DIGITAL PHOTOGRAPHY

+ DIGITAL PHOTOGRAPHY, LIKE INTERNATIONAL FAME, HAS IT,S DARK SIDE. JUST AS SOME 'FAMOUS' PEOPLE CANNOT ENJOY A COFFEE AT THE LOCAL CAFE, SO DIGITAL HAS ITS PROBLEMS WHICH RESTRICT OUR PHOTOGRAPHIC OUTINGS.

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Possibly the biggest glitch with digitally captured image files is the inability for even the latest camera chips to record detail in very bright areas, even with extreme exposure compensation. While Kodachrome slide film could hold detail in even the brightest surface sunburst and even some of the recent ghastly slide films could hold some detail in a sunburst, digital sensors fall flat on their electronic faces, even on an overcast day.

There've been some efforts to construct a filter to hold back the contrast, using a graduated dark spot to place over the sunburst. However they are expensive, clunky, difficult to use and, well, just don't work too well. At least not as good a job as Kodachrome. It's time to admit it; there is no easy solution to this problem (until technology catches up) so lets look at some alternatives.

SUNBURST CHEATING   The worst area affected by highlight burn out is the middle of the sunburst, the actual distorted disc of the sun observed up through the surface. Film photographers shooting wide angle usually (if they know what they are doing) tend to shoot towards or directly at the surface to give their subject some separation from the reef or water column. A sunburst was often sought after to add dramatic contrast to the image.

There's no hope here for digital photographers. Underexposing by 2, 3 or 4 f-stops doesn't help. There's always a patch of zero information. Underexposing the surface light to give some sort of control over the sun's highlight turns the bulk of the remaining background into a dark dismal muddy hole. So put something over the sun's disc and use the brighter outer flare, which does hold detail, to give the same effect. If you are one of the 'normal' diver photographer types that will often mean putting your dive buddy there. I'm usually chasing critters and am often diving solo so I use either my subject or part of the surrounding reef or other marine life to mask the sun's disc.

It isn't a perfect solution but one that's necessary to get past an insurmountable problem. The alternative is to digitally change your image by taking a scan off a slide with a decent sun burst with detail and superimposing it over your burnt out sunburst. This is hardly a suitable solution as it will mean lots of time fiddling with your photos, adding grain texture to the digital layer so that both layers look less fake, matching tones, colours, luminosity, hue, etc. Maybe you will do it with one or two images but not 50 keepers from your last dive trip to the tropics. Its exhausting just thinking about it.
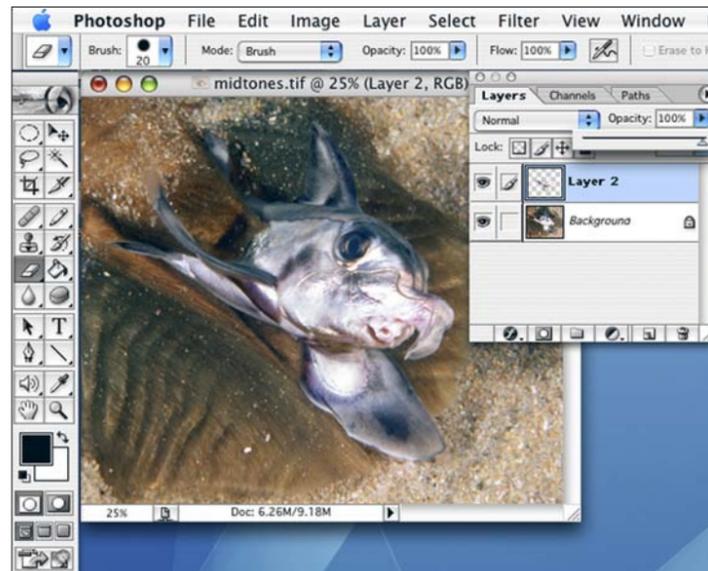
Zoomed in to the area of concern, the extraneous dark part of the upper layer has been erased with the Eraser tool set to Brush mode. The remaining highlights are a bit dark so the Opacity slider in the Layers palette is about to be moved left.

Of course you can always just bite the bullet and live with a bright white hole in your images. There are some divers who only shoot either fisheye or macro, nothing in between. Macro takes care of itself as it is rather difficult, though not impossible, to incorporate a sun burst and since a macro lens will only allow you to capture a small part of the surface it is easy enough to choose a bright area apart from the sun's disc. A fisheye lens leaves no real alternative. If there is a bright surface sunburst it will affect the background tonal graduation in all your photos unless you are facing directly away from the sun. Placing a subject over the centre of the sun is the only alternative. Or just live with the big white hole.

CONTRAST CHEATING   At times you'll end up with an image that, while it doesn't show a bright white flared out disc, still has contrast problems. This is where shooting RAW files will save your bacon, sometimes exceeding the contrast or dynamic range of film. Let's see how you can get a better image using combined exposures from one image file. This technique can also be used with scans from slides.

With the right hand image deliberately darkened to find the highlights detail, a new layer will automatically be created in the 'midtones.tif' image as the 'highlights.tif' image is dragged across.

Say you have a white cowry crawling across the seabed. You take a photo and on opening it on your computer you see that the pitch black mantle is a black featureless hole and the pure white shell is a blown out highlight. In the RAW conversion window (using either your camera's supplied software, Photoshop or other image editing program) adjust the exposure so that your image has a reasonable exposure. Don't worry too much about the extreme blacks and whites, just make the overall image look right. Click OK or Open to open in your image editing software. Save it giving it a unique name like 'midtones.tif'. Now open the RAW file again in your RAW conversion program. Change the exposure so that the highlights look right, even if the rest of the image is much too dark. Click OK and again save it with the name 'highlights.tif'. If you wish, you can also open the RAW image file again and create a third file for the shadow detail, adjusting the exposure so that the dark areas have sufficient detail, even if the highlights are blown right out. Click OK and save as 'shadows.tif'.

Since you are using the same image file, and not another photograph, all of the pixels will line up just fine when you combine them. Assuming you are using Adobe Photoshop or Elements, select the Move tool. (The same process can be performed using any image editing program that lets you use layers.) You're going to move the 'highlights.tif' image onto your 'midtones.tif' image file. Make your 'highlights.tif' image active

by clicking on it but make sure that you can see part of your 'midtones.tif' file so that you can drag to it.

Click and drag the 'highlights.tif' image over to the 'midtones.tif' file. After you click and while you are dragging, hold down the Shift key. Dragging and moving the image to another image file using the Move tool will automatically create a new layer on the recipient file (in this case the 'midtones.tif' file), while holding down the Shift key will make sure that it is placed exactly centre to the image, lining it up perfectly. When you have dragged onto the 'midtones.tif' file with the Shift key depressed, release the mouse button and, bingo, you will see what now looks like an exact copy of the 'highlights.tif' image. Its not, it just has a copy of the highlights file as a layer on top of your midtones image.

Select the Eraser tool and choose a large brush size. Rub away at the image to delete the dark areas of the top layer, not touching the white shell. If, after you've erased all the dark areas, the white shell looks a bit too dark, go to the Layers palette and (assuming the new layer is still active) adjust the Opacity slider until you have the right 'feel' or look. If you've opted to use a third exposure for the shadows, repeat the procedure by making the 'shadows.tif' file active and, using the Move tool again along with the Shift key, drag the image across to create a third layer. Use the Eraser tool to erase the highlight areas of the image, allowing them to show through

Before and after. Even more detail could be found if smaller areas were chosen and dark versions of those areas created.

while retaining the lighter shadow areas. If the shadows look a little too light, open the Curves dialogue box and drag the centre of the curve down at 45 degrees to darken it a little.

Like most things digital, it may sound a little complex but once you have done one image it all becomes second nature. The latest version of Photoshop allows you to select two or more images and automatically merge them together. However, doing the above manually allows you a little more control over the process and also helps you to understand the concept of blending different exposures together to create a 'normal' image. You can also select small areas, turn them into layers then drag-shift them across. Usually you'll only need to use this technique on rare occasion. Before you flatten and save your masterpiece, save it as a Photoshop file or a Tiff file with layers intact. That way you can go back and fiddle once you become more practised and skilled.

STORAGE SOLUTIONS About six months down the track you will start to see a monster appearing. When you were shooting film, you tossed out the 'success challenged' images and put your winners in storage sleeves or boxes. Now with digital you're keeping hundreds, then thousands, then tens of thousands of images. Where are you going to keep them all? Or more importantly, how are you going to keep track of

them all? How are you going to retrieve that photo of your dive buddy kitted up in the rebreather for his party invite?

The first part of the problem is back up and storage. Never, ever erase images from your camera's card without having at least two backup copies. While the casual photographer may be happy to have six months of images floating around on their camera's memory card, anyone that's either sensible or serious will make sure that they have regular backups and copies of their images.

My 'workflow' with digital happens thus:

1 After every dive I remove the card from the camera, immediately replacing it with another card which is then formatted. This not only erases everything on the new card, it also 'resets' the card so any software glitches that it may have picked up are cleared. It is not unlike putting in a new unused roll of film into your camera.

2 Place the used card in a card reader (if you don't have one, go out and buy one. They're cheap, easy to obtain, sometimes supplied free when buying a new card and will transfer files much faster than your camera's download cable) and copy the files to your laptop. If you don't have a laptop with you, place the card in a secure place, clearly marked so that it won't be confused with any other empty cards. Transfer the images as soon as you get to your computer. Some people use small mobile hard drives designed to accept photos from cameras. Even an iPod will do this with the right accessory. The point here is that as soon as humanly possible, you need to copy the image files to another device while retaining the files on the camera's card. You now have two copies.

3 Burn the entire collection of images on your laptop or desktop onto CD or DVD. This now gives you two copies plus the card. The card can now be formatted and placed with the cards ready to go into your camera.

4 Either burn a second CD or DVD as a backup or copy to another external or internal hard drive. This means that now you have a working copy on your computer which you can edit plus two other untouched copies. If, during the editing process, you delete a file that you later need, you have the entire shoot waiting for you to restore.

If you're on an extended trip overseas or interstate, make another copy to post back home. If a meteor lands on your computer and discs, or Dr Lightfingers relieves you of your electronic goodies, at least you have another copy of your images sitting in your mail box. Now that's something you couldn't do with film.

Now that you have at least two backup copies plus a working copy of your files, you can start the fun process of playing with your images. The next problem will be finding a particular image many months or years later. How I deal with this is to place my images in folders with meaningful names, often with a date. I'm sure that everyone has different requirements and yours may be unique. However, what you need to do is sit down when you have some quiet time and work out a system that suits you that will be useful in years to come.

To give you some ideas, this is what I do. Let's say I am one day into a 10 day dive trip to Peru. I'd create a folder called 'Peru 2007_03_17' meaning 'My dive trip to Peru, 17th March 2007'. I put the date backwards so that if I go back to Peru the next year and have all of my folders copied to my computer, the computer will sort them chronologically. Inside that folder I'll create three new folders to take the images from that day. The first one will contain all the RAW files that I've edited out to be of use to me. That folder will be

DIGITALPHOTOGRAPHY

called 'Peru 2007_03_17 Raw'. I make small jpgs of those files to go into the Marine Themes Stock Library web database so I make another folder called 'Peru 2007_03_17 jpgs' and then a third folder called 'Peru 2007_03_17 Rejects' which contain every other Raw file that was not used. Like I said, this may not suit your needs but for me it keeps all the files shot each day on each trip sorted into three groups. The above folder groups are what I burn as backups and transfer to external hard drives.

Next step is to create a database to keep track of all those images. There's a myriad of database software applications which will do this for you, some simple and free, others more complex and costing anywhere from $5-$5,000. I use an older version of Filemaker Pro which works on both Mac and Windows platforms. A database is made up of records, with each record having one or more fields. Each record in my database represents a disc that I have burnt. I have two fields in each record of my database. The first contains the disc number which is a simple unique serial number. This number is written in indelible ink on each copy of the CDs or DVDs that I burn. In addition, my external hard drives have folders each named the same as the disc's serial number. Inside each folder are all the files and folders found on the corresponding CD/DVD. The second field contains the names of all of the files and folders on the disc.

In 10 years time, if I need to find an image shot on the third day of my

2007 trip to Peru I can do a search in my database for 'Peru 2007' and up will pop all of the records with images from that trip. I can flick through the records and find the images from the third day (in this case they will be in a folder called 'Peru 2007_03_19'). That record will provide me with the disc number where I can access the files either on my external hard drives or on the original discs. I can also do a search for 'Peru 2007_M1234.CR2' which will give me the disc number that contains a particular RAW image file taken in Peru in 2007.

I assume that in 10 years time the CDs and DVDs I'd originally burnt will be copied onto whatever the latest storage system is in vogue and my external hard drives will be long gone, replaced by something that will store many terabytes of information. Because my system relies on folder names it does not matter if the images are transferred to another medium, I can still track them down.

Because I sell my images commercially, I have another database which keeps track of every finished image which is added to the Marine Themes Stock Library database. This includes not only my images but the thousands of images of taken by dozens of other dedicated photographers. When I receive a request from a client for an image I'm able, with the click of a button, to find out

If you don't want big featureless holes in your photos, cover the sunburst centre with something and use the outer flare to give your shot a bit of drama.

Or you can avoid the sunburst centre by cropping it out in camera or later on your computer.
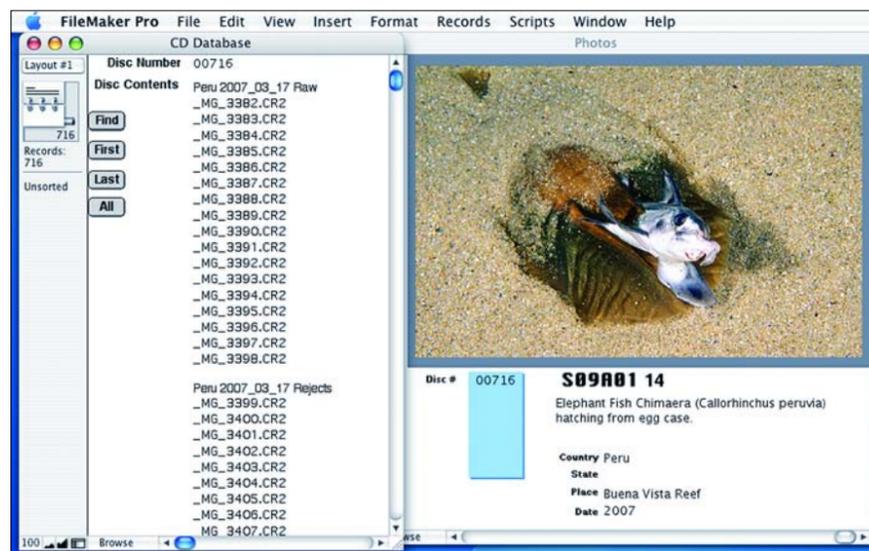
Filemaker Pro in action. Two databases are shown, one to track where a particular image is being stored (in this case it is on disc # 00716) and the second which has a lot more detail, and a thumbnail image, to track your 'keepers'. A lot more fields can be added to hold other information such as exposure details, dive details, searchable keywords, image IPTC and Exif info and more. Information can be imported across databases to save double data entry.

the number of the disc in which it is backed up and access that either on my external hard drives or on the CD/DVD discs.

The principle here is that in the long run, you need a database to track where your images are stored. Even if you shoot just a few hundred images a year, you will always find it easier to find an image on your backup discs when you have a system in place that can be utilised by a database. Think about what you will need now and in the future then start now to implement that system. Don,t be daunted, a database is simple to create and maintain. There are online forums to help you (or your local photo/computer/dive club) if you get stuck and you will find all sorts of uses for your new found skills.

Physical storage of CD/DVD discs should also be considered. Fancy systems such as Disc Stakka which comes with a database are one option. However, since they store only 100 discs (you will soon have much more than that if you are a regular shooter) they are rather pricey. Because I access my files from external hard drives (mobile, versatile, high capacity and cheap) I rarely need to dig out the actual disc so I store them on the spindles on which the blank discs came, in numeric order and in a cool dry room along with my „old‰ 35mm slides.

Keep in mind that CD,s and DVD,s have a limited life. Disc quality and storage conditions will give you a life span of 1-15 years. This means that having two disc backups which are copied onto the latest media when you upgrade (was floppy discs, then Zip discs, then CD,s, then DVD,s, now Blueray) plus a hard drive copy will give you a secure storage system.

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