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Edited by
Don Silcock

Hello small world, by Beth Watson. Example of cross lighting. Photo of blenny taken in Bonaire, f32, 1/200, ISO 100

Lights, Camera, Action

— *Lighting your way to better images*

Text and photos by Beth Watson

Of course there is no substitute for adequate working knowledge of the camera system, and a good eye for composition is a bonus, but the key factor in creating dynamic, creative and impactful underwater images is understanding the light. Learning and understanding how light falls on the subject and having the ability to control and shape the light is crucial! The lighting is what creates the mood and atmosphere of any image.

The harshness and softness of light play a key role in the shape, appearance, dimension and texture of an image. It is important to know when to add light and when to subtract it. Direct light will cast harsh shadows while diffused light will create a much softer look. Shadows will be cast on the opposite side of the light source. A small light source produces hard, directional light with a narrow beam, while a large light source will produce a softer light with a wider beam.

The direction and angle of light will dictate its quality. Light coming from an angle will produce texture and drama, and create character. Direct light coming from a standard flash camera position will usually be flat and unflattering, revealing minimal shape and texture. Angling the light sources will produce more interesting results.

The color temperature is a characteristic of visible light and refers to the warmth or coolness of an image, and affects its mood and feel. A warmer image will have more yellow and red tones while a cooler image leans towards the blue spectrum. Color temperature is measured using the Kelvin scale (Fig. 1, next page): a higher number reflects a cooler temperature and a lower number reflects a warmer tone. The white balance setting on the camera, photo-editing software and filters will give the photographer control over the color temperature.

Water is denser than air, resulting in the loss of visible colors very quickly. Red is the first color to be absorbed and is no longer seen at five meters (15 feet); orange, yellow, green and blue are the next colors to be absorbed. Due to the absorption of light, artificial lighting is needed. Otherwise, images will lack color and contrast.

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Example of top lighting. Photo of coconut octopus taken in Lembeh, Indonesia, f13, 1/100, ISO 160

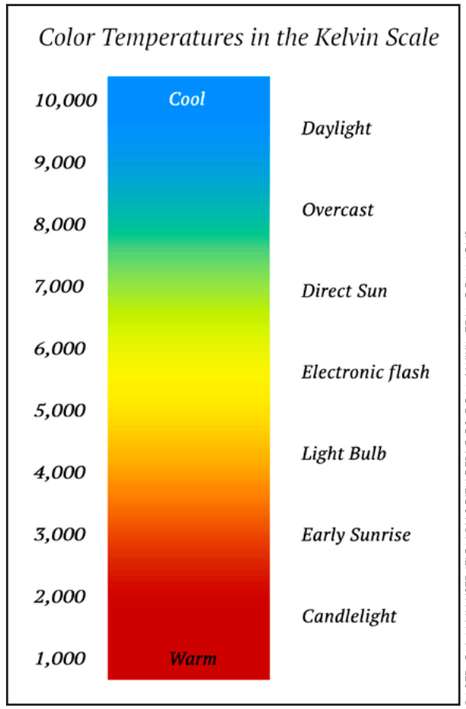
One-strobe lighting techniques

Front-top lighting

Front lighting is typically done by placing a strobe directly above the lens port. Aiming the strobe downwards at a 45-degree angle will give the image depth and texture, and the colors will pop. Positioning the strobe directly on the subject will result in a flat and lifeless image. Another alternative is to place the strobe directly over the top of the subject, so that directing the light downward will create interesting shadows.

Side lighting

This technique can be very effective in producing high-quality images, especially when using a single strobe. Positioning the strobe at the left or right of the camera creates shadows, giving the image depth, and accentuate textures.



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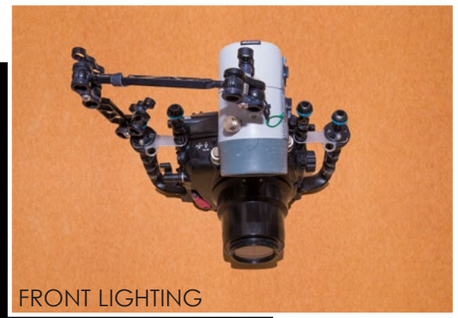
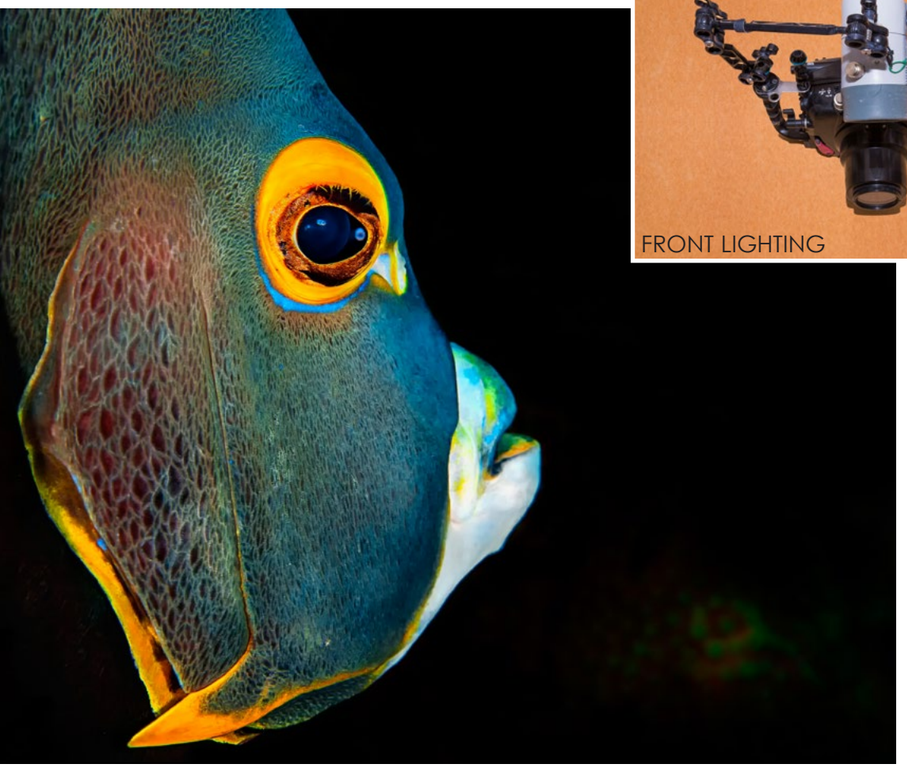


FRONT LIGHTING



Example of front lighting. Photo of French angelfish taken in Bonaire, f32, 1/125, ISO 100

Example of side lighting. Rhinopias scorpionfish, Komodo, Indonesia, f14, 1/60, ISO 160 (right)

Figure 1. Color temperatures in the Kelvin scale b (top right)

SIDE LIGHTING

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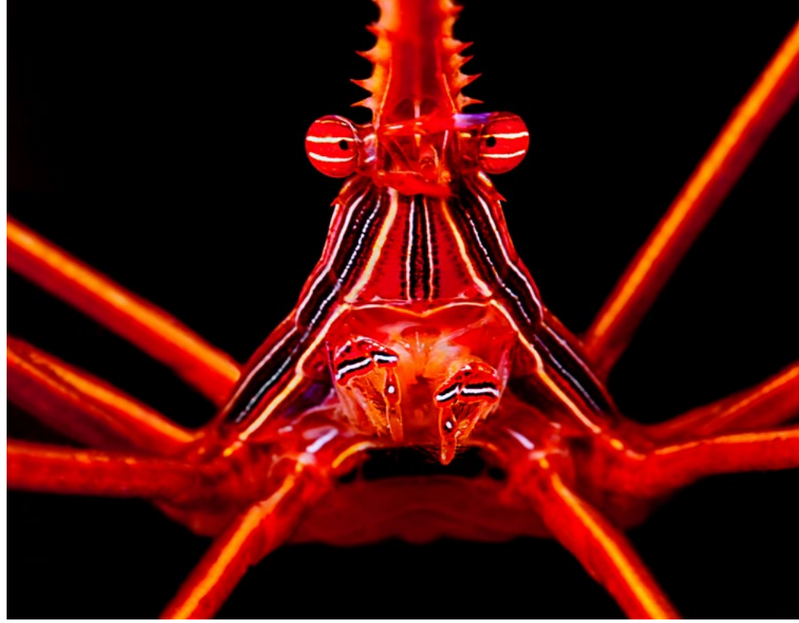
Example of maco lighting. Mantis shrimp, Puerto Galera, Philippines, f25/1160, ISO 160 (right)

Example super macro lighting. Arrow crab, Bonaire, f32, 1/160, ISO 100 (right)




BASIC MACRO LIGHTING


BACKLIGHTING

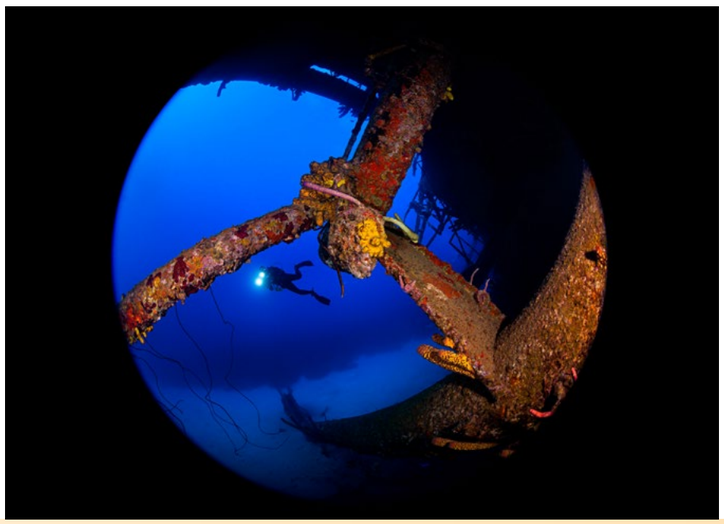
Example of backlighting. Ornate ghost pipefish, Lembeh, Indonesia, f/8, 1/250, ISO 160

Backlighting
Place the light source behind the main subject, and observe how the light falls upon it. What is the desired outcome? The use of a constant light source often works well in this situation and can provide instant feedback. Double-check the exposure of each image, as overexposure presents a problem when too much light spills out from around the subject. Camera angle, distance and height of the subject in relation to the camera, and distance from the subject to the light source are other variables that need to be taken into consideration.

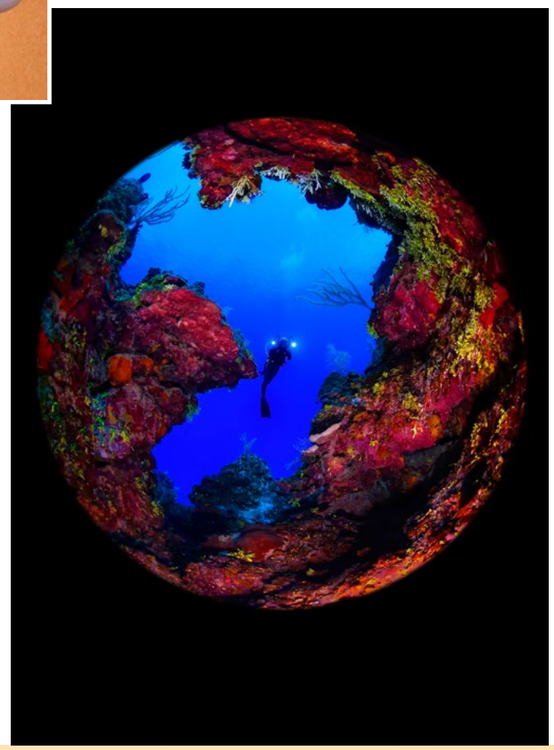
Two-strobe lighting techniques

Wide-angle lighting
The basic setup for wide-angle underwater photography is to extend both strobe arms bilaterally. Angle each strobe slightly outwards, away from the center of the camera. This helps to minimize backscatter. Extending the strobe arms to their maximum length will most likely be required for a reef or wreck scene, but a smaller subject will require the strobes to be drawn in closer to the camera. Use diffusers when shooting wide-angle scenes, they will allow for increased coverage and soften the shadows. Keep in mind that diffusers will decrease the amount of light and contrast in an image; adjust the camera settings accordingly. Position the strobes slightly behind the housing to avoid unwanted light spilling into the image.


WIDE-ANGLE LIGHTING



Example of wide-angle lighting (right). Diver on the *Hilma Hooker*, Bonaire, f8, 1/125, ISO 320




BASIC SUPER MACRO LIGHTING

Macro lighting
Aiming the light source directly at a subject while underwater can be a problem. The light hits particles in the water and is reflected back on to the camera sensor, creating unwanted backscatter. However, this does necessarily apply when shooting macro subjects because of the close proximity of the camera to the subject. Reducing the amount of water between the camera lens and subject significantly reduces the chance of recording backscatter. A basic strobe position for a macro lighting is to draw

Example of wide-angle lighting (left). Photo taken at Little Cayman Island, f8, 1/200, ISO 100

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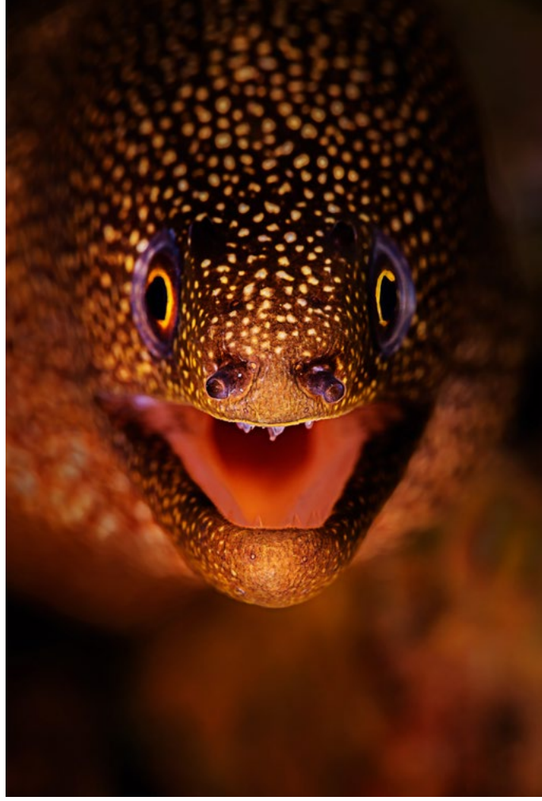
Example of front and side lighting. Cleaner shrimp on anemone, Puerto Galera, Philippines, f16, 1/160, ISO 160

FRONT AND SIDE LIGHTING

Example of front and side lighting. Golden tail moray eel, Bonaire, Netherlands, f29, 1/125, ISO 160



the strobes in very close to the camera and direct the light towards the subject.

Super-macro
Super-macro photography involves adding a device that adds magnification such as a diopter, teleconverter or extension tube. In theory, most strobe positions and lighting techniques can be modified in some form and applied to super-macro subjects. To be effective, the strobes should be drawn in close to the camera. Due to the higher magnification, the power output of the light source will need to be reduced to avoid overexposing the image.

CROSS LIGHTING

DIAGONAL LIGHTING

camera, depending on the desired effect. Position the strobes so the edge of the cone of light gently hits the subject. This technique gives the image a three-dimensional look.

Diagonal lighting
Diagonal lighting will illuminate the subject, nicely providing texture, color and dimension. To achieve this effect, place one strobe at the top right, and the other at the back left; or vice versa. The height and angle of the light depends on the subject and desired effect. Experiment with various strobe power ratios, set the strobes manually and take control of the lighting situation.

Example of diagonal lighting. Clownfish with anemone, Wakatobi, Indonesia, f22, 1/125, ISO 100

Example of cross lighting. Polyps, flower cup coral, Puerto Galera, Philippines, f32, 1/50, ISO 100

Cross lighting
A method by which both strobes are pointed inward towards the subject. This lighting technique creates a lovely quality of light and gives the image a nice balance. Increasing the shutter speed will create a black background, produce vivid colors and provide depth.

Front and side lighting
Position one strobe over the lens port at a 45-degree angle facing the subject. Place the other strobe to the left or right of the

Inward lighting
If the subject is hidden in a crack or crevice, pull the strobes in very tightly and aim them towards the camera lens. This helps to eliminate unwanted shadows. This technique is most effective when shooting super-macro subjects because of the increased magnification and short working distance from the lens to the subject.

Example of inward lighting. Damselfish eggs, Turks and Caicos Islands, f25, 1/80, ISO 160 (below)

Snooting

Snoots have become very popular in recent years. A snoot is a device placed on a light source used to direct light onto a specific portion of a subject. This creates a spotlight effect, highlighting the subject and blocking out distracting backgrounds. Snoot lighting grabs the viewer's attention, produces vivid colors and creates a wow-factor. Learning to use a snoot requires patience and perseverance. Trial and error is part of the process; but when success strikes, and that stunning image is captured, it is very rewarding.

Off-camera lighting

Using this technique requires thought and preparation. Whether the off-camera light source is placed on a wide-angle wreck or behind a translucent leaf fish, the images will be creative, dynamic and eye-popping. The strobe will be detached from the housing, and hand-held or placed on a tripod. Several triggering mechanisms can be used to trigger the off-camera strobe. Using an extended sync cord is a good way to begin experimenting with this technique. For more creativity and flexibility, investigate fiber optic triggering systems.

Example of snooting. Wunderpus, Lembeh, Indonesia, f16, 1/160, ISO 160 (lower right)

Example of snooting. Peacock flounder, Bonaire, f18, 1/80, ISO 160 (right)

Get creative with multiple light sources

It is the angle of light that ultimately determines the quality of light. Using more than one strobe opens the door for an endless array of lighting possibilities. Experiment with unfamiliar lighting techniques and apply changes to favorite tried-and-true methods. Visualize how the light will fall on the subject before pressing the shutter, attempt to "see" the image before it is captured.

Example of snooting. Blenny, Cozumel, Mexico, f29, 1/160, ISO 160

In the words of Ansel Adams, "The concept of the photograph precedes the operation of the camera. The print itself is somewhat of an interpretation, a performance of the photographic idea." Be creative, explore and observe.

Tips and hints

- Proper buoyancy is perhaps the most important factor in becoming a good underwater photographer and diver. Practice buoyancy skills often.
- Disturbing the environment, moving or harassing animals for the sake of capturing an image is unnecessary and unacceptable.
- Strobes are most effective when the subject is 1m (3ft) or less from the camera.
- Always perform a pre-dive check, making sure all strobes are firing correctly before the dive.
- Take control, shoot in RAW, use manual settings on the camera and strobes.
- Experiment, try new techniques
- Think outside the box! ■

Beth Watson is an awarding-winning, internationally published underwater photographer based in the U.S. state of Missouri. For more information, visit: ***www.bethwatsonimages.com****.*

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PRODUCT SHOTS
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Nauticam NA-7II Housing

Nauticam has released its housing for the new full-frame Sony A7 Mark II mirrorless camera. The NA-A7II housing features lever controls for AF-ON, review and record plus a switch that allows the electronic viewfinder to be enabled or disabled. Nauticam has developed a new set of ports for the Sony A7 mirrorless cameras and selection offers support for the new Sony 16-35mm f4 rectilinear wide-angle zoom. The NA-7II is shipping now with a U.S. retail price of $2,750.

Subal A7 Housing

Austrian premium housing manufacturer Subal has announced the imminent release pf their new housing for the Sony A7 full-frame mirrorless camera. The housing provides full access to all camera controls and is designed to accept all three models—A7, A7R and A7S. Utilizing Subal's Type 2 ports, the housing ships with either electronic or fiber optic strobe triggering bulkheads. The Subal A7 housing is available from the end of April 2015 at a retail price of US$2,850.

Sea&Sea Housing for Canon 7D MkII

Sea&Sea has released their new new housing for the Canon EOS 7D Mark II DSLR camera. The MDX-7DMKII is compatible with Sea&Sea's excellent internal YS TTL converter and its control levers have been designed for improved ergonomics over the earlier MkI version. The housing is shipped with two fiber-optic bulkhead fittings and there are options for both Nikonos and HDMI connections. The MDX-7DMKII is available now at a retail price of US$3,600.

Gates Alexa Mini Housing

California-based Gates Underwater Products has announced it will support the release of the ARRI ALEXA Mini camera and produce a housing for it. Few details are available now, but Gates stresses that the housing will be compact in size and have mechanical controls for accessing the camera functions. The Gates Alexa Mini housing will be available in Q3 of 2015 but no pricing is currently available.

Easydive Leo III Housing

Innovative Italian manufacturer Easydive has announced the release of a new version of their Leo housing. The Leo III housing utilizes electronic control over the majority of camera functions, which greatly reduces the number of external controls and allows it to be upgraded for use with different camera models. Easydive claims that the Leo III can host all major DSLRs from both Canon and Nikon and works with more than 50 different DSLRs in total. To switch between different camera models requires a change of the tray that mounts the camera in the housing and updating the housing's firmware by downloading the revision from the Easydive website. The Leo III with 2 Nikonos and fiber-optic connectors as standard can be fitted with port adaptors for other manufacturers ports if required. The Leo III is available now at a retail price of €2,790.

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PRODUCT SHOTS COURTESY OF THE RICO BESSERDICH

ARRI Alex Camera

German motion picture equipment company ARRI has announced the upcoming release of its ALEXA Mini camera. The new camera supports both uncompressed ARRIRAW 2.8K and 4K UHD shooting and features a built in lens motor controller for use with PL mount lenses. Alternatively, an interchangeable lens mount can be used that allows the use of B4 video and EF mount still lenses. The ALexa Mini will be available from May 2015.

Canon XC10 Camera

In a clear sign of convergence between video and stills imaging, Canon has announced the upcoming release of its new XC10 camera. Combining 4K video and a respectable 12 megapixel stills the XC10 camera has a fixed optical zoom lens with image stabilization and a 1" sensor. Capable of recording at up to 305Mbps to an internal CFast 2.0™ card and ISO up to 20,000 the XC10 is a very interesting development. The XC10 will be available in June at a retail price of US$2,500.

Nikon D7200 DSLR Camera

Nikon has announced the release of the DX format D7200 DSLR camera, the successor to the highly regarded D7100. The release follows Nikon's usual modus operandi of refreshing its models every two years and the D7200 features what appears to be a new 24.2 megapixel sensor from Sony, replacing the 24.1 megapixel one from Toshiba used in the D7100. The new sensor has no low-pass filter and the D7200 uses Nikon's EXPEED 4 processor. The ISO range is 100 to 25,600, and the camera has a 51-point autofocus array, which is driven by a new Advanced Multi-CAM 3500II DX high-density system; so overall, there are some significant improvements over the earlier model. Most importantly Nikon has fixed what was probably the biggest complaint made about the D7100—its buffer size—and the new camera now holds 18 RAW images or 100 JPEG's, compared to 6 and 50 previously. Video is available at 1080 at 30/25/24p or 1080 at 60/50p in 1.3x Crop Mode. Given Nikon's rather mysterious decision to not update the seminal but six-year-old D300s, the D7200 is now the company's top-of-the-range DX format DSLR. For underwater photographers it represents an excellent combination of functionality and value, plus it appears that it will fit into existing D7100 housings, as Nikon did not change the body or controls. The D7200 is available now at a retail price of US$1200.