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Text and photos by Lawson Wood

Close-up or macro photography is a specialized form of underwater photography where the camera lens is positioned very close to a subject, or is able to zoom into the subject, to record a relatively large image in high magnification of the original subject. It is personally recommended that you start underwater photography with a macro system; this is because it is undoubtedly the easiest form of underwater photography. Frustrations common to many other types of photography are minimized, and very soon, you will be amazed by the sharp images and vibrant colours that only macro photography produces. What I learned very quickly, all those years ago, was that by concentrating on close-up and macro photography, you soon picked up the nuances of composition—and the smaller the subject, the more concentrated the field of view and more concentrated the compositional techniques required to frame the subject and expose it properly, whilst not stressing the creature or yourself!

Close-Up & Macro



Coleman's Shrimp (*Periclimenes colemani*), Tulamben, Bali, Indonesia. 60mm lens, ISO 100, Twin Sea & Sea YS110 flash, 1/125th second at F8





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The different perspective that macro photography gives, opens up a whole new world of tiny animals and plants not normally seen during average diving conditions. Your eyes get trained very quickly into finding creatures small enough to fit into the format you are using, and what were once boring dives on gravel beds or sandy bottoms or under jetties, now yield a wealth of life. *Muck diving* has now become a way of life for many of us and is discussed in the next issue. But remember that muck diving was invented in the Scottish Sea Lochs!

Benefits of macro photography

- Managed with any camera system
- A different perspective
- High magnification
- Maximum colour saturation
- Sharp focus
- Ease of learning and execution
- Can be done anywhere, under almost any conditions
- Easiest to use on night dives
- Greatest return for the least investment
- Least amount or chance of backscatter

Very quickly you can almost become an expert overnight, but the pursuit of underwater images is a life-long experience. You can achieve very good pictures very quickly and steadily improve your techniques as you learn more about composition. The great



LEFT: Whip coral shrimp (*Dasycaaris zanzibarica*) Lembeh Straits, North Sulawesi, Indonesia. 105mm lens, ISO 100, Twin Sea & Sea YS110 flash, 125th sec at F:16

surprising and breathtaking because of the revelation of exquisite detail and fine colour not normally seen to the naked eye.

Macro photography is also incredibly easy with a compact point-and-shoot camera. I use a Canon Power Shot S95 and combined in its specific waterproof housing also made by the camera manufacturer, the macro setting, combined with the zoom magnification allows me to use the camera's internal flash, which is strong enough to illuminate the subject without the additional

expense of more equipment. Look for the macro setting on your compact camera; this normally uses the 'flower' symbol.

Macro photography is the easiest of all to learn because invariably not only can you preset the aperture function, you can also set your camera for the closest magnification, particularly with compact cameras, which are able to utilize additional supplementary close-up lenses.

Compact cameras have great optics, and most actually have macro settings pre-built into their software. They also do not need external flash systems for this type of photography, as the camera's internal flash is more than adequate, but as already mentioned, only on the zoom setting, as the camera housing's structure may

thing about the Live View screen on all new underwater cameras is that you are able to learn and correct as you go. Remember that you are able to review your images immediately after, so you are still in the same place at the right time to allow you to correct the mistakes as you go. [Do not edit out or delete your mistakes immediately, rather look at them on a large screen and study where you go wrong and what you did to make it more pleasing to your critical eye].

The most striking aspect of macro photography is the high magnification. The subject to digital file ratio may be actual or twice life size, but when viewed on the screen as part of a digital 'slide show' presentation, the reproduction may be as much as 50 times life size. The richest and

most striking colours to be found in underwater photography are also found in macro photography. This benefit is due to two factors: strong flash illumination and very little colour filtration by the water. The distance between the lens and the camera subject may be between 3-20cm and the subject to flash distance of 35cm or less. This means that the light reflected back into the camera is virtually unaffected by the colour filtration effect of the water, and therefore, the purity of the colour is much higher and easily on a par with macro photography on land. In fact, I have been accused of taking some of my underwater macro subjects in an aquarium on land! The brightness of the flash will account for an aperture setting of between F16 - F32 allowing for the greatest

depth of field. The flash brings out all the highlights and tones not normally seen in other forms of underwater photography.

Macro photography also produces sharp focus. When dealing with a small aperture of F16 - F22 on a large Dslr (Digital Single Lens Reflex) with 12+ megapixels available in waterproof housings and illuminated by strong flash, the maximum depth of field can be obtained. The results are often



Black-striped blenny (*Escenius dentax*), Marsa Alam, Red Sea. 105mm lens, ISO 100, Twin Sea & Sea YS110 Flash, 1/100th second at F:11

Macro





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RIGHT: Eye of a zebra lionfish (*Dendrochirus zebra*) Sipadan Island, Borneo. 60mm lens, ISO 100, Twin Sea & Sea YS110 Flash, 1/100th second at F:16



BELOW: Orange-sided goby (*Gobiosoma dilepsis*), Cayman Brac, Cayman Islands. 105mm lens, ISO 100, Twin Sea & Sea YS110 Flash, 1/80th second at F:16

create a shadow where you least want it.

Most underwater photographers using housed Dslr's and ICL's (Interchangeable Camera Lens) opt for an auto-focus system built around the 55mm, 60mm, 90mm or 105mm macro lenses, which may also be fitted with a plus two or four dioptré. When using supplementary lenses on compact cameras, there is no need for readjustment or calculation of the distances involved. The hardest part is actually in finding the correct size of subject, or part of a subject, to fill the frame.

You only learn underwater photog-

raphy by taking tons of photographs, slowly learning your trade and being highly critical of your own work. This makes it a particularly appealing aspect of underwater photography in that it can be done almost anywhere and in any conditions. Standard and wide angle lens photography requires generally good light with very good to excellent underwater visibility, but macro can be executed in turbid waters with very bad visibility due to the close distance between the camera to subject.

A good rule of thumb is that you should never take photographs less than one fifth of the underwater visibility. So

if your subject, say, a diver, is one metre from your camera, you need five metres of underwater visibility. When working with macro photography, your subject to camera distance may be only 6cm away, in that instance you only need 30cm of visibility to produce acceptable results. When conditions get so bad that no other type of photography is available, you will always find photographers using macro.

Of all types and formats of underwater photography, macro is probably the least expensive, requiring minimal investment and very few accessories. The flash only needs to be small and compact and be able to bolt securely onto the camera. TTL is a nice option, but a manual flash on a limited budget will soon yield acceptable results.

What you have in a macro system is the chance to get the greatest possible return for the least investment. Of all the underwater lenses and systems available, you will achieve the sharpest and most colourful pictures and probably the greatest satisfaction in the shortest period of time.

The 105mm macro lens,

or its equivalent, will allow you to do life size reproduction of a small creature such as the orange-sided goby (left) and also include its habitat, which is a brain coral, in glorious Technicolor detail. Not only do you get the exquisite colour of the fish, you also get the additional depth of field in focus plus have an appreciation of the texture, shape and colour of the coral habitat.

More importantly, by using this type of telephoto or even a zoom lens on a compact camera, you are able to focus in on your chosen subject from a greater distance away. The plus side of all this is that you are able to control your buoyancy much better and keep away from the reef. You are also much further away from the subject, thus removing any stress to you or the subject, as it is not as aware about being stalked!

Sedentary subjects such as small gobies, shrimps, sea urchins, or static subjects such as corals, sponges, algae or anemones, make perfect macro subjects for you to train on. Macro photography is also undertaken 'on the fin' such as jellyfish floating by; pelagic shrimps or even 'swimming' Spanish dancers on night dives. All of your preparatory work concentrating on easy sedentary subjects will allow you the confidence to



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tackle much more difficult macro subjects. Perfect buoyancy is essential in all aspects of your photography.

Good buoyancy is essential at all times for macro photography, particularly in the open water column or near fragile reef systems.

The equipment

Close-up lenses

These are single or double element supplementary lenses that also allow

RIGHT: Juvenile herring with lion's mane jellyfish, St. Abbs, Scotland. 60mm lens, ISO 100, Twin Sea & Sea YS110 Flash, 1/100th second at F:16

LEFT: My wife, Lesley, photographing a moon jellyfish in the northern Red Sea. 60mm lens, ISO 100, Twin Sea & Sea YS110 Flash, 1/100th second at F:16

glasses and are attached onto the front of the prime lens and use the water sandwiched between the prime lens and the supplementary lens as an additional element. The advantage that these lenses have is that they can be removed underwater and so give the added facility of being able to take photographs with several magnifying lens combinations if the need arises. Sea & Sea has a range of lenses that fit most of their cameras, and INON has lenses that will fit most CC's with their specific adapter.

Macro or micro lenses

Macro or micro lenses are available for Dslr and ICL systems in water-proof amphibious housings and are designed to focus much closer than standard lenses yet still be able to focus all the way out to infinity. Because these lenses are a compromise, they are designed to work better in close up than at infinity. However, the differences are small.

The big advantage of macro or micro lenses is the variable focusing from infinity to around 1:1 or 1:2 subject ratio without any additions. When they are used on Dslr cameras you are able to see the exact area and point of focus. For most subjects taken with this type of



close up attachment, this freedom when approaching a subject allows different angles to be utilized and shy creatures to be photographed more easily and sympathetically. From a conservation point of view, for photographers, using a longer lens, such as Nikon's 105mm or 200mm lens or any type of macro, zoom removes the need to virtually touch the marine creatures to take the photograph. A Dslr fitted with the appropriate lens allows you to take photographs of the creatures without putting undue stress on the environment, the creature or yourself.

[If you do have to touch the reef to keep yourself steady and in place, select a dead area and use only one finger for leverage to hold you still, or to push you off. Remember that great

buoyancy is the key.]

Working with a Dslr fitted with the equivalent of a 60mm macro lens, allows you the option of setting the scene such as the sea urchin (first page) with a pair of Coleman's Shrimps living amidst its poisonous spines. The only differences in taking the two photographs were a) the distance, as I approached this sea urchin; and b) the aperture, as I increased this to help in the depth of field to get more in focus and colour sat-



Painted lizardfish (*Trachinocephalus myops*) Lembah Straits, Indonesia. 105mm lens, ISO 100, Twin Sea & Sea YS110 Flash, 1/80th second at F:11

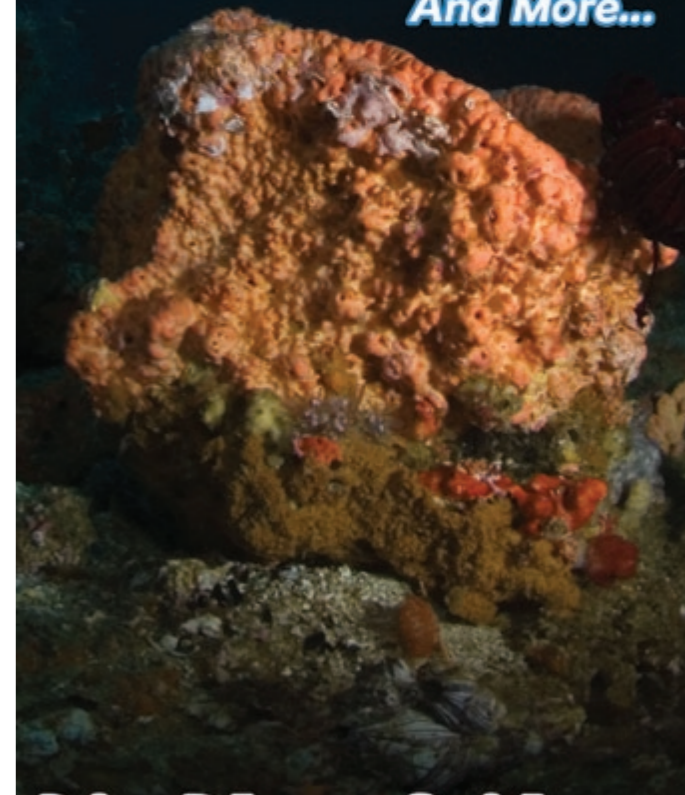


close focusing of marine subjects by increasing the focal length of the standard lens fitted onto either the outside of the amphibious camera or compact camera housing systems. These lenses are similar to magnifying

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RIGHT: Sea spider on fire coral, northern Red Sea. 105mm lens, ISO 100, Twin Sea & Sea YS110 flash, 1/125th second at F16



Eye of peacock flounder (*Bothus lunatus*), Dominica. Canon S95 on automatic with camera's own internal flash F:4.9

uration. The 60mm lens has a wide enough latitude to not only show the subject matter in the context of its surroundings, it is also able to focus down to a true macro size and magnify the smaller additional subjects of interest.

Many macro subjects are completely overlooked underwater in the search for bigger and brighter subjects. It is difficult to stop sometimes and just examine the reef, particularly an area that may be rather drab, or even potentially dangerous. The image above (top right) was taken in an area of broken corals, which had started to be overgrown by fire coral. Fire coral can be particularly irritating if touched accidentally, as it

has tiny 'harpoons' that can fire poison into our soft tissue.

However, I knew from experience that tiny sea spiders like to live on fire coral, as I have seen them in several places around the world in the same habitat. By stopping in this almost forgotten area, I was able to search slowly, unhindered by other divers and photographers and indeed, I found my sea spider, barely a half centimeter long.

Close-up and macro photography is, of course, not just a recording tool to catch that little vignette of some marine creature's life, you can also use the technique to photograph small parts of a creature in a more artistic way, which can be almost

abstract in its format. The underwater realm is not just about critter photography, you can also put your own interpretation into your photography and enjoy a much wider aspect of the genre. ■

RIGHT: Pygmy seahorse (*Hippocampus bargibantii*) Bali, Indonesia. 105mm lens, ISO 100, Twin Sea & Sea YS110 flash, 1/100th second at F11



FAR RIGHT: Antenna of a zebra lionfish (*Dendrochirus zebra*) Bali, Indonesia. 105mm lens, ISO 100, Twin Sea & Sea YS110 Flash, 1/100th second at F:16

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Nauticam

Nauticam has released details of their housing for the Sony NEX-7 EVIL camera—claiming pole position as the first housing manufacturer to market with the high-end mirrorless offering from Sony. Nauticam stated that the NA-NEX7 will support all the new controls on the NEX-7, including the triple command wheels. The housing controls are designed to be operated by the users right thumb, without moving hands on the housing. The camera's focus lock is accessible and a lever has been added to allow the user to switch between the electronic viewfinder and the LCD screen. The housing allows the LCD to be angled for easier viewing. The NA-NEX-7 housing will be available from 15 January 2012 at a retail price of US\$1,850.

www.nauticamusa.com



Recsea

Recsea has announced the release of a housing for the highly anticipated high-end Canon S100 compact camera. The Recsea housing features an aluminum construction with access to the

camera's rotating front control dial via an external control ring around the housing's fixed port. It also has a rear command dial, mirroring that on the camera and an external mount for fiber optic strobe triggering. The housing is available now with a retail price of around US\$880. recsea.com

Canon G1 X

Canon has surprised many with their announcement of the G1 X, an iteration of their very successful G range that are very popular with underwater photographers. In what appears to be a contrarian move, they have adopted a large sensor (similar to what the mirrorless cameras are doing) but without the SLR type ability to change lenses. The Canon G1 X is a fixed lens camera with a 14.3 megapixel sensor similar to that of the EOS 600D. In addition, it is equipped with a DIGIC-5 image processing engine and native ISO range of up to 12800 that will ensure fast processing and a good low-light ability. However, unlike other similar cameras, the camera has a built-in zoom lens with a focal range of 28 to 112mm, with IS vibration reduction and a 3 stop ND filter. The G1X will also record 1080p movies at 24fps and Canon has also announced the WP-DC44 waterproof case for the camera. Retail price is US\$799, and it is expected to be available from late February.

www.canon.co.uk



Nikon D4

Nikon has finally announced its long-awaited D4, which is labelled as a 'multi-media DSLR' and signals that the Japanese manufacturer is overcoming the manufacturing problems caused by the tsunami in Japan and the flooding in Thailand. The D4 is a 16MP full-frame (FX) camera capable of shooting ten frames per second with full auto-focus. In addition to a host of ergonomic improvements, the D4 also sees the expansion of its video capabilities, to the extent that Nikon is describing it as a 'multi-media DSLR'. The camera gains an Ethernet port, a 91,000 pixel metering sensor and an uprated AF sensor that can work in lower light and with smaller aperture lenses. Its sensitivity range can be expanded to the equivalent of ISO 204,800 and adds illuminated controls to make it easier to work in the low-light situations in which such a setting becomes useful. The D4 also becomes the first camera to make use of the XQD memory card format. www.nikon.com





ATC Mini

The Oregon Scientific ATC Mini may not have the 1080p shooting of the recently announced Hero2, but it does offer 720p HD video shooting and weighs just 70gr.

Its 20m depth range means that is restricted to shallower dives but it's not just designed for divers though, there are mounting systems for helmets, handle bars and surf boards. There's also a tripod with quick release for grabbing action on the fly.

The ATC Mini comes with a 32GB microSD, enough for 1.5 hours of HD footage and packs a removable and rechargeable lithium battery. There's mini USB and "TV-out" options, and it boasts a built-in mic for capturing all the gnarly noises, too. Costing GB£119.99, the Oregon Scientific ATC Mini will be hitting shops "soon". Pocket-lint.com



Get the colours right

It can be a real challenge for digital photographers to get accurate natural colors with the RAW option. In order to make photographs with sufficient saturation in all channels and with correct hue—where red is red, green is green and blue is blue—QP has addressed these goals with the new QPcard 203 and QPcalibration software, which perform color correction using color management and profiling at the first accessible stage in the digital image workflow, the RAW image. Together with the free application QPcalibration, QPcard 203 takes picture color control one step further. This is real color management of virtually any camera in virtually any light. Take a picture of QPcard 203 in raw mode. Open the picture in QPcalibration. Calculate a profile, give it a name and save. The profile will be saved in the correct folder and can immediately be used in Adobe Photoshop or Lightroom. A custom camera and light profile is created in less than 10 seconds.

A beta release of the software can be downloaded at argraph.com



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