

undercurrent

The Private, Exclusive Guide for Serious Divers

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Dive Into Ambon; Maluku Resort & Spa, Indonesia *a psychedelic experience without drugs*

IN THIS ISSUE:

Maluku Resort & Spa, Ambon, Indonesia.....	1
Eight-Hour Ordeal for Shark Attack Victim, Craig DeWit	3
You'd Better Have Blank Pages in that Passport	5
<i>MV Valentina</i> . Sea of Cortez, Baja, Mexico	7
Swimming with La Paz Whale Sharks ..	8
Disintegrating Dive Gear	10
Wes Skiles Verdict Unlucky for Some ..	11
In-Water Recompression? Our Readers React	12
<i>Sri Lanka Aggressor</i> Postscript	13
Not a Diving Accident	14
Big Sharks Spotted Off Florida's Atlantic Coast	15
Roatan Fatality.	16
The Latest DEMA Report.	17
Can Dolphins Save Vaquita Porpoises from Extinction?.....	18
That Devil Gas Is Not So Dangerous! ..	20
Coming Soon: Texting While Diving. ..	20
Flotsam & Jetsam	22

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Dear Fellow Diver:

I returned from my first day of diving off the island of Ambon to find a big, red-haired Viking from Finland I'll call Alekski regaling our congenial dive hosts, a big, easy-going former Londoner, Kaj (pronounced "Kai") Maney and his vivacious Aussie partner, Barb Makohin. The table before him was littered with empty bottles of "Big" Bintang beer. The grinning Finn explained that he possessed the directions to find an ultra-rare psychedelic frogfish, first discovered in 2009. He had flown in for a few days on news that the frogfish had returned. He had reconnoitered the location and was now happy to share it with Kaj, a long-time friend.

The next morning Alekski pointed out a stand of palms to triangulate the "secret" spot. Within minutes, I beheld the pink- and white-striped psychedelic frogfish -- a mesmerizing peppermint swirl of color straight out of a '60s Jefferson Airplane poster -- not seen since 2014, and before that, not since it was discovered in Ambon on the north rim of the Banda Sea. Taking turns, the three other divers patiently waited while I enjoyed photographic ecstasy with my all-purpose Nikon 60mm macro lens. She was a female behaving in typical frogfish manner, staring fixedly upward, nestled in a protected nook.

Our two guides gave me plenty of



Dive Ambon Resort



reasons to be flying high, skillfully pointing out such critters as delicately colored nudibranchs, a juvenile painted frogfish, lacy ribbons of eggs, a spiny devilfish, and many others I have yet to identify -- the Tropical Pacific Reef Fish Identification book labels some fish as simply "undescribed." The two other sites we dove that day were Laha III and Laha I, both in 30 to 40 feet of water near a turn in the bay that sheltered a small fleet of local fishing boats. The currents were crazy. Because of the locals' habit of tossing trash into the ocean, the bottom held a sandy

swirl of "cultural artifacts" that made for challenges when photographing the giant frogfish, Pikachu nudibranch, rhinopias, leaf fish, ornate ghost pipefish, flatworms and schools of scadfish. By day's end, my camera card was loaded with 350 photos, almost exclusively creatures and fish, since hard and soft corals were scarce on these sandy-bottomed muck dives. (Bob Halstead, that Aussie curmudgeon, gets credit for coining the term "muck dives.")

That night the assembly of international divers converging on Dive Into Ambon grew as Austrian husband-wife dive photography/writing team Wolfgang and Barbara Poelzer booked in. They could not have timed their arrival better. The next day we found a male psychedelic frogfish in a coral hole, not far from the female, which carried a dozen marble-sized eggs tucked against her body with her tail. Thanks to my 105mm Nikon macro lens, I could see pairs of little eyes and pale white stripes on little pink bodies inside the eggs. I should note that the water ranged between 80F and 83F during the entire trip. With my full 5mil and hooded vest with booties -- pretty much the same as our guides -- staying down for as long as 85 minutes posed no problem. Many of our dives were gentle drifts.

We explored Laha II for our second dive, again in some unpredictable currents, and this time I added a gaudy harlequin shrimp, an "undescribed" arminid nudibranch sporting two-toned purple bulbous cerata, and a tiny estuary seahorse to my catalog of "first sightings." I gave myself a mental slap upside the head when, after spotting a skittish wonderpus, its brown arms ringed with white bands, I considered that the sighting was great, but not all that "exceptional" compared to the other rarities I was seeing. I was getting far too spoiled!

Dive Into Ambon is located at Maluku Resort & Spa, a boutique-sized enclave that sits between the main drag and water's edge on Baguala Bay. Four individual cottages line one side of the property, ending in an attractive building that houses the dive shop, a well-laid-out, dedicated camera room and a nice spa on the second floor. The multi-stalled camera room is far larger than their retail shop, which offers dive-oriented jewelry, fish and creature ID books, mask straps and T-shirts, and a large range of dive rental gear.

The remaining hotel rooms -- sort of roomy, motel-like rooms -- are in a two-story building facing a big freshwater pool and an open air restaurant and garden area with a flowing brook. Two larger units closer to the bay are dubbed the Sea View studio rooms.

For a reasonable upcharge, we booked a separate thatched-roof tri-level cot-

tage. A king-sized bed and desk/vanity sat on the upper level. A smaller living area on the main level held a free-standing air conditioner, coffee table, chair and couch. Sliding glass doors opened to a cozy front porch big enough to hold a gear drying rack, table, and two chairs. On the lower level, the large, attractive bathroom was partially open to the air, adding to the one-with-nature experience. I showered standing on shale surrounded by pebbles, while amusing little crabs skittered around my feet. But, the room had no potable water, occasionally the power went out, it took a while for the water to heat up, and going up and down the steps at night to use the bathroom was annoying. These inconveniences melted away in the evening while sipping sundowners on our porch with a view of the bay.



Ambon stand-alone Cottages

That night at dinner with Kaj, Aleks, Wolfgang and his spouse, Barbara, I was on cloud nine, and not just because of the big Bintangs or the ouzo that Barbara discreetly shared after dinner. Family-style dinners had memorable dishes made with coconut, such as their chicken curry and coconut pie, but they also served delicious roasted chicken and fish steamed in banana leaf. They didn't scrimp on the deserts, which ranged from a watermelon sorbet to banana splits to a lemon soufflé. The Islamic hotel owners serve no alcoholic beverages, but the "foreign-run" Dive Into Ambon saved the day. They sell beer (\$4.50 for a 650 ml Indonesian Big Bintang, \$3 for a Filipino San Miguel) and Hatten Aga Red wine from Bali (\$27.50/bottle), which my non-picky spouse enjoyed. And Barb often served home-made appetizers with the beer and wine in front of the pool before dinner.

Eight-Hour Ordeal for Shark Attack Victim, Craig DeWit

On January 21, Aussie Craig DeWit, skipper of the Papua New Guinea-based liveaboard *Golden Dawn*, was attacked by a 13-foot (4m) bull shark while diving in the remote waters of the Torres Strait, between North Queensland and PNG. It took more than eight hours to get him to a proper hospital for treatment of his severe wounds.

"It was a case of mistaken identity," the 54-year-old said, recovering from surgery in Cairns Base Hospital. "It hit me like a truck, it came with such force, out of nowhere. It chomped down, and as it was shaking me I looked into its jaws and eye. It was a big shark."

"Its jaws went from my left wrist to the top of my bicep, and into my chest and stomach. I tried to push it away with my right hand, but then it spat me out and swam off. The water was full of blood. I thought I was mortally wounded."

His wife, Camilla, was in the water close by when the attack happened.

He suffered injuries to his hand, chest, and stomach. His friend, a trained paramedic who was on board, performed first-aid to stem the bleeding and saved his life. However, it took five hours to reach Murray Island, and bad weather meant it was an additional three hours' wait for a rescue helicopter to evacuate him to the Thursday Island medical center for treatment and then on to Cairns.

DeWit has been bitten by a shark before. He says, "Twice bitten, and still not shy. I love sharks; I think they are amazing creatures. The chances of this happening are about the same as being hit by a lightning strike."

(Source: *Courier Mail*)

Maluku Resort & Spa, Ambon, Indonesia

Coral and terrain.....	★★★
Fish and Critters	★★★★★
Photography	★★★★★
Snorkeling	★★★
Accommodation.....	★★★★
Food.....	★★★★
Service & Attitude.....	★★★★★
Money's Worth	★★★★★

★ = poor ★★★★★ = excellent

Worldwide scale

The cast of divers flying in for the psychedelic experience grew as a Chinese beauty named Jovin checked in. She constantly surfs the web for reports of unusual finds, she said, and after seeing reports of the frogfish, she immediately flew in from Singapore to get photographs. The next day, she and a young Aussie couple dove on the resort's other boat, while the Austrians and I boarded the roomy 45-foot Mimicus (a fully covered boat powered by two Evinrude 250HP outboards). I stretched my dives at Panti Nama Wall and Panti Nama Slope to 80 minutes to capture a rare hairy octopus, pink lobed mantis, and a poison mototi (aka ocellate) octopus that displayed a single iridescent blue ring under each eye. Getting back into the boat was not easy, as the steep ladder had narrow rungs and no outboard grip. So, I doffed my weights and BCD/tank and let the eager young crew lift everything up. They would check each diver's computer, writing down remaining psi and deepest depth. My deepest

was 82 feet, while most were less than 60 feet. While the coral and terrain had some appeal -- there is better coral in Indonesia -- the main reason for making the trek to Ambon is spotting rare and weird creatures and fish.

Besides the diving that day, I gathered wide-ranging cultural impressions -- floating refuse that tangled in our props, women on motorbikes garbed in hajibs, and cattle grazing next to the road, cheek by jowl with the busy town center of Paso less than two miles from our resort. That night Kaj treated us to an after-dinner presentation of his world-class underwater videography, some of which has been featured in NatGeo specials.

The following day, Mimicus slogged against choppy two-foot waves as we worked our way back to its dry-season home on Baguala Bay in front of the resort (the shop continued to run its smaller boat from Ambon Bay). In an underwater canyon at Alfa Point, we stayed within sight of sunlight as we moved into an opening in a seaside wall and stood inside in the open air on a shelf. We turned off our lights to watch hundreds of flashlight fish put on a spectacular display. They have bioluminescent bacteria-filled patches under their eyes, which they can control to give the effect of brightly blinking. Alas, I didn't get a single photo. That morning I had changed lenses on my camera without testing it. When I tried to turn my camera on underwater, it refused.

Their three-dives-per-day dive routine suited me well. In the morning I'd grab a coffee and have an omelet with homemade bread and fresh fruit and either climb into the shuttle to the jetty at Ambon Bay or wade out to the boat



Dive Ambon's Dive Dock

You'd Better Have Blank Pages in that Passport

Perhaps the most important item you carry with you on your international dive trip is your passport. Without it, you're going nowhere. But, even if you're carrying a valid American passport, you may still not be admitted to your destination if it expires in six months or doesn't have enough blank pages. Let us share a case we reported in 2011:

"It's a good idea to read up on immigration and customs laws for each country you're visiting. 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 was 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.

Frequent travelers will know how quickly their passports fill with visas stamps and stickers. Some countries

require your passport to have more than one blank page to affix an entry visa (Egypt and Indonesia are two examples), yet at the same time, new passports are being issued with just 28 pages as standard, down from the original 52 pages as in the past. You might need a blank page for every country visited on a trip.

You can no longer add pages to your passport — you need to apply for a new one. If you do, request the 52-page passport, which is available at no extra charge.

Furthermore, many countries we travel to for diving require that you have at least six months left before your passport's expiration date to be granted entry. Without that, you might unexpectedly find yourself on the next plane home.

At one time you didn't need a passport to travel to Mexico, the Caribbean, Canada or Bermuda. The Western Hemisphere Travel Initiative in 2007 changed all that, and as a result, 18 million new 10-year passports were issued that year. However, these are all due to expire this year (2017), and the sudden demand could cause wait times for renewals to jump to a couple of months or more.

So, before you start thinking about a foreign trip, check your passport for empty pages and expiration date. Renewing by mail costs just \$110. If you need a passport in a hurry, the government will expedite it for an extra \$60, but there are private companies that, for a hefty fee, can get you a passport in just a few short days. You can find more info about passport requirements and how to expedite your application at <http://travel.state.gov>.

off the resort. Either way, we'd be in the water between 9:30 and 11. Briefings were bare-bones and in broken English, but covered the essentials. After the first two dives, we'd eat a lunch (rice, fish or chicken, fruit and salad with a cookie or three) in the boat's roomy covered cabin, which had four tables and seating for about 16, then dive again, and be back to the resort between 3 and 4 pm. The staff carried my gear from the boat and rinsed and stored everything.

My last two dives that day were off Hukurila, a district facing the Banda Sea on the island's south side, where there seemed to be more hard and soft coral. I watched a hairy squat lobster whose spiky white hairs made its tiny purple legs and claws look like a colorful miniature bottle brush. A green-hued dragon shrimp hid between thin tips of a black coral, the reddish spikes on its back reminding me somewhat of a rhinoceros beetle. After a picnic on the beach near a small waterfall of trash spilling over a sandy ledge, we explored the underwater Hukurila Cave. At dinner that night Jovin observed that among those in the know, Ambon was becoming the "new Lembeh," but much less crowded. Others agreed as we dove into a dessert of chocolate-covered pastries dipped in coconut.

On my last diving day, my spouse and I waded out to the boat. Our first stop

was the tiny island called Pulau Pombo where we dove a shallow reef in the Haruku Strait. While my spouse and two other women -- teachers traveling from New Zealand and Australia -- went on a guided snorkeling foray, I explored a site called Hard Boiled. At 82 feet, my favorite divemaster, Joel, opened a mesh bag filled with hard boiled eggs; he peeled and ate one, feeding the rest to the fish. My spouse saw lots of reef fish and enjoyed her pleasant snorkeling trip.

That night, we motored carefully to Frangy's Point, with Joel using a strong flashlight to dodge families fishing in rowboats without lights. The dive was in a shallow sandy patch with outstanding visibility. Raised in Ambon and the surrounding islands, divemasters Alan and Joel scouted ahead like bloodhounds. After shooting in one spot, I'd look for a circle of lights in the distance, then rejoin the others. I spotted an uncommon bobtailed squid about two inches long that stays buried by day. Shrimp and prawn scurried by, burying quickly when lit up. A juvenile flathead skimmed the bottom, followed by a helmet conch on the prowl. A blunt nose pipe horse and small mollusks ranged in search of food, the mollusks probing with long, extended mouth tubes. A blenny snake eel, partially hidden in the sand, emerged far enough to get a clear close-up. To say that I didn't want to come up after 70 minutes would be an understatement.

My hunch is that most of what I experienced in Ambon, other than the psychedelic frogfish, would be there if I returned. Odds are more favorable for spotting a hairy octopus, the mototi species of the blue-ringed octopus, wonderpus and "undescribed" nudibranch. I also feel that I "discovered" a reasonably priced, clean boutique resort with decent food and a dive center run by an incredibly talented and energetic couple. Kaj and Barb made each new day an adventure, followed by a jolly feast at day's end. The somewhat mysterious and decidedly exotic setting, plus an enjoyable international mix of fellow divers, made my stay with Dive Into Ambon/Maluku Resort & Spa a really good trip.

-- S.P.

Our undercover diver's bio: S.P. says, "Learning to scuba (35 years ago), my beavertail neoprene wetsuit got me through my YMCA silver-level certification, even if I did freeze my bippy during 100-foot descents onto Great Lakes freighters. I've gradually earned all the main certifications, including Master Scuba Diver, and I have an SDI/TDI/ERDI solo diving certification that comes in handy when I am sometimes left on my own on dives while taking photos. In between frequent dive trips, from the Caribbean to the Asia Pacific, I am a public safety diver and try to dive once a week year-round when our local lakes are not frozen over, and when they, are I'm ice diving."



Diver's Compass: Deluxe cottage for eight nights and six days of three dives/day with three meals/day was \$1799 for me as a diver plus \$699 for my nondiving spouse, with a \$58/person shuttle fee for the 50-minute ride from Pattimura International Airport on Ambon to the resort ... \$90 for Nitrox for the week, and \$50 for the night dive ... They asked for c-cards ... Tipping was pooled; we gave about \$260 to the dive shop and \$100 to the hotel ... Flights from the Midwest were through Narita, Japan, then Jakarta, with RT prices at \$1976 pp ... Ambon is driest October through April, and the chamber on its naval base is open to the public in

case of emergencies ... BYO distilled spirits; you won't find them easily on this Muslim-oriented island ... We saved our land excursions for Jakarta (using the hotel's concierge) and Narita/Tokyo (prearranged with Narita Rainbow Tours) for on the way home ... U.S. Dollars and credit cards were accepted in Indonesia, but no traveler's checks ... Electric current is 220v with two-pin round plugs; Maluku has complimentary internet access ... We liked the Sheraton Bandara in Jakarta (about \$150/night) and Hotel Nikko Narita (about \$125/night) ... We like keeping our local dive shop in business, and they worked through Caradonna to set up the entire trip, which made things much easier. Web sites: www.diveintoambon.com; www.malukuresort.com; www.caradonna.com; naritatours.jp

MV Valentina. Sea of Cortez, Baja, Mexico

sea lion diving on a luxury liveaboard

In years past, I've dived and become familiar with the islands and dive sites north of La Paz in the Sea of Cortez, so when a local dive club booked a week on the MV Valentina, I jumped at the chance to join them. Early on, I had hints that this would be a different quality of liveaboard. The vessel is bigger than most, at 131 feet. Built as an open ocean trawler in the '80s, it has been remodeled at least three times: first, as a boutique cruise ship, then as the short-lived Baja Aggressor, and now as the Valentina, run by Fun Baja, a Mexican eco-tourism and dive operation, in cooperation with Azul Fleet, a Japanese liveaboard company. I expected this to be a delightful combination of local Mexican divemasters and eco-tourism, with Japanese-financed attention to details, and that is was.

Upon boarding the vessel, Japanese divemaster Kengo Matsumoro greeted us with a Japanese-accented English "hello" and a bow, which I replied to with another bow. This made us immediate friends. Later, as Lorenzo Beltran, the dive operations director, gave the welcome briefing, my eyes met Kengo's, and we recognized each other, having met on previous trips to this area. He proved to be an incredible divemaster who drew my attention to amazing macro opportunities all week. Besides three divemasters, the vessel had two excellent chefs, a captain, an engineer, and four crew for driving the inflatables (RIBs), schlepping gear and pouring drinks. During the week, I was fascinated with the trilingual conversations: Lorenzo and others conversing in Japanese with Kengo; American customers trying rudimentary Spanish; the Mexican crew speaking excellent English to none at all. Actually, the result was surprisingly good communication and superb customer service.

We began in La Paz and headed about 100 miles north, diving along the way, ultimately reaching Las Animas, small rocky islets that are habitat for sea lions and huge schools of fish. Here, schools of bigeye scad and surgeonfish swarmed us. I swam into large schools of Mexican barracuda, and as long as I moved slowly and managed my exhaust bubbles, they paid little attention. Schools of jacks, swirled about, as an occasional skipjack or wahoo passed, and Moorish idols, long-nosed hawkfish and endless blennies populated the boulders and minimal coral. I was delighted to watch several free-ranging octopus forage in the daylight.

We did all our diving from three RIBs, back-rolling in and climbing out on the short ladders. We divided our 20 divers into three groups, each with a divemaster, the third being Carlos, another experienced local. While the crew would load divers' gear into the RIB and help them buckle up after they climbed down and sat on the gunwale, most of them preferred the macho route: gearing up at their filling station, then crossing the deck and stepping into the RIBs, with assistance. The RIBs are carried on top of the Valentina and launched by crane at dive sites. Our boatman carried a full SCUBA cylinder with regulator and hose, to keep up with a constant slow leaks in the patched hull, but it never seemed to bother him (or me). I



MV Valentina



figured that if it deflated in a big “poof,” I had my gear, so there was no reason to worry, and we were never too distant from the mother craft. Apparently, they expect to replace venerable inflatables soon.

About 20 miles from La Paz, Los Islotes is a diving classic. Sea lions abound, and because they have frequently been visited by divers and snorkelers from the time they were pups, they have developed a familiarity with humans underwater and seem to have great fun interacting. Here, displaying their underwater gymnastics, they will steal the tip off your snorkel if you are not careful. Some -- the pups, juveniles, and a few females -- even like being petted. While we discussed and contemplated the potential adverse impact of such close human contact with these wild animals, it seems to be a moot point here. The sea lions are thriving. They have been observed by environmentalists and Mexican officials for almost 30 years, and it seems the interactions have had little if any effect. Lorenzo, who had worked for Club

Cantamar for many years -- I dived with him back then -- says diving is improving because there are more organized environmental rules that are enforced today. Most commercial fishing, except for locals, has been banned in large areas (longliners

Swimming with La Paz Whale Sharks

A few months back I went on a whale shark tour off Isla Mujeres, near Cozumel, wanting to see these lovely animals in the wild and just watch them. Aside from seeing the tiburon ballena (and a few mantas), the overall experience — safety, value, and worst of all, harassing the animals — was terrible.

I have found a good way to see whale sharks without harassing them, while actually contributing to research efforts to protect them.

The operation is called Tiburon Ballena (Spanish for ‘whaleshark’) and is based in La Paz, Mexico. Dr. Deni Ramirez, a marine biologist who has been studying whale sharks for over a decade, leads it. Aboard her boat, *El Zorro*, a 26-foot panga-type vessel, I cruised all around Bahia de La Paz, following and swimming with the critters in the whale shark nursery. I spent about three hours on the water, and swam with seven or eight different animals. The visibility was just 10-12 feet, so keeping outside the 6-foot standoff zone meant I could see them, but they were not crystal-clear. The GoPro videos were OK. The experience, though, was great.

Dr. Ramirez explained whale shark biology, why they were in Bahia La Paz, their habits, what is known,

and what her research was hoping to accomplish. We motored out not far from the main marina in La Paz, and soon found the whale sharks. Unlike Isla Mujeres, there were maybe six boats total, only one of which was a research vessel. The rules state that only one boat with a maximum of six swimmers may follow any given animal. Since the bay is a nursery area for whale sharks, the animals we saw were small, somewhere between 12 and 16 feet.

Dr. Ramirez takes tissue samples (very tiny) to study the effects of micro plastics (think abrasants in facial soaps) on whale sharks. She also uses video to study how whale sharks react to people swimming with them.

The whole experience was both exciting and relaxing; the whale sharks are graceful and slow-moving, though keeping up with them as they swim is indeed a challenge. The only thing that would have made it even better would have been 50-foot visibility instead of maybe 15-20 feet. But still magnificent and all at a cost of \$85 per person. If you want to swim with whale sharks, this is a great way to do it.

<http://www.whalesharkmexico.com>

– Mark Majors (Oakland, CA)

MV Valentina, *Sea of Cortez, Baja, Mexico*

Beginner.....	Don't Go!
Experienced.....	★★★★★
Food.....	★★★★★
Accommodation (<i>other than my cabin!</i>)....	★★★★★
Service.....	★★★★★
Money's Worth.....	★★★★★

★ = poor ★★★★★ = excellent

Worldwide scale

have raised havoc in the Sea, one reason the massive squadrons of hammerheads have become rare). Lorenzo says there are more fish and critters, now and that certainly was my experience, especially at El Bajo.

I might note that Mexicans call sea lions lobos del mar or sea wolves, a far more accurate description than "lions." Look at them head on, and they appear canine; their manners, social communities or colonies are like wolves, their hunting techniques are like wolves, and their "roar" is a canine bark.

In October's low 90s desert climate, dive conditions were perfect: Water was 82-84 F, with an occasional thermocline that dropped to the low 70s (late winter through spring, water can drop to the low 70s, even the 60s. The seas were often flat as glass,

depending on the site, and visibility varied from 30 feet to 100 feet. Valentina dive rules are the usual: have a computer and a safety sausage, no planned decompression diving, dive with a buddy, and limit your dive to 50 minutes. However, most dives lasted an hour, as the half-dozen in my RIB generally stuck together and surfaced with Kengo, who would then raise his safety sausage to signal the RIB driver for a quick pickup.

Ten miles out of La Paz, the seamount El Bajo rises to within 50 feet of the surface. It was surrounded by huge schools of fish: grouper, king angels, and wrasse. I was delighted that scalloped hammerheads that inhabit the depths around it joined us on all three dives. Apparently, there is a trick to finding them -- or attracting them -- so our group kicked away from the pinnacle into the blue, dropped down to 90 feet, and swam slowly in a wide arc. We were told there were large schools of hammerheads deep below, and an individual would pop up occasionally to check us out.

Back on the boat, I spent my time between dives playing with cameras, snacking on delights from the kitchen, telling diving stories and watching the beautiful sunsets or the amazing star displays at night. With a covered deck replete with cushioned couches and chairs and an al fresco top deck, there was plenty of room to kick back.

But, the major activity on any liveaboard besides diving is eating, and I found the food very impressive, as did even the vegetarian and gluten-free diners. In the spacious lounge, the day began with a "pre-breakfast" -- really, an expansive continental breakfast -- then, after the first dive, a sit-down breakfast with a breakfast casserole, breakfast tacos, eggs, omelets, all washed down with dark and powerful coffee. Buffet lunch specials were casseroles (frequently with shrimp prepared with various Mexican sauces), quesadillas, soup or sandwiches. Then an afternoon snack. For dinner, you were expected to come dressed and dry, to



Valentina's RIBs are spacious

be served by the crew at your table, which are comfortable U-shaped booths that hold six or so). Two well-trained chefs ran the kitchen, offering an expansive repertoire. The bar opened after the last dive, which offered cerveza and red and white wines on the house. The RIB operators, doubling as bartenders, skillfully mixed drinks.

Doors to the 10 staterooms line the walkway on both sides of the vessel. It's a couple of steps down into each cabin, which vary in size and configuration. Each has a separate sink along with a wardrobe, a dresser, two beds and spacious shower separate from the head. Each morning, the crew changed the sheets while divers were underwater. Should you go, avoid the front two cabins, numbers 1 and 6. Their elevated front bunks are poised above the anchor chain locker. When the anchor is lowered in the early morning, the chain links fly out of the locker, causing those bunks to bounce like a trampoline. I know. One of these was my bunk. Quite an alarm clock.

About an hour by boat from La Paz, in a relatively localized area in the southwestern bay, a few whale sharks frequently swim back and forth in an area about half a mile wide through high concentrations of krill. Authorities limit the number of divers daily. While I was there, a Mexican Navy helicopter circled a few times to count the divers and verify that the operators were complying with the strict rules: snorkel only, no closer than 4 feet to the side, 10 feet from the tail of the monsters. We were greeted by dozens of whale sharks, from a 37-footer to some 15-footers. While I had great photo opportunities, visibility was poor -- no more than 30 feet -- due to all the krill. Still, of all the places



Guano covered Los Islotes

Disintegrating Dive Gear

Undercurrent subscriber Dan Panzica, who lives in Arizona, was disappointed recently when his 15-year-old Apollo Prestige fins disintegrated during a dive trip to Cabo San Lucas. Later, the strap of his Uwatec Smart Z computer literally fell apart in his hands despite being packed in its original manufacturer's case and stored in a closet. While he has had a similar problem with nondiving rubber-wear, including storage bins that were kept outside his home, he thought dive gear should be made to a higher standard.

Latex rubber tends to dry out and perish in low humidity. Unfortunately, manufacturers often only discover such problems with the different thermoplastic mixes they use long after their products have hit the market. Materials used in both fins and computer straps are often modified as the longevity problems become apparent.

For example, Ryan Crawford of Suunto told *Undercurrent* that his company has changed the mate-

rial from which its computer straps are made and the latest are actually silicone.

These materials often give off a gas over a long period, and the low humidity and maybe higher temperatures of Arizona cannot have helped. To counter such problems, the straps of Scubapro (Uwatec) computers are a very different composition today than years ago.

Keep anything made from neoprene, such as wetsuits, out of the hot sun. You see, the integral nitrogen-filled bubbles that make neoprene what it is expand in the heat and leak, meaning the material becomes thinner and loses its former insulating qualities. It's best to keep all your dive gear out of the hot sun, though it is tempting to dry it quickly in the sun at the end of a dive trip.

So, Dan, disintegrating gear is not unusual. But, after 15 years, you probably have had your money's worth.

— John Bantin

Wes Skiles Verdict Unlucky for Some

The trial seeking \$25 million for the drowning death of famed underwater photographer Wesley Skiles “was closely watched by underwater explorers throughout the world,” says the news organization *Courtroom View Network*. It says the win by defense attorney David G. Concannon representing Dive Rite, the manufacturer of the rebreather used by Skiles and scored against some of the most accomplished plaintiff attorneys in Florida, is one of America’s “ten most impressive defense verdicts in 2016.”

Skiles, a diver and cinematographer with more than 7,000 dives and 100 films to his credit, died during a dive off Boynton Beach, Florida in July 2010 while filming a documentary for *National Geographic*. His widow, Terri Skiles, claims her husband drowned when oxygen sensors and electronics on the Dive Rite “O2ptima” brand rebreather failed.

But jurors took less than five hours to find the rebreather was not defective and to clear Dive Rite of negligence, product liability, and failure-to-warn claims.

Opposing sides debated during the 10-day trial whether a defective rebreather or diver error caused Skiles’ death. His widow’s attorneys claimed the O2ptima sensors were defectively designed and subject to malfunction when covered with water.

The defense countered there was insufficient evidence proving a design defect caused Skiles’ O2ptima to malfunction during his dive. Instead, it argued Skiles was an inexperienced rebreather diver swimming on little sleep who made fatal errors during the dive.

Besides losing her husband and her lawyer’s fees, under Florida law, Terri Skiles and her attorney are unfortunately liable for \$670,000 in defense costs.

in the world that advertise swimming with whale sharks, here one may have just about the highest likelihood of seeing the creatures. In two hours, I experienced at least a dozen whale shark fly-bys or swim-alongs, with fair video opportunities. For many years, the Mexican government has been managing the area, in cooperation with international environmental groups. Apparently, their effort is paying off, as the number of sharks is increasing, so it seems.

Perhaps my most unusual dive of the week was the mobula ray night dive. A few years ago, the crew discovered that when anchored at night in a certain shallow bay, the ship’s lights attracted clouds of krill, which in turn attracted fleets of mobula rays, which are nocturnal krill feeders. Hence, this easy dive was born, requiring divers to kneel on the sandy bottom at 30 feet, surrounded by hordes of mobulas zipping around, and at times even colliding with the divers. It reminded me of the classic Kona, Hawaii, manta dive, but with a hundred minimantas just 18 inches across swirling around. And, there was more excitement. An octopus crawled up my buddy’s leg while he was kneeling on the sand.

The bottom of the Sea of Cortez is rocky, with limited coral, but on my trip, the variety of fish and sea life was incredible. While I’m pretty good at fish ID, I had to rely on my naturalist friend, Judy, for a more detailed list. Besides the animals named above, I saw beau brummell, sergeant major and giant tail damsels. Guinea fowl, sharpnose, and balloon fish puffers. Dog, blue and Culebra, spot tail and schoolmaster snappers. Rainbow, wounded and various cleaner wrasse. Every sort of parrot fish known to the area. King angels, barber fish, forceps fish, Mexican surgeons, and three-banded butterflies. Oceanic triggers, filefish, and orange sided filefish. All sorts of groupers. Trumpet and coronet fish, Mexican skipjack, bonito and yellowfin tuna. Graysby, barred serrano, mutton hamlet, coral hawkfish, and soapfish. Blennies by the score including signal, barnacle bill bay, brown-cheeked, fang, sabertooth, red-faced, ant tube, redheaded and blue band blennies. Bluespot, giant and Mexican jawfish. Several species of nudibranchs. Jewel, zebra, and green moray. Regular and giant garden eel. Stingrays and electric rays. And a few more I have forgotten. Phew.

One odd aspect of a trip aboard the Valentina is that we were required to overnight in a La Paz hotel both the night of arrival and the night before departure (noncharter customers only stay in a hotel after disembarking).

Lorenzo explained that Mexico does not want us to fly in, get on a boat owned by a non-Mexican company, and then depart without leaving dollars in Mexico. So the first night, we stayed at the upscale Costa Baja, in a marina surrounded by several excellent restaurants on the eastern edge of town. At night, locals and tourists by the hundreds flocked to the nearby nightclubs. The night before departure, we were put up at the Hyatt. Several of us explored the streets, others partied until dawn, but my roommate and I just watched the beautiful sunset over the bay and crashed.

-- D.D.

Our undercover author's bio: Deco Doc, made his first dive in the '60s, got recertified in the late '80s and has a Southern California beach diver, an investor in a dive shop, an SSI divemaster, and a traveler, having made about 1200 dives from the Channel Islands to Fiji to the Red Sea. After making 200 rebreather dives, in 2005 he sold his rebreather after a discussion with his life insurance company. He is a DAN underwater medical doctor.



Diver's Compass: The standard six day/five night rate is \$2495; out group rate of roughly \$2800 added a day and two hotel stays ... Nitrox 32 was \$120 for six days (22 dives) ... In La Paz, be careful what you ingest unless your G.I. tract is used to the difference. But no one in the group had any problems, even those who ate delicious tacos from the wonderful sidewalk taco stands ... For more authentic Mexican food, try the Aura restaurant and Hotels 7 Crown, which is near Valentina's pier ... The Fun Azul also makes trips to the Socorro Islands of the Pacific Coast of Mexico www.fun-azulfleet.net or www.funbaja.com.

In-Water Recompression? Our Readers React

Undercurrent asked, in January, if you were exhibiting symptoms of decompression illness, but were at a remote location (as we often are nowadays), would you choose to endure a lengthy evacuation to a distant hyperbaric center with a serious delay in treatment, or would you opt for what might be considered risky in-water recompression as a speedier alternative?

Considering how far some *Undercurrent* readers are prepared to travel on their dive trips, we were surprised in that we had fewer responses to this question than we would normally expect. It's as if it's a taboo subject — something that people would rather not think about.

However, Larry Bernier wrote from his dive shop, *Dive! Dive! Dive!* on Con Dao, a remote island off the coast of Vietnam. www.dive-condao.com

"This is a hot subject, and one I have very strong opinions about based on experience. We have a policy of requiring divers to have insurance to cover evacuation costs (currently around \$45,000), but our airport is tiny, there are no lights and no night flights, so if you get bent here after 11:00

a.m., you will not be in a chamber in Thailand for [at least] 24 hours. Worst case, if the airport is closed due to strong winds for a day or two, the victim could be looking at days."

"I worried about this a lot, so went ahead and got myself qualified to administer the treatment."

"So far, one staff member with an undeserved inner ear hit and another customer with spreading joint pain have been treated, to 100 percent resolution. We use a Scubapro full-face mask with two ports that delivers both air and pure O₂."

"Local divers, with no training, often dive air to 60 meters (200 feet) four times a day, around 20 minutes bottom time, and do the most rudimentary of deco stops, [resulting in] lots of those guys now in diapers, in wheelchairs, or confined to bed for life."

"We have undertaken public education programs for dive safety, and I still have to go out and treat them. Locals have no money for treatment, and we have saved a few lives."

“I am just a dive shop owner, with only two shops on the island, and a low number of customers, so there is no way to pay for a chamber, but we do the absolute best we can.”

He told *Undercurrent* he believes DAN has been deeply engaged in this work, although it is not for public consumption, and he has persuaded a DAN doc to supervise him when he has questions.

Sri Lanka Aggressor *Postscript*

This was posted by a diver from the Pacific Northwest on ScubaBoard, “Has anyone here been on the *Sri Lanka Aggressor* yet? I’m nervous about a trip a friend and I are booked on in February because the boat is being pulled out of the water for additional maintenance.”

Someone based in France replied, “I was on a canceled trip recently. Appears that they have a stability issue with the strong currents when the vessel is moored, causing a lot of rock’n’roll and plenty green faces. I think it will be more than just ‘maintenance’ — more like a refit or some structural changes to make it right.”

Rumors are rife.

In January’s *Undercurrent*, we reported Mike Jöst’s unfortunate attempt to enjoy a trip over Christmas on the *Sri Lanka Aggressor*. If you’ve ever had a bad trip, read Mike’s reader report. It started this way and didn’t get any better:

“There never ever started a vacation with that many calamities than this one. First Air Sri Lanka stopped its service out of Frankfurt; had to go via London to catch the direct flight. Heathrow had a foggy day, no flights out or in; they changed my booking onto Emirates with a 6-hour layover in Dubai; reached my destination at midnight. The *Aggressor* canceled its cruise only two days prior to my departure; had to find some alternative in the last minute. On my way home, a foggy day in Abu Dhabi (the first they said), 2-hour delay, my train home was long gone reaching Frankfurt. Shit happens, it seems.”

Regarding the cancellation of his trip on the *Sri Lanka Aggressor*, *Undercurrent* has since been alerted to a report by a Sri Lankan LBO on-line newspaper dated 21st September. This is the report verbatim:

“The *Sri Lankan Aggressor*, a yacht named after the island, has been blocked by the Secretariat of Merchant Shipping from registering pending IACS classification. Releasing a statement, Yacht operator TVB Group said they delayed the launch of their new ‘*Aggressor*’ branded Super Luxury Liveaboard Yacht in Sri Lanka due to this IACS issue.

TVB said the yacht operations were scheduled to commence on 3rd September 2016 with the launch of

its first weekly liveaboard charter.

“At least 7 weeks of charters have now been canceled and the whole development is now in jeopardy as the yacht lies idle in the Colombo harbor,” the statement said.

“Charters and safari lodge trips which have now been canceled are costing *Aggressor Fleet*, local Helitour airlines, local 5 Star hotels and Sri Lanka an estimated \$700,000 foreign currency.”

Merchant Shipping, which falls under the Ports Ministry, however, says no vessel shall be registered unless at the time of registration, such vessel is classed by one of the 12 IACS Member classification societies.

The International Association of Classification Societies (IACS) is a technically based organization consisting of 12 marine classification societies headquartered in London. This classification verifies the compliance of technical and engineering standards for the design of ships.

TVB, however, charged that the Merchant Shipping wants all commercial yachts that want to operate in Sri Lanka to hold an IACS classification.

“The problem is none of the 1000 yachts operating in the Red Sea in Egypt or the 430 yachts operating in the Maldives or the 500-plus yachts in Thailand are ever built to IACS classification,” TVB said.

“Merchant Shipping is asking for something that no other commercial yachting tourism national asks for and dooming any new fleet development before one yacht can start to operate.”

TVB Group further said they are continuing to work with their local representatives, lawyers and the Sri Lanka Tourism Development Authority to find a solution.

The group also hopes that more weeks will not have to be canceled, disappointing thousands more international tourists over the next three years and costing Sri Lanka valuable tourism revenue and the launch of new Super Yacht Tourism business sector for the island.” (Source: *Lanka Business Online*)

It looks like the *Aggressor Fleet* was being over-optimistic when it accepted the bookings and not particularly accurate with the reasons for cancellations.

“You just have to make the right contacts. A lot of the DAN docs are all for it. For me, heck yes, if the diagnosis is right, I am back in the water in a heartbeat.”

Felix Romano Toussieh (Mexico City) approved, writing, “If you are in Cocos and get DCS, what other option do you have, other than in-water recompression? I would pay the \$150 every trip I make to have a chamber on board. The question is, would the operator pay for it?”

“I can see the merits of a more informed and formalized approach.”

Jim Jenkins (San Francisco, CA) was pleased that *Undercurrent* had mentioned the subject, and said he would carry a copy of Bret Gilliam’s protocol (<https://goo.gl/Yk3xxK>) with him and give it to cruise directors at the start of each trip he went on.

“I would gladly pay a small premium to be on a boat with its own chamber. \$150 is mentioned and would be very reasonable. While the chamber solves one problem (in-water recompression), it creates lots more — training, liability, etc. I think there is a growing population of us Baby Boomers who would put ‘chamber on board’ on our checklists for live-aboards and remote resorts.”

Rich Erickson, MS, DDS (Marietta, GA) says a dive boat might need an hour-and-a-half” worth of oxygen at depth to do the in-water recompression, and says “Most emergency DAN DCS kits have only a small bottle of oxygen, so how is this possible?”

Gilliam suggests that liveaboards carry H-cylinders, which can hold roughly 7,000 liters of oxygen. When fully charged, an H-cylinder provides high-flow oxygen to a patient for well over six hours. He says “H-cylinders are standard on most modern vessels, not expensive at all and widely available.” Gilliam suggests decanting oxygen to dedicated O₂-clean (and in oxygen service) scuba-size cylinders for use.

Bob Morris (Wayne, PA) says he would carry Gilliam’s procedure as part of his dive gear, wonders about the availability of oxygen in some of the remote places he dives. Keep in mind that in places like Raja Ampat, many liveaboards and dive centers now supply nitrox by de-nitrogenizing air with a membrane system combined with a compressor, but most also have emergency therapeutic oxygen supplies.

Bruce Versteegh (McKinney, TX) has been on liveaboards all over Indonesia, the Solomons, and the Philippines, and has no doubt it would easily be

36 hours to secure treatment. He thinks establishing an in-water protocol with crew training certification is a prudent option.

“I would accept the risk without reservation. It is too bad that litigation concerns overwhelm common sense. Some variation of a Good Samaritan law needs to be established that holds the dive operator non-liable for emergency treatment protocols when no other viable option exists. . . . But, no way are they going to put portable hyperbaric chambers on each ship; they struggle to keep the air conditioning working on most of those boats.”

In-water recompression has been going on for years but never formalized. Ken W. Smith (Florida), who has made 3600 dives, writes that he has personally completed several in water deco events while wreck diving in Block Island, RI early 1980s.

“Mild but persistent shoulder pain and moderate to severe skin bends were the two symptoms. Typical dive profiles were 130 ft (40m) for 40 minutes [with air], square. Lots of USN table deco time... almost another 40 minutes I believe.”

“In that same time frame, I switched to O₂ in my 30 cu. ft. pony bottle for routine deco, once above 20 ft. (6m). Then refilled the pony from a three tank bank of oxygen I brought to the base camp, where we spent nearly a month diving, me as mate

Not a Diving Accident

On December 16th, a diver in Thailand was found with his throat cut, tied to a concrete post by his BC. His body was found about 200 meters (220 yards) off Samae, a popular beach on the island of Koh Larn, near Pattaya, one of Thailand’s biggest seaside resorts — with a reputation for harboring international criminal networks. Authorities initially thought it was a middle-aged Russian, but a dive shop owner in Pattaya said the man resembled one of his clients. Eventually, the diver was identified as an American, Thomas Kech, who had arrived in Thailand on a tourist visa in 2013 and had been living in Bangkok with his Thai wife.

Police say that he had been spearfishing, and have called it a suicide, after his wife produced an email from her husband saying it was “time to fulfill my life dream of moving on” and says goodbye, adding that he transferred money to her bank account for her to “find someone who can make your dreams come true,” adding that he was leaving “in great mind, body and spirit.” Still, from a diver’s point of view, calling this a suicide seems pretty fishy.

Big Sharks Spotted Off Florida's Atlantic Coast

Florida had a bonanza with sharks this January. Diver Corey Embree had a New Year's treat looking for sharks in the waters off Palm Beach County, but after 20 years of doing that, he never thought he would meet a great white shark. Another diver, Ben Rother, later came face to face with a whale shark off the coast of Jupiter.

"It was amazing. It was kind of surreal. It was unexpected," Embree said. "We wanted to see lemon sharks; we didn't see any — just a massive white shark."

"It came right up to me, opened its mouth and gave me a big kiss," Rother said of the whale shark. "It greeted me and every person in the water in the same way," he told the *Sun Sentinel*.

According to Neil Hammerschlag, a marine biologist from the University of Miami, the Gulf Stream serves as a highway for open ocean creatures, and it may have come close to shore in recent days.

Embree and the five divers he was with recorded video of the 14-foot shark, about 3 miles off Juno beach. It was at least 4 feet wide and probably weighed on the order of 1,500 pounds. It circled the group for a few minutes before swimming away.

Luis Roman, owner of Calypso Dive Charters — the boat company that chartered the trip — said he dives in the area to spot lemon and nurse sharks as well as sea turtles this time of year.

Ben Rother, a student from the University of Pennsylvania, drove to Florida for a winter break and to go diving. He dove with Emerald Charters, expecting to see lemon sharks and bull sharks, and had dropped only to 40 feet (12m) when the whale shark approached him.

"I've never seen something so massive and so majestic before," he said. "It was this 30-foot creature that just wanted to hang out with you. It felt like a miracle." (Source: *Sun Sentinel*)

on the dive boat *Gekos*, Capt. Larry Keen, out of Delaware."

"I think I went back to depth, approximately 120 ft. (36m) for just a few minutes, then slow ascent to 20 ft. (6m) and switched to pure O₂, as I remember. Stayed until the O₂ was depleted, possibly 30 minutes. Pain symptom abated within a few minutes, on that event. And skin bends subsided on the other event, once on the surface an able to evaluate. I can see the merits of a more informed and formalized approach."

Cindy Boling (Fort Worth, TX) was even more concise: "I absolutely would opt for in-water recompression. Seems it comes down to a very simple decision — live or die..." Alas, medical decisions are rarely as simple as that.

A final word from Bret Gilliam: "Of course, I would love to see small chambers in remote locations and aboard vessels. But ... that's not going to happen due to cost, liability, and transport of the units. And the size of practical small chambers is so confining that many divers will not fit comfortably in them or even want to subject themselves to the claustrophobic experience."

"Doing the treatment in the ocean is much more comfortable, easy to access, and requires minimal support equipment. I do hope the diving pros on the remotely located resorts and vessels will get the necessary gear and training and be ready when the time comes. It's a very real situation that everyone

needs to get their heads around. It's not overly difficult to get ready, and the immediacy of treatment outweighs the very minor risks."

Medical Concerns About In-Water Recompression

John Lippmann, the very distinguished decompression and recompression expert, author of highly rated textbooks on the subject including the seminal *Deeper Into Diving*, and founder and chairman of DAN Asia-Pacific, wrote the following:

* * *

In-water recompression (IWR) has been used in one form or another for many decades to try to eliminate symptoms of decompression sickness (DCS). Historically, it was predominantly used by diver-fisherman where there was no access to recompression chambers.

Protocols varied, but it often involved descending to depth (often 30-50 m/100-165 ft) breathing air. It was fraught with risk for both the diver and his buddies, and there are many anecdotes of poor and sometimes tragic results.

In an effort to reduce the depth required for IWR, several organizations introduced IWR protocols that used oxygen, rather than air, as the breathing gas. Possibly the best-known procedure was introduced by Dr. Carl Edmonds, of the Australian Navy School of Underwater Medicine. The treatments

Roatan Fatality

On January 10, the Spanish language newspaper *La Prensa* reported the untimely death of a Canadian woman while scuba diving at Roatan, with Anthony Key Resort. Maurine Lalonde was diving with a group when she descended out of sight of the other divers.

Terry Harrison (Des Moines, IA) evidently witnessed her latter moments and reported on ScubaBoard that he had met her and her husband, Pierre, the evening before the accident and joined them for dinner. She said she was about to make her 700th dive.

Diving at the airport side of the island because the water was too rough otherwise, Lalonde was with five other divers on an AKR boat. Harrison said the divemaster gave a good briefing and Lalonde had been paired with him for the dive. They entered the water but waited as instructed at 30 feet (10m). Harrison believed the divemaster stopped at 20 feet (6m) to help a diver equalize when he heard him banging his tank to get attention.

He saw the divemaster signaling the divers to sur-

face, while he continued to bang his tank chasing downward in pursuit. Rather than ascend, the remaining four divers followed him down, but at 80 feet (25m) lost sight of him. Clay, Harrison's impromptu buddy, continued down to 173 feet (53m) before returning. As they did a safety stop, the divemaster 'ripped' past them, broke the surface and spoke with the boat captain, and headed back down.

It turns out that he had pursued Lalonde to 200 feet (60m) and had decided to return to 30 feet to recompress given his fast ascent and missed stops. Clay joined him since he, too, was in the same predicament.

The divemaster said later that he saw Lalonde descending feet-first with her arms folded and her head tilted to one side. She didn't respond to his gestures or tank banging, and he finally lost sight of her.

Both the divemaster and Clay suffered mild DCI symptoms. They breathed pure oxygen on the way back to land and hyperbaric treatment. Lalonde's body was recovered some days later. Her death remains a mystery.

involve the injured diver re-submerging to a specified depth (usually 6-9 m/20-30 ft) for scheduled times, breathing 100 per cent oxygen. However, oxygen can cause seizures at these pressures; so, to mitigate the risk of drowning in the event of a seizure, the diver should wear a full-face mask.

In the Edmonds' procedure, the diver is also tethered to a shotline marked in one metre increments to control the depth and later the ascent rate (which is one metre per 12 minutes). There needs to be an underwater attendant with the diver and one on the boat. The sea and weather conditions need to be suitable, and the diver needs to be wearing an appropriate wetsuit or drysuit to ensure that he/she doesn't get cold during the several hours underwater, which ranges from about 2 to 3.5 hours. You can read the full protocol [here](#).

With the emergence of technical diving, breathing high oxygen concentrations underwater has become commonplace, as has diving in even more remote locations. The availability of rebreathers enables oxygen-breathing for extended periods. As a result, there are a number of anecdotal reports of divers with symptoms of DCS treating themselves

using IWR on oxygen (IWOR). If done in a reasonable fashion, this is often successful. However, the reality is that it is often done in a relatively haphazard manner, increasing the risk of a problem.

Over recent months, DAN AP has received two concerning reports involving IWOR. The first involved a technical diver in Indonesia. He developed mild DCS symptoms after diving and decided to do a shallow dive on his rebreather on a high PO₂ to try to resolve them. Although the symptoms receded for a while, they worsened again that evening. After searching the web, he found some IWOR procedure on a chatline and dived again the next day, trying to treat his symptoms. Unfortunately, they became far worse, and he further compounded them by flying home.

The second diver developed symptoms of decompression illness after diving from a liveaboard in the Philippines. He was unconscious for a short time. The dive crew called the DAN AP Diving Emergency Service (DES) hotline and was linked to an experienced diving doctor. The operator indicated that its protocol was to use IWOR, and the doctor advised that the diver should NOT be put in

the water due to his unstable condition and that he should remain on the boat and breathe oxygen for several hours while arrangements could be made for further management. The diver improved significantly with the oxygen first aid, but, despite this and against the medical advice, the dive operator insisted that the diver do IWOR.

Had he become unconscious while underwater, he could have died. The dive operator's position would likely be indefensible, given that they had acted contrary to expert medical advice. It is not the role of a dive professional to make what is essentially a medical decision to perform IWOR on a client. Unless they are particularly well-informed, the client would not be in a position to assess the potential risks and balance them against the possible advantages. This is also true of the dive professional.

I believe that IWOR has its place in the management of DCS in remote places. However, it must be done using acceptable protocols, with appropriate equipment, in appropriate conditions and only on a diver who is conscious and stable. Expert diving medical advice should be sought and followed.

Dive operators and divers should not underestimate the effectiveness of properly delivered surface oxygen first aid. If given early, in high enough concentrations and for long enough (often 4-6 hours), oxygen first aid will often reduce or eliminate symptoms of DCS. It is essential that there is an adequate oxygen supply that will last until medical aid is available, or until a diving doctor advises that it can be ceased.

More Next Month.

The Latest DEMA Report

In past years, exhibitors at the Diving Equipment and Marketing Association's (DEMA) show seemed to be chasing the technical or would-be technical diver. Last November in Las Vegas, it was refreshing to see more accent on sport divers, with the major part of the show taken up by those competing to be next year's hot destination. That said, every aspect of diving was on display, including many new and interesting products, as well as some quirky ones exhibited. Here's a selection:

Fins, Masks and BCs

Among new diving equipment, there are usually plenty of examples of upgraded designs. Less common are the ideas that catch the imagination, as well as those we see at one DEMA show, but never again!

Swes Technology Dive Light. Probably the most portentous product in the DEMA show, the European-made SDL-600 dive light has no battery, but is powered by seawater! Its patented energy cell using graphite and magnesium rods is said to last for 2190 hours, and the lamp itself is rated to 325 feet (100m) deep. Electrolysis powers the 1pc CREE XM-L2 U2, producing a maximum of 1140 lumens. An updated 1800 lumen version is expect-

a battery-free light, a \$1400 BC

ed to be available in March and is expected to sell for less than \$500. www.swesholdings.com

Aqua Lung Outlaw BC is completely modular, allowing the buyer to tailor a perfect fit. It includes two different buoyancy cells, different-length shoulder straps, and single waistband, all of which easily snap together. One can attach different-sized integrated weight pockets, and the BC can be conveniently transported broken down into its constituent parts. With soft D-rings and a daisy chain loop feature for multiple ways to attach gear, it weighs only four pounds (1.8kg) and is expected to cost \$389. www.aqualung.com



**Aqua Lung
Outlaw BC**

Atomic Aquatics BC1. The company known for the highest quality products regardless of cost has come up with a \$1400 BC. That's right. \$1400. Of a conventional jacket type, it uses a watertight material that gains no weight when wet, has a novel camband that promises to keep a tank forever secure, and has large pockets with covered zips. It might last a lifetime, and for that price, it needs to, but then, perhaps it's for those divers who wish

Can Dolphins Save Vaquita Porpoises from Extinction?

We knew dolphins were clever, but not everyone is aware that some had enrolled in the Navy and are tasked with searching for underwater mines and detecting enemy divers. Now they and their San Diego-based trainers are preparing for a new challenge: locating the few surviving vaquita, the smallest porpoise, in Mexico's upper Sea of Cortez.

The vaquita population has dwindled over the past two decades, with probably fewer than 60 of them surviving today. They've fallen victim as by-catch of rampant illegal fishing for totoaba (a large bass) whose swim bladders, when smuggled from Mexico into China, fetch anywhere from \$100 to \$1000 + from wealthy Chinese gourmards, who believe it has anti-aging benefits.

Captured vaquitas would be placed inside protective pens off the coast of San Felipe in the hope that they

might have a better chance of surviving. The operation, planned for May, is the latest in a series of efforts aimed at protecting vaquitas, small cetaceans that live only in the rich and turbid waters of the Upper Gulf of California.

In fact, I recruited an *Undercurrent* subscriber and photographer more than 29 years ago to join an undercover Defenders of Wildlife effort in San Felipe, Mexico, to document the illegal totoaba fishermen and the failing vaquita population. Of course, Mexican authorities paid no heed to their efforts, or those of other environmental groups and scientists, and today the vaquita is near extinction. And, the totoaba won't be far behind.

– Ben Davison

For a CNN video on the trade, go to <https://goo.gl/NxSLNW>

to flaunt their wealth. It's due out later this year. www.atomicaquatics.com

Indigo Fins. When it comes to fins, every DEMA show has a hopeful company attempting to "build a better mousetrap." This year Indigo Industries exhibited a range of fins — Apex XT, Shift XT and Defiant XT — with zip-on alternative blades, both split and paddle, and variable stiffeners, plus foot pockets for either boots or bare feet. They all seem too complex. After all, most divers slip on their fins and hope not to give them a second thought. From \$199. www.indigo-industries.com

Aria by Ocean Reef. Some people cannot abide getting their faces wet, and that holds them back when it comes to snorkeling. Not new, but improved and gaining acceptance in the marketplace since it was announced last year, the \$110 Italian-made, full-face snorkeling mask with a fixed snorkel comes in three sizes and six colors. www.ariasnorkeling.com

Buddy Watcher. Using ultrasound frequencies, this wrist-mounted unit can draw the attention of another diver, or even a group of divers if so equipped, by vibrating and flashing an LED. With a 262-foot (80m) range, it's a discreet method for divers to stay in touch with each other. A pair of units costs around \$280. www.divealert.com

Easy Dive Nomad combines a snorkel with a compressed air cylinder that the user can easily switch to when underwater. We consider it hazardous because a snorkeler might too easily hold a

breath taken at depth and then ascend unwittingly with a great chance of inducing an air embolism. Complete with a Spare Air cylinder, it's available at \$380. We won't list the website because we don't think you should own one.

Nautilus XP and GLH. Why fin kick when you can ride? This tank-mounted propulsion system weighs less than 15 pounds (7kg) and is only 17 inches (43cm) long, so it can slip into your travel luggage. The two small propellers of the GLH each deliver 12 pounds (5.4kg) of thrust, enough to propel a diver for up to 40 minutes. Its remote control allows a diver to reverse out of tight spots. The single-propeller XP has an on-board depth sensor that will maintain a diver's depth. Two battery packs are said to conform with FAA regulations. \$1299 and \$1999. www.indigo-industries.com



Nautilus XP

Dive Computers

All the usual suspects were present with updated versions of popular dive computers, but there were one or two newcomers.

Shearwater Perdix AI. Shearwater Research has come up with a pricey computer for both technical and sport divers. With a high-resolution, colorful display and two-button interface, it allows air integration by means of a radio transmitter attached to the regulator's first stage. The Perdix AI func-

tions equally well whether you are a vacation diver or use a closed circuit rebreather. It can be linked to the Shearwater Cloud for easy sharing and viewing and editing dive logs on either phone or tablet. It costs \$1525 bundled with the transmitter.

www.shearwater.com.

COSMIQ Dive Companion. A \$299 dive computer with illuminated color display, it's revolutionary in the way it is sold. Buyers become sales ambassadors, earning referral credits by direct sales to other divers. The unit interconnects with other divers via an app, and you can integrate photos and videos with dive data, with layers of digital possibilities on-line. www.deepblu.com

Oceanic ProPlus X Computer is a step backward in that it is a hose-connected gas-integrated computer, but in other ways, it is the latest thing. Its display employs thin film technology (TFT) to give a variable brightness multi-color display without demanding too much from the rechargeable lithium battery. The diver has a choice of algorithms to monitor deeper diving. A digital compass completes the deal. A quick disconnect means it can be safely taken away from a rigged regulator while the tank is being filled.



Oceanic ProPlus

Reminiscent of the Atomic Cobalt, it

will be less expensive. www.oceanicworldwide.com

Ratio Color-Coded Transmitter. This wireless transmitter for Ratio gas-integrated computers has an LED that reveals your tank pressure to other interested divers. Green is good, yellow can be set for a reserve pressure, while red indicates empty. While perhaps useful to instructors managing more than one trainee, we suspect many divers will want to keep details of their heavy air usage to themselves. It can also be supplied as a head-up display when attached to a regulator second-stage.

www.ratio-computers.com

Underwater Photography Gear

This is the big growth section of the diving industry, spearheaded now by the phenomenal GoPro. Rivaling that, the cameras of smart phones like iPhones are starting to be utilized on dives, once in a suitable underwater housing.

GoPro Hero 5 Black is the latest incarnation of the popular POV camera, which now can be used down to 33 feet (10m) without any secondary housing. The built-in one-touch LCD screen, an improvement over the Hero 4, can be used as a viewfinder or for playback and for adjusting set-

tings. The Hero 5 Black is much more intuitive than previous models. Image stabilization is a standard feature, together with voice commands — of no use underwater, of course. With a Supersuit underwater housing, you can take the Hero 5 Black to 195 feet (60m). The best news of all — at less than \$400, the price is lower than the Hero 4! www.gopro.com

ProShot Case. It's amazing how phone cameras have swept away the popularity of compact cameras.



ProShot Case

Among the underwater housings for iPhone 6/6S and iPhone 7 at DEMA, this one interfaces with the majority of GoPro mounting accessories, and for less than \$100 includes a wide-angle lens. Another \$40 will get you a 151° fisheye lens to increase the angle-of-view of your iPhone camera.

www.proshotcase.com

Vals Tech LenzO. This iPhone 6/6S case has a dome port, which restores the lens' original field-of-view, and two internal color-correction filters. You will also have access to all the iPhone functions including the 4K mode and the on/off switch to save battery life. Depth-rated to 330 feet (100m), it's priced at \$295. An iPhone 7 version is on the way. www.ValsTech.com

Polar Pro Triton LED Tray. This new submersible lighting rig for GoPro and its imitators includes a tray and two grips that are each equipped with a 500-lumen video light, as well as built-in batteries. Expected to sell for less than \$200, it will be less expensive than anything comparable. www.polarprofilters.com

Voice-in-the-Sea Narrator. If you want to add a commentary to your underwater GoPro footage while shooting, the Narrator allows you to record directly to your camera, though you'll sound like a tinny Great War U-boat captain speaking through a tube. It may simply look like a flexible plastic tube, but they'll sell for around \$40. www.voiceinthesea.com

Paralenz Dive Camera. With a target price of \$599, this precision little Danish unit starts recording as soon as it goes underwater. Watertight to 650 feet (200m), it uses clever programming to adjust the white balance for color-corrected pictures according to depth. But it's more than just a camera. The Paralenz app generates a time, temperature and depth graph linked to the record-

ings (either still pictures or live action) and this information can be embedded as an overlay. When combined with an iPhone, the footage can be shared with the click of a button. Its rechargeable battery is said to be good for more than two hours. Two hundred divers in 35 countries have tested it. www.paralenz.com

iBubble Camera Drone. This autonomous underwater drone from France promises to follow you on a dive and record the ultimate underwater selfie. It's wireless, rated to 200 feet (60m) deep, and has two 1000 lumen lights. It automatically avoids underwater obstacles, has image stabili-

zation, a one-hour battery life and automatically returns to the diver who wears the control bracelet when it is out of battery life. But wait. It's still under development so you can only pre-order it on IndieGoGo (\$1899), with delivery expected hopefully in September 2017. But always bear in mind a lot of IndieGoGo products never make it. www.ibubble.camera



iBubble Camera Drone

That Devil Gas Is Not So Dangerous!

putting the myths to rest

A couple of subscribers took issue with my exhortation for everyone to start using nitrox. It obviously touched a nerve, reawakening old arguments put forward in the early '90s by the editor of *Skin Diver Magazine*, Bill Gleason, when he vowed that nitrox was a devil gas and he would never use it.

Long-time subscriber and diver, Chet Heddon, wrote to say that the additional time gained is "not supported by any evidence. Slightly more time, perhaps, but certainly not 'far more' time."

Well, the no-stop time on my Suunto computer, set without any cautionary personal adjustment, is 37 minutes with nitrox 21 (air) at 68 feet (21m) against 58 minutes with nitrox 32. I'd say an extra 21 minutes' dive time is significant. The relationship expands as you go deeper.

Chet also wrote that my contention that nitrox is safer than air is simply not true. "It is more dangerous than air, because it introduces oxygen toxicity and depth limitations."

(This was echoed in another email, which Bret Gilliam, founder of training agencies SDI/TDI and past president of computer manufacturer, UWATEC answers next.)

One must keep in mind that air divers are breathing nitrox 21. That is what air is, and as such, is similarly subject to oxygen toxicity and depth limitations — currently suggested by many diving computer manufacturers to be 182 feet (56m), as opposed to nitrox 32, where the suggested depth limit is around 130 feet (40m). That many of us older divers occasionally went deeper on air simply demonstrates that exposure to oxygen toxicity is a product of both time and depth (pressure).

Larry wrote:

"I just read your article *Get off the Air, Will You?* I am disappointed with the very biased statement, 'First, nitrox is safer, much safer, especially for an aging diver.' Clearly this is one-sided reporting."

Coming Soon: Texting While Diving

It may be peaceful down there, but if you think diving allows you to escape from the tyranny of your cell phone, think again. The U.S. Defense Advanced Research Projects Agency is developing portable ultra-low-frequency and very-low-frequency transmitters capable of penetrating some materials that otherwise block signals — and that includes water.

Scuba divers would be able to use a ULF channel for low bit-rate communications, like text messages,

to contact each other and communicate with ground-based assets. Initially, this has a military application, but once perfected, we guess it won't be long before there is a commercial offering — and never again would you be able to say that you were underwater and out-of-range!

Is this a wonderful technological advance or simply a pain in the butt?

“Yes, from a nitrogen-loading standpoint, the statement is 100 percent correct. However, from an oxygen exposure standpoint, the opposite is true. As a long-time PADI scuba instructor, I agree with the article about PADI’s ‘dry’ Nitrox course being inadequate. But a significant number of divers I have encountered who dive Nitrox, PADI certified or otherwise, are either unaware or unknowledgeable of the dangers of oxygen. I have witnessed several potentially dangerous situations because the diver is not taking the oxygen exposure or maximum operating depth of the mix into account. Further, other certified Nitrox divers aboard boats have seemed surprised that this is something they had to be aware of.”

“Undercurrent should not make statements that are based on half of the facts.”

Dear Larry,

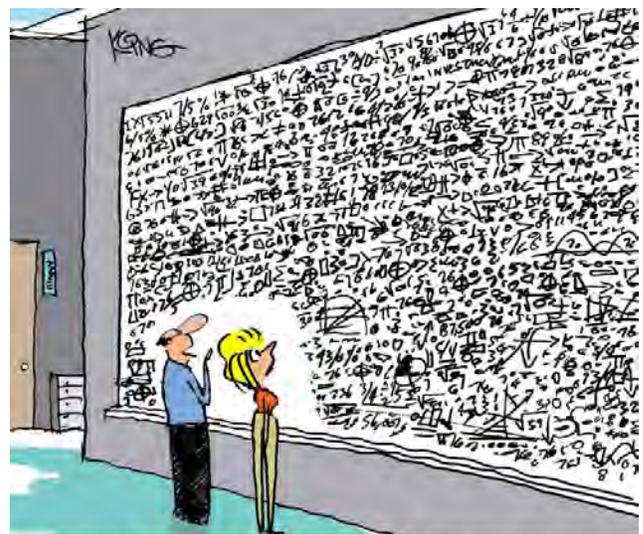
First, let’s address the issue of whether nitrox is inherently ‘safer’ than air as a breathing mix. The short answer is no.

Decompression models produce exactly the same risk factor for DCS for both gasses, since the algorithm assumes the uptake of the inert gas nitrogen to be at the same rate because the model is derived from the existing underlying rates of uptake and release. Yes, nitrox will allow longer no-decompression times due to the increased oxygen/reduced nitrogen content ... but the overall DCS risk factors are the same.

That only changes if you were to use 32 O2 percentage (for example) but set your computer to normoxic air at 21% O2. This is often referred to as the ‘physiological advantage’ in practical usage. *This effectively eliminates any real statistical possibility of DCS.*

Nitrox, however, has significant advantages for longer dive times with no decompression and shorter surface intervals allowing faster returns to diving. Overall, nitrox is simply more efficient, but the DCS risk models are the same.

As for the risks of oxygen toxicity, based on oxygen dosage, they are identical between air and nitrox. O2 toxicity is a phenomenon based on time of exposure and partial pressure. These two factors yield the ‘dose.’ The normal working O2 partial pressure limit is 1.6ATA (bar), which is achieved on air at a depth of 218.4 feet (67.2) and on Nitrox 32 at 132 feet (40.6m). The NOAA recommended maximum time at a 1.6 O2 is 45 minutes. The risk factors are the same regardless of whether you are breathing nitrox or air.



“...And that, in simple terms, is what happens when you come up from your dive too quickly. Any questions?”

The old Navy dive table no-decompression time for Nitrox 32 was 20 minutes. So with an O2 dosage time limit of 45 minutes (more than double the no-deco bottom time), there is very little likelihood of any oxygen toxicity problems. If you were to go deeper and hit a PO2 of 1.8, you would simply have a reduced exposure time of 30 minutes. Many people who don’t understand the applicable physics and working physiology seem to assume that if you drop below 132 feet (40.6m) on Nitrox 32, that you’ll suddenly experience spontaneous combustion. It’s just not true. It’s all about depth and time that produce the oxygen ‘dose.’ It’s not just depth.

One reason that Nitrox 32 evolved into the most widely used mix was that it matched up perfectly to the 130-foot (40m) maximum depth limit recommended for most sport divers. And it also equaled an oxygen exposure at 1.6 ATA (bar) that was also in widespread acceptance. It’s worth noting that the NOAA oxygen dose tables have been around for nearly five decades, and I’m not aware of a single case of O2 toxicity when divers have stayed within those limits ... regardless of the breathing mix. The protocols work.

[Editor’s Note: If you don’t dive deeper than 130 feet (40m) and never use a nitrox mix greater than 32 percent O2, a single tank diver would have nothing to worry about regarding oxygen toxicity.]

So stop worrying needlessly about an artificial O2 threat. Stay within no-decompression limits, and you automatically will not violate the O2 dose limits ... with a safety factor of over 50%.

Now, about those divers who are either “unaware or unknowledgeable of the dangers of oxygen,”

either they were poorly trained or forgot what they were taught, just as beginning divers forget things. That's why they are required to sign off on the nitrox O2 content and maximum depth limits and why an operator should reinforce the depth limits in the briefing. If that's done, you can't do much more to take care of an oblivious or suicidal diver other than to ground him after his first idiotic dive.

– Bret Gilliam

How Did Nitrox Get Such a Bad Rap?

In the late '80s, those divers who started to advocate the use of nitrox faced fierce opposition from their peers. Why was that?

During World War II, combat divers used bubble-free oxygen rebreathers for covert operations. Using pure oxygen, they were trained not to go deeper than 30 feet (9m). Many did not return. Long periods of breathing oxygen at that pressure made many susceptible to oxygen toxicity, and they drowned. In fact, they should not have gone deeper than 20 feet (6m) — and oxygen for diving got a bad name.

Nitrox is not pure oxygen. It only has elevated levels of oxygen. That said, when nitrox was first introduced, the only way to make it was to fill a tank partially with pure oxygen and then top it off with air — the 'partial pressure' method. Handling pure oxygen can be hazardous, since it supports combustion. Cavalier handling, ill-thought-out pipework with constrictions and dangerously tight turns, neoprene O-rings and equipment polluted with hydrocarbons (oil) caused some spectacular fires. People learned the hard way. Quite frankly, many divers did not know what they were doing.

Tanks needed to be oxygen-clean, and in oxygen service, O-rings had to be made of Viton. One training agency, ANDI, demanded that regulators should be oxygen-clean to be safe. (Remember those yellow and green nitrox regulators?)

Then somebody learned that freighters preserved perishable cargos by removing the oxygen from the air in ships' holds, keeping the cargos in inert nitrogen. Using the same technique, it was simple to remove some nitrogen from the air, leaving the air with an elevated level of oxygen. The nitrox membrane system was born.

Nitrox could be delivered directly to a tank with an enhanced but safe level of oxygen. From then on, divers could use ordinary scuba equipment, so it was nitrox on tap.

Nonetheless, some people still had ingrained in their minds that divers died using oxygen, and oxygen also caused fires. For them, nitrox was tainted. It remained a devil gas.

Modern Rebreathers and Oxygen

Today, closed-circuit rebreathers mix nitrox or a trimix of helium, oxygen, and nitrogen on the fly. To do this, divers go in equipped with, among other things, a supply of pure oxygen in a high-pressure cylinder. Despite many early rebreather casualties from lack of knowledge of things like CO2 poisoning, there were few oxygen toxicity deaths and few fires. To our knowledge, no mainstream rebreather manufacturer has been successfully sued for making a dangerous product.

– John Bantin

Flotsam & Jetsam

The Outgoing President. The February *National Geographic* magazine covered President Barack Obama's visit to Midway Island last September to show off the 583,000-square-mile no-take zone. The Papahānaumokuākea Marine National Monument was originally established by President George W. Bush, but has been quadrupled in size, to an area greater than all the land-based national parks combined. He was accompanied by photographer Brian Skerry, who photographed the President when he went snorkeling. The last reef check from the White House occurred in the early '90s, when Vice President Dan Quayle explored the Florida Keys

with a tank on his back. <https://goo.gl/VNvOpE>

Spanish Statue Park Completed. Originally reported in *Undercurrent* last November, the final phase of underwater sculptor Jason deCaires Taylor's monumental artificial-reef project *Museo Atlantico* in the Canary Islands is officially inaugurated on January 10th by Lanzarote's President Pedro San Gines. Comprising more than 300 works in 12 installations at Playa Blanco, completion of the project marks the first time Taylor has installed large-scale architectural as well as sculptural works. The final addition is 'The Human Gyre,' consisting of more than 200 life-sized figures of all ages and from all walks of life creating a vast circular formation. www.underwatersculpture.com

A Plastic Ocean. This is a new feature-length adventure documentary that brings to light the consequences of our global disposable lifestyle. Everyone thought we could use plastic once and throw it away, with negligible impact to humans and animals. That turns out to be untrue. During its four-year production period, *A Plastic Ocean* was filmed in 20 locations around the world in beautiful and chilling detail, to document the global effects of plastic pollution and introduce workable technology and policy solutions that can, if implemented in time, change things for the better. Directed by Craig Leeson and featuring free-diver Tanya Streeter, it can be downloaded from iTunes for \$7.99.

<http://www.justoneocean.com/download-a-plastic-ocean-for-7-99>

Loloata Closed. The Loloata Island Resort in Bootless Bay, PNG, which always proved a popular lay-over for divers passing through less welcoming Port Moresby, is closed for rebuilding until the end of this year. The reefs close-by are some of the most beautiful in PNG, and famous for their populations of rhinopias asphanes (lacy scorpionfish), first discovered by Bob and Dinah Halstead and identified by the Smithsonian back in 1980. Since then, Bootless Bay has been the epicenter of rhinopias sightings.

Does He Wear Fins in Wet Weather? New England Patriots Quarterback Tom Brady says “I used to have a scuba top that I would wear and I think I first started doing that in 2004 in the freezing cold Tennessee playoff game,” reports the *Boston Herald*. These days, there are more advanced undershirts to bear the cold, but the scuba gear trick seems to have stuck around. Titans quarterback Marcus Mariota reportedly wore a wetsuit top during a frigid game against the Chiefs earlier this season. One must presume they’re 1mm tops; if Brady’s top was 7mm, he might

have had to deflate the football to throw it.

Michigan Takes A Step Backward. Just when enlightened authorities world-wide are putting restrictions on plastic bags — they despoil the environment and kill fish — a new law in Michigan will prohibit local governments from banning, regulating or imposing fees on the use of plastic bags and other containers. You read that correctly: It’s not a ban on plastic bags — it’s a ban on the banning of plastic bags.

Fake News. Surely, it undermines our political system. We get emails forwarded from divers with no notation, and when we write back saying “before you believe such hooey, you ought to check your facts,” they often respond, “I was just passing it on. Don’t blame me if it’s fake.” Yeah, and that’s malarkey, and we know if they hadn’t believed it, they wouldn’t have passed it along. Anyhow, we’re just passing this along: <https://goo.gl/EH1mY4>. Don’t you believe it.

Remember Kodak Film? There seems to be a renaissance among some photographers for film over digital image gathering. A favorite with veterans, we don’t know if this will appeal to modern day underwater photographers because it needs much more skill to get good results. Either way, Kodak is threatening to bring back Ektachrome film, and there is even talk of reintroducing non-substantive Kodachrome too (where the color-couplers are added during complex processing). Since most older divers have parted ways with their old Nikonos cameras, or their film cameras and housings, one wonders what divers will be willing to make the big investment to return to Kodak and be limited to 36 shots on a dive, then have to wait until they can get their film developed to view their shots on a dive then have to wait until the can get their film developed to view their shots.

undercurrent

Undercurrent is the online consumer newsletter for sport divers that reviews scuba destinations and equipment. We accept no advertisements and have been published monthly since 1975.

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