

The Isla Mia, Belize

At Play With The Porpoises

Last month I reported on my trip on the Heddy, a dive craft on which I lived for a week to dive the reefs on Roatan. As you may recall, I enjoyed the trip and found the diving better than average, but not spectacular; it was without surprises, without special thrills, without unique experiences. Divers of any skill would have enjoyed themselves, but the trip would seem to be especially good for beginning or average divers who would be contented with 2-3 tanks a day, good food, and some time to explore the shores of Roatan.

Immediately following this trip, I took the short flight to Belize (on British Honduras) arriving on Saturday, April 26 to board another dive boat, the Isla Mia, for a tour of Belize waters. I had heard great stories of these reefs, of the virgin diving, of the wide array of creatures, of even diving with dolphins, and I was eager for greater diving challenges.

The trip begins in Belize City, which itself is a challenge of survival. It is a city of poverty and deprivation, where the people live in a squalor of stench, of garbage in the streets, of open sewers running freely. Indeed, it is depressing. Any diver traveling to Belize, and most must overnight in Belize City, is wise to get a gamma globulin shot from his physician before departing.

This trip was not to include a tour of Belize City, but as I have come to expect from traveling in the Caribbean, if something can go wrong, it will. At the Belize airport we were met by Henny Tromm (our captain for a week) and his crew, who loaded our gear into two station wagons for the trip to the harbor. To board the 75-foot Isla Mia we scampered over two other vessels tied up in water too shallow for our dive craft, but quickly settled in, anxious to begin the six-hour journey to our first dive spot. We were informed that our engine was not up to the task, and a several hour delay was in store. We had a few options: we could sit aboard the deck and watch the passing boats (which at first seemed acceptable), but the oppressive heat and busy mosquitos quickly brought those

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thoughts to a conclusion. We considered sitting in the boat's lounge and sipping cold beer to pass the day, but with the engine down, we were without air conditioning. We decided to hop a cab and head for Belize City. Avoiding the sordid city as best we could, we visited the home and workshop of Egbert Peyrefitte, who, in a dark corner of his shop, displayed magnificent carvings of frigate birds, dolphins, sharks and rays. They were extraordinary pieces at reasonable prices, and most of us eagerly parted with our tourist dollars. We then repaired to a local pub, "The Greek's," for cold beers to beat the heat. We walked the street in a large group, in deference to our captain's suggestion not to walk the streets alone.

We slept that night in the harbor, learning in the morning that the engine repairs were still not completed. I became annoyed at our long wait, doubting now that I had made the right choice. Would the diving be good enough to justify this delay? Indeed, would we ever get started? As my spirits were ebbing, my depression increasing, the captain came. We were ready to depart.

We awoke Monday morning to the aromas of sausage, coffee, and homemade biscuits to complement the orange juice, sliced papaya and scrambled eggs prepared by cooks, Tony and Linda. Having already lost one day of diving, the anticipation of the other divers and myself was indeed high. We suited up for our first dive on Bokel Cay. But before jumping off the side of the boat, Henny recorded the pressure gauge readings on the tanks and the time we entered the water. After a brief description of the site, he bid us farewell. We made several dives this day on Bokel Reef and I can only describe my exhilaration with a litany of superlatives: extraordinary, stupendous, magnificent. In 100-foot visibility, the reef was alive with marine life, more so than the reefs of Roatan. On a typical dive here we would drop to 80-100 feet, perhaps search for lobster or shoot diver silhouettes, move up to 60 feet where we would observe large angels or parrots, or perhaps tangle with giant stone crabs, which nestled in the coral crevices. At 30 feet we would find turtles, big groupers and spotted eagle rays in the sand. No matter where we would dive during the week, we found similar life. In fact, on one shallow dive in fifteen feet of water where I was using a wide angle lens and natural light, we encountered three hawksbill turtles, two spotted eagle rays, and a half dozen groupers that easily tipped the scales at 100 lbs. or so. There were no currents, just calm waters, plenty of virgin coral, and an unending and varied supply of fish life.

Of course diving was unlimited and unescorted. After each dive we would be greeted by Captain Tromm who would record the time of our exit and our pressure gauge reading so we could compute our own standing on the tables and plan our air consumption. Often I would grab another tank and head right back down into shallow water, never having to wait for one of the 30 or so steel 72's which were always filled and available.

Crew members Bobby and Leroy would help us into our gear, lower down camera equipment, help us out of our gear, and set us up for a full tank if we were headed back down. Tanks were filled to 2100 psi or more. But when there is unlimited diving with a tank always available, there is little difference whether the tank is filled to 2100 or 2500 psi. Exit from the water up a ladder was always easy, but we were never in a hurry because the 82 degree water provided warmth and comfort.

Each afternoon an informal lunch was served in the upstairs salon, but we would often carry our meal to the top deck to sit in the sun. Lunch usually con-

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sisted of salads, sandwiches, fruit, fresh lemonade or a banana milkshake and peanut butter cookies for dessert. Everything seemed fresh and well-prepared. There was always plenty of food and unlike the lunches on the Heddy, the servings were never too spicy for afternoon diving. In the late afternoon there would always be snacks available, sometimes conch fritters, other times cheese and pineapple canapés, tortilla chips and guacamole. As I said in the last issue about Roatan, divers, like armies, survive on their stomachs. And aboard the Isla Mia we had all the energy we needed for all the diving we cared to undertake.

We spent two days diving at the legendary Lighthouse Reef (see insert). Here black coral spotted the wall at forty feet, hundred pound groupers were spotted on every dive. Large file fish and schools of jacks were common. On one memorable dive I spotted a green moray eel with a head larger than mine and with a body at least six feet long. As the eel sat motionless staring at me, I was convinced it had once starred in "The Deep." Of course the waters of Lighthouse Reef are filled with tropical fishes of all sorts and the coral and gorgonia provide a beautiful background for the photographer. At Lighthouse we found schools of blue chromis, yellow tail, schools of porkfish and, if five or six angelfish can be called a school, then we saw school districts with twenty or more.

Lighthouse Reef Camping Terminated

White Water River Expeditions, among other tour groups, have been forced to cancel their dive/camping tours on Moon Cay at Lighthouse Reef. The Cay is the home of the rare pink-footed, blue-billed booby bird, and campers seemed to be disturbing their habitat. The Audubon Society in Belize has prevailed upon the government to close the Cay to camping to preserve the boobies. Although tour leaders eventually hope to regain access, there are no tours planned through 1981.

One afternoon at Lighthouse, we decided not to dive and visited Booby Island for a peek at the famous Booby birds. We had good view from land, but Bobby, our crew member and guide, led us to a ladder which led up a tree and from this point we got close-up shots without disturbing the birds. Before boating we gathered a few coconuts from this uninhabited island to take aboard. Unlike Roatan, where we did no night diving, we made several on the walls of Lighthouse Reef in thirty feet of water. Here we found and petted a sleeping parrotfish and followed the tracks of king and emperor Helmut snails.

We moved on to the famous Blue Hole, which has appeared in National Geographic and Cousteau specials, located about 4 miles inside Lighthouse Reef. It was an awesome dive. I swam out over a shelf bottom. Then, all at once, as far down as I could see, there was nothing. We dropped into this void where, below 100 feet, we found stalagmites and stalagmites, and with the exception of an angelfish and the distant shadow of either a bull or hammerhead shark, we were the only living creatures. For a moment, however, I thought I was about to become a statistic when the mouthpiece on my regulator popped off. Of course I could hold it in my mouth, but I substituted my octopus. Of course I raised hell with my dive shop when I returned because they had just serviced it and did not fasten the regulator tightly, but then again it is my responsibility to check my own gear, and I failed to make the check.

After the Blue Hole, we went back to other sites along Lighthouse Reef, spending three days diving along the 35-mile stretch, and along the way we saw queen, French and gray angelfish, eels, squid, sharks, rays, tangs, damsels, fairy basslets, hogfish, grunts, porkfish, grouper, lobsters, shrimps, queen triggers and barracuda. We saw almost no soft corals like tubastrea but lots of the hard star, plate, brain, leaf or lettuce, mushroom and flower corals. There were some staghorn and elkhorn corals but not as much as I have seen in other Caribbean spots.

Each day I dove four to six tanks, depending upon my diving profile of the

day. In between dives there was occasionally time for a drink or conversation, but I spent so much time underwater I'm almost unaware of what other attractions the Isla Mia offered. I do know that there were several good fish and marine life reference books on board and a ton of paperbacks. I do know, though, that I spent plenty of time feasting. And for all the energy I burned underwater, I replaced it with plenty of calories at the dinner table where we would normally have fresh fish, such as barracuda, red snapper or turtle, accompanied by salad, vegetables, homemade bread and homemade pie (the lemon meringue was outstanding). Once fried chicken was served, another time beef, but seafood was the staple. Before dinner I relaxed with a drink (beer 50¢, booze \$1) or perhaps wine at \$6 a bottle with dinner.

After all the breathtaking diving it was hard to return to Belize City. But a half hour out of Half Moon Cay, on our way back, Captain Henny yelled, "Get your mask and snorkels, here come the dolphins." Within 3 minutes I was in the water living my dreams with 20-30 dolphins playing around me. It only lasted about 10-15 minutes, but it was enough. A dream does not have to be long to be fulfilled.

Compared to my dive aboard the Heddy in Roatan, the diving was superior (although the reefs aren't quite as pretty, the fish life was indeed more spectacular), but the Heddy was a bit more comfortable. The Isla Mia isn't a fancy or even pretty boat, but she is well fitted for divers. She has individual storage units on deck for all dive gear and separate compartments for cameras and equipment. Sleeping quarters consist of two private double cabins and a dormitory type of arrangement which sleeps eight. With twelve of us in our group, we filled the area, leaving little privacy. The boat was a bit cramped, but it was air conditioned and we slept well and comfortably. There are two heads with hot showers and with twelve of us we never had to wait to use the facilities. With diving like this, however, I could have been aboard a cattle boat and not complained.

A few days after I had returned home, I received a letter from Carl Roessler, President of See and Sea Travel, whose firm had arranged the trip. Carl had learned of our lost day and refunded \$110. The diving was so good I almost felt guilty about depositing it in the bank. Almost.

Diver's Compass: The Isla Mia generates 110 volt current so strobes and dive lights can be recharged . . . This trip, which ended May 3rd, had plenty of warm days in the 80's but each was comfortable due to tradewinds . . . It rained one night, but the rain did not affect the diving . . . The cost through See and Sea Travel (680 Beach St., San Francisco, CA 94109) is \$750 plus airfare . . . To find Egbert Peyrefitte, his address is 11A Cemetery Road, Belize City . . . The flight between Belize City and New Orleans is aboard SAHSA, known locally as "Stay At Home, Stay Alive"; our flight, thankfully, was uneventful . . . Take everything you need aboard the boat, including film, sunscreen and all your toiletries, because nothing is offered for sale.

How Hawaiian Divers Beat The Tables

New Bends Theory Emerging

To Dr. Dick Strauss, a professor of physiology at the University of Hawaii in 1973, there was something disquieting about the scores of commercial coral divers in Hawaii who regularly violated the depth and time limitations of U.S. Navy tables but never got bent. If the mystery could be solved, there would indeed be a significant breakthrough for both commercial and sport

divers alike.

"The results of this seven-year investigation seem to indicate that the traditional theory of bubble formation is flawed. If their research proves correct, it could dramatically change the way we sport divers dive."

Although Strauss left the University in 1974, he left the roots for further research which grew into the so-called "Tiny Bubble Group"—a team of doctors at U. of H. who have continued studying the formation of bends-causing bubbles in the human blood stream. The results of this seven-year investigation seem to indicate that the traditional theory of bubble formation is flawed. If their research proves correct, it could dramatically change the way we sport divers dive.

Decompression Theories

The traditional theory, as we learned in our certification classes, holds that as a diver descends, more gasses are absorbed into the bloodstream and, subsequently, into the various body tissues. As a diver ascends these gasses expand and form bubbles which, if not allowed to dissipate, can become large enough to damage tissue. Thus, the bends. These bubbles, according to old theory, form automatically as a diver ascends and the pressure decreases.

The new theory holds that bubbles don't form "out of nothing." That is, gasses in suspension do not form bubbles on ascent just solely because it is the nature of gasses to form bubbles. The Tiny Bubble Group contends that bubbles which can cause problems form around a microscopic bubble nucleus, called micronucleus, which occurs naturally in the human body and in most fluids. The Tiny Bubble Group contends that it may be possible to control the characteristics of these micronuclei and prevent them from expanding into larger bubbles. If expansion can be prevented, then bends will be prevented.

The Tiny Bubble Group now comprises Prof. David Yount and Dr. Thomas Kunkle of the Department of Physics and Astronomy and Dr. Ed Beckman of the Department of Physiology. Working with this group are Capt. Fred Cavinaugh, Chief of Undersea Medicine for the Naval Regional Medical Clinic and Capt. Claude Harvey, Diving Medical Officer for a recompression chamber unit. Most of their effort to date has been conducted in the laboratory with computer evaluation and extrapolation. According to Capt. Cavinaugh, "This approach is entirely acceptable, but now it's at the point where it needs money to test it." The tests, they expect, may produce an entirely new set of tables for divers, which include controls of rate of descent.

Applications

The new theory has, however, been applied in one real diving situation, achieving remarkable results. In 1975, a Japanese salvage company was working in Apra Harbor on Guam; their divers were bent far too frequently. After Dr. Beckman recommended changes in diving and recompression techniques based upon the new theory, the rate of bends cases dropped to one tenth of what it had been.

While many dive tables are used throughout the world (Beckman says, "There must be 50 navies in the world, and they all have their own ideas"), all are based upon the Haldanian Model, a theory developed in 1908 by a British physiology professor. These tables give recommendations on how to decompress after spending a given time at a given depth. For most divers, the Navy Dive Tables worked fine. Hawaii's commercial divers, however, found these tables restrictive. They could not carry enough air to decompress from a third 150' dive of the day. So these commercial divers began to experiment. Some died, others were crippled. But they learned what they could get away with. What they did not know was *why* they got away with it.

By obtaining data from time and pressure measuring devices attached to commercial divers while they dove, the Tiny Bubble Group then subjected gelatin to various pressures and pressure changes and recorded the bubble formation. They learned that if the gelatin was subjected to great pressure and then the pressure was suddenly released, bubbles would form. However, if the initial pressure was applied *quickly*, the bubble micronuclei could be smashed into even smaller nuclei and these smaller bubbles were more difficult to make expand into larger bubbles.

Looking at the data obtained from the commercial divers, they noted that many divers would go very deep at a rapid rate of descent. In effect, the divers were crushing the micronuclei in their bodies into even smaller ones and thus helped prevent the formation of large bubbles. Thus the theory suggests that if decompression is conducted very carefully, the diver may be able to keep these smaller bubbles from enlarging, allowing him to make repetitive dives at deeper depths—and perhaps be almost bendsproof. While these techniques have allowed commercial divers to violate the Navy Dive Tables with fewer bends hits, the figures indicate that in some cases the hits are so severe they cannot be treated in a chamber.

The emerging tiny bubble theory may well change the way in which we should dive. The next step is to develop new dive tables based upon the theory and then prove the tables by human testing. According to Dr. Kunkle, the test bill could approach \$1,000,000.

Even if the theory is proven correct and new tables are developed, there will still be the problem of developing a treatment for the severe bends cases resulting from the new tables.

Undercurrent comments: We discussed the work of the Tiny Bubble Group with Dr. Charlie Brown, who consults regularly to the sport diving industry and instructional agencies and who writes a monthly column for *Skin Diver*. Charlie acknowledged that there are many anomalies in the Navy Tables and that further work with the theory can perhaps bring new approaches to decompression and bends prevention. He noted that much of the basis for this work may have come from earlier research by Dr. Bryan Hills who be-

lieves that U.S. Navy recompression tables are often wrong. For deep dives, where the Navy takes their stops at 50 feet for 4 minutes, 40 feet for 10 minutes, and 30 feet for 15 minutes, Hill argues that the first stop should be deeper than 50 feet and the time should decrease as one ascends. He argues that if bubbles form with the release of pressure, then an ascent to 50 feet may have already created the bubbles which cause bends. A longer and deeper stop should allow for better dissolution.

"...physical activity during decompression creates more bubbles and thus enhances the chance of a bends hit."

Some divers believe that activity during decompression reduces the likelihood of bends, arguing that activity stimulates circulation and thus carries off more nitrogen from the blood.

In practice, however, physical activity during decompression creates more bubbles and thus enhances the chance of a bends hit. In one experiment divers went to 60 feet for sixty minutes, then surfaced. There were no bends symptoms until after a set of pushups. In another experiment, with dogs which were decompressed normally, there were no bends symptoms until the dogs were struck in the leg. Then bubbles appeared in the blood.

Obviously, there's a lot more to know about the cause and prevention of bends. For the time being, sport divers are well advised to continue to follow the U.S. Navy tables and when in doubt, be more conservative than the tables. Perhaps for the 1980s, a breakthrough in recompression sickness research will lead to less restrictive strategies for sport divers.

Much of the information in this story is based on the research of Jan TenBruggencate for an article which appeared in *The Honolulu Advertiser*.

Picking A Course For A Friend

Once You've Persuaded Him To Take The Plunge

Upon certification, most sport divers become proselytizers, attempting to convert everyone from their mothers and lovers to the neighborhood dog into scuba divers. Once the invitation to join the parade is accepted, however, the proselytizer then has the responsibility of finding a course capable of producing a safe and anxiety free diver. That may not be easy.

The first thing to recognize is that it is a human being who teaches the course, not NAUI, PADI, NASDS, SSI or the YMCA. The course outline differs between training agencies, but instructors add or subtract course elements according to their own preferences (the training agencies often deny this); so, what is taught is much more a function of the teacher than the training agency.

The course you know most about is the course you took yourself. If your instructor is still available and you think you received a first-rate training experience, then that's the first place to direct your loved one. Although there may be a tendency for students to overrate their own instructors (the so-called "halo effect" leads one to believe that everything the instructor does is heavenly) the best instructors fill their courses time after time; inept instructors or those who don't gain a following, usually, although not always rapidly, fall by the wayside.

If you have the slightest doubt about your course, evaluate it both in terms of the actual diving needs and intentions of your buddy and in terms of other courses being offered. Did your course teach you how to decide when not to dive, how to plan and conduct a dive, how to maneuver in and on the water, how to avoid prob-

lems, how to save yourself when you must and, perhaps most important, how to have fun? If so, your course was right on target and should be recommended again and again.

If not—if it seemed like a prep course for college physics or if you only learned how to escape from problems rather than prevent them, then you should send your future buddy to someone else. If a course isn't aimed at making the novice ready for safely enjoying the watery world of sport diving, then it isn't worth the price, no matter how much of a bargain.

A comparison of your own course with others helps to evaluate yours. Discuss other courses with their graduates, with prejudice, to discover what they learned. Expose your likes and dislikes about your training to prompt others to do the same. You may have a surprising amount of common ground. Talking with wet divers on a beach will be more productive than chatting over martinis in a cocktail lounge—the bar-bound diver may really dive only when his stool tips over.

If you're still satisfied with your course after the comparison, then give it your stamp of approval. If not, and the others don't seem to fit the bill either, then let your fingers do the walking. Knuckle through some sources of local diving information like the Yellow Pages, the newspaper classifieds, and the dive club or council periodic publication. Courses showing up in any of these have at least attracted enough customers to afford the advertisement, though that in itself does not guarantee a quality course. In fact, certain advertisements—those offering two courses for the price of one—almost guarantee the opposite, because half the



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students in the course aren't keen on being there. They were dragged along by a buddy who wanted to pay half price for *his* course.

To separate the wheat from the chaff, to find the course and instructor who can and will meet or exceed your standards, phone up and ask the ones who advertise most about their training. Before dialing, however, prepare a list of questions you feel could help differentiate between courses, or you might be caught off guard and be misled by sales pitches of warm, clear, tropical waters and moonlit nights.

Should the big advertisers not give you satisfactory answers, continue shuffling through the sources to smaller listings for those who may be less ostentatious but possibly more appropriate. Compile all your answers and select the most promising courses for further inquiry.

Next you and your prospective diving buddy should talk face-to-face with the instructor. Explore the instructor's philosophies about scuba diving training, objectives to be achieved by the course and your instructor's experience. You should come away knowing whether you yourself would want to be taught by the instructor; if your buddy at this point feels comfortable, then take the plunge. If not, then take one more investigative step to clinch the decision.

You and your buddy should sit in on a class session being conducted by that instructor. Watching him or

her in action will certainly give a real indication of attitude, capability, knowledge, organization, professionalism and sensitivity. In an hour or two you'll both know whether or not the instructor can do the job.

Finally, your buddy's intuition about the instructor may, on final analysis, be the most significant of all issues. If your prospective buddy for any reason feels uncomfortable about the instructor, then you must move on to other choices. Intuitive feelings cannot be disregarded. And once your buddy makes the choice, step back and let the instructor take over. It's no longer your show. If you continue to bird-dog the course, you'll degrade the product. Get out and trust the choice.

Encourage your future buddy to get in shape to handle the physical effort, sometimes well beyond the capability of a sedentary worker. An aerobic swim or finning program is best, but a good running program is an excellent substitute. Get your buddy psyched up to plunge into diving with both fins, so to speak, to participate fully in all phases of the learning experience with study, prompt attendance, an inquiring mind, practice and a positive attitude.

With both of you working intelligently on finding and finishing a good scuba course, your diving careers should easily be full of super buddy dives.

Facing Up To Dive Club Liability Issues

Who Pays When A Member Gets Bent ?

Roy C., a new member of a dive club, signs up for the group's first wreck dive of the year. On the boat, the divemaster asks member Bart if he will buddy with Roy. Roy has not yet bought himself a knife, and Bart lost his knife last week and hasn't replaced it. All goes well for the first 40 minutes of the dive, but then Roy becomes entangled in nylon monofilament line which abounds on the wreck. Roy cannot free himself, so Bart goes in search of other divers, bringing back Joan and Ellie. They free Roy with Joan's knife, but Roy is already out of air and unconscious. After they bring him to the surface, Ellie, a nurse, attempts in-water resuscitation, causing a delay in getting back to the boat. Despite further tries at revival, Roy becomes a diving statistic.

Upon consulting an attorney, Roy's wife becomes litigation minded. The suits begin to be filed. And who might be the defendants? The club itself is first, although with no insurance and only a modest bank account comprised of dues, the incorporated club is not the most juicy litigation target. Probable defendants might then be the club's president, secretary and safety officer, who accepted Roy's fees without a thorough check on his diving experience. (The "P.A.D.I. course" listed on his application turns out to have been

a two-hour resort session in the Bahamas.) Next may be the club's newsletter editor, who billed the dive as one "safe and suitable for beginning wreck divers." Also on the list may be the divemaster, who may or may not have known the wreck was festooned with fishing line, but neglected to mention it—or to remark on the lack of a knife on either diver. Bart is also named a defendant, charged with "abandoning" a buddy who was trapped and low on air, as are Joan and Ellie, for their ill-fated rescue attempts. And on and on.

"Ours is a litigious society these days, and any litigation even if unsuccessful could threaten the existence of a nonprofit club and cause severe financial hardship to individual members, even ones who had not been anywhere near the accident scene."

A hairy tale, but a fairy tale, many would say. Yet compoundings of such problems as those in this fictional incident may be implicated in many diving accidents, even among experienced divers. Dive clubs must face up to the risk of exposure to litigation in the event of accidents, especially when newly certified

divers may be active in their programs. Ours is a litigious society these days, and any litigation even if unsuccessful could threaten the existence of a non-profit club and cause severe financial hardship to individual members, even ones who had not been anywhere near the accident scene.

Precedent-establishing court cases resulting from accidents on dives sponsored by nonprofit clubs are difficult to locate, although word circulated last year of a case being filed against a club in the mid-Atlantic region. That case caused the New York City Sea Gypsies, Inc., one of the metro area's largest dive clubs, to seriously consider the Club's potential exposure to litigation. It was also at about that time that two club members had the dismal experience of locating the body of a lost diver (not a colleague) whose drowning they believed had been caused in part by a crotch strap fastened improperly, rendering her unable to ditch her weight belt.

An attorney who was a member of the New York club speculated that any injury might create legal risk for a club or its members under at least two legal theories—first, that the injury was caused in part by another member's negligent act or omission (one type of a "tort"), and second, that the injury arose out of a breach of contractual obligations (actual or implicit) owed to the victim pursuant to his payment of dues. While both incorporation and the lack of assets (such as a dive boat or a compressor) may offer some protection against exposure to a club itself, the consequence is increased risk to individual members.

In their attack on the problem, the club first examined the nature of the group itself, and considered the possible option of reorganizing and reincorporating as a purely social club, some of whose members "might just happen to get together and dive occasionally." In this case, the group's "safety committee" and all diving rules would be done away with, and the club itself would not sponsor any organized diving. But it was thought that this might be questioned if there ever were a court case. Additionally, and more importantly, the club wished to retain its strong "reason for being"—to welcome all certified divers and offer activities appealing to various levels of experience.

That "reason for being" made for the rejection of another option for club redesign, which was to turn the group toward a very formal, authoritarian organization, accepting only very experienced divers who would be willing to dive under such restrictive rules that dives might take on the nature of a military exercise.

What, then, of the question of "rules"? The club had always operated with some simple safety rules, which were usually followed more because they made basic diving sense than for their "rule" force. While some members had been asked to leave the group for questionable diving behavior, such cases had been few. And while the rules stated the need for dive plans and certain equipment, no one was ever denied diving based on a divemaster's decision that planning or gear was inadequate.

In framing new rules, there was concern in the group that all rules be truly enforceable. Some of the members who were attorneys pointed out the possibility that negligence might be alleged if a diver involved in an accident could be shown to have been in a state of rules violation known to others present. The new rules therefore have none of the "thou shalt always dive with a pressure gauge" nature. They now speak mainly to membership preconditions, divemasters' limitations and obligations, and policies regarding minors and other nonmember diving guests. The new rules spell out the club's belief that responsibility for good diving practice, equipment, etc. is the sole province of the individual diver. Also stated is the policy that while he may be provided by others with information and assistance, the diver alone must make decisions regarding when and how to dive.

The diving factors of the earlier rules were not forgotten, however, and are being built into a set of "recommendations for safe diving practice." The new guidelines will take into account many diverse opinions on the proper use of dive tables, safe depth limits, need for redundant systems and a host of other issues. The guidelines will be clearly presented as being purely advisory in nature, and not as mandates which the club is prepared to accept responsibility of imposing on any diver or group activity.

The club also tightened up its membership processes. Applicants must submit evidence of valid certification. While a "check-out" dive was always required, that evaluation tool is now more structured. The report of the dive must undergo review by a six-member safety board, and, in the case of any uncertainty, the prospective member must make at least one additional closely supervised dive.

Another key step in the club's actions was to draw up a club "agreement" to be signed by applicants and by each member annually as a precondition for membership. The agreement replaces the former, very broad "waiver" contained in the initial application, but it has important differences from the old waiver.

John C. Fine, attorney, instructor and himself an adviser to a dive club, wrote in a recent issue of *Undersea Journal* on the topic of legal aspects relating to diving instruction. Fine points out that most lawyers agree that waivers of liability for physical injury are against public policy in many jurisdictions and have no effect in law. "The philosophy behind these provisions is the protection of the general public against unconscionable contracts that cause them to sign away important rights," Fine maintains. While insurance companies and attorneys realize that waivers are generally of no binding legal value, their use is nevertheless supported on at least two theories—a waiver informs the party of the risk, and it may be of some help in settling the case, says Fine.

Lawyers who were members of the New York club also advanced the belief that a carefully drawn waiver might even lessen the chance that a suit might be undertaken against a club or its individual members in the first place. And, of course, there is the possibility that in favorable circumstances a sympathetic court might

In January we published an article critical of the efforts of three sport divers who had removed a propeller from the sunken U-352, a German submarine frequently dived by East Coast sport divers. One of those three, Fran Gibel, responded to our article with a four page letter, from which we wish to quote pertinent parts of general interest to the issue of sport diver salvage.

"Some time ago I helped the Smithsonian Museum document 16th-18th century artifacts salvaged from many classical wrecks. I was witness to hundreds of pieces of salvage that someone (with proper credentials), at some time, considered to be of historical import but are now simply lying in large, dark drawers, taking up space. These items have been seen by a mere handful of people. Yet, because they are not considered to be exceptional pieces (the museum has only a finite amount of display space), they will remain closeted as the Smithsonian, by law, cannot get rid of them.

"By the same token, a number of the most popular artifacts at many museums are those which were donated by individuals who obtained their artifact in a nonmercenary way. They did not go searching specifically with the goal of making money, and certainly had no investors who expected a return from profits. This is when a wreck may be raped. Everything possible is often removed and, not only is nothing left for the average sport diver to find or to look at, but often sport divers are even *forbidden* to simply dive on these wrecks while the salvage operation is ongoing and sometime ever after.

"Umpteen wrecks have been visited previously by sport divers who came to "observe." But I challenge you to show me *one* sport diver who didn't take an easily accessible porthole or other piece of wreckage that they found interesting or felt would look pretty in their home. (However, I have never heard of anyone taking something off a "protected" wreck—and I hope I never will.) One of the great thrills of our sport is discovering and obtaining a unique artifact. That's a *known* among wreck divers.

"Are you aware that the day the Kennedy Center opened in the District of Columbia, many pieces of its red carpeting were *cut out* by people to take home as souvenirs? And wasn't it strange that many more rocks than were necessary for scientific investigation were brought back from the moon? And look at the thriving antique & collectible market—with much of the trading done in the "black market" arena. Such is human nature. I do not condone illicit behavior, but let's keep the factors in our equation equal.

"Your intimation of Mr. Bluett as a savage wreck raper is totally inaccurate—he has probably worked on far fewer pieces of wreckage than most other wreck divers. Instead, he saw a fascinating challenge, an underwater engineering/salvage puzzle with a rewarding end product, and proceeded on those grounds until completion.

"Mr. Bluett, Mr. Caulk and I firmly believe in the conservative ethic. We honor and practice this ethic wherever it is legally mandated *and* where our consciences behoove us to do so. We believe in keeping our wreck sites diveable and in decent condition—but—we also do not wish to take the fun out of diving."

Notwithstanding Gibel's points, we still find ourselves annoyed with sport divers who indeed cut up wrecks for their own personal enjoyment, and who eventually leave nothing more than a pile of rubble for those divers who follow. We suppose it is human nature to play "finders-keepers," but for the kicks of three divers here and another three there, the thousands who follow get junk. We hear arguments similar to Gibel's from people who collect live shells and tropical fish, and we don't condone those efforts either.

uphold even a general waiver.

Different from a broad waiver is a "statement of understanding," the term used by Fine. Such forms contain cautionary language which informs a person of certain inherent risks in situations (such as diving) and require him to acknowledge in writing this understanding. Not only does an agreement act in an informing way, it can help in the process of any litigation—if it can be said that a person's claimed injury was a result of an anticipated risk which the diver had consciously and expressly assumed responsibility for.

The "agreement" adopted by the NY club incorporates aspects of a "statement of understanding" within the context of a limited waiver. In the hope of improving the chance of the release being found valid in legal terms, the scope of negligent conduct with respect to which liability has been released has been reduced.

Covering both sides of a legal page, the "agreement" is imposing-looking, yet the document has been framed in a "plain English" style which makes it clearly understandable. By terms of the form, the member affirms his comprehension that diving involves exceptional risk, a risk which he voluntarily assumes, and that he releases all "cosigners" and the club from liability for certain negligence associated with actual diving. The member also acknowledges that there may exist diving practices or rules which others might consider necessary, but which have not been adopted or enforced by the club. The member indicates understanding that there may be situations in which information on the difficulty of a dive or on marine conditions, etc. might be lacking or misleading, and that he alone must decide whether he considers a diving situation (including any proposed buddy) to be acceptable to him.

The agreement also details some rather specific in-

stances in which the buddy system may not operate up to idealized expectations, and it requires the member to release from liability for negligence any buddy or other diver who may attempt to help him in an emergency situation. The document therefore is designed to provide "good Samaritan" protection to divers who might otherwise be reluctant to become involved in rescue operation.

Attorneys in the New York club acknowledge that such an agreement may not be the last word in protection for nonprofit groups, but believe that given the current uncertainties regarding dive clubs, the document which evolved was the best available option for

the circumstances of this particular club. Such an agreement may not be appropriate for all groups, but it would be prudent for all nonprofit clubs to examine their policies regarding waivers and releases along with all other related factors of club rules, policies and membership practices. Whatever forms of protection are chosen, there may be problems with legal validity, and each club should weigh its own risks associated with its operations with the help of competent legal counsel in its own locale.

The author, Ruth T. Jacobson, is a professional writer and a member of the New York Sea Gypsies.

Two New BC Designs

The Sequest Seajacket, The U.S. Divers' Otter

To a diver walking into a dive shop perhaps the most striking changes in equipment during the last few years can be observed with a quick glance at the array of buoyancy compensators. A number of unique designs have been developed in the last few years and perhaps the single most successful design (and a prototype for others) is that first marketed by Scubapro—the Stabilizing Jacket. The jacket design, now covered by many divers, offers (at least in most cases) upright flotation, maximum comfort and relative simplicity. Many companies have attempted to replicate the design, but because of Scubapro's patent, none can duplicate it.

We recently tested two new wraparound BC designs: the U.S. Divers' Otter and the Sequest Seajacket. Both have flotation bags or air pockets running up the back (alongside the tank) over the shoulder and down over the chest. Both are double bag construction; an inner bag or air bladder is covered by a protective bag. There, however, the similarities end.

Underarm Flotation: Beneath the armpit on the Otter is a side panel which is not inflatable (as is the panel on the Scubapro Stabilizing Jacket), which connects the front and back flotation panels and holds the BC in the desired "jacket" shape. There is no flotation or connector beneath the arms on the Seajacket. The Seajacket has no panel (and no inflation) but adjustable straps allow the jacket to be individually fitted.

Oral Inflation: Both have oral inflator hoses on the left side but the Seajacket hose, which is fitted with the power inflator, has a unique dump design. Simply pull the hose down slightly and the air in the BC is dumped from the top of the hose.

The power inflator hose for the Otter wraps around the diver's right side (from the tank) and attaches directly to the jacket itself. The dump mechanism is located just below the power inflator connection on the right side and is activated by a trip lever. By separating the power inflator (where air enters the BC) from the

oral inflator hose (from which air is exhausted) there is less likelihood that a diver will confuse the buttons and, for example, inflate the BC when his intention was to deflate the BC. This configuration requires both hands for operation, a problem for photographers and other divers who wish to use the right hand for other purposes. The decision between increased safety or convenience is a matter of personal choice.

Over-Pressure Relief Valve: The Otter over-pressure valve is combined with the dump valve located on the right shoulder. The Seajacket has a separate over-pressure valve located on the lower right side of the back of



THE U.S. DIVERS' OTTER

the jacket. The placement seems a bit odd. We were bothered by the location because the valve is invisible

to the diver making it impossible to observe whether it leaks during the course of a dive.



THE SEAQUEST SEAJACKET

Pockets: Both units have a general purpose pocket on the left side, an advantage which most divers find useful. The Seajacket has a second pocket on the right side to hold an octopus, second stage regulator.

Backpacks: The Seajacket can be used with any backpack on the market, but the manufacturer recommends that the diver use the standard shoulder straps on that back pack to carry the tank. This eliminates a major advantage of the jacket design—the elimination of straps. However, sleeves sewn into the shoulder area through which pack straps can be threaded, reduce some of the complexity.

The Otter comes with a backpack. No additional shoulder straps are required; the jacket configuration of the Otter supports the tanks.

"Generally both jackets worked adequately. Our divers struck a variety of positions underwater and neither unit held air pockets or created unnecessary shifts or resistance during rolls or other underwater maneuvers."

Both jackets have one buckle around the waist, but the Seajacket also comes with a crotch strap.

Putting the Jackets to the Test: Generally both jackets worked adequately. Our divers struck a variety of positions underwater and neither unit held air pockets or created unnecessary shifts or resistance during rolls or other underwater maneuvers. With moderate inflation, underwater or surface swimming was relatively easy. While retaining their weight belts, our divers, after inflating the BC's, were pulled to the surface and held in an upright position, with heads out of the water.

The Seajacket, however, does have one significant liability. Once our floating divers, with inflated jackets, dropped their weight belts on the surface, they



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did not maintain their upright position. Rather they were tipped slightly forward to a face down position. The Seajacket literature and the data printed on the jacket itself explains that this position can be affected by the position of the tank, changes in tank weight, or the absence of a weight belt, but these explanations may not be enough in an emergency. A flotation device should always keep a diver's head out of the water. A device that doesn't—in this case the Seajacket—does not maximize diver safety.

Our divers found it easy to operate either unit underwater. The Otter squeaked a little when being inflated, but that minor annoyance was not observed on the surface. Our divers did not adjust quickly to using their right hand to press the inflator, but after a dive or two we have no doubt the effort would become second nature. Connecting the Otter hose to the vest was simple; the hose slipped easily into the hole on the vest. The Seajacket connection was a bit more difficult; the hose had to be pulled back, slipped into place and then released. The Seajacket inflator needed some effort to activate, but when our divers switched from the normal technique of using pressure from the thumb and one finger to keeping the inflator in a full fist, it became easier to operate.

The Otter, our divers observed, shifted a bit because of its relatively loose fit. The Seajacket, because of the additional backpack straps to carry the tank, stayed firmly in place. Of course the shifting of the Otter could be eliminated if one used a backpack with straps, but because there were no sleeves for these straps, there was still some movement. Without the straps, however, toting a tank with the Otter was more comfortable than with the Seajacket. The weight seemed

more evenly distributed.

The crotch strap on the Seajacket helped keep it in place; the Otter has no crotch strap. Divers might care to add their own to reduce the shifting problem.

Prices and Sizes: As we have come to expect of flotation device prices, the list price on these two models is outrageous. Suggested retail for the Otter is about \$250; the suggested retail for the Seajacket is about \$235. Both, however, are frequently discounted. We found the Otter for as low as \$170 and the Seajacket for as low as \$180. It clearly pays to shop around.

The Otter comes in two sizes: large and small. The Seajacket has three models: large, large sans octopus pocket, and small.

Our Recommendation

Because the Seajacket fits more firmly and doesn't shift or ride up, most sport divers will find it a bit more comfortable and utilitarian than the Otter. Because, however, the Seajacket does not float a diver face up without a weight belt, we find it difficult to recommend. A diver should not purchase a flotation device simply because it is slightly utilitarian while foregoing the ultimate safety aspect—ensuring that he lives through a potentially serious accident.

Finally we must note that the most preferred flotation device on the market is the Scubapro Stabilizing Jacket. Nearly every manufacturer has tried to replicate its performance, but none has succeeded. If price is no barrier, then that's the device to turn to. But where price is an issue—as it is with most of us—then the Otter will do just fine.

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