Alone At Last

Southern Belize

Text by Kelly LaClaire and photos by Kate Clark

A diver investigates a cup coral that has attracted a lion fish, a species not native to the waters of Belize (left); Sharp-nosed puffer fish; Loggerhead sea turtle heads to the surface for a breath. PREVIOUS PAGE: Divers explore the coral around Glovers Atoll

Hello. My name is Kelly and I'm a dive-aholic. I freely admit it. I'm unabashedly, totally and completely addicted to travelling the world scuba diving. I love soaking up foreign cultures and engaging in lively conversations with friendly locals. I love sampling exotic foods that make your mouth sing and your stomach angry. I love taking that first giant stride into turquoise waters and discovering what new and fascinating critters await in the depths below. Heck, I even love the long and cramped, often overbooked and under-serviced flights one has to endure to reach these remote destinations.

But there is one thing I am not a fan of—and I'm pretty sure I'm not alone here—and that is the sagging, bitter disappointment I always feel when having to share my vacation with packs of people crowding every dive site and swarming each sight-seeing destination. It's not that I'm selfish—well, okay, maybe I am just a little—and it's not that I don't want fellow travellers to have great vacations and wonderful excursions for themselves, because I really do. They deserve it just as much as anyone else.

But let's face it. Don't we all yearn to show up at a world-class dive spot hardly anyone knows exists and get to explore it all by ourselves? Haven't we all fantasized about laying a towel under a swaying palm along some deserted stretch of white sand beach and feel that blissful contentment of knowing you've got the whole place to yourself? Haven't each one of us stood in line with scores of other tourists waiting to see some natural wonder the guide-book promised was a "three-star, sight-seeing must" wondering, "What's with all these people?"

You may be suffering under the delusion that all the great vacation destinations have already been discovered—that crowded dive sites, clogged beaches and endless lines are just a fact of life. Well, let me disabuse you of that idea here and now, loyal readers, because I have been to a place that defies even your grandest holiday wishes—Southern Belize.

Hopkins Village

Glover's Reef Atoll. As I watched the gleaming white sands of the Hopkins shoreline grow fainter, my cousin and photographer, Kate Clark, said out loud what I was already thinking, "No one's out on the beach yet—I guess they're all still in bed." She turned back around and stretched out on the large bow of our dive boat, soaking up the morning sun. It takes about an hour and 20 minutes to reach Glover's Atoll, an

Diver and caribbean whiptail stingray at Glover's Atollt

Not native to Belizian waters, the lionfish is a beautiful pest rising uncontrollably in population (far left); Divers with hawksbill sea turtle on reef (left); Diver at ledge of coral with red sponges along Glover's Atoll (below)

Belize

unspoiled ring of lush islands on the world's second largest barrier reef, but we both considered this a plus. It gives you time to wake up and shake off the cobwebs of jet-lag (or the foggy-headed remains of too many drinks the night before) while getting to enjoy the gentle swells and soft breeze of the Caribbean.

When we arrived at the southwest wall—the first of three dives that day—our small group began stepping off the stern. As I awaited my turn, I scanned the flat sea, and I was surprised that we were the only boat in the area. C-Dog, one of our dive masters, had told me earlier that Glover's was a popular site due to the pristine waters. So, I was expecting other dive operators to be bringing groups out that morning. I thought briefly that our early start was the answer, and when we popped up, I would see several boats close by.

I took a giant step off the boat relishing the warm water and remarkable visibility. We dropped swiftly, levelling off and letting the mild current push us over the giant forest of purple sea fans, elkhorn, tube sponges and wire corals. Our dive master was right; Glover's is absolutely teeming with life. A large school of black durgeons stopped circling a giant tube sponge to get a quick look at us but quickly realized we were no threat and went back to their never ending game of chase.

A pair of spiny lobsters twitched their tentacles nervously, trying to shove themselves further back into their hiding place as Kate moved closer for a picture or two. When she got the one she wanted, she took her reg out and flashed me a big smile, shaking her thumb and pinky at me, "This is so awesome!"

Rocky shelves and overhangs covered with red and green tube clusters dominated the seascape, and we immediately began searching for nurse sharks and morays. Neither showed themselves, but a curious hawksbill turtle came to greet us and inspected the glass on Kate's housing before finding a spot to rest next to a glowing azure vase.

We slowly finned up a few meters and watched a pair of gray angelfish swimming in lazy, twisting loops around a group of star coral. They disturbed a sizable grouper that had his mouth open for a few tiny fish busily cleaning his teeth.

The current pushed us gently along the coral cliff for the next 20 minutes. Stoplight and butterfly fish darted in and out of craggy alcoves and a small school of barracuda eyed us with resentful suspicion.

I checked my air pressure and signalled to Kate that I needed to start ascending. She looked at her own gauge, still showing plenty of air left, and I could see no sign that she was exasperated by her time

Belize

Beautiful red fan corals branch out of the reef along Glover's Atoll (left); A small school of blue tangs graze along the coral mounds of Glover's Atoll (above)

Large hermit crabs can be found in sandy patches between reefs at Glover's Atoll

being cut short. In fact, Kate has been forever patient with my apparent lack of lung capacity, and I owe her a debt of gratitude that she never seems to hold it against me.

We surfaced after our safety stop and I immediately looked to see if any other boats had appeared. I was pleasantly surprised to find we were still alone on the water.

Long Caye Wall. Jacque Cousteau once said that the Long Caye site at Glover's was one of his top-ten favorite dives. I would have to agree. It's an easy dive with almost no current and shallow depths, so the colors are brilliant and vivid. As with all the waters of Belize, the visibility easily extends beyond 40 meters (120 ft) so keep an eye on your depth gauge.

At the top of the great wall, dozens of sandy cut-throughs leading in and out of towering coral heads can be explored and the site abounds with brightly colored fish, stingrays, eels, green turtles and nurse sharks.

At only 15 meters, we reached the brilliant white sand bottom and headed for the massive coral mounds marking the lip of the wall. A few divers swam through the tunnels in the rocky outcroppings while our dive master pointed out two adult spotted drums being swarmed by seven or eight tiny juveniles—their long, wispy fins fluttering. Two more hawksbill sea turtles made an appearance, and a lone hermit crab heading towards a sprawling field of sea grass was carving long, distinct, double tracks in the sand.

After 50 minutes, it was Kate that was pointing her thumb towards the surface, and I was stunned to find I had as much air left as she did. Back on the boat, sucking on Jolly Ranchers to get the salt out of our mouths, I couldn't help myself. "You're slipping in your old age, Miss Clark. Seems as if you may not be the breathing machine I always thought you were!" I went on this way for five minutes, grinning widely and feeling horribly proud of myself.

Finally, she could stand no more. "You know, I was trying to let you feel good about yourself," she said. "But now, you're just being completely obnoxious, so I'll let you in on a little secret. My computer hose was leaking like crazy the whole time, and my tank was only filled to 2600 psi. Yours was at 3300, and you still came up with the same amount of air as I did." She was standing over me at this point, and I was beginning to shrink under the onslaught. "So shut your trap, LaClaire, you're still an air hog!"

Blue chromis and silt-pore sea rods at South Water Caye

Hamanasi Dive & Adventure Resort

It was mid-afternoon as we approached the long, sparkling beach of Hopkin's village on our return from Glover's, and I was amazed to see that the white sands were still empty. I turned to Kate, "This is spring break, right? I mean, I don't have

Aaaaah... cold Belikin beer

my dates wrong, do I?" She shook her head and smiled. "I love it here!"

We unloaded our gear provided by the operator—all of it high-end and in perfect condition—onto Hamanasi's long dock and walked through the scattered palms lining the beach of the carefully tended property. If you're unfamiliar with the resort, let me give you a brief introduction.

Named Belizean Hotel of the Year in 2009 and rated as one of the top ten hotels in the world by Trip Advisor, Hamanasi—meaning *almond* in traditional West African parlance—is a five-star, eco-friendly adventure lodge that has everything you could ask for. The quiet, secluded grounds are lush with native plant species, the rustic and charming tree-houses are replete with every imaginable amenity, and service takes on a whole new meaning here. Hamanasi's motto is, "Bring the guests into our home and treat them like family. Deliver the vacation of a lifetime—no less!" It's obvious they take that credo to heart, because the staff will do absolutely anything to make you happy.

We once tested this by asking Chef Sheridan Polanco for what is arguably the world's best key-lime pie at 11pm—long after the kitchen was closed. We were brought out two plates and coffee within seconds. But it's not just the visitors who are important, the resort takes it commitment to the local population seriously, hiring exclusively native Belizeans, donating supplies to local grammar schools and providing higher education scholarships. They are fiercely protective of the environment and dedicated to responsible, sustainable tourism.

Katrina, the concierge, had our guest house made up, and after we made ourselves comfortable, she took our dinner reservations and gave us a brief tour around the grounds. I asked her about the apparent lack of visitors and the empty beach. "It's always like that here," she replied. "It may not seem like it, but in fact the hotel is fully booked right now. Hopkins is a slow, quiet place, and that's what we love about it."

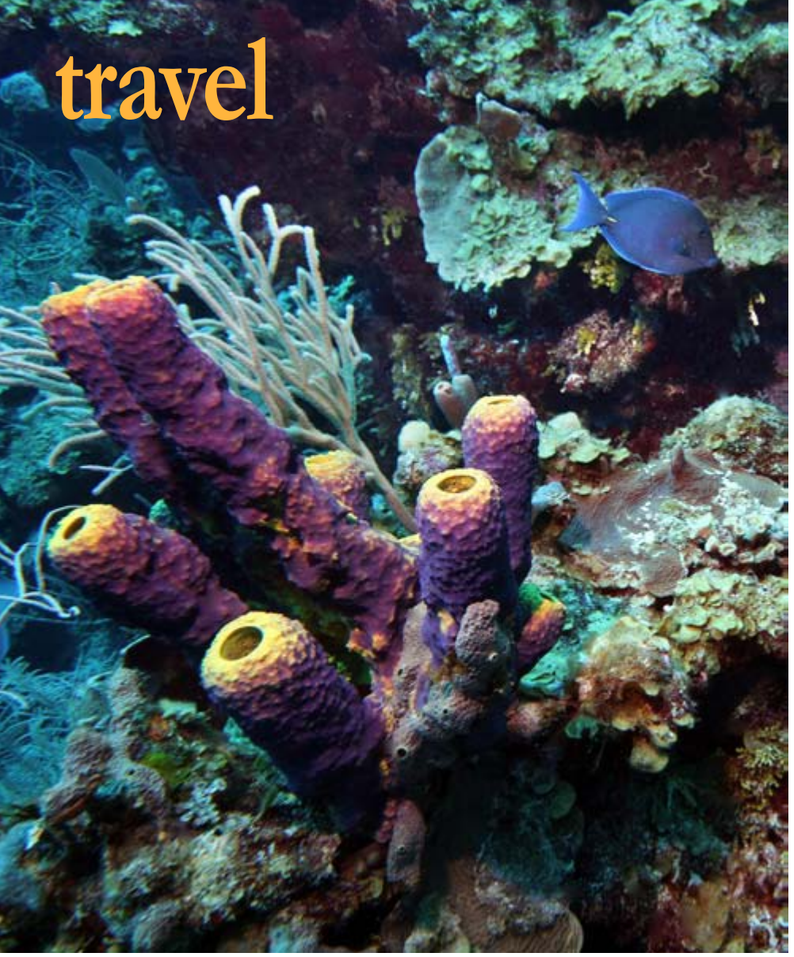
We spent the rest of the afternoon sitting by the pool, sipping cold Belikin beer and napping in the hammocks hung between the palms lining the empty beach. We had the place all to ourselves, and the only sound was the gentle surf breaking a few meters away.

South Water Caye

The next morning, before leaving for South Water, we were treated to a tasty variety of fresh fruits, newly baked pastries and Hamanasi's breakfast buffet of eggs, potatoes, bacon, coffee and juice.

The ride out to the reef was much

CLOCKWISE FROM LEFT: The national beer of Belize, Belikin can be enjoyed at any cool spot along the Hummingbird Highway; Brightly colored and extremely inviting, the exterior of Hamanasi Resort completes the tropical relaxation of Southern Belize; Clean and comfortable beds greet travelers; Along with stellar service and impeccable accommodations, Hamanasi Resort also offers five star dining; For guests looking for a bit more privacy, Hamanasi offers several secluded Tree Houses that sit amidst the shade; Hamanasi's tree house rooms offer a shady porch for lazy afternoon naps. See: **www.hamanasi.com**



CLOCKWISE FROM ABOVE: Two French angelfish at Jason's Wall; Blue tang and branching tube sponge at Fourth Cut where life is tucked into every crevasse, such as banded coral shrimp found in the folds of a large sponge (center); Nassau grouper and azure vase at Jason's Wall

shorter than the previous day, but we had plenty of time for sunbathing and a few conversations with several of the people who were joining us. This is one of my favorite parts about the scuba experience—meeting interesting people who have travelled the globe in search of blue water adventure. It's always a pleasure to connect with someone from halfway across the world and compare notes on gear, dive locations, shark sightings and the fascinating similarities and differences of foreign customs.

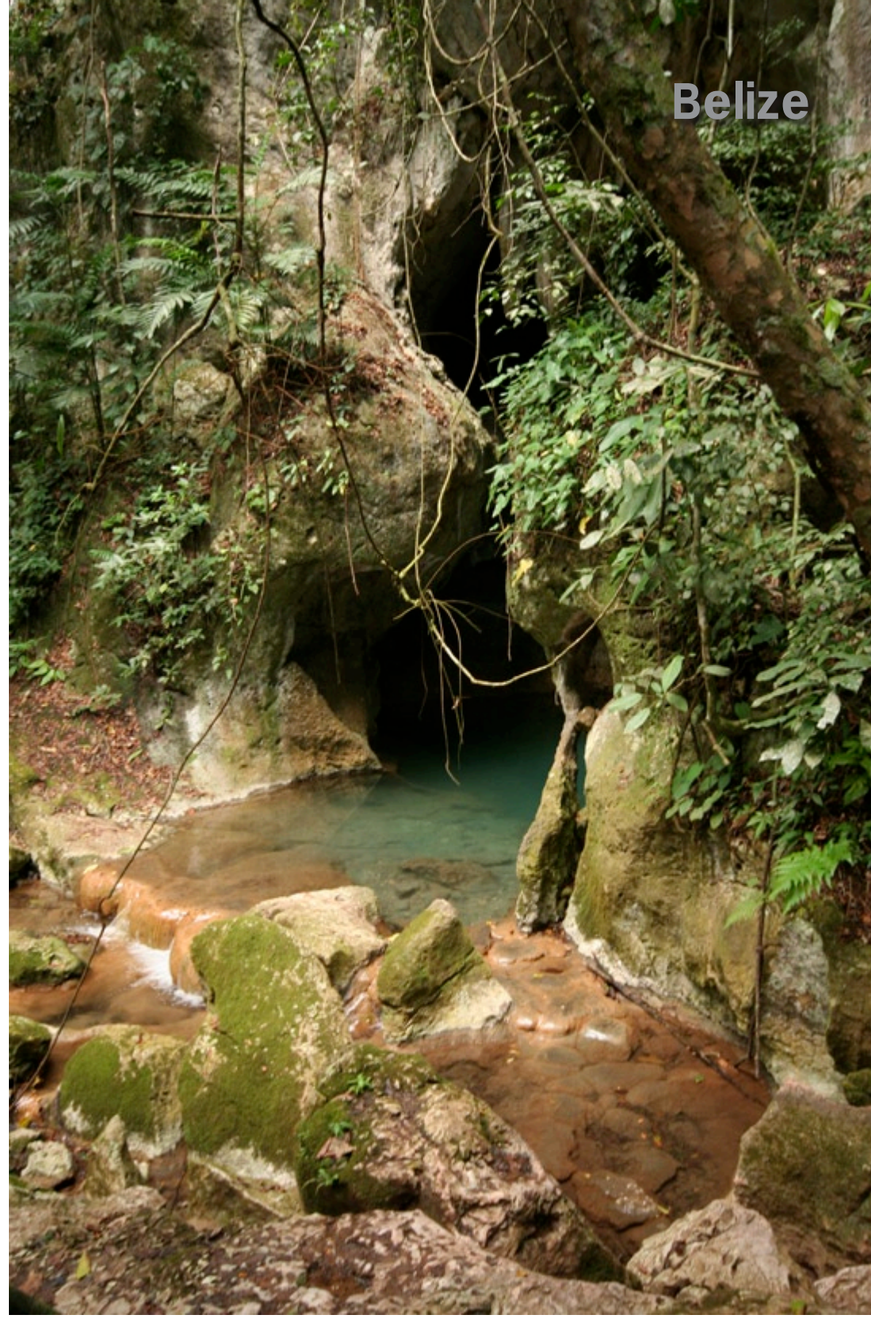
Sam-I-am, another of our dive masters, called out the five minute warning, and we all began slipping into our wetsuits. Watching fellow divers ready themselves for upcoming dives is wonderfully exciting for me. You get to see adults suddenly become childlike with eagerness and enthusiasm for what's to come. Life seems to pulse through them, and that contagious surge of emotion sweeps itself over the whole boat until everyone is absolutely giddy with the prospect of getting back in the water.

Jason's Wall. Our fist site, Jason's Wall, was nothing short of spectacular. Towering coral heads rise up like monoliths on the precipice of an imposing sheer face that falls more than 400 feet. We levelled off along the edge of the drop off, and a hulking Jew fish scowled at us, as we passed. Kate spotted a group of banded shrimp congregating on a sponge that would make Shaquille O'Neil look positively puny and paused to get a picture. Nearby, a grumpy looking eel brandished its teeth and lashed its tail back and forth warning us to stay away.

We let the current take us along the coral face, and soon we heard Sam-I-Am wrapping his tank. He pointed out a much larger and much friendlier green moray poking his head out of his den. He was easily two meters long (6ft), and Kate and I waited for the rest of the group to get a good look before we lagged behind to take a few photos.

As I watched her preparing for the shot, I found myself marvelling at the amount of skill and effort it requires to get a quality underwater image. Fighting the current, Kate had to set the shutter speed, change the light settings, manually situate her strobes and avoid scraping her knees and shins across the jagged corals below her—all this while

LEFT TO RIGHT: Lack of overcrowding—guests willing to hike to the upper falls in Cockscomb Basin will often be rewarded with a gorgeous private swimming hole; Seahorse at Salt Water Caye; Much of Belize is covered in porous limestone creating caves like this one and the famous Actun Tunichil Muknal cave



keeping the twisting eel focused in the frame and not scaring the chary animal back into its hole. I realized that she had her wide-angle on, and I admit, I was more than a bit nervous when, after her equipment was set and ready, she got so close to the moray that the rounded glass dome of her housing was less than a centimeter from its open mouth.

Later, as we sat on the bow feverishly telling each other how incredible the dive was, she showed me the moray eel shot on the LCD screen of her digital camera, and I hugged her effusively in congratulations. Then I told her if she ever got that close to one of things again, I'd take her camera away.

Our surface interval took place in South Water's protected lagoon, and the crew cut up mango and watermelon for snacks. Just off the dock, Kate found an area of shallow water (only a few centimeters deep) where a small yellow stingray and three tiny black seahorses were foraging for food. While she put on her macro lens and checked her housing, I wandered the shoreline. There is a little resort on the island, but I only encountered one small group of college kids sunbathing and swimming. Further on, I came across a few snorkelers splashing along the reef that curls around the backside of the caye. Other than that, the island was empty, save a catamaran bobbing up and down in the cyan waters a few meters away. I sat down, digging my toes in the warm sand and took a large, satisfied breath.

Yellow stingray blends into the sea floor at Salt Water Caye

Jaguars, tapirs and snakes—oh my!

Less than 30 minutes drive from Hopkins village is the Cockscomb Basin Wildlife Sanctuary. Established in 1990 as the world's first and only jaguar reserve, the dense jungles and rugged mountains of Cockscomb cover roughly 388 square kilometers (150 square miles). It is also home to the greatest density of jaguars in the world.

We arrived in mid-afternoon after a morning on the water to take a short hike and escape the heat. Kate and I were joined by two more of our cousins who had flown in the night before.

The ranger station provided us with a map of the basin's trails, advising us to watch our steps and stay on the paths, as the rainforests of Belize are home to one of the deadliest snakes in the world—the Fer-de-Lance. If you're bitten by one, you have 30

Stewed chicken, beans n'rice with a cold Belikin is typical Belezian fare

Green moray eel with coral fan and blackbar soldier fish at Salt Water Cayes (left); Placencia sunset with sailboat (inset)

minutes to receive the anti-venom or the neurotoxin kills you.

We said a short prayer that none of us would encounter one and set off through the tangles of the reserve. The path we chose was a rather easy hike to one of the region's many waterfalls, and en-route, we crossed paths with Belize's national animal, the Baird's tapir. He was young and small but quick, and we only got a quick glance of his small elephant-like trunk before he disappeared into the bush.

The sound of the river grew louder and louder as we continued on, and soon we came to a small waterfall that emptied into a large, clear pool surrounded by thick jungle foliage. We wasted no time jumping in.

The four of us swam under the falls for 20 or 30 minutes before discovering a group of natural waterslides eroded into the dark black river bed that swooped down in terraced sections. Perfectly smooth and concave, each stone chute is a few meters long and spills into a larger pool below creating an idyllic natural playground, just right for an afternoon cool down.

As we towelled off and put our shoes back on, Tracy summed up the day best. "I can't believe we're the only one's here," she said. "I mean, this place is amazing and no one seems to know it exists."

Gladden Spit

—Whale shark country

Forty miles south of Hopkins, at the end of a long peninsula, flanked

SO, SHOULD I RENT A CAR OR WHAT?

When visiting the Northern Islands of Belize renting a car is usually not necessary. However, if you're staying in the South, I highly recommend that you do so. I'm not saying a vehicle is absolutely vital, as most hotels have shuttles for excursions, but if you want to do some sight seeing on your own time and visit the most secluded spots, renting a car is a great choice.

- **We picked up a gas friendly 4x4** (a must if you'll be visiting Mayan ruins or nature parks) from the friendly and accommodating folks at Jabiru Car Rentals and made the trip from Belize City to Placencia in just under three hours. The drive through the lush rainforests and dense jungle covered mountains is spectacular and relaxing but there are a few things you need to be aware of when driving in Belize. Here's a short list of things to keep in mind:
- **Night driving.** Many flights coming into Belize City arrive in mid-afternoon, so chances are you'll be doing some of your driving in the dark as you head south. This is not a big problem but I will warn you that the highways are poorly lit and road signs, while sufficient, are few and far between so keep your eyes peeled. Don't let this worry you as Jabiru gives you excellent road maps and Belizeans are super friendly and will be more than happy to give directions if take a wrong turn.
- **Speed bumps.** To cut down on speeding through the villages, the Belize Transportation Department has constructed "speed bumps" the locals call sleeping policemen along the highways, specifically at the beginning and end of each town. The term "speed bumps" is in quotes because they are really more like colossal, concrete road monsters waiting to eat your tires and chew up your suspension. Seriously . . . I'm not kidding, they're about 8-10 inches high. Each one is supposed to be coated with bright, reflective paint but only a few of them are so if you're driving at night and you see a yellow warning sign, for God's sake, SLOW DOWN!!
- **Narrow crossings.** The highway that runs North to South is just two narrow lanes and you'll have to cross at least four or five extremely narrow bridges (one lane only) that only accommodate one car at a time. Slow down and look out for oncoming traffic before crossing.
- **Road animals.** In and around the villages, the main roads are used for all kinds of foot traffic: horses, mules, bicycles and, of course, like any Caribbean destination, stray dogs and cats. Most pedestrians are difficult to see due to the inadequate street lamps and they like to take evening strolls down the middle of the roads so keep your speed to a minimum and watch carefully.

Again, none of this should deter you from renting a car and driving in Belize. It's a small country and having a vehicle makes it much easier to see as much of its natural beauty as possible during your stay. Just use common sense and keep your speed to a reasonable pace. ■

Belize

Azure vase with tube sponges (left) and coral garden of sponges, fan coral and azure vase (far left) at Salt Water Cayes

by a giant lagoon on one side and the Caribbean on the other, you'll find the bright and cheerful village of Placencia.

We arrived the first day of the full moon and were there to dive for a week searching for whale sharks with Seahorse Dive Shop. Started in 1992 by town dignitary and environmental champion, Brain Young Sr., Seahorse is world famous for pioneering whale shark diving in Belize.

Kate and I showed up at the dive shop with pastries for the crew from a local Swedish bakery. Mr. Young was preparing our boat, Deep Blue, and his oldest son, Brian Jr., helped us with our equipment. Sean Young, Brian's middle son, greeted us affectionately in unintelligible Creole slang and loaded a cooler full of Belizean stew-chicken on board. I had heard of this dish and was assured Sean was a master at preparing it.

The ride out to Gladden Spit took over an hour. Doren, resident dive master at Seahorse, used the time to brief us on the area and how the dives would be structured. Once we reached the edge of the reef, he told us, the boat would sail out into the deep blue where giant schools of cubera snapper came to spawn in the days following the full moon. Brian Sr. would use sonar to find the school and, once over the top of it, we would get in and hover in a tight circle above the swarming fish. Our collective bubbles would simulate the spawning of the snapper and the release of their eggs, a principle source of food for the whale sharks. If there were any of the 20-ton fish nearby, they would come to investigate.

Kate and I were beyond excited. Many divers classify a whale shark sight-

Green moray eel at South Water Cayes

GROWING PAINS

Placencia, for better or worse, has been discovered by the world at large and is growing at a steady pace. Compared to other well-known vacation destinations, it is still relatively small and unspoiled by hordes of tourists, but expansion and increasing popularity has forced the peninsula's residents to make some tough decisions regarding the future.

Brian Young Sr., a tourism board member, invited us to a town hall meeting of sorts at the village's soccer field where a couple hundred locals, business owners and tourist officials debated weather or not Placencia should allow cruise ships to construct a port of call in its harbor.

The economic recession and the resultant slowdown in tourism has hit the Caribbean hard the last several years and several locals, desperate for any trade dollars, were hopeful that cruise ship passengers would bring much needed finances into the area. But the majority of attendees were fervent about preserving their natural resources and keeping companies like Carnival out of Placencia's waters.

"Our reefs are all we have and we have to stand up and defend them," said one local guide in attendance. "And even though I'm watching my fellow Belizeans struggle, we can't give in to the ruination the cruise industry will bring for a little bit of fast money."

I asked Brian, as a local business owner what he thought. His answer, like his character, was passionate and heart-felt.

"I'm not in favor of bringing in massive, tourist-filled boats like they do in Belize City," he said. "The cruise trade has been a nightmare up there, and I won't allow that to happen here. But what I would like to see are small, 100-150 passenger boats come in for short stays throughout the year. We did this in the 90's and it worked well. The village was never overrun, and the tourists hired guides for diving, fishing, inland tours and nature walks.

"It worked well, and it can work again. We just have to be careful that our reefs and our lands remain the number one priority, or my grandchildren are going to be in trouble. We can't just look at a short term solution, we need to be looking at how our decisions today will affect our country and our families for the next several hundred years. If we make the right choice now, even though it may be tough for my generation, it will help sustain future generations. And that's far more important."

Well said, Brian. The world needs more people like you in it. ■

CLOCKWISE FROM LEFT: Diver hovers over sleeping nurse shark at Salt Water Cayes; Green cup coral and close-up of sleeping shark at Salt Water Cayes; Seahorse and trumpet fish at Salt Water Cayes

ing as the Holy Grail of diving, and we are no exception. Once we crossed the outer reef and entered the large, heaving swells of the open ocean the boat was immediately tossed back and forth in great listing yaws. A couple snorkellers who had joined us couldn't take it and spent the rest of the afternoon vomiting over the rails. After ten minutes of searching Brian Sr. yelled out from the captain's chair, and we all jumped in as fast as possible.

It's a strange sensation diving in the open ocean. You have no frame of reference, and you're totally surrounded by an endless expanse of blue stretching to infinity in every direction. We descended rapidly, trying to get below the swells and not wanting to lose the snapper.

Doren tapped his tank, beckoning us to follow, and off we went, down and down into the emptiness. After a few minutes of searching, Doren pointed out the silhouettes of thousands of twisting and slashing fish about 15 meters below us. We had been instructed to level off at 22 meters (70ft) and under no circumstances were we to drop below 25 (80ft)—that would only push the school down deeper and end our dive.

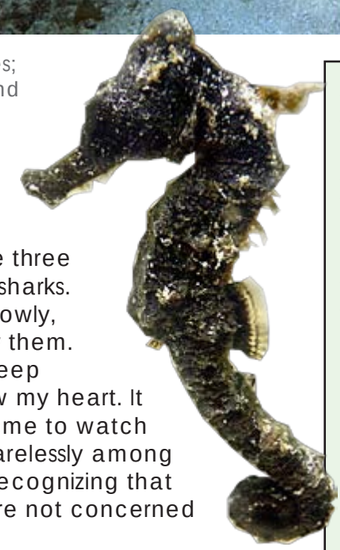
As we hovered, the immense group of fish began to ascend, and soon we were only a few meters above them.

Cuberas, I realized, are big fish, easily over a meter (3ft) in length and weighing close to 25 kilos (40 lbs). We followed them for quite awhile, as they drifted along, and soon we were joined by a second school—this one made up of several hundred horse-eye jacks.

The bright silver jacks seemed fairly inquisitive and surrounded our small group of divers, circling us in a spiralling column rising towards the surface. For a moment, I forgot about the snapper, but a large shifting shadow below caught my eye, and I turned back towards the cubera.

Three bull sharks, thick and lethal, cruised through the center of the school. My heart began thudding rapidly in my chest, my breathing involuntarily quickening. I'd never seen bull sharks before, and I'm not ashamed to admit I was a bit frightened. I could feel my body galvanize with adrenalin, and I grabbed Kate's arm, pointing at the three fierce-looking sharks. She nodded slowly, enraptured by them. I took a few deep breaths to slow my heart. It calmed me some to watch them move carelessly among the snapper, recognizing that these bulls were not concerned with us.

After 40 minutes, Doren sig-



SEAHORSE DIVE SHOP
—Tradition and excellence

I cannot say enough about the folks at Seahorse. This family-run dive business truly takes you in and makes you feel like one of their own. They treat you to homemade meals, let you fish off the stern at sunset on the trips back home form the reefs, invite you for drinks at local eateries where Carleton and his band play reggae tunes, and best of all, these guys know where to dive.

You'll more than likely be begging for a trip out to the Blue Hole, and they will be more than happy to take you, but listen when they suggest alternative sites with even more eye-popping scenery. I won't write the names of some of these dives here, lest I spoil their secrets, but let me assure you, they can take you to a few places you won't believe. Our favorite was a cave dive safe enough for any advanced cert. carrier that will absolutely blow your mind.

Opening his doors in 1992, Brian Young pioneered not only whale shark diving in Belize (he was featured in *National Geographic* and several other major publications) but also paved the way and led the efforts to establish marine parks, marine reserves, and protected fishing grounds throughout the reef.

If you find yourself in Placencia, there really is, in this diver's opinion, no other choice than Seahorse. You won't be disappointed. Visit: **www.belizescuba.com** ■

Still intact ancient Mayan steale carving (above) at ruins of Nim Li Punitt found via dirt road (right)

TOP TO BOTTOM: The largest, most impressive Mayan ruins in southern Belize are at Xuantunich; Ancient Mayan steps at Lubaantum's ruins; Friendly archeologists can be found roaming the ruins at Xuantunich

naled the end of the dive, and we headed up. No whale sharks today.

Placencia

—Crown Jewel of Southern Belize

I'm not sure what it is exactly, but Placencia stole a piece of my heart. There is something indescribable about the whole place that seems to seep into your bones and radiate through your soul. No matter what we were doing or who we were with, I found myself not wanting to leave.

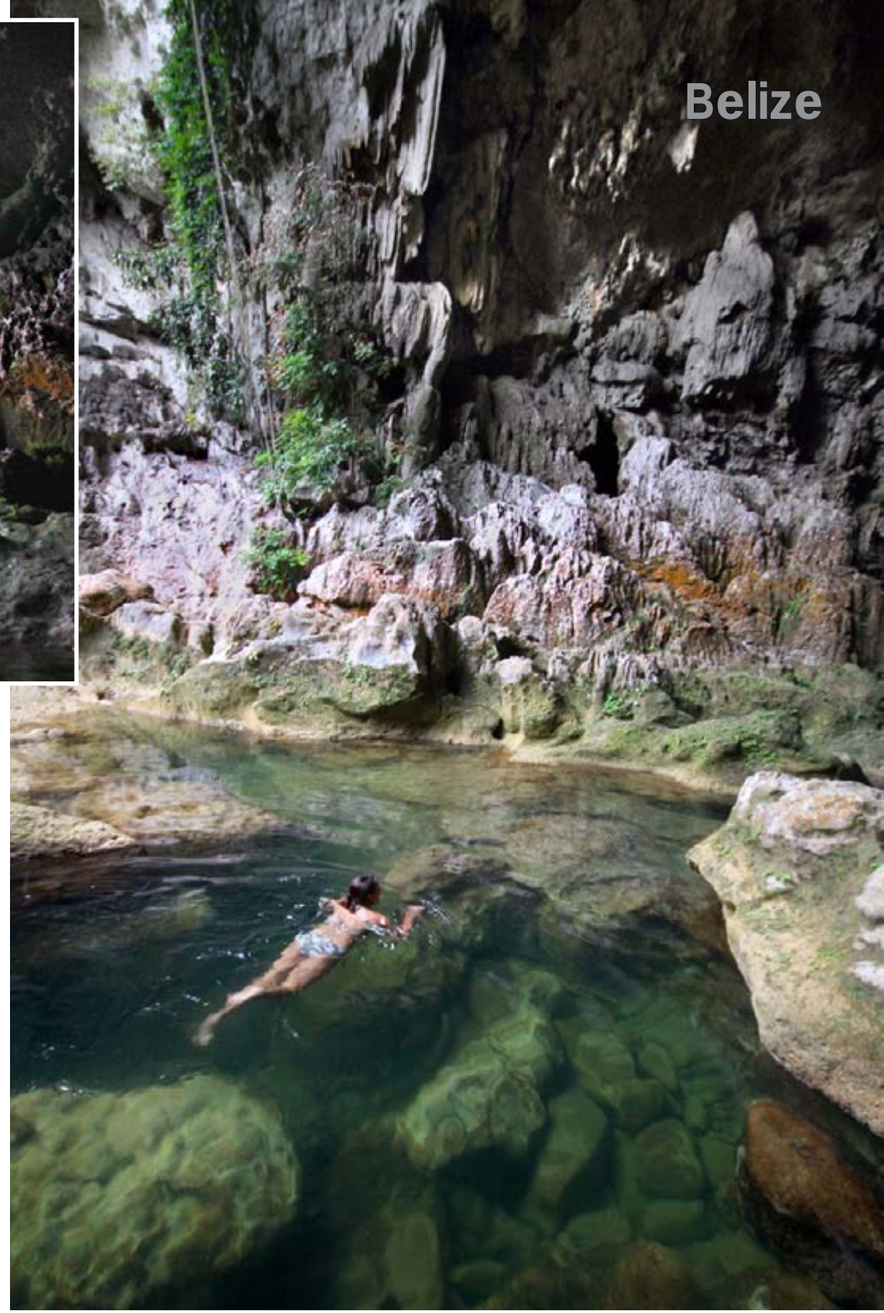
The locals are friendly, laid-back and personify the word, chill. The village itself is dominated by colorful clapboard houses, locally owned guest houses and beach side eateries, our favorites being the Tipsy Tuna and the Barefoot Beach Bar. Placencia also boasts some of the best beaches in the country, and you'll be hard pressed to find more than a handful of people on any of them.

The village is a perfect "base camp" for visiting Southern Belize as inexpensive puddle jumpers fly in and out regularly from Belize City, and now that a brand new highway has been completed, it is easier than ever to get to. We had planned a couple of inland adventures between diving days to check out what Southern Belize had to offer and, believe me, it does not disappoint.

Our first excursion took us less than an hour away to a Mayan ruin that our guide book dismissed as "unremarkable". Factually, I think the author must have been dropped on his head as a child, or maybe he was ridiculously hung-over when he visited, because the partially reconstructed sight of Lubaantun is absolutely breathtaking. This site is easily accessible by car, and despite the slightly smaller size, it's still very worth a visit and should not be missed.

After a short tour of the visitor's center, the four of us hiked among the towering rock structures and crumbling ruins, marveling at the complexity of the site. It was hard for me to wrap my mind around the precise mathematical symmetry used to build each structure. The amount of physical labor it took to construct the city was baffling.

We met a small group of Belizeans in sweat-soaked khakis who worked for the archeological



LEFT TO RIGHT: Dwarfed by the size of the cave opening, writer Kelly LaClaire gazes out at the Belizian rainforest that surrounds the cooling waters of Blue Creek Cave; View looking out of the cave entrance at the dense Belizian forest; A guest enjoys a refreshing swim at the cave

society, hacking back the ever encroaching jungle with nothing more than a few machetes. They were obviously hot and tired but seemed more than happy to stop and talk with us about Mayan culture and the various architectural aspects of the site. Lubaantun, they told us, is only one of two known sites in the Mayan world where all the rocks used in construction were smoothed down to have rounded shaped edges. No one knows why this was done.

I would like to have stayed there the rest of the day, exploring the ancient city's nooks and crannies, getting lost in its history, but the sun was beginning to sink and we wanted to get to our next destination before sundown.

As we were leaving Lubaantun, I looked back at the stone pyramids and green fields, counting the other visitors. I only saw one.

A short drive later we arrived at Blue Creek, named for the river that runs through the village. A few ladies lined the road selling Mayan trinkets and baskets while others sat on boulders in the creek washing clothes with stones. We set off on a clearly marked trail that follows the river and weaves its way through the trees and vines for about a half mile before it ends at the mouth of a stunning six-story cave.

After we swam in the pool at the cave's entrance, we pulled out our dive lights and gave three local kids five dollars each to take us spelunking into the black depths of the giant cavern. Cave systems like these are ubiquitous in Belize and spelunking is a popular sport with locals and visitors alike.

Our adolescent tour guides told us that Blue Creek cave extends back for over six miles, and that if you go back far enough, you'll find an underground waterfall that crashes out of the ceiling of the cavern. Thirty minutes in the spooky black interior was long enough for us, and we decided to turn back.

Outside, the sun was setting, and we got in another swim before a few swooping bats that had come out to hunt chased us out of the water and back towards our car.

Guess how many tourists we saw.

Silk Cayes

We spent three frustrating days in search of the world's largest fish, but Mother Nature is often fickle, and the whale sharks never made an appearance. Kate was getting restless. So far, she had very little opportunity to get some macro shots. So

CLOCKWISE FROM FAR LEFT: Happy snorkeler and loggerhead sea turtle at Silk Cayes; Trumpet fish at Silk Cayes; Caribbean whip tail stingray; Doctor fish; Brain coral and cleaner goby

the crew at Seahorse took us out to a string of deserted islands known as the Silk Cayes where the reefs are rich and vibrant even at considerable depths. Perhaps the sea life there felt sorry for our previous days of fruitless searching because they came out in force. Turtles, eagle rays, eels, countless species of fish and a solitary reef shark all came to say hello. It was as if we brought along a diver's bucket list and got to check off nearly every item on it in one spectacular dive.

We ate homemade barbecue and fresh tuna salad under the shade of palms while watching a family of pelicans swoop and dive for fish at the island's edge. A group of three friendly and playful dolphins had come to investigate the small group of snorklers who were with us, and they were laughing about the experience while sitting in the sand.

Before we left for the day, our little boat stopped at a location I have sworn to keep secret. As we approached, I saw an old wooden boat bobbing up and down—its crew a group of leathery-skinned free divers cleaning the day's catch. Our group slipped into the water with just our snorkel gear and were treated to the best deco stop ever. Two giant loggerheads were sparring under the bow for conch scraps, and three or four spotted eagle rays slowly circled the stern waiting for their chance. Several large sting rays fluttered along the grassy seas bed, and a blacktip reef shark, followed by three nurse sharks came to investigate the free meal of fish offal being thrown overboard. It was the best snorkel dive of my life. Had that been our only time in the water, our entire trip would have been worth it.

On the ride back to Placencia, Carleton Young (aka "Patu")—Brian Sr.'s brother and part owner of Seahorse—handed Kate and I an ice cold Belikin and toasted our visit. He invited us to come back next spring break for a diving trip though the Cayes and down into Panama aboard a catamaran he charters called the *Wild Orchid*.

"Geeze, Carleton," I said smiling, "We'll need to think about that. I mean, we had planned a whole rain-filled weekend of diving in the freezing Puget Sound with 30 other divers and two scuba classes. It's gonna break my heart to have to give up the double 60mm wetsuit I usually shove myself into to keep my heart from stopping, just to come back here."

"I guess that makes sense," he laughed, sweeping his hand towards the empty sea. "It's pretty awful out here—and the crowds here are pretty hard to put up with." ■

Kelly LaClaire is a dive writer based in Portland, Oregon, and his cousin, Kate Clark, is an underwater photographer from the same city. They travel as a team to cover dive locations in the Americas, the Caribbean and the Pacific.

fact file

Belize

SOURCE: CIA.GOV WORLD FACTBOOK

RIGHT: Location of Belize on global map.
BELOW LEFT: Map of Belize
BELOW RIGHT: Belizian breakfast of black beans, eggs and fry jacks—deep-fried pieces of dough—available at the Maya Beach Restaurant in Placencia

History Belize was the site of many thriving Mayan city states until their mysterious decline at the end of the first millennium A.D. The British and Spanish fought over the land throughout the 17th and 18th centuries until it formally became the "Colony of British Honduras" in 1854. Full internal government was granted in 1964 and in June, 1963, the official name of the country was changed to Belize. Territorial disputes between the UK and Guatemala continued for years and delayed the independence of Belize until 1981. Guatemala refused to recognize the new nation until 1992 and the two countries are involved in an ongoing border dispute and military groups still patrol Belize borders near the Guatemalan borders although no incidents have been reported for years. Tourism has become the mainstay of the Belizean economy. Current concerns include the country's heavy foreign debt burden, high unemployment, and one of the highest prevalence rates of HIV/AIDS in Central America. Government: Parliamentary Democracy. Capital: Belmopan

Geography Belize is located in Central America, bordering the Caribbean Sea, between Guatemala and Mexico. Coastline: 386km. The terrain is dominated by lush tropical rainforests and low mountains in south. Lowest point: Caribbean Sea 0m. Highest point: Doyle's Delight 1,160 m. Note: Belize is the only country in Central America without a coastline on the North Pacific Ocean.

Climate Tropical; hot and humid. The rainy season runs from May to November and the average rainfall is 60 inches per year in the north and around 150 inches in the south. The dry season is February to May. The average temperature in Belize is 81 F. Belize has a hurricane season (June to November) and coastal flooding can occur but is not common.

One of the nicest things about Belize is the fact that all beaches are public property, so if you're walking around and find a nice shady hammock under some palms, buying a drink from the local restaurant or bar will earn you the ticket to enjoy that portion of the beach all day

Environmental issues
Deforestation is a concern; water pollution from inadequate sewage systems is a problem in localized areas; agricultural runoff is a factor in in-land areas. Belize is party to: Biodiversity agreements, Climate Change pact, Climate Change-Kyoto Protocol, Desertification treaties, Endangered Species acts, Hazardous Waste laws, Law of the Sea, Ozone Layer Protection, Ship Pollution treaties, Wetland salvation and preservation, Anti-Whaling laws.

Economy Tourism is the number one foreign exchange earner in this small economy, followed by exports of marine products, citrus, cane sugar, bananas and garments. The government's expansionary monetary and fiscal policies, initiated in September 1998, led to GDP growth averaging nearly 4% in 1999-2007. Oil discoveries in 2006 bolstered this growth. Exploration efforts have continued and production has increased a small amount. Growth slipped to 0% in 2009 and 1.5% in 2010 as a result of the global slowdown, natural disasters, and the drop in the price of oil. With weak economic growth and a large public debt burden, fiscal spending is likely to be tight. A key government objective remains the reduction of poverty and inequality with the help of international donors. Although Belize has the second highest per capita income in Central America, the average income figure masks a huge income disparity between rich and poor. The 2010 Poverty Assessment shows that more than 4 out of 10 people live in poverty. The sizable trade deficit and heavy foreign debt burden continue to be major concerns. Natural resources: garment production, food processing, tourism, construction, oil. Agriculture: bananas, cacao, citrus, sugar, fish, shrimp and lumber.

Currency Belizean dollars (BZD). The Belizean dollar is pegged to the American dollar at 2 to 1.

Population 321,115 (July 2011) Ethnic groups: mestizo 48.7%, Creole 24.9%,Maya 10.6%, Garifuna 6.1%,other ethnic groups 9.7%.
Religion: Roman Catholic 49.6%, Protestant 27% (Pentecostal 7.4% ,Anglican 5.3%, Seventh-Day Adventist5.2%, Mennonite 4.1%, Methodist 3.5%, Jehovah's Witnesses 1.5%), other religions 14% (2000 census).

Language Spanish 46%, Creole 32.9%, Mayan dialectSpanish 46%, Creole 32.9%, Mayan dialects 8.9%, English 3.9% (official), Garifuna 3.4%, German3.3%, other languages 1.4% (2000 census).

Hyperbaric Chambers
San Pedro, Ambergris Caye
Emergency: 501-226-2851
ambergriscaye.com

Websites
Placencia Tourism
www.placencia.com

ecology

Edited by
Peter Symes

Nurseries of the Seas

Mangroves

Text by Tyge Dahl Hermansen

Mangrove forests are significant habitats that exist throughout the tropical belt across the globe. Mangroves are adapted to the specific terms that exist in intertidal marine zones.

In America, New Zealand and Australia mangroves extend to the subtropical zone, and they have their range limits at the most southern point of Australia.[1] Eighty-four species of mangrove trees have been identified across the world of which 70 (including 12 varieties) are true mangroves, while 14 are semi-mangroves.[2]

A wide diversity of animals is found in mangrove swamps. Since these estuarine swamps are constantly replenished with nutrients transported by fresh water runoff from the land and flushed by the ebb and flow of the tides, they support a bursting population of bacteria and other decomposers and filter feeders. ■

Mangroves are obligate to mangrove forests and adapted to the specific conditions that exist in intertidal marine zones.[3] Dependent on the tides, mangroves grow in soft mud or sand and have adapted by localizing approximately half of their weight in the roots.[4]

Mangroves have a complex ecology because of their interaction with physical forces such as tides, surface sediment runoff, river and groundwater discharge, waves, and varying amounts of sediments, nutrients and saltwater.[5] They live in coastal settings with freshwater runoff, multiple substrate conditions, prolonged hyper periods, varying salinity, anoxic conditions, accumulation of toxic substrates, perpetually changing temperatures and changing oxygen concentrations.[6]

But throughout geological time,[7] they have proved very suitable for adaptations to these conditions, which is why they have survived until today. But it is hard to predict how suitable mangroves are for survival in the future because, as pointed out in a paper by Berger et al. in 2008: "When coastal landscapes become fragmented by urban transformation of regional and coastal settings, mangroves are [becoming] less self-maintaining as coastal processes are modified."

All these factors together with the pressure of global warming,[8] makes the conditions for the survival of mangroves in the future very difficult and a world without mangroves realistic.[9] They are one of the most threatened ecosystems in the world today, suffering from conversion, over-exploitation and pollution.[10]

For example, in the Mexican LaPaz region, 23 percent of the mangroves were "wiped out" in the years from 1973 and 1981,[11] and in Asia, 26 percent of the mangrove forests in the six countries that were most influenced by the tsunami on 26 December 2004 have been destroyed during the last 20 years.[12]

Furthermore, many people think that mangrove forests are negative ecosystems plaguing urban areas with swamps that act as hatching places for mosquitoes, beetles, wasps and other insects, which are unwanted in the human community, and it is thought that mangroves

NOAA

Grass shrimp

PETER SYMES

These mangroves in Florida are important ecosystems, which provide breeding grounds and nurseries for marine life

SCOTT BENNETT

Exposed roots of mangrove trees reach into nutrient rich waters

Mangroves

JOHN E RANDALL / USGS

Mangrove goby

produce poisonous bacteria, gases and bad smelling substances, which pollute the surrounding areas. Therefore, it seems that the common perception of the local community is that mangrove forests and trees should be erased from locations near areas under urban development or agriculturally important areas. Nothing could be further from the truth.

Why is it important to conserve the world's mangrove populations?

The importance of mangroves is obvious if one looks at the fact that they provide a variety of other ecosystems with a broad array of service functions[13] such as grounds for spawning, breeding, nurseries and hatching areas for many different marine species[14] including support of a range of economically and biota important to conservation.[15]

They protect coastlines against sediment movements[16] and promote sedimentation.[??] They protect people and coastlines against extreme weather conditions[17]—for instance, by reducing the height of waves, which protects fragile marine life against stormy weather of all kinds.[18]

Many people who died in the 2004 tsunami catastrophe in Asia might have survived if the mangrove population along the coast had been intact, which provides food supply for fishes, crabs, prawns and humans,[19] and regulates the air and water quality,[20] climate, soil formation, as well as the primary production and the circulation of nutrients and water.[21]

Mangrove systems belong to the most productive ecosystems in the world. For example, each hectare of the mangrove forests of Sumatra contribute approximately 500kg of shrimp and fish each year,[22] and in Mexico, within 13 selected marine regions during 2001-2005, around 10,5000 tons of fish and crab worth US$19 million were harvested. About a third of these fisheries have species that rely on mangrove habitats.

The Mexican mangrove areas are sold by the Mexican government for US$1,000 per hectare but produce a median value of $37,000 per hectare.[23] Mangroves also provide wood for timber and fuel.[24]

Furthermore, researchers have found that several towns described by Marco Polo as coastal towns in the 13th century, are actually located more than 100km from the coast today.[25] This phenomenon is partly caused by the deposit of sediments in the mangrove forests of Sumatra. The Millennium Ecosystem Assessment, 2005, classifies these ecosystem services into four groups—supporting, cultural, regulating and provisioning services.[26]

From this, one can see that the mangroves make up an extremely important habitat type that is decisive for the survival of the two other main coastal marine ecosystems: coral reefs and sea grass.[27] Because of this relationship and because mangroves and their inhabitants (as well as other species occupying coastal wetlands) are vulnerable to global warming,[28] urban and agricultural disturbances,[29] and because their capability to expand their range is restricted by the specificity of their habitats,[30] it is particularly important to intensify the research in mangroves' capability to survive in the future.

However, many of these problems have been faced by a number of countries that pay attention to induced or natural mangrove recovery.[31] Models that simulate management planes for protection, rehabilitation and restoration of mangroves have also been constructed.[32] These models could help governments through future planning of mangrove conservation, and further research in theoretical modelling is necessary to improve existing models or constructing new and even better models.

Furthermore, mangrove rehabilitation has been carried out or planned in several countrie. For example, the World Conservation Union (IUCN) and the United Nations development programme for the reestablishment of the mangrove populations in the 12 countries hit by the December 2004 tsunami—Mangroves For the Future (MFF)—will run over six years.[33] Such initiatives are mostly welcome and very helpful for the conservation of the world-wide mangrove population. ■

[1] GILL AND TOMLINSON, 1971; HOGARTH, 1999; DUKE, 2006
[2] WANG ET AL., 2003
[3] BALL, 1988; HOGARTH, 1999; DUKE, 2006; KRAUSS ET AL., 2008
[4] KOMIYAMA ET AL., 2008
[5] BERGER ET AL., 2008
[6] LUGO, 1980; BALL, 1996; HOGARTH, 1999; BERGER 2008; LAMBS ET AL, 2008
[7] ELLISON, 2008
[8] GILMAN ET AL., 2008
[9] DUKE ET AL., 2007
[10] FARNSWORTH AND ELLISON, 1997; DAHDOUH-GUEBAL AND KOEDAM, 2008; ELLISON, 2008
[11] DALTON, 2008
[12] DANIELSEN, 2005; FAO, 2003
[13] SEE ALSO: FAO, 2007AB
[14] BARAN, 1999; BARBIER, 2000; DAHLGREN ET AL., 2006; WALTON ET AL. 2006; DAHDOUH-GUEBAL AND KOEDAM, 2008; NAGELKERKEN ET AL., 2008; WALTERS ET AL., 2008; TSE ET AL., 2008
[15] DANIELSEN, 2005; CANNICCI ET AL., 2008; ELLISON, 2008; NAGELKERKEN ET AL., 2008
[16] MENDOZA AND ALURA, 2001; WALTON ET AL., 2006
[17] DAHDOUH-GUEBAS, 2005; DANIELSEN, 2005; WALTON ET AL., 2006; ELLISON, 2008
[18] DANIELSEN, 2005; ELLISON, 2008
[19] DANIELSEN, 2005; NAGELKERKEN ET AL., 2008
[20] WALTERS ET AL., 2008
[21] WALTERS ET AL., 2008
[22] DANIELSEN, 2005
[23] DALTON, 2008; UBERTO-OROPEZA ET AL, 2008
[24] ELLISON, 2008
[25] DANIELSEN, 2005
[26] WALTERS ET AL., 2008
[27] MOBERG AND RÖNNBÄCH, 2003; HARBORNE ET AL., 2006
[28] GILMAN ET AL., 2008
[29] HARTY AND CHENG, 2003
[30] THOMAS, 2006
[31] STEVENSON ET AL., 1999; LEVIS ET AL., 2005; BOSIRE ET AL., 2008; DAHDOUH-GUEBAL AND KOEDAM, 2008
[32] TWILLEY, 1997; FIELD, 1998, 1999; DOYLE ET AL., 2003; DUKE ET AL, 2005; TWILLEY AND RIVERA-MONROY, 2005
[33] STONE, 2006; IUCN-MFF; MFF

Mangroves For Fiji

Text by Scott Bennett

In the Pacific, mangrove habitats have been decimated via a culmination of over harvesting, urban development, reclamation for tourist resorts and the proliferation of squatter settlements.

Holistic approach

Despite the seemingly incessant reports doom and gloom, there are glimmers of hope. In Fiji, one local dive operator is playing a vital role to halt the destruction. Situated on the island of Viti Levu, Beqa Adventure Divers has initiated a holistic conservation project aimed at protecting this besieged environment.

Long striving to minimize their environmental impact, the company had found it difficult to substantially minimize its carbon footprint. With vehicles, boats and compressors an integral part of its business, the company was disturbed but its resulting high emission. With global carbon trading on the increase, the company could have easily paid an intermediary to finance a forest or windmill in some far-flung destination. A homegrown solution was sought, but when no such initiative was found, the company decided to run a project themselves. Called "Mangroves for Fiji", the privately-funded scheme combines the advantages of planting mangroves while offsetting their own carbon footprint. To do so, the company is offsetting the entirety of its carbon emissions by planting a corresponding number of mangroves throughout Fiji.

Sustainable results

In order to achieve sustainable results, Beqa Adventure Divers engages directly with local communities, schools and grassroots initiatives whilst availing welcome mediation by various Government Departments. Heading up the project is resident marine scientist Arthur Sokimi. Having studied Marine Science at Fiji's University of the South Pacific, he has garnered a wealth of information about the subject and ironed out the initial kinks by co-running a pilot project in Galoa village. Sivorosi "Sivo" Naivua is the President of the Galoa Village Youth and one of the absolvents of the company's village youth sponsorship programs. Having worked for OISCA, a Fiji Agro-Forestry Development Project, he has had extensive experience in mangrove planting, having co-managed the successful pilot project. The heart and soul of the operation is Nanise "Nani" Ledua, Beqa Adventure Divers' Office Manager. she provides a wealth of networking and organizational skills and is likely to be the first point of contact when contacting the company.

Government support

The project is supported by a number of government departments, including Environment, Forestry and Fisheries as well as the Marine Ecology Consulting, is Fiji and the South Pacific's leading company for Coastal and Marine Ecology Assessments.

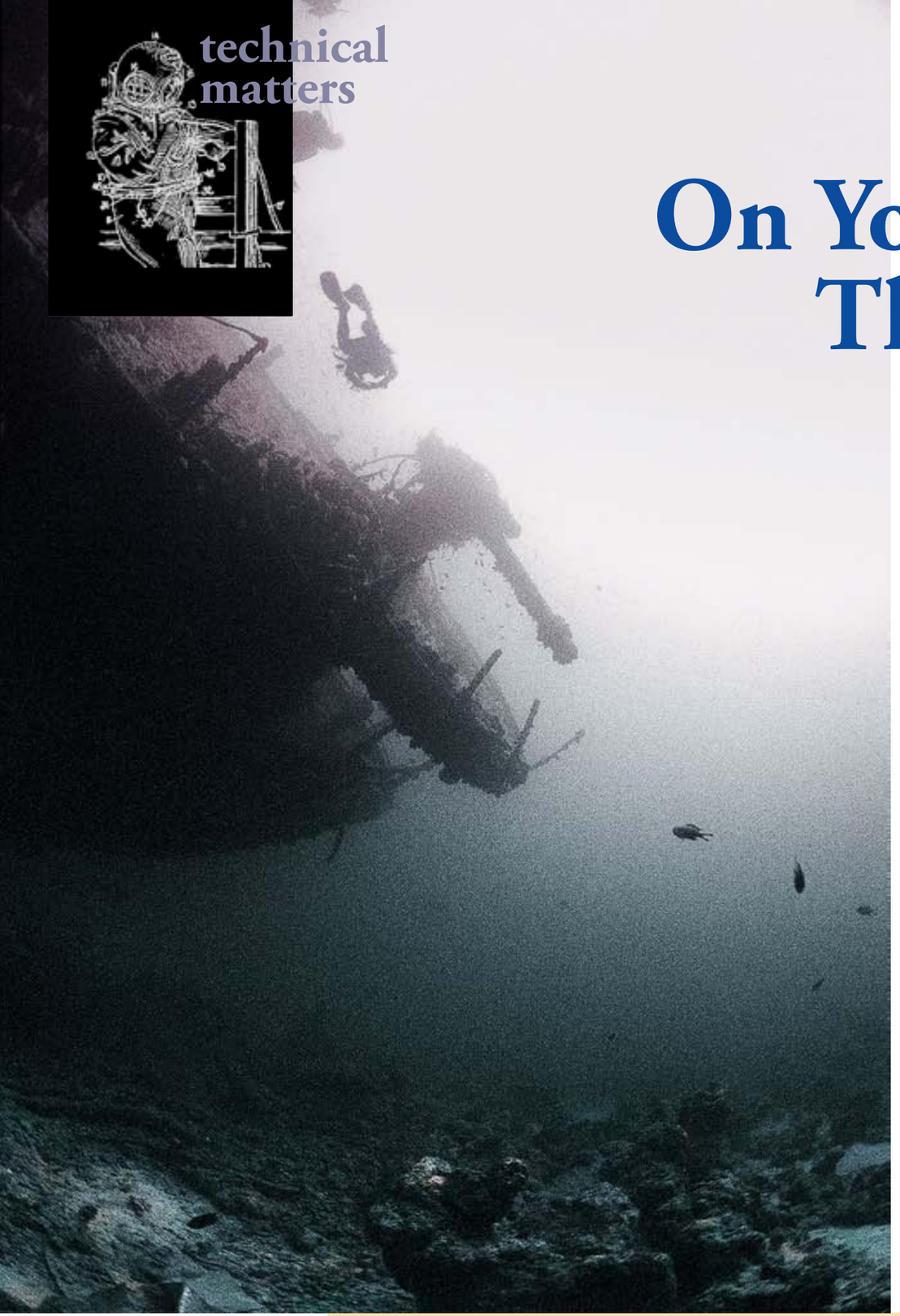
Conservation of mangroves and their associated ecosystems has been identified as a key natural adaptation strategy and mitigation measure to climate change. Protection of these vital ecosystems also safeguards and enhances the livelihoods of coastal communities. In the Pacific, mangrove habitats are acknowledged to be especially important to the traditional lifestyles of its people.

Apart from the physically protecting coastlines, they are a valuable food source, providing a myriad of fish, crabs, prawns and shellfish as well as seeds that are consumed in many parts of the Pacific. Furthermore, they provide are an important source of firewood and building material for housing.

Carbon sequestration

For this project, it is assumed that one hectare of Mangroves (= 10,000 Mangrove trees) sequesters one metric ton of Carbon every year. Planting will be effected in cooperation with local stakeholders that shall be paid FJD 1,000 for every hectare of restored Mangroves. Beqa Adventure Divers operate and pays for a small project team that will be on call for establishing and keeping all the necessary contacts, inspect sites, share information, disburse the funds and assist any partners in Fiji and abroad.

With projects underway in a number of villages throughout the country, the future looks brighter for one of Fiji's most endangered ecosystems.



— *Reprinted from* AquaCorps, *Issue No. 2, July 1990*
The Independent Journal for Experienced Divers

20 years on... AquaCorps ...What has changed?

On Your Own: The Buddy System Rebutted

Buddies are not essential for a safe dive. On the contrary, buddies often increase the risk of a dive, either directly through unpredictable or unreliable actions, or indirectly, through an unfounded belief that security is enhanced by numbers alone, regardless of the training or state of mind of the buddy. In most instances, a competent solo diver would be much safer than the average buddy dive.

Text by Bob Halstead
Photos by Peter Symes

Most textbooks do not define the buddy system—an interesting point in itself. I define it as the situation that occurs when two divers of similar interests and equal experience and ability share a dive, continuously monitoring each other throughout entry, the dive and the exit, and remaining within such distance that they could render immediate assistance to each other if required.

Obviously, this definition represents the ideal, and upon honest examination, it's clear that it has little to do with the reality as practiced by most divers. The truth is that on most dives, the buddy system fails.

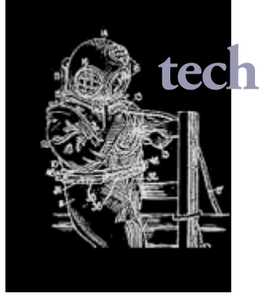
I've been an active diving instructor for 20 years, and a professional sport diver for 13 years; I've made over 5,000 dives and have personally supervised—without serious incident—over 90,000 dives. During this time, I've seen buddies that were incompatible either through interest of ability; buddies that spent their dives looking for each other; divers dependant on their buddies; divers who claimed to be buddies on the boat, but who ignored each other in the water; buddies who failed to communicate; buddies who fought in the midst of a dive; and divers who failed to recognize distress in a buddy, let alone attempt to assist.

"It is no light matter to make up one's mind about anything, and once it is made up, it is even harder to abandon the position. When a hypothesis is deeply accepted it becomes a kind of growth that only surgery can amputate. Thus beliefs persist long after their factual basis has been removed, and practices based on beliefs are often carried on even when the old beliefs, which stimulated them, have been forgotten."

John Steinbeck,
"The Log from The Sea of Cortez"

This last situation brings up a vital point. The buddy system implies that divers will be able to recognize a problem with their buddy and do something about it. Most are never put to the test, but experience indicates that if they were, many would fail. An analysis of diving fatalities in Australia and New Zealand over the past ten years found that 45 percent of the fatalities involved buddies who were separated by the fatal problem or who were separated after the problem commenced. Another 14 percent stayed with the buddy, but the buddy died anyway. Just being together is not enough.

From these observations, I've concluded that the buddy system is mostly mythical. It is unreasonable, unworkable, unfathomable, and unnatural. Rarely—very rarely—I see a couple who buddy dive as the ideal. In my view, most diving today is, in fact, solo diving, even if the divers claim to be buddy diving. Unfortunately, because it is taboo, most divers have



tech talk

had no specific training to qualify them for such solo diving.

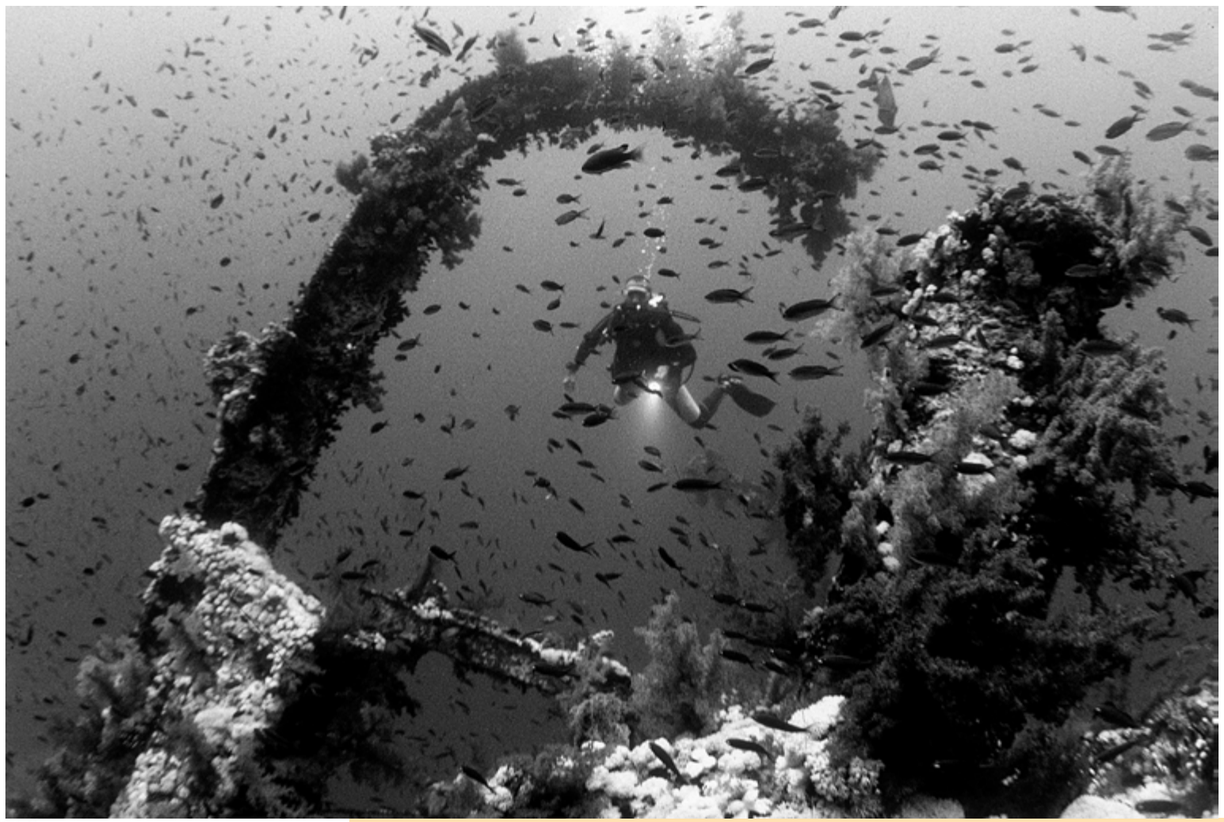
To Buddy or Not to Buddy...

How did we get ourselves into this mess? I am told that the "never dive alone" rule originated with the YMCA "never swim alone" program that was popular when dive instructor agencies were just getting going in the late 1950s. Why has the rule stayed with diving? Undoubtedly, because people are nervous about being out of their natural breathing element and at the mercy of the monsters of the deep. Fear is the motivation for the buddy system. Divers do not want to be eaten. There is nothing strange in this fear; what is strange is the response to it: get a buddy.

What does it take to be prepared for high-tech diving? Knowledge, practice, the right kit and good planning.

There is an old joke that the buddy system reduces the chance of getting eaten by percent. Regrettably, the divers that repeat this joke are often serious. Instead of finding out about real behavior of marine creatures, or developing fail-safe scuba gear and a back-up breathing system, the diving community has opted for the comfort of having a buddy. Many divers choose a buddy simply because they are alarmed at being alone, and not because there is a possibility of the buddy actually assisting in an emergency.

Unfortunately, few people defending the buddy system seem to address the critical point of whether it does, in fact, make diving safer as intended. Since the introduction of the buddy system 30 years ago, a large body of divers has developed who have made careers out of sport diving. These people must now look to their experience to decide whether or not the buddy system has worked, or whether it should be modified or even abandoned.



Analyzing Dive Risk

All diving involves risk. As soon as you step near a full scuba cylinder you are at risk. And every step that you take getting on and into the water increases your risk. In fact, there is an escalating scale of risk as dives become more complex. In general, the risk of a certain dive is a function of the technical requirements of the dive and the environmental conditions. It has nothing to do with the diver.

Novice divers, it seems from the accident reports do equally risky things, apparently without recognition of the risks involved.

In theory, we should be able to grade every dive for its risk factor. However, this is difficult in practice. Though many a cave dive have been graded, ocean dives are another matter. Ocean conditions, being variable, may make a dive low-risk one day and high-risk the next. Nevertheless, an accurate assessment of the risk factor for any dive must be made before the dive is attempted. This is why experience is so valuable and why risk assessment is a critical duty of dive masters and instructors.

The actual danger posed by any particular dive depends on three factors: first, the dive itself—the risk factor; second, the diver attempting the dive—the skills available to overcome the risk; and third, the buddy—the wild card—who may make the dive less or more dangerous.

Safe diving occurs when the diver's skills, experience and knowledge match or exceed

On Your Own

the skill, experience and knowledge requirements of the dive.

For instance, diving shallower than 30 feet in calm, clear, warm water devoid of marine life qualifies as low-risk. Yet, such a dive could be dangerous if the diver does not understand the consequences of breath holding on ascent. Similarly, a dive to 200 feet in dark, cold water with a strong current is undoubtedly a high-risk dive, but one that can be made safely if the diver has the appropriate abilities and back-up. Professional divers make these kinds of dives all the time.

Of course, judging the danger of a dive is more a matter of probabilities than absolutes. A dangerous dive is one where it is likely that an injury will occur, a safe dive where it is unlikely—but not impossible—that an injury will occur. The point is that a high-risk dive—one that is deeper, longer, colder, rougher, involves penetration of a wreck or a cave, encounters a current, involves dangerous marine animals, or is difficult to enter or exit from—need not be dangerous if the diver can identify the risk factors and overcome them with disciplined diver education and training.

We must also realize that there is no such thing as a completely safe dive. Nobody knows all the physiological risks associated with diving. In addition, many marine phenomena—as well as many buddies—are unpredictable. A safe diver is one who is able to assess the risk factors accurately and has a sober knowledge that his or her ability is sufficient to overcome these risks.

The crucial question in the debate between buddy diving and solo diving is how does the buddy affect the safety of the dive? Does he or she effectively add to the natural risk of the dive or reduce the risk of the dive? This obviously depends on the buddy. In many instances it would be safer to dive alone. For instance, many instructors would agree that it would be safer for them to be alone than with a student on a training dive.

The one remaining piece of the puzzle is to determine how being alone, per se, affects the risk of a dive. That is, does the buddy play an essential role in the dive? Is it possible to make a dive without a buddy and survive? Clearly, while we cannot survive a dive for more than a few minutes without a functioning regulator and a tank of air, we can certainly survive without a buddy.

Then what role does the buddy actually play? Theoretically, the buddy acts as a kind of safety factor. He is not essential, but has the purpose of preventing problems by recognizing them in the dive partner and stopping their development or affecting a rescue. Therefore, being alone does not affect the natural risk of the dive, but it does deprive the diver of a possible safety factor.

However, it is equally true that, although an ideal buddy might provide a safety factor, a less-than-ideal buddy might actually constitute an additional risk factor.

Dangerous Buddies

Let's examine some scenarios in which the buddy system makes diving more dangerous:

1. The dependent diver. This is the diver who depends on the buddy for vital information during the dive. Such divers are all too common. The dependent diver lets the buddy do the navigating, or keep an eye on the depth, or determine the safety stop, or even set his gear up for him. When he gets separated from his buddy, he is unable to cope, especially if he is afraid of being alone. The dependent diver is a direct consequence of the buddy system, and without it, he would not exist.

2. The psychological support syndrome. Two inexperienced divers have paid for a dive trip but when they arrive at the dive site, the conditions are worse than they have experienced before. Not wanting to let each other down, and boosting each other with comforting words, they attempt a dive of too high a risk level for their skills. Now they have to cope not only with the dive, but with each

On Your Own

other. A solo diver can choose to abort a dive without affecting anyone else.

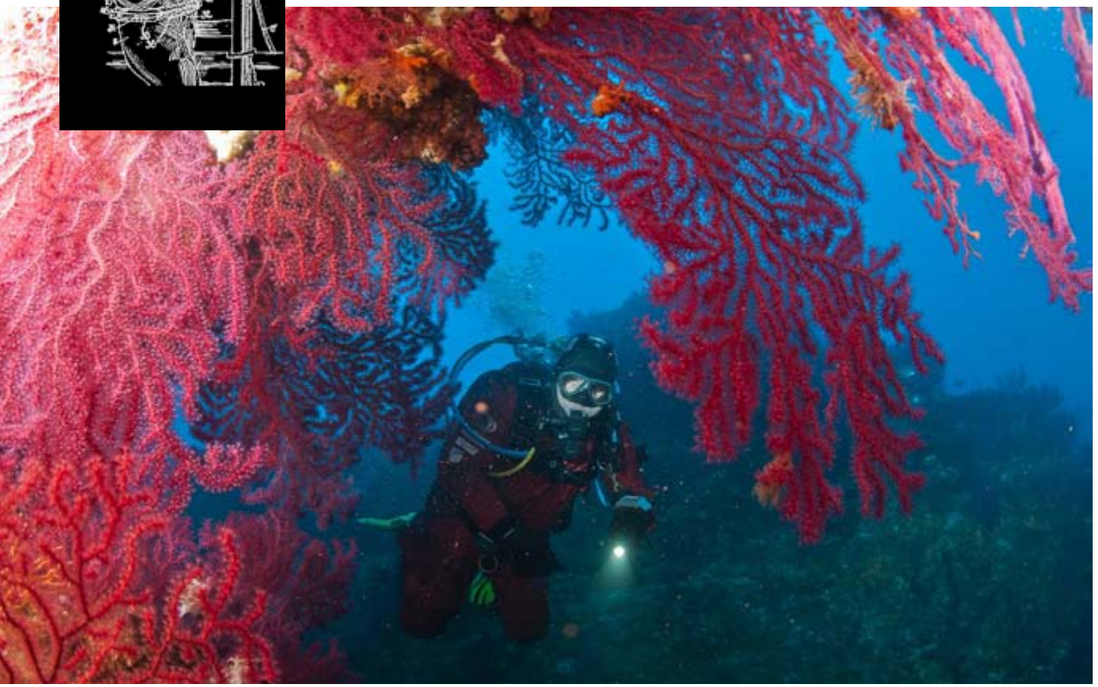
3. The angry diver. A diver really keen for a dive after a difficult week at the office gets buddied with someone who spends half the dive on the descent lines pointing to his ears and going up and down. The rest of the dive, the buddy is seething with frustration and primed for disaster if a problem occurs. A solo diver blames only him or herself for any dive difficulties.

4. The untrained diver. As mentioned earlier, divers are often, in reality, diving alone even if they have a buddy, yet very few are trained for it. They spend hours in the pool practicing buddy and octopus breathing—which are very soon forgotten—and not enough time on individual survival skills such as weight belt control, buoyancy control, solo ascents, self-rescue, and skin diving (I happen to believe that a far better rule for safe diving than "never dive alone" is "never dive deeper than twice the depth you can skin dive to"). A solo diver has every incentive to perfect his diving skills.

5. The falsely confident diver. Some divers actually believe that they will be able to communicate with their buddies in an emergency and that their buddy will be able to assist them. Underwater communication with that pathetic set of hand signals is a bad joke, and the divers most likely to be able to recognize problems and do something about it are experienced divers—the ones who are least likely to get into trouble. I have made two life-saving underwater rescues. In both cases, I rescued someone else's buddy. The other divers failed to recognize the problems and do anything about them.

6. The high-flying diver. This guy has gone hang gliding, parachuting, rock climbing,

On Your Own



kayaking rapids, and flies a stunt plane. He takes up diving, is a natural, and thinks it's the most wonderful thing he has ever done. Then he finds that he is not allowed to pursue this by himself. So, he develops the technique of getting a buddy and losing him as soon as possible during the dive, then having a great dive by himself. [Ed. note: women usually have more sense.] A solo diver does not have a buddy to lose.

In spite of all the failings of the buddy system as currently practiced, I believe buddies do have a place in diving. In fact, they are essential. But the buddy's place is not in the water with you, it is looking out from the boat or from the shore while you dive. Most diving incidents occur at the surface; the surface is surely the most dangerous place. Yet, divers who would not dream of diving alone think nothing of leaving an empty anchored boat.

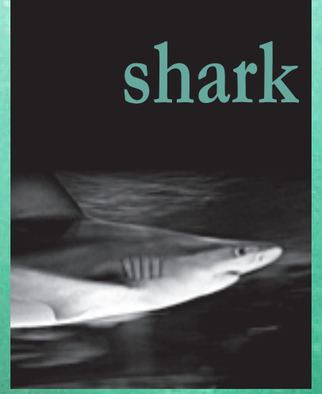
Buddy for Pleasure, Not Safety

Some of the most wonderful moments in my life have been when I have been alone in the ocean surrounded by its creatures—just nature and me. I treasure those moments and aim to have many more of them. I'm a very careful diver; I dive just about every day and test myself regularly with 60- to 70-foot skin dives. And I dive alone with the crew of my boat keeping a sharp lookout. However, sometimes I am able to share great ocean experiences with special people, and this can be wonderful too. But these divers are other independent divers.

For safety, all divers should be completely independent and focus their energy on keeping themselves out of trouble. For joy, share your dive with another independent diver. For training, dive with an instructor until you are ready to be independent in the conditions that you aim to dive in.

The buddy system is not essential for a safe dive since there are other ways of proving the same safety factor, such as carrying back-up breathing systems and gauges, improving diving skills, and diving well within one's limits. But if you do decide to dive with a buddy, it is vitally important that you are certain that the buddy will be a safety factor during the dive and not an additional risk factor. Any buddy is not safer than no buddy.

I believe that all divers should be trained primarily as self-sufficient—solo—divers. They must learn to take personal responsibility for their actions in the water. If they are not capable of this, then they should still be in the care of an instructor. Once they are capable divers, if they then wish to share their dive with another independent diver that they trust, that is excellent. But the present hypocrisy that states that solo diving is unsafe while paying lip service to a buddy system that is so obviously failing is retarding the development of diving and increasing its danger needlessly. ■



Diving with Dinosaurs

Text and photos
by Aaron Gekoski

Just off the Cape Peninsula, close to the pretty bay of Simon's Town in South Africa, lies an innocuous short stretch of ocean. Like much of the seascape here, kelp sprouts from the kryptonite green water, which laps at boulders straight out of *The Flintstones*. It looks a lot like the rest of this spectacular coastline. Yet this body of water harbours a prehistoric secret: just a short hop, skip and a dive away from the shore swim living, breathing dinosaurs.

The name of these astonishing creatures is the broadnose sevengill shark. Yet I prefer their more palatable, less adjective heavy name: cow shark. These fish have glided through our oceans for hundreds of million of years, unblemished by Mother Nature's marauding fingers. All sharks originally possessed seven pairs of gill slits. A period of tweaking and refining commenced and most species drop a couple of pairs. For some reason the cow sharks kept theirs. In fact, cow sharks have very few modern adaptations, which is why they remain one of the closest links we have to dinosaurs on earth.

For some unknown reason, the cow sharks just love this tiny stretch of water and congregate here en masse, just metres offshore. I'd read about this extraordinary site, yet before now had never had the opportunity to dive here. Shore diving remains one of my favourite methods of exploring the deep blue; there are no boats with their thumping motors, no launches, no travelling out for miles to sea. A shore dive simply features you, your breathing apparatus, your buddies, and a gradual descent into an underwater world packed full of goodies.

Unfortunately, these goodies come wrapped in a bitterly cold packaging. Even 10mm of neoprene, hoodies, gloves and boots do little to mask the freezing water here. Our dive guide was free diver and photographer Jacques de Vos. Jacques has spent countless hours underwater interacting with the cow sharks. He has built up an intimate knowledge of their behaviour and habits. He stressed that whilst the cow sharks may appear docile, we must maintain eye contact and not touch them. Attacks on divers are rare, yet it's important to remain vigilant when dealing with toothy predators like sharks. Especially ones that can grow to four metres in length and have been found with human remains in their stomachs.

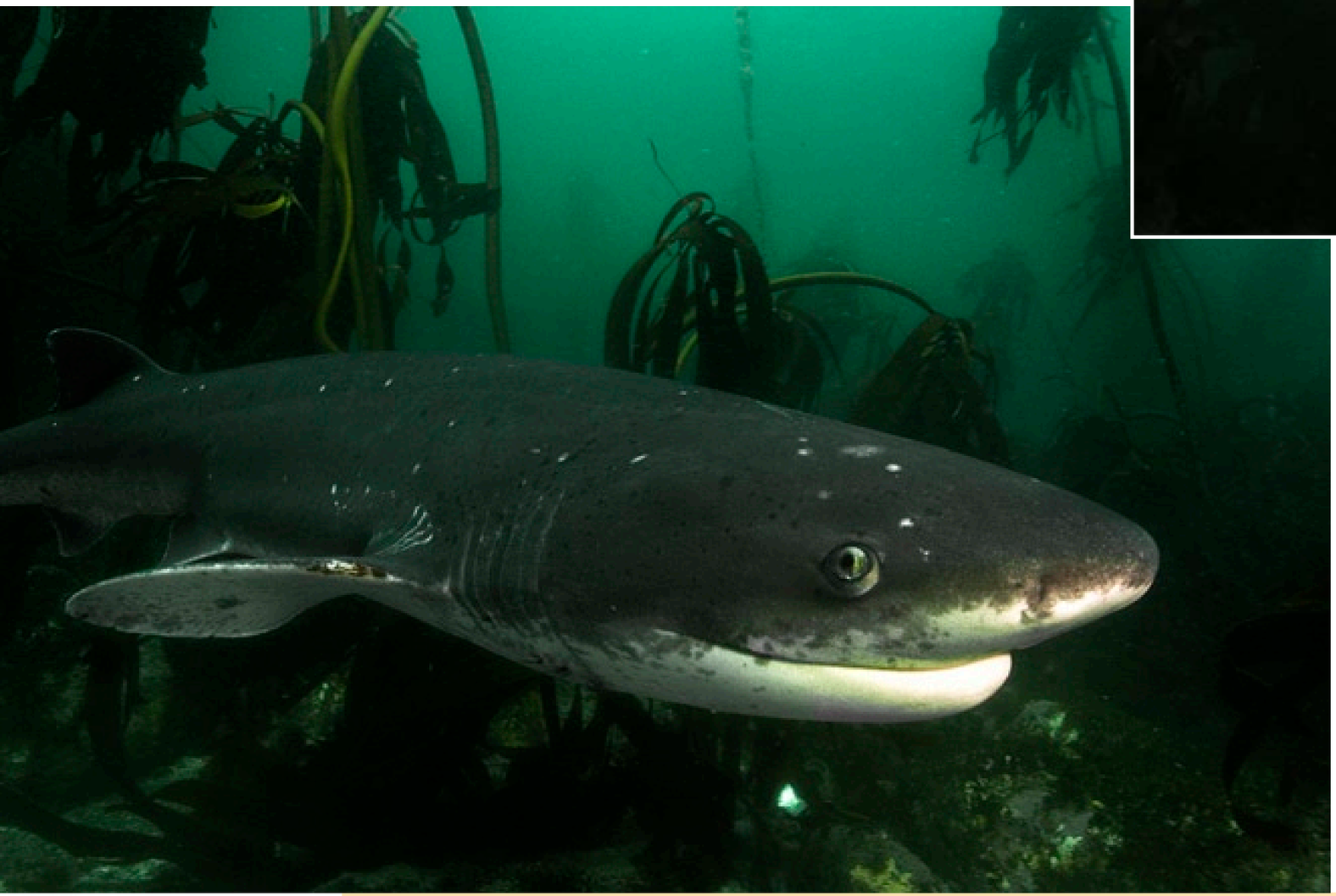
Jacques, divemaster Rob, myself and my colleague—the underwater cinematographer, Chris Scarffe—entered the water via the rocks. The

shark tales

► Watch video on Vimeo

Cape's waters welcomed us with an icy blast, jolting our systems, priming our senses. During descents into unfamiliar (and shark infested) territories, I frequently remind myself that each year more people are killed by their Christmas tree lights, or by falling off their chairs than by sharks. However, it's easy to lose sight of such rational thoughts in these famously murky waters.

My mind turned to the ridicule that would ensue at being chomped by a shark named after a chubby, milk-yielding herbivore. I'd never live it down. Thankfully the chances of being nibbled by a cow shark remain miniscule. My first encounter with a two metre male put me at ease. In fact, I could have sworn it was smiling at me. Much like dolphins, cow sharks' stubby faces are etched with perma-smiles. Depending on your point of view, this is either quite cute, or freakishly sinister. Either way, it's as unusual as it is mesmerising.



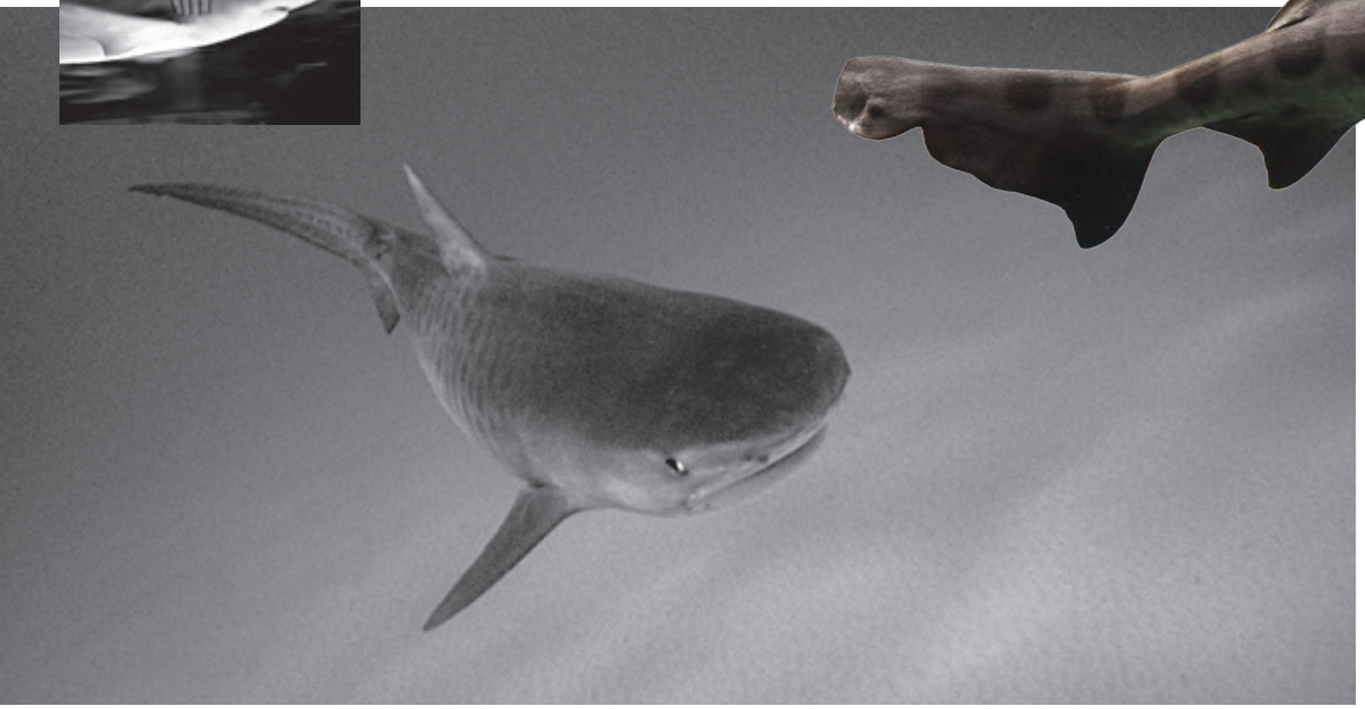
The other notable thing about these sharks is their curious, bold nature. Most sharks, despite their fearsome reputations, remain skittish when encountering humans. Cow sharks, on the other hand, will boldly check divers out, flash a wicked smile and then glide off momentarily, before returning for a second look. They move as if in slow motion, their stout bodies propelled by long, elegant sweeps of the tail. The sharks are a photographer's dream; willing posers for the camera, unfazed by the flashes of strobes and enveloped by the most spectacular studio imaginable.

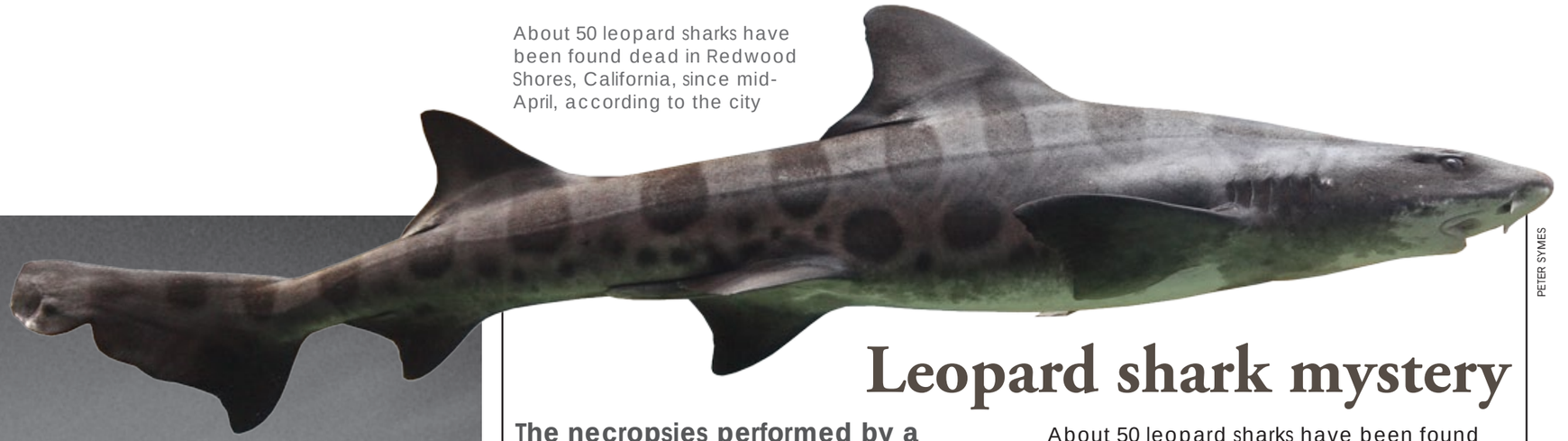
Sadly, the fate of the cow sharks may remain a familiar one. They are being fished extensively in these waters. Whilst I was diving there, reports began to surface of cow sharks being used as bait for great whites by several of the operators in Gansbaai.

Sharks, yet again are falling prey to the greatest predator to ever walk the earth, Man. Every year, we are responsible for the deaths of up to 100 million sharks. We kill sharks for their jaws and teeth which make tacky souvenirs. We kill them for the oil in their liver, their cartilage, flesh and fins. Now, unimaginably, we are killing them to feed to their own, by those who pass themselves off as shark conservationists.

I left this magical stretch of water full of wonder at the amazing smiling cow sharks of Cape Town, yet appalled at how, once again, we are changing the face of our oceans. Cow sharks have survived five mass extinctions and due to humanity's short sightedness and greed, they now face a sixth. ■

To see more of Chris' work please visit **www.mozimages.com**





About 50 leopard sharks have been found dead in Redwood Shores, California, since mid-April, according to the city

PETER SYMES

Leopard shark mystery

The necropsies performed by a California Department of Fish and Game pathologist in the United States found "inflammation, bleeding, and lesions in the brain, and hemorrhaging from the skin near vents". Bleeding was also detected around a female shark's internal organs.

Additional tests, such as a bacterial study and microscopic tissue analysis, may provide an answer, according to a statement released by Redwood City. Results could be available by the end of the week.

About 50 leopard sharks have been found dead in Redwood Shores since mid-April, according to the city. Redwood City is located on the San Francisco Peninsula in Northern California, approximately 25 miles south of San Francisco, and 27 miles north of San Jose.

The leopard shark occurs in the cool to warm-temperate continental waters of the northeastern Pacific Ocean, from Coos Bay, Oregon to Mazatlán, Mexico, including the Gulf of California. It favors muddy or sandy flats within enclosed bays and estuaries, and may also be encountered near kelp beds and rocky reefs, or along the open coast. Numbers have been known to gather near discharges of warm effluent from power plants. ■

Tiger sharks display 'yo-yo' swimming patterns during pursuit of prey

A joint research effort between the University of Hawaii at Mānoa's Hawai'i Institute of Marine Biology(HIMB), University of Tokyo, the Japanese National Institute of Polar Research and the University of Florida has shed new light on the hunting behavior of tiger sharks.

Cosmopolitan predators with large home ranges, tiger sharks consume a wide variety of prey, often moving hundreds of kilometers between oceanic islands and far out into open ocean to fill their resource needs.

In a study conducted off the west coast of Hawaii Island, scientists have been studying their swimming dynamics of the species by equipping four tiger sharks with high-resolution accelerometers (devices that record swimming speed, depth, temperature and acceleration) and digital still cameras. These methods allowed researchers to determine what tiger sharks were doing during vertical movements.

Yo-yo swimming behavior

Many open ocean fishes and sharks exhibit 'yo-yo' swimming patterns (repeatedly climbing and diving through the water while swimming). Scientists hypothesize this behavior may be linked to energy conservation, hunting or navigation. Previous studies indicated tiger sharks engage in yo-yo diving behavior but for reasons that had up to now remained unclear.

New research links swimming events to capture of prey during vertical movements. The accelerometers revealed tiger sharks beat their tails almost continually as they moved up and down through the water, suggesting energy conservation is not the primary reason for yo-yo diving in this species. Camera images showed tiger sharks frequently encountering a potential prey items such as reef and pelagic fishes, with prey fish observed in over 151 images from just one shark alone. One of the monitored sharks was shown to accelerate from the seabed towards a school of fish, remained with it for over 20 minutes.

New insights

"These findings are exciting because they have given us unprecedented new insights into the behavior of these huge and difficult to study marine predators," explained Dr Carl Meyer, a researcher at HIMB and the lead U.S. scientist of the project. Meyer also emphasized the importance of these results "although we have long debated the reasons for the yo-yo diving, we have only recently developed tools allowing us to directly measure the behavior in sufficient detail to understand what these animals are actually doing".

This research has shed new light on hunting behaviors by demonstrating that tiger shark yo-yo diving behavior is not primarily an energy conservation strategy, but a search strategy that effectively combs large three-dimensional spaces for prey. ■

Rare smalltooth sandtiger sharks of El Hierro intrigues scientist

The shark has been observed for five consecutive years in the marine reserve (Reserva Marina de La Restinga—Mar de Las Calmas) off the Canary island of El Hierro

Early August, 2010 the enigmatic smalltooth sand tiger shark was seen for the fifth consecutive year off the coast of El Hierro (Canary Islands, Spain), and the underwater photographer Francis Perez was able to make some of the best observations made so far. He is hoping the elusive sharks will appear again this year.

Since last summer, when the photographer Francis Perez was able to catch some great images of the smalltooth sandtiger shark (*Odontaspis ferox*) the researcher Pedro J. Pascual from the Spanish Institute of Oceanography (IEO) has been preparing to monitor this enigmatic species.

Humble sharks

Pascual did not want to lose the unique opportunity to study the smalltooth sand tiger and, despite financial difficulties to carry out this project, he is preparing to monitor the shark for the possible arrival at the coast of El Hierro.

"Its presence generated an avalanche of divers who wanted to see and photograph the animal," said Pascual.

Pascual, is a shark expert, who has written several books about these animals and is just about finishing one about sharks and rays in the North Atlantic.

"In the beginning, it was very humble, even letting me touch it, and now, when it detects a diver, the shark runs away, and hasn't been seen for several years," Pascual added. It was first observed in El Hierro in 2006, and since then, it has appeared every summer. However, the shark has also been observed in the Canary Islands before.

There have been several catches of this species, especially in the western Canary Islands where the sea floor is are made up by steep and rocky slopes. These catches are usually made at depths around 500 meters deep along insular slopes or underwater mountains. Some specimens are larger than four meters and weigh over 400 kilograms.

The smalltooth sand tiger sightings on the island of El Hierro match the most delicate moment of the species: the birth of their calves. Only females, emerge in coastal waters to give birth their calves every two years.

The smalltooth sand tiger is a species with very slow growth. It can live more than 40 years, his reproduction is biennial and each female gives birth two calves each time, making the moment even more delicate, said Pascual.

Reproduction

The smalltooth sand tiger has an unconventional reproductive strategy. Unlike most fishes, this shark produces very few offspring, but those are independent from birth. He is ovoviviparous, that is, their young are born from an egg but this is developed and hatched in the womb. In addition, the embryos practice the adelfofagia or intrauterine cannibalism; this means that the biggest of the litter is fed by his brothers in the late stages of development. The surviving calf can grow to over a meter after birth.

The delivery has never been observed, and according to Pascual, would be "spectacular" if it could be filmed. Most shark species share the same strategy: they do not give birth where they live. No one knows exactly why, but the most accepted hypothesis is that in this way they avoid predation by other sharks of the same species. The few things that are known about the biology of smalltooth sand tiger is largely by the extrapolation of the knowledge that we have of a close relative: the sand tiger (*Cacharhinus taurus*).

Monitoring

The main project, and the idea that accompanies all its actions, is to raise awareness and convey the idea that sharks are not dangerous enemies and disseminate a clear and unequivocal message that promotes their protection and conservation, Pascual said.

First, the idea is to continue with the identification of the specimens of El Hierro's population, thanks to the exceptional photos and films that the photographer Francis Perez took last summer. Pascual will try, together with the photographer, to observe the birth, research the reproductive seasonality and demonstrate that, as it is thought, it occurs once each two years. In a second phase of these studies, they will mark the specimens sighted with temperature and depth sensors. These instruments provide a continuous record of information that could define the habitat of the animal. ■

Smalltooth Sand Tiger Shark

Despite its extensive, almost worldwide, distribution in tropical and warm temperate waters, the smalltooth sand tiger shark (*Odontaspis ferox*) populations and occurrences are fragmented, and the species may be naturally rare.

Records show a very disjunct distribution throughout most of the world's oceans. This rare shark, included in the IUCN Red List as vulnerable, usually lives at depths between 400 and 1,000 metres. They usually inhabit deepwater rocky habitats, though they are occasionally encountered in shallow water, and have been known to return to the same location year after year.

Mediterranean sites apparently favoured by *O. ferox* are typically located either along the coasts of islands lying contiguous to deepwater, near offshore seamounts or at mainland localities where continental shelves are narrow, e.g., within the Tyrrhenian Sea, around Sicily, off south-western Malta, off Lebanon, off the southern coast of Cyprus, and around the Dodecanese and Cyclades island groups of the Aegean Sea.

The shark is now repeatedly observed by divers near Beirut. There have also been unconfirmed, but reliable, reports by divers of small aggregations of smalltooth sand tigers off the Transkei coast in South Africa. These sightings have been in depths of 20-30m in areas of deepwater drop-offs. ■