



# photo & video

Edited by  
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& Scott Bennett

*Commensal shrimp, Lembeh* — Being able to 'work' a subject is much more viable with digital photography. Once we have found the subject we can now spend much more time exploring the best angle to take the photograph; adjusting the lighting and tell the story of the subject much better. SPECS: F11; 100ASA, 60mm lens; twin Sea & Sea YS100 flash

Text and photos  
by Lawson Wood  
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## Why Digital?

- There is no film to buy.
- No film to process.
- No storage issues with slides or scratching of the image through constant use.
- No copies of slides to be made or the same problems as above.
- Digital photography is instant.
- You can view your photographs whilst underwater and, depending on your skill with the equipment and subject matter, you can quickly improve your own photographic results and skill by correcting mistakes instantly, whilst still underwater.
- Very wide exposure range with great reproduction detail of shadows and highlights.
- All digital cameras respond well to low light conditions.
- Most cameras are compact and lightweight. (Although that can lead to camera shake—unless your camera or lenses are already fitted with an anti-camera shake device—for just a few dollars more!)
- Most cameras offer different resolution to allow you the option to take and store photographs in almost any format you want, this versatility also allows you to greatly increase the number of photographs that you can store on the camera's memory card.
- Some cameras offer 'live-view' screening and others also include sound and even digital video capabilities.



# Why Digital?

- All digital photographs can be shared much easier with friends and family via the Web.
- Digital slide show presentations are now within everyone's grasp as most computers include this technology in its hardware. We no longer have to lug huge projectors or reels of slides.
- The latest technological breakthroughs and upgrades are available to all types of digital cameras

including the 'point and shoot' models

- We use original photographs in ALL of our work, All of the time. All of your friend and clients also see the true photograph without the need to make duplicates.
- All duplicates are equal to the original photograph.
- Third party utilities and add-ons such as Photoshop work with all different manufacture of cameras.

But before we get into the picture-taking business, let us look at some of the jargon and explain what everyone else gets so excited about. Yep! Which format should I use to take my underwater photograph? Is it a RAW deal? do you get TIFFed off at the variety of options, or JPEGed out, as this is the only format your camera has?





The following are actually your only three options in saving your photographs. These choices are RAW, TIFF and JPEG (some cameras also include the option of saving in RAW and JPEG simultaneously).

**RAW** Virtually all types of cameras have this capability, and whilst many advocate its use, others do not. RAW isn't a single file format, as many believe. Rather, each camera manufacturer has its own preparatory RAW version, which is not compatible with other varieties of cameras. RAW is fairly self explanatory in that raw photographic data is recorded by the digital sensors with no processing having been applied by the camera. RAW is not the storage of "unprocessed" image files. Once you decide to shoot in RAW, there is very little that you can do to reverse the settings pre-ordained by your camera manufacturer. However, the beauty of RAW is that you are able to do a whole ton of post production such as altering the white balance, sharpness, colour saturation and, to some extent, even the exposure of the photograph.

**TIFF** This format originated in 1987 by a company called Aldus. Aldus pioneered computer graphics software, so

much so in fact, that they were bought by Adobe in 1994, which incorporated their systems into Photoshop (now regarded as the industry standard for photograph work). Tagged Image File Format (TIFF) has the great advantage of including electronic tags on the saved photograph, which allow for accessing any descriptive aspect of the photograph saved in this format including layers, objects, text or in fact any saved application or selection made to the photograph. These tags will also tell any other photographic application how to retrieve any recorded data on a TIFF saved photograph.

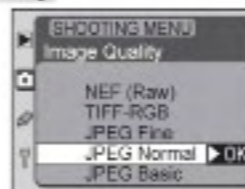
**JPEG** This photographic file term was the result of the first collaboration by the Joint Photographic Experts Group (JPEG) in the early 1990's to create an industry standard to allow the storage and compression of files without discarding too much information from the photograph. These files are able to be much smaller than could be achieved by TIFF, for example. This compression is designed to make photographic files more readable in a larger number of applications in a standard way, particularly for use on the World Wide Web. Basically the camera's computer selectively removes



Why Digital?

**File Type and Compression: Image Quality**

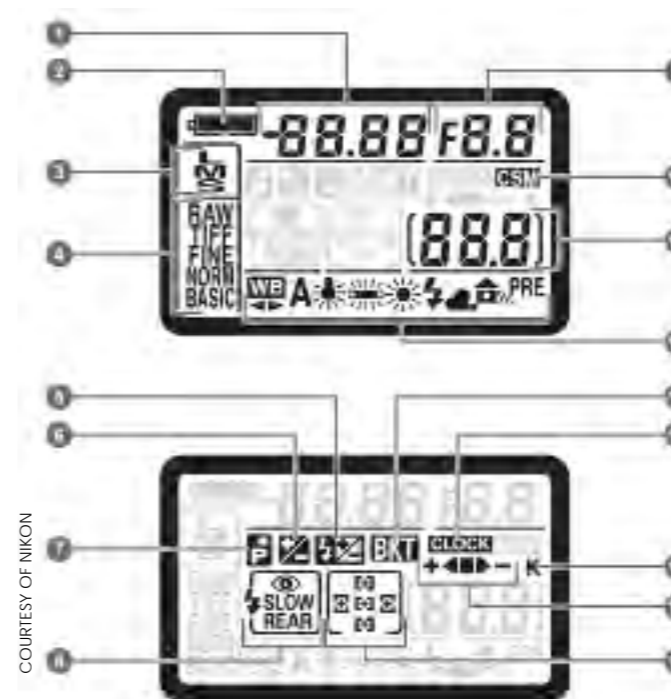
The **Image Quality** menu controls the file type and compression ratio used as photographs are saved to the memory card. The following options are available:



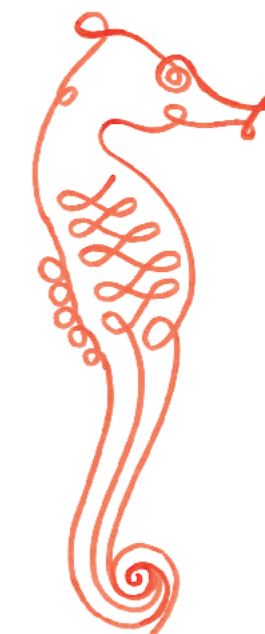
Option	Description
<b>NEF (Raw)</b>	Raw 12-bit data from the CCD are saved directly to the memory card in Nikon Electronic Image Format (NEF). NEF files can only be viewed in Nikon View 5 or Nikon Capture 3 (v. 169). Two NEF modes are available: <ul style="list-style-type: none"> <li>• <b>NEF (Raw)</b> In this mode, NEF images are not compressed, reducing the time needed to process images before they are saved to the memory card but increasing file size.</li> <li>• <b>Comp. NEF (Raw)</b> In this mode, NEF images are compressed using a virtually "loss-less" algorithm that reduces file size by approximately fifty to sixty percent without affecting image quality. More time is required to process images before they are saved to the memory card (v. 43).</li> </ul>
<b>TIFF-RGB</b>	Images are saved in uncompressed TIFF RGB at a color depth of eight bits per channel (24-bit color).
<b>JPEG Fine</b>	Images are saved in JPEG format at a compression ratio of roughly 1:4.
<b>JPEG Normal</b>	Images are saved in JPEG format at a compression ratio of roughly 1:8.
<b>JPEG Basic</b>	Images are saved in JPEG format at a compression ratio of roughly 1:16.

Your camera's manual should list the types of files and image qualities available through the use of your camera as well as a diagram (left) which helps to decipher the details on your camera's display screen

This coral goby, photographed at Marsa Alam in the Red Sea, is usually quite skittish; using a 105mm macro lens, I was able to get much closer without unduly stressing the subject. Once it was used to me, I was able to take a series of photographs on my digital camera which allowed me to get the best of the subject and still have plenty more memory to use on the rest of my dive. SPECS: F16; 100ASA, 105mm lens; twin Sea & Sea YS100 flash



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## photo & video

Mandarin fish photographed off Gangga Island only perform at dusk and divers are unable to use strong lights to illuminate the scene as the fish will just not perform. This is where digital photography really takes over as the camera's sensors are able to pick up just enough movement in the very low light to lock on and get the photograph in focus

parts of the image to squeeze into the compression algorithm. Personally, I would rather be in charge of that responsibility!

### What picture capture format should I use?

This choice is really up to you, depending on how you want to share the photographs or how you want to store your photographs. This will also impact the memory either in your camera or in your computer. Remember that big picture files require high processing speed and big storage

capabilities. The camera I use is able to record the photograph in both RAW and JPEG, so I use this setting as my default, as it allows me to archive my RAW files, select any photograph that needs work and then save that as a TIFF. I use the JPEG file for emails and as reference in my picture storage files.

A typical digital single lens reflex camera's manual will show you all of the readings that you will find in the camera's top display, including all of the options for taking your photograph.



Working in fresh water in the Scottish Highlands near a waterfall at the mouth of Loch Lomond, there was little or no light in the deep pool and with the water movement, it was very difficult to capture on film; however in the digital format it was much easier to capture



## Why Digital?

file, as these RAW files are in essence your 'Digital Negatives' and need to be protected.

**TIFF** Most cameras nowadays do not offer the TIFF option for taking photographs, but if you do have that option then there are a few considerations that make this format more than worthwhile. TIFF offers the highest quality image recording in a fairly standard format. The image, image use and subsequent re-use of any saved TIFF file is lossless. This means that you never lose

On the Shooting Menu located on the rear screen of my Nikon Camera the following formats are available under the heading of Image Quality. You will see just how many photographs each setting can take on an Extreme III 8GB San Disk Compact Flash memory card.

The file (right) is taken from a DSLR operating manual and shows the amount of compression in the various shooting

NEF (RAW)+JPEG Fine	313 frames
NEF (RAW)+JPEG Normal	378 frames
NEF (RAW)+JPEG Basic	422 frames
NEF (RAW)	480 frames
JPEG Fine	899 frames
JPEG Normal	1,700 frames
JPEG Basic	3,400 frames

modes, which equates to, basically, how much information you will lose between the difference of shooting in RAW and shooting in JPEG Basic.

**RAW** Firstly, if your camera has a RAW picture taking mode, then use it, forget the rest of the options until you want to store the photograph, re-use it, email it, improve it, or manipulate it. This setting stores so much raw digital information, it is your archive, it is the essence

of your photography, and if looked after properly, it will stand you in good stead for years to come. RAW format hardly needs explaining, it saves the raw electronic data in the simplest file format and allows you to do virtually anything you want with the photograph without losing any of

the original quality. In fact, it stores photographic information that you were not even aware of when taking the photograph! No matter how adept you are now at manipulating images, you will always improve, and then you will be able to go back to your original Digital Negative file and open and use photographs, which perhaps were once thought to be of no use or were beyond your learning curve.

The most obvious advantage is that RAW gives you the greatest flexibility to obtain a finished high quality photograph. The good news is that third-party utilities such as Photoshop include their own Adobe Camera RAW programme, which is compatible with your own specific camera's RAW format. Most professional photographers use RAW as their picture archive

any quality or information on your photograph when ever you re-use the file or manipulate it further. If you are happy with the TIFF format and happy with your camera and flash settings, then by leaving the camera set on TIFF will allow you to shoot and store high resolution photographs with a minimum of post production. Whenever I open up a RAW file and start to work on any photograph, I always save it as a TIFF, that way I can always come back to the original (if required), but I also have all of the changes that I made to the photograph saved on the TIFF file with no loss of any information whatsoever. On the other side of things, TIFF files are always larger than either a RAW file or JPEG and subsequently need more time to write to the memory card and soon use up all of the



memory available. Most serious photographers NEVER use this format for picture capture.

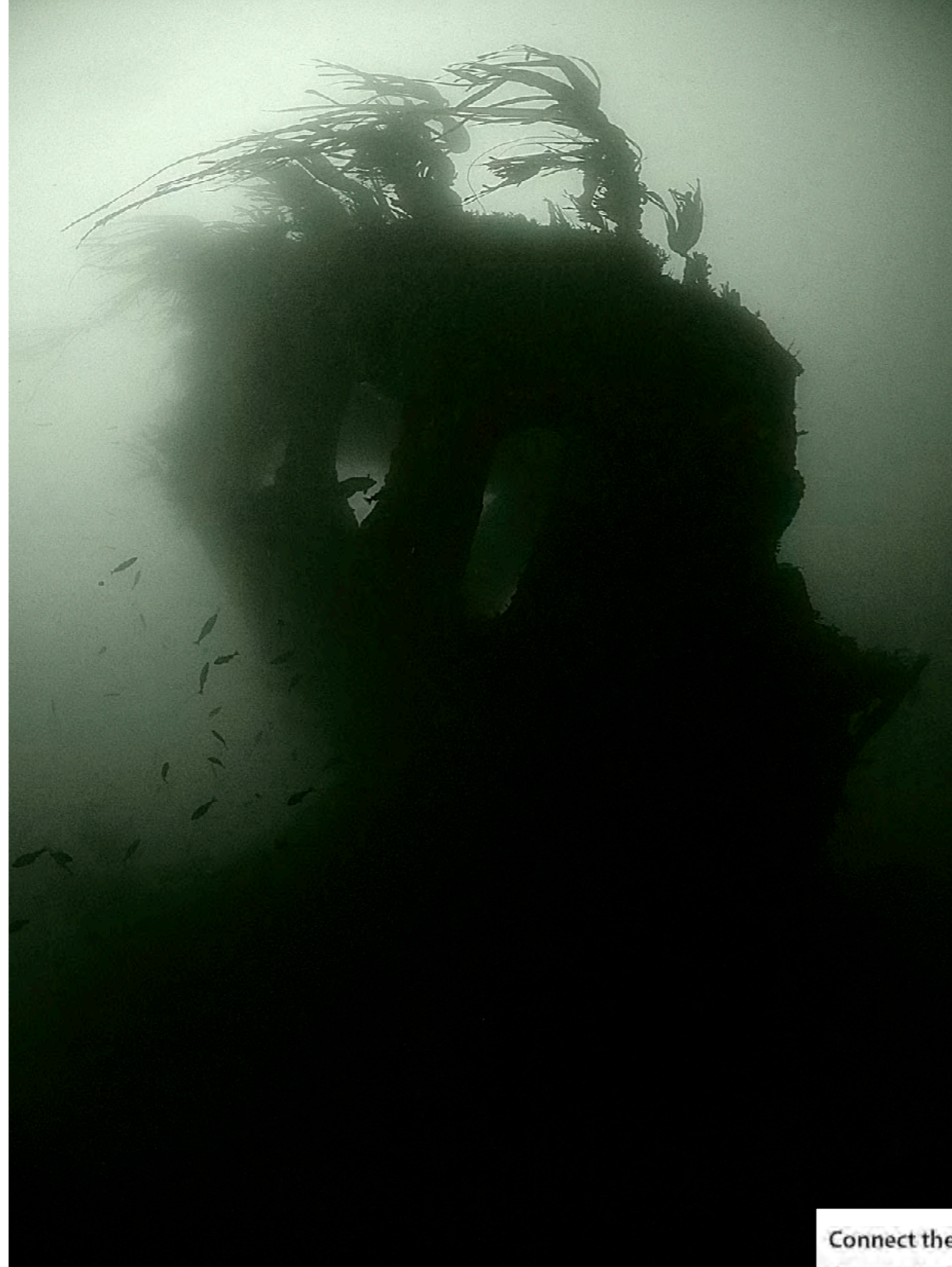
**JPEG** This photographic programme is undoubtedly the most popular format and for many users, this is THE only format worth using as it allows your photographs to be 'read' in any other third party utility and is ideal (through image compression) for use on the internet. JPEGs write to the memory card faster. The top of the range (or least compressed) JPEG file is certainly on a par with any TIFF file. But here is the problem: whenever you open a JPEG file, make any changes and then save it again as a JPEG, you will lose information as the file saving system is designed to compress and store the photographs with a minimum of fuss. The more times you open that file and make changes, then the more information you will lose from the photograph. If you are determined to work in JPEG format, then you must save any final change to your photograph as a TIFF. On the plus side, due to the compressed nature of the photograph, you can store many, many more photographs on your memory card than any other type of picture saving format.

### USB cable

You can connect your DSLR camera directly to your computer hard drive with the use of a USB cable.

Once you have taken the desired photographs, you will then want to transfer them and certainly look at your efforts on a large computer screen. Whenever you do any work on a photograph, this is called your WORKFLOW. My initial workflow would go through the following steps:

- Transfer picture file either direct from



the camera or via a memory card reader to the computer.

- Archive at least two copies of the file to redundant exterior hard drives.
- Copy each full photographic file also onto a DVD and store securely.
- Open photographs in Adobe Bridge (Use this as your digital lightbox).
- Make initial changes to your RAW files

in Bridge.

- Include all of your metadata onto each photograph.
- Once this is done, open any particular photograph that you want to work further on, in Photoshop (at the time of writing I use

Shipwrecks are the other perfect subject for digital camera work, this 'blockship' in Scapa Flow in the Orkney Islands is only able to be photographed at slack tide and the water is usually green in colour. However by taking the photograph with monochrome in mind, the RAW setting on the digital camera was able to collect all of the information necessary to allow me to manipulate the subject further

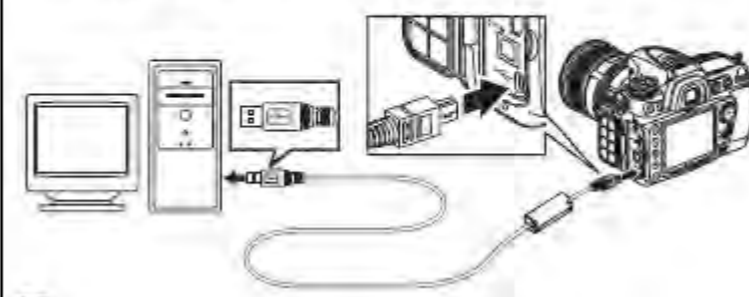
Photoshop CS3)

- Further enhance, change, sharpen, manipulate, add text or whatever to picture file.
- Include further metadata into the File Info folder for each photograph.
- Save one copy as a Photoshop PSD File.
- Save second copy as a TIFF.
- Save the JPEG version of the same photograph for your catalogue and sharing in other formats, particularly on the WEB.

*Lawson was raised in the Scottish east coast fishing town of Eyemouth and spent his youth exploring the rock pools and shallow seas before learning to Scuba Dive at the tender age of 11. Now over 44 years later, Lawson has been fortunate to make his passion his career and has authored and co-authored over 45 books, mainly on our underwater world. Lawson is a founding member of the Marine Conservation Society; founder of the first Marine Reserve at St. Abbs in Scotland and made photographic history by becoming the first person to be a Fellow of the Royal Photographic Society and Fellow of the British Institute of Professional Photographers solely for underwater photography. ■*

### Connect the USB cable.

Connect the USB cable as shown. Do not use force or attempt to insert the connectors at an angle.



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## New Sea & Sea housing for Canon 500/550D

Sea & Sea has announced the new RDX-550D housing for Canon's popular Rebel T1i/500D and Rebel T2i/550D cameras. The polycarbonate housing accepts ports from Sea & Sea RDX, NX and CX systems, and allows for fiber optic slave and wired TTL lighting functions. Most camera functions are accessible and operable underwater. For dedicated TTL, one YS converter connector is a standard feature with the housing. The Sea & Sea Port lock system prevents an attached port from loosening while in use, while dual locking latches to prevent accidental release of housing back. An early July release date is planned. [Seaandsea.com](http://Seaandsea.com)



## NA-R200 for Nikon SB-R200 flash

The NA-R200 housing is for Nikon wireless speedlight SB-R200. Machined from high-grade aluminum alloy and treated with corrosion resistant coating, the housing is compatible with the Nikon Creative Lighting System. Despite its compact size, the speedlight utilizes Nikon i-TTL technology, allowing exposure compensation of individual speedlight output. In i-TTL mode, each speedlight emits its own monitor pre-flash, with actual flash output level adjusted by the camera. Measuring the flash illumination reflected back from the subject, the result is a lighting system far more accurate and flexible than conventional solutions. The build-in pop-up flash of the Nikon CLS-compatible camera can be used as a commander to send out i-TTL commands to two speedlight via the two optical bulkheads on Nauticam housings. [www.nauticam.com](http://www.nauticam.com)



## Nauticam White Balance Port

Nauticam's white balance port is the first of its kind, providing easy calibration of white balance settings underwater. Featuring a built in translucent white board, the setting process is comparable to using a grey/white reference card on land. Close the iris under the white balance setting function of the camera, point to the incident light and take a reference shot. Once the camera color temperature is locked in, open up the iris and take the photo. The 8.5 inches dimension can accommodate large diameter wide angle and fish eye lens to prevent cropped corners from happening.

## Epoque EHD-900Ai Housing

UK company Cameras Underwater announces the Epoque EHD-900Ai, the newest in its line of high quality, affordable camera and underwater housing sets. With a silver finish, the Epoque EHD-900Ai is a 9-mega pixel compact camera that uses CMOS technology for great quality photos with low power consumption. Rated to depths of up to 45 metres (150 feet), it features a 3x (35-105mm equivalent), f/3 – f/5.6, optical zoom lens, 2.4 inch LCD screen, macro mode and a focal range of 30cm to infinity. For added versatility, a 55mm (M55) port thread is included for additional wet lenses and filters. Available now at a retail price of GB£199.99 complete with a 2GB SD card. [Camerasunderwater.co.uk](http://Camerasunderwater.co.uk)



## Underwater housing for Leica M8

Leica has announced the specs of its underwater housing for its M8 camera. Featuring the company's legendary high standards of quality, the durable aluminium construction weighs in at a mere 100g with camera underwater. Most camera functions can be accessed through the housing, including full menu controls. The lighting window is an Acrylic window prism providing approximately 60 percent coverage. External flash synchronization utilizes the standard Nikonos 5-pin type. Also included are spare o-ring, fluid to remove silicone grease ring and silicon gel. While small in size, the price is hefty at approximately 6,000 Euros.



## Sola 600

Sola is smaller, lighter and longer-running than anything in its class, writes Light & Motion. It is literally half the weight and size of its nearest competitor with better run time, beam pattern and power. It is completely sealed and factory depth tested before shipment and has no penetrations through the body. The magnetic tap switch has three white light output levels, or tap back for 200 lumens of red light, which is great for focusing without scaring critters up close.

Light & Motion



## Gobi for Sony or Panasonic

BS Kinetics has developed the new universal underwater casing called, "Gobi". With camcorders continuously shrinking in size, the rapid model changes and the stringent air traffic rules are causes for new approaches for underwater casings. These approaches relating to size, weight, universal use, special adaptations to the cameras and customer requests are implemented with this underwater casing. [www.bskinetics.com](http://www.bskinetics.com)

### Adobe Camera Raw 6.1 'Release Candidate' Available for Download

Adobe has released a downloadable Camera Raw 6.1 'release candidate' for those wishing to test the new pre-release version. The software features new lens correction functionality that can apply profile-based corrections to accommodate geometric distortions, chromatic aberration and lens vignette effects. Manual corrections for geometric distortion as well as vertical and horizontal perspective transforms are also available. A handful of lens profiles are included for automatic correction and more can be created with the Adobe Lens Profile Creator. ■

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