

undercurrent

The Private, Exclusive Guide for Serious Divers

June 2011

Vol. 26, No. 6

Golden Rock Dive Center, St. Eustatius

time travel to the old Caribbean

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Dear Fellow Diver:

St. Eustatius is stuck in time. Our pilot landed his single-prop Piper on a deserted runway. No one appeared. He then took off. We rolled our gear to the small arrivals building. The immigration agent looked at our dive bags and luggage and asked, "Just here for the day?" Somewhere we could hear Rod Serling's voice: "Picture an island with no big hotels, no dining destinations, no casinos, no shopping, no traffic, no noise, little crime and no animus from the 3,400 residents. Two divers have arrived for what they hope will be a week of relaxation. Little do they suspect they are diving into the Twilight Zone."

Take away the late-model vehicles and WiFi, and you are in the late 1950's. What you will find: smiling faces, friendly greetings and surprisingly good Caribbean diving.

With freshly-stamped St. Eustatius visas in our passports, we waited outside the tiny building for 10 minutes until Robbie, the cab driver, arrived and heaved our bags into his van for the short ride to the Old Gin House. We had expected an ocean-view room in the newer section on the water, across the street from the little hotel, but our reservation had mistakenly been made for a month later and a Dutch wedding party had taken the better rooms. While my buddy worked with the hotel, I strolled along the Lower Town waterfront past ruins of 18th century storehouses to the Golden Rock Dive Center, where divemaster Matt Wilson listened to my tale of woe and called shop manager Michelle Faires, who then



Golden Rock Dive Center's E-Z Goin



called the Gin House, got us a room and an upgrade to an ocean-view suite once the Dutch had departed. The upgrade was appreciated, as the standard residence had the tropical mustiness of hotel rooms where windows have no screens and thus simultaneously exclude mosquitoes and fresh air. The mattress on the king-size bed distressed my middle-aged back. The wide-screen TV offered Showtime, CNN and ESPN, but we had to go to the lobby to surf an excruciatingly slow WiFi connection. Once ensconced in the Ocean View Suite, we had a great mattress, a living room and kitchenette with a fridge we stocked with wine from the nearby Mazinga gift shop, where prices were lower than duty-free in St. Maarten.

On Sunday morning, Michelle's husband, Glenn, drove our gear a short way to the shop, checked our certification cards, and reviewed the operation. Every morning at 8:30, we tossed our gear bags onto a small trailer already laden with aluminum 80s. Matt hitched an ATV to the trailer and pushed it down the dock, where deckhands loaded everything aboard the E-Z Go, a 32-foot flat-top catamaran with plenty of shade, a first-aid kit, oxygen and radio. The Gin House provided pool towels for the divers. We set up our own rigs, analyzed our nitrox and checked the fills, which were never below 3,000 psi. Then we headed out for the 10- to 20-minute trips to nearby sites.

Our first giant stride from the catamaran into the 81-degree water took us to Hangover, named for the ledges that descend from the reef top to the sand. Created by a 40,000-year-old lava flow from The Quill, one of the island's dormant volcanos, the spur and groove formation was well populated. An eagle ray swept past as I followed the mooring line to the 60-foot bottom. Rock beauties nibbled here and there, while stoplight parrotfish munched on star coral. Small tiger groupers meandered through the sea whips. A baby hawksbill turtle emerged from under a ledge to feed on a netted barrel sponge. At the edge of the 100-foot visibility, a small Caribbean reef shark took a wide arc around us. Exiting the water, I handed up fins and weight belts, and climbed the wide, padded steps at the stern. Glenn told me

Bit by a Barracuda? Don't Blame the Government

Should the government warn you not to dangle your feet in the open ocean if you're in a national park or national monument? The family of 12-year old Sergio Perez thought so.

In 2004, Perez was bitten on the foot by a barracuda while sitting on the beach of the Buck Island Reef National Monument in St. Croix, his feet dangling in the water. His third and fourth toes were nearly severed, requiring surgery and months of post-op care. His family brought suit in federal court, seeking monetary damages.

Suing a U.S. government agency means you must first file a claim with the government, and if the government rejects or fails to respond to your claim, then you may file suit, in most cases under the Federal Tort Claims Act, meaning you litigate in federal court.

Perez's lawyers claimed the park personnel were negligent in not warning him that barracudas might attack those sitting on shore, and in not staffing the area with a park ranger to give those warnings and render emergency aid if an attack occurred. Yet defense evidence showed no similar attack had ever occurred in the park area. The only prior incident even remotely similar had occurred years earlier when a boat captain's foot was bitten after he threw the remains of a tuna can into the water and then dangled his feet into the gurry-laden water.

The federal District Court judge rejected Perez's claim that government employees in fact knew that barracuda attacks posed a substantial threat to bathers, because the evidence before the judge showed no prior similar incidents. This was a key decision, because if the employees knew of a substantial danger, then they were required to warn of it.

Barracuda, of course, are in the ocean nearly everywhere. It seems quite a stretch to us to sue the U.S. government because they nipped someone's toes.

he had been through several ladders before he found these. This is typical of his attention to detail.

Later while he was fixing my fizzing pressure gauge, Glenn said, "Every diver is important to me. I want them to understand the reefs, ecology, the fish and everything about this place. We're not like the big dive shops. People only hear about us by word of mouth. I try to give people what they want. We've got groups that come here from Bonaire and ask to see sharks. So I try to show 'em sharks." Indeed. The following day at Nursing Station with just the two of us, he searched the ledges until a six-foot nurse shark emerged and moved unhurriedly away.

Between dives, we returned to the shop for surface intervals that lasted too long -- an hour or more beyond the scheduled 11 a.m. departures. By the time we got back and hosed off our gear, it was past 2 p.m. and the nearby, excellent Blue Bead Restaurant was closed. (I mentioned this to Glenn and he tried to get the boats underway at 8:30 a.m. so we'd get back earlier). So many days, we climbed the stone pathway to Upper Town in search of mid-afternoon lunches. The Chinese eateries stay open all day, and at Sunny's Cantonese, we had excellent fried squid with chili sauce and stir-fried rice. All food on the island is shipped in, even the lobster and squid, so at \$20 each, plus a few \$3 Coors Lights, lunch easily set us back \$60. While the Old Gin House once sported one of the top chefs in the Caribbean, it now serves breakfast only: pancakes, omelets, cereal, bagels and lox, or a continental breakfast including sliced cheese and ham. When we spotted fishermen offloading at the docks, we asked where they might be selling their catch. Advised to ignore the menus and ask the cooks for specials, we had superb curried conch for dinner at Willy's. Close by, Cool Corner had a cozy bar scene and brilliant garlic shrimp. Twenty bucks seemed to be the going price for fresh seafood in Upper Town. At the seaside Blue Bead, pizzas averaged \$19, and the excellent entrees like salmon or steak were as high as \$28. The restaurant is owned by Swiss émigré Ronald Mettraux and his wife, who also served as the chef. They were happy to add broccoli to our pizza; this was one of the few places where I found fresh veggies.

After the second dive, I liked to hang by the small, deep pool at the hotel, shaded by a magnificent cherry-red bougainvillea. Other times, I walked up the hill to Oranjestad and wandered the narrow streets past pastel-colored clapboard houses. I explored the fort, church, and synagogue completely on my own. Hike the Quill in the morning; afternoons were too warm. After paying \$3 for an entry tag, you can start in Lower Town and follow the signs, or ask Robbie to drive you to the end of the road that ascends its lower slope.

Besides reefs, St. Eustatius has a few wrecks. A decommissioned cable layer deliberately sunk in 2003, the Charles L. Brown rests on its starboard side at 98 feet. With visibility well over 100 feet, it seemed as if I could see from one end of the 320-foot wreck to the other. Cautioned to avoid side compartments, I navigated the central passageway,

Golden Rock Dive Center, St. Eustatius

Diving (<i>experienced</i>)	★★★★
Diving (<i>beginner</i>)	★★★★★
Snorkelling	★★★★★
Accommodations	★★★★
Food	★★★★
Service and Attitude	★★★★★
Money's Worth	★★★★

★ = poor ★★★★★ = excellent

Caribbean Scale



Golden Rock Dive Center

Is it Time for an American Recreational Scuba Divers Association?

Recreational scuba diving is the one major sport with no national consumer organization. The principal reasons that sports consumer associations form are togetherness, information, involvement, discounts, advocacy, insurance, safety, recruitment and competitions.

Sparked by an *Undercurrent* piece by Bret Gilliam about declining innovation and participation in the sport, a small group of long-time recreational divers began discussing the possibility of forming a national recreational divers association to: 1) give divers a voice to be heard by manufacturers, retailers, training agencies, destinations and policymakers; 2) form a web of connection among individual divers and dive clubs to promote safe diving and ocean stewardship; and 3) provide information and money-saving benefits.

When researching other recreational sports organizations, they found that the closest example of a consumer sports organization is the U.S. Parachute Association for skydivers. Like scuba, skydiving is about gear, training and safety. What differentiates skydiving from scuba diving at this point is competition, but that could change.

Among the benefits the concept group discussed are:

- * Gear discounts
- * Travel and destination discounts
- * An interactive Website
- * Blogs
- * Used gear exchange
- * National buddy lists and organized group trips
- * Consumer dive shows
- * Diver and gear insurance
- * Certification registry
- * Podcasts and Webinars
- * Gear reviews
- * Destination reviews

While a recreational scuba divers association is still in the idea stage, *Undercurrent* will soon offer a survey to subscribers and friends to determine interest in the idea. The results will help the concept group determine its next steps. In the meantime, I'd like to hear your thoughts, so email me at bendavison@undercurrent.org

emerging at the stern before dropping down to pose by the props. Two heavy-bodied great barracuda hung out at the wreck, while a school of 200 horse-eye jacks spiraled in the distance.

What looks like a boring sand flat at Double Wreck is actually as good a critter dive as Champagne in Dominica. Glenn set up make-up mirrors in the sand, and we watched pike blennies and sailfin blennies battle their reflections. Rays hid everywhere in the sand, as did a sharp-tailed sand eel. I spotted a fringed filefish hiding in the soft coral. While I watched a lone reef squid go through its psychedelic color changes, a school of 200 goatfish grazed their way through the sand.

There were so many southern rays embedded in the sand at Wreck Alley that I had to check my landing spots when I settled in to look for yellow-headed jawfish or gobies. The wrecks are an upright barge with several open, empty compartments, and a small tug, completely covered with gold, green, and blue encrusting corals and violet sea whips. When a new group asked to dive the "Charley Brown" two days later, Glenn asked us several times if we didn't mind repeating a dive. It's a great dive and Glenn left us to explore the exterior of the wreck on our own.

I requested a deep reef dive for the following morning, our last. Glenn fixed me up with a 100 cu-ft. tank of 32-percent Nitrox at no extra cost, and we jumped into choppy seas at West Drop Off. Great visibility again as I descended to pristine canyons of coral and rock at 110 feet, with inviting overhangs and swimthroughs located below nitrox depth. Great barrel sponges, gorgonians and black coral created a deep forest. I would have happily stayed there and dived a square profile, but we ascended to 70 feet through a barren reef, then to a healthy spur and groove reef at 45 feet, where a curious green turtle swam with us and posed for pictures.

Our last dive had us making our way slowly through the petroleum terminal to Aquarium, an isolated set of rock bommies in sand on the north end of the island. Lots of tropicals, lobsters, a school of southern sennet, spotted morays, porcupine fish and snappers, several of which were caught in the subsistence fish traps left by local fishermen.

As you can gather, St. Eustatius is quiet, unassuming, one of the few remaining islands of the Caribbean of yesteryear. While most of the big fish were caught long ago, the diving is clearly better than average and the entire experience ... well, a journey back to the 1950s, if not the Twilight Zone.

-- V.D.



Divers Compass: Mid-June departures from JFK to St. Maarten were as low as \$639 on American Airlines, and December departures start at \$789; from LAX, you can fly for as low as \$800 . . . Winair (www.fly-winair.com) flies from St. Maarten to St. Eustatius, and round-trips will run between \$172 to \$333; Premium Class tickets do not mean you get a better seat, they mean you have a better chance of getting on the plane . . . If you want to go the private plane route, Ronald Mettraux can be reached at 011-599-318-1900; you will be met at the departure tax window in St. Maarten, whisked through emigration, and be on St. Eustatius

less than an hour after deplaning your international flight . . . At Golden Rock Dive Center, two-tank dives with gear are \$95, nitrox is \$10 a tank, extra dives beyond the 10-dive package are \$40, and they rent Scubapro BCs and Sherwood regs at \$10 per dive . . . There is no tip jar but if you wish to tip, Glenn will divvy it up among the staff . . . Rates at the Old Gin House are \$155 per night for the Garden View rooms to a pricey \$330 for the Ocean View Suite, double occupancy; book through Golden Rock (with our "upgrade," we got seven nights in an ocean-view room and 10 dives each for \$2,284) . . . You may wish to check with Vacation Rentals by Owner (www.vrbo.com), they list three houses on St. Eustatius that start at \$1,000 per week . . . If you rent, you'll need a car or scooter, so check out Reddy Car Rental by calling 011-599-318-5453 or e-mail reddyrentals@yahoo.com. . . . Websites: Old Gin House - www.oldginhouse.com; Golden Rock Dive Center - www.goldenrockdive.com

Mexico, Myanmar, Palau, Roatan

where to see big fish, where to avoid dead reefs and daytrippers

M/V Jazz, Myanmar. While we divers love to fantasize about that marvelous Indian Ocean diving, it's not all perfect, as longtime subscriber reader Randy Preissig (San Antonio, TX) reports of his March trip. "I feel strange writing a negative review, but *Undercurrent* serves its readers best by warning of shortfalls as well as telling them of undiscovered 'new' dive sites. There were two big problems with this six-day trip (the two days in the Thai Similans were much better, and included a giant manta sighting). In Burma (Myanmar), gross overfishing is wiping out the fish. This includes 'finning' of sharks, which has essentially eliminated sharks from Thai and Burma waters. I did not see one shark in 49 dives. Far worse is the dynamite and 'chemical bombs' that continue to decimate the reefs, as well as the fish population. We had fishing boats at all our dive sites. On one of our 13 Burma dives, a bomb went off so close that I looked toward the surface for the rest of the dive to make sure one wasn't floating down on us! Some dive sites had most of the coral stripped off the walls above 60 feet and piles of rubble below. And they took us to the best dive sites! We did see two eagle rays, cuttlefish, some baitfish schools with rainbow runners feeding, an octopus, seahorse, pipefish and a school of small snappers, but Burma is not the virgin area it is advertised to be. Reportedly, whale sharks and mantas are victims of finning, overfishing and dynamiting. The second big problem was the condition of the *Jazz* itself. We were quite crowded with 13 divers. They advertise four divemasters and a tour leader, but we only had two divemasters. Ric and Clive did their best, but their attitude had been worn down. They no longer lead night dives. This resulted in three night dives missed or severely compromised. The *Jazz* has one air conditioner in the main lounge area. Each room is fed air from this by a tiny fan in the wall of each room! The A/C couldn't be set low because it 'might break,' and the people who had deserted their rooms to sleep in the lounge didn't want it cooler. The smell of bug spray and mold was almost overwhelming in some

rooms. The food was good and no one got sick, but I used to inspect kitchens for the health department and I can tell you that the tiny, hot hole that the food came out of was downright scary, and we were warned not to go in there!”

Revillagigedos Islands, Mexico. You don’t have to travel halfway round the world for big fish, as Michael J. Millet (Dublin, CA) reports. Simply hop on a liveaboard in Cabo San Lucas. But keep in mind if it’s a winter trip (Miller traveled in January), the water can be chilly -- 70 degrees or even less. “This was my fourth trip on the *Nautilus Explorer* to the Revillagigedos. After a 24-hour voyage from Cabo, the first dive site is the Canyon at San Benedicto Island. Here we encountered an occasional hammerhead and a couple of manta rays, but the visibility wasn’t the best. The next day, we dived the Boiler on the west side of the island. Here we had awesome encounters with several manta rays, large schools of cottonmouth jacks and bigeye trevally. The next two days were at Roca Partida Island, a seamount where the main attraction is sharks – whitetips, Galapagos, silvertips. The highlight was a whale shark, maybe 20 feet long. We spent the last two days at Socorro Island. At Cabo Pierce, we had close encounters with manta rays, dolphins and a school of hammerheads. The *Nautilus Explorer* is a very comfortable boat with a good crew and great food.” (www.nautilusexplorer.com)

Then there is the venerable *Solmar*, the first boat to make this a regular destination. Jeanne Sleeper (Laguna Beach, CA) was aboard last December, when the water was warmer (76 to 80 degrees). “I wore a 3-mm suit and a hooded vest, and was toasty warm. Dove from 6:30 a.m. to 4:30 p.m., which translated into three or four dives at 60 minutes each. Mostly 50- to 80-foot dives with dolphins, mantas, sharks, jacks and a whale shark. The rock cracks are filled with lobster; big octopus were out hunting in the daytime. Big mantas with 26-foot wingspans come out of the blue like stealth fighters -- suddenly they are in your face but never touching you. *Solmar* divemasters Eric and Rey were excellent watermen, and their detailed knowledge from years of diving Socorro, Isla Benedicto and Roca Partida were invaluable. The seamanship of the entire crew and tip-top condition of the ship are critical when you are 300 miles offshore. The anchors went down first time, every time, and were exactly where the dive briefing said they would be. Customer service was exceptional. They clearly know the above- and below-water territory from first-hand experience -- no reading a chart and guessing with this operation.” (www.solmarv.com)

The newest kid on the block is the *Rocio del Mar*, which Christophe Beraud (San Francisco, CA) took in March. “We dived with 7-mm full suits and hoods, and were comfortable. Giant Pacific manta rays, various shark species (hammerhead, Galapagos, whitetips, silvertips, silkies), dolphins and humpback whales. Visibility ranged from 30 to 70 feet, and water temperatures are between 68 and 73 degrees. The boat is simple but very stable and functional, the crew is great, the food is delicious, and diving is only limited in duration; no deco diving allowed. You can do your own diving or follow the divemasters. Nitrox is available on board.” (See our full review in the March 2010 issue). (www.rociodelmarliveaboard.com)

Scavenger Hunts for Divers

Does finning around dive spots get boring? The Diving Equipment Marketing Association (DEMA) wants to spice up your dives by having you hunt for hidden treasure using GPS. It just launched a campaign for a game called DiveCaching, the underwater version of Geocaching.

How it works: Divers hide a treasure or “cache” underwater and post the GPS coordinates and compass directions on the website www.geocaching.com. Other divers get the coordinates from the site and dive to locate the cache. When they find it, they can photograph it, add their own treasure to the container, or just note the discovery and share the experience with divers around the world.

DEMA executive director Tom Ingram says DiveCaching can be done anywhere, regardless of visibility or dive conditions, and is a good way to explore new destinations. He adds that it’s a good family outing, and you can get non-divers involved with land-based geocaching and social activities.

However, keep in mind that marine reserves may not warm to the idea of you hiding booty around their reefs. And those looking for real treasure will be disappointed, as the actual cache may be simply a log book and something to write with, or a few coins, keychains, beads. Swag, basically. However, check out DEMA’s YouTube video (www.youtube.com/watch?v=QFdA6BjnJ9Y) or its Facebook page on DiveCaching (www.facebook.com/divecaching) and see if it’s worth starting a hunt or join in.

Palau. It's a long trip, so many people like to stop off at Kosrae, Yap or another destination, but others do back-to-back liveaboard trips. In April, Laurel Fulton (Denver, CO) took "a fantastic two-week trip on the *Palau Aggressor* with only nine divers on board. Crew was fantastic, Captain Drew is the best, photo pro Johnny and divemasters Ike, Jason and Marc were great. Nice layout on the boat, hydraulic skiff lift is wonderful. We did an exploratory trip to Velasco Reef and had great dives - - we felt like pioneers, and got to see a whale shark ascending on one! Soft and hard coral were incredible, diverse and healthy. Abundant fish, turtles, anemones and clownfish, giant clams, nudibranchs." (www.aggessor.com) If you decide to take a back-to back liveaboard trip, regardless of the boat, try to negotiate a discount of at least 10 percent for both legs. And some Palau travel tips from Fulton: "The stopover in Yap has a security check where half the plane has to get off while they inspect the seats; get a seat on the right side if you can, because both times the left side had to get off while we just had to switch sides for inspection. In Palau, next door to the airport is a luxury waiting lounge with WiFi, recliners, bar and snacks. Well worth \$15 if you have a few hours to wait for a flight. After checking bags, just walk over from the terminal. I stayed at the Cliffside Hotel on the travel agent's advice - - a bit dated, far out of town, not on the water. The Sea Passion is a nicer hotel, and has a snorkeling area." (www.palauseapassion.com)

CoCo View Resort, Roatan. This is one of the true dedicated dive resorts in the Caribbean, a favorite spanning four decades. So we applaud their recent decision to stop accepting cruise ship and day guests. "With strangers always on our beach and at the bar, and with our facilities in constant demand, we were afraid we wouldn't feel like CoCo View anymore," said Mitch Karlson, the resort manager. "So rather than open the cash register to walk-in traffic and the fast cash that comes with it," CoCo View opted out. Exception: If you've been through their dive orientation previously (e.g., been a guest) or are a scuba professional, you're still welcome to drop in. (www.cocoviewresort.com)

-- Ben Davison

"Taxes," "Fees" and Just Plain Bribes Divers Face *smile, negotiate, and pony up*

There is always a new twist on an old bribe. If you travel long enough and visit enough far-flung dive spots, you may eventually face the dilemma of how and when, or even if, to bribe. Many dive destinations are in Third World countries where the rule of law is loosely followed. As *Undercurrent* subscribers' stories below show, sometimes it's worth it to fight back against ludicrous bribes. And sometimes it's in your interest to hand over \$2, \$20 or even \$200, because that money could save your skin.

Mexico's "Camera Tax"

Bribery starts just across the U.S. border. We continually get reports from readers about Mexican custom officials who are willing to "negotiate" letting them bring their camera gear into the country. Officially, Mexico's law only lets tourists bring two cameras for personal use, and like many laws travelers face in Third World travel, an occasional official puts his own twist on it. When one of our readers who we'll call Mel arrived at the Los Cabos airport in Baja California in April with four cameras for a *Solmar V* trip, the agent confronted him with this rule. While there's nothing on the Mexican government's website about fees for bringing in extra cameras, this customs agent said Mel would have to pay a \$128 tax on the other two cameras. Mel asked him if he would accept \$50 cash and "he did (in the bathroom)."

Terri Roberts (Jupiter, FL), passing through Cancun customs this spring, was carrying her Storm hard-sided, waterproof camera case "in which I carry my housing, strobes, arms, chargers, etc. At customs, I received the 'red' light, which meant someone would search my bags. Two women agents asked me the value of certain items, looked

at a paper, and told me I was a professional photographer because I had this case. I explained the case was only to protect the items inside, but they stated I had to pay them \$660 -- in cash. I said there was no way I was paying that kind of money. They replied that I could take the camera and lenses that were in my backpack but not the case. I asked to see their supervisor, and they said he was busy. I said I would wait and they said 'No!' So I told them, 'I'll close up the case and return to the U.S. because you're trying to steal money from me.' Then they started reducing the amount, and it went on and on for over an hour. I was upset, but not showing it because I needed to get on the ferry to Isla Mujeres. The only way out was to give them some money. I offered \$220, and said if they didn't accept, I would go back to the U.S. They accepted. I had to go to another counter, where another employee gave me a receipt. This was a robbery, but I felt like there was nothing else I could do."

A bribe? An unknown fee? An effort to tax the potential resale of goods? Who knows? But Roberts was prepared and negotiated.

Driving While Tourist

If you're DWT (driving while tourist) in Mexico, be prepared for the police to stop you for the smallest infraction, but they're usually willing to let you off with a small "fine." While on a dive trip in Playa del Carmen on the Yucatan, Kimberly Kuppens (Modesto, CA) and her husband "were returning to our resort after a night on the town. The streets were under construction and some of the signs were down. My husband turned on a street and the next intersection had a one-way sign, so he turned around and went back. There was a police car waiting with lights on. The policeman took his driver's license and said he was going to fine us a significant amount of money, and we would have to pay at the city hall the next day and stand in a huge line. We said, 'We have \$14 on us. Would you not write the ticket?' The policeman took the cash, had us follow him to city limits, then stopped his car and gave back the driver's license. He was smiling, and even waved goodbye. A woman who worked at the resort said police there do that all the time -- that it was illegal for the fines to be more than the local workers wages in a week."

"I've never been harassed if I'm smiling. Even though you cringe at the thought of respecting thieves, the point is you have to fake it."

Grin and Bear It

Kuppens did the right thing, said Todd Wandering, a travel blogger who has been shaken down by local cops in Africa, India and Indonesia (www.toddswanderings.com). "I've never been harassed if I'm smiling. Even though you cringe at the thought of respecting thieves, the point is you have to

fake it. Don't disrespect them because it could land you in trouble."

Perry Lewis (Big Rapids, MI) told us that his dive buddy played along while they were in Cozumel this spring. "I was waiting for my friend Jim to finish snorkeling up north. But as he drove back, he was stopped by two motorcycle policemen. After the snorkel, he stood around the car and had a beer and that is when the cops saw him. The cops said that was a no-no, and also that he had parked illegally as well, which was not true. The cops said his car would have to be towed, so there would be a traffic fine as well as a fine to get the car back. Well, Jim had been through this before at Tulum, so he apologized (sincerely?) and asked what the fine might be. The cops implied 200 pesos. So Jim asked if they would do him a favor and pay the fine for him. They said they would. Money exchanged hands and Jim was free to go." Now, 200 pesos is not a lot of money, and the cops are probably underpaid, but they know vacationers want to avoid hassles, so they are just making a little money on the side."

Another way to view the situation is to consider it a tax, like crossing a toll bridge, says Wandering. "Don't take it personally, it's just a fact of life in many of these countries. I used to be pissed off for someone of authority to take advantage of people, but I soon learned you can't think this way. It's just another way of doing business, and even the locals, who have to pay bribes all the time, have to accept it. Just play the game, and relax."

In Cozumel, Mark Lindsey (Richmond, VA) played the game. He had borrowed a friend's SUV, which had expired Florida plates and an expired Mexican customs sticker on the windshield. "We drove through a license checkpoint and our adventure began. The cop spoke very little English, and my Spanish was just as bad. But in lieu

of spending the afternoon explaining at the police station, I gave the cop a 'pay the fine now' fee. It was cheaper than going to the station. He opened a tourist info book and stuck it inside the open window. I stuck \$20 in it, he closed the book and we were on our way. I always carry a \$20 bill in a pocket by itself just in case we get stopped. It has only happened once, but if \$20 is all we have, they gotta take it, right?"

Put the big bills in your sock, and a couple of bucks in your wallet, says Wandering. "If you see yourself having to pay a bribe and realize you have a huge wad of cash in your wallet, try to stash it out of sight as quickly as possible. Leave only a meager amount in your wallet. When you are discussing the bribe, open your wallet and show them your little money. Usually they are shocked and tell you to continue on – and wonder how you will fill up your gas tank."

Airport Shakedowns

Customs officials at certain countries' airports are notorious for demanding bribes for infractions, real or made-up on the spot. While you might enter the country with no problem, you may still get hassled when you depart, as Harriet Rhodes (Greenwich, CT) found out. "Three years ago I visited Dominica. Upon departing – and leaving with less baggage weight -- I was accused of having an overweight bag. Evidently, the incoming weight allowance is greater than outgoing allowance. I was told my bag would not be able to travel with me. After suggesting a bribe of \$20, I was told it would be accepted outside the airport by a third party. My bag made it home safely."

"If the airline insists on cash for overweight luggage, ask for an official receipt. Either they'll give you one, or forget how heavy your luggage really is."

We get many complaints about outstretched hands at Indonesian airports. "I had to change planes in Biak, and after the immigration check, I was advised by a customs agent that I would have to pay \$100 to bring my dive gear into the country," says Michael Igoe (Centennial, CO). "After the customary protests, I handed the agent a \$20 bill, right in plain sight. All was well after that."

It's a good idea to read up on immigrating and customs laws for each country you're visiting so you are better positioned to resist the fear that can lead to a bribe. Before traveling to Indonesia's Raja Ampat to go diving, Margaret Howerton (Vacaville, CA) had made sure she had at least two blank pages in her passport, a rule facing travelers. "But when I arrived at the Manado airport, I was ushered into a back office where I was told I didn't have a blank 'visa' page in my passport. Neither of the two last empty pages were labeled 'visa' at the top. (When I returned home, I checked the website for Indonesia's passport requirements, and sure enough, blank 'visa' pages are required.) The immigration officials didn't permit me to call the U.S. Embassy, use their telephone or their computer. I was told I would need to return to Singapore or fly to Jakarta (to get my passport amended by U.S. officials). Finally, another official told me I could pay \$200 and be processed through. After agreeing to a discounted bribe of \$100, I was promptly on my way." She's lucky. We've reported cases where divers have indeed had to fly elsewhere to a U.S. embassy to get empty pages put into their passports, but perhaps a Franklin or two would have helped them avoid the lengthy hassle.

When a small airline asks for cash for the baggage fees, Dee Wescott (Ruidoso, NM) has this good advice that may stop some airlines personnel from pocketing an illegal fee. "If the airline insists on a cash payment for overweight luggage, ask for an official receipt. They may balk, but if you insist, they will either give you one or forget how heavy your luggage really is. They have to account for the cash you have given them, so it can't go to a new car or a bauble for the girlfriend. My dive travelling sources also told me that if airlines can take a credit card for ticket payment, they can take a credit card for overweight luggage. They don't like to because, again, the money now has to be accounted for."

And while this isn't a bribe, reader Jane Swing thinks it's a scam for sure. "Garuda, Indonesia claimed we had not made our Sydney-Bali leg two weeks prior, and, therefore, would not allow me to board the final Garuda leg of my journey plane unless I purchased a new ticket. I had made three Garuda flights after the Sydney-Denpasar leg

they were claiming, without any problem. And the Garuda, Indonesia, representative in the U.S. claimed there was nothing wrong with my reservation. I am trying to get a refund.”

How to Dodge the “Tax Man”

If you don’t want to pay a bribe, there are a few actions you can take, if you have chutzpah. Todd Wandering recommends playing dumb. “Just stare back, don’t say a word and the briber may get uncomfortable with the silence and you being naïve.” Or pretend not to understand. “Depending upon the country, you can shake your head and pretend you don’t speak their language well, or if they’re speaking English to you, speak in French, Spanish or the jibberish language you invented when you were a child. I’ve managed to get away by pretending to not communicate.”

If you’re a woman, you have a better chance doing what Linda R. (Montara, CA) did. “In 2007, when my husband and I arrived at the Bali airport, we were stopped by two uniformed men who inspected our dive bags. One asked, ‘How much is all this stuff worth?’ I threw out a crazy number and said, ‘About \$250.’ He said, ‘That’s too much! You might sell some of this equipment here for profit, so you’ll have to pay a tax of \$200. But when you leave the country, you can show us you still have this stuff and we will give your money back.’ I debated with them for 15 minutes. Finally in utter frustration, and to the embarrassment of my husband, I pulled the old female stunt of starting to cry, and they let us go. Moral of the story: If asked the value of your gear, say, ‘It has no value because it is used and no one wants used stuff.’ Or be prepared to cry.”

Or do what Pat and Bob Watson (Eucha, OK) did, and keep a local divemaster or trip guide near you at Customs. “At one of Indonesia’s inter-island airports we were told there was a significant ‘extra baggage’ fee. Herry, our wonderful Indonesian divemaster, had stayed with us until we reached the gate out to the plane, where our baggage was weighed. He started joshing with the fellow behind the desk, and suddenly the ‘fee’ disappeared.”

Or stand up for yourself, as a dive buddy of Michael Bernhardt (Jacksonville, FL) did when shipping his dive gear ahead of time for a Bahamas trip. “Bahamas customs wanted him to pay \$1,000 to claim his own gear or they would not allow release from Nassau to Exuma. When he told them they could stuff it and keep the gear, the gear showed up the next day.”

Bribes can sometimes just be another part of a colorful dive trip. Don’t get nervous, upset or angry during the process - - it’s not worth your time. However, don’t put yourself in a compromising situation to begin with, like driving fast or under the influence. Follow the laws, stay under the radar instead of acting the flashy or bumbling tourist, and you’re more likely to avoid paying unofficial taxes and fees or, worse yet, be held up so long that you miss your liveboard departure or your flight out.

-- Vanessa Richardson

Emergency Breathing from Your BCD

why don’t dive agencies teach this technique?

Nearly 30 years ago, we first raised the question, what do you do if you’re 100 feet down with two buddies, and both come to you out of air? One solution would be to pass your primary second stage to one buddy, give your octopus to the other, and then begin a slow ascent while valving fresh air into your buoyancy compensator and breathing through your BCD’s oral inflator mouthpiece. It’s tricky and takes practice, but it works.

Yet none of the commercial training agencies teaches BCD breathing at any level. In fact, after we reported again on this technique in 1999, the industry seems to have closed ranks against it, even though it’s been successfully tested in a variety of predicaments.

We don't advocate breathing BCD air as a standard practice, only as a last resort in an emergency when you're deep and have no other source of air. If you add air with your power inflator, it will be pure and contain 21 percent oxygen (even more if you're using Nitrox). If you orally inflate your BCD, it will still contain 16 percent oxygen. Even if you suck your tank dry, you can get some air through your regulator as you ascend, and the pressure in your tank becomes greater than the ambient pressure. However, once your tank is bone dry, you'll still have residual air in your BCD, or at least in your inflator hose.

Bear in mind that air in your BCD will also become more available as you rise. If you put your BCD mouthpiece into your mouth and keep trying to inhale and exhale while you rise, you should be able to do so for at least 20 seconds while the ambient pressure decreases enough to provide a breath of air. Then you

How to Breathe from a BCD

Some time ago, *Undercurrent* presented tips for emergency breathing from your BCD. This seems like a good time to repeat them:

To gain confidence in your ability to act in an emergency, practice this and all other BCD breathing skills with your gear in shallow, calm water. Be sure to disinfect your BCD first.

Clear your mouthpiece. Tom Phillipp, Aqua Lung's product manager for BCDs, points out that many oral inflators have holes behind the deflator button to prevent water from being blown back into the bag while purging, so the best method is to first blow a little air in so the water runs out the holes. Then hold the deflator valve down as you continue blowing. Your exhaled breath will now go into the BCD, and the holes will be sealed so no water can re-enter.

Bret Gilliam prefers to raise the inflator overhead, and then put the mouthpiece in while rolling to the left to let as much water as possible slide down the hose before inhaling. Air will rise in the hose at the same time. He notes that even after the diver purges the mouthpiece, it's still likely that he'll get 10 to 20 milliliters of water with his first breath. This problem would be less severe if the diver used short tugs on his shoulder or back-mounted dump valve to vent; water would still enter the BCD but not the hose, and would settle to the lowest part of the flotation bladder.

Once you've begun getting air from your BCD, don't release your tight hold or water will leak in through the holes. With older models, bend the mouthpiece up, seal your mouth, look down and, as before, blow air in as you push the valve. The water will flow from the mouthpiece and become trapped in the hose, but air will be able to get past it.

Take your first breath cautiously. Inhale slowly and carefully, as you would with a wet snorkel, trying to catch the moisture on your tongue. Then try to swallow the water. If you do cough or gag on a few droplets, don't remove the mouthpiece, just cough into the BCD.

Control your ascent. Exhale normally and watch your ascent rate. You still face the danger of an embolism if you retain air breathed at ambient pressure. Don't let go of the valve or remove the mouthpiece from your mouth as you ascend. If you are rising faster than your bubbles, exhale through your nose. Flaring out horizontally will also help slow your ascent.

Use air from your tank. As long as your power inflator is working, you can add more fresh air to your BCD as you rise, and you can continue to breathe it at ambient pressure. Keep the mouthpiece valve closed tightly while putting air into your BCD so none escapes. Press your power inflator intermittently, take a breath and exhale it through your nose to insure a continuous supply of fresh air. You can also breathe from your BCD while a buddy is breathing from your tank. Since your power inflator bypasses your regulator's second stage, you can inhale from the BCD at any time without over-breathing. If your buddy is in danger of over-breathing the second stage you've shared with him, wait to feed air into the BCD until you see his bubbles. Keep feeding air intermittently between your buddy's inhalations.

When no air is available from your tank. Air in your BCD will become more available as you rise just as air in your tank does, allowing additional breaths as ambient pressure decreases. Start up immediately, keep trying to inhale and exhale, and air will become available. If you have a BCD-mounted safe second such as the Air 2, you can access the air in your BCD by pressing the deflate button when inhaling. In one study, basic scuba students were able to rebreathe this way for a full minute with no problems. Stay relaxed because rising CO₂ levels will cause you to breathe faster and faster, which could lead to a sudden blackout.

Sound complicated? The industry obviously thinks so. Still, although no one's making you learn these new skills, one day you might be glad you or your buddy did.

can continue the process as you ascend. Tests conducted by the late Al Pierce of the YMCA concluded that you can exhale back into your BCD and keep rebreathing the same air as many as 13 times without becoming overly hungry for fresh air. (After all, exhaled air is good enough for artificial respiration.) Using this technique, instead of free-ascending with no air, you'll have some air as you rise, which will allow you to make a slower and safer ascent.

Is the probability of a fatal infection from bacteria and other contamination in a BCD bladder as high as PADI claims?"

Even so, agencies refuse to teach this technique, although some individual instructors may introduce it on their own. The key objection voiced by PADI is the possibility of respiratory infection from bacteria inside the BCD. LeRoy Wickham, educational consultant to PADI, says, "Due to the very high probability of bacteria,

viruses and other contamination in a BCD bladder, we do not advocate breathing from a BCD. That skill is not included as a performance requirement or training option in any PADI courses."

A Rare Case of Lung Infection

In fact, a British diver developed a deadly fungal infection in his lungs in 2009 that was caused by a contaminated BCD. "The culprit," according to the British magazine *DIVER*, "was *Aspergillus fumigatus*, a micro-organism that exists within all our bodies and in the air, but usually safely contained by our immune systems."

Michael Firth, an active 58-year-old technical diver, became seriously ill after taking two deep breaths from his wing BCD's manual inflator to be sure it was working. He had noted a moldy taste at the time, and tests after he fell ill established that the fungus had taken hold in the wing bladder. His condition steadily deteriorated, and he passed away in December 2009 while awaiting a lung transplant.

But is the probability of such a fatal infection as high as PADI claims? David Denning, a professor of mycology at the University of Manchester in the U.K. and director of the National Aspergillosis Centre, told *DIVER* that Firth's is the only diving-related case he has come across, and that more research is needed into why his body reacted as it did. "His lung reaction was clearly very unusual, and you wouldn't normally expect such a very extreme clinical reaction in someone who's fit enough to dive."

Dive medicine doctor Ian Sibley-Calder added: "Invasive pulmonary aspergillosis is extremely unusual in people with no other history of lung problems or altered immune system - - diabetes, steroids, chemotherapy, HIV etc. Consider the number of divers over the world and the fact that inhaling from a buoyancy device is relatively common - - to extract air to collapse a wing, for instance, which I've done many times.

"While this case is tragic, and it's a fair point that we should all take care of our kit, I don't think we should be overly alarmist. If you need to breathe out of a buoyancy device because you've run out of air, do it. Be careful, but don't panic."

BCDs can be disinfected with solutions readily available in dive shops (see the sidebar "Disinfecting Your BCD"). Or you can use benzalkonium chloride, which is available at drug stores under the brand name Zephiran chloride. Besides, why should you be concerned about a lung infection in an out-of-air emergency? With the exception of Mike Firth's case, there are a lot more cures for respiratory infections than there are for drowning.

The second biggest objection made by training agencies is that divers will need to master new skills and perhaps to overlearn some old ones. For instance, you must be able to clear the ounce or so of water from your inflator hose mouthpiece without choking. Other skills required vary depending on whether your first stage is still supplying air. Additional objections include difficulties with buoyancy control, such as ascending too fast or the possibility of arriving on the surface with no lift in the BCD.

The consensus seems to be that keeping things simple reduces the chance of panic. Retired UCLA professor Glenn Egstrom cited a phenomenon called “peripheral narrowing,” which is the tendency to lose track of one’s options under stress, thereby subverting the reflexive nature of trained responses. While that may be a valid consideration, does it make sense for those charged with the safety of others (e.g., Rescue, Divemaster, or Instructor levels) to not even be exposed to this proven technique for handling out-of-air situations or equipment malfunctions?

Training Agency Options

A few years ago, PADI spelled out the recommended options for low/out of air situations, in order of priority:

1. Make a normal ascent, if your tank isn’t completely empty.
2. Ascend using an alternate air source (redundant supply or buddy’s octopus).
3. Execute a controlled emergency swimming ascent.
4. Buddy-breathe with a single regulator supplied by another diver.
5. Make a buoyant emergency ascent.

Steve Lewis, director of marketing and corporate communications and an instructor at TDI/SDI, told *Undercurrent* he knows of nobody in either agency teaching BCD breathing. At TDI, which offers technical diving certifications, emphasis is on the rule of thirds, with students trained to manage their dives so that one third of their breathing supply is always held in reserve. While acknowledging that BCD breathing might be used by an experienced sport diver to avoid an emergency ascent, he said, “It’ll be a cold day on the equator before I’d teach it.”

Disinfecting Your BCD

Guidelines issued by Britain’s Health & Safety Executive on Cleaning of Diving Equipment (HSE) provide guidance on minimizing risks from microorganisms that can be present in BCDs as well as regulator mouthpieces and rebreathers.

Storing diving equipment in a damp condition creates an environment in which fungi, yeasts, bacteria and viruses can multiply rapidly, the HSE states. “Fungi are one of the most likely contaminants, and these can produce large quantities of spores. Inhalation of these spores can cause an allergic reaction in the lungs, producing potentially life-threatening conditions, particularly in those individuals who may be predisposed to allergy.”

The HSE’s recommendation is to thoroughly clean and dry equipment, particularly those parts that might allow a direct path to your lungs. After a day’s diving, the minimum recommended cleaning regimen is thorough rinsing of these surfaces with clean drinkable water to flush away minute deposits that could act as nutrients for microbial growth, followed by complete drying. (One popular technique is to partially inflate the bladder and hang the BCD upside down in the shade so the rinse water accumulates in the inflator hose. Then open the inflator mouthpiece and let the water drain out. Repeat one or two more times.

Check your owner’s manual for more instructions.) If water quality is in doubt, use sterile, boiled or bottled water for rinsing.

After drying, store in a dry, clean environment - - ideally, an enclosed room with circulating air and minimum exposure to airborne contaminants. As the microbial agents can be “opportunistic and tenacious,” consider periodic disinfection, particularly of shared equipment.

HSE specialist diving inspector Steve Field noted, “While it’s important that the disinfectant used is effective and safe, it’s also important that it doesn’t damage the equipment. Manufacturers employ a wide range of materials in their products and they are therefore best-placed to advise on what disinfectant is compatible with the materials they use.”

Manufacturers’ instructions should be followed carefully, because inhaling unrinsed disinfectant can itself pose a health hazard. Preferably, the disinfectant should be effective against the most resistant microorganism - - in this context, *Mycobacterium tuberculosis* (TB).

Mike Firth maintained that he and his friends had always rinsed their BCDs with a sodium hypochlorite sterilizing fluid. But Professor Denning feels that while sodium hypochlorite “is likely to have an impact on the aspergillus fungus, it won’t necessarily kill it.”

Insisting that BCD breathing was “not a viable option,” NAUI Training Manager Randy Shaw confirmed that his agency does not teach it at any level of certification. Watson DeVore, director of education for Scuba Schools International agrees with Shaw, adding, “That skill isn’t taught because we teach students not to run out of air.”

Of course, that turns a blind eye to the great number of divers who do run out of air -- SSI divers included -- and run into serious consequences. However, frequent *Undercurrent* contributor Bret Gilliam says the technique may not be viable for the average diver due to the danger of inhaling water on the first breath from a BCD inflator hose. That could cause a laryngeal spasm, which could lead to diver panic. He urges that experience and practice are crucial to master this technique (see our sidebar “How to Breathe from a BCD”).

When faced with a life or death situation, should one give second thought to the small chance of a lung infection? Isn’t being able to state a controlled emergency ascent or a buoyant emergency ascent safer if you have a few breaths of air from your BCD? Knowing you’ve got at least one more ace up your sleeve might help keep you cool as you weigh your options. Hopefully, you’ll get things under control before you ever need to use your BCD as an alternate air source. But it’s there if you need it.

- - Larry Clinton

Avoid the Dive Boat Propellor

dive flag do’s and don’ts

As summer starts, more divers are doing local trips in U.S. waters, where they’re sharing the waves with jet skis, speedboats and other craft with fast propellers. The two don’t mix, but we keep hearing several stories a year a divers who suffer severe -- or fatal -- wounds from fast-moving boats, spinning propellers, even dive boats.

James Shelley, 46, was surfacing from a dive a mile east of Boca Raton, FL, in January when he was hit by a commercial 23-foot boat), and the propeller severely slashed his shoulder and arm. The *Sun-Sentinel* says Shelley and the vessel were displaying dive flags, so we assume the vessel was a dive boat. Shelley made it to the hospital for recovery. Ulrik Pederson, 28, also had to be rushed to the hospital last April after being run over by a glass-bottom tour boat in New Zealand’s Leigh Harbor. The impact sliced open Pederson’s arm, broke one bone and dislocated another. He said he had an inflatable buoy and flag on a 60-foot line marking his position. The boat owners say he had a buoy but there was no proper dive flag up. The most high-profile diver killed this way was British singer and songwriter Kristy MacColl, who was killed in Cozumel waters by a speeding boat in 2004.

Lieutenant Dave Bingham, watch commander for the Florida Fish and Wildlife Conservation Commission (FWC), says he sees too many accidents like these. Florida statistics from January 2010 through April 2011 show all federal, state and local marine patrols wrote 87 tickets for reckless boating, 798 tickets for careless boating and 315 for flag-related violations. The blame is split down the middle between speeding boats not looking closely for divers, and divers who aren’t using the proper “Diver Down” flag, if they use one at all.

Even a law enforcement boat with a properly-displayed dive flag is fair game. In an experiment two years ago, Bingham displayed a dive flag on a marked FWC boat and found that other boaters still came too close. “We wrote just as many tickets with a dive flag on a patrol boat as we did on an unmarked boat.” After a string of run-over-diver incidents in Florida, Bingham was successful in getting the governor to declare a Dive Flag Awareness Week in 2009. Here, he shares with *Undercurrent* his advice for staying alive on dives in U.S. waters.

Fly the Flag. “In Florida, a diver down flag must be 20 x 24 inches if displayed on the boat, and displayed on the highest point of the vessel and on a stiffener. If you pull a flag around while diving, that is required to be

12 x12 inches. You must stay within 100 feet of the flag if you're diving in a river, inlet or navigational channel. And boats must stay at least 100 feet away from your flag. Too many times, I've seen a weather-beaten flag with a faded, dull color."

Bring a flag on your dive. In Florida, divers finning along coastal reefs are required to stay within 300 feet of the divers down flag. "If you are going to swim far away, have a pull flag with you, in addition to the one on your boat. Make sure the rope is the adequate length so you're not pulling the flag underwater with you."

Stop, listen and look. "Underwater, you can always hear boats coming near you. The 10-foot safety stop is well underneath the range for speedboats, and it's a good time to listen, be attentive, and make sure you're not hearing any sounds around you. And the first thing you do when you pop up out of the water from a dive is do a 360-degree turn around to see if there are any approaching boats. "Do this before you pay attention to your BC, because if you tend to your vest first without a look around, you won't have much time to struggle out of it if you ignore the boat headed your way."

Bingham says with laser radar, "We can determine the distance divers stray from their flags and also the distance boats come near a dive flag – and it's accurate give or take one inch." In Florida, "buzzing" a dive flag is a first-degree misdemeanor and punishable by up to a \$1,000 fine and/or up to six months in jail. If you violate a dive flag law as a diver, you are only subject to a noncriminal infraction, with a fine of up to \$50. Of course, a greater penalty for you ignoring dive flag laws is being run over by a boater.

-- Vanessa Richardson

Breathing From Liquid: Is Diving's Holy Grail Here?

No more decompression illness. And no more limits to depth or time of a dive, other than physical limitations unconnected with gas breathed. Diving using liquid breathing, formerly a wonder of science fiction like James Cameron's movie *The Abyss*, seems to have moved closer to reality with the design of a unit that allows a diver to breathe via a re-oxygenated liquid circulated through the lungs. Its inventor is Arnold Lande, a retired heart and lung surgeon who worked at University of Texas Medical School in Houston. He revealed his system in a presentation given late last year at the first International Conference on Applied Bionics and Biomechanics in Venice.

In Lande's design, the diver's lungs, nose and ear cavities are filled with the liquid perfluorocarbon (PFC), contained within a closed helmet. The gag reflex, Lande believes, should be controllable through a combination of training and, if needed, a drug to desensitize the diver to the feeling of liquid entering the body. PFC is moved in and out of the lungs by a ventilator unit that fits around the upper body and uses a pump to vary pressure on the ribcage. "This would provide the assistance to the diver's breathing that he needs while he is working hard, having to pull a liquid into his lungs and expel it again," Lande told the press.

Gaseous oxygen is bubbled into the PFC, which can absorb very high gas levels, to maintain supply. By absorbing liquid-suspended gas, the diver does not on-gas. "The beauty of doing it all from a liquid is that you don't have to use these highly compressed gases in the lungs that are going to dissolve into the blood," said Lande. "You have a liquid that you can infuse with just as much oxygen as you need."

The oxygen supply is contained, along with a battery power-pack, in a propeller-driven unit managed by the diver, in a similar manner to an underwater scooter. The removal of carbon dioxide is managed by taking blood out of the body, via a catheter inserted into the groin's femoral vein, and circulating it through a gas-permeable-membrane gill fitted within the suit. Carbon dioxide is absorbed by a substance such as soda lime placed on the other side of the gill membranes, before blood is returned to the body.

The gas-exchange concept is based on that already used in hospital heart and lung machines, or membrane oxygenators. The use of re-oxygenated PFC has already been applied successfully in the hospital environment; a small number of U.S. hospitals have used liquid ventilation successfully on highly premature babies since the mid-'90s. It has not been reported how close Lande's design is to a working prototype for humans -- and whether or not any human guinea pigs have signed up to try one.

-- previously published in the January 2011 issue of DIVER

Flotsam & Jetsam

Another Reason to Go Diving Now. While the annual seafood catch in Indonesia's 17,000 islands is already the world's third largest, the government wants to dominate the market, and is modernizing its roads, ports and processing facilities while aiming to double the country's haul. "Wherever you have water, you have fish, and two-thirds of our country is water," says Fadel Muhammad, Indonesia's minister of maritime affairs and fisheries.

Adopt a Shark. For \$2,000, you can purchase a satellite tag to be attached to a bull, hammerhead or tiger shark, tracking its movements for up to a year while you follow it in real time on the Internet. And you also get to name your shark. The money goes to support the RJ Dunlap Marine Conservation program at the University of Miami. The one-year-old program has resulted in the adoption of 20 sharks in the Florida Keys, the Gulf of Mexico and the Bahamas. After Wells Fargo executives were brought along on a shark-tagging expedition to see what they got for their money, the bank contributed \$40,000. For details on how to adopt and contribute, go to www.shopforsharks.com

Last Words: "It Was an Accidental Shark Bite." Warren Smart had no anger at the shark that gave him a fatal bite on May 21. While on a spearfishing dive trip at South Africa's Cape Vidal, Smart, 28, was removing the fish from his spear when a nearby shark grabbed his thigh instead of the fish. While being attended to by paramedics, Smart told his three dive buddies that he wasn't the target. "He said it was an accident and that the shark may not have meant to attach him," Light's friend Trevor Hutton told the *Johannesburg Times*. Minutes later, Light died from excessive blood loss. It

wasn't know what type of shark bit him, but it was Cape Vidal's first fatal shark attack since 1890.

An Even Cheaper DPV. In last month's issue, John Bantin raved about the newer, leisure model of the Pegasus Thruster diver propulsion vehicle, priced at \$1,550, compared to Pegasus's top-line model at \$2,350. Reader David Stone (Turks & Caicos) has an even cheaper suggestion for a good DPV. "I use the Bladefish 5000 model, weighing a scant 12 pounds and costing under \$700. I have used it on a dolphin cruise in Bimini with great success -- the dolphins loved the toy as much as I did. I have found that it does not seem to bother most animals, it actually attracts their curiosity. And the weight makes it easily carried or stowed for air travel." (www.bladefish.net)

Good News, Bad News for Bali Diving. A recent marine survey by Conservation International researchers in Indonesia have discovered eight potentially new species of fish and one new species of coral on Bali reefs, which have "surprisingly high levels of diversity." Among the new species documented: two types of cardinalfish, two varieties of dottybacks, a garden eel, a sand perch, a fang blenny, a new species of goby and a previously unknown *Euphyllia* bubble coral. After surveying 33 sites around Bali, Mark Erdmann, senior advisor for the survey, says, "The coral reefs appeared to be in an active stage of recovery from bleaching, destructive fishing and crown-of-thorns starfish outbreaks." But while there's a seven-to-one ratio of live to dead coral, the survey team observed that big reef fish were severely depleted. In more than 350 hours of diving, the team only observed three reef sharks and three Napoleon wrasse. Other problems: plastic pollution and the encroachment of fishers on no-take areas in the West Bali National Park. The Bali government requested the survey to get recommendations for a network of marine reserves.

Undercurrent is the online consumer newsletter for sport divers that reviews scuba destinations and equipment. We accept no advertising.

Undercurrent (ISSN 1095-1555, USPS 001-198) is published monthly by Undercurrent, 3020 Bridgeway, Sausalito, CA, 94965.

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June 2011 Vol. 26, No. 6