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Image 1. The original photo of a squid used in this tutorial, with a few slight corrections to contrast and highlights made in Adobe Photoshop

Text and photos
by Rico Besserdich

Adobe Photoshop is the number one tool for image editing and provides a large number of editing tools and options—far too many of them actually. But the good news here is that, for editing our underwater images, we only need a few. There are some real gems hiding in the depths of this software, and one of them is great for giving underwater images a final “color kick.” This tutorial refers to Adobe Photoshop CS6 but works with older versions as well.

Let's get started. Here, I have a photograph of a squid (see Image 1), as taken in 2008 with a Canon 40D camera, a 60mm macro lens and one single strobe. As always, I did the white balance and a few slight corrections of the



Vivid Color with Lab

in Postproduction of Underwater Images





Vivid Color

Image 2. Vibrance adjustment layer applied to tutorial image (far left)



Image 3. Saturation slider applied to tutorial image (left)

contrast and highlights in Adobe Camera Raw. That took less than a minute, and the rest I will do in Photoshop itself.

In Photoshop, I used advanced retouching techniques to get rid of a few bits of backscatter and applied a Curves modification by setting a black-and-white point, just to fix a very subtle cyan color cast.

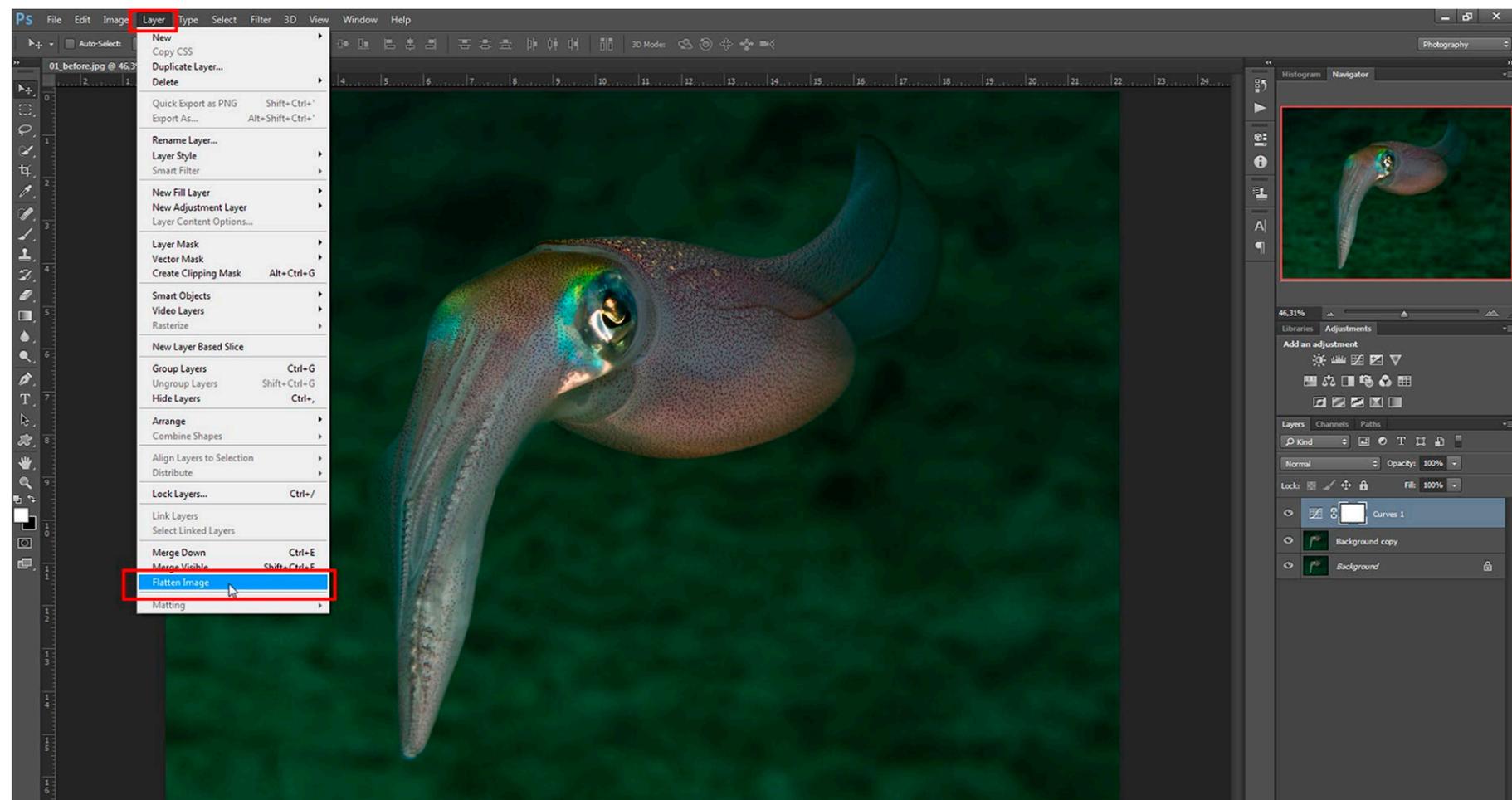
So far, so good, and the image is almost ready. But what I would love to do is make the colors pop a bit more—just as a “final touch.”

Some of you might say that it is the easiest thing to add this final touch, and you might have the Vibrance adjustment layer in mind. Let’s have a look at how that works (see Image 2).

Well, it works... but not so well. Let’s try it again but this time with a saturation boost, using the Saturation slider (see Image 3).

It’s not getting any better—it’s getting worse! All the colors look very artificial now, and I believe that this squid deserves something better. In editing underwater images, I tend to say, hands off of those Vibrance and Saturation sliders. So, let’s delete those nasty Vibrance and Saturation adjustment layers. But before we proceed, in case you did any adjustments or modifications to your image in Photoshop and want to keep the PSD file for later use, now is the time to save it onto your hard disk.

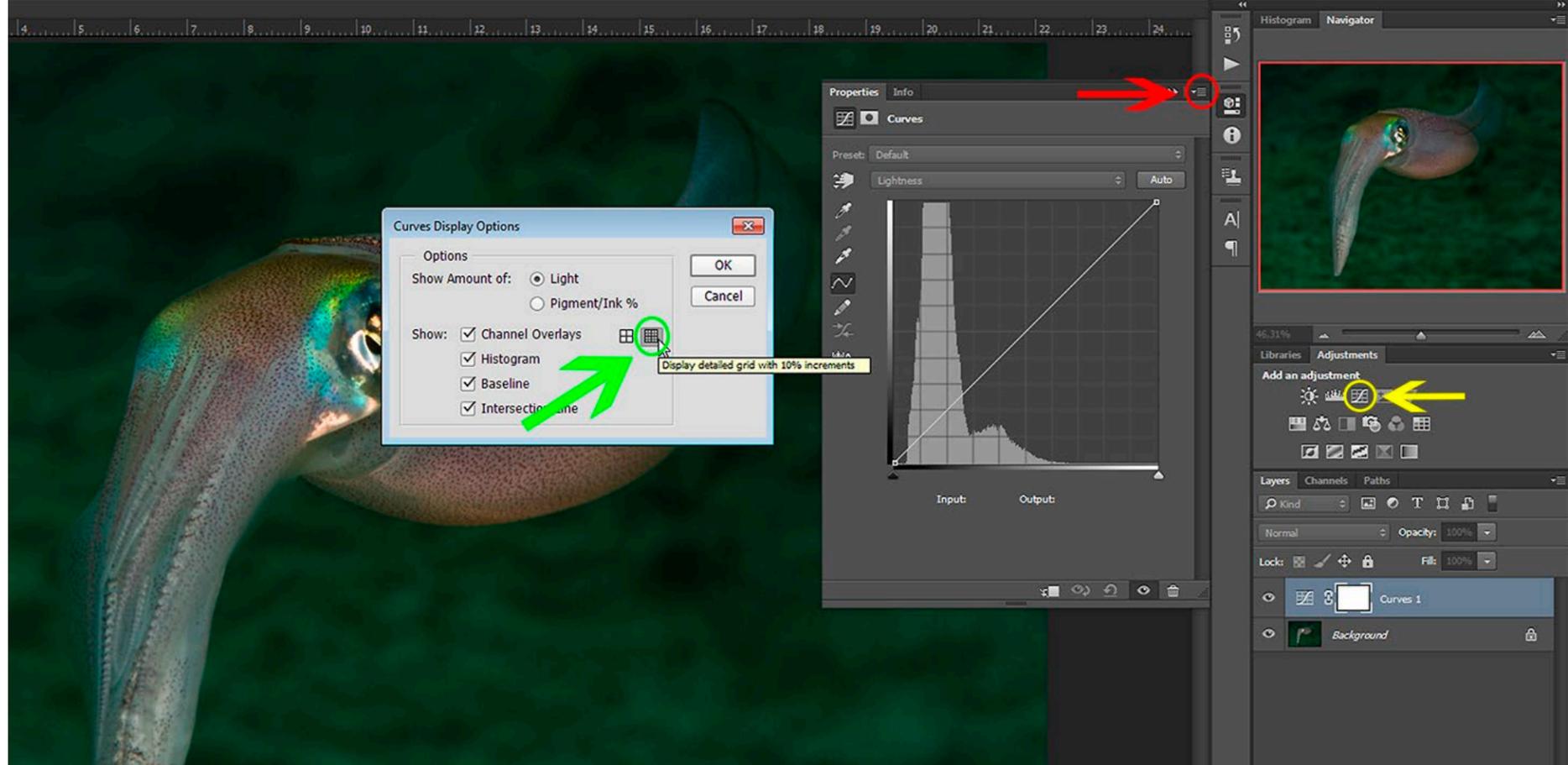
Now, it is time to enter the Lab color mode. 1. Merge all layers into one by selecting Layer, and then, Flatten Image (see Screenshot 1).



Screenshot 1. Merge all layers by selecting Layer, and then, Flatten Image.



Screenshot 3. The Curves layer symbol is highlighted in yellow; the Curves Display Options is highlighted in red; and the "Display detailed grid with 10% increments" icon is highlighted in green.



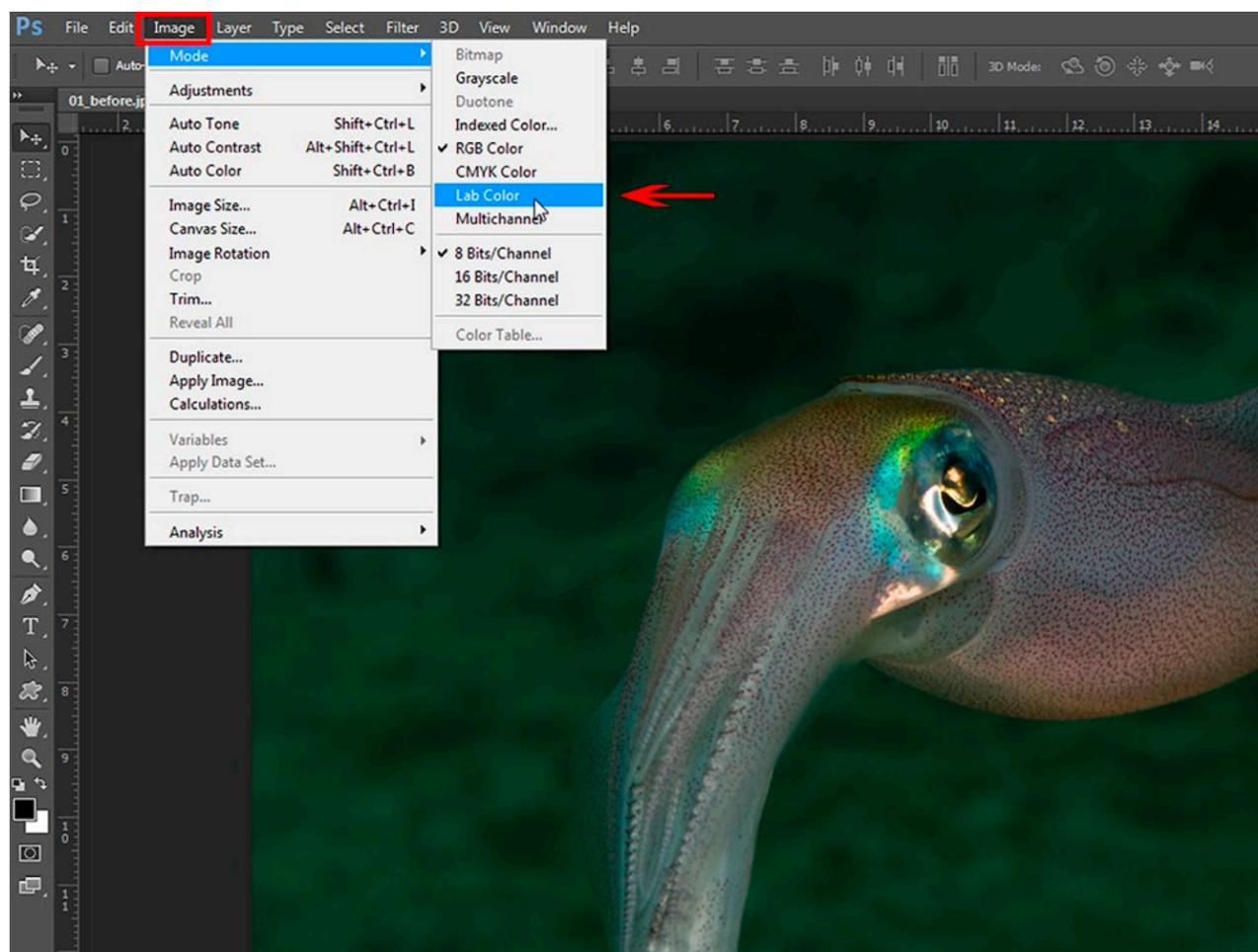
2. Go to Image > Mode and select Lab Color (see Screenshot 2).

Ok, there is no change in sight... but just wait, it will come in a short while. Until then, here is a quick explanation of Lab. A Lab color space is a color-opponent space, with dimension L for lightness, and A and B for the color-opponent dimensions.

Let's keep it simple: The Lab color space includes all perceivable colors, which

means that its gamut exceeds those of the RGB and CMYK color models. Lab color is designed to approximate human vision. And this little trick helps us give the colors in our image the "final touch."

3. Create a new Curves layer by clicking on the Curves layer symbol (in yellow). For more precise work, we will need to open the Curves Display Options (in red) and activate the option "Display detailed grid with 10% increments" (in green). See Screenshot 3.



Screenshot 2. The Lab Color mode can be found in the dropdown menu under Image > Mode

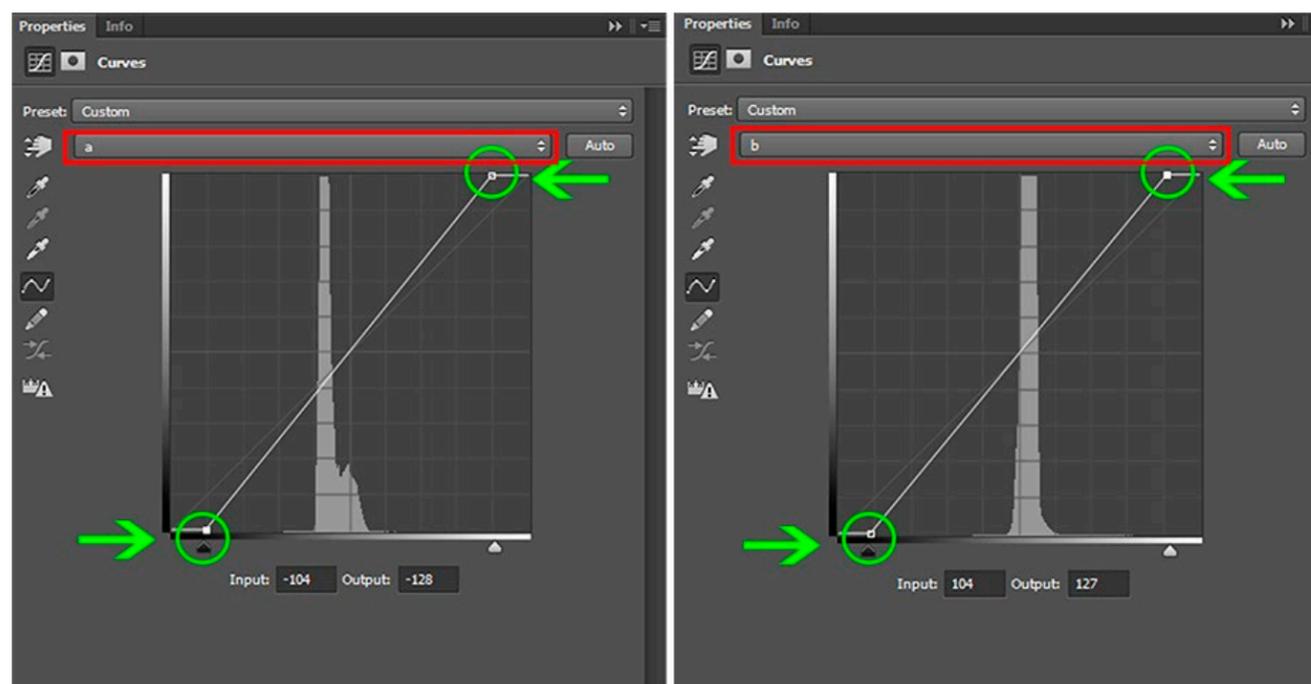
4. First, select the "A" channel in the dropdown menu on top of the Curves histogram. Then, pick the little black triangle symbol (directly below the histogram on the left) and move it slightly to the right. Gentle steps, please. Something close to the grid's first vertical line is often enough. After that, move the little white triangle

symbol (bottom right) to the left, until the first line of the grid.

Select the "B" channel in the dropdown menu and do exactly the same there. The important thing is that each triangle symbol (in both channels A and B) is moved to the same position. Look at Screenshot 4 below.

Using this technique, it is important to make the adjustment to both channels. We do not need to touch the "L" (Lighting) channel.

To see the result of your work, you will need to complete all the steps shown above. If you like what you see, then that's great. If you want a stronger or



Screenshot 4. Adjusting the "A" channel (left panel) and the "B" channel (right panel) in the Curves histogram, by sliding the little triangle symbols





lesser effect, then move all four triangle symbols to a different position. Again, if you move the black triangle to a specific position, you will need to do it with the white one as well.

Not all underwater images require this adjustment in the Lab color space, but if you want to check if it is possible to squeeze a bit more out of an image, or if you are a fan of warm and smooth colors, just try this method. But please remember to take gentle steps—do not overuse it!

5. Once you are done and happy with the result, merge all layers (Layer > Flatten image). Go to Image > Mode and switch from Lab Color back to RGB Color. This is it. Congratulations! (See the final result in Image 4.) ■

Rico Besserdich is a widely published German photographer, journalist and artist based in Turkey. For more information, visit: Maviphoto.com. See his latest book at: Songofsilence.com.

Image 4. The final result, after adjustments in Lab Color mode





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Backscatter FLIP Filter System for GoPro HERO 9

The One Filter Kit includes one color-correction filter and an aircraft-grade aluminum "flip-frame" system that is compatible with the new GoPro Hero 9 action cam (older GoPro Hero models are supported as well). Depending on the location of the dive, different filters can be used, correcting the underwater colors in blue and green waters. Additionally, a "double flip" system (two mounted interchangeable filters) is available as an extra feature. backscatter.com



The Reflector for Retra Strobes

The Reflector made by Retra can be mounted onto a strobe head (via the separate reduction ring), increasing the power output of

the flash-gun by +1 *f*-stop (in water) and narrowing the beam angle—which is perfect for macro and CFWA photography in manual or TTL mode. The new light-shaping device is made from a single piece of aluminum treated with a highly reflective finish, doubling as a corrosion- and scratch-resistant coating. The Reflector is available for shipping at the end of October 2020. retra-uwf.com



Keldan Spectrum and Ambient Filters

The Keldan Spectrum Filters for cameras are scientifically engineered color-correction filters based on spectral measurements of the lighting conditions found underwater. In order to restore correct colors, Keldan Spectrum Filters convert ambient light into a daylight spectrum, while optimizing white balancing. The filters are available in blue- and green-water versions, and as threaded or gel/film-filter versions.



The Ambient Filters by Keldan convert the white video light into the same spectrum as the ambient light underwater. This, according to the manufacturer, helps



to avoid mixed light problems when the camera's inbuilt white balance is set to ambient light. Keldan Ambient Light Filters are available for the 4X, 8X, 18X and 24x series of underwater video lights by Keldan. Available versions include blue, blue-green and green-water correction filters as well as filter versions for 6m or 12m of depth. keldanlights.com



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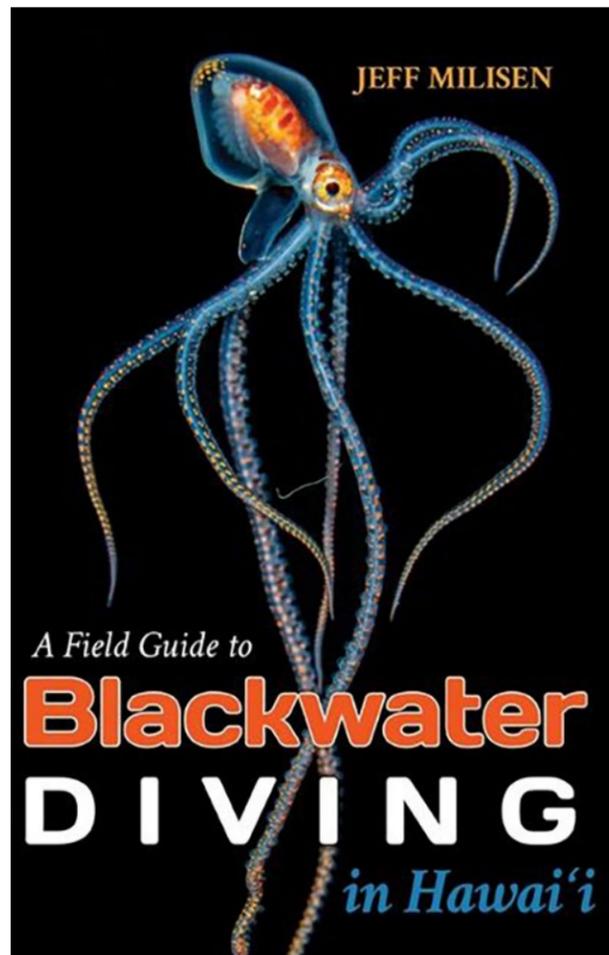
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Blackwater field guide

Curious ocean lovers will enjoy *Blackwater Diving in Hawai'i* by marine biologist and underwater photographer Jeff Milisen, who presents beautiful photos and information on over 300 weird pelagic creatures not often found in standard reef guides.

Published by Mutual Publishing on 22 October, this 288-page softcover book aims to provide insights into the kinds of critters one might find at night in the open ocean.

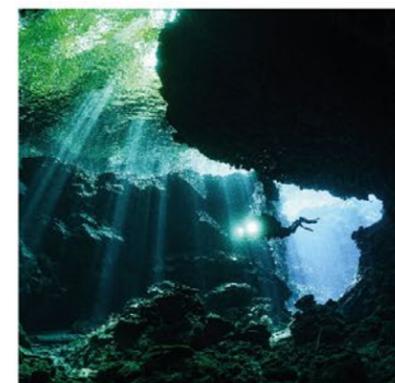
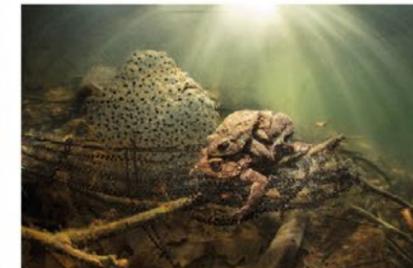
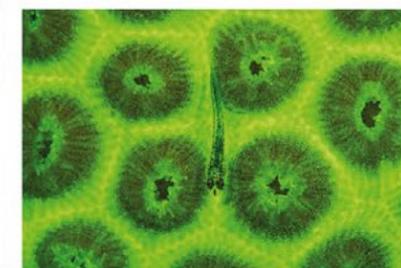
A spotlight is placed on each epipelagic creature to present what is currently known about them. ISBN-13: 978-1-949307-14-6. mutualpublishing.com



Ikelite Underwater Housing for Canon EOS R5

The Ikelite 200DL is a full-featured and durable waterproof housing made for the new Canon EOS R5 full-frame mirrorless digital cameras. It is made of PC-ABS (an advanced form of polycarbonate), is depth-rated to 60m, features Ikelite's own "dry lock," has a valve for a vacuum pump, weighs only 5.4 lb (~2.4kg) with tray and handle, and is compatible with Ikelite's DL system lens ports.

The included manual hotshoe, with Ikelite ICS-5 bulkhead, supports manual strobe exposure with a wide variety of strobes, including Ikelite, Sea&Sea, Inon, Retra and others. For Ikelite strobes, an optional TTL converter can be added. ikelite.com



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