Black Corals of La Palma

by Glenn Lawyer

The edge of the reef is 100 meters off the beach. A brisk surface swim brings us to the buoy. We follow the rope down to the mooring, 22 meters below. Three meters further west the bottom falls away, descending from 25 meters to more than 70. The first bushy shapes appear, ghost-like, at 35 meters. Soon they turn into a forest, continuing down well past the limits that sane divers respect.

These are the black corals of La Palma, Antipatharia Wollastoni. In the light of the torch, however, they are orange, or sometimes red. This color comes from living tissue which connects the individual polyps, covering their chitinous skeleton. Each polyp has 6 unbranched tentacles. The polyps are fully exposed. They are unable to retract, and receive no structural protection from the skeleton. Their only defence against current is a slight, weak contraction.

It is the skeleton which is black. It is composed of multiple layers of helically wound chitin fibers, anchored to a framework of fine spines. This arrangements provides great strength along with some flexibility. The fibers in the helical winding have similar alignment which prevents cracking or buckling when twisted or bent. The skeleton is less rigid than wood, while having a density between that of wood and shell. They sway most gracefully in currents and eddies.

The skeleton has motivated a centuries-old harvest for the jewelry trade. Not only does it polish to a beautiful sheen, but it was once considered to ward off disease. The name Antipatharia is derived from its supposed anti pathogenic properties. The Mediterranean species, A.

The west coast of La Palma., f/11.0, 1/640, Canon 17-85 mm, aperture priority; ISO 200; Canon 20d

(Right) The skeleton has motivated a centuries-old harvest for the jewelry trade. Not only does it polish to a beautiful sheen, but it was once considered to ward off disease. f/11.0 (1/60), Tokina 10-17, manual exposure; ISO 200; Canon 20d; Aquatica A20; single Inon z240

These are the black corals of La Palma, Antipatharia Wollastoni. In the light of the torch, however, they are orange, or sometimes red. This color comes from living tissue which connects the individual polyps, covering their chitinous skeleton. f/9.0 (1/160), Tokina 10-17, manual exposure; ISO 200; Canon 20d; Aquatica A20; single Inon z240

These dead branches are almost always colonized by encrusting anemones. f/11.0 (1/160), Canon 100mm macro, manual exposure; ISO 200; Canon 20d; Aquatica A20; single Inon z240

Living Antipatharias seem to have few commensals. This is difficult to explain, as their dense, branching structure seems to offer ideal cover for small fish. f/11.0 (1/160) Canon 100mm macro manual exposure; ISO 200; Canon 20; Aquatica A20; single Inon z240.

subpinnata, has for some time been extremely rare shallower than 70 meters. Not all the news is bad, however. Scientists at Italy's Institute for Environmental Protection and Research (ISPRA) recently found almost 30,000 colonies of A. subpinnata coral at a depth of between 55 and 100 meters (180 and 328 feet) in the Strait of Messina. Here they are continually fed by the passing currents, which in the old days were personified by the monsters Scylla and Charybdis.

The corals in La Palma are healthy and abundant. Juveniles were common as were many larger specimens as much as a meter wide. I hesitate to guess at their age, though if their growth is similar to the California Christmas tree coral (A. dendrochristos), they are probably less than 100 years old. A different species of black coral, which grows in the depths of the abyss, was recently shown to live for over 4,000 years by EB Roark et. al at Stanford University ("Extreme longevity in proteinaceous deep-sea corals"). Over 250 species of black coral are known, with many of these found in depths below 1000 meters. All, including the relatively shallow-dwelling Antipatharias, lack symbiotic algae. They do not need the sun to generate food, and in fact appear to not tolerate sunlight very well. A. Wollastoni is generally found only below 35 meters, though some exceptions are reported in the shadow of overhangs at 20 meters in Tenerife.

Some of the larger specimens on La Palma are covered in what appears to be grey dust. It may be sediment which has washed down the reef face, as it appears more common on the shallower corals. We did not see much of this below 42 meters, nor does one see it at all dive sites around the island. We did not test the sediment hypothesis, however, and other explanations are possible. It could, possibly, be the residue of the tissue which once covered the skeleton.

On many of the coral, a single central branch had died, leaving the side colonies alive. These dead

branches are almost always colonized by encrusting anemones, which Georg identified as Zoanthidea Gerardia by its horned skeleton-- Georg's early training as a biologist has never left him. Interestingly in light of the recent discovery of the lifespan of black corals, a 1995 article measuring the age of Gerardias collected from 620 meters depth off the Bahamas banks found their age to be 1800 +/- 300 years ("Gerardia: Bristlecone pine of the deep-sea?", by Ellen Druffel et al.).

I was not able to learn if the anemone killed the coral, or only took advantage of already dead branches. In most cases they appeared to co-exist, with both species appearing healthy. The ocean, however, is a battleground. As the coral dies, the anemone moves in. The skeleton of a fully dead coral can be totally encrusted with the anemone. While the Z. Gerardia is the most common resident of dead coral, it is not the only one. One coral had a white bloom, reminiscent of a chrysanthemum.

Living Antipatharias seem to have few commensals. This is difficult to explain,as their dense, branching structure seems to offer ideal cover for small fish. The lack of commensals was also observed in the California corals, at depths of 90--300 meters. Direct observation from a submarine lead Dr. Milton Love of USCSB to conclude that only 15% of live colonies had invertebrates living among the polyps.

Contradicting this finding is the claim that a commensal shrimp, the Periclimenes Wirtzi, is fairly common on A. Wollastoni in the Azores, at depths of 30-40 meters. I spoke with Dr. Cedric d'Udekem at the Royal Belgian Institute of Natural Sciences, who wrote the first scientific description of the species in 1996 (naming it after Peter Wirtz, who collected the samples). He said that in the Azores each black coral is usually occupied by at least a few P. Wirtzi, and sometimes by hundreds.

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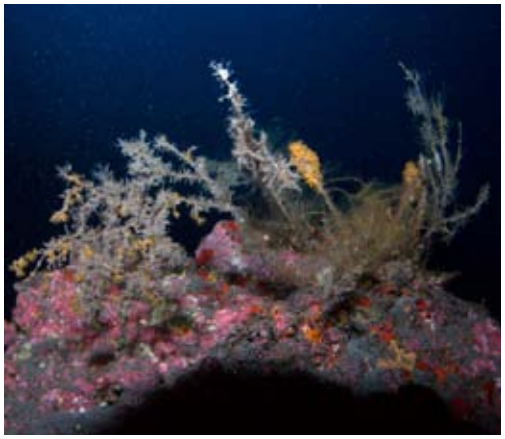
Nonetheless, Georg says he has never seen one in La Palma, adding wryly that perhaps he should spend more time looking for 1cm long clear-bodied shrimp and less time watching the divers he is escorting.

Almost every article I found on the black coral, and they were few, remarked that little is known about them. One article backed up this claim by citing two additional sources. Though I would like to know more facts about the coral, it isn't book knowledge I am after. They are enchanting, wondrous, waving me down into the deeps. I wish I could stay longer, and one day I will.

Photographing A. Wollastoni is easy. They are abundant below 35 meters and don't move much. Past 40 meters attractive subjects are everywhere. Good photographs, however, are more challenging. The depth limits the time available, and (at least in my case) slows and confuses the thoughts. I try to plan my shots before I go into the water, and make the final settings of my rig (strobe placement, shutter/aperture) while still shallow. Natural light at those depths has no color, making a strobe essential. My slowness of thought made it difficult to judge proper exposures. I have a nice collection of photos showing coral backlit with horribly blown



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out sunbursts from depths of 45+ meters. Next time I will use exposure bracketing. The confusion of thought, and the dearth of commesural species, makes wide-angle easier than macro. Macro requires too much thought to find and frame the perfect single branch, even when the shot was planned ahead. Bashing a dome port into the lava near the base of a coral bush is much simpler, and likely to capture the entire coral lit orange against the blue background water (provided the lens is 17mm or wider). I hear the scratches can be polished out.

The depth should not frighten nor discourage you. The dives are shore dives, making safe profiles easy even for those without advanced technical dive training. Georg is a skilled and conservative guide. He is a three-star CMAS instructor, supplemented by a great deal of technical diving training and experience.

Georg and Barbara were my gracious guides during this and many other excursions to the underwater wonders of La Palma. Georg has operated Tauch Partner La Palma dive center since 2005, and has been diving La Palma since 1991. I have been diving here since 2003, and exclusively with Georg since he took over the shop.

Glenn Lawyer

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Parting Shot 1

Jacques Cousteau reportedly proclaimed Ginnie Springs as “the clearest water on earth”. Ginnie Springs, located near Gainesville, Florida, has four diveable springs – the Ginnie ballroom, the Devil’s Ear, the Devil’s Eye, Little Devil, and Dogwood spring. The Devil’s system is a cave diver’s paradise with 30,000 feet of tunnels, but the springs are also a very popular site for open water divers.

The most popular spring, the Ginnie Ballroom, is a cavern whose entrance begins in about eighteen feet of water. The opening is about six feet in width and immediately opens into a thirty foot chamber with a nine foot ceiling. Then there is a large sloping room of approximately 60 feet by 70 feet which angles downward to a depth of 60 feet. A large grate prevents divers from entering the cave system.

The Devil’s Eye is a round shaft of limestone that begins in about six feet of water and drops to 20 feet where it meets the cave entrance. The Devil’s Eye connects to the Devil’s Ear, another entrance into the cave system at the river’s edge. The third spring, Little Devil is a forty foot long fissure that drops to forty five feet. For safety reasons, only certified cavern or cave divers are allowed to dive with lights in the Devil’s Spring system.

Dogwood Spring is a small spring around 12 feet deep and is primarily enjoyed by snorkelers.

All of these springs have been incorporated into one of Florida’s best camping and recreational parks, complete with bathrooms, hot showers, a full service dive shop, and a country store.

Canon 40D, Aquatica housing, Tokina 10-17 lens at 10mm, f10, 1/640 sec, ISO 200, ambient light

The springs here are a year round 72 degrees and flow into the Santa Fe River which often flows dark with tannin. The tannin in the river contrasts with the crystal clear water exiting the springs making for beautiful photography. The accompanying photograph was taken after exiting a cave dive from the Devil’s Ear spring shooting up into the river with the diver silhouetted against the noonday sun.

Douglas Ebersole
www.debersole.com

Parting Shots 2

I was lucky enough to have the time and money to join Alex Mustard in Indonesia earlier this year. A predominantly British group travelled out to the Lembeh strait, where we were later joined by a few more divers and headed east in a small and somewhat rickety turboprop aircraft to the wonders of Raja Ampat.

This is the story of the first week, in Lembeh:

The Lembeh Resort sits facing the volcanoes of the large island of Sulawesi, which are almost enough, at sunset, to distract the keenest underwater photographer from the delights hidden in the volcanic muck of the strait itself (frogfish, lacy Ambon scorpionfish and mating mimic octopus, to mention but a little of what we found). It was the first time in such "critter" richness for me, but my obsession was with the mandarinfish…

Now, I've visited Mabul in Malaysian Borneo, and missed the mandarinfish there, so they became another of my "if only I could get a shot of that" wish-list. I'm pretty sure that most photographers end up haunted by these wish-lists.

… anyway, five minutes' swim from the showers at Lembeh resort is a thicket of fine stag coral that is home to a community of mandarinfish, pyjama cardinalfish and banded pipefish. The perfect opportunity to shorten my wish-list! Or so I thought…

Mandarinfish perform in the evening, darting out of the coral in mating pairs; there is about a second to grab a shot in the failing light as the sun hides behind the volcanoes.

On the first night I took a 105mm micro-Nikkor lens to capture the small mandarinfish:

fantastic! For about ten minutes the mandarins were shooting out of the coral, spawning, and dashing back… except that my red focus light completely failed to work with the long lens and my D200. Great dive, no images.

On the second night I was determined: I missed a great dive out in the strait, but the mandarins were going to be mine: 60mm lens, fast AF, I knew where the fish were, great! Except for two divers with video… which need bright, white lights, and if there is one thing that mandarinfish do not like, it's bright light. So, no fish at all.

On the third night, despite the absence of video, there weren't any fish near me: over there, yes, and then if I moved, back where I had been, but in front of my lens? No, none at all.

By this time the other members of the team were a bit worried, after all, everyone has pictures of mandarinfish, haven't they? I succumbed to the octopus, squid, scorpionfish, frogfish that were keeping everyone else entertained. But, there was the wish-list…

… one night remaining, I went back to the coral thicket. A little flicker of movement, a hint of blue and orange: there, in the depths of the coral a large male. Was there a female? Yes! Slowly

moving through the dusky water… a fraction of a second later rushing a few centimetres above the coral spines, in the viewfinder, flash! One shot.

That was it, six-and-half hours, and one shot.

And the volcano sunset was there every night, at the same time, before the night dives that I missed because of mandarinfish obsession.

Tim Priest

Parting Shot 3

The island of Niihau is located 17 miles southwest of Kauai, and is often referred to as Hawaii's "forbidden island". It's been largely off limits to visitors since 1864, when Elizabeth Sinclair purchased the island from King Kamehameha V.

Niihau has remained in the ownership of her descendants (the Robinsons), who've attempted to preserve the Hawaiian culture and language among the small population by preventing any influx of settlers from the outside world.

As the waters around Niihau aren't privately owned, anyone can visit on a boat provided they don't actually land. To get out there, you must base yourself on Kauai, and be prepared for early starts and a possibly rough crossing of the Kaulakahi Channel of 1.5 to 2 hours outbound and up to 2.5 hours on the return leg. Most of the dive sites are centred around Lehua Rock, a spectacular semi-submerged crater located off Niihau's north east.

We knew from our research that we'd have "a chance" of Hawaiian Monk Seal encounters in these waters and at best we hoped for a swift "fly past". However, our expectations were raised during the dive briefing for Vertical Awareness (which as the name suggests, is a vertigo inducing wall dive) when the dive guides explained how to behave around the seals.

Although sometimes curious of divers, Hawaiian Monk Seals are often skittish and wary, and are more likely to stick around if divers don't swim directly at them. Instead, a slower and more "meandering" approach tends to be more successful and if you're able to get close, it's a good idea to ensure that the seal has enough space to make an exit. Sporadic rather than constant eye contact were also considered good advice as it's thought that the seals finds it less threatening.

And so, we were treated to some amazing Hawaiian Monk Seal encounters, most memorably at Vertical Awareness where we were able to approach to within touching distance of one individual whilst it rested on the rocky plateau close to the wall.

Every few minutes, the seal would surface for air and return to the same spot. In this image, the seal appears to be "laughing" at Scott, one of the dive guides. Sometimes, the "monk" (as some locals call them) would vocalize with a throaty growl which is thought be territorial before relaxing to check out its own reflection in my dome port as I tentatively edged closer. Even the crew considered our encounter very special.

Nikon D200/Subal housing combination with a 10.5mm fisheye and Subtronic strobe. Settings were 1/40th, f8 and ISO100.

The "forbidden island" of Niihau is the "wild frontier" of diving in the Hawaiian Islands and rewards the visitor with some spectacular underwater experiences. It's truly world class and full of photographic potential. And it's probably the best place to get encounters with one of world's most endangered marine mammals, the Hawaiian Monk Seal.

Jeremy Cuff
www.ja-universe.com

Do you have a nice shot with a short story behind it?
If so e mail me
and yours could be the next "Parting shot".
peter@uwpmag.com

Canon D10

by Rob Spray

This is one camera which pictures don't do justice. As soon as you pick it up the bulbous curves fit into your hands the way a cuboid just can't. It's Canon's first waterproof digital camera, back last century they had APS snorkelling models but it's been a long dry spell. Interestingly they haven't toyed with more conservative ratings, the D10 is rated to a market leading 10m (i.e. Olympus matching). It sits at the top of a range of one! Price and size wise it's top of the market too. The name is odd, fitting the scheme Canon uses for SLRs but there's absolutely no chance of confusion in the flesh!

Appearance dominates a first encounter with the D10. There's plenty of shiny bits, exposed stainless fasteners and all those curves to play in the light. It takes a while to spot that while there is metal, the vast majority of the body is painted plastic, so the beautiful finish may suffer from bumps and scrapes. The internal frame is metal allowing the most extrovert flourish on the D10, lanyard fixing points at each corner. Real statement pieces of machining these allow the camera to be attached to an amazing cast, locking 'nipple' in three ways more than necessary.

The rating puts it head to head with the third 10m Olympus model, the TOUGH 8000. It seems quite clear that Canon have taken note of their experience and the D10 seals look very impressive. The waterproofing of the D10 takes a slightly different tack from the Olympus. Both have two hatches and on both the smaller has just a lipped gasket but the larger is fitted with a real 'o'ring on the D10 where Olympus stick with a larger lipped rubber gasket. Both work fine, we can confirm that both are effective to double their rated depth. The 'o' ring will be more fiddly to clean and should be lightly greased, which makes debris stick to it...

The two companies have chosen different basis of their designs with the D10 quite conventional within its Faberge egg casing and Olympus using folded optics, lots more exterior metal and more of a Rolex motif. The use of a conventional lens has both strengths and weaknesses. The Canon lens is brighter, at f2.8, than any competitor but has more limited range and less effective macro. Close up the protruding lens casts flash shadows on small subjects, this vignetting is increased by a stout aluminium ring which secures the front port and could so easily have been threaded for filters and extra lenses. As the case must rigidly cover the lens in all positions

it cannot retract so the D10 isn't a true pocket camera, unless you want to enjoy some Carry On humour of course :-) The 3x zoom starting at the equivalent of 35mm is the least flexible lens in this part of the market with many competitors starting at 28mm.

Putting what seems to be a Powershot chassis into a case instantly benefits from the development of that very successful line and the D10 is fast and logical to use. Like the Olympi it assumes you will probably use Auto or Program and keeps its welter of scene modes accessible but compact. Shooting video is given top level status rather than hidden which is a good choice given the likely use of the D10 for family holidays.

The control layout of the D10 will be familiar to anyone who has tried a Canon Powershot, bar the use of buttons for zoom control and mode switching - instead of hard to seal dials and sliders. The ergonomics are easy to figure out and the two button for the two level – picture and system

– menu is a treat after digging through some others. Its a shame that macro is always its second focus choice after landscape as I'm a fiend for small stuff and I'm not sure I've ever been so surprised by a mountain that I needed that option first under my trigger finger.

Unlike a lot of compacts these days the D10 has no internal memory for pictures. Surprisingly there's no small card in the box either, bear this in mind if you plan to present one as a gift.

As we went on we had to keep lowering our expectations on battery life, days underwater really do drain it when you use flash and have the screen on for long periods. In use which included quite a lot of menu hopping and flash use we managed 140-160 shots per charge, not very impressive. As usual with a small camera a spare battery is part of the kit you'll want for a day out.

There's no case supplied, which is a shame as that groovy paint job deserves protection. Given the price a neoprene slip case would have been a great addition to the package – and help the camera float if it falls out of reach, it sinks on its own! I assume other colours will become available as the current splash of blue is a separate panel.

In water it's strange to handle a 'naked' camera, much easier to see the control markings than one which is housed. With bare hands the cluster of small buttons isn't a problem but in colder water any gloves make it hard to feel those which are recessed beside the screen. The soap-like shape is also predictably slippery in gloved hands. The lanyard 'nipple' can be moved to suit your grip but can't be said to make a vast difference.

I'm pleased to say the D10 returned some good looking results from its first dive. The default program setting allowed it to use a fast enough shutter and strong enough flash so that the vivid underwater world of the Dutch oyster beds lit up in all their surprising glory. What was more surprising was that the D10 didn't struggle to focus in the cloudy, albeit bright shallow waters. Even at macro distances it was quite straightforward to get sharp results. The one fly in the ointment is that with the projecting lens surround and flash set well back, subjects less than 15cm away are masked from the flash. However as the working distance stays at 30cm throughout the zoom range (the minimum 3cm minimum distance is available only at fully wide) it is still practical to photograph quite small animals, although focus is more ponderous at telephoto. The easy access to video shooting makes it simple to capture clips to show friends. The clips are

Dawn really took to the D10, though it's tricky to use in gloves

fine but with many cameras offering HD capture its a shame that the D10 only offers VGA. Still camera video is still a bit of a novelty but this is fine for YouTube to show the lobster that went for you! Each 1 minute of video takes the place of about 40 full size photos, so even with just a 1 GB card you have room for about 12 minutes of video (or 340 pictures).

I suspect for many people using exactly the same camera underwater, with no housing, might get them past the mental block some have about submerged photography and ease them into this hobby. The 10m depth limit is going to cramp your style for a lot of diving but a tropical snorkeller could get great use out of. The screen is bright and contrasty making use in the shallows quite practical and sharp enough that the option to enlarge the screen centre as focus confirmation was genuinely useful.

At low ISO pictures are very good but noise reduction creeps in fast as film speed increases. Image stabilisation means the D10 can hold

Some of the reef residents are quite feisty

It was good going for a compact to catch these arguing fish

This crops shows the excellent low ISO detail

low ISO longer and controls what noise there is well. Shots at ISO50-160 are really very sharp, beyond ISO200 you won't enjoy all your 12 Megapixels as detail is reduced. This is done well and for most uses high ISO turns out attractive results. On the surface the D10 seemed slightly too liberal in handling highlights, quite willing to burnout even central detail to keep the overall exposure on track. For the most part that produced punchy photos but occasionally faces would get the treatment and spoil a picture. My girlfriend, who abhors all things technical, found the menus easy but was annoyed that every power cycle dropped her settings for macro and zoom.

The lanyard nipple system offers plenty of choice, which is marvellous of course, but why make it like a bar of soap to start with? A few bumps or some rubber on the right hand side would have worked wonders and also protected the case. In common with a lot of cameras it would have been sensible to raise or dimple the shutter button to make it easier to find with cold and/or gloved hands.

It's very easy to be seduced by the looks of the D10 and assume it's just a good time Charlie, a toy. Underneath the sexy skin is a nice, amenable camera of the kind you would have been very happy to use a year or so ago before everything had to be complicated. That's not to say it isn't capable, the 12 Megapixel sensor produces clean, sharp pictures on and under water which you could make into posters. The user interface is the best kind of simple which means you can take advantage of those moments you bought a waterproof camera to capture.

Pros: Great looks, good results straight away underwater, easy menu ergonomics and flexible modes

Cons: Protruding lens bulky and masks macro flash, no case, easily scraped, extrovert nipple! Below average battery life. Auto power off short.

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