UNDERWATER PHOTOGRAPHY

Safety Stop, Blue Hole, Dahab, Egypt
Canon G16 (Fixed Lens)
f5, 1/125sec, ISO 80

Underwater photographer, videographer and dive instructor, ***JAMIE HALL***, explains some of the skills needed to minimise the impact on marine life when diving, coupled with some helpful techniques to get your own spectacular underwater photos

Underwater Photography

In 2015, I was asked by a friend if I would like to do some underwater photography and videography for a conservation team that were removing some 'ghost gear' (abandoned fishing nets and other marine debris which threatens marine life) from the local harbour in Wellington, New Zealand. Little did I know, this was to be the start of my underwater photography journey.

Since I was a teenager, I'd taken photos and videos of my holidays and done some basic editing, but I didn't have a passion for it at that time. However, once I was underwater with a camera in my hand, everything changed. As a dive instructor, I've been blessed to experience some amazing and wonderful interactions with underwater wildlife. Friends and family would often ask questions and want to know more about some of the encounters, which led me to capture some of these moments to share.

Blue Tiger, Roatan, Honduras
Canon G16 (Fixed Lens)
f7.1, 1/1200sec, ISO 80

There are, of course, some unique challenges with underwater photography. The greatest challenge, without doubt, comes down to one thing; your ability as a diver. I was fortunate enough to have a good foundation, with a few hundred dives under my belt, and experience of diving in quite a few places around the world, but this alone is not enough.

In all wildlife photography I think one, if not the most, important aspect is care and consideration for the wildlife. Whilst on land, or 'topside' as it's often referred to, this doesn't usually pose as much of a problem. On land, big zoom lenses are obviously integral to getting some of the wildlife you are shooting and the animals generally have plenty of space around them. However, when shooting underwater, especially in places abundant with marine life (like Egypt and the Red Sea for example), you will generally find that your subjects tend to be closer in proximity, especially those which take shelter in or around rocks, sand and other surfaces. Therefore, my work leans more towards macro photography, although I do shoot some wider images, such as shipwrecks and other large structures.

Whilst underwater, one of the keys to getting good, close-up shots is to have control over your position and buoyancy in the water, not just in order to slowly approach the subject, but often to negotiate obstacles; mostly marine life, but also moderate-to-life-threatening dangers.

The 'observer effect' (a physics term that can be applied to many things and certainly wildlife) is always on my

Glad Rags, Roatan, Honduras
Canon G16 (Fixed Lens)
f8, 1/125sec, ISO 80

mind. It is the theory that the mere observation of the phenomenon, in this case marine life, inevitably changes its behaviour; the very fact you are viewing the creature means that you are most likely altering their state in some manner. An example of this would be that it is not possible to see any object without light hitting it and causing it to reflect that light. While the effects of observation are often negligible, the object still experiences a change.

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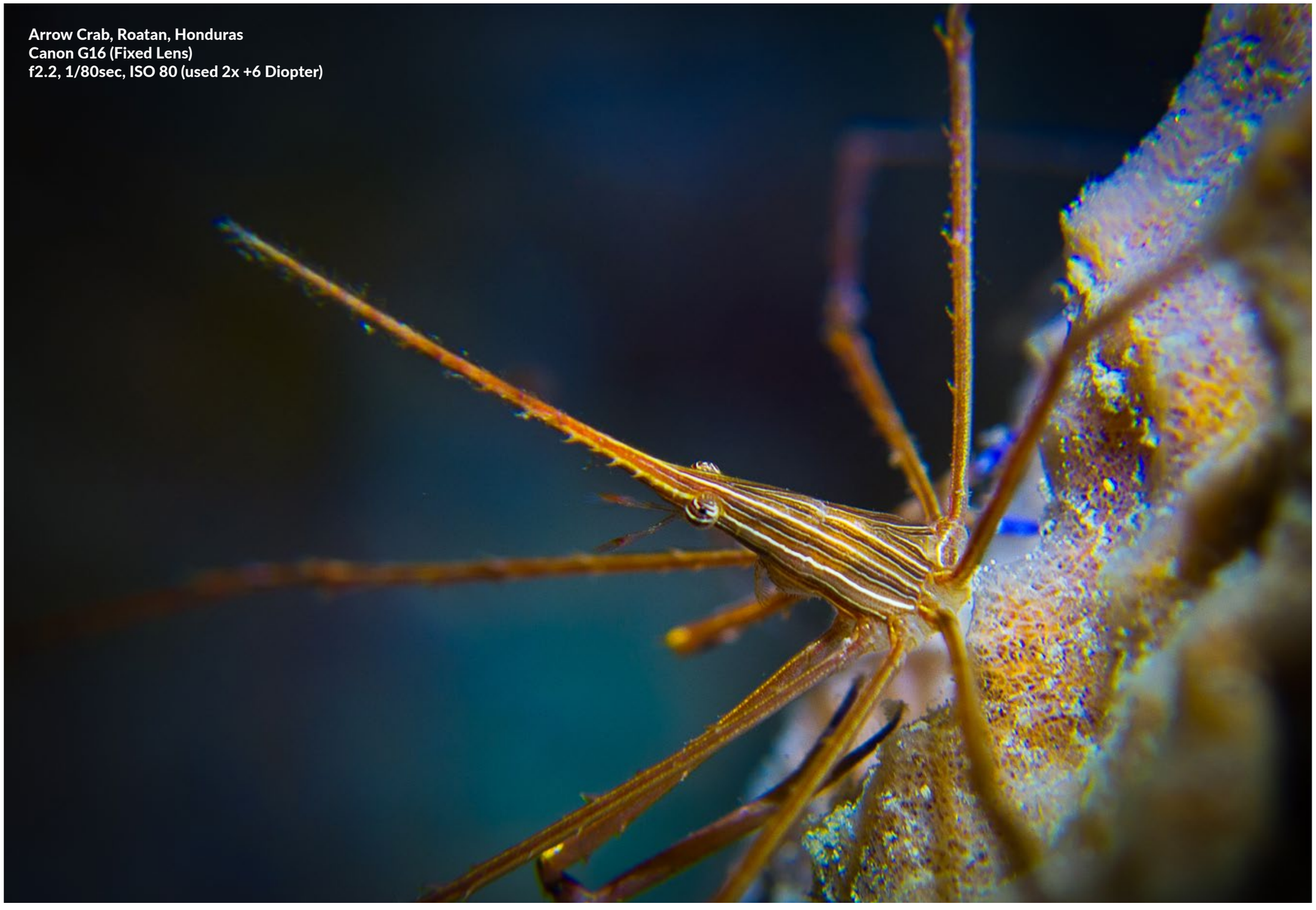
Unfortunately, it is common to see new or inexperienced divers take in a camera, or GoPro, and disturb the marine life or cause damage to corals that they either haven't noticed or had the skill to avoid. This is heartbreaking because of the time it takes coral to regenerate.

When instructing or guiding underwater, all dives are proceeded by a dive briefing. My briefings lean towards being mindful of buoyancy and not disturbing or damaging the marine life. There is a saying within the dive community; "Take only pictures, leave only bubbles".

In most oceans and seas there is life that can cause you harm, but ninety-nine percent of it can be avoided with care and consideration. On one end of the scale there are simple things such as fire coral, which is comparable to a stinging nettle on steroids, although unlikely to cause any serious damage. On the opposite end of the scale, in some oceans you have the infamous box jellyfish, whose sting can be fatal, or the lesser-known hazard of stonefish, who sit motionless and camouflaged on rocks and sand. With venomous spikes running along their spine, touching, or just leaning on one, can be potentially fatal. Unfortunately, almost all issues are caused by diver error.



Arrow Crab, Roatan, Honduras
Canon G16 (Fixed Lens)
f2.2, 1/80sec, ISO 80 (used 2x +6 Diopter)

Marine life can appear from anywhere when you're diving; it can be buried in the sand, sitting on a rock perfectly camouflaged, hidden in a small crevice and even lurking above you. While floating neutrally buoyant (neither ascending or descending), you need to have your eyes covering more than a full three-hundred-and-sixty degrees. This is navigating in space; the hemisphere of awareness as we look around us when we are on land doubles and becomes a sphere. When you enter the water, there's everything underneath and above you too. I am forever looking up to the surface, down to the ocean bed, or turning one-hundred-and-eighty

Black Grouper, Roatan Honduras
Canon G16, Fixed Lens,
f7.1, 1/160sec, ISO 80

Winged Soldier, Sharm El Sheikh, Egypt
Canon G16 (Fixed Lens)
f6.3, 1/250sec, ISO 80

degrees to see what's behind me, constantly shifting focus, trying to spot something out 'in the blue' or hiding itself within the surroundings.

A good diving skill is the ability to maintain neutral buoyancy by making tiny adjustments to your position using subtle fin-kicks and breath control. With these elements mastered, you can slowly approach your subject without causing a disturbance and have a better understanding and awareness of your surroundings and what you may come in contact with.

Once comfortable in your ability, you need to master the second element; multitasking or 'task loading', which takes a lot of practice. Most experienced photographers will find shooting on the manual setting to be second-nature, but it does involve some concentration. Maintaining your position in the water, whilst keeping a consistent breathing pattern and adjusting your cameras settings all at the same time, is where things start to get tricky.

The greatest challenge, without doubt, comes down to one thing; your ability as a diver.

The biggest element to all photography is light and this is no different underwater, however, there are elements that makes underwater photography almost an entirely different language. The biggest difference is in the light spectrum; light breaks down into three primary colours - red, blue and green. As you start to descend in the water, red is the first to be absorbed, followed by orange and yellow. The colours disappear underwater in the same order as they appear in the colour spectrum. Even water at a depth of five feet will have a noticeable loss of red. This explains why you see things in a blue or green scale when you are snorkelling, looking down or watching underwater footage, depending where it is taken. The deeper you go, the darker and more prominent the blue will look, and the more significant the loss of the red end of the spectrum.

Often a big, blue scene is desirable for an underwater photo, especially wider shots. A full blue scaled image can be beautifully atmospheric and give a great sense of the underwater world. However, if you are shooting wildlife you will want to capture those vibrant 'out of this world' colourations that you can find on the ocean-dwelling species. To capture those colours, we have two main options; white balance, or adding light.

Most cameras will have a white balance setting and will do a reasonable job, especially in shallow water, at around five-to-ten metres (fifteen-to-thirty feet). When deeper, at thirty metres (ninety feet) or more, you are only going to be able to add so much red to your images with white balancing. The preferred option is to use an underwater flash or 'strobe'. By adding a light source, you re-introduce the red light and get much more accurate colour representations. With a topside flash, your light will only travel so far. Even the top-of-the-range underwater strobes will be quite limited in scope. Most underwater photographers opt for a wide-angle lens, allowing them to

get closer to the subject and ultimately cast more light over a greater area, giving a better colour range.

When shooting macro underwater, you don't need a huge amount of light at all. Prior to investing in a good underwater strobe, I used my camera's internal flash with an attached diffuser. This is a great set-up, as it spreads the light nice and evenly, allowing me to get some stunning close-up images of some of the smaller inhabitants.

Post-processing underwater images can be very different too. Although in both topside and underwater images you try to balance the colours as accurately as possible, using an added light source means that you have a significant inconsistency; the parts of the image in the foreground are going to have nice accurate colours which is great, but everything five-to-ten metres away is going to have a blue hue. The real struggle is the in-between, which can be a minefield. More often than not, you will have a fringing aqua and green colour and, although sometimes this fits fine, I generally find the transition to look unnatural or undesirable. Herein lies the seemingly never-ending process of trying to balance or correct the colours. I'm not sure that all photographers share the same hang-up but, on my depth-of-field shots where I have a clear fore, mid and background, I have likely spent too much time trying to get the colours how I want them and looking natural.

All-in-all, there are some huge advantages to capturing wildlife underwater. A good majority of marine life will allow you to get up close and personal. Shooting wildlife on land often has a proximity challenge; as you approach, they cut and run. Although this is true of a lot of marine life, diving in warmer tropical waters often has the feeling that you are in an aquarium surrounded by fish. This is one of the reasons why I love underwater photography so much; I genuinely feel as though I am sharing the water with its inhabitants. Sometimes I will be engulfed by schooling fish, or a large predator, or ray, will swoop by. The ocean is largely unpredictable; both with the conditions and what you are likely to encounter, making it very exciting. You never know what might appear and sometimes it can really take your breath away.

JAMIE HALL

A full-time scuba dive instructor, Jamie is also a part-time travel and underwater photographer and a passionate ocean conservationist. His aim is to share the beauty of the marine environment and its inhabitants in the hope of improving worldwide ocean health and also through raising awareness and education.