often has no basis in physiological reality. At 100 feet, the U.S. Navy tables permit 20 minutes of bottom

time; the SOS meter, according to tests we published, permits about 26 minutes. At 130 feet the U.S. Navy tables give 10 minutes of bottom time, while the tests found the meter permits 18-20 minutes. At 150 feet it's 5 minutes for the tables and 14-15 minutes for the meter.

Scubapro handles the problem in its instructional manual by simply stating that the maximum depth should be limited to 130 feet and "for dives between 100 and 130 feet, [the diver should] decompress five minutes at 10 feet even if not indicated by the meter."

Because of the infinite multiple dive profiles possible, there's little said about how to manage repetitive dives. But, on one example printed in *Undercurrent* (January, 1978), for two 60 foot dives, the meter permitted anywhere from 6 to 19 more minutes of bottom time than did the U.S. Navy tables. Dr. Red Howard, the author of that article, said at that time,

Consideration of this repetitive dive problem by Scubapro should certainly be expected by diving consumers, if not outrightly demanded by safety conscious diving instructors and organizations.

So far as we know, the training agencies have been silent on the meter; however, PADI has published a booklet entitled *Decompression in Depth* which includes an article by Jon Hardy on "The Decom Meter—a Useful Tool." Hardy lays out more restrictive instructions than does the meter's own manual, but still does not expose the full range of repetitive dive problems. Hardy's relatively complicated instructions makes one wonder how any sport diver can be expected to use the device properly without constant referral to written material.

One of our major complaints with Scubapro has been that although the liabilities of the meter have been known for sometime, they only saw fit to revise their manual after our prodding. Of course the 50-100,000 meter owners who purchased the device before the revised manual have never been told the truth about the meter—not by Scubapro, not by the training agencies, not by the national magazines—and we have no doubt that every year a few divers get bent, because they use the meter improperly—thanks to industry-wide silence.

The continuing argument we hear from instructors is that "everyone knows you're supposed to surface when the hand's on the 'E,' and you're not to wait until it gets into the red." Hardy even suggests that approach. But if one obeys the meter face, when the hand's on the "E," the meter says you're still a long way from having to decompress. The fact is that for many dive profiles the meter is simply wrong and a number of gimmicks have to be devised by the users to compensate for the errors.

The SOS meter is itself a gimmick. Its design was stumbled upon. The "no-decompression information" it provides follows no known scientific theories about decompression or physiology. For some dive profiles the information it provides will keep one away from decompression, while for other dive profiles it will provide erroneous information—it's up to the user to

Are U.S. Navy Tables Liberal?

Among sport divers there is probably more nonsense spoken about no-decompression limits than just about any other topic. Many instructors, in fact, believe and teach that a high incidence of decompression sickness—5% or more—can be expected even when divers use U.S. Navy Tables properly. These statements, of course, are without foundation. Until 1970 there were no reliable data on bends incidence in compressed air diving. The lack of data, coupled with distorted claims, led to distrust, fear, and sometimes disregard of the Navy tables. Arbitrary safety factors were promoted. And, to quote a University of Michigan Sea Grant study, "some individuals used this uncertainty to promote the use of decompression meters."

Some sport divers disrespect the U.S. Navy tables. There are others who believe the tables are not conservative enough and some tests seem to bear out these views. Results of a study by Dr. Merril Spencer of the Institute of Applied Physiology and Medicine (Seattle, WA) were recently discussed in an issue of the *NOAA Newsletter*. Dr. Spencer determined that air bubbles in the veins develop in many individuals even when the symptoms of bends do not occur. He discovered a number of persons who are especially bends-prone (or bubble prone) who should never expose themselves to depths beyond 30 feet.

From his studies, Dr. Spencer developed a formula for calculating no-decompression diving limits which turn out to be slightly less conservative than the Navy tables for short and deep dives, but more conservative in both mid-range and long exposures. For example:

Depth	U.S. Navy	Spencer
40 feet	200 min	135 min
50 feet	100 min	86 min
60 feet	60 min	60 min
70 feet	50 min	44 min
80 feet	40 min	34 min
90 feet	30 min	27 min
100 feet	25 min	22 min

Spencer's results do not mean that the U.S. Navy Tables should be ignored and his work followed. Much more research needs to be undertaken. However, his data does indicate that divers who push the Navy tables or rely on the SOS meter for guidance are taking foolish risks with their bodies.

determine which is which. It is not used by Navy divers; it is not used by NOAA divers; it is not used by university research divers. It is used mainly by sport divers who hope that somehow it will relieve them from the responsibility of having to rely on the Navy tables. There are plenty of bent divers limping around who offer ample evidence that it just doesn't work that way.

To Joe Korpiel, we say that you might be lucky that you lost the guts of your meter at 125 feet. Had you followed the face of the meter on the dive, you might have had far greater complaints with the people who bring you SOS.

Are Variable Volume Exposure Suits Safe?

A Test By NAUI and NOAA

In September, 1979, the National Oceanic and Atmospheric Administration (NOAA) Diving Office hosted an in-house workshop on variable volume exposure (air) suits. The primary objectives were to identify problems encountered with various air suits or accessory gear and to better understand characteristics of suit designs. Tests were conducted to learn the consequences of (1) losing a weight belt, thereby becoming excessively buoyant, (2) losing air by flooding, which might cause negative buoyancy or difficulty swimming, and (3) wearing front-mounted compensators over suit valves.

Variable volume dry suits for divers have enjoyed a

rapid rise in popularity since the introduction of several designs about 1970. Those gray-templed divers who can remember back to the early 1950s and the Bell Aqua "dry" suits will remind a careless writer that today's dry suits are only a variant of the early suits. There is, of course, a significant difference between suits of the two eras.

Air was introduced into the Bell Aqua suit (very similar to today's Viking suit) by carefully blowing air past a wrist seal or through the mask and under the face seal. Today, air effortlessly passes into the suit through an oral tube or power inflator.

While air in the exposure suit adds insulation, it also

(Continued on Page 11)

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Supplement to: Undercurrent Newsletter for April 1980.

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Undercurrent Travel Questionnaire

Response Requested

Have you taken a dive trip to some famous dive resort recently and found it didn't meet your expectations? Have you discovered a new dive resort or location that other divers might be interested in reading about? If you have taken any tropical trip in the last year, we'd like to hear about it. Your reports will be used to update our world-wide review of diving and appear in future issues of *Undercurrent*. Won't you take a moment and evaluate your last trip for us?

Location being evaluated _____

Date of your trip _____ Hotel _____ Dive shop _____

Would you return? _____ Did you get your money's worth? _____

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"/> nor bad	<input type="checkbox"/> sparse
kinds of tropicals	<input type="checkbox"/> impressive variety	<input type="checkbox"/> fairly interesting	<input type="checkbox"/> common ones only
coral	<input type="checkbox"/> plenty and colorful	<input type="checkbox"/> o.k.	<input type="checkbox"/> kind of a bore
hard 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
photography	<input type="checkbox"/> top possibilities	<input type="checkbox"/> average	<input type="checkbox"/> nearly a bust
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.
rated for advanced	<input type="checkbox"/> terrific	<input type="checkbox"/> o.k.	<input type="checkbox"/> go elsewhere
rated for beginners	<input type="checkbox"/> terrific	<input type="checkbox"/> o.k.	<input type="checkbox"/> go elsewhere

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/wcek	<input type="checkbox"/> none
boat diving	<input type="checkbox"/> two tanks under \$20	<input type="checkbox"/> \$20-30 for two	<input type="checkbox"/> over \$30 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
new equipment	<input type="checkbox"/> full range available	<input type="checkbox"/> limited range	<input type="checkbox"/> come fully prepared
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"/> surely acceptable	<input type="checkbox"/> lugh!
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
other divers around	<input type="checkbox"/> all over the place	<input type="checkbox"/> a few	<input type="checkbox"/> hard to find a body
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"/> too many bites	<input type="checkbox"/> now and then	<input type="checkbox"/> none

Comments and comparison to other places visited: _____

Location being evaluated _____

Date of your trip _____ Hotel _____ Dive shop _____

Would you return? _____ Did you get your money's worth? _____

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
coral	<input type="checkbox"/> plenty and colorful	<input type="checkbox"/> o.k.	<input type="checkbox"/> kind of a bore
hard 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
photography	<input type="checkbox"/> top possibilities	<input type="checkbox"/> average	<input type="checkbox"/> nearly a bust
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.
rated for advanced	<input type="checkbox"/> terrific	<input type="checkbox"/> o.k.	<input type="checkbox"/> go elsewhere
rated for beginners	<input type="checkbox"/> terrific	<input type="checkbox"/> o.k.	<input type="checkbox"/> go elsewhere

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 \$20	<input type="checkbox"/> \$20-30 for two	<input type="checkbox"/> over \$30 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
new equipment	<input type="checkbox"/> full range available	<input type="checkbox"/> limited range	<input type="checkbox"/> come fully prepared
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"/> surely acceptable	<input type="checkbox"/> ugh!
nearby restaurants	<input type="checkbox"/> must try	<input type="checkbox"/> inadequate	<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
other divers around	<input type="checkbox"/> all over the place	<input type="checkbox"/> a few	<input type="checkbox"/> hard to find a body
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"/> too many bites	<input type="checkbox"/> now and then	<input type="checkbox"/> none

Please compare this trip to other resorts you've been to, and add any additional comments.

Comments and comparison to other places:

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requires the diver to address the issue of potential major change in buoyancy with (1) changing depth, (2) loss of suit air or (3) loss of the weight belt. Divers have reported many incidents while using variable volume suits which could have led to possible injury. Among these incidents are flooding from zipper failure, weight belt loss or losing control of suit buoyancy while in a head down position.

Ten NOAA divers, including five NAUI instructors, each with experience diving in air suits, conducted the experiments in a 100-foot deep test tank at the U.S. Navy White Oaks Surface Weapons Center near Washington, DC. The 50-foot diameter tank had a moveable false bottom so the divers could operate at the "bottom" with a pre-selected depth.

A NOAA recompression chamber was set up at the site for diver safety during the rapid ascent experiments.

The tank was equipped with several 16mm cine cameras and submerged photo flood lamps to provide a continuous film record of each test. Also, video tapes were made from a diver-held underwater television camera.

Test One—Air Loss From a Uni-suit

Many persons believe that there is a significant likelihood that a Uni-suit can have a catastrophic loss of air, flood, and prevent a diver from ascending.

This potential problem was addressed by placing two Uni-suited scuba-divers at 100'. Each wore their normal weight for that depth (16 lbs. and 22 lbs.). Both divers totally flooded their suit by opening the zipper as far as possible beyond the crotch, then lifting each arm to vent all possible remaining air through the cuffs. Neither diver moved off the bottom until no additional air could be purged from the suit.

Results and Conclusions

1. *With the weight belt on and fully flooded suits, both divers swam from a depth of 100 feet to the surface in approximately 120 seconds. They considered the task difficult and one stated he might not have made it with 6 to 10 more lbs. on his belt. Upon surfacing, the divers were breathing hard.*

2. *While neither diver would have made it to the surface wearing their weight belts and without breathing from their scuba, based upon this extreme test, (a) it is likely (although not tested) the divers would have surfaced successfully in flooded suits from 100 feet without air had their weights been dropped, and (b) with scuba air available and the weight belts dropped, the ascent with flooded suits would have been nearly routine.*

3. *Divers must weight themselves according to the planned dive depth rather than using the common practice of one standard belt for all occasions and then gain neutral buoyancy solely through air volume adjustment in the suit or compensator. They would*

have no difficulty whatsoever swimming to the surface while breathing from scuba with their suit flooded and with the weight belt removed.

4. *It was difficult to lose all air in the suits even with determined effort. Therefore, in the rare event a Uni-suit equipped diver has a major spontaneous zipper or other component failure, the suit will retain some air. By dropping the weight belt, the diver can readily swim to the surface.*

Test Two—Effect of Weight Belt Loss on Ascent

Divers wearing Uni, Jet and Viking suits ditched weight belts after adjusting their buoyancy to be neutral at 40 feet or 100 feet. During the first several ascents for this test, the divers breathed from their scuba. Later they ditched their weights and scuba for a non-breathing, buoyant ascent.

Each diver, after dropping the weight belt, ascended without using fins or hands for propulsion. At the 40-foot test depth, the divers immediately began releasing air through the suit exhaust valve. At 100 feet, they delayed the exhaust until reaching the 90- or 80-foot depth.

Results and Conclusions

1. *Our divers could increase or decrease their ascent rate from a depth of 100 feet upward to 40 or 35 feet. As they continued toward the surface from about 35 feet, they continued to exhaust their air to slow the ascent, but none could dump air fast enough to stop the ascent or slow to 60 feet per minute.*

2. *When the weight belt was ditched at 40 feet, the ascent rate control was lost at about 25 feet below the surface.*

3. *Ascent rates from 40 to 100 feet varied in time depending on the rate selected by the subject. Forty-foot buoyant ascents ranged from 15 seconds to 35 seconds. As expected, ascending out-of-air was faster than when the diver breathed.*

4. *Neutrally weighted divers were able to swim across the tank at 40 feet or deeper after dropping their 25 lb. to 35 lb. belts.*

5. *An experienced diver wearing a variable volume air suit and properly weighted belt can generally retrieve a dropped belt at depths below about 20 feet. The Uni-suit creates the most problems for a diver swimming down to recover a weight belt because air will rise into the oversize boots and possibly hinder fin function. Light ankle weights were worn by some divers to restrict the rapid flow of air to the feet and to aid in holding the buoyant feet down.*

Test Three—Compensators Blocking Suit Air Control Valves

Two divers made ascents while wearing front-mounted (horse collar) type buoyancy compensators over their Uni-suit control valves.

1. Both divers agreed there was some difficulty reaching the control valves of their BC's. One added that he was not able to assure his gloved finger was activating the exhaust valve, as he might have been pushing through the compensator, rather than having reached beneath the compensator fabric to the valve surface.

2. These tests further support the author's view that Uni-suits do not require additional buoyancy in the form of a compensator. Front-mounted compensators are potentially hazardous when used in conjunction with some variable volume exposure suits having front-mounted air controls.

Summary

Variable volume exposure suits can be safe and effective. Special training is appropriate to alert the user to unique features of the suits. Ascents can be rapid and out-of-control. Care must be taken when combining diving components so that unsafe combinations, such as variable volume suits and front-mounted compensators, don't occur.

Undercurrent Comments: The sport diver should note that the ten divers employed in this test were

highly trained and experienced professional divers. They were able to handle themselves in the adverse circumstances under test conditions and were, therefore, able to demonstrate the safety of the variable volume suit.

The results—and conclusions—may not be applicable to the newly certified coldwater diver who after half a dozen wet suit dives decides the only way he can become comfortable in the sport is to use the variable volume dry suit. For a diver who is not experienced, who suffers from pre-dive jitters and carries anxiety below the surface, and who is not fully comfortable and confident in the water, the variable volume dry suit poses dangers. *Note the author's conclusion: "special training is appropriate to alert the user to unique features of the suit." To that we should add, "but unless a diver is fully competent underwater, he should improve his diving skills before seeking special training in a variable volume dry suit."*

The author, William L. High, is a marine fisheries biologist for NOAA. His research and recreational diving, frequently in water less than 45° F., has provided him with many years of experience with variable volume wet suits. High is a member of the NAUI Board of Directors. This article first appeared in the *NAUI News*.

Ed Brawley v. John Gaffney And NASDS

When A Winner Is A Loser

In the October, '76 and March, '77 issues of *Undercurrent*, we wrote in detail about a suit filed by Ed Brawley, owner and operator of the Professional Divers Instructional College (PDIC) in Monterey California, against John Gaffney, executive director of NASDS, claiming copyright infringement. The history of that suit provided unusual insights into the history of diver and instructor training and competition within the industry and at last, after eight years of litigation, the suit is completed.

In the mid-1960s, Brawley and his associate, Jean Gregor, developed techniques for training divers and instructors. In 1968, Brawley and Gaffney agreed to work together to promote Brawley's program to train instructors, but before long they parted company. Much of the material developed by Brawley and Gregor was published by Gaffney in NASDS training manuals, and people who took Brawley's course then adapted it to courses they developed. In 1971, Brawley filed suit against Gaffney and NASDS, then filed a second suit in 1974. In August, 1976, the Northern California District Court found Gaffney guilty of taking and using Brawley's material without permission. He was found guilty of copyright infringement. In November, 1976, a judge issued an injunction against Gaffney and NASDS, prohibiting both from using material from Brawley's *Instructor Guide* and from portions of his *Blue Book*. The judge awarded Brawley \$4439.94 in damages plus court costs, but he was not awarded attorney's fees.

Brawley, who personally spent many times the \$4400 award in pursuit of the verdict, is clearly not pleased with the financial outcome, although his wife Ruth told *Undercurrent* they are pleased with the overall decision since they wanted "clear proof of their copyright." Brawley is now out of the diving business, having closed PDIC and sold his five retail stores. He is considering getting back into the business and has organized a corporation he calls Scuba Instruction Licensing, Inc., to serve as a vehicle for marketing his training program.

Gaffney and NASDS no longer use Brawley-generated material and now have prepared their own training manuals. Gaffney says his defense cost his insurance company over \$300,000 but says, "we got hurt indirectly because it took up so much of our time." He believes the suit by Brawley was "another example of someone trying to use the law as a weapon."