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THE PRIVATE, EXCLUSIVE GUIDE FOR SERIOUS DIVERS

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The *Okeanos Aggressor*, Cocos Island, C.R.

-- 36 Hours To The Chamber

Dear Reader,

The high-voltage diving at Cocos Island, Costa Rica, is not new to Undercurrent readers. What is new is the boat, the luxury diving yacht Okeanos, now of the Aggressor Fleet. Our reviewer returned from an April trip with this report:

C.C., travel editor

My ten-day sojourn aboard the Okeanos was marked by close encounters with many of the most fascinating and fantastically large beasts of the deep: hammerheads, white-tips, marble rays, turtles and great masses of fish. But the down side of the trip was a dramatic near-tragedy, spelling out an ominous warning for computer-dependent divers not only around Cocos Island but also in all exotic dive sites where there is both a powerful temptation to dive deep and an absence of pressure chamber access.

Originally designed as a research vessel, the Okeanos was converted to a luxury yacht before finding her destiny as a liveaboard dive boat. During my guided tour, I looked at my partner with astonishment: a dive boat with staterooms equipped with all the space I could possibly need for belongings: a large and comfortable lounge complete with TV to watch videos of the day's dive, a pleasant separate dining-room, individual bins for all my gear, ample space for photographic equipment on deck; an outdoor bar with table space for post-dive revelry, writing or additional photographic tasks; an extensive sundeck on the third level provided with lounge chairs and a hammock! It was far beyond my ordinary acquaintance of dive boats.

The Okeanos is under the direction of Ray and Paula Gates, divers with

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extensive experience in Australia. Their style is low-key, but their warmth is genuine and their knowledge of diving, photography and the general area is considerable. They are admirably assisted by a helpful and friendly crew.

The food was good, if not wildly imaginative. Breakfast took full advantage of the tropical milieu, starting with mango, pineapple and papaya, followed by full breakfast fare. Lunch was a variety of salads and do-your-own sandwiches, amplified by leftovers from the chicken, fish or steak dinners. Slices of watermelon were always available as post-dive snacks, along with cookies, crackers and, frequently, fresh sashimi. On some trips lobster is allegedly served, but no one on our trip was into lobster hunting -- there were too many exciting things to see and photograph.

And then there is the diving. I need only quote from previous Undercurrent readers and reviewers: "The marine life is so undisturbed that I had the sense that I could have been diving here centuries -- or even eons -- ago. Sharks were present on every dive. They were predominantly white-tips, but I saw schools of similar-sized hammerheads numbering up to ten or so. . . . Reef fish include large schools of beautiful black and yellow tangs, banded angelfish, grunts, squirrels, wrasses, blue butterflies, yellow puffers, trunk fish, turtles." (Nov.-Dec. 1983) "Big sharks and a bevy of large pelagics -- mantas, whale sharks, eagle rays -- were evident on every single dive. So were schooling hammerheads. . . . Large schools of jacks and tuna were always around." (Nov.-Dec. 1986) "At Shark Fin Rock I dived a lovely seamount, surrounded by tropical fish so unaware of the differences between divers and fish, they never moved away. There were fish in clouds: triggers, butterflies, trumpetfish, and scores of three-foot white-tip reef sharks. I swam under an arch filled with yellowtails and a couple of small cruising white-tip sharks, but then, in the distance, four hammerheads began a slow approach. They would come no closer than 30 feet, then disappear back into the blue, only to reappear again and again." (May 1988) It was uncanny how precisely these earlier descriptions pinpoint the identical experiences of my own dives in April, 1989!

But there are certain corollaries of this wonderland, ranging from the inconvenient and irritating to the brutally grim. The magnificent amount of life around Cocos exists in large part because of powerful ocean currents surrounding the island and bringing in, up and around an enormous supply of plankton. The visibility is accordingly diminished, mostly between 50 and 75 feet during my trip. And the surge and currents can create a real witches' brew of forces on the hapless diver. It's not easy to compose an underwater photograph, let alone bracket, when one is being flung savagely back and forth and up and down. Depending upon your point of view, it is exciting or frightening. Or now and then both.

On my first dive it was frightening. Ray had mentioned -- too casually, I think -- that there were not only horizontal, but vertical currents, along with the frequent surge. And indeed, on the first dive the current was strong enough to leave my feet streaming behind me as I clung to the barnacle-laden rocks. In

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How To Get Aboard When Your Boat Is Booked

With the boom in liveaboard travel, some of the most desirable boats are nearly impossible to get a bunk on. If you try to book the *Okeanos*, you'll learn that with the exception of a few spots the boat is booked through 1990. You'll get similar stories for the *Belize Aggressor*, the *Telita* in Papua New Guinea, and many others.

But all is not lost. With the right approach you can secure spots on these boats, and others.

Many if not all of the popular dive boats have been booked in advance by major travel wholesalers, dive shops, photographers running specialized trips, or groups of friends. Those who charter boats pay a flat rate (e.g., a boat that holds 16 gives a week for the price of 10 or 12 or whatever). Once wholesalers make the number, every additional diver is money in their pocket so they want full boats booked in advance and want to protect against cancellations.

Some boats, such as those of the *Aggressor* fleet, have their own booking office to book weeks that are not wholesaled. If you can't get a spot when you want it, request standby. Name specific dates and if those dates are not available ask for suggestions for dates that might come available.

Ask for the name of the agency or person who has chartered the boat. If they won't provide it -- and the *Aggressor* fleet won't -- ask them to contact the charterer of the boat. Jill Haynes, *Aggressor* reservations manager, told *Undercurrent* that "we will notify the charterer and enter you on the waiting list. If the charterer tells us he needs help to fill the boat, we contact those on the list in the order we receive them."

Most of these charterers are major wholesale operations that run trips on the popular boats. They have their own customers so often they don't need help from the booking agent. Although you may get referred to a dive shop that has chartered the boat, you may not make any headway with the chartering agencies unless you are on their lists as well.

The charterers are bona fide travel agencies such as Adventure Express and Sea Safaris. They advertise nationally and publish brochures on their trips. They sell their spaces directly or through other travel agencies and dive stores. They offer side trips and other frills. For the same craft, their prices are generally within 10-20 percent of each other.

If you are looking for your first trip, shop around. If you are a repeat customer you have two

choices: building rapport with the agency of your choice or continuing to shop.

If you are trying to get space on a popular boat, you'll have the best luck if you're a loyal customer. As Debbie Baratta of Adventure Express told us, "repeat customers get more from an agent because they are already a proven customer." And "more" can mean the extra effort required to secure spaces on booked boats.

If you're shopping around for certain dates, a certain boat, or the best prices, let the agency know. It will give them a chance to make their best effort. They want your business. Have a specific boat in mind and a range of dates. If you're not specific you'll come across as if you're only fishing for information and insincere about traveling, so you may not get the service you want. Ask to speak with someone on the staff who has been to the destination or who has been on the boat. List your requirement and mention if you are using frequent flyer passes. Check the competitiveness of the airfare, side trips, etc.

If you get that special spot on the tough-to-get boat, remember the agency that did the job for you. Most people are best satisfied, even if it costs them a couple of extra bucks, by sticking with one supplier -- unless that supplier just can't perform. By building rapport with a specific person in the agency, you can guarantee yourself a friendly ear when you call for the next trip.

Finally, keep your eyes on *Skin Diver* and *Underwater USA* ads, including the classifieds. From time to time you can find groups other than the wholesalers advertising spots on the popular boats. And don't forget dive shops in your area. Many have entered the travel business with great gusto and are offering several liveaboard trips a year.

The major wholesalers:

Aqua Trek: (1-800/541-4334; in CA 1-800/826-0057)

Adventure Express: (1-800/442-0799; 1-800/443-0779)

Go Diving: (1-800/328-5285).

Poseidon Ventures Tours: (1-800/854-9334; 1-714/644-5344).

Sea Safaris: (1-800/821-6670; in CA 1-800/262-6670).

See & Sea: (1-800/348-0842; in CA 1-415/434-3400).

Tropical Adventures Travel: (1-800/247-3483; 1-206/441-3483).

no time my buddy and I were separated and at 80 feet I found myself propelled both up and down and back and forth, all alone in the depths -- except for the sharks and rays. Being swept wildly up and down gave me visions of instant embolism. So I clung frantically to any outcropping I could get hold of. (At one point I missed the outcropping and grasped a handful of sea urchin spines instead, some of which are with me to this day.) I clawed my way up the side of the island on the theory that if I was going to get caught in a vertical current, I'd better get as near the top as possible to minimize the possibility of being shot to the surface from a significant depth. I surfaced out of sight of any human life, but in moments I was sighted by the skillful inflatable driver who zoomed over and scooped me up. In calmer moments, I realized that the horizontal see-saw was surge rather than current and that I had not been in danger of being shot 60 feet to the surface. On subsequent dives I relaxed, letting the current move me as it would, knowing I could trust the crew to find me quickly, however far I had drifted.

My best dive was with Paula, during which she showed me the technique she and Ray had advocated for all divers: find a spot relatively protected from the current and sit and watch, letting THEM come to you. At 70 feet, we spotted a cleaning station for whitetip sharks. Not only did the sharks wait patiently to be serviced by their smaller contemporaries, but several marble rays undulated by and a large turtle made the scene. We finished the dive in 20 feet, checking out lobsters, octopus and smaller critters.

It is the extreme isolation of Cocos Island, however, that may constitute the ultimate danger. The nearest recompression chamber is at the American military base in Panama, and thereby hangs a tale.

Our diving was done from inflatables, allowing divers to get near the smaller islands, rocks, seamounts or whatever before somersaulting into the water. We made three dives a day, and on the last dive of about the third day, a young woman who had been fighting the current surfaced next to the inflatable, grabbed the side and exclaimed, "I can't feel my leg!" (She later described the sensations in her leg as being like violent muscular contractions though with no visible movement.) Ray and the driver instantly pulled her into the inflatable in a head-down position and shot back to the Okeanos, where she was kept in a head-down position and put on oxygen as quickly as possible. Within a short time her symptoms were mitigated.

Meanwhile, Ray and the injured woman's husband began a complicated process of establishing radio contact with DAN, the Okeanos owner, and whomever else was deemed necessary. The rest of us did what we could to be helpful or at least keep out of the way. Somewhere between one and two hours later, Ray announced three possibilities: one, that the Okeanos would return as quickly as possible to Puntarenas (a trip requiring a minimum of about 30 hours); two, that we would rendezvous with the Costa Rican Coastguard en route; or three, a helicopter from the American Military Hospital in Panama would come to Cocos to pick up the injured diver. By the next morning, the word was that the military helicopters (they travel in pairs) were coming. But what with having to stop and refuel in Costa Rica first, they were ultimately not able to make it till that evening,

Okeanos Aggressor:

Diving for Advanced	★ ★ ★ ★ ★
Diving for Beginners	stay home
Live aboard accommodations	★ ★ ★ ★ ★
Live aboard food	★ ★ ★ ★
Moneysworth	★ ★ ★ ★ ½

★ poor, ★★ fair, ★★★ average, ★★★★ good, ★★★★★ excellens

about 36 hours after the hit had occurred! The oxygen was of enormous help, but had more immediate repressurizing been vital to her survival, she would have died. As it was, the neurological examination in Panama revealed a pronounced weakness on her left side which was relieved by additional chamber treatment.

The diver's problems were not over when she was released from the hospital. She and her husband were precipitated into an international political turmoil. Panama's presumably fraudulent election was imminent, anti-American paranoia in Panama was rampant, and the last thing the State Department and the Canal Commission wanted was to be stuck with two mysterious Americans who would almost certainly be branded as spies! The two ultimately got back to Costa Rica by a combination of luck and fortunate personal contact. But the Military Authority in Panama will not soon again countenance such a diver rescue operation.

Among the divers aboard, opinions differed on the efficacy with which this accident was handled (divers might have felt better about it had they been kept informed of the decision-making process). But at least two conclusions seem warranted. Diving at any isolated destination should only be undertaken with the understanding that if one should be hurt, one is simply at the mercy of fate! You can check ahead to learn if your boat or resort is equipped with oxygen and if the crew is trained. But given this, it is sensible to limit the depth and number of daily dives. On our trip, a great deal of diving to depths of 140 feet or more seemed to be the rule, with divers frequently going as deep on the second and third dives as on the first. Their computers permitted it . . . as did the Skinny Dipper used by the diver who got bent. Incidentally, I was amazed by the amount of smoking among a majority of the divers (including the injured one) on the trip. Are those drawn to the more challenging forms of diving disproportionately prone to jeopardizing their health in other ways?

Summer Reading

Tim Cahill, a columnist in *Outside* magazine and a contributor to *Rolling Stone* and *Sport Diving*, has put together two paperback collections of his stranger-than-fiction experiences. Parodying the old adventure stories that appeared in "Action for Men," and "Amazing Men's Stories," Cahill's "Jaguars Ripped My Flesh" (Bantam, 1987) has several super diving tales among the thirty Cahill adventures. He cave dives in Satan's Sink Hole, shark dives with Jack McKenney off the Great Barrier Reef, and tipples with a lady shark handler filming *Zombie II*. Though the diving stories have special appeal, I found nearly all of Cahill's stories fascinating. Whether he is having drinks with Aborigines in Australia, meeting with jungle hermits in South America, or investigating phony turtle conservation in Mexico, Cahill keeps the armchair traveler on the front line of adventure.

In his latest book, "A Wolverine is Eating My Leg" (Vintage Departures, 1989), he gets stranded in the Marquesas Islands, struggles through vertical caving, and visits Dian Fossey's camp for gorilla research in Rwanda. His visit to Guyana and the aftermath of the James Jones massacre is indeed chilling and his enrollment in a Southern California religious cult indeed revealing.

Cahill, a great adventure writer, never explores the ordinary. An intelligent, thoughtful and humorous journalist, he never loses sight of his main goal: always providing a good read.

And though it's not about diving, Donald McCaig's just-released novel, "The Bamboo Cannon," is a robust Caribbean tale, heartily sprinkled with the dialogue, the feel and the spirit of the local folk. A snotty American yuppie spins through a wild St. Thomas carnivale, only to find herself aboard a sailboat headed for Dominica. The captain is hell bent to get there to steal back an airplane he believes is his. The wild sail through a hurricane as tough as Gilbert and the mini revolution in the streets of Dominica is all fun and thrills for the summer reader. ("The Bamboo Cannon," Donald McCaig, Crown Publishers, hardbound only.)

[Eds note: Chris Wachholz, the assistant director of DAN, said that it is complicated and difficult to set up an evacuation in a remote part of the world.

For such an incident even in Roatan, he told Undercurrent, "it would take 24 hours to get someone off the island.]

Organizing a trip on the Okeanos requires months of advance planning. You see, there is only an odd space available here and there through 1990, but people cancel, so keep hammering away (see sidebar). Plans are underway for another Aggressor liveaboard.

Other Diving: "The snorkeling around Manuel Antonio National Park (a magnificent tropical set of beaches around the mid-Pacific) permits the viewing of the full range of tropical reef fish, but only when you get nose-to-nose with them. Silt from a variety of runoffs plus an indeterminate amount of pollution from the former United Fruit Company limits visibility to a few feet except for very rare and wonderful days. Further north on the Pacific side in several reserves and parks on the Gulf of Nicoya, the underwater life was spectacular, but the poor visibility was disappointing. A dive at Cahuita National Park on the Caribbean side was at the only mature reef on the Caribbean coast, according to the National Park Foundation. Cahuita is a small, easy-going town peopled primarily by descendants of Jamaicans, most of whom speak English as well as Spanish. The atmosphere is reminiscent of Grand Cayman and Cozumel 20 years ago, with the same pervading spirit of warmth and welcome (even the "perro bravo" watchdogs wag their tails at you with engaging friendliness). The local entrepreneur who arranges all tours, an ex-Canadian named Dennis, found us tanks, weights and a boat dive: a dugout canoe! Perilously narrow and tipsy in the sizable swells, we nevertheless made it out to the reef where getting our equipment on and into the water was a triumph in itself. When we submerged it was like diving in green pea soup. The bottom at 15 or 20 feet was barely discernible, sure enough a true coral reef but heavily buried in silt, the legacy of runoff from extensive previous logging. We were told that visibility was considerably better earlier in the year, but I don't believe that Cahuita's reef will ever rival those of Belize or Roatan. . . . Phantom Island Lodge advertises in diving periodicals, but we avoided it. During the past three years we have received handfuls of letters from readers disappointed with the rugged and primitive conditions. For the time being, it seems that the only way to dive Costa Rica is from a liveaboard visiting Cocos Island.

The sailboat Victoria, a veteran vessel for diving Cocos, takes 2 days to reach Cocos from Puntarenas. A beery old salt in a bar on an island by the mainland tried to assure me that only the crew of the Victoria knew the really good dive sites on Cocos. And Undercurrent reader Donald R. Shasky, M.D. (Redlands, CA) has dived Cocos on five separate occasions aboard the Victoria and says it is "a great remote place with a great bunch of Swedes for a crew!" (Victoria AV Carlstad, PO Box 130, Puntarenas, Costa Rica 61-2139.) The Mystique came to Cocos from San Diego for a few trips last year and will make nine this season, beginning in December. An 84-foot craft, she holds 12 divers and charges \$2,300 for the 13-day trip. One of our readers filed a lengthy report about their trip, indicating that he saw everything I saw -- in spades. In addition, he thought the Mystique was a fine boat, with gourmet food, but noted that the experienced captain, "Doc" White, was difficult to communicate with and even yelled at a few passengers. Other than that, he wrote, it's a super craft. For information, contact White Water Enterprises, POB 6701, San Diego, CA 92106, (1-619/225-0858)

Divers Compass: Ten days aboard the Okeanos is \$1,695. . . . One can fly from Miami or Los Angeles to San Jose; from there it's a three-hour trip overland to Puntarenas. . . . Make sure your chartering agency keeps you informed of all scheduling; one chap had to pony up \$80 for a three-hour cab trip because his

agency did not tell him of a change in the hotel pickup schedule. . . . There is plenty of rainforest touring, river raft running, and other things to do in Costa Rica.

Reports From Our Readers:

Cayman Brac: The island of choice for those who want Cayman-like diving, but wish to get away from the hustle and bustle. Divers usually select one of two hotels for all their eating and playing. After all, the island has but 1,200 residents. The Brac Reef Resort gets continually good marks from our readers. Mike Higgins (Cedar Hill, MD), there last year, says: "A place to get away, no newspapers, no news on TV -- no English radio. Fresh flowers on every dining table daily, great food, friendly, helpful employees, great photo service and tremendous diving!" Laurie Cameron (Waltham, MA) says the diving "is not as good as Grand Cayman East End, but better than Seven Mile Beach. Willingness to go to Little Cayman, weather permitting, 2-3 times/week." Winston McDermott runs Brac Reef Aquatics and although the reviews are a little spotty, generally they echo Gray and Joanne Miller (Houston), there earlier this year. "Diving with Brac Reef was great. Their boat is roomy and dive locations are very close-by. Depending on wind direction, one side or the other of the island is always calm. Beach diving is good but entry can be tricky because of rocky shore." (1-800/327-3825; 1-800/233-8880; 1-809/948-7323). . . . The Tiara Beach is a Divi Hotel with a Peter Hughes dive operation, which means well organized, generally dependable, and somewhat regimented diving. Says Lester K. Sussman (Woodcliff Lake, NJ), "Each of five boats can carry about 18 divers. We never had more than 12 or 14 on our boat. Every type of hard and soft coral imaginable. Sponges are everywhere in every size and color. You can do wall dives, wreck dives, cave dives, shallow dives, deep dives. You can pet the grouper, and feed the angels, or, if you're so inclined, the barracuda." That's summer. In winter, some weeks the seas are rough and people miss dives; bad weather doesn't have far to travel from the U.S. And the place is filled. As Suzanne Leeson and David Vickery (Hoboken, NJ) write: "Dive boats occasionally overcrowded with 20-22 divers plus staff. Disappointed that dive package only included 1-2 tank A.M. dive. All other dives extra." The hotel has grown and not everyone is happy. Until last fall, we had nothing but consistent positive comments, but now, says Karen Suchy (Larchmont, NY), "the hotel has grown to 58 rooms, they are building 12 timeshares. The lines for breakfast and dinner reminded us of being in New York City!" We've had some complaints that the rooms are not being well maintained during this growth. Nonetheless, Divi is a quality operation and if anyone can make a 70-room dive hotel work, they will -- even though some experienced divers will head for more cozy environs. As a plus, the additions include a new dive shop and photo center which Tiara Beach manager David Fineberg tells Undercurrent "will be second only to Bonaire's Flamingo Beach." It will be ready in the fall. (1-809/948-7313; 1-800/367-3484; 1-607/277-3484.)

Saba: Now this is a special place! A short hop from St. Maarten in the windward islands of the Caribbean, only the fortunate few know about it. Saba is a mountain that pops up from the sea, with virtually no beaches, few but friendly people, and a handful of inexpensive and tiny hotels and restaurants. The hotels are high on the hills, so the weather, the hiking and the winding roads are more reminiscent of a Swiss springtime than the tropics. The hotel of choice is the cozy 10-room Captain Quarters, a true Caribbean inn. An alternative, says M. J. Forbes of Fresno, CA, is Juliana's Apartments: "spacious and clean with modern plumbing -- and half the price of Captain's Quarters -- and you can use their

pool. Diving conditions can change in minutes -- this is not placid Bonaire, this is open water with swells and current. Third Encounter is a coral plateau at 110 feet crammed full of every coral and is pristine. You'll be greeted by Sweetlips, a yellow fin grouper, who will meet you at the bottom of the mooring. The colors of Saba, even at depth, are brilliant. Some sites are not as exciting as others, but one sees LARGE tropicals, many turtles and eels and lobsters." Sea Saba has been the operation of choice for several years and gets continuing good marks. (011-599-42246; 1-800/328-5285) Says Donn Ard (Nagadoches, TX), "Lou and Jean Bourgue and all hands at Sea Saba the very best. Diving uncrowded and coral unbroken. Spectacular pinnacle dives. Saba not for everyone and impossible to reach in one day from anywhere other than the east coast. But if you want to 'get away from it all,' enjoy blending in with people with a fascinating history, and have a sense of adventure and romance, this spectacularly scenic mountain island is for you." Writes Jim Stewart (Richardson, TX), "As a part-time resident and frequent diver on Saba, I would like to report that the operator of Saba Deep, Ed Arnold, died last year in a reported dive accident. An experienced dive shop operator from St. Maarten, Mike Myers, purchased Saba Deep. (011-599-43347) Now Saba has two first-class professional dive operations that operate within the new Saba Marine Park." But, what's this? Says David Day (NYC), "Watch out! The hotel Scout's Place is 1,600 feet above sea level. According to latest DAN newsletter, 1,600 feet is enough to cause problems. Now I know what the pain in my shoulder at night was all about."

C.C., travel editor

The Beauchat Aladin

-- Europe's Most Popular Computer

The Swiss-made Beauchat Aladin decompression computer is the most popular in Europe. A small, wrist-worn, compact computer, it conducts virtually all the functions of any computer, with one major exception: there is no warning indicator for too rapid an ascent. That's being altered in a new model just introduced.

Even with its popularity abroad, when we conducted our survey of readers only six percent of the respondents used the Aladin. With only 53 users responding, we can offer no scientifically valid conclusions about the device, but can give a few indications of readers' experiences.

Twenty-eight percent experienced a malfunction during a dive. Two reported getting bent while using the device. Eighty-five percent of the owners said they would buy it again, while 15 percent said "no" or were "uncertain."

The most frequent complaint is that the computer has gone blank during a dive. William D. Booth (Austin, TX) said: "On a 15-foot dive the display was blank when I looked at it about 20 minutes into the dive. I completed the dive and used tables." James C. Brown (Newark, DE) said he experienced a "complete shutdown with no indication of low battery indicator. The unit was replaced at no charge."

A second problem, according to a couple of users, is that the unit scrolled previous dives "without reason." Fred DeBruyn (Ithaca, NY) says, "In cold water continued to scroll through old dives or didn't give any readout at all. I sent it back to the company and they replaced it." Frank McConnell (Northville, MI) says: "The unit started to go into its 'post log' stage then it would no longer function." Bob Guthrie (Goleta, CA) says: "Last time out, I turned it on as usual, but when I got to the bottom at 45 feet, the screen was black. I surfaced, but was unable to get it to come on. On the 2nd dive, it behaved normally."

Robert Quintana, sales manager for Beauchat, said these problems could be caused by any of three reasons: the unit was turned on more than ten minutes prior to a dive; the contacts are not clean; or the battery is low. If these are not the reasons for the malfunction, then the unit needs to be returned.

The contacts, which turn on the meter when the device is immersed, must be kept clean. Roy Parsons (Dunstable, MA) says: "Dive log mode doesn't always work, salt water on contacts makes unit think it's still in water, so it calculates surface interval as *in water* at surface." Danny Rossi (Newark, CA) says, "Oxide film on contacts made it go through sequences of 'log book' before pressure sensor

switched it to dive mode. But now it doesn't happen anymore with careful cleaning." Trip Tucker (Maitland, FL) says, "The contacts need to be washed with detergent to remove salt and oil from your hands. I have had trouble getting it to turn on because of this. Once it is on, there is no problem." James Duquesnel (Key Largo, FL) says the "contact point not always easy to start, and occasionally set off by accident."

"If salt builds up the contacts can be cleaned with ammonia, then dried and sprayed with silicone spray."

Quintana says the contacts should be cleaned with fresh water after every dive, but if salt builds up the contacts can be cleaned with ammonia, then dried and sprayed with silicone spray.

Frank McConnell (Northville, MI) noted that his Beauchat "would always show the wrong depth, i.e., 30 feet instead of 40 feet. Always off by approximately 10 feet." Beauchat's Quintana told us that since the Aladin is calibrated for fresh water, it will read slightly deeper in salt water than actual depth.

This problem might happen if the contacts are not clean, Quintana said, but "this probably indicates a transducer problem and the unit should be returned."

Ray Simon (Alameda, CA) says, "Decompression information for stop depth is apparently in meters; instructions do not address this at all, i.e., decompression stop reads '3' -- surely must mean 3M (10 feet)!" Indeed, says Beauchat's Quintana, a diver could have purchased a model reading meters rather than feet since they make both. It's not possible to get it reprogrammed.

And some minor annoyances. Bob Guthrie (Goleta, CA) says the strap breaks easily and is unduly expensive. "The face scratches easily," reports Gordon Jio of Santa Fe. And Thomas A. O'Rourke, who lives in Saudi Arabia, notes that the battery change requires dealer service. "This is inconvenient when living in remote areas." Quintana said if necessary, owners could indeed change the battery themselves, but would need a soldering iron and great care. "Most customers find it easier to take the Aladin to a shop for this work." Quintana says the battery life is approximately 800 dives -- or five years.

Aside from the few complaints issued by Aladin users, 85 percent of the respondents indeed love their

The Latest On Computer Safety

Orca Industries has just published a ten-page booklet filled with safety instruction for all computer users, not just Edge or Skinny Dipper divers.

In the book, they acknowledge that there is insufficient data about many dive profiles and report some concepts contrary to what the Orca meters themselves show. For example, although the meters allow flying for some profiles in less than 12 hours and for others in 19 hours, they indicate that "some experts now recommend allowing at least 24 hours between your last dive and an aircraft flight, regardless of your dive profile."

They also state that "until more data is available, we emphasize that deep repetitive dives are for experts only." They do not define "deep."

These are other reminders:

- *Sport divers should never do decompression diving and never descend below 130 feet without special training and direct professional supervision.

- *On all dives, stop for at least 5 minutes at 10 feet before surfacing.

- *Do not make repetitive dives below 80 feet unless your surface interval is greater than one hour.

- *Always use an ascending profile on deep multilevel diving.

- *Always add safety margins.

- *Personal limits and computer models or table limits differ.

- *If you violate your ascent rate or ceiling, make no more dives that day.

- *Never begin using a dive computer if you have had dives during the preceding 24 hours.

- *Backup and equipment redundancy is a must.

- *Be prepared for the failure of any piece of equipment.

- *If your instrument ever gives an erroneous reading or other indication of trouble, terminate the dive immediately.

- *You have a slight but real chance of getting the bends or an embolism even if you do everything right.

- *You are responsible for your own welfare.

There is far more to the booklet than just this summary. Send \$2 to Orca for your own copy. Orca Industries, 10 Airport Way, Toughkenamon, PA 19374.

computer. Dr. Bill Stearman (Denton, TX) sums up the feelings of the users who like their Beauchat: "It's the best of all the dive computers -- accurate, small, easy to use -- user-friendly!" And James S. Burrall (Calvert City, KY) says, "The altitude adjusting feature is attractive and seems to be unique. The log feature is also very attractive."

Beauchat is just introducing a new model of the Aladin to the U.S. market that has several additional

features, including both a visual and an *audible* alarm for too rapid an ascent. The Aladin Pro is priced at \$540 for the wrist model, \$650 for the Pro III, which includes a pressure gauge and compass in a console, and \$680 for the Pro IV, with a built-in pressure gauge, compass and thermometer.

Beauchat, 2900 SW 2nd Ave., Ft. Lauderdale, FL 33315. For technical support, call 1-305/523-7242.

Why Divers Die: Part I

-- Panic As The Starting Point

The National Underwater Accident Data Center (NUADC) at the University of Rhode Island investigates and analyzes the diving fatalities of United States citizens wherever they were diving. John McAniff, the director of the Center, has been involved in the collection and analysis of these data for more than twenty years.

The National Oceanographic and Atmospheric Administration (NOAA), the Diving Equipment Manufacturers' Association (DEMA) and the Professional Association of Diving Instructors (PADI) are the primary funding sources. Newspaper articles provide the initial lead on two-thirds of the fatalities. The remainder come from contacts throughout the diving community and public agencies.

For several years, *Undercurrent* has been analyzing these reports, editing and condensing them, and sharing the relevant data with our readers. We believe that by reporting the unique and varied circumstances in which divers die, we all may learn how to become safer as we conduct our own dives.

★ ★ ★ ★ ★

For 1986 NUADC investigated 116 diving fatalities, including 94 sport diver fatalities, 11 occupational fatalities and 11 skin diving fatalities. For 1987, 108 cases were investigated, including 87 nonoccupational, 12 occupational and 9 skin diving fatalities.

Last year DEMA commissioned a study by Diagnostic Research, Inc. (DRI), which estimates active diver population between 2.1 and 2.7 million. Based on these figures, the fatality rate for 1986 is 3.65 to 4.5 per 100,000 active divers. The computation for 1987 is 3.4 to 4.2 fatalities per 100,000 divers.

The population of active divers in the United States has been steadily increasing, while the number of fatalities has fallen off considerably. In 1976, for example, we recorded 147 sport diving fatalities, which equated to a 8.62 per hundred thousand fatality rate at a time when the population of active divers was probably one-third less than it is today.

Deaths by Locale:

For 1986 and 1987, Florida recorded 49 diving fatalities, including nine cave diving deaths. Non-cave diving fatalities in Florida have increased considerably. California recorded 33 fatalities in the two-year period; Washington State 14; Hawaii 9; New Jersey 7; Idaho 6; New York 6; Texas 6; Massachusetts 5; Arizona 3; Tennessee 3; Connecticut 2; Pennsylvania 2; Puerto Rico 2; The Virgin Islands 2.

The incidence of U.S. sport diver fatalities in foreign areas has been highest in Mexico, which since 1970 has totaled 37 such fatalities. Eight deaths were recorded for 1986-1987.

NUADC has received an increasing number of complaints of diving conditions in Mexican waters, especially in Cancun and Cozumel. Among these complaints have been reports of introduction of novice (short resort course) divers to swift currents and deep reefs on early dives, lack of adequate supervision, lack of knowledge or facilities for the treatment of injured divers and absence or lack of ship to shore communications.

Other foreign areas reporting deaths of U.S. divers during the two years include the Bahamas with 3 deaths; Canada 2; the Cayman Islands 2; Belize 2, Honduras 1; and Saipan 1.

Environmental Aspects of Fatalities

Approximately 66 percent of all sport diving fatalities occur in salt water. Diving in fresh water caves continues to be a source of problems for sport divers; 18 fatalities occurred over the two-year period.

Each year, the NUADC receives numerous requests from individual divers for information to help them in their attempts to obtain life insurance. For some unobvious reason, many insurance companies tend to rate divers on whether they normally exceed an arbitrary depth of 50 feet in their diving. The NUADC has found no evidence to support the

What Goes 'Round, Comes 'Round

Some underwater critters, such as the now-deceased Waldo, the moray off Cayman's Sunset House and Miss Piggy, Dive Makai's favorite turtle on the Kona coast, become celebrities.

Once there was George, an enormous and friendly Napoleon Wrasse that our reporter had seen years ago in the Red Sea, but reported missing in our January, 1989 review. Professional photographer Steve Lucas wrote to tell us about George.

"It seems that the Italian Navy was assigned to patrol the region as a part of the UN Peace Keeping task force. Italians, as you probably know, are great spearfishermen. They have done so well in fact that they (and uncontrolled fishing) have managed to kill almost every darn thing that swims in their part of the Mediterranean. Well, when one new patrol crew arrived in the Red Sea, they immediately set out to polish their skills. George was very large and very docile. He'd come up and almost nudge anyone. A real difficult target. George was brought into Sharm hanging from the mast of one of the Italians' patrol boats."

It's rare for a scuba diver to be attacked by a shark, but it happened in Italy in February. Eighteen-year-old Gianluca Costanzo watched from a boat as a shark he said was at least 22 feet long rose from the water to seize his screaming father by the waist and disappear with him beneath the waves. The diver's set of double tanks, weight belt and tooth-marked fins were found later, but the body was not recovered.

The diver was near the surface in relatively murky water. Experts hypothesize that these attacks are often a case of mistaken identity -- the shark is looking for seals, other marine mammals, or injured fish . . . or maybe they seek revenge for a lost relative.

On June 17, while in 100 feet of water 40 miles off the Louisiana coast, 45-year-old Carl Loe had a six-foot sand shark clamp onto and maul his left leg. He punched it in the nose until it let go. Loe had just watched his partner spear another sand shark, this one 150 lbs.

50-foot depth as a demarcation point for rating of life insurance for sport divers. Life insurance can be had for varying prices by shopping around to different insurance companies to locate those that do not use the rating system for scuba divers.

Environmental or weather conditions have con-

tributed to diving fatalities in surprisingly few cases over the years, and these are usually the fault of the diver for not having investigated conditions before entering the water. This is especially true for strangers visiting a new area. An example might be Florida divers who go on vacation in California or Hawaii and suddenly find themselves faced with heavy surf with which they are unfamiliar.

A considerable number of sport diving fatalities have occurred from charter boats, most likely a function of the tremendous growth of the charter business. There is a need to establish standards of safety for such vessels.

Age and Sex Distribution

In our last report, the NUADC noted an increase in fatalities of individuals over 50 years of age. This apparent trend has continued for both 1986 and 1987; 18 percent of the fatalities were over 50 years of age. It is impossible to determine whether this trend reflects an older age group entering the sport or older divers who are diving into their later years.

But the young are not excepted. In 1986, a 12-year-old boy died while diving in 55 feet of water from his father's private boat. In 1987, a 10-year-old boy died in formal training in open water.

Seventeen percent of the fatalities were female.

Starting Causes of Deaths

The starting cause for some cases is impossible to determine. Nonetheless, the NUADC considered 30 cases stemming from possible exhaustion, embolism or panic.

We often hear that panic causes a large number of diving fatalities. It might be better expressed that panic is a stepping stone to eventual air embolism or drowning. Some other events must be present to start the panic cycle: the flooding of a mask, the loosening of a weight belt, a cut on one's finger, the unexpected exhaustion resulting from swimming against current, a sudden storm surge. Hundreds of other possibilities may be the starting factors in a fatality.

A typical scenario might be as follows:

A 19-year-old boy who has recently completed an open water diver certification and has made two or three dives with a friend books passage on a charter vessel to delve the ruins of a fishing vessel in 60 feet of water. The weather is overcast and there is a steady roll to the water, adding to the queasiness of the boy's stomach. On the way to the wreck site, the divemaster chooses a buddy for the boy, a 34-year-old female who has a considerable amount of diving in her expertise.

Upon anchoring, the boy is quiet and sullen while the woman is enthusiastic and anxious to enter the water. The visibility is only about eight feet. As a precaution, the two proceed on their dive holding

hands as they submerge. The usual difficulty with clearing the ears takes a few seconds. By the time they have reached the bottom, the boy's sullenness has disappeared and he has become fascinated by the wreckage. The buddy diver, feeling confident in the boy's new-shown spirit, moves some distance away to the edge of his vision. The boy momentarily panics and moves swiftly after her, at which point he feels he is having difficulty breathing.

His signal to the buddy results in an attempt to place her mouthpiece in his mouth. Instead, his mask is knocked loose, he bites down hard on his own mouthpiece and begins to choke a little on water. On the edge of panic, he reaches to release his weight belt, instead opens the buckle for his dive tank harness. The tank assembly begins to drift away from his back and he begins flailing with both arms and legs while fighting to reach the surface. Panic has now set in. The buddy diver backs off and loses sight of the potential victim. She surfaces, only to find no sign of the boy. Four other divers enter the water, swim to the bottom and find him sitting there with his face looking upwards, no mask in place and the regulator out of his mouth, a classic panic/embolism case.

We have 13 deaths in 1986 and 9 fatalities in 1987 that could not be identified as having had a different probable starting cause than the embolism itself.

A 23-year-old male snorkeler dived down to 25 feet to two friends who were scuba diving. He stayed there several minutes, borrowing air with his friends. Upon leaving the friends on the bottom and coming to the surface, he popped right up out of the water. He threw off his mask and snorkel and went limp. He

had embolized, a result of breathing compressed air then surfacing without exhaling, appropriate only if his initial breath of air had been at the surface.

Alcoholic intoxication was cited as the probable starting cause in at least four cases in the two years of study.

A 34-year-old man died in a marina in San Diego Bay when he intended to work on his boat. He stepped off the swim step with his fins in his hands and mask on his forehead. He was reported to have been wearing 16 pounds of weight and did not have the regulator in his mouth. In less than ten minutes, the body was recovered in 26 feet of water directly beneath the boat. The autopsy found that the decedent's blood alcohol level was .23.

Cocaine contributed to at least three cases over the two-year period. Two deaths were attributable to nitrogen narcosis; in one of these cocaine was a contributing factor.

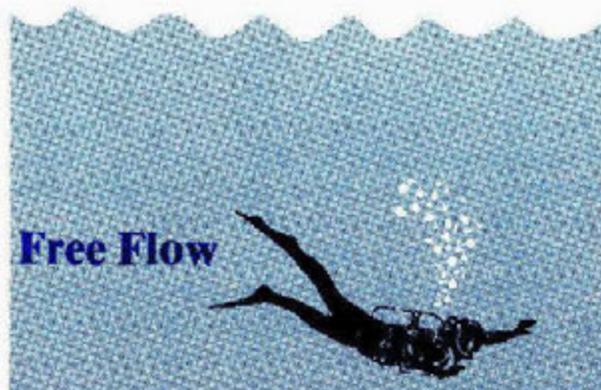
In separate cases, the boat, left empty but anchored, drifted away from the divers. One diver died in each incident.

One death in Hawaii occurred when a diver suffered severe lacerations and fractures of the head and torso from the propeller of a passing boat.

The NUADC found several cases in each of the two years in which the victim was overweighted, though this may not be considered the starting cause of the accident.

Equipment failure is seldom the cause of a diving fatality. The glaring exception is the improper or poor maintenance of a diver's regulator.

(Continued next issue.)



William Lamm was spearfishing near Fort Pierce, Florida in early June, when all of a sudden he found himself on a quarter-mile, 7-knot ride. He had been sucked into a pipe drawing water into the St. Lucie nuclear plant. "I thought I was dead," he said. "It was darker than anyplace I've ever seen. . . . I tumbled and bounced all over the sides of the pipe." It

took him four minutes to travel through the 16-foot diameter pipe, which is not covered by a grating but does have a cap suspended a few feet above the opening to disperse the suction. Although the suction pulled off his mask and gloves, Lamm was virtually uninjured when he was discharged from the pipe into a canal a half-mile from the nuclear plant.

In early June, the 85-foot *Ostwind*, a yacht once owned by Hitler, was ceremoniously sunk off Miami Beach to commemorate the "Voyage of the Damned." The event was organized and celebrated by Holocaust survivors, including Miami Beach mayor Abe Resnick. Scuba divers celebrated as well since the boat was to become an artificial reef. The celebration was short-lived. For some reason, the *Ostwind* was pushed off a barge a mile short of its intended place, landing on top of a living coral reef. The Army Corps of Engineers said if it wasn't removed, they would do it and bill Resnick.