

undercurrent

The Private, Exclusive Guide for Serious Divers

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Nautilus Explorer, Socorro Islands, Mexico

big animals, little value

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Dear Fellow Diver:

After years of maintaining my bucket list, I finally signed up for a dive trip to the Revillagigedos (Socorro) Islands on the Nautilus Explorer when my dive shop booked an eight-day sojourn there, with six diving days. But as glad as I was to go, I found many problematical aspects about the dive operation and the diving itself.

It's a 220-mile, 24-hour steam from Los Cabos, Baja California, to the first dive. Because it is a rough open journey on the Pacific Ocean, I started my Bonine a couple days before boarding to combat my potential motion sickness (it worked).

The Canadian-flagged Nautilus Explorer is 116 feet long and sleeps 25 divers, with doubles and a triple cabin on the lower deck, and larger staterooms on the upper deck. My standard double was perfectly comfortable -- I liked that the toilet/sink cubby was separate from the shower (water was hot and plentiful). The comfortable memory-foam mattress was fine, and though my lower deck cabin was near the anchor and engines room, I did not find the noise a problem (years of marriage have trained me to wear earplugs comfortably, and they're a plus on a liveboard). Unlike other liveboards I've dived from, heads and room were cleaned less frequently, generally when the two crew could get to it rather than during the morning dive. The two hostesses sometimes didn't remove



Nautilus Explorer
(photo by Norbert Probst)



garbage from the bathroom daily, though the Nautilus sewage system does allow one to flush biodegradable toilet paper, so the garbage was less nasty than with conventional marine heads.

For the \$3,200 I paid, I would expect more staff. The two young divemasters (one age 19) had to manage 25 divers, and they would always surface early to lend a hand on deck. The additional crew included the captain and his mate, a chef, two hostesses, an engineer and a deckhand. The staff was mostly Canadian and American, with Irish chef Jayne in charge of the kitchen. The mate or captain often drove the panga. I dived separately from the group, which I often prefer, but did so in these rugged waters partly

because there were so few dive guides.

Why crew size mattered crystallized for me on a dive at Roca O'Neal at the islet of Roca Partida, which was seriously rough, both on top and below. Dives tended to be deep (90-110 feet) and never more than 60 minutes, often under 40, so though tiring, one could do four of them (on two days, only three dives were offered). At first, the deep wall, arch and vista of light coming through the rocks at 110 feet were enchanting. I heard magical humpback songs in the distance. As I approached the rocky outcropping, the current and surge grew unmanageable. I became separated from the other divers, and as the powerful surge tossed me like a Frisbee, I realized I had to abort the dive. Alone and, frankly, anxious, I ascended without a safety stop (per the boat's directions, no blue hangs because the currents can move you far and fast). On the surface, I pulled out my little-used safety sausage and, yikes, it had holes in it. Still, I figured the two pangas would find me as I waved, hollered and lifted up my fins. Regardless, I remained invisible. Finally, I found my second sausage, hole-free, sent it up and was picked up. Alone for 15 minutes, I was weary and apparently stressed, because I had forgotten that the boat had equipped each diver with an emergency radio and GPS, which was attached to my BCD. Had I remembered, it would have eased my anxiety. Now, if you are reading and thinking, "What a wimp," I can say I have made almost 3,000 dives and am professionally trained. In other words, these were challenging conditions for anyone. Experienced divers are not immune to error.

Sometimes I entered and exited off the stern of the boat, when they were able to anchor in shallow water; otherwise, we dived from rigid inflatable boats (RIBs). The Explorer's back deck slopes downward, rather like a driveway, and is lined on both sides with tanks and gear. With the boat rocking, you can imagine waddling down it wearing 70 pounds of gear in high seas was terrifying. No style points -- just staying upright was enough. Then one flopped into the RIB. I didn't cotton to their system of running the RIB bow up onto the back deck, then having to clamber aboard in full gear while the surge roared. Indeed, getting on and off either the transom of the Nautilus Explorer directly, or the RIBs was tricky and rough in most seas. I was surprised no one was hurt. Since it was a skeleton crew, there was not always someone there to help catch teetering divers. One RIB had a ladder, but the other required a Shamu-style entry from the water. Though it's wise to be in good shape for diving, not even Herculean strength can prevent a rogue wave from turning one ass-over-teakettle. The crew worked hard to haul us out of the water, but a few more strong hands would have made that task go more smoothly. A crew member told me that the deck will be flattened in dry dock this month, and the two worn-out RIBs will be replaced with sturdier boats with ladders and large outboards. While entries onto the new pangas should be safer than the current system, we had to dance with the ones that brung us.

At Socorro Island, our morning began with a visit from the Mexican Navy, a feature of every trip. After their inspection, we did our first dive day at Cabo Pierce, which featured great views of other divers' bubbles but virtually no animal encounters. Part of it may be due to the guides' inexperience. The 19-year-old divemaster had been on the boat all of three weeks and was hardly a naturalist. The other divemaster with a naturalist bent was ill for part of the trip. And surely what one encounters depends on nature itself; the animals aren't on leashes or under contract. I was there during shoulder season in April, so perhaps that is why we saw fewer big boys. It's a curious paradox. On the one hand, I love diving solo and not being ridden or babysat. Yet, on the other, I missed the eagle eye of an informed, experienced and enthusiastic underwater naturalist. Megafauna are great, but so are the little guys.

The sites are similar to Costa Rica's Cocos Island -- rocky, with little or no coral, either soft or hard. Fish teemed, particularly schools of horse-eye jacks and trevally; white-tip and black-tip sharks darted around, and at sites like Roca Partida, white-tips piled on top of each other in crevices in the wall. It reminded me of college students stuffing into a Volkswagen.

I enjoyed our one night dive at the Aquarium, a quiet enough site that the boat could safely anchor. After a giant stride off the transom, I descended to 65 feet. Lots of invertebrates scuttled around the rocky bottom -- a robust slipper lobster shuffled around near a spiny lobster, while an octopus hunted, using my light to spot prey. I found a large reef tiger eel, a first for me.

Putting a Camera on a Shark: Not a "Brilliant Idea"

If you watched the Discovery Channel's Shark Week last summer, you may have seen the documentary *Lair of the Megashark* -- the title is self-explanatory. If you haven't, then groups fighting for a shark diving ban want to make sure you see photos and video snippets of the film crew battling it out with a great white shark. Their goal: showing that sharks can associate boats with food, and that humans can be stupid when it comes to baiting sharks.

Shooting near New Zealand's Stewart Island, Jeff Kurr and Andy Casagrande were in a dinghy attempting to put a camera on the dorsal fin of a 20-foot-long great white, but the massive animal nudged the boat and bit at the rope that tethered the dinghy to the main boat. They can be seen panicking as the great white uses its strong jaws and tail to shake the dinghy. It disappears for a bit, then Kurr and Casagrande are stunned a second time when it resurfaces close to the dinghy as it tries to get hold of the bait attached to the main rig.

One of the men can be heard warning that while sharks are not malicious, they do "kill things for a living." Another man can be heard saying, "I don't think this is such a brilliant f*****g idea, you know." When another shark is spotted breaching near the dinghy, the crew decides it is too unsafe to have a dinghy in the water with such large predators in the area. (You can see photos and a brief video at www.dailymail.co.uk/news/article-3056316).

If you got as close to a shark as these guys did -- especially while trying to tie a camera onto its fin -- would you really be surprised if it tried to do a smack down on you? George H. Burgess, director of the Florida Program for Shark Research at the University of Florida, isn't surprised. "This great white had seen this as a violation of its standards, so it did what any animal would do if it's cornered or unhappy. The great white is a charismatic animal but portrayed unfairly in the media. If you're a crew for a shark film, you're out to get the money shot, and this one got them more money than they were seeking."

Sport divers are a different story, though. Burgess says the number of diver-attacking sharks is minute; there were no incidents recorded last year. "Where we do see these incidents, it's totally relegated to either spearfishing (noises and speared fish are attractive to sharks) and attracting sharks via chumming or feeding. Those are the interactions between sharks and humans that turn out negative."

However, he just recorded 2015's first shark bite case: a blue shark in shallow waters of the Florida Keys bit a diver who was photographing it. The man admitted he got in the shark's face and repeatedly took photos before the shark was fed up. "That's when you're no longer in ecotourism mode, you're in provocateur mode," says Burgess. "These are stupid human tricks, and as a result, if you're going to engage in activities like spearfishing or baiting sharks with food, you must assume the risk and be willing to accept the consequences. The repercussions are all on you, not on the shark."

Nautilus Explorer, Mexico

| | |
|-------------------------------|--------|
| Diving (experienced) | ★★★1/2 |
| Diving (beginner -- don't go) | ★ |
| Snorkeling | ★ |
| Accommodations | ★★★★★ |
| Food | ★★★★★ |
| Service and Attitude | ★★★1/2 |
| Money's Worth | ★★ |

★ = poor ★★★★★ = excellent

World Scale

White-tips darted around, and trevalleys also used my lights to hunt. Best of all was the magical sound of humpback song in the distance. The only night dive of the trip, it was limited to 45 minutes. I wished I could have stayed down twice as long. Afterwards, hostesses Katie and Ashley were on deck with hot chocolate and cookies (during day dives, they offered water, orange slices and cookies).

The Nautilus Explorer is a comfortable craft. The second deck, with a hot tub and lounge chairs, was a pleasant place from which to enjoy a beer and watch the stars. The salon boasts a TV, DVD player, Mac PC and lots of fish and critter reference books. A previous guest had pinched the Galapagos/Eastern Pacific fish ID

guide -- for shame! After dinner, many divers enjoyed a nightcap (margaritas were popular, but the house wines and Mexican beers were good as well, around \$6 per drink) and socialized until exhaustion forced bedtime. The divers came from all over Europe (Italy, Germany, France), and based on the many languages featured in the books in the salon, it's a popular destination for Europeans. English was the lingua franca.

I really liked the food, and Jayne honored special dietary requests. Her knowledge of world cuisines was passionate and earned the hard way by working in kitchens from Indonesia to Portugal. The breakfast buffet included frittatas, eggs, turkey bacon and excellent baked goods. Lunch featured lasagna, pizza, a deli buffet, salads and always a good soup. Dinners were served family-style on platters at each of three tables, and included salmon with fruit salsa, achioterubbed chicken, beef stroganoff, salads garnished with mango and dried cherries; desserts included red velvet cupcakes and berry crumble with ice cream. Jayne also made excellent cookies and coffee cakes.

Coordinating dive times ran into conflicts with the Nautilus Explorer's sister boat, the Belle Amie, pushing dives back an hour or so because the sites were so small that both boats could not put all divers in simultaneously. It was annoying to be ready for a 7:15 a.m. dive only to be informed that thanks to the company's other boat, with its 30 divers, our time would be an hour later.

Water ranged from 72 to 76 degrees, visibility ranged from good to low, and most divers wore 7mm one-piece suits and hoods. Ironically, Mexican regulations forbid divers to wear gloves, but there is hardly any coral, so why one is prohibited from wearing gloves in roaring current is hard to fathom. You are also not permitted to carry an underwater noisemaker or even a flashlight for peering into holes during the day. I frankly ignored the glove and light rules, and thus, did not rip apart my hands when I needed to hang onto a rock.

Wisely, the itinerary ended with a guaranteed crowd-pleaser, the Boiler off San Benedicto Island, an underwater pinnacle boasting manta cleaning stations, cavorting dolphins and the occasional silky shark. The number of mantas was thrilling -- six? 10? 20? -- and their enormity and grace profoundly meditative. They cruised by, sometimes cephalic fins furled and sometimes unfurled, as Clarion angels nipped and groomed them, jacks slipstreamed and remoras clung. I swear the dolphins showed off: I'm a marine mammal, I'm cute and look at what I can do! And here is where I sighted a young whale shark two days running, and spent some quality time with him.

Despite my delight in the encounters with megafauna, I remain ambivalent about the trip. It was expensive for the value received: add Nitrox, tips, etc., to the \$3,200, and it ran almost \$600 per day of diving, high by my standards. Furthermore, many of us divers picked up an intestinal bug, perhaps food borne, and lost at least one day of diving. I can't think of anything I could have done differently to avoid picking up the bug: I washed my hands carefully, drank clean water and have always done well, no matter how funky the destination. For that kind of money, I expect more help with my gear, more comfortable pangas, and something special, maybe massages! Though the food was excellent, cabin comfortable enough, and diving sometimes exciting, the absolute cost is high for this trip. Even the ritziest liveboards in pricey locations cost less than this for six diving days, and the Nautilus Explorer operation is far from ritzy. I would be writing a far less equivocal feature if the price had been less.

P.S.: Since I took this trip, a few Undercurrent readers have filed positive trip reports for the Nautilus Explorer, which now has a different captain and dive crew from that on my trip. It made me think about how critical crew members and attitude are for a successful trip. Perhaps my experience would

Avoid New Liveboards for at Least a Month

Subscriber Carol Cox (Tampa, FL) wrote us recently to ask what's going on with Nautilus Explorer's new liveboard, the *Nautilus Belle Amie*. "We ran into a group of disgruntled divers in Cabo Pulmo who were booked on what was supposed to be the third trip of the new *Belle Amie* to the Revillagigedos Islands. They said Nautilus Explorer had cancelled the two previous trips because the new boat wasn't ready, but were assured that the boat was going to be ready for their trip, so they flew to Cabo. When they arrived, they were told they would have to come back the next day to board. They were left on their own to find rooms in Cabo San Lucas during spring break. This went on for three days, and each time they had to find rooms at a different hotel. Then they were told they were going to get to dive the rest of the trip free, then they were finally told their trip was cancelled."

Here's an online review, posted May 13, from a diver on *Belle Amie*'s first voyage. "The crew kept us waiting for 90 minutes in boiling heat whilst they decided whether to run the trip, something to do with the Mexican authorities not letting us go. After a seven-hour delay, which lost us a day's diving (with no reasonable explanation) we set off. Arriving late at our first dive site, the crew fuffed around with two unserviceable tenders before getting us in the water -- then we were down to one tender for 30 divers. Luckily the diving was exceptional, as were the food and staff -- who worked their socks off to make up for the lack of management."

We contacted Nautilus Explorer owner Mike Lever, who was candid with us (he also wrote about the problems in detail on the company's blog). First, he said he'll never build a boat in Mexico again. "It took 17,000 hours to build the *Nautilus Explorer* in Canada. The *Belle Amie*, albeit a bigger ship, took 60,000 hours. Mexican customs was another nightmare -- we still have containers, including nitrox systems, hot tubs, brand-new 25-foot RHiBs (which is why we had to buy replacement RHiBs last minute that weren't as reliable), and furniture locked up in customs, six months late! But all of these headaches should be invisible to our clients. We promised a luxury diving experience and we ran late, and the boat was not perfect to our obsessive standards. It's my fault, and my responsibility."

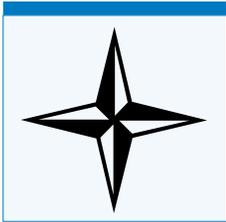
Lever said he offered loads of compensation, such as covering hotel and dive excursion costs for passengers stuck on land when the *Belle Amie* was delayed, full refund of airfare or payment of airline change fees for those who decided not to go, and makeup trips for all affected passengers. He believes the boat will be fully good to go starting this month. "In the meantime, we are being straightforward about no nitrox or hot tub, and offering clients a refund if they wish, or a 50 percent discount on a future trip of their choice, in addition to joining us on their booked trip. I hope people will judge us both on our sincerity and everything we are doing to make up for trouble caused by building the ship in Mexico."

Lever's doing a fine job in being honest, apologetic, and forthright about the *Belle Amie*'s problems -- too bad more dive operators don't follow his lead. However, as we've said many times, avoid the maiden voyage of any liveboard. In fact, avoid the maiden month. It seems that more often than not, they are fraught with problems, cancellations and severe disappointments. Better yet, give a new boat a minimum of four months' cruise time -- about the amount of time it will probably take for the *Belle Amie* to settle in -- before you plan to board.

have been more worthwhile had the crew been different. I think of vessels like the Rocio del Mar, plying the same waters, and its family atmosphere, plentiful crew and warm service. Would I have written a very different feature? Or would I have had a different experience with the crew now on board the Nautilus Explorer? Just as manners maketh the man, the crew makes the trip.

-- A.E.L.

Our undercover diver's bio: A.E.L., our undercover reviewer, says, "I started diving in my 30s and hate realizing I'm now that cliché, the baby boomer diver. However, that does qualify me to riff on those fussy comforts that the fit-but-not-40 diver notices. I've been lucky to make over 3,000 dives all over the world, and have taken fellowships and jobs based solely on diving opportunities. My spouse and I share not only a love of diving but also a passion for the environment, and support organizations like REEF and Seacology. When not diving, I am planning more dive trips."



Divers Compass: With embarkation at 8 A.M., everyone arrived the night before in Los Cabos and stayed over; my hotel, the Siesta Suites, was basic to the point of being a little creepy . . . Taxi from airport to town runs \$80; Nautilus Explorer provided group taxis for the morning pickup, about \$20 per person . . . Steel 100 tanks were available for \$100 (well worth it to balance out the 7mm suits most wore), Nitrox was \$100 for the trip, but if you dove aluminum, there was no extra charge; they offer rental gear and wetsuits . . . Tipping is at the

end of the trip in the usual envelope; a credit card payment only reaches the crew at paycheck time, every three months, so cash is preferable . . . Website: www.nautilusexplorer.com

Belize, Bonaire, Florida, Philippines . . . *and a Cozumel dive shop with a great refund policy*

Baja California Liveboards. To counter our reviewer's experience aboard the *Nautilus Explorer* in April, let us note that Barry Levenson (Bellingham, WA) boarded the boat in May and had no issues. "We were a little surprised at the guest-to-staff ratio of 25 to 9. Captain Shawn and his crew worked like a well-oiled machine and made it seem easy, even though we knew it wasn't. We had manta sightings on almost half the dives. We had pods of dolphins interact with us on four of 27 dives. Other creatures were sailfish, eels, huge lobsters, hundreds of crosshatch triggers, guitarfish, tuna, white-tip reef sharks, a few Galapagos sharks and some silkies. The dive deck was small but sufficient. Almost all dives were from a Zodiac. Loading was athletic and only one Zodiac had a ladder, so if you were overweight or unable to pull yourself up over the side, you had to wait for the boat with the ladder. The crew would help pull us up onto the other Zodiac, which worked fine and made for some comic relief."

Another option is the *Solmar V*. Thomas Smith (Columbia, MO), who has logged more than 1,000 dives, was aboard in May. "It's an older boat that has been doing the islands for many years. It's clean and well maintained, if smaller than newer liveboards, with a great crew and OK food. The diving was spectacular. I did four dives at El Canon from the big boat, where we saw mantas and white-tip sharks, with a Galapagos shark passing well below. Brisk current on a couple dives, water about 78 degrees. At Roca Partida, we did three dives for two days from Zodiacs. The schooling hammerheads were deeper than we were. Saw a few silvertips, some Galapagos sharks, tons of white-tips and silkies on our safety stops. The biggest thrills were frequent dolphins. Last day at the Boiler was the perfect end, with mantas

Lionfish Petition Update: We Still Don't Like It

In last month's article "Don't Sign This Lionfish Petition," we recommended not signing a petition, sponsored by the Emerald Coast Reef Association (ECRA), to let Florida divers kill 100 lionfish each, in exchange for 10 fish tags good for in- or out-of-season spearfishing of two each of triggerfish, greater amberjack, red snapper, red grouper and gag grouper, with no limit to the number of tags that can be earned. Lad Akins of the non-profit Reef Environmental Education Foundation was against the petition for putting more pressure on already impacted fish species, and we agreed.

ECRA president Candy Hansard wrote to say we were in error with our numbers: the ECRA's goal was to remove 25,000 lionfish in two years or less from the Florida Panhandle, not the 5,000 we wrote.

While the online petition stated that it doesn't limit the number of fish tags divers could earn, Hansard says the pilot would only provide a total of 2,500 tags. "For removing 25,000 lionfish by sacrificing 2,500 of our native fish, we will be saving approximately 1.6 million of our native fish each month those 25,000 lionfish are out of our water. We will also be preventing the release of up to 25 billion lionfish eggs that will not be reproducing the following year."

In reply to Akins's suggestion that lionfish round-up derbies are a better way to eradicate the fish,

Hansard writes, "Derbies require a lot of work and money, so they are only held sporadically. Divers wait months without harvesting lionfish from reefs to improve their chances of winning the next derby. This leaves breeding lionfish in the water for months, a year, or longer until the next derby is organized and funded."

Still, the ECRA isn't swaying many divers to its side. Undercurrent reader Carol Cox (Mexico Beach, FL) wrote us to say "Hansard campaigned for the Mexico Beach Artificial Reef Association (MBARA), and other artificial reef organizations in Florida, to support this petition at our last artificial reef seminar. My husband and I are both board members for MBARA and we did not see the logic in it."

Peter Hughes, who runs the liveaboard operation DivEncounters out of Miami Beach, says the goal seems more to spear game fish than to kill lionfish. "This is just another back-door attempt to circumvent the essential protections in place as we try to rebuild (or at least protect and maintain) our grouper and snapper populations -- especially grouper, which are becoming scarily scarce, in my unscientific opinion."

Ultimately, the people Hansard and ECRA need to convince are Florida state regulators, and they don't look likely to be won over. But for you to see both sides of the story, read the petition for yourself - it's at www.gopetition.com/petitions/support-lionfish-population-control-and-the-search-for-eradication-methods.html

on every dive, and a whopping seven mantas on the fourth. One of my best days diving in 25 years." (www.solmarv.com)

Blackbird Caye, Belize. It's a nice little resort on Belize's Turneffe atoll, which we fully reviewed positively some time ago. Jill Rain (Lopez Island, WA) has visited two years in a row and says, "The resort and setting are wonderful. A quiet private island, 18 bungalows, a duplex and a triplex right on the beach, with sea breezes. Excellent food." However, while it has some of Belize's best reef diving, the resort's dive operation has changed so much from her visit a year ago, she isn't happy. "Often divers were overcrowded on one boat, rather than running two boats. Theoretically, there were eight divers to a divemaster, operating in shifts, but sometimes we had 10 divers in a group, so there was confusion in tracking people, gear, etc., and groups had a wide range of experience. The resort appears to have become a PADI certification mill. There were classes going on constantly, pulling divemasters away for that. Many of our dives had students learning/testing skills with the divemaster while the rest of us milled around waiting. More often than not, our dives were short, including those at Lighthouse Reef, perhaps to keep us on a schedule. The only dives an hour long during our 10 days were those led by the veteran divemaster, with no classes going on. We paid extra for the Blue Hole trip, but were informed we couldn't take it because we weren't certified for advanced openwater -- even though we did that dive the year before with Blackbird. The manager said we could buy

an advanced course (some openwater divers did that, but their description of the skills tests sounded perfunctory). Since we couldn't dive the Blue Hole, we lost one dive of our prepaid package, since no replacement dive was available. Some divemasters handled critters and fed fish from a squeeze bottle, even though the resort portrays itself as ecofriendly." (Note from Ben: That they require experienced divers who dived the Blue Hole just last year with them to pony up for Advanced Open Water to repeat it is ridiculous.)

That they require experienced divers who dived the Blue Hole last year with them to take an Advanced Open Water course to repeat it is ridiculous.

Bad News from Bonaire. In a thoughtful article in the June 22 issue of the *Bonaire Reporter* (www.bonairereporter.com), resident Adnan Hassan described an April-May bait ball of mas bango (a small silverside fish eaten locally) off Bachelor's Beach. Divers, snorkelers and locals thrilled to the spectacle of diving seabirds and swirling fish. However, after a couple weeks had passed, local fishermen descended with a massive net set out by boats (not the hand-cast net permitted by the marine

park), scooping up the entire bait ball while calls to the marine park authorities and the government went unheeded for 20 hours. The remains of the net trapped fish like queen angelfish, and because a net can kill a turtle in 20 minutes, there may have been turtle deaths as well. Marine park law was flouted and authorities did nothing.

And a word to the wise for Bonaire travelers: United Airlines' Saturday flight to Bonaire from Newark has a lot of unhappy divers. Luggage checked in at Newark has had a tendency to go missing, reader Mel McCombie (New Haven, CT) reports, some taking several days to arrive. For divers on one-week trips, this is a nightmare.

Two Good Florida Dive Operators. The Atlantic coast of Florida always gets high marks, and long-time *Undercurrent* correspondent Craig Wood (Radnor PA) likes Starfish Dive Charter in Boynton Beach, 56 miles north of Miami. "I have extensive dive experience in Boynton Beach and Delray, and this area offers among the best diving in Florida. Starfish's owner, Captain Craig, handles the business expertly, and Captain Doug makes great drops and pickups for drift dives covering the extensive, healthy and lush reef system. You will see nearly all the tropical reef fish you would expect. Highlights of this latest trip included a manta off the east side of the Boynton reef and a bull shark off Delray. Several reef sharks, many nurse sharks, numerous Goliath grouper, and loggerhead and hawksbill turtles rounded out the big stuff. We did one dive on the wreck of the *Castor*, visited the large resident Goliath grouper population and watched baitfish being hotly pursued by the hunters. In late August/September, don't miss the Goliath grouper aggregation on the *Castor*, an amazing experience." (www.idivestarfish.com)

Thirty miles farther north, in West Palm Beach, Craig has made about 60 dives with Jupiter Dive Center. "Efficient, well-run operation. Two-tank dives with three-tank dives on Friday and Sunday. Three-tankers have generally more experienced divers. I did three two-tank dives the first week of February. The first dive of each day was at Area 29, with lemon sharks during the entire dive. It was difficult to estimate the number as they often circled and came around for numerous passes. By the end of the dive, I could recognize some of the sharks by markings, scars or a hook in the mouth. Nurse sharks, Goliath grouper and turtles joined us. The dives on Area 29 were at 90 feet. Water was around 73 degrees and visibility 50 to 60 feet. The opportunity to dive with lemon sharks in their natural state, without feeding, was priceless. Southern rays, morays and the usual reef fish suspects also marked second dives." (www.jupiterdivecenter.com)

A Dive Operator that's Hassle-Free about Refunds. Too often, we hear about traveling divers who have to change plans after paying in full and are out a bundle, thanks to those "nonrefundable" and "nontransferable" clauses. So we have to give credit to Cozumel's Deep Exposure Dive Center, who

honored reader Marc Pinto's (Castle Rock, CO) desire to return to dive with them after he liked his first trip with them so much. He paid \$5,500 in advance for a 10-day private charter in February. Their written policy was clear: no refunds within 14 days. "On February 1, I broke my leg skiing, so I had no choice but to cancel the trip," Pinto says. "I was expecting to lose my total prepayment, but Deep Exposure let me reschedule within 2015 (at a non-holiday time), allowing me to apply my full payment. No fees, no surcharges." That, fellow divers, is true regard for a customer. Kudos to Deep Exposure. (www.deepexposuredivecenter.com)

S/Y Philippine Siren. Michael Wood (Edmonds, WA), who has logged more than 1,000 dives, says the Tubbataha itinerary was "among the top five dive itineraries I've been on in the past 25 years. It's comparable to Raja Ampat in terms of healthy hard corals (not nearly as many soft corals as Raja), mantas, whale sharks, tropicals, white-tips and muck diving for two days on the way back to Cebu. The food was very good. My twin cabin, #7, was spacious, with tons of storage. Davide, my dive guide, was good, especially given the experienced divers and photographers he had to herd. One-hour dive times, sometimes 75 minutes. This is a 'crossing' 13-day tour at the end of the Tubbataha season. We had dead calm seas, mild currents and good viz. Camera handling by crew was very good. Safe dinghy drivers, helpful dive staff." That said, he had some big issues with the boat. "It's a defective layout. The dive deck has narrow outside passages between where you sit to put on your gear and the railing. Consequently, people going ahead of you to the dinghies have to squeeze by, bumping into rig-gings and your knees. Gear is not kept on the dinghies, so you have to schlep down a ladder onto the Zodiac with all your gear -- accidents waiting to happen. The salon's ceiling is five feet, eight inches at best, so I couldn't stand up straight. Worse, two of the three air conditioners didn't work, so it was hot and stuffy -- not the relief you needed on a sunny, 95-degree day with no breeze. Two of the eight cabins' AC didn't work at all or consistently, making for very unhappy passengers. The shower floors were horribly slippery, and two guests fell; one couldn't dive for three days. Simple rubber bath mats would solve this. The front two cabins had inconvenient storage, no room on one side of the bed to get out, noisy anchor chains in the mornings, showers that leaked onto the cabin floor. The divemasters' quarters were so full of mold that they slept in the salon, they told us. Maintenance seems to be a real problem. The camera stations are few and small, with no dedicated camera room. The eating area is a U-shaped booth, which people had to climb over or ask others to slide out to get in for dinner and lunch; not good for older divers. Most of the Tubbataha season has only seven-night cruises, which is not enough to justify traveling 40 hours." The *Siren's* owner contacted Wood through *Undercurrent*, saying there were indeed shower mats on board, but if so, Wood said, they weren't distributed during his trip. (<http://sirenfleet.com/liveboards/philippines.html>)

PS: We wrote a piece last September noting that perhaps the biggest danger to divers is falling down narrow stairs, or falling on the deck with heavy gear on. Obviously, this unfortunate experience aboard the *Siren* proves the point. Be careful.

- - Ben Davison

The Biggest Dive Lawsuit Payout to Date

father and son get \$12 million after being run over by dive boat

Seems like settlements for dive-related lawsuits are happening more often, and the payouts are growing. In our April issue, we reported on the \$7.8 million settlement for professional underwater photographer Michael Prickett, who was bent on a shoot in Rangiroa. It was the largest to date. That

has now been surpassed by a \$12 million settlement for a father and son who suffered severe head injuries when struck by a dive boat's propellers on a Florida Keys dive in 2011.

Calvin Adkins, then 11, and his father, Jared C. Adkins, then 39, both of Harrington, DE, booked with Florida Keys Dive Center in Tavernier to dive aboard the 46-foot *Big Dipper*. Both father and son were certified openwater divers; Jared had dived multiple times with the Florida Keys Dive Center and had obtained his PADI instructor credentials there.

At 9 a.m. on August 9, 2011, the *Big Dipper* reached Conch Reef, nine miles south of Key Largo, with 21 divers aboard. The pair had made two dives aboard the *Big Dipper* without incident the day before. However, the boat's regular captain wasn't on board that day; another Florida Keys Dive Center employee, John Brady, was captain. Then they changed the dive from a standard anchored reef dive to a drift dive.

The *Big Dipper*, a Newton dive boat, has a restraining wire across the stern platform area to stop access to the water until it's unclipped and the crew announces that diving can commence. While port and starboard visibility was unrestricted from the main deck and the helm station that day, two large safety rafts stacked aft of the helm station blocked the captain's direct line-of-sight from the helm. This not only obstructed Brady's view aft for normal maneuvering, he also couldn't see the lower deck and stern platform, where divers would enter the water and re-board. Not good for a captain who's unfamiliar with the boat. Because there was no visual contact between Brady at the helm and William Burton, the divemaster who was helping divers on the dive platform, communication between the two was by voice commands and responses -- Brady had to place the throttles on neutral and leave the helm so he could walk back and yell "Dive" to Burton.

Three groups of divers were to enter the water at different "drop" periods as the boat maneuvered in the current. The seas were choppy, and the wind blowing at 7 to 14 miles per hour. The Adkinses were in the third group; Calvin was going to be doing his first drift dive. After the first two teams entered the water, Jared and Calvin moved to where Burton steered them to on the deck, saw the "open" platform restraint wires, and heard the command, "Dive, dive, dive" from Brady, who had the engines going. They stepped off the platform into the water. But then the boat backed over them with its engines in reverse.

Both Jared and Calvin suffered severe and nearly fatal injuries to their heads, skulls, brains and upper torsos. It was a miracle they weren't decapitated; Calvin survived because the boat propeller

This Dive Shop Paid \$103,000 for a Death by Boat Propeller

Meanwhile, in New Zealand, a dive operator was fined US\$34,000, and its boat captain US\$17,000, for a diver struck and killed by its boat propeller during a dive trip last year. Maritime New Zealand, the government division in charge of investigating dive accidents, also required The Dive Spot Limited and Mark Barnes, its co-director and skipper, to pay financial reparations of US\$32,000 and US\$20,000, respectively, to the dead diver's family.

Bruce Porter booked with the Dive Spot Limited for a dive trip aboard its *Pacific Hideaway* to the Poor Knights Islands, off New Zealand's northeastern

coast, on February 9, 2014. During the third dive, the boat's anchor got snagged, and Barnes asked Porter to dive down to free it. However, a crew person on board was simultaneously trying to free it with a winch. Barnes thought Porter knew the anchor was free and wasn't going to dive, but when Barnes put the engines into gear, Porter was indeed in the water and right next to the propeller, which killed him.

Maritime New Zealand Deputy Director Lindsay Sturt said his death was entirely avoidable and that the Dive Spot dangerously downplayed the risk of its boat propellers. The company did not have a clear system of communicating with divers about entering the water, nor did it have a clear policy that divers were never asked to dive down to free anchors.

hit his tank first, cutting it off his back, then hit him on the head. Jared was hit by the other propeller. The Big Dipper rushed to dock, and the Adkinses were sent by ambulance to Mariners Hospital for evaluation. Jared was then sent to Baptist Hospital for surgery, while Calvin was air-lifted to Miami Children's Hospital. Both underwent emergency craniotomies, in which part of the skull is removed to allow a swelling brain room to expand. Calvin later underwent a cranioplasty -- the repair of a damaged or deformed skull using bones from elsewhere on his body. Both father and son suffered "permanent injuries, including brain damage and skull fractures," court records state; Calvin had a six-inch steel plate inserted into his skull, but because he is still growing, the plate must be replaced every six months.

The Adkinses filed a federal civil lawsuit against the dive center in April 2014. Brady and Burton initially said that the "Dive, dive, dive" command was not given. However, the restraining wire on the stern platform had been dropped by Burton, a tacit signal to divers that they could enter the water. One witness testified that Burton had specifically asked Brady if it was okay OK to begin diving and jump into the ocean, and Brady replied, "Dive, dive." Two other divers on board testified that they, too, heard Brady.

The divemaster never changed his story, maintaining he didn't hear the captain's "dive" signal, despite at least four other people testifying that they had.

When inspectors saw the two life rafts blocking the helm station's view of the back of the boat, they deduced that a lack of visuals combined with the loud engine noise meant it was hard for Brady and Burton to see or hear any communication between them.

Then Brady changed his story, saying that he did yell, "Dive, dive, dive" while putting the engines in neutral. He told investigators, "Shortly thereafter, I heard an odd sound and yelling. I immediately shut the engines down and then noticed a body floating alongside the boat with blood in the water ... I had explained the procedure we would use for this dive My mate and I also confirmed the procedure that we would use, which was not to allow any divers to enter the water until I instructed him them to do so by saying "dive, dive, dive."

However, Burton never changed his story, maintaining he did not hear Brady's "dive" signal, despite at least four other people testifying that they had. He was never given an alcohol test by his employer, so it's unknown whether he drank or took drugs the day of the dive. (Florida Keys Dive Center admitted that they had not complied with state and Coast Guard requirements for periodic drug testing of employees.) Burton's denials raised questions about not only his truthfulness but his state of mind on the boat.

With so much evidence against them, the defendants decided to settle on May 15, with Florida Keys Dive Center agreeing to pay \$11 million to Calvin Adkins and \$1 million to Jared Adkins. Court records also stated: "As part of this settlement, *Big Dipper* will provide the boat propellers involved in this accident to Jared C. Adkins." The settlement must be approved by the court, but it is rare for judges to reject civil settlements agreed upon prior to trial.

Bret Gilliam, a regular *Undercurrent* contributor and one of the country's top litigation consultants in such cases, served as the plaintiffs' expert witness for diving and maritime liability. He says, "This is perhaps the most egregious breach of duty and poor operation of a dive vessel that I have seen in my 45-year career. The fact that the captain could not even see the aft deck from the helm and had such poor communication between him and his crew is astounding. Even worse, he lied about his actions in the immediate aftermath to investigators. Every single witness testified that the command to commence diving had been given and that the Adkinses were actually assisted into the water by the divemaster. Yet, both men denied their actions despite the overwhelming independent evidence.

It truly is a miracle that Jared and Calvin survived. My heart goes out to them, and I wish them success in their continued recovery.”

The lawsuits filed by the Adkinses and by Prickett in Rangiroa show serious breaches of conduct in the dive crew involved. What’s happening to dive training, not just for divers, but instructors and boat captains? Do these big payouts indicate a pattern of dumbed-down dive instructor and crew training? Does an instructor who entered training after making only 40 dives (that’s the PADI requirement) have enough on-board and in-water experience to behave professionally, regardless of the training?

The upshot is that divers must be ever vigilant when they conduct their dives, because as these two cases show, blind reliance on a “professional” crew can fail you.

- - Vanessa Richardson

Starving Underwater Photographers: Part II

how pros handle contracts and fees -- how you should, too

Just like journalists and workers on the manufacturing line, professional underwater photographers are worried: Their careers are being turned upside down by the Internet and technology, and novice photographers are more than happy to take their place and work for little money or free. How will that affect the underwater photography you see in magazines? What’s going to happen to top pros like David Doubilet, who worked for decades at *National Geographic* before losing his full-time spot there? The professional photographers we interviewed in last month’s Part I article on this topic say their careers -- and their incomes -- have been hurt drastically. But when it comes to adapting to the changing times, pity the pro, or pat the amateur on the back?

The Publications’ Point of View

Photographers often gripe that magazines pay little for their work, and now they’re cutting rates even more, while turning to amateurs for photos. But, the publications say, have pity on us too. Because print media is in decline, they simply don’t have the resources they once had, says Adam Hanlon, a U.K.-based professional photographer and editor of the photo blog Wetpixel (www.wetpixel.com). “And no one has really figured out how to monetize online magazines. Hence, some have turned to using people who will provide photos for free in return for a free trip, or in some cases, simply image credit.”

You can tell if a general-circulation magazine is doing well if it’s thick with pages and filled with ads. If so, they can afford to pay. “A dive magazine that can still attract a reasonable amount of advertising can afford to pay to get the images it wants,” says Hanlon. “This means that the magazine looks better and will sell more copies, which ensures continued advertising revenue.” If magazines need quality images, they’ll still approach a “known” pro who knows how to follow the magazine’s art director’s instructions. That’s where the pro still has some advantage.

Steve Weinman, editor of *Diver* in the U.K. (www.divernet.com), says his magazine is print-driven; photography is not its prime focus. “We want photos that illustrate our stories rather than copy to wrap around the photos.” Most of his writers also take their own photos, so they submit both. “If we need to supplement those pictures or use a story not supplied with pictures, which is rare, we have an excellent contracted photographer whose extensive library we can use.”

Diver’s standard rate is approximately \$75 per page for first rights (meaning they own it first for a certain timeframe, then you can shop it elsewhere) on text and pictures. For individual pictures, they pay per

proportion of the page area, and more for cover photographs. "We do have some professional photographers among our contributors, and they work to our standard rates," says Weinman. "Those rates have been determined by what is realistic when working to a tight budget."

Weinman admits *Diver* uses more photo contest entries than in the past. "We give them more of a splash treatment, because they are good photos our readers will enjoy seeing, and they're free to reproduce. But we consider submissions from anyone and pay the going rate if we use the work."

On the other end of the spectrum is *Underwater Photography*, an online bi-monthly downloadable PDF magazine (www.uwpmag.com). Its founder, Peter Rowlands, is blunt about his shoestring budget and how that affects what he pays to contributors -- nothing. "I don't have staff, I don't sell advertising, and I don't commission articles. Contributors who contact me are told that, as a free magazine, there is no budget, but they can have some free advertising space. You could say *Underwater Photography* is a typical example of how the digital world has empowered the amateur (I, too, am an amateur publisher) at the expense of the professional, but I rarely deal with professionals because I have no money to offer. I do suspect, however, that a lot of them download the magazine!" Rowlands also is blunt that photo contests are a good source of free material. "And using their images shows readers the quality they need to aspire to if they are to win competitions."

We contacted top U.S. dive magazines like *Scuba Diving* and *Alert Diving* to ask what they pay and why, but they didn't respond. However, even these top U.S. dive magazines are skipping professional photographers more often for photos from amateurs, even searching the Web for images they want to print. Kaitlin Danca Galli, former photo editor of *Scuba Diving*, says she routinely used free websites to find high-quality images. "I would use Flickr, Facebook, PhotoShelter, Google image search, etc., to

Spineless: A Spectacular Look at Marine Invertebrates

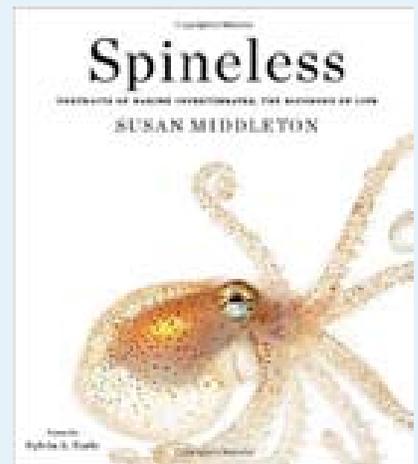
In *Spineless: Portraits of Marine Invertebrates, the Backbone of Life*, acclaimed photographer Susan Middleton captures "the haute couture of marine life -- nudibranchs, jellies, octopuses, sea stars, crabs, anemones, coral, worms, shrimp, clams, sea urchins, cowries and sea nymphs, to name but a few of the creatures whose spectacular bodies defy description. Astonishingly diverse in their shapes, patterns, textures and colors, marine invertebrates are mostly invisible to our eyes, living their lives predominantly beneath the surface of the ocean."

That's the description on the cover notes of this stunning new 256-page coffee-table book that captures these critters in ways we've never imagined. To continue from the notes, "This collection of more than 150 remarkable images was obtained using special photographic techniques developed by Middleton to best capture these extremely fragile -- and often tiny -- creatures on camera. Vivid portraits reveal the exceptional qualities of these animals, including the startling variety in their design and construction. Each image is a portrait of a unique individual, unlike any other, with features and gestures all its own. With these gorgeous images, Middleton not only makes us keenly aware of the stark

reality about why we are losing so many of these animals to environmental destruction, but she also helps us to discern why it matters.

Middleton's engaging essays present marine invertebrates as the protagonists in the unfolding drama of life on earth, and examine how they acquired their vast array of body designs as well as the underlying unity that drives this spectacular diversity of lifestyles. Two species were actually "discovered" during the course of this project.

While a provocative coffee-table book, serious divers with an eye for the spineless creatures of the seas will find the photos astonishing and the discussions enlightening. Purchase it through Undercurrent at www.undercurrent.org/UCnow/bookpicks.shtml (you'll go to Amazon.com), and the commission we earn will go to various projects to save coral reefs.



find photos. Sometimes that involved using professional work, sometimes amateur work. This was not always the best approach when it came to working with some of our contributors (i.e., it pissed off a lot of people), but it was fair game for whomever had the best material, which I think is a good way to keep [top photographers] on their toes.”

“National Geographic now prefers to outsource. They can get a thousand sources for a pittance and just buy images as they need them.”

Sure, professionals shouldn’t slack on work standards and assume they’ll get paid the same amount, but magazines lowering their rates and opting for amateurs’ free photos are the reason why top photographers are seeing their careers tailspin, says *Undercurrent* contributor Bret Gilliam, a photographer and former publisher of dive magazines.

“Guys like Ernie Brooks, who have photographed the seas for more than 40 years, are legendary and can still monetize their images as individual ‘fine art’ sales. Stephen Frink, publisher of *Alert Diver*, is compensated in that role, not really as a photographer. The days of being an in-house photo pro for the likes of *National Geographic* are long gone, and it has killed David Doubilet’s. *National Geographic* now prefers to outsource and not have to cover costs for travel, hotels and salaries. They can get a thousand sources for a pittance and just buy images as they need them.”

These days, a magazine photographer also needs to be a writer, Gilliam says. “There’s more money if you’re a professional writer and supply your own photos with your articles. As a publisher, I always preferred to assign articles to writers who were also photographers. It was ‘one stop’ shopping and better business.”

Moving on to Other Things

To survive, professional underwater photographers are looking for new clients and new formats, because new opportunities mean a steadier source of income. Amos Nachoum is a good example of this. He saw the tide turning 25 years ago, so he developed Big Animals Expeditions (<http://biganimals.com>), a tour operator that has photographers and adventure guides taking small groups of high-paying customers to exotic locales to see big animals up close, from Arctic polar bears to blue whales in Sri Lanka. The goal: create a niche as a photographer focusing on the behavior of ocean giants. “No one would send me to those places, so I had to take myself. So now I shoot whatever I want, create a story, and there’s always a buyer.”

If you’ve taken an underwater photography course at a dive resort, or gone on a liveaboard trip specifically devoted to shooting underwater, then you’re most likely helping a pro expand his or her horizons and keep the income flowing. Many photographers now run photo workshops both at home and on dive trips. Hanlon does this often, supplementing his job as editor of Wetpixel. “I shoot a lot, but I also write and research articles, lead trips and workshops, and attend imaging industry events and seminars.” Don’t be jealous, he says. “Although it is often seen as glamorous, it is by far the hardest part of the job. Very long days, minimal sleep, a lot of travel and typically a lot of diving means it can be physically and mentally tough.”

Maurine Shimlock, who runs an underwater photography business with her husband, Burt Jones (www.secretseavisions.com), says commercial photography is a miniscule part of their income, but like Nachoum, they prepared for it a while back. “Our stock photography income has decreased from around 75 percent of our total income to less than 20 percent, but really, we used that as a vehicle to increase visibility for our other related profession -- leading dive groups and working with conservation organizations. When a photographer is just starting out, the most important thing to do is build a portfolio. That’s not as important to us at this point in our careers. We don’t take assignments that require us to go to six different locations in six days, pack and unpack, stuff like that.”

Shimlock and Jones decided to pursue work where their photography could be combined with their other professional skills. “Our work with Conservation International in Raja Ampat and the Bird’s Head

Seascape came about in part because we could photograph and write, but also because we had explored and pioneered lots of dive destinations. We also knew our way around publishing and had the contacts to get two books published and distributed worldwide. It's not just about pushing the shutter. It's not just about knowing how to dive."

What to Know About Photo Contests and Contracts

Wow, the National Geographic Society has really done some cost-cutting. Not only did it fire its veteran staff underwater photographer, David Doubilet, so it could outsource photos, it's asking people to pay money to submit photos for contests, then asking them for the right to use those photos however and whenever they want, free of charge.

That's why *Undercurrent* subscriber Kandace Heimer (Houston, TX) says she'll never send photos to its magazine again. "In 2010, I sent an underwater photo to its 'Your Shot' contest. It became popular and was picked as Editor's Choice. Afterwards, I started seeing my photo used in several advertising campaigns for *National Geographic's* online magazine. Of course, I was shocked, so I looked up the 'Terms and Conditions' you must sign to enter. It states that you agree your photography can be used for advertising, third-party placement, etc., without compensation or recognition." Gina Sanfilippo (San Francisco, CA) received an honorable mention in another *National Geographic* contest but didn't win anything or even get notified. "I found out only after I saw the photo posted on a third-party site. Another one of my photos showed up on a different organization's website."

Underwater photo contests are popular, especially with their sponsors, as it's a way to get excellent images without paying for them. "Many contests are just rights-grabs for the benefit of the contest sponsor," says professional photographer Chris Huss. And many sponsors can't be bothered to let the lucky winners know their photos were picked -- or let the non-winners know their photos are being used anyway and without their knowledge."

Marty Farber (Niskayuna, NY) entered a photo contest run by Turneffe Island Resort in Belize a few years back. "Sure enough, I didn't win, but without informing me, my picture was used in an ad they ran. I wasn't paid, though I was identified as the photographer."

That's why underwater photographers need to learn about use rights so they can make informed decisions on what to do when allowing others access to their images. Here are a few suggestions:

Read the rules. Most reputable contests require a low entry fee, and the ones you ideally want to enter only request rights to use winning images for certain specific usages, such as one-time use in a web gallery that shows the winning entries, and usage rights are limited to a couple of years, not "in perpetuity." For its 2014 photo contest rules, *National Geographic* wanted the "irrevocable, perpetual, worldwide non-exclusive license" to use photos however and whenever they want "without additional compensation." (The entry fee is \$15). If you're fine with an organization taking your photos and doing with them what they will, just be aware, and pick an organization you would support in other ways.

Take care where you put your photos. Dan Clements (Everett, WA) stopped posting his shots on sites like Facebook and ScubaBoard. "They started showing up, without permission, on other people's web sites." Virginia Bria (San Francisco, CA), former president of the Northern California Underwater Photographic Society, says that if you want to show off your photos, do it on your own website and format it so they can't be stolen. "There are ways to format a photo so it can't be blown up and reproduced," she says. "Put your name across or on the bottom of the photo."

Copyright your photo. Huss learned to do this the hard way after entering a photo contest sponsored by the National Oceanic and Atmospheric Administration (a federal agency) and seeing his winning shot used beyond the one-year limit for promotional uses. "Someone who wanted to use it in a book told me that it was listed by NOAA as public use, and in Wikipedia as public domain. Just think how valuable this image could have been, but the only way to get reimbursed is to sue NOAA." If your photo has a copyright, however, you can take legal action if it's used illegally, and the offender must pay your attorney fees and punitive damages.

Don't undercut the pros. Bria says it's still worthwhile to enter fee-based photo contests, just check out who is sponsoring them and whether you're fine with what they do. "If it's a nonprofit, you're supporting the organization and a good cause." But don't give your shots for free to a for-profit company, she says. "If they want my photo, I'd charge them and then donate the money, because I don't want to undercut the pros, who make a living from them."

Worst Part of the Profession: Powerlessness

Underwater photography is esoteric -- it only appeals to a small market. Some top photographers get by in part because they're sponsored by scuba gear manufacturers that give them equipment, or by dive operators who take them on trips free of charge. The photographer pays them with high-quality photos that will be perfect for that dive resort or liveaboard's marketing. "I've found some manufacturers in the diving industry to be incredibly generous when it comes to donating gear and helping out in times of need, like special expeditions," says a top underwater photographer in the U.S. who wants to stay anonymous for fear of losing business from clients.

This photographer is also happy to contribute his work at no charge to some organizations and nonprofits, "where I know the folks are good folks. That being said, I would be far less willing to contribute my photos to some random place that contacts me out of the blue."

The publisher of a calendar to promote a shark-finning ban published names of some, but not all the pros who donated photos, and didn't even send copies of the calendar as a thank-you.

Organizations want good photos to use but too often ignore the photographers once they have the photos in hand and fail to thank them. The anonymous top photographer remembers when he gave photos to an acquaintance who published a calendar to promote a worldwide ban on shark finning. The do-gooder published names of some photographers, but not all who donated work, and he didn't even send out cop-

ies of the calendar as a thank-you. "That's probably the worst part of this profession: the powerlessness we have as creatives," says the top photographer. "Photographers are always the lowest man on the totem pole, the last people to get paid, the first folks to be asked to donate their services -- even nonprofits pay the postal service, the designer, printer, etc., before they pay photographers for a campaign." And, they too often get rudely ignored.

While he is fine with amateur photographers competing with him in photo submissions, he's not fine if they take away business opportunities just to see their photo on a website and their name in print. "Professionals have put time and money into learning the business of photography, as opposed to just the technical knowledge. If an amateur donates his image free for an ad campaign or a magazine, he or she has not learned the rules of the business, and ruins it for the professionals who rely on the market for a living."

"For instance, I once had an exhibit of my images scheduled to show at a hotel in Monterey, CA. A photo researcher I knew had arranged for the exhibit, and she charged the hotel a fee, so we were both going to make money. A few weeks after reaching a tentative agreement with the hotel, she called me, asking me why I had approached the hotel myself offering the exhibit at no charge. I had done no such thing, but an amateur photographer with a similar last name had done so. The hotel thought we were one and the same. So the amateur ended up sabotaging what could have been a venue that would pay for exhibits by underwater photographers for years to come -- all because he did not know the rules, and gave his images away for free."

Perhaps the more things change, the more they stay the same. A fantastic shot of a blue whale in the deep is still a fantastic shot, but today more people have the means to capture a good shot, even if they just learned the basics of underwater photography the day before.

"I don't want to sound dismissive, but much of what I see today on the internet is same old, same old," says David Haas, a photographer who has moved on to making money in other parts of the diving industry (he shot the cover photo of our book *There's a Cockroach in My Regulator*). "I can point you to magazines decades old with the same style of shots. A small amount of new ideas in photography are

creeping in, but most are simply due to better tools. What has changed is the medium we view it on and that newer, younger divers are taking underwater photos. And because interested people keep diving, shooting and traveling, isn't that a good thing?"

-- Vanessa Richardson

How to Breathe Underwater

or, how to master the "dive deeper, breathe slower" approach

Ever notice how some divers blow through their tank really fast, while others can stay down so long you figure that they must be hiding a set of gills under their wetsuit? What gives? And more importantly, what can we learn from divers who "sip" their air?

Air Consumption Above and Below Water

The typical diver, at rest, takes about 16 breaths per minute; that's about a cubic foot of air every three minutes, so he would use up an 80-cf tank in about four hours. However, no matter how leisurely a dive might appear, we are still working harder than at rest, so a leisurely dive would drain a 80-cf tank in approximately 80 minutes. However, this is still air consumption as measured at the surface. What happens when we dive, and start to breathe compressed air?

The deeper one goes, the denser the air one breathes; thus, the tank supplies more compressed air per breath. A typical diver will draw twice the air out of the tank at 33 feet than at the surface, three times more at 66 feet, etc. Therefore, a tank containing enough air for an 80-minute dive at the surface might last about 40 minutes at 33 feet, or 27 minutes at 66 feet.

Measuring Carbon Dioxide Levels -- and Our Breathing Clocks

To understand air consumption as we dive, we also need to examine the two main respiratory drives in our bodies that make us breathe. One system self-regulates the level of carbon dioxide (CO₂) and oxygen (O₂) in our blood. The higher the CO₂ level -- or the lower the O₂ level -- the faster we breathe. (Because CO₂ is poisonous to the body, the main chemical drive for respiration is the CO₂ level in the blood.)

The second self-regulation system acts like a clock in our brain -- we breathe a certain number of times per minute. The clock ticks faster when we exercise or are nervous, and slows down when we are relaxed or sleeping, but tends to bottom out at around 11 breaths per minute when asleep.

What happens during a dive? If you descend to 33 feet, your lungs now contain twice as much air as at sea level -- the air has been compressed to twice its density, but the volume remains the same, because your lungs didn't collapse. At 66 feet, there are three times more air molecules than at the surface. There are also three times more O₂ molecules that your lungs can use to power your body before the O₂ level runs low. Equivalently, there are that many more molecules in the lungs into which the CO₂ produced by your body can diffuse before the concentration rises enough to force you to breathe. Divers should, therefore, be able to breathe at half the sea level volume per minute at 33 feet, and one third the sea level volume per minute at 66 feet. Breathing slower can accomplish this.

Dive Deeper, Breathe Slower

The trick is to convince our bodies to allow the chemical sensors to power our respiratory system, and to ignore the ticking clock. That clock is so accustomed to telling us to regularly breathe at a rate of at least 16 breaths per minute that it will continue to do so, regardless of our need. And this is where

two things come into play -- how we are individually “wired,” and whether we can teach ourselves to breathe differently.

Some divers’ respiration will be more “clock- driven” and firmly fixed, while others will be more “chemically driven” and adaptable. Most of us are a combination of the two -- we can probably adapt our respiratory rate, but to variable degrees. The goal is not to stop breathing, or even to slow down the respiratory rate; rather, the objective is to breathe when your chemical receptors tell you to do so, and not at some clock-driven time interval more appropriate for above-water air pressure.

The objective is to breathe when your chemical receptors tell you to do so, not at some clock-driven time interval more appropriate for above-water air pressure.

Slowing down your respiratory rate takes a conscious appreciation of your breathing pattern. Start by lying down, in a warm environment, and have someone count your breathing rate while relaxed. Continue by consciously trying to slow down your respiratory rate, but not to the point of “air hunger,” feeling the overwhelming need to take a breath.

Additionally, pay attention to your breathing pattern -- when the in, out and pause occur in the cycle. Become more conscious of your respiratory rate, depth of respiration and pattern as you sit, walk, run, and do other activities.

The next time you dive, take the opportunity to find a nice patch of sand and rest quietly on the bottom. Count your respiratory rate, note your pattern and record your depth. Repeat at varying depths, again avoiding any air hunger, but feeling out what is driving your personal breathing pattern. Can you “feel” the chemical sensors, and accustom your pattern to them, rather than the arbitrary clock ticking in your brain? Are you relaxed enough to slow your respiratory rate? Can you comfortably allow it to slow even more as you dive deeper?

Out, In, Medium Pause

When performing this exercise out of water, you’ll notice that the normal respiratory cycle is this: in, out, medium pause. The resting, or “pause” phase for our respiratory muscles is at the end of exhalation, and this phase can last many seconds. While on land, where air is plentiful, there is little detriment to this pattern, but as our respiratory rate increases with exercise, the pause phase shortens considerably. Underwater, where the air supply must be conserved, a change in the standard pattern can further diminish air consumption. The objective is to maintain your lungs in the inflated state for a longer portion of the respiratory cycle, allowing for better absorption of the O₂ you have breathed in, and a larger space into which the CO₂ produced by your body can diffuse.

When I dive, I change my standard breathing pattern to this: out, in, medium pause. As a result, the average volume of my lungs is greater than when using the land-style pattern, increasing the efficiency of gas exchange. This is not a recommendation for “skip breathing,” essentially breath-holding to try to conserve air, which can lead to complications, including death. At no point should you feel air hunger, or try to avoid taking a breath to conserve air. Rather, breathe when your body tells you to do so; at no point should you feel the urge to breathe and not do so.

On a recent dive trip, my buddies videoed me with their GoPros and later sent clips to me. As I toured the reefs at 50 feet, magnifying glass in hand and oblivious to their recording, I was breathing slowly, at an average of 8 breaths per minute. Watching the videos, it was easy to note my respiratory pattern: out-in-medium pause. I have been diving with my buddies for decades, and they have also adopted the two methods just discussed. As a result, we routinely consume far less air than most other divers with whom we’re paired, even though we are far from spring chickens. But then again, none of us are full of hot air either.

Daniel Spitzer, M.D., has been a scuba diver and New York City-based neurosurgeon for more than 30 years. He

wrote a more extended version of this article, which includes references and measurements, that you can read on our blog at www.undercurrent.org/blog

Disclaimer: Diving, and breathing underwater while doing so, is the sole responsibility of the diver himself. Neither Undercurrent nor the author of this article assumes any responsibility for either of these actions.

A Better Heart-Check Tool than a Stress Test?

In our May article “Heart Health in Older Divers,” we reported on a 65-year-old diver, who rarely exercised and never visited a doctor, dying minutes after starting a dive in the Galapagos. That story sparked many older divers to ask what they need to do to prevent something similar happening to them. Should they go in for a stress test before a dive trip? Carry a portable automated external defibrillator (AED) with them? During our research, we learned there are no clear guidelines for whether older divers should have regular stress tests, and no mandates for dive boats to have AEDs onboard. In fact, the American College of Physicians (ACP) published new guidelines warning people against routine cardiac testing, saying it hasn’t been shown to improve patient outcomes, and it can actually lead to potential harms. Divers Alert Network (DAN) says it supports those new guidelines, but are they considering the stress that divers, in particular older divers, may face in tough conditions?.

When it comes to divers, *Undercurrent* subscriber Bruce Hoyle, M.D. (Newport Beach, CA) isn’t on board with the ACP’s guidelines. He told us that while he generally agrees with the ACP recommendations against routine testing of asymptomatic individuals, “this is a recommendation for the general American population. Divers traveling to remote parts of the world with limited medical services are a special subset. Perhaps DAN should add some recommendations to the ones they already have regarding diving after a heart attack.”

Hoyle is right: Diving is a stressful situation and the ACP does not speak to that. Should DAN support that conservative view when its audience of older divers is moving into high-stress situations? Even if they have not had heart attacks, shouldn’t older divers consider taking a stress test before diving in remote places like the Galapagos or Cocos Island?

Petar DeNoble, DAN’s vice president of mission, whom we quoted in the May issue, said, “DAN is not in a position to support or to contest the ACP guidelines, but rather, follows it. While there is no recommendation to test asymptomatic people just because of their age, the risks should be evaluated and selective testing done.”

Jim Chimiak, DAN’s medical director, concurs. “The confusion occurs because the ACP guidelines also support a regular physical examination by one’s primary physician, diet and exercise. It is very likely that [the dead diver’s] physician would have become alarmed if he had come to him prior to his remote vacation where he planned rigorous exercise. In addition, a regular exercise program may have demonstrated increasing difficulty with any sustained vigorous exercise, and would have led him to urgent follow-up. A graduated program working up to diving in remote locations is a good idea that incorporates an ever-increasing level of physical exercise. But again, whenever a problem is suspected, more detailed clinical investigation is warranted, especially if future plans include visiting remote locations with limited or no immediate medical services.” In short, go visit your doctor before you go on a dive trip overseas.

Like health, diving is a lot about prevention methods. “The inside of a scuba tank needs periodic inspection; the same thing applies to the heart,” says Hoyle. That’s why he is a proponent of a coronary calcium scan, which uses a special X-ray test called computed tomography to check for heart disease in an early stage and determine how severe it is. “It’s a simple test available for \$200 or less and will tell you the plaque load in your coronary arteries compared to other men and women of the same age,” says Hoyle. “Being in the 90th percentile means 90 percent of people your age have less plaque than you. You might still pass a cardiac stress test with this score incidentally, but you would now be on the radar for your doctor to be aggressive with diet, exercise, medications, close follow-up and perhaps recommendations against diving in remote locations.

“ Once you have a positive stress test, you already have significant coronary disease by definition. A coronary calcium scan can tell you years before a positive stress test that you are headed in that direction, so that you can do some kind of intervention. To spend \$150 every couple of years to know the status of your heart is a bargain.”

Flotsam & Jetsam

Save Grand Cayman from Cruise-Ship Overload.

Dive legend Sylvia Earle recently posted this comment on her Facebook page: "There's a struggle going on in Grand Cayman between the Ministry of Tourism, whose goal it is to build a new cruise ship pier in the middle of Georgetown Harbor, and locals who know it will destroy acres of coral reefs and coastal habitat. This scenario is repeating itself across the globe, and the big money usually wins. If you love Grand Cayman, please send your comments now. According to Dr. Ellen Prager, 'The local community is near panic as they believe that even though the Department of Environment is against the plan, the Minister of Tourism will push it through.' Please stand with the people of Grand Cayman." You can send an email to doe@gov.ky; or sign this petition at <https://www.change.org/p/save-cayman>

Palau: If You Can't Beat Them, Burn Them.

Because seizing boats and destroying fishing gear has been unsuccessful, Palau decided to send a stronger message to bad fishermen: We're going to burn you. The island nation set fire to four Vietnamese boats found off Kayangel Island last month that were carrying more than eight tons of sea cucumbers and reef fish. The 77 crew members were sent back to Vietnam aboard two fishing boats that weren't burned. "This message goes to the captain and crews of these vessels: Palau guarantees you will return with nothing," president Tommy Remengesau, Jr., said after the boats were burned. "Nothing will be gained from poaching in Palau. From one fisherman to another, respect Palau." Palau was the first nation to create a shark sanctuary, in

2009, and last year, it was the first to declare all its waters a no-take fishing zone.

Sawfish Resort to "Virgin Births" to Survive. In Florida, scientists have documented reproduction without mating in smalltooth sawfish, a species nearing extinction due to overfishing and habitat destruction. This marks the first time the phenomenon called parthenogenesis has been seen in a vertebrate in the wild. That process consists of a female's egg cell developing into four cells, with one becoming the egg cell and another acting as a sperm cell and fusing with the egg. Some females may be resorting to asexual reproduction because smalltooth sawfish numbers are so low, mating opportunities may not exist. After birth, smalltooth sawfish live for about three years in southwest Florida's estuaries before moving into ocean coastal habitats.

More Dive Shops Are Closing Than Opening. One way *Dive Center Business* magazine measures the dive industry's health is surveying how many dive retailers have opened and closed in recent years. The news isn't great. From 2010 to 2014, 51 new dive centers opened, but 106 closed. The average age of a closing dive shop was 14 years. Many more stores closed specifically in 2014 than in recent years, particularly sad when the economy is generally improving.

The State of Divers' Mental Health. The Diving Diseases Research Centre (DDRC) in Plymouth, England, has run the Health of Divers research project since 2008, looking at the effects of drugs and alcohol on divers, along with their cardiac and dental health. Now the project starts a new phase: evaluating divers' mental health. The DDRC says it's aiming for a "better understanding [of] the general mental fitness of divers, and any implications this may have on diving safety." To do this, they're asking divers to fill out a mental fitness questionnaire that takes just five minutes. Fill it out at www.surveymonkey.com/t/LSKYVT7

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