

undercurrent

The Private, Exclusive Guide for Serious Divers

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Pirates Point Resort, Little Cayman

still the best of Cayman diving

IN THIS ISSUE:

Pirates Point, Little Cayman.	1
How Useful is Dye Marker? .	3
Yoga and Diving	4
Bahamas, B.V.I., Ontario	6
Rebreathers, Pack Your Canisters Properly.....	7
When There's Not Enough Divers on a Trip.....	8
Diver's Vertigo	9
Dive Death Investigations ..	10
Drinking and Diving.....	12
Dive Books for Kids.....	13
How Divers Will Never Be Lost Again.....	14
How The Oceans Are Really Doing.....	16
Pricing Beattle at Fiji's Garden Island Resort.....	17
Give a Gift Subscription to <i>Undercurrent</i>	19
Flotsam & Jetsam	20

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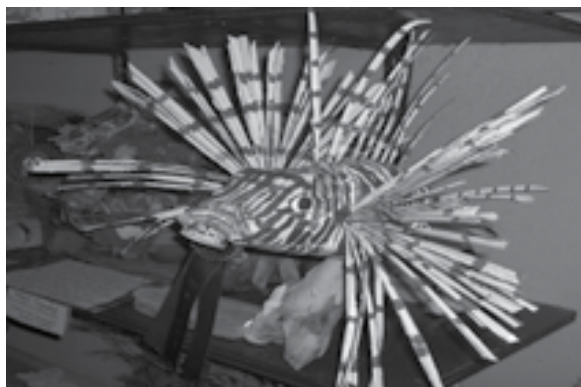
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Dear Fellow Diver:

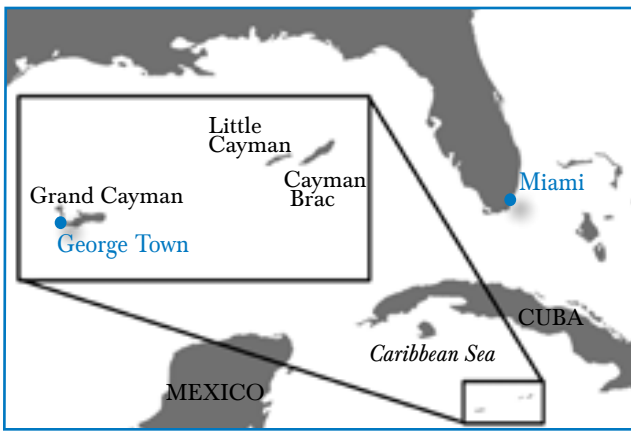
When I arrived at Pirates Point at 7 p.m., my first stop was proprietor Gladys Howard's home, the venue for a hurricane party with her guests celebrating the passage of Hurricane Fay. It had stirred up the waters enough to keep the dive boat docked for a day, but nothing like Gustav would do 11 days later (more about that later).

All rooms at Pirates Point were taken, so that night I slept in Gladys' pleasant guest bedroom, which she opens to an overflow crowd if it isn't taken by a friend or relative. After that, I had the choice between one of four sizeable oceanfront duplex rooms, but they are not air-conditioned, a lacking amenity during 80-degree nights with little ocean breeze. I opted for what isn't much more than a bedroom with a table in the octagonal-shaped fourplex: comfortable and air-conditioned but viewless and without much charm.

Next day, while boats from Little Cayman Beach Resort rocked and rolled in Bloody Bay, we Pirates Point divers made a single, very ordinary, beach dive. Divemaster Michelle, a Londoner, told me she had heard other resorts' boat captains talking about how the rough seas had beaten up their passengers. And besides, she allowed, "We have an older clientele." With clear skies, divers at most resorts would have been complaining about missed dives, but savvy Pirates Point divers figured management knew best. My group included an adventurous 72-year-old with a spanking new, megabuck housed SLR and dual strobes, and a teenage diver as well.



A Lionfish Sculpture Made from Beachcombing



The rest of the week? Flat and calm. Each day we loaded our gear into vans at 9 a.m. to be motored five minutes near the Little Cayman Beach Resort, where Pirates Point docks its 42-foot Newton, the Yellow Rose. However, for that first beach dive (Jackson Wall and Cumber's Cove), we drove to the west side, geared up, then trekked 50 yards north to craggy, iron stone and coral shallows before kicking out maybe 100 yards to a small reef with a few tropicals - black durgions, chromis, snappers -- and plenty of sea fans. The sand bottom was covered with swaying garden eels dodging a solitary sting ray; four lobster congregated in a hole. I slipped through a large chute to the wall.

At 94 feet, I looked up to see a small reef shark slip by. The wall was covered with silt, few fish, and little color even when the sun peeked through. That was not the Bloody Bay I remembered from even a decade ago.

But when we returned for lunch, the kitchen produced that same fine cuisine it had from my visit 15 years before. Today it was a lentil salad, cucumber salad, chicken minestrone, great chewy foccacia, and brownies. Dinner was marvelous roast beef with Yorkshire pudding and gravy, asparagus, sweet potato, a green salad. Gladys Howard, who has created a following like, well, a diving Julia Child, bought this little resort in 1984 because she was a diver and a well-trained chef. Larry Smith, the celebrity Texan dive guide who died last year, told her about PP and she turned it into an immediate hit because of the superb wall diving and her scrumptious cooking. Little has changed. She still serves fresh vegetables for every meal, travels to Houston and Whole Foods to bring back the latest in grains or other discoveries, and scored fresh tuna steaks for one dinner, all the while entertaining you with local gossip (some divers return year after year just to catch up).

The bar is little changed, just more clutter from artwork fashioned by guests from flotsam and jetsam they collect; some pieces are true folk art. The bar is tight when 20 or so guests are mixing their own drinks (the dive packages are all-inclusive) or checking their computers (there is WiFi, although in Gladys' resort notes she tells people that if they insist on going online, don't report the news, and there is no TV or newspapers). The dining room is cheery and comfortable. Meals are buffet; you sit at a table with five others until Gladys calls you to be served. The waiters-cum-divemasters keep your goblets filled with passable wines.

The Yellow Rose is suited well to the 20-plus divers it can carry. After I set up my gear, one of the well-trained instructors helped me stand by pulling the tank from the bench holster. At the stern transom, I'd slip on my fins and jump in. As this was late August and the last week before Pirates Point closed for hurricane season, the number of divers eventually dwindled to 10, but we were always in two groups, each with one leader. The mature and expert staff always kept an eye out for stragglers, and offered a hand with buoyancy. As I studied a pipefish on the reef, I was sinking too close to the coral and Gay Morse, who has been at the resort for years, pointed at my fin so I could stop myself. Gay used a slate to alert divers to critters. "Giant Tunicate!!" On another dive, guide Bob wrote "anenome shrimp." (I didn't have the heart to correct his spelling, otherwise he might send back a copy of Undercurrent, pointing out my typos.)

Little Cayman is noted for its sheer wall, rimmed with vivid coral shallows, varying from 20 to 50 feet in depth, all contrasting with flat patches of brilliant white sand. We dived Mixing Bowl twice. I rolled through a fair number of tropicals at the wall rim at 30 feet, then floated slowly down past schools of chromis interspersed with yellowtails. In a hole, I looked at the gnarly claws of a large crab, then entered a cut at 90 feet, where a free-swimming spotted moray wiggled along, oblivious to a solo French angel mingling with fairy basslets. After 15 minutes, I worked

up to the shallows, where guide Martha Feinhagen pointed out a dime-sized crab burying itself in the sand, then a disguised stingray covered with sand, rising and falling to its gill beats. A conch crossed the bottom, inching ahead every five seconds, the time it took for it to dig its claw in the sand and push forward. On a large coral mound, grunts were stacked like cordwood. Pleasant dive, as were all of them. The viz ran about 70 feet. The water was 85 degrees at all depths on every dive. Like at Jackson Mooring -- first a mini-wall, then a sand plateau, then down through a chute, where a four-foot reef shark shot by with what seemed to be a snapper nipping at it.

Ian Stewart, who was running a photo workshop for the week, told me that Sarah's Set was named after a divemaster of days past who resembled the topography below. I dropped to the sand, then down to 70 feet and that vertical wall. Less than 20 percent was covered with live coral, and there were lots of algae, but the sheer wall contrasted dramatically with the deep blue abyss. Schooling chromis and snappers swirled just above me among tube sponges, a throaty barrel sponge and wire coral. As I stopped to marvel at the sparkling eyes of a large pufferfish, I spotted a beautiful lettuce slug, then a tiger tail extending from beneath a coral head like a giant night crawler. Then up to a celebration, where Gay had tracked down an orange seahorse she frequently encountered. In the shallows were endless and unusual blennies, which caught the eye of most photographers, while I watched a silvery permit poke around.

Down deep at Bus Top, named because one could once see the top of an old bus from the boat, a reef shark meandered slowly and a turtle floated in the blue, as I watched both a queen trigger and an ocean trigger flutter around. In the sand flat, two thumbnail-sized flounders chased each other. Then I crossed to the colorful reef, where at 15 feet a long, flat seascape lay, filled with beautiful, undulating blue and green and beige pastel seafans. As I approached the boat, a school of jacks, with a black surgeon running with them, stayed in the boat's shadow as it drifted on its mooring. On the way back, glistening flying fish skipped off the gunwales.

It's only two dives a day at Pirates Point, but you can take as much time as you want (no one seemed to go beyond an hour but there was no limit). It was an easy climb back into the boat and a staffer always walked everyone to the bench with a steady hand on the tank. After a roll call to ensure everyone had returned (a lost diver

How Useful Is a Dye Marker in a Search?

Dear Ben,

Because my husband and I dive around the world in remote places, I always am interested in your articles pertaining to rescue. Thankfully, we have never needed to be rescued. However, we have always tried to prepare ourselves as well as possible for that "worst case scenario."

In your recent article, "Rescue Devices for Saving Your Bacon," you mention several well-known devices. The yellow flag on a tall pole that is strapped to a diver's tank is interesting. But I wonder why you didn't mention the fluorescent dye markers that come in a vial about three inches long? I read an article awhile back about a lost diver who was rescued. He believed that a dye marker enabled the planes to see him. Furthermore, he said he would never dive without one again. I immediately ordered dye markers for my husband and me. Would you please address the fluorescent dye marker as a help in rescue?

-- Patty Turbeville (Bradenton, FL)

Patty, we asked the "Rescue Devices" article author, John Bantin, to respond to your question.

"Dye markers are useful for making a person in the water a bigger visual target for an air search. However, they are only effective when the sea is calm, as the dye soon gets dispersed. Assuming that a diver has left a boat with the crew's knowledge, and should the sea be calm enough for a dye marker to work, the crew should also be able to spot the head of a diver (or other visual marker device) at the surface. Just as flares are only usefully applied to draw the attention of those known to be searching, a dye marker has a limited application for divers. We need a marker that is not obscured by waves and rough seas, and that is why dye markers were not mentioned.

"It is when divers surface away from the reef or where the boat crews do not expect them to be (in the open sea, for example) that they become cause for concern. Therefore, divers should carry a rescue device that works in any type of weather or water."

would have little problem kicking the couple of hundred yards to shore) we scarfed down individual packs of junk food or smeared peanut butter on crackers, washed down with juice or soda.

Little Cayman is a flat, scrubby island, 11 miles long and a mile wide. Each day, I hopped on a serviceable, fat-tired bike to peddle about for an hour, maybe out to the Blue Lagoon bar for a cold beer or a stop at the Little Cayman National Trust building and a view of nesting booby birds, slowing along the way to watch chunky iguanas waddle down the road or see ducks and egrets in the pond. Counting the people who work at the few hotels and condos, there aren't much more than a couple of hundred people living on Little Cayman, so other than going to the little market, the Blue Iguana Restaurant or getting a massage, there's not much left to do with your down time but snooze and read.

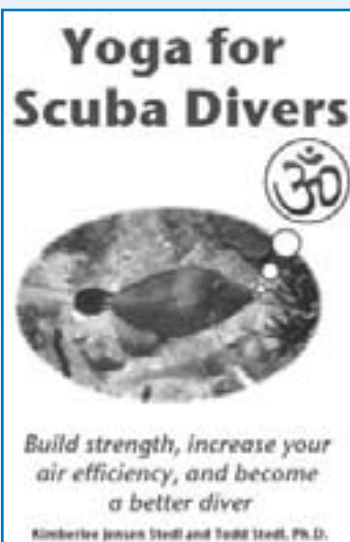
And, of course, eat the delicious food from Gladys' kitchen. Lunches were conch fritters, gazpacho with fruit, barbecued chicken, slightly sweet and tender coleslaw, beans, snow peas, cornbread, and lots of good salads like beet or even radish salad.

Downward Dogs Can Improve Your Diving

Can a yoga course really help reduce air consumption, improve flexibility and buoyancy control, and make a more proficient diver – in just one week? Charlotte Boan, a writer for the British magazine *DIVE*, checked out these claims from a “scuba Zen” course offered by Sunra Yoga in the Red Sea resort town of Dahab, Egypt.

“The fusion of yoga and scuba was a concept that perplexed me,” writes Boan. “I had visions of fins wrapped around my head, mid-water locust positions and other bizarre underwater contortions.” But later she found that there would be no underwater gymnastics. The daily schedule was a 90-minute Hatha-style (exercise-focused) yoga session in the morning, followed by a day of shore diving.

Yoga-practicing divers say there is a connection to the relaxed feeling one gets from both diving and yoga. As well as the physical benefit of muscle-stretching postures, yoga offers an effective way to switch off, focus on the present and relax, similar to finning underwater.



“Yoga is great for divers because it offers breathing exercises that strengthen the lungs, slow the heart and allow greater control of the breathing reflex,” says Arielle Thomas Newman, a yoga instructor who holds “Yoga by the Sea” courses through Sea Life Divers in Playa Del Carmen, Mexico. Also, “divers tend to have upper-back tension because of the

tanks they're carrying, and yoga stretches can help that as well.”

“When I first started yoga, I saw the impact on my buoyancy control,” says Todd Stendl, who, along with his wife Kimberlee, wrote the recent book *Yoga for Scuba Divers*. “Holding yoga poses for extended periods is helpful in strengthening core muscles, allowing divers to maneuver easily instead of flailing around.”

After doing yoga poses, breath-holds, and timed inhalations and exhalations, Boan says she felt immediate improvement in her diving. “The morning stretching techniques helped ease my muscles, minimize fatigue, made me more alert and gave me more energy. The breathing and relaxation techniques had a dramatic impact on my air consumption, giving me at least a third more air supply on each dive.”

Yoga can be done anywhere there's space to unroll a yoga mat. In their book, the Stendls describe and photograph the yoga poses best for divers, and explain why they're beneficial. For example, the Downward Facing Dog is an excellent calf stretch for divers to improve their finning underwater. The Navasana, or boat, is tougher but is great for strengthening the abdominal muscles and hip flexors. The book also gives details for breathing exercises, and visualization techniques to prepare for tough dives.

Newman offers three-day courses at Playa Del Carmen (www.morethanyoga.com). Janine Davis, maker of a divers' brew of tea called Diversitea, hosted a yoga and meditation dive week at Habitat Curacao last spring and says the trip was sold out (contact her at www.diversitea.com about future trips). The Stendls plan to host their own yoga-focused dive trip next March at Dominica's Jungle Bay eco-resort; visit www.8thElementDiving.com for details. Buy their book *Yoga for Scuba Divers* at our Web site (www.undercurrent.org) -- you'll get it at the best price Amazon.com has to offer, and all proceeds go to save the reefs.

One night, it was an Indian dinner with papadum; another night featured beef stroganoff and broccoli salad. And desserts: banana cream cake, fruit cobbler, brownies.

While Pirates Point has remained the same since my visit 15 years ago, the diving has changed. Scientists have found that Little Cayman has a coral cover loss of nearly 40 percent in five years (declining from 26.3 percent total coverage in 1999 to 15.8 percent in 2004), though it seems to have stabilized. The primary cause is white plague disease, which may have some association with humans. High water temperatures and coral bleaching have also taken their toll. Fish life isn't as prolific but just about every animal you'd expect to

see in the Caribbean is there. As we all know, coral worldwide is disappearing, fish life is diminishing, diversity is waning. So while Little Cayman may still rank among the best diving in the Caribbean, it's not what it once was - and may never be. It wasn't until just this August that spearing Nassau grouper had been banned in the Caymans; in marine parks, it's permissible to fish from shore or at depths greater than 80 feet (they better let the grouper live because it's about the only lionfish predator in Caribbean waters). Nonetheless, Little Cayman should be high on every diver's Caribbean list -- especially Pirates Point. It's that unique and special.

On my final day at Pirates Point, I was the last to leave. Hurricane season was approaching and the staff was shuttering the windows and taking down the hammocks. And with good reason. Eleven days later, Gustav came through, breaking windows, ripping off corners of roofs and tearing up the foliage. Other resorts, such as the Conch Club and the Southern Cross Club, didn't fare nearly as well as Pirates Point. And every boat ended up in the mangroves, but Gay and her husband Ed Morse retrieved the Yellow Rose and took it to Grand Cayman for annual maintenance a few days later. By the way, Gladys was in Houston during Gustav, having a second knee replacement. By all accounts, she will be back for the October 25th opening.

Unfortunately, I can't report on what Hurricane Gustav did to the diving, but it came from the south, while Bloody Bay and Jackson Hole are on the north side. One can expect uprooted fans, sand on the reef, critters looking for new homes. For repeat visitors, diving after a hurricane opens up all sort of new things. While e-mails from people living on the island say diving hasn't changed, we'll see what our readers report and let you know in our monthly dive news e-mails to subscribers (sign up to receive them for free at www.undercurrent.org).

-- Ben Davison



Diver's Compass: Rates for the coming year are \$1,995 per person, plus a 15 percent service charge, for a seven-night, six-day, double occupancy package . . . I was a solo traveler who made reservations a week ahead of time so they waived the single supplement, a pricey \$150 per day in the winter, without my even asking (and not because they knew who I was, because they didn't) . . . A warning to anyone with severe cat allergies: A few cats lounge around the main building and in Gladys' home . . . One can rent a car or a moped on Little Cayman but beware -- I was told by good authority that the proprietor makes his living from finding dents and scratches when you bring it back . . . At the far end of the island is a decaying home once owned by Burgess Meredith, where he sequestered himself, the story goes, to dry out between shoots . . . Cayman Air commuting cautions: You may be charged for overweight bags; you may have to send bags

Pirates Point, Little Cayman

Diving (<i>experienced</i>)	★★★★1/2
Diving (<i>beginners</i>)	★★★★★
Snorkeling (<i>off the beach</i>)	★★★★★
Accommodations	★★★
Food	★★★★★
Service and Attitude	★★★★★
Money's Worth	★★★★1/2

★ = poor ★★★★★ = excellent

Caribbean Scale

a day early if you want them to arrive home with you; flights may be canceled, combined or diverted, therefore mucking up plans as you arrive on or depart from Grand Cayman . . . You're required to go to Little Cayman's garage-sized airport building an hour before flight time and wait outside in scorching weather . . . Nitrox is available, but everyone stuck with air; a night dive wasn't offered, at least not to me . . . Web site: www.piratespointresort.com.

Bahamas, B.V.I., Ontario, Roatan...

the good, bad and ugly in dive resorts, boats and service

Green Turtle Cay, Bahamas. I dived with Brendal Stevens when he was a mere lad at Small Hope Bay, and he's still getting high marks. Tripp Jones (Columbia, SC) dived with him at Brendal's Dive Center and stayed at the Green Turtle Club, a 15-minute ferry ride from Abaco, in August. He reports nice, clean rooms and good food. "Dive sites were a 20-minute boat ride away. Visibility ranged from 40 to 70 feet, and depths averaged 55 feet, with long bottom times – the shortest of my 13 dives was 62 minutes. Now I know why Brendal, who leads all dives, is called 'Bottom Time Brendal' – he and his staff are great at pointing out the tiniest critters. We saw a good number of reef sharks, plus a bull shark, and large grouper were plentiful. Coral was good, not great – there was some elkhorn bleaching near the surface." Golf carts are a must to go to town for meals; Tripp recommends Miss Emily's and Harvey's for good, reasonably priced dinners. (Green Turtle Club - www.greenturtleclub.com; Brendal's Dive Center - www.brendal.com). P.S.: Winter in the Bahamas can be chilly, and water temperatures are in the low 70s.

Boo for Bonaire's Buddy Dive Boat Overbookings. Jim Hopkins (Jenks, OK) was disappointed with Buddy Dive's boat dive options while there in June. "Three of us paid for boat dives when booking ahead, but the boats were full most of the time, so it was a waste of money. We were told to put our names on a board, but most times the board was full and I was told the boats were primarily for tour and dive groups. The boat dives I could go on were disappointing. One time, the captain just wanted to get the dive over with, argued with the divemaster about a site when the latter said the current was too strong, and would not go to another site the divemaster suggested. Buddy Dive did not seem to care that boat diving was part of our package, and they offered no compensation."

Boat Alert at Bonaire Dive and Adventure, Den Laman. Helen Brown (Lakeville, MN) tells us that if you get a dive package, the clock starts running on day one. If you have a six-boat dive package, you have to use it in six days. "We were there for 10 nights and would have liked to have a day or two off in the middle of our stay, but had we done that, we would have lost a prepaid dive." Kind of chintzy, we'd say.

Duty-Free Liquor Warning. If you're carrying duty-free booze on board and are changing planes after going through U.S. Customs, you must check it before your next flight, otherwise you'll lose your booze. Reader Lou Oberle (Cary, NC) purchased two bottles of good stuff at Bonaire's Flamingo Airport, carrying them on board his flight. On the way to Atlanta, he was informed that any container of fluid or gel larger than three ounces purchased at Flamingo would need to be put in checked baggage for the connecting flight. Luckily, Oberle had enough time between flights to pack it away in his checked luggage. Otherwise, he would have had to leave it in Atlanta for the TSA to enjoy.

GiGi Divers, Roatan. Don Anderson (Sebastopol, CA) signed up with this new outfit during his Roatan trip in June. "Willie (pronounced Villie) DeBeer and Noelle Gatti run *Moody Blues*, their new 32-foot, custom-built dive boat with twin 200-hp engines. They don't have a dive shop, but with one phone call they brought what gear we needed and picked us up at the nearest dock. We were allowed to extend our dives as long as safely possible. At Forty Foot Point, Willie held my BC while I videotaped creatures on the wall. Talk about a Steadycam! I would recommend their 'personal touch' dive experience to anyone." (Contact them via e-mail at gatti.noelle@hotmail.com.)

Peter Hughes' Paradise Dancer, Indonesia. A couple of issues ago, we reported dissatisfaction by a reader, and received e-mails from other readers exalting the craft. John Singer, Peter Hughes' V.P. who runs the boat, told us that once the problem of crew smoking was disclosed, the crew has been prohibited from dropping their butts in the sea. Singer reminds us -- and future visitors -- that there is some garbage in the Lembeh Straits (that's often where the critters hang out) and this is not the destination for constant pristine coral diving. It's where sophisticated divers head for the unique diversity and plenty of muck diving with your macrolens poised. Unless you're excited about looking for critters the size of a fingernail, you will have disappointing dives, even though you might come across such bizarre critters as the mimic octopus and rhionpious, those frilly scorpionfish. Have your expectations in order. (www.peterhughes.com)

Amoray Dive, Key Largo. Before you go to the Keys, no matter what shop you choose, find out what sort of guide requirements they have if you've been out of the water for a while. When Jorge More (Downers Grove, IL) chose Amoray Divers in August, he was told he and his son needed a guide if they hadn't dived within the last year, at \$40 a person and per dive. "I had dived many times but my son had not, although with 100 dives, some to 120 feet, he was not a beginner. But they were firm and I could not dive with them unless I also had a guide. The first dive's maximum depth was 28 feet and the second was 30 feet, so there was no need for a guide. Then Amoray told me we needed a guide for *Spiegel Grove* because my son didn't have four dives to at least 70 feet within the last year. We argued, but they wouldn't budge. Be aware they have a lot of rules, which may not be made clear until the last minute. Its web site does state its rule about hiring a guide if your last dive was more than one year ago, but all these regulations added \$140 to the cost of our dives."

Thousand Islands, Ontario. Jeanne and Bill Downey (Baden, PA) recommend this part of the St. Lawrence River as a great area for technical diving and learning how to do it. "It's an easy drive from many East Coast locations, the water is clear due to the zebra mussels, weather is seldom a factor, boat rides are short, the water is in the mid-70s in the summer, all skill levels can be accommodated, and there are many interesting things to do topside. The only negative can be the current." They dived with Thousand Island Pleasure Diving in Rockport, making eight dives in five days, including the wrecks *Keystorm* with a maximum depth of 120 feet, the *J.B. King* at 150 feet, and the *Kinghorn* at 88 feet. Owner Wayne Green is very accommodating and the captains of his four boats know what they're doing." (www.islanddiver.ca)

Truth and Peace in California. In last month's article "Dive Deals in the U.S.," we wrote about dive boats going to California's Channel Islands but mistakenly wrote that the *Peace* was part of Truth Aquatics' fleet. The *Peace* sails out of Ventura, while Truth Aquatics' boats - *Truth*, *Vision* and *Conception* - are based in Santa Barbara.

Reserve a Cabin, Then Take What You Can Get. Judith Kendall (Los Angeles) is a handicapped diver so she and a friend paid as early as possible to get one of the *Celebes Explorer's* two cabins on the dive-deck level. "But upon arrival, we were dismayed that our booking arrangement was not honored and we were assigned to a cabin on the lower level. With no handrail leading down the steps to our cabin, I was very concerned about falling. Adding to my concern, staterooms provided the only restroom for each guest on the entire boat." Kendall asked for a refund, which the *Explorer* refused. "Midweek, the captain read me a text message on his cell phone: 'How are the old ladies doing?' That was us!" She had other concerns about the boat and we've seen complaints from others, so be advised.

Blue Marine Diving, Seychelles. Bid a sad farewell to diving in these Indian Ocean islands. Stanley Zuk (New

York, NY) dived with Blue Marine Diving on Praslin in August, and although the dive operation calls itself the "specialist of shark diving," Zuk says sharks have disappeared. "I still saw big humphead parrotfish on some dives, turtles on every dive and a substantial amount of eagle rays, but no sharks, although they were there on my last trip three years ago. I found out why in a cruel way, when we had a surface interval on La Digue Island - a small fishing boat was unloading its catch, including a substantial amount of shark fins. The Seychelles are still a beautiful vacation spot but not for divers, not anymore."

Car Rental Insurance for Amex Cardholders. We've warned about the need and expense of purchasing extended car-rental insurance for pickups and other big cars in places like Bonaire, but Marc Duggan (San Diego, CA) says American Express cardholders now have a good option. Their Premium Car Rental Insurance "seems to cover those types of vehicles, and for a lot less than the island rental companies charge." The plan gives primary coverage for damage or theft, while its standard Car Rental Loss and Damage Insurance option just offers coverage in excess of other sources of insurance. The premium plan covers all big cars in most countries. Charge the car rental to your Amex and pay a flat fee of \$25 for \$100,000 coverage (\$16 for California cardholders). Details at: https://www.152.americanexpress.com/fsea/travel/car_rental/product.do

Cuan Law, British Virgin Islands. Here's an overlooked Caribbean liveaboard, a 105-foot trimaran, that ranks high in quality and service, says Terry Gee (El Paso, TX) who sailed in May. "Spacious boat, experienced owners and crew. The cabins are among the largest I've had on a liveaboard, with spacious bathroom and individual A/C. Top-quality buffet-style breakfasts and lunches, sit-down dinners, with never-ending snacks. Captain Steve enjoys running up the canvas when conditions permit. There are two Hobie Cats for guests to sail and three kayaks. Three dives a day, with a

Rebreathers, Pack Your Canisters Properly

While it may be old news to rebreather divers, a recent study points out why failing to pack the soda lime canister properly can lead to oxygen toxicity incidents, in which the presence of CO₂ on inhalation was the precipitating factor. Researchers at the Israel Naval Medical Institute found that tilting or other movement of a loosely packed canister can lead to rearrangement of the free spaces, resulting in variations in channeling and considerable differences in CO₂ scrubbing capacity. Pressure-packing the soda lime probably forces channels through the less dense granules and reduces the scrubbing efficiency. The study "The Effect of Over- or Underfilling the Soda Lime Canister on CO₂ Absorption in Two Closed-Circuit Oxygen Rebreathers," is printed in the *Journal of the Undersea and Hyperbaric Medical Society*, volume 35, number 3.

night dive if the vessel isn't under sail. Diving is laid-back, but with excellent pre-dive briefings and personal help with gear and loading onto the tenders. Experienced divers can dive their own profiles while crew will show beginners the

sights." BVI diving is easy, pleasant, with few surprises; not many experienced divers return unless they are toting cameras. (www.bvidiving.com)

-- Ben Davison

When There's Not Enough Divers

what dive operators do about it, for better or for worse

When you go to a movie and only three other people show up, does the theater close? If you're the only couple at a restaurant, do they refuse to serve you and shut the door? Obviously, no to both questions. So why can't the same be expected from dive operators? There's been many a time when a disappointed diver or two has been turned away from a third tank or a night dive because they're not enough for the "four diver minimum" or whatever number that operator requires.

My thoughts are that if you've flown off to a liveaboard located on the other side of the world and a big dive group backed out, they still damn well better honor your reservation. If a dive operation promises night dives on their Web site, they shouldn't require a four-person minimum. You're doing your part of the bargain – you're a certified diver with money to spend and you've traveled far for a vacation. A dive operator should honor their part -- offer good customer service -- not insist on making a buck on each and every activity.

For example, William Ungerman (Santa Ana, CA) made arrangements in August with the Puerto Rican operation Sea Ventures, with three locations on the island. "We opted for the Humacao/Palmas Del Mar location after talking to Kristine, their booking coordinator. We booked for five days of two-tank dives. We arrived on Sunday and were promptly advised by Kristine that there was a problem diving on Monday. The excuses ran the gamut from a Coast Guard inspection, the boat needing repair, the boat captain leaving and making trouble, and a few others. No diving on Monday unless we were willing to drive 50 miles to their Fajardo location. Ah, no thanks." They dived Tuesday and Wednesday but Kristine called to cancel the Thursday dives, offering "a number of insurmountable problems again, although I suspect that they couldn't get any more divers to go and they didn't want to go out with just the four of us. Sea Ventures is the only game in town. We opted to cancel the balance of the diving, which was probably just as well because we learned we were going to be canceled anyway because of the lack of either a boat captain or the requisite number of divers."

Marjorie Griffin (Norcross, GA) and her dive buddy booked a two-tank trip with South Florida Diving Headquarters in Pompano Beach last March. "We booked a boat with a 12-person capacity and were to dive a wreck to 60 feet, then a 35-foot

drift dive. When we showed up at their office, they said the afternoon boats left from another location. When we arrived at the other location, they told us there weren't enough divers to run the trip so we were assigned to a boat holding 40 people, 30 of them snorkelers. The divers were assigned to the back where it was impossible to get geared up. The first dive was to 35 feet. We came up with 1,800 psi after the 45-minute time limit. The second dive averaged 11 feet, and we had 2,000 psi left. Had we known this was the profile, we would have only needed one tank each, not the two we paid for. The crew rushed us to switch over our tanks between dives because we 'only have five minutes.' The bait-and-switch tactic was not appreciated."

Offering extra cash and bodies to meet the minimum number didn't do it for Mike Fitzgerald (Bethany, IL) when he dived with Lahaina Divers in Maui last February. "I had set up three day dives two months ahead of time. The first dive was set for a Friday and Saturday. I got a message that there were not enough divers and my dive had been changed to Super Bowl Sunday. I went to the dive shop Saturday morning and found out they were only one diver short. Had I known this, I could have offered my wife as a snorkeler to entice them to make the trip. 'Too late now,' said the guy behind the counter. My third dive to Molokini Crater was set for Wednesday. Another cell-phone message on Tuesday afternoon: 'We only have four divers out of six minimum for the trip, so it has been cancelled.' I called back within 10 minutes and asked if we could pay for the extra two divers and still go. 'Sorry we have already contacted everyone, so no go.'" And no help to find another shop to take them out.

Operations like these have a philosophy that each dive trip must make a profit, so they see no long-term value in goodwill and keeping their word. Thankfully, there are plenty of operations that do serve their customers.

Paul Schneider was in Maui around the same time as Mike Fitzgerald but picked Maui Dive Shop. "Its boat is equipped for up to 24 divers but there were only six divers on board and they'll run it even if there is only one diver booked." In Kauai, Bubbles Below gets high marks from Scott George (Hollyglen, CA). "They normally run with no more than six divers but on my trip there was only the divemaster, another diver and me. I appreciated that they didn't cancel."

The Underwater “Spin Cycle” Known as Diver’s Vertigo

Years ago, at 60 feet off of Grand Cayman, my underwater world went spinning, turning in and out of focus, like how movies depict acid trips. I had no idea what was happening but knew that if I did anything other than stay still I’d be in trouble. I grabbed the edge of the wall, hung on and in a few seconds, the seascape stopped spinning. I’d just had a bout of vertigo, something I had never experienced on land but would experience twice again while diving.

Ian Sibley-Calder, M.D., the medical columnist for the British magazine *DIVER*, says it’s not an uncommon experience underwater. He recently wrote that “vertigo is the sensation of the room spinning around but what distinguishes the condition from dizziness is the sufferer can often tell you which way it is spinning. It is frequently associated with vomiting, often severe and prolonged, and incapacity due to the overwhelming sensations.”

A common origin of vertigo is problems in the inner ear. When we move, fine hairs lining canals in the inner ear are disturbed, allowing the brain to tell us our position. The inner ear also has two small windows covered in membranes. One transmits sound waves to the cochlea, while the other bulges slightly in response to sound waves.

Four conditions can cause imbalance between the two windows, and thus can cause vertigo:

Pressure. The most common cause of vertigo is when one ear clears but the other doesn’t. This leads to a pressure imbalance in the windows, sending confusing information to the brain. It often occurs on descent with ear-clearing problems but can also occur on ascent for the same reason. It usually clears quickly after the diver exits the water.

Round-window rupture. This serious vertigo is usually the result of excessive attempts to clear the ears, or severe

barotrauma caused by failure to equalize pressure. The round window ruptures, leading to severe vertigo, vomiting, hearing loss and incapacity. This is an emergency, as permanent damage to hearing and balance can occur.

Temperature. If cold water gets into one ear canal but not the other, it can cause an imbalance between the ears. This vertigo type clears quickly once a diver is out of the water.

Decompression illness. You can get bubbles in the two windows or in the blood vessels around them. It should be treated as any other case of DCI, with immediate 100 percent oxygen and transport to a hyperbaric facility for recompression.

“Some issues in a diver’s medical history can make him more susceptible to vertigo,” says Ernest Campbell, M.D., the blogger for Scubadoc.com. They include chronic Eustachian tube dysfunction; a recent upper respiratory infection; previous barotraumas; nasal airway obstruction; and previous major sinus or ear surgery. Regardless of the vertigo type, says Campbell, a suffering diver should be taken out of the water as quickly as possible in a controlled fashion. Treatment is typically a suspension of diving and bed rest.

In each of my vertigo bouts, there was no way I knew up from down. It was as if I were staring into the window of a front-loading washing machine. I followed the rule everyone must follow to avoid panic: stop, relax, think. My decision was to wait, and the vertigo cleared in a few seconds. In one instance, it dissipated after I rose upward about six feet. In each case, I was buddy diving; no one noticed anything strange.

Keep in mind that with just about any incident underwater, if you don’t panic, you can think your way out and survive it.

On his last day of diving with Dominica’s Fort Young Hotel, Alan Ritter (Des Peres, MO) asked his divemaster Fitzroy whether he was going out Saturday morning. “He responded that if I didn’t mind his doing some work on an anchorage near Scott’s Head, I was welcome to come along. He briefed me and just said ‘stay in sight until I finish working.’ Halfway through my tank, he was done, so we meandered off together. Back on the boat, he told me to head down and he would join me. I had no more than turned around to orient myself when I had two rays swimming through my bubbles. Had there been a herd of divers, we would never have gotten that close to the rays. As it was, Fitzroy and I just enjoyed their company.”

Reputable liveboards are more likely to stick to their sailing itinerary even if only two divers show up – and divers

already on board often get a financial incentive to stay on longer. “My wife and I were the only two guests scheduled to sail on Peter Hughes’ *Star Dancer* in Papua New Guinea,” says Daniel Benson (Klamath Falls, OR). “It sailed as scheduled. At the last minute, Hughes made a deal with two other people who had been on the boat the week before to stay on for a reduced price.”

The *Bilikiki* is another boat noted for sailing when hardly anyone shows. The Aggressor fleet also has had a good reputation, and now its policy is that all of its boats will run, regardless of the number of passengers booked.

“For the past two years we have booked trips with Grand Komodo Tours in Indonesia and have been spoiled,” says Chrisanda Button (Elkins, AR). “In 2006, we spent a week

on the *Nusa Tara*, which normally carries six divers, but only three had signed up. In 2007, we signed up for a two-week trip aboard the *Temu Kira*, which can accommodate twelve divers. Only five divers had booked. In both cases, the boats departed with full crews, excellent food and service, and a full schedule of diving. We have become used to having a private yacht.”

Dive operations that treat their customers well will get loyalty in return. Ocean Divers in Key Largo got a rave review from Craig Wood (Radnor, PA). “Twice, I have dived the *Duane* on a Sunday with just two divers. Never a complaint from the captain or mate. Ocean Divers has earned my respect, so I will continue to dive with them whenever I have the opportunity.”

But with higher fuel costs, will they be so likely to go out with just one or two divers? We asked Mike Smith, owner of Ocean Divers in Key Largo, who says he hasn’t changed the policy. “We keep our word to customers. If they’ve scheduled a trip, and we’ve agreed to run it, then we do so unless conditions dictate that it would be unsafe. Of course, we are in business to make money, but our best form of advertisement has always been ‘word of mouth.’ We get new customers by providing consistent service to our existing customers, and they tell others . . . just like you found out about us from one of our customers. In the long run, what may appear to be a loss on one day is usually a gain for many more.”

But while dive operators may still take just two divers on their boats, they might not go out as far. From his trip on the *Sanctuary* in Monterey in July, Robert Halem (San Jose, CA) reported, “There were only two passengers on this six-pack boat, but they went out anyway. In light of current fuel prices, we didn’t go far, just some nice offshore reefs.”

Here’s to hoping the global economy rebounds quickly, but in the meantime, dive operators shouldn’t forget that divers, each and every one of them, are its bread and butter. Here’s validation in a report from Jim Schoeneck (San Diego, CA) about his May trip to Provo, Turks & Caicos with Caicos Adventures. “On our first day, Fifi, the owner, was captain and informed us we’d head out right away as we were the only people on the 54-foot catamaran besides him and the dive instructor. I asked him about their policy when so few divers signed up and he said it was really simple. ‘It’s not where you are at the end of the day that matters. It’s where you are at the end of the year. Repeat customers are crucial, so we take care of the customers first. If people want to dive with us, we go.’ He said he knows other boats that develop ‘mechanical’ problems when there are very few customers, but it’s just not the way he’s built his business.”

So for those dive operations who keep their word, a big thumbs up. For those who cancel dives for want of a minimum when their customers have traveled halfway around the world, don’t expect our business.

-- Ben Davison

Dive-Related Death Investigations

how the U.S. compares to other countries in handling them

After investigating a specific dive-related death last year, a coroner made headlines by expressing concerns about how the dive industry self-regulates itself and that the government should step in. Soon afterwards, another coroner criticized training standards after investigating three separate dive deaths within a week, telling the media that inexperienced divers were too often certified as “advanced.”

The first event happened in Australia, the second in the United Kingdom. The U.S. has many more dive-related deaths than these countries, but rarely does a medical expert here publicly call for more industry accountability or regulation. (In the case of Markus Groh, who died of a shark bite to the leg while diving from the Florida-based *Shear Water* in February, it was the media doing the demanding.) As many as 100 American divers die annually. Do we do enough to investigate and explain dive-related deaths so as to improve the safety of the sport? Do countries like Australia and the U.K. do a better job? We talked to experts here and abroad to find out.

DAN’s Dilemma

Every year, *Undercurrent* publishes a series of articles called “Why Divers Die,” describing the details of dive deaths and explaining how they could have happened. Our work is essentially a summary of the Divers Alert Network’s (DAN) Annual Diving Report, which reports diving accident and fatality cases that occurred in one year. We select cases, doing additional research where we can, that will help readers understand how fatalities actually occur and ensure they don’t make the same mistakes. Analyzing diver deaths has been an editorial mainstay of *Undercurrent’s* effort to improve diver safety, even before DAN was founded.

DAN, of course, is a medical organization, not an investigative agency, but it has evolved a system that gathers information about diving fatalities from public, private, and official sources. It’s the most extensive document of its kind in the U.S. Trouble is, even DAN admits its report is far from accurate.

“How many cases the system misses is unknown,” DAN stated in a 2008 report about the common causes of recreational dive deaths. “Questions about how and why accidents occur are frequently difficult to answer because of missing data, particularly common in diving fatalities. Bodies may not have been recovered, critical events may not have been witnessed, and medical examiner reports may have been unavailable.”

Tight budgets and lack of experience often lead to a quick ruling of death by drowning, with no autopsy.

To find dive deaths, DAN searches news reports, the Internet, and taps its network of individuals and organizations. It then contacts investigative agencies, medical examiners, hyperbaric chambers, witnesses, and the deceased divers’ families. They may hit pay dirt or they may strike out, depending on the charity of each donor. “These contacts could be helpful to a greater or lesser degree. Reports might include barest details, or a full analysis of equipment, breathing gases, and a complete autopsy.” The entire process can take up to 18 months to complete.

How Australia Does It

Compare DAN’s report to Project Stickybeak, a similar report put together by one man, Douglas Walker, M.D., who has reported Australian dive deaths since 1972. Walker says he obtains copies of the investigation documents from the Australian states’ coroners, police departments and other sources, “due to a ‘grace and favor’ agreement through a succession of contacts. It was good fortune that they provided this support as my investigation was unfunded and the copying costs would have defeated me.” Because Walker works virtually alone, Project Stickybeak reports take much longer to issue than DAN’s.

One critique of Stickybeak is that it relies too heavily on his opinions. “In one case when a guy was diving alone and died, Walker’s reason was that he was diving solo, although there may have been other reasons,” says John Lippmann, executive director of DAN’s Asia-Pacific office, who publishes Walker’s findings. “It’s not as clear-cut as it appears.”

The biggest plus Stickybeak has over DAN is that Australia has the world’s only national database of coroner reports, allowing Walker, Lippmann and others to get timely information and calculate Australia’s dive death and injury rates. Case information includes death date and location, medical cause, circumstances, police summaries, toxicology and autopsy reports, and the coroner’s findings.

How the United Kingdom Does It

Australia, along with Canada, follows the U.K.’s process of having a coroner lead an inquest, a detailed investigation

into the death. He is either a lawyer or a medical doctor, appointed by the local authority as an independent judicial officer. Dive-fatality investigations attempt to identify medical, equipment and procedural causes of death. All coroners are qualified to assess cardiovascular disease, but diving injuries - - e.g., cerebral gas embolism - - require special training. (Only two physicians are allowed to do diving postmortems in the U.K.) If there is suspicion of an unnatural death (anything from an equipment malfunction to violence) or the cause is unknown, he will call for a public inquest.

There, the coroner questions witnesses under oath about the deceased and how he died, but there are no attorneys arguing against each other, and most inquests don’t involve a jury. Attendees may be the coroner, a dive gear manufacturer’s representative, a police representative, the investigating officer and the next of kin. The verdict is usually the coroners’ statement about the events and cause of death. If he thinks a crime has been committed, he’ll pass the case on to the Crown Prosecution Service, which determines if someone should be charged.

“In Australia, police know which doctor to call to report a dive fatality, not like here in the U.S.”

Here’s a recent example of a dive-related death inquiry. In August 2005, 22-year-old Mark Steel from Northamptonshire was exploring the WWI wreck *Kyarra* when he disappeared. His body wasn’t found until two years later. At the inquest, his father described Steel’s passion for diving. The dive instructor who organized the dive trip said Steel was a competent diver. The dive buddy recalled how he lost sight of Steel, and said the two only did visual checks of their gear instead of a hands-on review. The dive boat captain said he saw Steel surfacing, roll onto his back and go back under. A postmortem showed he had inhaled water and drowned, while an examination of his gear showed that the isolation valve between his two tanks had not been turned on and he had run out of air. The coroner announced that inadequate safety checks led to Steel’s demise and recorded a verdict of accidental death.

How America Does It

In the U.S., relatives of deceased sue people they believe responsible for a death. Very rarely do police investigate and indict. But there is no formal inquest system to gather information just to understand the causes of a death to improve diver safety.

While countries like the U.K. have this, Petar Denoble, M.D., senior research director at DAN, says it’s unfair to compare the U.S. to them. “They have a smaller population and fewer dive sites, while the U.S. has a huge population

and many different agencies. Australia is stricter about fitness for dive requirements but when it comes to deaths, that has no influence. I don't think regulation is a reason for fewer deaths there, and it can be burdensome. The U.S. is more liberal than in Australia and the U.K., and the industry here is self-regulating."

But he admits, "In Australia, if a dive fatality occurs, police know what doctor(s) to call to report it, not like here. All we must do is educate the medical examiners."

They have a lot of educating to do. If you read the DAN report, you'll see it sometimes disagrees with the coroner's stated cause of death and suggests its own. Each case is reviewed by Jim Caruso, a Navy diving medical officer and forensic pathologist. Caruso assigns a probable cause-of-death if enough information is available. In the U.S., he says, "not every coroner is a medical examiner -- some are funeral home directors, local sheriffs, even justices of

the peace. So when someone dies, it's up to the whim of whoever's in charge. In urban areas, the medical examiner evaluates all cases in the same fashion. But if you're diving off the rural coast in North Carolina, even though there's a medical examiner in Chapel Hill, the county you died in makes a first decision about whether there will be an autopsy, and they usually say no."

Caruso says tight budgets and lack of experience often lead to a quick ruling of death by drowning, and no autopsy. "That's a big error -- you won't know if the true cause was a heart attack, drugs, or air embolism. In places where there's not a lot of diving done, with maybe one related death every five years, they often don't know what to do with it." Mike Murphy, coroner of Nevada's Clark County, said many coroner offices rely on outside expertise. "When we have a dive death, it will be at Lake Mead, a national park, so we rely on the Park Service to check equipment and determine any malfunctions."

Drinking and Diving: How Much Alcohol Is Too Much?

You're having so much fun on your dive trip that after cocktails, you decide to have more wine with dinner, and a brandy as a nightcap. Should you really go on the first morning dive? It's one thing to have wine with dinner, it's another to drink until 2 a.m., then wake four hours later for the early-morning dive. And if you're the sober dive buddy, what is your responsibility?

Divers Alert Network (DAN) states that alcohol will impair your physical performance, concentration and judgment underwater, plus mask symptoms of decompression sickness for many hours until your blood alcohol concentration (BAC) level reaches 0.0 percent. (The American Medical Association recommends the upper BAC limit for driving as 0.05 percent.) So the more partying you do, the higher your BAC goes, and the higher your risk for injury as a hungover diver.

Look at it another way: DAN estimates that alcohol metabolizes at an average of 0.3 ounces of pure alcohol per hour. So say you drink a 12-ounce can of Miller Lite. It contains 0.384 ounces of pure alcohol, so you'll metabolize it in approximately 80 minutes. A domestic draft beer has 0.48 ounces, so it'll take around 90 minutes. Drink four of those and it'll take six hours for a respectable BAC. That's okay if you stop before midnight, not so much if you're drinking into the a.m. hours -- and if you drink more than that.

There's scant research about alcohol's impact on diving, but DAN won't consider doing more, says senior research director Petar DeNoble. "First, excessive drinking is related to many health problems already, so conducting a separate study would make it look like DAN is trying to provide

excuses for drinking and diving. Second, the effects of drinking on physiological functions are difficult to measure, especially because most effects may be dose dependent."

Dive operators vary on their view of handling heavy-drinking divers. We asked a few liveboards for their take, and it ranged from crackdown to laissez-faire. Mike Ball Dive Expeditions in Australia is one of the strictest. Its procedures manual recommends lights-out at 11 p.m., requires parties to end at midnight and has a four-drink maximum over 24 hours. "Guests who wish to drink beyond that are advised they'll need to skip the early-morning dive," says operations manager Craig Stephen. Crew records the names and time of late-night drinkers in their log, and if those divers insist on doing the first dive, they must sign a "diver refusing advice" waiver.

On the other end is the Peter Hughes fleet, saying the "fit to dive" decision is entirely up to its guests. "We treat divers as responsible adults, capable of governing their own actions and diving within their limits," says vice president Larry Speaker. "Our crews don't have the expertise to diagnose or judge the 'quality' of each person's decisions. But during our initial safety briefings, we do discuss responsible diving."

The Aggressor Fleet is somewhere in between, with no written standards about heavy drinking, but president Wayne Hasson says, "Our on-board policy includes suspending diving for anyone who is in question of being a danger to themselves or another diver." He says dive buddies should play a role in keeping hungover divers on deck. "They should inform the divemaster in such a case, but they should also advise the diver not to dive under those conditions."

Even You Could Learn from These Kids' Dive Books

Want to turn your young kids or grandkids into divers? A good Christmas gift could be photo-filled books that get them interested in the oceans. When I got some grade-school books for review, I asked my two nephews, eight-year-old Asa and five-year-old Owen, to help me critique them – and determine if they'd get hooked on marine life.

First up was *Underseas Encounters*, a series of 10 books from Scholastic, photographed by underwater pro David Hall with easy-to-read text by children's book expert Mary Jo Rhodes. Each book is an in-depth chapter on marine life, from crabs to dolphins to sea predators. The boys oohed and ahed over great close-ups of an open-mouthed basking shark and scary-faced wolf eel. They listened intently as I read the amazing, in-depth information. There were many times when I said, "Wow, I didn't know that" as we read together. I mentally stashed lots of facts to remember for my next dive trips. Each book lists more resources to learn more about the marine life profiled. Owen loved *Seahorses and Sea Dragons* for the pretty photos, while Asa was thrilled by *Predators of the Sea*, but they gave all the books a thumbs-up. The reading level is for ages 9-12 but younger kids can easily follow along. Paperback, 9 x 8 inches, \$6.95 each.

Then we read the two latest kids' books by photographer Michael Patrick O'Neill, who has published six. *Ocean Magic* is an overview of reefs and sea creatures for grades 1-4.

The photos are good, but the boys thought the text wasn't exciting. "There's a photo of a pretty fish, but I don't learn anything about it," said Asa. A better bet was *Shark Encounters* -- the boys enjoyed the descriptions of hammerheads, white-tips, etc., then each picked their favorite shark. O'Neill only dabbled in the problems sharks face today, but when I explained about finning, Owen cried and wanted to go to Cocos Island and save the hammerheads. Both books are hardcover, 11 x 8 inches, \$20 each.

The boys asked their mom for posters of sharks and seahorses, plus diving lessons. Then Asa asked me, "When we're old enough, can we come dive with you?" So I think the books worked. Buy them at www.undercurrent.org – you'll get them at Amazon.com's best price, and you can tell the kids that the purchases are helping to save coral reefs.

-- Vanessa Richardson



Investigation seems to be improving, Caruso says. DAN sponsors a workshop for the American Academy of Forensic Science, teaching a half-day of dive-death investigations like checking out gear, sending the gases to be analyzed, looking at dive profiles and downloading dive computer information. Caruso offers pro-bono consultations and says more medical examiners are calling him.

The Ideal Investigation

For a report on rebreather fatality investigations, DAN officials met with representatives from rebreather manufacturers, dive training agencies and the government, to determine the best way to handle them. Their statement could also apply to recreational diving.

"Equipment testing is important because the next of kin tend to focus on equipment error rather than human error as the root cause . . . All equipment should be preserved . . . Everything has to be counted in until it can be positively ruled out . . . Buoyancy management is particularly important. Weights and the BC must be inspected because many fatality victims were overweighted or did not ditch their weights. Equipment should not be disassembled. If equipment is to be shipped, it should be packed and protected in hard containers on-site, and on-site interviews should be

conducted when possible [because] finding recreational divers after they have left a dive site can be difficult.

"Every diving fatality or potential fatality should be treated as a homicide, and the equipment subjected to a chain of custody . . . to be certain that damage may not have occurred during handling after the dive or during shipping rather than during the dive . . . Ideally, dive supervisors and boat captains would be familiar with evidence-preservation procedures and could assist on-site."

But collecting details will be harder to change because of confidentiality laws, says Murphy. "In many states, the patient-doctor relationship extends to the family after the patient's death. In Nevada, photos and toxicology reports aren't public info, and the family must grant permission."

And often it's the family that covers up the most pertinent details, says Edmond Kay, M.D., a diving medical examiner and diving medical officer for the University of Washington. "I was involved in three investigations and each time, the family shielded some information because they didn't want it to reflect adversely on the deceased. Nearly every family doesn't want to have their name in a negative light."

Also, fear of a lawsuit can prevent dive experts from investigating, Kay says. "If you make opinions and someone thinks the opposite, you could get drawn into a lawsuit. That's the big glaring fault of our system and why there's no good way to collect data about diving fatalities."

What Is The Dive Industry's Role?

To see what the training agencies do, *Undercurrent* called PADI, NAUI, SSI and SDI/TDI, but only the last one replied. "Our training department reviews reports from DAN, the Cave Diving Association, and technical diving and sports agencies," says Steve Lewis, SDI/TDI's director of communications. "They're a huge component of courses. Studying individual accidents is done internally, especially if it's an instructor registered with us or happened in one of

our courses. We try to determine whether it was caused by external avoidable circumstances, a deficit in training, or something in the program that hadn't been covered."

Bret Gilliam, the founder of SDI/TDI and now an expert witness in dive-related trial cases, says agencies' responses in the aftermath are directed by their insurance firms. "They get an instant report, then assess on their own to see if there was a breach of standard, but they won't do a damn thing while the threat of litigation is outstanding. They may red-flag it and once litigation has finished, they'll fire the instigator, but that could take years. They're more preoccupied about keeping their insurance program than they are with preventing the next accident."

- - Vanessa Richardson

How Divers Will Never Be Lost Again

new personal GPS device still working out the kinks

"Aren't you going to fasten your seatbelt?" I asked my Indonesian driver. "Why should I?" he retorted. "I'm not going to have an accident." That sums up all safety equipment. If regulations didn't force us to have them, we'd happily do without.

The German manufacturers of the Electronic Rescue and Locating System (ENOS for short) would like to see every dive boat equipped with their equipment. But as they improve their technology, they're struggling to persuade dive operations to spend the money. With boat owners smarting over the high cost of marine fuel, they are hardly likely to want to splash out.

Besides, they're not going to lose anyone, are they?

Would you pay a surcharge to book a boat that had a search unit and sufficient transmitters to equip every diver on board? After all, with the charge for the boat unit running about \$4,500 and each diver unit costing \$1,250, that sort of investment doesn't come easy. However, Seareq, the German manufacturer of ENOS, told us that American dive centers have not used ENOS "because of rather complicated international radio

frequency laws and rules worldwide, which were cleared up for the American market in the last 12 months. Until now, it was not possible for boat operators in U.S. territories to purchase the ENOS system."

It seems the equipment must be supplied for use in a specific territory. I took a set to Egypt and tried it out during my voyage on the *Miss Nouran* liveaboard in the Red Sea. The ENOS System869 operates with a radio frequency that is license-free so its use doesn't have to be reported to the authorities in that country. The system works in conjunction with GPS, which is operated by the U.S. government. It works independently of any international rescue service and as such has no operational charges attributed to it.

Each diver carries a transmitter that is only activated at the surface during an emergency. The boat carries a receiver unit that must be switched on while divers are in the water. When a diver activates the transmitter, the receiver emits a loud sound, transmits the lost diver's GPS position, then calculates the distance and direction of the emergency signal. Its independent power supply means it can be used in a small boat such as a rigid-hull inflatable (RIB). Like VHF radio, it works by line-of-sight and has a range of around two miles in a small boat. By positioning a separate antenna high up on the main vessel, it is claimed that the ENOS system's range can be extended to six miles or more.

The lost diver at the surface simply switches on the unit he has been carrying in his BC pocket or clipped to it by its lanyard. He holds it as high as he can while it triangulates on three satellites and sends the emergency signal and position to the



Hold That Transmitter High, Lost Diver

receiver unit back on the boat. Provided the captain remembers to steer around obstructions such as reefs, he can head directly to where the lost diver is positioned. If a group of divers have an incident which results in them coming up all over the place and sending emergency transmissions, the receiver unit can log them all.

On the *Miss Nouran*, the receiver unit was connected to a VHF aerial rigged high on the boat's cross-trees to give it as much range as possible. For smaller boats, you can use a small aerial attached to the unit in its watertight case or rig it to its A-frame. The GPS aerial only needs to see the sky.

The first problem I encountered was that *Miss Nouran's* RIB drivers were too efficient at picking up surfacing divers. The safety beacons were held up above the water and the receiver unit squawked that there was a diver who needed rescuing, but that person was always out of the water before a unit had time to triangulate on the three GPS satellites. That meant they transmitted no actual position before the unit was switched off.

So I sent someone out in a RIB. It took four minutes for the diver's transmitter to lock on to the required number of satellites and for the boat's receiver to get the bearing and distance. Because the information needs to be transmitted back to the boat by radio, the range of the unit is limited by the curvature of the earth. The higher the receiving aerial is positioned, the farther it can "see." Also, the diver's unit is slightly buoyant so that in a worst-case scenario it can still bob in the water and do its job.

Alas, it's never that simple. Like anything that uses sophisticated electronics, there are inevitably development problems. Peter Witmer of the *Galapagos Aggressor I* and *II* fleet reports a trying time with diver units breaking and vessel-generated electricity causing spikes in the voltage that damaged the receiver unit. The latest model has a battery charged in the same way as a laptop, so that should give protection from spikes. Witmer tells *Undercurrent* that the diver units have been redesigned and are now good but the effective range is disappointing. Because it works by line-of-sight, the VHF aerial needs to have an unobscured view of the ocean and be mounted as high as possible. But Witmer admits "there are so many electronics mounted on both vessels (location systems, two radars, sat phones, cell-phone TV and two radio systems), the tops look like Christmas trees." This might be causing interference.

"So far we had two incidents and the system worked real time," Witmer says. "Nothing serious, fortunately." However, the *Aggressor's* experience with ENOS has been expensive and spotty. He reports good product support from Germany, and ENOS reps will go to the Galapagos soon to review the problems. Still, he doesn't yet feel that the system is fully reliable.

Regardless, I, for one, would feel more confident booking a dive boat that used it. Besides the *Galapagos Aggressor I* and *II*, three boats currently use ENOS, including *MY Seven Seas* in the Red Sea, *MV Carina* in the Maldives and *S/C King Bambo* in the Seychelles. Dive groups traveling to Egypt can rent the equip-

ment and take it on board with them, but they must be sure someone is always with the receiver unit while they are in the water – and that it's someone who knows how to use it. Renting a set with six transmitters and one receiver for a week costs around \$120 per person.

John Bantin is the technical editor of DIVER magazine in the United Kingdom. For 20 years, he has used and received virtually every piece of equipment available in the UK and the U.S., and makes around 300 dives per year for that purpose. He is also a professional underwater photographer.

P.S. from Ben Davison: *Undercurrent* subscriber Sean Bruner (Tucson, AZ) was on the *Galapagos Aggressor* in August and said, "They provided each diver with a GPS locator device in case you surface far from the boat. My wife tried to open hers the first day at Wolf Island but it was stuck shut. The next day at Darwin, they were still stuck shut and when the five divers chasing the whale shark surfaced, they were so far from the boat that they tried to activate the GPS. They were all stuck shut. Finally, one was opened and after waiting 20 minutes (with five silkies circling underneath), they were able to signal the boat and were picked up." The crew got them to open easily the next day.

So a word to all divers: As with any piece of equipment, ensure it's operational before diving with it. And a thanks goes to the *Aggressor* fleet for investing in such important technology and helping to improve it. We divers need a foolproof rescue device.

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So How Are the Oceans Really Doing?

hurrah for rabbitfish but shame on you, Robert DeNiro

As divers, we are greatly concerned about the rapid deterioration of our planet, but we never have enough pages in *Undercurrent* to properly share our thoughts. However, we recently received a small grant from a foundation, thanking us for our coverage of environmental issues. To honor that, we've collected an array of facts to share with you. There's a lot of bad news, with some good news mixed in. If you take a serious interest in a topic and want a citation, please e-mail me at Bendavison@undercurrent.org. Now, the news.

* * * * *

Outbreaks of the notorious crown-of-thorns starfish now threaten the "Coral Triangle," the richest center of coral-reef biodiversity on earth. It touches East Timor, Indonesia, Malaysia, Papua New Guinea, the Philippines and the Solomon Islands. The starfish feeds on corals by spreading its stomach over them and using digestive enzymes to liquefy tissue. Outbreaks devastate entire coral reefs . . . The crown of thorns is less devastating in the no-take zones in Australia's Great Barrier Reef, where the starfishes' natural predators - reef fishes like the humpheaded wrasse, pufferfish and the giant triton, often collected illegally - help maintain some balance.

While rabbits ravage Australia's native landscapes, rabbit fish may help save the Great Barrier Reef from destruction. When coral is weakened or damaged through climate change or pollution, the coral may recover, provided it is not choked by fast-growing algae. Both rabbits and rabbitfish are efficient herbivores, capable of stripping an area of vegetation. However, in the case of the Reef, vegetation is the problem - and the rabbitfish are the answer . . . What was once called Fiji's Coral Coast is now the dead coast. Tourism, chemical runoff and sewage are killing coral on the southern coast of Viti Levu, so hotels are upgrading their sewage treatment plants and installing artificial wetlands. Now, dried sludge is being hauled off, while crown-of-thorns starfish are being removed from the coral. Large numbers of parrot, surgeon and rabbit fish have arrived and are now eating the algae.

The Indo-Pacific is home to 75 percent of the world's reefs, but they're disappearing twice as fast as tropical rainforests . . . Of 704 reef-building coral species worldwide, 32 percent are in danger. Before the 1998 global coral bleaching catastrophe, that percentage was 2 percent . . . With 231 species facing extinction, corals have joined frogs and toads as the most threatened group of animal species on the planet.

When clownfish breed, their eggs are swept from the reef by currents. Twelve days later, they swim back as tiny fish, often to the reefs where they were born. Studies show

the returning fish were attracted by the scent of leaves from trees hanging over their home reefs, as well as the scent of the reef's anemones. Aquarium-raised clownfish used the same homing signals . . . In Switzerland, you can no longer flush your goldfish down the toilet; they must be killed first. Catch-and-release fishing and the use of live bait are also banned.

Hundreds of tons of shark fins are being exported from Australia every year, cut from at least 10,000 sharks . . . Overfishing is wiping out sharks on the Great Barrier Reef. Researchers had difficulty catching any for DNA samples. "We've found sharks inside highly protected areas like Cod Hole, dead on the bottom with their tails cut off, so the fishermen have just got upset with the animals, pulled them up and killed them," said one researcher.

Thanks to an invasive species, the Thousand Islands in the Saint Lawrence River between New York and Ontario have become a diver's paradise. Water-filtering zebra mussels have caused ecological and economic hardship, but they've also purified the water and reduced pollution. Water visibility that was once an arm's length is now up to 100 feet . . . Cigarette butts by the tens of thousands were the top item recovered during the annual Great Canadian Shoreline Cleanup.

A researcher has found that octopuses effectively have six arms and two legs. It had been thought they used four tentacles for movement and the other four for feeding and manipulating objects, but observations showed they use the rearmost two to get around over rocks and the seabed . . . Ninety-five percent of the Mid-Atlantic seabed is bare sand.

NOAA predicts there will be some bleaching in the Caribbean later this year, but not as severe as the coral bleaching event that occurred there in 2005, which resulted in significant coral death around much of the region . . . Nearly half of U.S. coral reef ecosystems are in "poor" or "fair" condition, according to a new NOAA analysis. Elkhorn and staghorn corals have become the first corals ever listed as threatened under the Endangered Species Act.

A new study suggests that reef communities can be thrown quickly and seriously out of balance by the iron from sunken ships. Scientists hope the findings will encourage the prompt removal of derelicts before they can damage the fragile ecosystems . . . The aircraft carrier *Oriskany* is the largest vessel ever sunk to make a reef. In 2007, 4,200 dive trips were made to the wreck . . . Forty-four New York subway cars were sunk off the Maryland coast to create an artificial reef. Previous subway sinkings off the Delaware and New Jersey coast have dramatically increased fish populations . . . One of three Japanese tankers sunk in the Chuuk lagoon during WWII is

releasing an increasing stream of diesel oil. Among 52 wrecks in the lagoon, the three tankers could be holding three-quarters of what the *Exxon Valdez* leaked in 1989. The hulls of these ships are not expected to last more than 10 or 15 more years . . . There are 380 oil tanker wrecks in the Pacific.

Two giant floating islands of accumulated junk, mostly plastic, rotate in the northern Pacific Ocean. Spinning clockwise, they stretch from California to Japan. Eventually the trapped plastic is broken down into small enough pieces for marine wildlife to eat. With full stomachs but no sustenance,

Fiji Divers Caught in Pricing Battle at Garden Island Resort

Garden Island Resort on Taveuni is a well-known place for Fiji diving, but it's best to stay away until the dust settles from a bitter, drawn-out fight between the former owners and current management. Aqua-Trek sold the GIR property to Hong Kong-based Chi International in June, but alerting guests about the transfer and renovation plans has been low on both parties' agenda.

Subscriber Mark Rohde (Scottsdale, AZ) arrived in August, five weeks after the sale was completed, but says the managers "wouldn't honor the pricing quoted when we contracted with Aqua-Trek. Prices for things like night dives jumped by as much as 50 percent. An extra day of two-tank diving cost me \$126."

Then *Undercurrent* received an out-of-the-blue e-mail on August 25 from GIR general manager Nigel Douglas, saying, "We wish to inform the industry that any clients booked through Aqua-Trek could have their stay here jeopardized if full, correct payment from Aqua-Trek is not received prior to arrival . . . Aqua-Trek is not the General Sales Agent for the resort, so please contact us directly." A day later, Aqua-Trek issued its own statement to the industry, calling Douglas' words "libelous and untrue."

Apparently, dissension started as soon as the sale contract was signed. After vacating, Aqua-Trek erased its history of past bookings and changed all diver contact info of future bookings to solely Aqua-Trek. "Chi just bought the physical property, not the business," says Maryanne Hines, director of Aqua-Trek USA. "As the North American sales agent, we hold the clients, the resort does not." But Douglas and his wife Carol, GIR's sales and marketing director, disagreed, telling *Undercurrent* the contract stipulated Aqua-Trek would hand over a full list of contacts for bookings. The lack of information meant GIR couldn't contact future guests about the changeover – and the price increases.

That's the other debate. Hines said Chi signed the sale papers, agreeing to the prices Aqua-Trek would charge its customers. Carol, who worked for Aqua-Trek but now works for Chi, disagrees, saying the lawyers never signed off, and they had decided to raise rates. Aqua-Trek USA was officially contracted as U.S. sales agent through March 2009, but Carol told all booking wholesalers to send final payments to GIR instead. Hines' reply: "Bookings were already sold at a certain rate, so we couldn't go back to clients and

say they owe more money. And we were sending payments, management just refused to collect payments based on the contracted rate." Carol negates that, saying Aqua-Trek USA had not paid GIR for any bookings since June 11 and the current amount outstanding is nearly \$200,000.

The stuff hit the fan when a dive group of 18 arrived at GIR on August 16 (Carol told *Undercurrent* it was only four people) for a four-day stay. Deanna Cunningham, one of the divers, says her group had prepaid, including the fuel surcharge, and GIR had accepted the vouchers. But then Aqua-Trek USA received an e-mail from Nigel stating, "The guests will not be permitted to leave the premises until either they or Aqua-Trek pay IN FULL." The Douglasses presented their bill, including an extra \$720 in additional fuel surcharges, to the divers at checkout. "We tried to ask them to 'help' us through the mess, but they were adamant that their contract was with Aqua-Trek and not us," says Carol. "We then said that we would not be offering the final service of an airport transfer."

But Cunningham says the Douglasses also called the police. "They presented us with a bill for nearly \$37,000 and said we couldn't leave until we paid it! They had accepted our vouchers, we had paid for our drinks and spa treatments, and had a receipt showing a zero balance. This was plain and simple extortion. The police wanted nothing to do with this and left. We arranged our own transportation to the airport and there was nothing they could do to stop us. The resort staff was wonderful but management was rude and aggressive. If they have a problem with Aqua-Trek, they should take it up with them, not us."

Aqua-Trek is now transferring divers to Paradise Taveuni, 35 minutes south. Says Carol Douglas, "As Aqua-Trek was responsible for 90 percent of our bookings, we decided it would be a good time to close for renovations." GIR will reopen as a more upscale resort in February.

Regardless of the outcome, both parties are losers when it comes to how they involved divers in this mess. Furthermore, we can't condone any hotel manager who calls the police and threatens guests who presented prepaid vouchers. We suggest you take Garden Island off your travel list until the managers treat us divers like trusted adults once it reopens.

these animals, and those that eat them, sicken and die . . . Intricate ocean food webs that feature large animals are being converted into simplistic ecosystems dominated by microbes, toxic algae blooms, jellyfish and disease. It's what Scripps Howard researchers call "the rise of slime."

Manta rays and their habitat are getting their first designated protected area in the western Pacific. It includes 16 main islands and atolls and 145 islets in an 8,243-square-mile area around Yap in the Federated States of Micronesia . . . Bermuda has recently completed the mapping of its 1,000-square-kilometer, shallow reef system. The survey revealed 40 potential new dive sites where a small "canyon" runs from the inside of the shallow lagoon to the deeper waters of the outer reef rim . . . Nine Caribbean nations will create new protected areas for fish and coral reefs under a \$70 million plan. The Bahamas, Dominican Republic, Jamaica, Antigua and Barbuda, St. Kitts and Nevis, Dominica, Saint Lucia, Grenada, and St. Vincent and the Grenadines aim to set aside 12,500 square miles.

No-take zones might protect reefs against overfishing and help increase fish population, but they're powerless to help corals fight the effects of global warming. Studies at 66 Indian Ocean sites showed the same coral loss from warming in unprotected areas as in no-take zones. Four percent of the world's oceans are considered pristine . . . As ocean temperatures rise, corals have the best chances of survival when they're in seas with wide-ranging seasonal temperatures. Conversely, reefs in environments with stable but higher temperatures are more susceptible to fatal bleaching.

A wild dolphin is teaching other members of her group to walk on their tails. One female spent a short time after an illness in a dolphinarium, and may have picked up the trick there. She received no training but may have seen other trained dolphins tail-walking. Now other females in the group have picked up the habit . . . Off the beaches of Virginia and along Scotland's eastern coast, gangs of dolphins kill baby porpoises, seemingly for the fun of it. What had been thought of as parents playing with their young was actually dolphins ramming, tossing and chasing to death young porpoises. The dolphins use their ultrasound abilities to home in on their victims' vital organs so their blows will cause maximum damage.

In expensive seafood restaurants in Hong Kong and Singapore, it is has become a delicacy to dine on large, colorful coral reef fish that are lifted from an aquarium and killed moments before cooking. A plate of the rubbery lips of a Napoleon (a.k.a. Maori or Humphead) wrasse sells for \$250, and a 40-kilogram specimen can cost as much as \$10,000 . . . Belgium is home to the world's deepest swimming pool, the 105-foot-deep Nemo 33. Your nondiving friends can sit in the restaurant and watch you descend into the 91-degree human aquarium.

A U.S. scientist predicts continued overfishing will lead to the extinction of the Earth's edible species of fish and effect other levels of the food chain . . . Close to 40

percent of the seafood we eat now comes from aquaculture . . . 2.48 million tons of fish are used in the global cat food industry each year . . . In Australia, cats eat more fish than humans. Sardines, herring, and anchovy that are being fed to pet cats are the diet of larger fish such as tuna, swordfish and cod, as well as marine birds and mammals, thereby affecting their numbers . . . California officials temporarily banned fishing from piers in the Capitola area this summer when 90 endangered brown pelicans suffered injuries after becoming entangled in fishing lines while feasting on anchovies.

Ten percent of the world's reefs have been completely destroyed. In the Philippines, where coral reef destruction is the worst, over 70 percent have been destroyed and only 5 percent can be said to be in good condition. Scientists say 70 percent of all corals on the planet will be destroyed in 20 to 40 years unless people stop doing what they're doing - - pollution, sewage, erosion, cyanide fishing and clumsy tourism . . . There are some 4,000 fish species living in or around coral reefs, providing livelihoods and sustenance to an estimated 200 million people worldwide.

Hawaii supplies 80 percent of all aquarium fish for the U.S.. A juvenile yellow tang retailing at \$40 on the mainland only leaves \$3 in Hawaii, along with empty reefs . . . The largest protected no-take area in the world is the Phoenix Islands, 2,000 miles from Hawaii and 700 miles from the nearest airport: 158,000 square miles of protected ocean harbor, 150 species of coral and 550 species of reef fish, all in abundance . . . An underwater vacuum cleaner can suck up reams of invasive seaweed, breathing new life into suffocated coral reefs. The Super Sucker cleared 8,000 kilograms of invasive seaweed from two 210-square-meter plots off the Hawaiian coast. Native organisms inadvertently vacuumed are removed and returned to the reef, and farmers use the harvested seaweed as fertilizer.

DNA tests have shown that a Michelin-starred restaurant chain partly owned by actor Robert DeNiro has been serving endangered Atlantic bluefin tuna at its London outlets without telling customers. Undercover investigators have targeted the Nobu chain, which has 21 restaurants on four continents and is the haunt of celebrities like Madonna and Leonardo DiCaprio . . . In 2005, Florida officials found 17 of the 20 Tampa Bay area restaurants it inspected were substituting alternate species for grouper. Sysco Corporation supplied 14 of these restaurants. It settled and will pay \$200,000 in legal fees and \$100,000 to food programs.

Following damage to a reef by bleaching, algae nearly always beat coral in the race to resettle a devastated area. Some species of algae release chemicals into the water that have a deterrent effect on the tardy coral larvae. Without the help of herbivores to mow the growing weeds, coral may never regain a foothold. But other algae species release chemicals that have the opposite effect, encouraging coral larvae to settle . . . A scientist has captured newborn elkhorn corals in

Puerto Rico and, after incubating the juveniles for seven days, she plans to distribute them to aquarium professionals, hoping to reduce the pressure to collect wild coral.

The Australian oyster blenny, an immigrant fish to New Zealand, is terrorizing Waitemata Harbor's barnacle community with its preference for eating the barnacle's phallic appendages. Scientists are finding a large number of penises inside their stomachs and say that while it's not killing the barnacles, it will stop the next generation from being produced . . . Though skin cancer is deadly to the male swordtail fish, it also has one perk: The black melanoma splotches that arise from already attractive natural markings lure mates. His life is shortened by half but the male swordtail can produce a lot of offspring in that time.

A clam found in Icelandic waters is said to be the oldest living animal. Its age of 405 to 410 years was determined by counting the annual growth lines in its shell . . . A new species of giant clam has been discovered in the Red Sea. It is up to 15 inches long and three pounds. It may already be critically endangered.

Marine mammals around the world are dying from a deadly parasite that causes toxoplasmosis. Many scientists believe fresh water runoff contaminated with cat feces is to blame. Filter-feeding anchovies become infected with the parasite and pass it along to the mammals that feast on them . . . More than 100,000 people a year contract ciguatera, a severe poisoning caused by eating fish. Dead coral is often colonized by blankets of algae that harbor toxin-secreting microorganisms. Grazing reef fish ingest these toxins, passing them up the food chain directly to humans, or to other fish such as barracuda that are then eaten by humans.

Out of 100 Western Gray Whales extant, 23 are reproductive females. Their feeding ground off the northeastern coast of Russia's Sakhalin Island has been annexed by oil companies, whose exploration and mining activities are driving the 30-ton mammals to extinction . . . Scientists in Japan have given a beluga whale a vocabulary of three words, the first time a marine creature has been able to link a sound to an object and then repeat the sound as a 'word.'

-- Arthur Hardman and Ben Davison

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Win A Free Trip to Cocos. Buy a \$100 raffle ticket from the Sea Turtle Restoration Project for a chance to join its shark-tagging expedition near Costa Rica's Cocos Island aboard the *Undersea Hunter* March 20 to 30, 2009 (the all-inclusive trip value is \$4,950). Only 100 raffle tickets are being offered; winners will be announced November 16. Get details at www.seaturtles.org (look on the bottom right of the homepage).

Maui Dive Shop Pays Reduced Penalty. It's not a slap on the wrist but Maui Dive Shop got its penalties for wrecking Molokini reefs reduced from \$550,000 to \$406,000. It will pay Hawaii \$250,000 now and the rest over three years for a 2006 incident in which its dive boat sank with 15 people aboard (read the details in our March 2008 issue).

Repricing of Eternal Reefs. We wrote about underwater burials in our August

2008 issue but we lowballed the price of admission. Eternal Reefs president Chuck Kizina told us a plot in the "community reef" is now \$2,495 instead of \$995, and the poshest reef burials have jumped from \$5,000 to \$6,500. Looks like the underwater real estate market isn't sinking.

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North Carolina Dive Pioneer Dies. If you've dived North Carolina wrecks, there's a good chance you went out with George Purifoy, owner of the Olympus Dive Center in Morehead City. Sadly, George, 63, died on September 14, collapsing on board his boat during a dive at the *Queen Anne's Revenge* shipwreck site, where he was taking state archeologists to collect artifacts. His son Robert will continue running the dive center.

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