

## AVOIDING CAMERA CONFLICT

**Wars often start over a simple misunderstanding. Cultural anomalies, foreign social etiquette, political ignorance. Sure, being just plain aggressive is a reason as well. But often, a lack of empathy or ignorance of hidden factors can spoil a perfectly good day.**

If you are having issues with your photography you may blame your camera in frustration, thinking that a bigger financial investment is needed. You may blame the sales person, a magazine ad that you now feel is misleading or decide that photography is all too hard and you are going to give up.

But let's not start a war just yet. Quite often the cause of conflict is a misunderstanding of how digital photography works, how your camera works, how your lens(s) work, how the sensor chip works, what is possible and what is not with digital photography. Then there is Photoshop and other photo editing software. Just like those cover shots of stunning beauties with symmetrical faces, flawless complexions and athletic curves, hero shots in magazine ads are always tweaked or downright visual lies. Sure, most underwater shots printed in dive magazines are fairly untouched, but don't



What your brain converts into an image is different from what your camera can handle. Just blasting away without thinking of your camera's limitations will lead to flat, monochromatic images (top). Just a touch of strobe (bottom) makes a huge difference, even when shooting through a cloud of mysid shrimp.

forget that often they are heavily worked over by the photographer before they are submitted for print, not to mention that the photographer may have decades of shooting experience.

So let's look at a few factors that may be affecting your results and how you can work with them, work around them or avoid them all together, and so diplomatically side step a running battle with your camera, a war which is always guaranteed to end in tears.

The number one problem I see with beginner (and often more advanced) photographers is just plain bad, lazy or inept lighting. What

your eye sees is heavily edited by your brain. A case in point is a common household situation. Go into a room with fluorescent lighting. If the fluoro tubes are the standard type, then you are looking at light that is not using the full colour spectrum. A typical light bulb does use the full spectrum, it just uses much more of the 'warm' end of the spectrum (yellows and reds, low/long wave length light) while still including a small amount of the 'cool' end (blue/cyan, short wave length light). A fluoro tube produces much of the spectrum but fails miserably with magenta wave lengths. The result is a very green colour cast (the opposite colour on the colour wheel).

If you were to photograph a person in a fluoro lit room with a film camera, the resulting photograph will have a very heavy green colour cast. But to your eye, the scene looks normal. Your amazing brain has taken the raw information and tweaked it to make it look normal. To achieve the same effect with film you would have to put a +30-40cc magenta filter over the lens to bring the colour balance back to normal.

Your digital camera has the ability to heavily compensate for colour casts. But even so, your brain has a more advanced ability to tweak colour so if you are 0-1 meter or more below the surface, your camera is going to have to start forcing the colour balance towards red/magenta to adjust for the cyan/green colour filtration effect of the ocean. The deeper you go and/or the more junk in the water (bad viz from plankton or dirt) the greater the colour shift. At some stage the camera is just going to give up, hitting the maximum level of compensation. This happens to your brain as well. When no more red is available, it being completely removed by the cyan filter that is the ocean water, you can no longer see red. Initially it begins to look like a dirty brown then just plain grey or black. (Ever wonder why deep water animals are often red?)

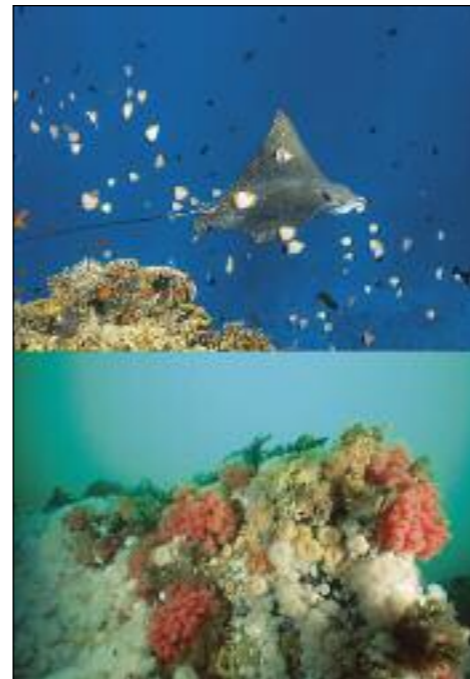
So while it is much easier to just snap away with your camera without lighting the subject, once you get below a couple of meters you will have less and less red to work with, until all you get is a green/blue image with none of the colours that you 'remember'. You might be able to tweak the files a little more with your photo editing software, dragging out those last few pixels of red, but eventually there will be nothing left to tweak. (This is where using a RAW file will help you. It records all of the image data or light waves received by the sensor. A jpeg file is compressed and often small amounts of certain colours can disappear completely under heavy compression, leaving you with less or nothing to work with.)

So if your shots are flat, colourless, lacking in contrast and generally look nothing like you remember, don't blame your

camera. Don't invade just yet. You need to bite the bullet and learn how to add in those missing bits of the spectrum by supplying a full band of colour with strobe/flash lighting. (You can even use an LED torch, your camera will tweak the colour balance if there is any colour cast.)

There are times when not using your flash is much better, relying on available light only. This is often the case with very large subjects. A shipwreck, reef drop off with divers, a whale or whale shark. They are just too big to light properly, restricted by the underwater environment. Look at any sporting event in an arena and you will see strobes/flashes popping off everywhere. Do you think that the flash light will have any effect on an olympic closing ceremony from that distance? Not a bit. But people continue to flash away, ignorant of their camera's limitations.

Same with your shipwreck. If you want an overview of a large shipwreck, firing off your camera's flash will do nothing positive but will add a lot of back scatter and reduce the contrast/clarity of the final image.



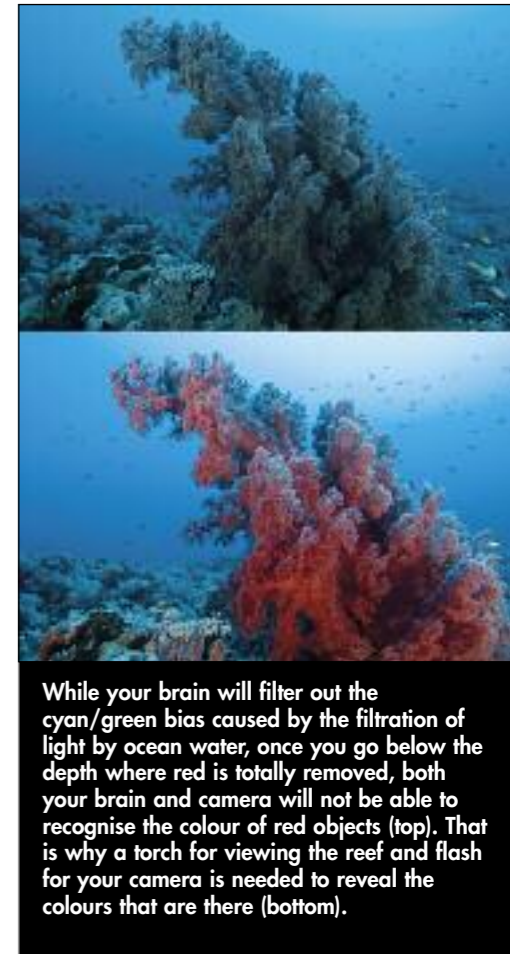
What you can get away with when using natural light differs greatly depending on the amount of plankton in the water, the angle of the sun and even the amount of sun. The eagle ray (top) was shot with natural light in clear Coral Sea water. The anemones (bottom) was shot at the same depth but needed strobe light due to low sun angle and a rich soup of plankton and dirt, which tinged the water an emerald green.

Same applies to a whale shark. Unless you are 1-2m away, a flash will have no effect on your image, except to light up all the junk in the water between you and that 12m giant.

You may be relying on your compact digital camera's built in flash. If that is the case, back scatter will definitely be a problem. This has been covered in an earlier article but suffice to say, use the flash only on close up subjects. As soon as you get back a meter or more, you will have serious problems with back scatter and a drop in contrast. This is the one thing that will take your photography to the next level: using an

external flash which can be moved away from the camera. In the meantime, you need to realise the limitations of your flash system and work within them. No reason why you can't get perfectly good images, you just won't be able to get those beautifully strobe filled shots of larger subjects (divers, sharks, schools of fish, etc.) Working to get silhouette shots of those subjects will be your best alternative.

On a final note on this subject, set your colour balance to Auto. While this will not change anything in your RAW capture, it will help with any jpeg conversions that your camera makes. If the jpeg looks fine, the RAW obviously can be converted to a tiff or jpeg file with the same adjustments. Also, if the jpeg is not quite right, you can tweak the RAW file to perfection, as it contains all the colour information of the original capture.



While your brain will filter out the cyan/green bias caused by the filtration of light by ocean water, once you go below the depth where red is totally removed, both your brain and camera will not be able to recognise the colour of red objects (top). That is why a torch for viewing the reef and flash for your camera is needed to reveal the colours that are there (bottom).

**Kelvin Aitken** is a Melbourne-based professional photographer and diver passionate about the big blue and the big sea creatures to be found out there. He's dived from the Arctic to the extremes of the South Pacific and if there's a new marine dive adventure to 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 his unique work is on [www.marinethemes.com](http://www.marinethemes.com)

# digital photography

Lens quality is an obvious issue that effects your final results. Like buying a car, there is almost no end to how much you can pay. You can pay \$500 for a car or \$5,000,000. I suspect that what you can afford is the limiting factor. Same with your camera. Don't expect your shots to look the same as those taken with a top end housed camera with fluorite crystal lens elements, matched glass dome ports and a 20-40 megapixel chip. Your \$200 compact with a perspex flat port with a cheap wide angle converter stuck on the front just can't compete. That does not mean you cannot get some perfectly good images. Just as you can drive from, say, Sydney to Perth in a 1970 Holden Sunbird, it will not be the same experience as driving a Bugatti or, to get more real, a recent model sedan with air con, cruise control, power steering and decent suspension.

Limitations of a cheap lens can include a lack of close focus ability, lower contrast, overall drop in sharpness, light fall off (dark corners), colour aberrations (including colour fringe issues) and



Setting your camera to Auto White Balance (AWB) will only effect jpeg files made by your camera. That includes your LCD image so even when saving RAW format only, AWB will give you a better LCD image. When converting images, make colour adjustments then save your settings for similar images (A). If things go wrong or a change in colour balance arises, you can switch back to the default settings (B).

flare. Your lens will have some of or all of the above. The amount will depend on how much you pay. The cheaper the lens, the more obvious the problem(s), the more expensive the lens, the less obvious the problem(s), often to the point of being undetectable.

Example: I have both Nikon and Canon macro lenses. I also, for various reasons, also bought a Sigma 50mm macro. The lens is fine. Does a good job. But it's nowhere as sharp overall as the Nikon or Canon lenses. It's not a major issue as applying a little more Unsharp Mask filter fixes it. But, to my whiney perfectionist mind, it's irritating. That is the payoff for using a cheap lens.

Like strobe use, discovering, accepting and adapting to lens

failings is all part of the game. If you can't focus close, don't shoot small objects, or at least don't try to shoot head shots of a feeding nudibranch. You are better off taking a shot of the same subject showing it in it's environment with a wider shot. If you have flare problems, use a lens hood or avoid shooting into the sun. Use your camera's conversion software to eliminate or minimise dark corners caused by light fall off. The same can be done with colour fringing and sharpness issues. If your dog can't jump the fence, don't expect it to fetch your golf balls.

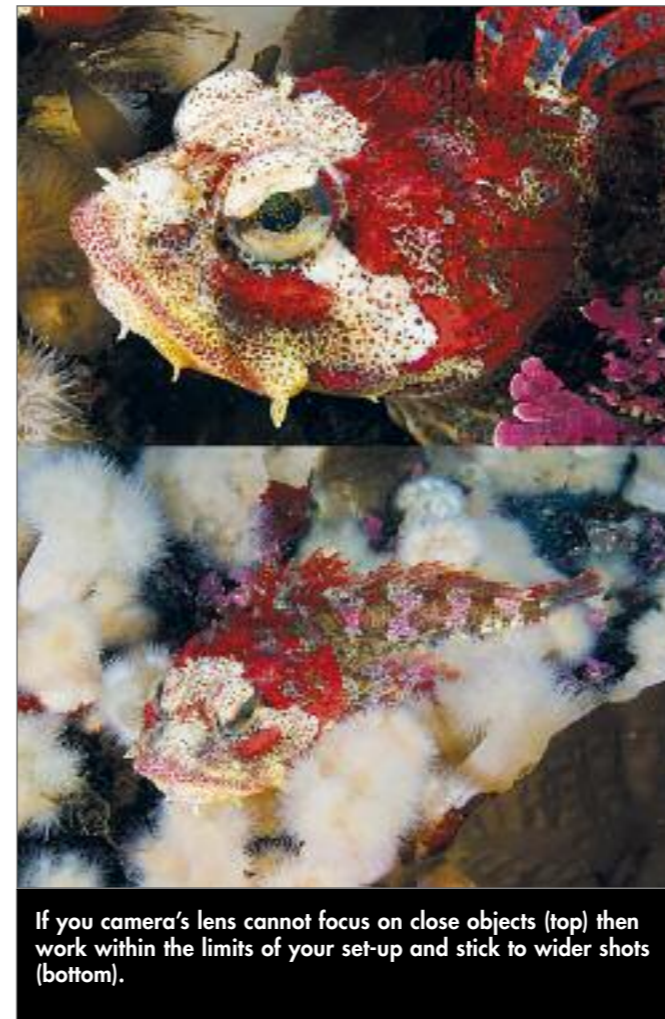
Another issue that I see is people ignoring what their camera is telling them. Modern cameras are very complex and can perform delicate and highly intricate processes to give you results which, only a couple of decades ago, were the province of experienced professionals. But if you ignore the fact that your camera is struggling with your subject, firing off with the lens wide open and a 1/15 second shutter speed, don't be surprised when your photos pop up on the computer screen as a blurred mess. It's not your camera's fault. If you are going to set your camera to 'Auto Everything, Brain Turned Off' mode then don't expect 'Manual Everything, Brain Fully Involved' results. Sure, Auto is great and, in a pinch, will give pretty good results. Often identical to those when you have full manual control of everything. But if you are not bothering to check what your camera is doing on Auto then you are the problem, not the camera.

Sometimes I shoot with the LCD screen turned off. Almost always it's when I have failed to put in a fully charged battery. Ahem. Switching off the LCD saves a lot of power. But 99.5% of the time you and I have an LCD screen that immediately provides us with feedback as to what our camera has just done, or is about to do. So check the histogram to make sure your highlights are in range, that the exposure is optimal, check your ISO setting (are you using 1600 ISO on a bright sunny day? Turn it down to ISO 100-200), check the exposure display to make sure you are not shooting everything with a wide open lens (giving very shallow depth of field, a limited range of sharpness) and/or a very slow shutter speed.

A rough rule of thumb that we have covered before: slowest useable shutter speed is roughly equivalent to the lens focal length. So a 100mm lens needs at least 1/100th second shutter speed, a 50mm lens needs at least 1/50th second, etc. But I highly recommend that you do not drop below 1/30th, in fact stick to 1/60th or more for all wide angle lenses.

You can also use the thumbnail displayed to show you how your composition is going. While you can also get a rough idea of your exposure as well (especially if you have the highlight over exposure warning turned on) it is far better to use the histogram to check exposure. See various previous articles that cover this subject in detail.

Considering that in the past I had to wait until I got back to land and civilisation to check my transparency film after processing, it is an absolute luxury that cannot be praised enough to be able to check composition, exposure, focus and colour on the spot. You can even do all that underwater, make any necessary changes



If you camera's lens cannot focus on close objects (top) then work within the limits of your set-up and stick to wider shots (bottom).

then have another go. When I think of all those photos taken with a Nikonos with the lens cap on, no film in the camera, a hair over the shutter, faulty aperture blades, faulty shutter blades, wrong flash sync speed, bubbles on the lens, stray BC strap starring in every shot, etc, etc, etc. Digital? Luxury.

So, don't start a war with your camera. To help us be more empathetic towards our long suffering cameras, the next issue will look at the limitations of digital capture, sensor issues, more lens problems and how to work around it all.

#### LINKS>

<http://www.answers.com/topic/underwater-photography>

<http://en.wikipedia.org/wiki/Underwater>

<http://www.cambridgeincolour.com/tutorials/white-balance.htm>

<http://www.bugatti.com/en/home.html>

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