

DIGITAL PHOTOGRAPHY

TAKING PHOTOGRAPHS IS LIKE COOKING SPAGHETTI MARINARA. ANYONE CAN DO IT. JUST STIR AROUND SOME INGREDIENTS IN A FRYING PAN THEN BOIL THE PASTA. THE DIFFERENCE BETWEEN THE SOGGY MESS I MAY COOK UP AND SOMETHING THAT WILL BE PRESENTED BEFORE YOU IN A COSY RESTAURANT IN VENICE ARE WORLDS APART. THE INGREDIENTS ARE THE SAME, IT'S THE SUBTLE DIFFERENCES IN HOW YOU PREPARE, COOK AND PRESENT THE FINAL DISH.

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Every camera in the world is essentially the same. It is a light-tight box, a lens and a shutter. It's what you do with it that produces either a tasteless mess or a creation that will lodge in your memory for life. Today's digital cameras with zoom lenses, auto focus, auto exposure and auto flash will, in many situations, combine to give you a perfectly adequate image. The real difference between a great photograph and one fit only for the delete button (or the 'round file' under your desk if you're shooting film) is **you**.

ROUND FILING The first step in taking great photos is, ironically, the last one in the photographic process: editing. If you display, show, sell, publish, print, promote, upload, save, backup and/or keep mediocre photographs then probably mediocre photos are what you'll continue to produce and be known for. Your most powerful weapon is the ability to edit out the garbage. And don't think for a moment I'm only talking about beginner photographers – everyone takes junk shots, **everyone**. Someone who shoots 600 rolls of film for a *National Geographic* article and gets 10 images printed has had untold numbers of 'success-challenged' images turfed out. That person's stellar reputation is based on editing, as well as an ability to get good shots. It's the effort that's put into taking photographs that produces great images. Not talent. Not money. Not equipment. It's effort and editing.

If you're just starting out or are an experienced diver/photographer the best way to learn, improve and succeed in taking great shots is to take lots and lots of photos, examine them and learn why one worked and why the others didn't.

FINDING SUBJECTS Underwater that's rarely a problem. Even sunbeams, bubbles, seaweed or coral can make great subjects. The greatest

photos of all time (if there is such a thing) are of simple, easily found subjects. One of my favourite photographers is the late Edward Western. He photographed, among other things, peppers or capsicums. I'm not even sure what colour, red or green, as he shot in black and white. But his still life pepper photos are surreal. Probably one of the most famous landscape and art photographers was Ansel Adams. One of his iconic photographs was of Half Dome, a mountain cliff face in Yosemite Park in the USA. Anyone can go there and take a photograph from the exact same spot. Simple. So, for our first lesson in taking great underwater photographs let's choose a simple subject found in all oceans, hemispheres and temperature zones: starfish, or more accurately, sea stars. Of course you want to photograph whales or white sharks or manta rays or other more emotive or stunning subjects, but everything you need to photograph those animals you can learn from photographing a sea star. With our subject in hand, metaphorically speaking, lets look at the next step.

FOCUS Auto focus is a marvel. I love it. All that manual focus cranking and winding is such a slow, tedious and painful affair. All recent cameras sold have auto focus. It's a great tool, so lets learn how to use it because, as with anything automatic, it will often automatically do the wrong thing. The first thing to decide is what you want as the optimum point of focus. On any animal or human, it's the eyes because if the eyes aren't sharp a viewer – whose brain is hard-wired to immediately seek out and examine the eyes – will be confused and the viewing experience will be less than pleasant. Our sea star has no eyes, but must have a point of interest that must be sharp. It's no use having a photo of a spawning sea star if the egg vent and eggs are not in focus. If the photograph is intended to show it eating something, then the prey being consumed must be sharp. It's amazing how out of focus other areas of lesser importance can be, as

Balanced light. Aperture of f-16 at 1/8 second shutter speed to provide correct exposure for the ambient light. Strobes were then set to provide correct exposure at f-16 producing a balanced exposure. Strobe light corrected the colour on the sea stars while the balanced available light exposure prevented the distant background from going black. Small aperture provided good depth of field with everything effectively sharp and in focus. The slow shutter speed was 'do-able' due to the stationary subjects and my slight over-weighting allowing me to prop on the silty seabed.

long as the main object (or the eyes, if the subject has any) is crisp.

When using auto focus you need to find out where the camera is focusing and make sure that point is where you want the focus to be. The standard compact camera with fixed lens always sets focus around the centre of the frame. Some models may let you alter that but, for this example, we'll assume its focusing in the centre of the frame. Pick the spot you want to be sharp and put it in the centre of the frame. Half depress the shutter button and auto focus will snap into action. Well, maybe lumber into action – some older model cameras or budget priced compacts are a bit slow. Without releasing the shutter or taking pressure off the release button, recompose your photo and push the button.

Full strobe light. No ambient light was allowed for. Aperture of f-18 at 1/250 gave good depth of field with the fast shutter speed cutting out any sunlight. Notice the more defined shadows compared to the balanced light photo.





Bad composition caused by shooting as soon as a focus lock was obtained on the central focus point. Tail is cut off and right hand side of the frame is empty.



Much better composition achieved by getting a focus lock on the face then recomposing the image. The eye is roughly 1/3 of the way in from the right hand side, making a solid composition using the 'Rule of thirds'.

Most cameras have the facility to lock focus like that. Once the camera has 'locked on' to a point of focus and as long as you don't take a picture or release the shutter button, you can move the camera around then fully depress the shutter button to take your picture.

Even when you can change the camera's focus point it's usually quicker and more accurate to use this 'focus and recompose' method. However, when working with skittish critters, all that camera waving may be a problem, especially if using a large housing and twin strobes. Check your camera manual and find out what focus options your camera model provides.

This process is very useful when photographing small subjects such as our sea star, or maybe a little shrimp sitting on one of our subject's arms. The closer we are to our subject and the more magnified it is, the more critical focusing becomes. You may get away with just pointing and shooting but you'll over time find the focus-and-recompose method is vital in producing correctly framed and composed shots. A very common error with auto focus is when the focus point dictates the composition of the image. Focus and recompose is the only way to go.

DEPTH OF FIELD This describes the amount of our subject which is acceptably sharp. I say 'acceptably' because sharpness and unsharpness is, to some extent, a matter of opinion. In reality, only the point of focus is really 'sharp' or in focus no matter what aperture setting is used. The closer we get to our subject and/or the longer the lens focal length, the shallower our area of acceptable focus becomes. Using a smaller aperture will increase, to some degree, the depth of field in a photograph, so as a general rule of thumb you should try to use as small an aperture as possible when photographing small objects at



You don't have to go overseas to find interesting subject matter. Here a male spider crab holds a captive female while trying to convince me that it is dangerous by waving it's free claw. Similar behaviour can be found in most nightclubs. Single strobe set above the camera with sand acting as a natural fill reflector preventing the undersides from going black.



Fill light. Jake gets jiggy with a blue shark. Typical flash fill situation where the strobe light is weaker than the ambient light but still strong enough to reduce the contrast on Jake's underside, preventing it from going completely black.

close distances. Which brings us to our next subject:

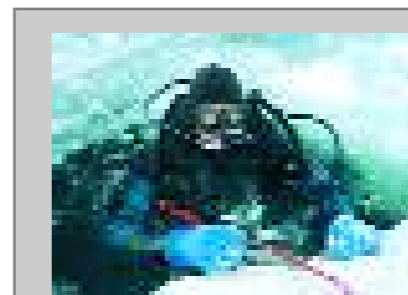
EXPOSURE Three factors dictate this: ISO setting, shutter speed and aperture. ISO is the rating given to film which describes the sensitivity of the film to light. An ISO 100 film is considered normal for use on bright sunny days. ISO 200 is considered medium, ISO 50 slow and anything of ISO 400 and above as fast. The higher the number the less light is needed to stimulate the film to record a scene.

Digital cameras don't use film but, as the first article in this series noted, these ISO figures are used to help us determine the sensitivity setting of the sensor. For normal situations, a setting of ISO 200 works just fine on a digital camera, ISO 400 is OK, but anything above that becomes victim to the laws of physics. You can use those higher settings but you'll pay a price in more electronic 'noise'. The quality difference between 100 and 200 is negligible, so lets go with the ISO 200 setting.

Auto exposure is another of those wonderful functions that, under many circumstances, will give fine results but in many others will give you the wrong setting. The camera usually demands to be given full control of this function, though you should have some settings to gain some measure of manual control. For our sea star we want as small an aperture as possible to maximise depth of field.

To help understand exposure, think of one of those water dispensers comprised of a big tub of water and a tap. To fill up a cup with water you need to control two factors – the size of the hole through which the water is poured, in this case the tap, and the amount of time to fill the cup. Turn the tap off too soon and the cup is only partly filled. Leave it on too long and, well, you will be jumping around with wet shoes. Swap the tap with one with a larger bore and watch the fun as people overflow their cups as the water rushes out at a greater rate.

Exposure is much the same. The sun is, for our purposes, the water canister. The sensor is our cup, collecting the light. The size of the hole through which the light pours onto our sensor (the cup) is the aperture. The shutter controls the time for which our sensor is exposed to the light, much like the time we have the tap open. To fill our sensor



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be experienced or invented, he's always the first to put up his hand. He's also dived the southeastern Australian continental shelf and photographed shark species nobody knew would be found out there. Kelvin is a BBC Wildlife Photographer of the Year marine category winner and you can explore his unique work on www.marinethemes.com

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correctly we need to allow the right amount of time for the size of our aperture. When light levels are low we need more time or a larger 'hole' or aperture to get a full cup. We can change either the aperture or the shutter speed or both to obtain the right combination for the right exposure.

Now we want to use as small an aperture as possible to get the greatest depth of field, to get as much of our sea star in sharp focus as possible. That means more time is needed to get enough light on the sensor. The problem is that the slower the shutter speed the more chance we have of getting blurry shots caused by camera shake. The most sensible combination when shooting small objects is to set the shutter speed at a reasonable rate (1/125 or 1/250 second) and, like our full tank mentioned above, increase the pressure by adding more light from our strobe.

THE RIGHT LIGHT In shallow water on a sunny day you may be able to get enough light to provide a relatively high shutter speed along with a smaller aperture. On a dull day or in deeper water you'll need to add light from your strobe. You'll find that even in shallow water you'll get much better colour, contrast and depth of field when adding strobe light. Lighting your subject with a strobe or strobes can be done in three

ways. Full strobe lighting, balanced strobe lighting and fill strobe lighting. The first method is where all the light used to expose your subject is from your strobe. Night dives are a perfect example, where any subject is lit solely by your strobe. Balanced strobe lighting is where your subject is lit by both ambient light and your strobe light in almost equal amounts. Fill lighting is where the majority of the subject is lit by available light and your strobe 'fills in' a small amount of light, usually more noticeable in the darker shadow areas.

Once you understand the principles of exposure, the best thing you can do to improve your photography is to practice, practice, practice. When all the technical stuff becomes second nature, then you can forget about it and concentrate on making great images. Like our spaghetti marinara, worrying about what sort of pan you're using or the type of spoon at hand won't improve your cooking skills. It's the ingredients and what you do with them that makes a great dish.

Our next article will look at getting the best quality results from your image files, preparing them for print and display.