

undercurrent

The Private, Exclusive Guide for Serious Divers

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Okeanos Aggressor II, Cocos Island, Costa Rica

hammerhead heaven, but not for the faint of heart

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www.undercurrent.org

Editorial Office:

Ben Davison, Publisher and Editor
3020 Bridgeway, Suite 102
Sausalito, CA 94965

EditorBenD@undercurrent.org

Dear Fellow Diver,

One rule for liveaboard diving is to plan your arrival at least 24 hours in advance so as not to miss your boat and be out an entire dive trip as well as a bundle of money. So my dive buddies and I added two days to take in the sights at Club Del Mar on the Pacific Coast in the Jaco area. Costa Rica is a nature lover's paradise, and our van driver stopped so we could view 15 river crocodiles lazing in the mud. At the beautifully appointed condo resort, I gazed at macaws in trees, resplendent butterflies and red squirrels with bushy gray tails, rode horseback to a waterfall and took a zip line through the jungle. What a way to kick off a dive trip.

Then came a 90-minute van ride to Punta Arenas and the Okeanos Aggressor II. The crew put our dive bags on the dive deck, and I climbed aboard and stowed my gear at my tank and in my small locker. We had a welcome drink, met the crew for a quick briefing, followed by a more detailed safety briefing -- we were each given GPS beacons -- once we set sail, about 4:30 P.M.

The compact Okeanos Aggressor II, which in a previous life was the Wind Dancer, is somewhat tired -- some rusty window/port-hole frames, chipped paint here and there, worn-out deck chairs, a wonky door between



Okeanos Aggressor II



the dive deck and the salon -- but is surely functional. Our 39-hour open ocean crossing was smooth and easy, at least for me, since I had Bonine on board. Two other divers became seasick. We arrived about 6:30 A.M., and had our first dive at 9 A.M., after breakfast.

Our checkout dive was in calm Chatham Bay at Manuelita Island, next to the main island. After the nine divers in our group got our weights set, we settled in next to the rock wall and immediately started seeing hammerheads and white tips. In

30-foot (9m) visibility, the hammerheads would oddly turn away when they found me kneeling on the sandy bottom. Several large marbled stingrays lazed about, one of which, my buddy told me later, nearly latched onto my butt after I had passed over him. Schools of striped grunts, jackfish, black durgons, trumpetfish, snappers, boxfish, parrotfish, small tuna, and even large yellowfin tuna swirled about. It was a great opening dive. But the second didn't measure up. Shy hammerheads stayed 15-20 feet (6m) away, and my images had backscatter and weren't well lit.

Back on the boat, meals were something to look forward to. The first night we had delicious broiled sea bass, a diverse salad, broccoli, rice, rolls and passionfruit flan. All dinners were varied and delicious -- salmon, sea bass with a rich cream sauce, fajitas, BBQ, sushi/sashimi, pizza, steak, pork loin, killer salads with several kinds of veggies, blackberry mousse, tres leches cake, and fruit. Soft drinks, beer, wine and frozen cocktails were part of the deal. Breakfasts were eggs/omelets, bacon, ham, cheese, cereal, pancakes, French toast, fruit and coffee, even espresso and cappuccino. Lunch might be chicken or beef fajitas, refried beans, veggies. One diver celebrated his nitrox certification, another his 100th dive, and my panga with 10,000 dives, all with specially prepared cakes on different nights. The chef accommodated vegetarian/low carb diners, and Eduardo, the waiter, provided extra helpings and free frozen mixed drinks.

The international makeup of the divers -- Russian, Swiss, Japanese, German,

Older, Deeper, Longer and a Guinness Record.

When *Undercurrent* readers end their subscriptions, we ask why — and many say they are “too old to dive.” While most report there is nothing wrong with them, they have made some arbitrary decision about a number, their age, and the number at which they should not dive. But why? We are all getting older — the French call scuba diving the “Sport of Grandparents.” Let's not stop enjoying diving.

For example, we don't have to undertake dives that challenge us. While a young, fit and experienced diver might wish to dive the *Andria Doria* with multiple tanks and a rebreather, what's wrong with doing single-tank shallow dives in benign conditions? Not a thing. We dive for our own pleasure, and easy dives can be remarkable dives.

Some older divers just keep going. The age record is held by 93-year-old Paul Staller, who dived to 52 feet (16m)

for 36 minutes in the Turks & Caicos in 2014. We don't know if he's still diving, but he obviously enjoyed himself. And he could now be considered a mere whippersnapper.

The *Wirral Globe* reports that Ray Woolley, a 94-year-old Brit, retired and living in Cyprus, hopes to claim the Guinness World Record for the oldest scuba diver. And he went longer — 41 minutes — and deeper — 125 feet (38m) on August 28th, diving the Mediterranean wreck of a truck ferry, *Zenobia*, in Cyprus. And he ain't stopping!

But, is Wooley really the oldest living diver? Leni Riefenstahl, infamous for her 1935 Nazi publicity movie *The Triumph of Will*, was still diving past 95. Do you know someone older who ought to own that record? We'd like to hear. BenDDavison@undercurrent.org (Don't forget to include your town and state.)

Transmit Video While Diving?

If you are a Snapchat user, you may have heard of the Snapchat eyeglasses that include a little camera so that you can instantaneously send a message to friends with pictures of what you're looking at.

Well, if you're a passenger on a Royal Caribbean Line journey, you might soon be able to use a diving mask that has been specially designed to send Snapchat photos.

The cruise line created prototypes of the mask, which allows shooting up to 30 minutes of 10-second footage. They call it the SeaSeeker mask and say it "transforms Snapchat spectacles into underwater

goggles." All the Snapchat videos recorded with it can be seen on YouTube.

We're unclear how the technology works (since radio waves don't pass well through water), but they claim that users will be able to livestream videos from up to 150 feet (46m) deep.

The SeaSeeker mask is being tested in Mexico at the moment, and the adventures of free diver Ashleigh Baird in and around the Blue Holes are being live-streamed on the @RoyalCaribbean account as part of their #SeekDeeper campaign.

Belgian and American -- made for fun mealtime and cocktail hour conversations about diving the world and world affairs, and for photo/video sharing. A considerate diver from Belgium brought sausages, cheese, and chocolates. Diving 3-4 dives per day took its toll on most of us; most divers hit the sack after dinner.

Our first real hammerhead dive was classic! Swarms of the bizarre creatures came from all sides on the Manuelita deep dive site. In little current and 60-foot visibility, schools of jacks and occasional large yellowfin tunas cruised by. The hammerheads showed less fear this dive, as I hugged rock platforms, sat down or kneeled as they whizzed past. But, to underline the unpredictability of diving, in two more dives here, there was no shark action at all.

MV Okeanos Aggressor II

- Diving for Experienced★★★★★
- Diving for BeginnersDon't go!
- Accommodations★★★★½
- Food.....★★★★½
- Ambience.....★★★★★
- Dive Operation★★★★★
- Boat Overall★★★★½
- Money's worth★★★★★

★ = poor ★★★★★ = excellent

Worldwide scale

Dirty Rock was my afternoon dive, and it was a classic festival of hammerheads swimming five feet over my head. I got shots of two dozen 15 feet (4m) above me with my wide-angle Nikon. And, they were in sunlight -- not common at Cocos this rainy time of year (Early August). I had partly sunny skies all week and warm water, 81-82°F (27°C).

Then, back to my too-small two-bunk misnomered "deluxe stateroom" for a shower. The size is somewhat of a downer for the long crossings. There was insufficient room for two people to get dressed at once and the tiny head with shower was tough to negotiate. But, the day finished with a beautiful sunset, with boobies circling as I lay on the bow on a 1970s beach chair (the netting is quite old and needs replacing) with a full rainbow behind me.

The night dive is one everybody should do once, which is probably enough. Fifty or so 3- to 5-foot (1 - 2m) white tips hunted and swirled around the sandy/coral bottom at 45 feet. My dive guide found a little octopus, along with a spotted moray eel sticking his head out from a crevice, but a half hour was plenty. I skipped the other night dives, as did many. But I did join a daytime panga shore excursion to dip in a spectacular waterfall pool on Cocos Island (set for Jurassic Park) that I hiked to in 15 minutes, up the slippery rocks of the creek. Another afternoon, several divers toured the ranger station.



A panga waiting for divers to board

craft, the deck showers were warm, as were the post-dive towels, and the crew provided fruit, smoothies and snacks after the afternoon dive. Only three night dives -- 6 P.M. -- were allowed by the rangers, who joined two dives, ostensibly to ascertain we were not breaking park rules.

After a 25-minute rough panga ride to Alcyone (discovered by Jacques Cousteau in 1987), we descended 100 feet (30m) down the line in a strong current. I hooked into the barnacle-encrusted rocks to watch hundreds of hammerheads parade in 60- to 80-foot (18 - 21m) visibility, some schooling overhead in the faint sunshine. It was only a 30- to 35-minute dive, but intense and exciting! The park ranger diving with us later said she wished she had brought gloves to hold on because barnacles and sea urchins are everywhere.

Another dive I dropped to 93 feet (28m) and settled on a rock shelf, resting my left arm on a boulder and my right hand gripping my camera. In 70-foot (21m) viz, with no surge or current, hammerhead after hammerhead paraded in front of me, some turning up over my head at the last minute, permitting breathtaking close-ups. Next dive, while shooting one of my buddies swimming into a school of jacks, I watched her disappear into the blue. When I stopped shooting, I realized my group had vanished. Swimming back 150 feet (50 m) and finding no one, I continued on our planned "right shoulder to the wall" dive, and they eventually appeared. Apparently, the guide had them go into the blue for a peek at something, without

Day dives were 8 A.M., 11 A.M., 3 P.M., off two pangas, inflatable Zodiacs with a 140 hp outboard, with tanks stored in the middle (where they stayed to be filled with long hoses). Normally, they filled tanks to 3200 psi, but sometimes 10 percent lower. That additional 300 psi helps many divers stay down the full 35-45 minutes at 90-foot depths dived.

Nine of us rode on the gunwales, and because I wear long free diving fins, I sat in the back where I could backroll off without whacking someone. On the mother

Charting Marine Litter Levels

It's upsetting to witness a marine animal tangled in plastic or even attempting to eat it, but it's becoming more common. However, reporting marine debris just got easier. A new smartphone app is enabling scuba divers across the world to easily record information regarding any marine litter they might come across.

The data will help Project AWARE (a non-profit organization working with volunteer divers, with offices in the U.S., the UK and Australia) to build a database to share with science and conservation bodies to provide evidence to drive long-term change in waste management. Governments can introduce laws such as one in Kenya where the trading in, supply of and even possession of plastic bags can render the miscreant liable to a massive fine and even time in jail. That's good news for turtles, which have been filmed devouring plastic bags, most likely because they have mistaken them for jelly-

fish, a dietary staple.

In 2016, divers reported 1,624 cases of entanglement of marine animals during surveys for Project AWARE. This includes plastic bags and netting.

After completing a clean-up, whether it be removing one item such as a ghost fishing net or a mass of smaller items, divers simply report the debris removed and the dive conditions, and then upload any photos. The app stores diver's data regardless of data connection.

Since so many divers have their smartphone with them on dive excursions, Project AWARE can exploit this resource, making their initiatives more effective. To get involved, go to your app store (Google Play or iTunes) for the free Dive Against Debris app.

Don't merely be appalled at the rubbish you see under water. Do something about it!



Cloud-covered Cocos Island with Manuelita Island to the right

notifying me. My buddy worried because these are waters where, with the currents, you don't want to leave a diver alone. Though I can handle myself, I think my guide should have noticed my absence and come looking for me. Accidents happen in tough waters.

Regardless, both divemasters -- Carlos (also the captain) and Anibel -- were very thorough, friendly and competent. Carlos was more amiable, with a great sense of humor and a twinkle in his eye, and took great pains to help my 80-year-old buddy with cameras, get below the surface and point out things to see.

Submerged Rock was a nice change of pace. I cruised along the wall with my left shoulder at 80 feet (26m) and dove down through a large, grunt-infested swim-thru. Another left turn and I was humming lazily along, observing a few white-tips, trumpetfish and snappers when the hammerheads once again appeared out of nowhere and started swirling above me, sometimes swooping in. Quick moves and noises startled them, so I had to wait. Chasing or swimming out from the wall doesn't work.

At Dos Amigos (Pequenos and Largo), dozens of hammerheads, a couple of Galapagos sharks and two tigers came on by, some passing within 10 feet (3m) if I remained still.

They added a third dive the last day, when they normally have two, because "they liked our group," but it should have been called off because the current was strong enough to rip off a mask. While I struggled to go down the line with my camera rig, the first group had moved up to their safety stops, with "wide eyes" peering through their masks. I finally got down to 90 feet and put in my reef hook, while others who made it -- two didn't get down and went back to the boat with the guide -- clung to the rocks watching their bubbles whip past horizontally. I relaxed and filmed a half-dozen white tips at a cleaning station, but I think for safety's sake the first guide should have called the dive. Strong currents in these waters have led to more than one diver needing rescue.

The trip back to Puntarenas was a pleasure, with flat seas, a beautiful sunset and a pod of dolphins surfing off our bow, dancing, prancing, and pirouetting. My buddies and I disembarked to a private van and we toured all day, taking a crocodile river cruise, driving through the coffee plantations, and visiting a huge local crafts store. After a night at the lovely Doubletree, I headed to the airport, fully satisfied with my seven days of diving from the Okeanos Aggressor II.

I should add, however, that upon arrival, I had an issue to resolve. I had made my group's reservations nearly a year before departure, and one of my buddies, an 80-year-old female, had been assigned a double cabin (she had requested

a bottom bunk, and, if possible, no other roommate). She ended up with a female roommate, though a third woman who had joined the cruise a couple of months previously, had no roommate. It turned out that the good captain wasn't planning to use one upper deck cabin, but put it in play (at my request, as I was the group organizer), and everyone was happy. This is the second time my buddy had cabin problems (see my undercover review of the Palau Aggressor in January 2016), suggesting that the Aggressor office is lax in assigning cabins logically (i.e., who signed up first). Double-check ahead of time to ensure that you get the cabin or bunk promised you, and speak up once you board.

-- D.S.

Our undercover diver's bio: *"I got the diving bug watching Sea Hunt as a kid, got certified in 1983, but didn't start diving the world until 1991. I've logged more than 1,200 dives in the Caribbean, Indonesia, Australia, Tahiti, Palau, PNG, Maldives and the Philippines. While I love the intensity/convenience of liveaboards, I also enjoy resorts for their relaxing pace and beauty. My life goal is to dive on my 90th birthday. (Only 24 years to go!)"*



Divers Compass: Club Del Mar was \$300/night for a two-BR condo, including breakfast. Excellent dinners were \$20-\$25 ... Our group numbered seven, so we got one free space; most had a discount awarded to prior Aggressor passengers; one had \$500 off as compensation for a bad Palau Aggressor experience ... Normal fare was \$5,500 pp/do, including transfers, plus a \$439 Cocos Park fee paid on board with a credit card or cash (arranged by Diversion Dive Travel in Cairns, Australia) ... there was some limited cellphone text/voice-only service while tied up at Cocos Island ... Overnight

the day before Cocos departure at their approved hotels for free van service to the boat. You can make an afternoon flight after the sailing ... Mine was a 10-night trip, with seven days of four dives per day scheduled, except for the first day, which only had three dives. www.aggressor.com

Lady Elliot Island, Queensland, Australia

diving (what's left of) the GBR

Dear Fellow Diver,

On my first dive off Lady Elliot Island, we were briefed that a strong current was running so we should use the line for our descent. I had barely started down when a manta that was 10 feet (3m) across swam slowly by. As I watched it, our dive leader, Phil, rocketed off toward the deeper water. I didn't know what was up, but knew it must be good, so I took off after him. In outstanding visibility, a humpback whale materialized, moving slowly toward the surface as we approached. I got within 30 feet of it before it moved back into the deep. I checked my computer -- only three min-



Lady Elliot Island from the air



utes into the first dive. Any misgivings I had had about returning to Lady Elliot Island had vanished.

And I had had plenty of misgivings. Most immediate was Cyclone Debbie that had hit the Queensland coast in March. Debbie badly damaged Hamilton Island reefs. Lady Elliot is about 400 miles south of Hamilton (and just 50 miles south of the Tropic of Capricorn). It's the southernmost coral cay on the Great Barrier Reef (GBR) and surrounded by water 125 feet (38m) deep. On Lady Elliot, dive guide Phil Mitchell said the surge was from four to six meters.

I had arrived on Lady Elliot in July and went snorkeling at Lighthouse. I was shocked at the massive amount of broken coral. As I went deeper, the damage was less pronounced. At 25-30 feet (8-9m), there was little damage. At a site called Turtle Beds, which is only about 15 feet (3m) deep, there was little damage to the huge field of staghorn coral. Fish populations seemed healthy -- large schools of small fish, including fusiliers, damsels, and chromis. And the colors were beautiful.

The next day, my whale dive continued as it had begun -- mantas kept appearing at regular intervals -- a total of five. Along the way, I saw an 8-foot (2.5m) tawny nurse shark, a green turtle, and a large double-headed Maori wrasse. We were diving on the deeper, east side (most diving is done on the west side) at a site called Hiro's Cave. The corals were diverse, plentiful, and colorful -- both hard corals including cup, brain, plate, mushroom, finger, and wire, as well as soft corals like cauliflower, carnation, and gorgonian fans. And all of it completely undamaged and unbleached. So much for my misgivings about coral bleaching.

After the first day, I quickly fell into the island's routine -- up early for the first dive at 7 A.M. Put on my rental 5mm suit (I had brought only my mask), assembled my tank, regulator and BCD and put them on the trailer. (Tanks are 12L and use A-clamp fittings.) After a five-minute drive to Lighthouse Beach, I donned my gear and walked down to the boat: A landing-craft barge with a drop-down gate in front. At high tide the boat comes very close, necessitating only a short walk; low tides, however, can sometimes occasion a long trek.

Pulmonary Edema and Those Little Blue Pills

Many gentlemen divers claim they can still do it, thanks to those little blue pills, and now it seems there might be some truth in that. *Medicine & Science in Sport & Science* reports in September 2017 the possible benefits of Sildenafil (Viagra) as a prophylaxis against swimming-induced pulmonary edema (SIPE), for scuba divers, the hidden killer that *Undercurrent* has given some coverage to recently.

Researchers from the Department of Anesthesiology, Center for Hyperbaric Medicine and Environmental Physiology at Duke University, discovered that 50 mg of Viagra taken one hour before immersion reduces pulmonary artery pressure and pulmonary artery wedge pressure, suggesting it may prevent SIPE.

They presented the case of a 46-year-old female ultra-triathlete with a history of at least five SIPE episodes who, after taking the pill before each swim, had no recurrence during 20 subsequent triathlons.

So, gentlemen (and ladies), a legitimate reason (if you don't have already) for carrying those little blue pills on your next diving trip.

Lady Elliot Island Eco Resort

Diving (*Experienced*)★★★★★

Diving (*Beginners*).....★★★★★

Snorkeling★★★★★

Accommodations (*Depending on the type of unit you select*)★★★★★

Food.....★★★★½

Service and attitude★★★★★

Money's worth★★★★★

★ = poor ★★★★★ = excellent

Worldwide scale

Most of the dive sites are on the west side of the island with a maximum depth of about 75 feet (23m). Boat rides are five to 10 minutes. A 15-minute ride gets you to the other side of the island, where there are three deeper and spectacular sites. The top of the reef is down about 50 feet (15m), with another 40- to 50-foot drop to the bottom. The most famous site -- the Blowhole -- is an L-shaped cave that you enter from the top of the reef; drop down about 25 feet (7m) into the cave, then swim out on the face of the wall.

During the ride to the dive site, they briefed us on the boat and the dive site. Although you are put into buddy groups, dive guides stress that they are your primary buddy and you should take your cues from them. If you do well with your air and your buddy doesn't, your buddy will be sent to the surface and you won't. Back on the boat, divers record their

depth and bottom time and note the time of their safety stop. (The nearest hyperbaric facilities are in Brisbane, 250 miles south -- a journey that would take at least two airplane rides.)

This was my fifth trip to Lady Elliot Island over 20 years. That first trip got me hooked. I saw mantas, wobbegongs, green turtles, a big potato cod, and a huge Queensland groper. On my return visits, I've had manta sightings every time and shark sightings as well (in addition to the wobbegongs and tawny nurse sharks that I've logged most visits, I've seen lots of leopard sharks, black-tipped reef sharks, grey reef sharks, silvertips, and a bronze whaler). Besides the mantas, there are a variety of rays -- I've seen cowtail rays, blue-spotted stingrays, bull rays (the species that got Steve Irwin), eagle rays, and white-spotted shovelnose rays. And not only are there lots of green turtles, but also the occasional hawksbill or loggerhead. I've also seen both olive and black sea snakes.

In winter, the humpbacks arrive. If you're on your porch watching the tide fill the lagoon or at the outdoor bar enjoying a beer, you'll likely see them, blowing, breaching, fluke slapping, and spy hopping. This was the only time I saw one underwater, though I often heard their songs.

Of all its creatures, Lady Elliot Island is best known for its reef mantas (*Manta alfredi*), which have wingspans over 15 feet (4.5m). In a study done from 1982 to 2012, 636 individuals were identified at Lady Elliot; of these, over 60 percent were sighted at least twice. One particular manta was sighted 11 times. If you send in your Lady Elliott manta photo to Project Manta and it's a unique animal not in their database already, you get to name it.

Lady Elliot Island is



Lady Elliot bar and restaurant

The Great Barrier Reef; Dive it Now

The Great Barrier Reef is under constant attack. Crowns-of-thorns starfish. Cyclones. Acidification. But the greatest threat is coral bleaching. Over the past two decades, three major bleaching events have hit the GBR — one in 1998, one in 2002, and, most recently, the worldwide event that began last year and only ended this past June. These events are characterized by unusually high spikes in water temperature that disrupt the symbiosis between corals and their algal partners, causing corals to lose their color. Bleaching damages the corals, and prolonged bleaching can kill them. Some corals are more resistant than others, but recovery time for coral species that are good colonizers and fast growers can still take 10-15 years. When long-lived corals die from bleaching, however, their replacement can take many decades.

The first two events had been bad, but this most recent one was catastrophic. I spoke to Rebecca Albright, a marine scientist with the Academy of Sciences in San Francisco, whose research interest is acidification and how it impacts corals. She recounted a conversation with a colleague at the Great Barrier Reef Foundation: the two of them agreed that climate change was destroying the reef at such a fast rate that the reef would be long gone before acidification reached a critical stage.

Australian marine scientist Terry P. Hughes amplifies this thought: “We didn’t expect to see this level of destruction for another 30 years.” In an article in the March issue of *Nature*, Hughes and his colleagues reported the effects of the three major events, which together covered almost the entire GBR, except the southern, offshore reef, where Lady Elliot is located. They concluded that the chances of the northern GBR returning to its former structure are “slim.” By one estimate, in 2016, 29% of all the coral on the GBR — mostly that in the north — had died.

An interesting side note is that the researchers

speculate that the southern reefs actually benefited from cyclone Winston in 2016; in February that year the southern reefs were only 1°C cooler than the northern reefs, but with the cloud cover Winston provided, this difference grew to 4° over the next two weeks. Folks on Lady Elliot said this phenomenon occurred again this year with Debbie — the island was beginning to experience bleaching in February, but Debbie brought cooler waters, and by the time I arrived, all the coral had regained its color.

Netflix recently released *Chasing Coral*, a documentary film directed by Jeff Orlowski that documents the decline of coral worldwide, but especially on the Great Barrier Reef. The film claims that in the last 30 years, 50% of the ocean’s coral has been lost and concludes that based on current trends, within the next 30 years, bleaching will kill most of the world’s corals.

Rebecca Albright is slightly more optimistic. She cites two examples of reefs that have come back from heavy bleaching — on Palau and in the Philippines. And she adds that Red Sea reefs seem to be adapting to warmer temperatures and says that marine scientists are looking into the possibility of transplanting corals that are adapted to warmer areas. Her conclusion? “I can say confidently that I don’t think we’re going to lose reefs entirely. I think we’re going to lose a lot of them and it’s going to be a long time before they come back. The reefs of tomorrow are not going to look like the reefs of today.”

On June 19th the National Oceanic and Atmospheric Administration announced that coral bleaching was no longer occurring in all three ocean basins — Atlantic, Pacific, and Indian. But who knows when the next bleaching event will occur? With politicians having no political backbone to deal with human-induced climate change, it’s not a matter of whether this will happen, but when.

—DTV

both a National Park and Marine National Park; because it was designated a GBR Green Zone in 2005, it has the highest level of protection for the 1200 species that live on its land and in its waters. Today, fish here seem unusually relaxed. A first-time visitor to Lady Elliot remarked to me how unafraid of people the fish were; she had been going to Heron Island (about a hundred miles north) for 20 years and said you couldn’t get close to fish there. But at Lady Elliot, fish are always swimming up to me or I to them. On one dive about 50 spotted eagle rays put on a show, swimming in formation and coming in close. A different sort of relaxation had apparently overcome the six turtles I saw on a dive at Turtle Beds -- they appeared to be asleep. I swam through a large school (300+ fish) of big-eyed trevallies. Later that dive, as I watched five large barracuda hanging near

me, a large fish I didn't recognize came toward me and began flashing different colors. It had dozens of small but very pointed sharp teeth. Kate, my dive leader, waved frantically at me, so I backed off. On the surface, she told me it was a Spanish mackerel, a species that was sometimes aggressive, and that I was wise to retreat.

Some species aren't just relaxed, but also big. I saw huge Maori wrasse twice, estuary and potato cod, and several very big Queensland groupers, including one I'd estimate weighed over 400 pounds. Dive leader Phil pointed out a coral trout that I initially mistook for grouper because of its size. He told me that some species "are bigger than they are listed in the field guides." I'm a bit of a fish geek, but I couldn't keep up with the number of species I saw. Over a dozen kinds of butterfly fish, both familiar and new, lots of wrasses and parrotfish, and at least a half dozen kinds of angelfish, which are among the most beautiful fish there.

My last misgiving about Lady Elliot concerned its development, since the island is very small. The first time I visited, it could accommodate 70 visitors in about 20 units. Assistant manager Barry said that maximum capacity was now 150 people, who stay in a wide range of units. At the bottom are the "eco cabins," safari-style tents with two sets of single bunk beds. They have electricity, but guests use a shared block that has toilets, sinks, and showers. Next are the one- or two-bedroom garden units with private baths and porches. The reef units are similar, but face the lagoon.

I have always stayed in the "island suites," two-bedroom units with private bath, small living room and kitchen area, and a lagoon-facing porch. They have air-conditioning, but I've never had a reason to turn it on, even in December, the Australian summer. Over the years, the view of the lagoon from these rooms has been compromised -- the octopus bushes in front have grown to a height of about eight feet; the resort is loath to trim them because red-tailed tropic birds nest beneath. (During my stay, the bird in front of my unit hatched her single egg.) I have to applaud when the resort puts the welfare of the bird over the view of the human.

Lady Elliot claims that by 2020 it will be completely sustainable; a hybrid solar power station has cut the daily use of diesel fuel by 100 gallons. A reverse osmosis desalination system converts seawater to fresh water. Treated wastewater is used for irrigation. Food waste is composted, and other waste is removed by barge to treatment plants on the mainland. More than 4,000 trees have been planted.

Breakfasts and dinners are part of the package. The hot breakfast is very British -- eggs, bacon, grilled tomatoes, mushrooms, baked beans, tater tots (called "potato gems" in Australia), bread and pastry items, cereal, and some fresh fruit and yogurt. Although breakfast doesn't officially begin until 7:00 (the time at which you report for the first dive), divers are welcome to eat with the staff starting at 6:30. If you don't want to eat that early, you can make up a plate of food and the cook will reheat it when you return from the dive. Australians know how to make good coffee, and it was worth the \$3 to have my morning latte.



The dive transport to the boat

Dinners always feature a cold salad bar and lots of hot options. On my first night, these included a chicken dish, fried fish, and roasted pork belly. There was a savory tart for vegetarians. During the rest of the week, hot options included grilled steaks and sausages, pork curry, barbequed brisket, and several different chicken dishes, most of which were tasty and filling. There's a dessert buffet, too (but again, more like comfort food than foodie food).

For lunch, many people opt for the buffet at \$21 a pop, but for me, the best meal of the day is at the bar overlooking the lagoon -- excellent hot steak sandwiches, burgers, fish, and chips -- at better prices.

On my last evening, I was having a beer with Gordon and Scott, a couple of Aussies, and we were laughing about a woman who had been with us that afternoon. She had been complaining about all of the regulations. Use the descent line. Stay with the group. Come up after an hour. And at the end of the first dive, she even complained that there was "too much sand" at the dive site. She was not happy.

But Gordon and Scott had sounded a little bit like her after their first day, and they felt that Lady Elliot's rules were heavy-handed. I told them that I had once felt the same way. There are only two dives a day -- morning at 7 A.M. and afternoon at 1 P.M. You are responsible for carrying your gear and rinsing it after dives. You are not allowed to dive on your own. Daily dive numbers were between 14 and 18, but divers are broken into smaller groups, the largest to which I was assigned had eight divers plus the leader. Little attention is paid to experience; after a dive on The Blowhole, I learned that the young English diver I had been paired with had just completed his third open water dive -- after having been certified in a quarry in Northern England a couple of months earlier.

Regardless, the diving on Lady Elliot is very, very good, and the place itself has a way of making you slow down and relax. You accept the limitations. Perhaps even embrace them. It was clear to me over those beers that Gordon and Scott had had a great time at Lady Elliot. As I say this, though, I know that the island won't work for everybody, for it is not valet diving, nor is the food gourmet or the accommodations luxurious. But if you want to see the underwater splendors of the Great Barrier Reef before it's too late, Lady Elliot is one of your best options.

-- DTV

Our Undercover Diver's Bio: I came to diving relatively late – in my forties – and Lady Elliot was my first destination post-certification. Since then, I've been diving all over the world – from South Africa's Sardine Run to Scotland's Scapa Flow.



Divers Compass: Prices (which include breakfast and dinner) range from about \$135/person (double occupancy) for an eco-cabin to \$285/person for an island suite ... I paid \$2,475 in advance for two people, which included accommodations (I took advantage of their "Pay 4/Stay 5" package), breakfasts and dinners, and the return flight from Bundaberg to Lady Elliot ... Eight dives, rentals, and incidentals (bar bill, espresso bill, and internet) added \$850; it broke down to about \$45/dive plus another \$45/day for gear rental (the gear was good and included new Suunto computers). Nitrox is an additional fee. <http://www.ladyelliot.com.au> ... From Sydney, you fly to Lady Elliot either through Bundaberg (via Brisbane) for about \$180 one way or through Hervey Bay for about \$170. The resort itself will arrange your flight ... Although Lady Elliot claims that passengers on the Cessna flight to the island are limited to 15 kilos of luggage, I've never seen this enforced ... Near Eungella National Park, on the mainland, you can dive with platypus for \$110; depth is about 8 feet. <http://www.rainforestscuba.com>

Are Hurricanes Damaging Your Dive Plans?

consecutive storms wreck Caribbean infrastructure

Where do sharks go during hurricanes? Despite fake news and cleverly Photoshopped pictures of sharks swimming along flooded highways in Houston after hurricane Harvey, at times of low barometric pressure, sharks and other marine life tend to frequent deeper water to avoid the rough surface conditions.

It is more likely that air-breathing mammals are affected, and in fact, JoJo, the famous human-friendly dolphin local to Providenciales in Turks & Caicos, was originally rescued after being trapped in residual flood-waters after a tropical storm back in 1981.

This year, manatees were stranded north of Sarasota, FL, after hurricane Irma sucked up the water from waterways and bays. Nadia Gordon, a marine mammal biologist, said, "Manatees are accustomed to being tidally stranded at times and females can beach themselves during mating season to get a break [from the activities of males]." Regardless, some volunteers dragged one back to deep water.

The Immense Power Is Localized

The power of a hurricane is immense. Underwater, shallow reefs get smashed, and well-loved shipwrecks get tossed around like toys. This happened to the wreck of the *Bianca C* in Grenada during Ivan in 2004, and even the wreck of the 888-foot aircraft carrier, the *USS. Oriskany*, in the Gulf of Mexico, was moved by the storm surge of hurricane Ida in 2009.

If you'd like to know what happens under a hurricane, go to <https://goo.gl/XjXiDc>

The wind effects of hurricanes can be very localized. Grand Cayman was hit hard by Ivan in 2004, yet those at the northwest tip of the island (Cobalt Coast) hardly had a roof shingle rattled. On the other hand, the enormous storm surge can have repercussions far and wide.

Irma, Jose, and Maria

As we all know by now, some Caribbean islands like Dominica were spared by Irma but reeled under Maria, and people have been killed or left homeless

A Close Encounter in the Baltic?

The media loves a sensational story, but the Swedes are a joyfully dour lot, not easily given over to hysteria. When the media reports that the Swedish Ocean X diving team discovered something unusual on their side-scan sonar, 300 feet (92m) deep in the Baltic Sea, perhaps we should take notice.

The team came across an object 200 feet (60m) long and 26 feet (8m) wide with sharp edges, perfectly straight lines and perfect right-angles throughout its structure. Markings on the seabed behind it resembled skid marks while the object itself appeared to be resting on a large pillar.

Assuming there was a natural explanation, the dive team leaders contacted geologists and marine biologists, who confessed they had seen nothing like it. According to Volker Bruchert, an associate professor of geology at Stockholm University, it's many thousands of years old.

Strangely, all the electronics on the Ocean X team's vessel ceased to work when they were directly over the object, but recovered once they moved away, leading

the team to assume it was made of some type of metal. Even their satellite phone stopped working.

On the second visit a year later, they discovered what appeared to be a stairwell leading into the structure, raising to all sorts of questions. What caused the skid marks? Did this object crash-land thousands of years ago? Or is it remains of the mythical city of Atlantis? There's a thin line between reason and imagination.

Other scientists, however, have less fanciful theories, such as the anomaly is probably just a rock outcropping or the result of gas venting from the seafloor or a glacial deposit. None of the sonar images provides a reliable look at the Baltic Sea anomaly.

Even Peter Lindberg, the man behind the discovery, although wondering why it was not covered with silt, expressed skepticism about the object's supposed otherworldly origins when he said it's obviously not an alien spacecraft and it's not made of metal.

So far, nobody has come up with funding for future research, so it seems this Baltic Sea anomaly may forever remain a mystery. (*from multiple sources*)

Diving in Freezing Water? U.S. Navy Tests Flunk Some Regulators

It's unlikely that many *Undercurrent* readers regularly dive in cold water unless they are visiting a freshwater lake or deep wreck diving, but someday you might take a trip to Iceland's Silfra or join one of Amos Nachoum's trips to the Antarctic or Norway.

That said, since the depressurization of gas in a regulator results in a simultaneous drop in temperature, any water 50°F (10°C) or less can cause a regulator to freeze and malfunction. The first-stage may jam, resulting in increased inter-stage pressure that the second-stage cannot control, causing a free-flow, or, in a worse case, even occluding air-flow because of an ice build-up in the second-stage.

Researchers from The U.S. Navy Experimental Diving Unit and the University of California, San Diego, tested the performance of regulators for under-ice diving operations, during which 17 science divers logged 305 dives in seawater close to freezing under 20-foot (6m) - thick ice in Antarctica. Seventeen different regulators from 12 manufacturers (69 in total) were randomly assigned to divers. There were 65 incidents of free-flows.

Due to the risk of regulator failure, the divers were equipped with two independent regulators on a tank Y-valve with drysuit direct-feeds supplied from the backup regulator. All the downstream regulators were equipped with an isolator valve inline on the interme-

diate pressure hose. Recently, the U.S. Navy has recommended the Zeagle isolator valve for freezing water temperatures, in conjunction with a high-pressure relief valve.

Besides water temperature affecting whether a regulator freezes, air-flow, moisture in exhaled breath, and whether or not it was breathed from in cold atmosphere before immersion, can also affect freezing.

“Contrary to expectations, the pooled incidences for the seven best performing regulators was significantly different from the 10 remaining regulators. Those regulators deemed acceptable — their failure rate was

less than 11 percent — were the Dive-Rite Jetstream, Sherwood Maximus SRB3600 and SRB7600, Poseidon Jetstream, Cyklon and Xstream Deep, and Mares USN22 Abyss.” The report did not list those that were unacceptable.

The report concludes that those diving under ice must constantly be on their guard. “Because of the pressures of the marketplace, scuba regulator models typically have a short half-life. However, designing a regulator tolerant to freeze-up is a black art for most manufacturers, and even ‘minor’ cosmetic changes can affect ‘freeze-up’ risk.”

(Performance of life support breathing apparatus for under-ice diving operations. UHM 2017 Vol 44, No.4 Michael A Lang PhD, John R. Clarke PhD)



on many islands. From a diver's point of view, until all the news is out, this is no time to make a dive trip to much of Florida, St. Kitts and Nevis, St. Maarten, St. Barts, Anguilla, Tortola (BVI), Puerto Rico, St. Thomas, St. John, the southern Bahamas Islands, Turks and Caicos, and the north coast of Cuba. It will take a while to know what damage has been done to dive sites or such icons as the wreck of the *SS Rhone*.

Stuart Cove on New Providence (Nassau), ever media savvy, was quick to post a video on social networks on September 10th, expressing his relief that hurricane Irma had narrowly passed them by. All his boats were safe, and the dive resort had escaped damage — so business as usual! Neal Watson's Bimini Scuba Center also reported that it fared well during the storm.

Beth Watson, Director of Bimini Big Game Club Resort and Marina said, “While our thoughts continue to be with those affected by Irma, we feel fortunate to have weathered the storm.”

Other Bahamas islands farther south were less lucky. On Long Island, people witnessed the coastal ocean disappear before their eyes as the water was sucked up into the storm. The same thing happened around Key Largo, Pensacola and both coasts of Florida.

Leroy French wrote on his Facebook page, “In 1983 I started my baby Ocean Explorers. It had an impressive list of clientele from Hollywood [celebrities], prime ministers, kings, musicians, photographers and so much more. I sold the shop in 2007 to concentrate on special projects. It had survived four major hurricanes and other maladies. Now, thanks

to Irma, it's gone! Despite nature at its worst, I am sure, in time, it will proudly resurface."

From Providenciales in the Turks & Caicos, Big Blue Unlimited emailed: "What a storm, what a night, what a 24 hours. Insane. Intense. Otherworldly. But we survived. A new dawn revealed much damage here on Provo, some worse than others, much worse . . . The full force of Irma's 185 mph winds passed just south of us, thank God. Her 20-foot surge probably found it easier to move around the Caicos Bank rather than over it, which saved us from an undoubted major flooding catastrophe."

A group of divers from Riviera Beach, FL, trapped in Dominica during hurricane Maria, were evacuated more than four days later. One, Candace Woods, said "A gust of wind, almost like a tornado, picked up my husband Mike carrying two 50-pound suitcases — and he's about 200 pounds himself and about 6'3" — and slammed him straight into a railing. His foot got caught underneath the railing." Mike was transferred to Florida with a suspected broken leg.

New Mexican Stephanie Graf, working as a diving instructor on Tortola, was evacuated after Irma struck. She reported that boats were left on top of other boats or even inside businesses. She hopes to go back in a few months. She isn't sure it will happen and is assuming the dive operation might be a lot smaller after these storm disasters.

The hurricane does not differentiate between the rich and the rest of us. Virgin billionaire Richard Branson's Necker Island home in BVI was turned to rubble, and it's believed he was present, sheltering in his wine cellar when it happened.

Hurricanes Are An Ongoing Problem

Don't make the mistake of thinking this a "once-in-a-lifetime" event. Hugo smashed most of St. Croix (USVI) way back in 1989 and those there had to rebuild, and again after hurricane Marilyn in 1995. The problem was exacerbated by the insurance companies of dive operators, loath to give repeat cover after the first storm loss.

Climate change is making hurricanes more powerful for longer periods of time. And, the season is not over until November.

Endless stories of courage, fortitude, resilience, and even foolhardiness have emerged. As Irma barreled its way into Florida proper, consider the plight of charter boat captain Steve Davis, who made the wrong decision to ride out the storm in his vessel in the Intracoastal Waterway. His boat fell

Were These Divers Electrocuted?

Electrocution is suspected as the cause of the demise of two Chinese divers on September 6th. They were part of a team mapping a submerged part of the Great Wall of China in the Panjiakou Reservoir Scenic Area of the 72-square-kilometer (28-square-mile) lake.

Professional divers, engaged in the search and recovery of the bodies of Xu Haiyan (39) and Sun Hao (34), speculate that illegal electrofishing in the reservoir, which once flooded an ancient Chinese village and that part of the Wall, was the reason they went missing.

It also goes some way to explaining why the bodies were found at 62m (201 feet) deep when they planned to work at only 30m (100 feet). The searchers say they saw many dead fish during the search, most of which had not yet started to decay. Electrocution seems to be the most plausible theory for the two divers' deaths. Despite its illegality, many local fishermen use the method due to its high rate of efficiency.

apart around him, and he only made it to shore by using scuba gear — and then needed the brave help of two plucky Riviera Beach condo owners who saw him unable to get out of the turbulent water and threw him a line. The video went viral. Meanwhile, the remains of his vessel and his main source of income were discovered north of Blue Heron Bridge.

How are Your Future Dive Travel Plans Affected?

Business owners are resilient, and they usually rebuild quickly. Often boats can be repaired. Liveboards usually have the option to relocate out of the hurricane's path, and the Aggressor Fleet posted online that none of its vessels was affected.

However, you may find that your booked trip is no longer possible. Even so, your travel insurance provider may not look favorably on a claim despite your being unable to pursue your scuba trip, especially if you didn't prepay and cover scuba. The hotel may still be habitable.

You can ask your hotel and dive operator to defer your booking while they rebuild; however, recognize that some will need clients despite the conditions not being optimal. Some may say they are fully recovered when they are not. And, certainly, their island may be a mess. Six months after hurricane Ivan passed in 2004, Grand Cayman was still piled

high with wrecked cars and other scrap, vegetation dead from exposure to the storm surge, the majority of private houses nothing more than rubble, reefs scoured of life and a shortage of hotel rooms.

Reliable information about reef damage may be slow to come by. However, Horizon Divers in Key Largo wrote on Facebook that several dive businesses had been out to survey the damage, and wrecks such as the *Spiegel Grove*, *Duane* and *Bibb* appear to have survived unscathed. Even the shallow reefs such as Horseshoe, Molasses, French, and Elbow may look a little different but are intact. Some shops are already taking out divers.

DEMA will issue press releases once a business is up and running again. For the latest information, visit www.dema.org/?page=HurricaneUpdate

“The devastation in the US territory of Puerto Rico has set us back nearly 20 to 30 years,” said Jennifer Gonzalez, the island’s non-voting representative in Congress. The island is running

short on food, fuel, and access to clean water and there’s limited communications. Even the National Weather Services Doppler weather radar station on the island has been destroyed. That’s the radar that helps meteorologist see where thunderstorms and other weather systems are moving in real time.

Residents of many Caribbean islands lost their homes and don’t even have food or drinking water. Candace Woods said that on Dominica people were drinking water from rivers with straws since the supply was so low.

So, rather than pursuing a vacation with an unsatisfactory result, why not direct your tourist dollars to relief aid?

If you wish to donate money to help our friends in the diving industry and others affected by these hurricanes, go to <https://www.directrelief.org>

– john@undercurrent.org

A Tax-Deductible Dive Trip

but too good to be true

When the travel agency Island Dreams announced a Cuba dive trip in September 2016 aboard the *Jardines Aggressor I*, Jeanne Reeder, a diver based in Liberty, MO, quickly signed up. After spending time in Havana, the 20-person group would spend a week diving in the Jardines de la Reina, notable for its Goliath groupers, sharks and saltwater crocodiles. Even better, divers were told they could get a tax deduction of \$3,500 on their trip expenses. That’s because the trip was organized by Oceans for Youth Foundation, a USA-based not-for-profit that, per its website, “encourages underwater education for everyone from youth to adults.”

A trip that combines great diving with a good cause — sounds perfect, right? Maybe not if the cause is run by the same people who run the live-aboard and who, even after incorporating the nonprofit 18 years ago, apparently haven’t met all the IRS standards for being a legitimate charitable organization.

In her trip report, Reeder detailed how she enjoyed the trip, and gave top marks to the *Jardines Aggressor* staff (except that they dumped raw sewage into the ocean). But she could never shake the

feeling that the trip wasn’t meeting the standards of being an educational dive trip.

“I didn’t feel like I was doing charitable work,” Reeder told us. “There were two great REEF (Reef Environmental Education Foundation) fish counters, and they worked their tails off. But the rest of us, we didn’t do anything. We had a wonderful lecture one morning, but that was the only education we got. This was basically a pleasure trip.”

Nevertheless, after Reeder made the final payment on her trip, she downloaded the tax letter that offered “documentation of your charitable work on behalf of Oceans for Youth Foundation and our Cuba Marine Conservation Program.” The allowable deductions were \$500 for food and lodging, \$2,500 for marine conservation and \$500 for airfare, for a total of \$3,500. That’s 87 percent of the \$4,000 liveaboard fare. “The implication was very clear from Oceans for Youth that it had 501c3 (nonprofit IRS) status,” says Downey.

While doing her taxes in early 2017, and trying to figure out where on the tax return to deduct this amount, Downey called Max Langley, an accountant in Houston who was also aboard the Cuba trip with her. He told her that Oceans for Youth, which

Ear Infections and the ProEar Solution

Several subscribers have written to *Undercurrent* about the ear infections that cause problems while on dive trips and are often the result of pathogens or micro-organisms in the water entering the outer ear. One, Rose Mueller (Houston, TX), even told us that her husband repeatedly broke an eardrum every time he went into the water. A perforated eardrum will allow that water to enter the middle ear, thus allowing for more serious infection.

The solution for many divers, it seems, is the ProEar mask. It's been available for 17 years or more, but it hasn't caught the imagination of mainstream divers; to many, it looks ridiculous because it employs ear cups that cover the ears to keep them dry. Ridiculous-looking or not, if you'd previously suffered the pain of an ear infection, you wouldn't care.

Ordinary ear cups would suffer pressure squeeze as you went deeper, just as a mask would if it did not enclose your nose and you couldn't blow a little air into it to equalize the pressure. The Pro Ear mask has flexible feed pipes to allow air to migrate from the main



part of the mask to the air cups. Thus, they become part of the same airspace. As the air in the mask and the ear cups expands during an ascent, it leaks out past the skirt. Each feed pipe has a one-way valve to stop a possible flood from an ear cup leaking back into the main part of the mask. The outer ears and eardrums are protected from the water.

The only downside is that wearing such a mask often elicits such comments as, "Are you receiving me?" and "Come in, Diver #6" because you look like a radio operator. If you can cope with that, it might be a godsend if you regularly suffer painful ear infections after diving.

The mask — the ProEar 2000 — was originally developed by Howard Rosenstein, a Red Sea diving pioneer, in the year 2000. At first, Bob Hollis of Oceanic produced and marketed it in the U.S. After a couple of years, the concept was sold to the Taiwanese manufacturer of dive gear, IST. Thousands of these IST ProEar masks have been sold, and although it is notoriously difficult to get divers to accept new ideas, it has helped many divers, both consumer and professional, who have experienced ear troubles. www.proear2000.com

has the Aggressor Fleet's CEO, president and vice-president of operations as three of its five board directors, isn't officially eligible to receive charitable donations.

Before he files for a charitable donation, Langley always goes online to check the charity. Two criteria are required for a contribution to be deductible on IRS Form 1040 — it must be a 501c3 exempt organization, and it must be listed in IRS Publication 78, "Organizations Eligible to Receive Tax-Deductible Charitable Contributions." On the Web page for Publication 78, Langley entered "Oceans for Youth" into the search box. No listing found. Then he entered the organization's tax ID number (#43-1851505). Still no listing. Meaning that while Oceans for Youth may be a 501c3, it is not approved to receive tax-deductible contributions.

Langley started emailing Oceans for Youth last fall, and got an email from Anne Hasson, Aggressor's vice-president of marketing and wife of Aggressor president (and a Oceans for Youth board director) Wayne Hasson. "Please don't give up, we are working on getting this listed on the IRS site and don't anticipate it should be much longer," she

wrote. "Just as soon as we receive verification, I will let you know."

She never got back to him with an update. Langley says he sent at least 20 emails to Hasson, requesting an update, over six months. One reply was a copy of Oceans for Youth's initial registration letter as a 501c3 from the IRS. Another email stated, "We are working on it and will let you know." The third and final email was, "We'll provide you an answer next week." That was November 1, and still no answer between then and Langley's last email sent in April. "So I have effectively been ignored," says Langley. "This is frustrating, and compounded by the fact I have been a passenger on 10 to 15 Aggressor boats over the past 20-plus years, and a number of the times I booked full or half-full boats."

It was Reeder who got the call — unprompted. In late March, Sabrina at the Aggressor Fleet says she was requested by her bosses to call Reeder and say they are 'working on it.' "On what?" Reeder asked. "Getting a license," says Sabrina. "The attorney is working on it."

Reeder persisted by asking, "How long have you been working on it? Are you notifying your clients?"

Sabrina's answer to both was, "I don't know, but I will try to find someone who knows." Reeder never got a follow-up call.

These two aren't the only ones asking the Aggressor for clarification and confirmation. Over the summer, Langley talked with Ken Knezick, owner of Island Dreams, who said his group on the Aggressor's June 2017 trip to Cuba also got the letter of deduction, and the Aggressor Fleet was also giving the runaround to one client who inquired about their charitable status.

Neither Langley nor Reeder deducted the \$3,500. "Odds are the IRS wouldn't kick it off your tax return, but it doesn't make sense," says Langley. "How can they be a 501c3 but not eligible for deductions? In one email to them, I even wrote, 'I'm a CPA, I can help you with that.'"

We're stumped, too, and the Aggressor Fleet isn't getting back to us with clarification either. According to the IRS, organizations not listed in Publication 78 may be facing suspension or revoking of their exemption for not filing their annual return (Form 990), for three consecutive years. However, when we checked GuideStar, a major database for information on charities, Oceans for Youth's Form 990s are listed every year up to 2015 (its annual income that year was \$66,860 and its expenses were \$63,822). Maybe the Aggressor Fleet doesn't know either, but leaving divers with

questions about tax deductions in the dark doesn't make their charitable organization look too legit.

"I would have gone on the trip anyway, but it miffed me," says Reeder. "It's extremely unprofessional to put out the letter knowing it would not be legally tax-deductible. And it's irresponsible not to respond with something more than 'We are working on it.'"

There are plenty of other organizations offering dive trips as legitimate volunteer vacations, including:

The Sea Turtle Restoration Network regularly offers trips aboard the Undersea Hunter fleet to tag sharks and sea turtles at Cocos Island (www.seaturtles.org)

The Reef Environmental Education Foundation (REEF) regularly hosts weeklong 'field survey' trips that teach divers how to identify fish and collect data for REEF scientists. Trips in 2018 are all over the globe, from British Columbia to Brazil (www.reef.org/trips)

EarthWatch sponsors expeditions for people with no special skills to become 'research assistants' and work alongside scientific pros. They run many expeditions, from swimming with sharks in Belize to monitoring coral health in the Caymans and the Great Barrier Reef (www.earthwatch.org/expedition).

The Winner Sometimes Loses!

A photo of a tiny seahorse went viral on the Internet because it was clinging to a cotton bud (or Q-tip), just part of the garbage and debris it had swum through when photographed by Californian Justin Hofman, off Sumbawa in the Indonesian archipelago.

Seahorses ride ocean currents by grasping floating objects such as bits of seagrass with their tails. Hofman became upset when he considered what he was seeing — trash taking over the underwater environment — but he captured the image and later wrote on Instagram, "It's a photo that I wish didn't exist, but now that it does, I want everyone to see it."

He entered the photo and was a finalist in the prestigious Wildlife Photographer of the Year competition of the Natural History Museum in London, the photo serving as an allegory for the current and future state of our oceans. (<https://goo.gl/aCbmwP>)



However, despite the success, and the awareness it raised about garbage in our oceans when Hoffman wrote that he wished his photo didn't exist, he meant that he wished the ocean was not full of sewage and other detritus.

But then came the naysayers. Certain members of the underwater photography community were aghast that the little seahorse might have been manipulated. The Internet warriors took to Facebook to besmirch the reputation of the photographer, assuming that he had manipulated the hapless creature onto the Q-tip to get the picture and that Q-tips would not sink.

Undercurrent experimented and found that paper Q-tips sank while plastic Q-tips tended to float. Regardless of that fact, the picture makes a powerful point that we should all respect and act on. Ocean garbage is real.

— John Bantin

To take the write-off for any travel-related expenses you incur to do charitable work, you need to follow all the relevant IRS rules. A few guidelines to keep in mind:

- **Volunteer at qualified charities.** Before you donate any money or time to a charity, verify its status by using the IRS's Select Check tool (<https://goo.gl/dbxWt4>).
- **Document only the necessary expenses.** The IRS says any out-of-pocket expenses you want to deduct, like travel, must be "necessary while you are away from home." They also need to be unreimbursed, directly connected with the services you provided, and an expense you had only because

of your volunteer work.

- **Do "real and substantial" work for the whole trip.** You won't get the deduction if you only have "nominal" obligations or lack work for large parts of the trip.
- **Don't tack on an extra vacation.** Be aware that your travel expenses won't qualify as deductible if a significant part of your trip involves recreation or vacation. But as long as your trip is focused on the charitable volunteer work, you can deduct most travel expenses — airfare; car expenses, lodging, meals; taxis and other transportation to/from the airport or your hotel.

– Vanessa Richardson

Is It Time To Hang Up Our Fins?

If you're in shape, 80 is the new 60

As we get older, we gain more life experience, but our fitness inevitably declines. A paper by Michael B. Strauss, MD, Jeremy A. Busch, DPM and Stuart Miller, MD, recently published in *Undersea & Hyperbaric Medical* magazine, helps us to ponder the question of when, indeed, we should hang up our fins.

The authors make the point: It is essential to appreciate the distinction between chronological and physiological age. Three factors, namely fitness, disease, and mobility and strength, are fundamental when deciding whether to continue scuba diving. We are living longer and want to continue to do things that were once considered inappropriate for

our age. Scuba diving is one of these activities.

Chronological age is easy to establish. Physiological age is more akin to the functional (physical and mental) activities that the average person would be doing at a different age. If infirm, for example, the physiological age may be older than the chronological age; if more active, the physiological age may be younger than the chronological age.

The authors designed a series of assessments, including 1) the ability to perform the activities of daily living, 2) ambulation, 3) comorbidities of disease, 4) smoking or steroid history, and 5) neurological deficits.

Bahamas Conch Populations in Jeopardy

Conch fritters, conch chowder, cracked conch, conch salad; conch is a staple of the diet in the Bahamas, yet populations of this previously ubiquitous snail are starting to disappear just as they have in the waters of the Florida Keys, where over-fishing wiped them out.

Researchers studying a no-take marine preserve off the Exumas in the Bahamas, famed for its abundance of queen conchs and intended to help keep the country's population thriving, found that over the last two decades, the number of young has sharply declined as adult conchs matured and died off. In the last five years, the number of adult conchs in dropped by 71 percent.

Conchs are tied to a complex life cycle of larval dispersal so that localized populations don't necessarily grow. Scientists believe a healthy population needs between 50 and 100 adult conchs for every 2.5 acres to sustain itself. The patchier the clusters, the harder it is for populations to find each other to connect and reproduce.

In the mid-1980s, as overfishing decimated the conch population, the U.S. banned their harvest to save what was left. More than three decades later, they still have not recovered. It's an inauspicious sign and doesn't augur well for the Bahamas and the Caribbean.

Stuart Cove Guide Fired for Pummeling a Shark

When a video footage of a nurse shark being repeatedly punched by a shark-feeder during a shark dive operated by Stuart Cove's Dive Bahamas went viral on social media during the last days of September, people went nuts, as you would expect — and hope. One response was:

“All this acrobatic shark ‘tonic’ crap that really doesn’t ‘change people’s perceptions’ is just an excuse to ‘show off’ and get attention ... The guy in this video is @gnarly_neal who loves all the ‘wow’ stuff but has just plummeted to an all time low with what’s seen in this video ... those nurse sharks are there because YOU’RE baiting and they’re hungry, and those sharks, amongst others are generating money which in turn pays your bills, the least you can do is respect them ... Ecotourism has soooo many benefits I don’t want to smother the good with the nasty, overly aggressive acts like these ... People need to see reality, people need to

publicly acknowledge their mistakes, and people need to be held accountable. This isn’t about pain, it’s about RESPECT.”

Undercurrent contacted Stuart Cove for a comment and he replied, “This employee was immediately dismissed from my company. Under no circumstance has this or will this behavior ever be tolerated in my business. We have a strict protocol when it comes to our shark-feeders. Their training is highly supervised and held to the highest standards. It was to my disgrace that one of my own employees could act in such a manner ... This disturbing video has only encouraged me to work harder and more aggressively in the protection of sharks around the world.”

As one might expect from Stuart, he reacted quickly and properly. Here’s the video.

<https://goo.gl/Zw24MG>

Our Bodies Change as We Get Older

As we get older, the function of our organs and organ systems changes. Appreciating these changes help will help one decide about participating in, modifying or discontinuing diving.

These include musculoskeletal changes that mean diving has become too hard.

Cardiovascular and pulmonary changes may mean a person gets tired faster and may not have the reserve capacity for emergencies.

Nervous system and sensory organ degradation, for example, may make it too hard to read gauges.

Endocrine/metabolic changes may mean reduced activity and perhaps getting chilled more quickly in cool water.

Dietary restrictions might mean that traveling to exotic sites is no longer possible.

Fit to Dive?

Physical fitness is the readiness or ability, especially in cardiovascular, respiratory and musculoskeletal systems, to perform tasks requiring increased energy such as extrication in a diving emergency. Regardless, there are no standards for the recreational scuba diver.

So, divers should select activities that are commensurate with their levels of fitness, mobility, strength and anticipated swimming needs for the dive. “Soft” criteria for these decisions can be based

on limiting the depth of a dive to the distance that can be easily swum underwater after a single breath, or equating expected swimming distances on the dive to the distance the diver can comfortably swim in a pool using fins.

Generally speaking, fitness to dive should be based on physiological age and the ability to do sustained aerobic activities rather than chronological age.

The older diver should adhere to appropriate safety practices. For example: use the most conservative option on the dive computer; always use slow ascent rates and take a 15-foot (5m) three-minute safety stop; carry safety/signaling equipment; dive only under optimal conditions; and take a break from diving after several days of continuous multiple dives per day.

Balance fitness with diving conditions. For example, good fitness is required for open ocean current dives, drift dives, repetitive dives deeper than 60 feet (20m), diving in poor visibility or cold water, and making beach entries. Diving within lagoons or atolls, diving from an anchored boat with a descent line, making shallow dives in good visibility and warm water with little or no current require a lesser degree of fitness.

Disease, Mobility, and Strength

The significant question regarding disease and scuba diving (regardless of age) concerns conditions that are relative contraindications for diving.

Examples include asthma, impaired but not decompensated cardiac function, diabetes mellitus, kidney disease, blindness, residuals of stroke, paraplegia, Raynaud's disease, cerebral palsy, extremity amputations, myopathies, cognitive function deficits, and residual impairments from a previous episode of decompression illness. Despite these conditions, individuals affected can safely scuba dive, with appropriate guidance and dive buddies.

Strength for scuba diving requires being able to lift and carry equipment and make safe entries and exits from the water. For open-water dives, this may require shimmying onto a rubber dinghy. Although many of the age-related changes in performance and medical contraindications for diving have mobility and strength ramifications, only in their most extreme manifestations are they contraindications to scuba diving.

Conclusions

For scuba diving, physiological age is a far more important consideration than chronological age. So, what criteria should be used when deciding whether to continue?

Fitness and the comorbidities of disease, mobility, and strength are the decision criteria. When comorbidities of disease present contraindications to diving, whether to continue requires an evaluation by a physician knowledgeable in diving medicine. Safety is the primary concern.

Regardless, the decision ultimately comes down to the diver, and often it comes down to one thing: scuba diving is no longer fun.

Abridged from UHM 2017 Vol 44 No 1 and an article first published in Wound Care & Hyperbaric Medicine Vol 4 Issue 3. Scuba in Older-Age Divers - Strauss/Busch/Miller

Are Some Snorkels and Snorkel Masks Death Traps?

concern for the safety of snorkelers in Hawaii

Between 2003 and 2012, 102 visitors drowned snorkeling, compared to 13 residents, and safety advocates are wondering why so many more visitors die snorkeling in Hawaii than local residents. One answer: their snorkels are unsafe.

Dr. Philip Foti, an Oahu pulmonary medicine physician, is developing a "gadget" to test different types of snorkel tubes to see which ones create the most resistance while breathing through them. He says that snorkel companies have added new "doodads" to the tubes over the years — mostly aimed at keeping water out — but they may have an unintended consequence

Foti is concerned about the full-face snorkel masks that are now "all the rage." He called them a "recipe for disaster . . . We need to find out how to test them and then what to do about protecting people from using them."

Ralph Goto, retired administrator of Honolulu's Ocean Safety and Lifeguard Services Division, said it's important for first responders to obtain as much

information as they can from each snorkeling-related drowning or near-drowning incident.

Carol Wilcox, a lifelong Hawaii resident and former lifeguard, almost became part of those statistics in 2004. She had just flown back to Oahu after a trip to Canada when she decided to go snorkeling by the Outrigger Canoe Club in Waikiki. Making her way to the wind sock roughly 150 yards from shore, she started to have shortness of breath. She soon realized she had no strength in her arms to wave for help, so she began to kick her way back with her long fins.

"My heartbeat sounded like a drum, and pretty soon I couldn't breathe," Wilcox said. "I realized at that moment why lifeguards can miss the signs of drowning. A wave pushed me up onto the sand, and I lost consciousness." A lone beachgoer that evening saw Wilcox, and she was taken to the hospital.

Foti said he determined she had negative pressure pulmonary edema, which is caused by an upper airway obstruction generating enough pres-



Bali Disaster Pending?

One of the most popular destinations for tourists in Indonesia is deservedly Bali. One of the most popular areas to scuba dive is around Tulamben on the northeast coast, not least because of the picturesque wreckage of the *SS Liberty*. The ship had been beached during hostile enemy action during WW2 but one of the effects of the volcano Mount Agung erupting in 1963 was that the lava flow pushed it into the ocean where it lies today. At that time, 1,500 people tragically perished.

Mount Agung is rumbling yet again 54 years later, and the Indonesian government is taking no chances



this time, evacuating everyone who might be in the danger zone. This means that all the dive centers

and other businesses in Tulamben have been closed including Scuba Seraya and Villa Markisa. Ubud is 32km (20 miles) away from Agung while the tourist hotspot of Kuta is 45 miles distant.

Bali is a big island and there's diving elsewhere but if you are heading for Bali be aware that should the volcano finally erupt as expected, volcanic ash in the atmosphere might affect air flights in and out

on Denpasar airport. Nine alternative airports outside Bali have been prepared for diverted flights. For updates visit <https://goo.gl/DhbcTB>

sure to pull fluid from the arteries that take blood to the lungs. He and Wilcox question what role her snorkel played in the incident, since it was one with an apparatus attached to the top of the tube to keep water out, possibly restricting the flow of air. And they question the role of her recent air travel. Smoking, drinking and certain prescription pills could also make someone more susceptible to this condition, he said.

Foti added that increasingly popular snorkeling masks that cover the entire face might present similar problems. For starters, he said there is dead space ventilation in the device that seems greater than in the standard snorkel tube. That dead space can cause carbon dioxide build-up.

California resident Guy Cooper, whose wife drowned last year while snorkeling off the Big Island, has been trying to warn the public about

the potential hazards of full-face masks such as the one his wife was wearing.

Cooper has said the carbon dioxide build-up in the mask could cause someone to become disoriented or lose consciousness, not to mention other possible hazards such as its difficulty to remove quickly in an emergency.

Cooper's advocacy prompted officials to **start keeping track** of the type of snorkeling equipment that was worn in drownings.

"You can't interview the people who have had fatal drownings, but we can interview the people who survive," Goto said. "It's important for us as first responders to get as much information as we can."

- from articles by Nathan Eagle, *Honolulu Civil Beat*

Flotsam & Jetsam

Apple Passes: A Cozumel icon, Rene Applegate, passed away August 13. The owner of Dive Paradise, she was a gracious host to every visiting diver. Remembrances may be directed to www.humanecozumel.org, in honor of her great

love for the abandoned animals of Cozumel.

Errors and Omissions. Well done, those who spotted that we'd used the wrong picture in the Little Cayman Beach Resort story in early versions

of September's *Undercurrent*. Similarly, the Scubapro regulator recall (*Undercurrent* Oct 2006) was for the Mk20 first-stage, rather than the Mk X (also known as the Mk10, a much older model), although the over-torquing problem that might occur during servicing is correct information for both.

Ballooning DCS. It may be photoshopped and fake news, but a story about a Peruvian diver purports to show Alejandro Martinez some years after he suffered decompression sickness and was left with bizarre bloating side-effects. You see, the creators of this fable claim that the nitrogen came out of solution and formed great sacs inside his body, like balloons. A doctor at the San Juan de Dios hospital says these nitrogen bags have added 30kg (66 pounds) to his body weight. We never knew nitrogen weighed so much!



Love Sharks But Not In Your House! Authorities have discovered seven live sandbar sharks, two dead leopard sharks, and a dead hammerhead in a basement swimming pool in a home in New York's Hudson Valley. However much you love sharks, don't try to keep them as pets. It will only end in tears.

A Small Triumph for Conservationists in Hawaii. *Undercurrent* has always opposed fish collecting on reefs, and we're happy to hear that the Hawaii Supreme Court has ordered a stop to commercial collection of aquarium fish in Hawaii pending

an environmental review. The state currently has no limit to the number of aquarium fish permits issued, which was considered a fundamental flaw by the Humane Society. Around 35 percent of West Hawaii reefs have been closed to aquarium fish collection since 2000, but the catch elsewhere has steadily increased so that more than a million animals were collected in 2010. *Undercurrent* subscriber and contributor Rene Umberger is a leader in the fight.

Chucking Money at the Problem? A section of the Mesoamerican coral reef off the coast of Puerto Morelos in Mexico is set to make history. Thanks to the newly founded Reef and Beach Resilience and Insurance Fund (RRIF), local businesses will contribute to an insurance policy that will protect the 40-mile length of the colorful reef. In the event of damage, pay-outs will ensure the reef is restored to its former glory. Good luck with that!

Travel Advisory for Mexico. The U.S. State Department issued a new travel advisory warning Americans about the risks of traveling to Baja California Sur, Cancun, Cozumel, Playa del Carmen, Riviera Maya and Tulum in Mexico, due to an upsurge of shootings between rival criminal gangs. When you compare the figures for violent killings during the first six months of the year in Mexico with homicide rates in major U.S. cities, they look small and would not stop us from traveling to Mexico to dive.

Where To Go in the Caribbean? Looking for a spot to dive not totally hurricane-torn? There are plenty. Bonaire, Aruba, Curacao, Tobago, Belize, Honduras, Cozumel, the Cayman Islands, Grenada & Carriacou, Tobago, Barbados, Providencia (Nicaragua), St. Lucia and the Caribbean coast of Cuba are among the destinations unaffected and ready for your visit.

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Letters to the Editor/Submissions

Editor BenD@undercurrent.org

Editorial Staff

Ben Davison, Publisher and Editor

John Bantin, Senior Editor

Dave Eagleray, Webmaster

Contact Us Call: 415-289-0501

Go to: www.undercurrent.org/UCnow/contact.shtml

or write: Undercurrent

3020 Bridgeway, #102

Sausalito, CA 94965

www.undercurrent.org