



photo & video

Circles are the most natural geometric shapes and it's nowhere written that a circle always have to be a perfect one. Round, circle-like shapes in a rectangle do often come with interesting image expressions, regardless of the photographed subject

Text and photos by Rico Besserdich
Edited by Scott Bennett

Today's underwater photography is pretty much subject-oriented. Let's take it as a fact—and there is nothing bad about this fact. Those who dive without an underwater camera like to describe what they have seen underwater, and those *with* a camera do exactly the same, but with the added advantage of providing visual proof: an underwater photograph.

However, there is the dilemma. What does one do after everything within reach has already been photographed? That's the point we've reached now. Nowadays, many keen underwater shooters equip themselves with high-end photo gear and invest time and money

in books, classes and private workshops, not to mention pricey trips to exotic dive locations to shoot that next awesome subject. The average diver will happily use his or her BCD for three to five years, but an underwater photographer does not mind upgrading camera equipment

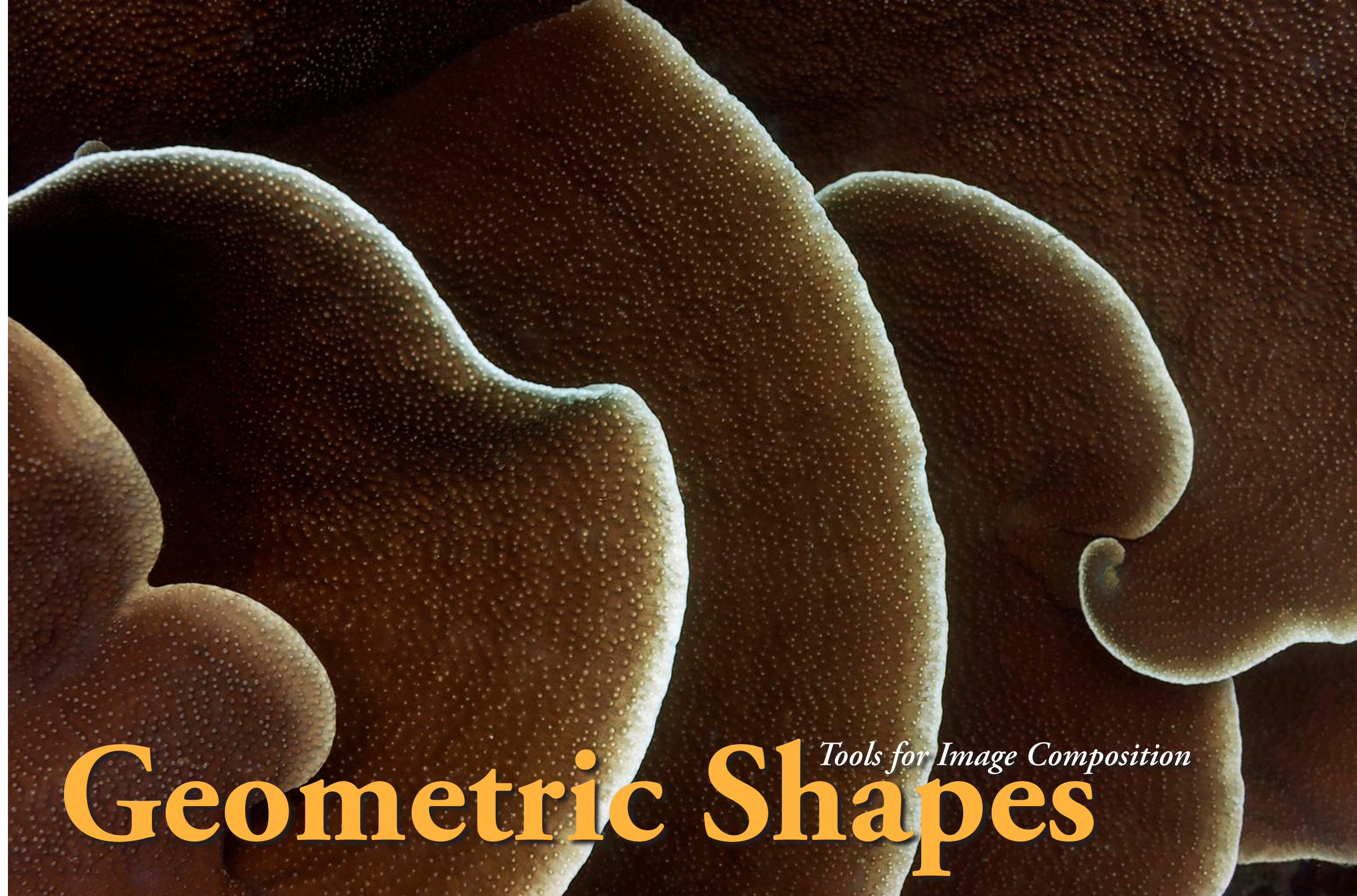
every two years. Many believe that off-sung mantra: "The newer camera will be better and so it will take better photographs." Don't stop doing that, as an entire industry now relies upon you!

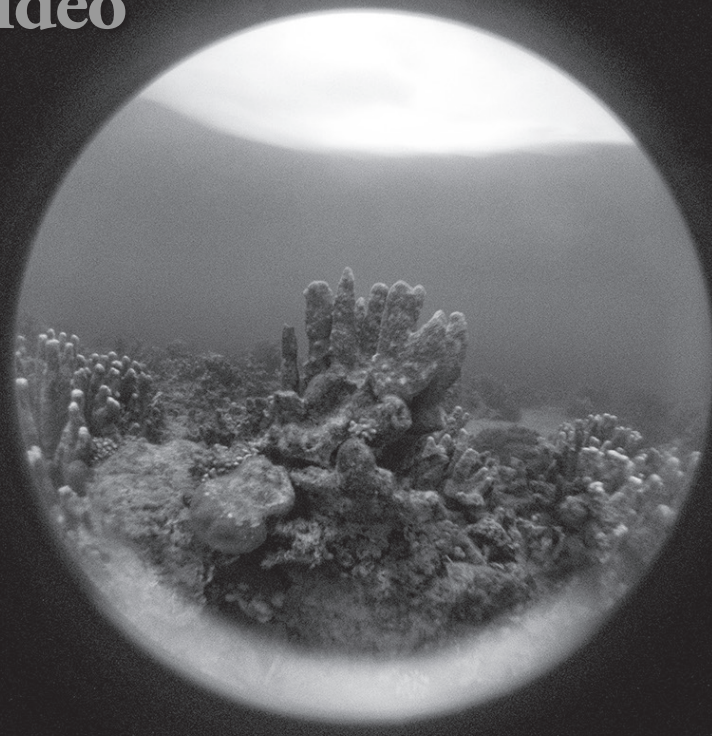
Sooner than later, 50 MP (megapixel) cameras will be considered standard

level, 50-100 MP cameras might serve as intermediate models, and high-end models could be 100 MP or more. Add five more years and double the numbers. Add another five years, and there will be contact lenses able to capture high-end images with a blink of the photographer's

eye. In addition, camera sensors with an unlimited dynamic range have already reached the field for testing and may hit the market just after you have sold your house to buy that 100 MP medium-format Hasselblad or the upcoming 120 MP light saber from Canon.

Geometric Shapes *Tools for Image Composition*





Rectangle (the frame itself) and a circle (actually 5 circles): Whilst the photographed scene itself might be not so fancy, a simple playing with geometric shapes can turn a standard scene into something different. By the way: this image was done with a tiny simple compact camera.

Straight geometric shapes such as rectangles and triangles are often parts of artificial objects such as shipwrecks. It is however always a good move to look out for interesting geometric shapes or pleasing combinations of those.

sold for US\$ 4.3 million. In social media (considering the image would be still unknown by now), this image would barely gather ten likes. In comparison to the capabilities of today's modern cameras, it is not even a technically outstanding image. It has some mistakes and has been manipulated, with several image elements removed during darkroom processing. (Don't think for a second that image manipulation is a

digital age curse; it has been around as long as photography has existed).

Then again, who needs Likes and pixel analysis if one can make millions of almighty dollars? Incidentally, "Rhein II" uses geometry as its main compositional element, so keep reading as I will come to the point shortly.



Basic principles

However, that does not automatically guarantee you will shoot better images. If you do not want to sell your house for a better camera but are still keen on improving your underwater photography, I have some good news for you.

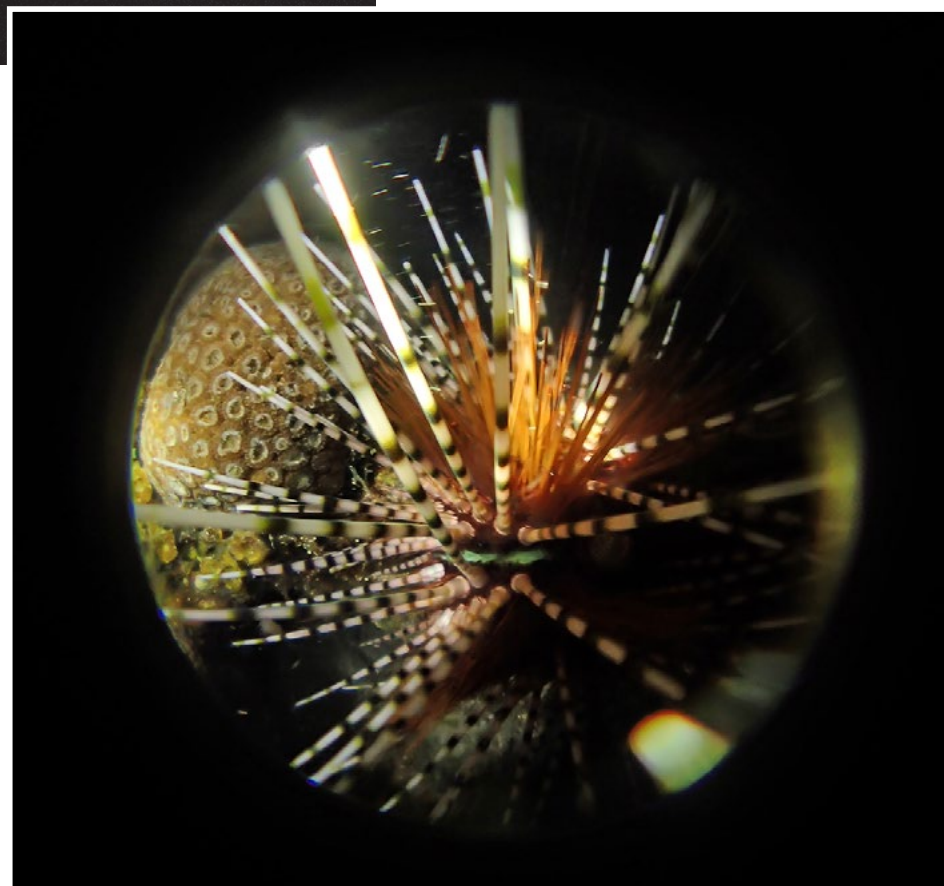
The basic technical principles of photography have not changed for the last 125 years. First is the need for a light sensitive material (i.e. film—in the past analog age—and nowadays, the digital sensor); second is the need for a device to control how much light hits that light-sensitive material (i.e. the aperture); and third is the need to control how long the light hits the light-sensitive material (i.e. the shutter speed). Add a special feature, the sensitivity of that light-sensitive material (ASA aka ISO), and that is basically it.

Whether upcoming generations of digital cameras are capable of making

a long distance call to ET's relatives, make you a cappuccino underwater or text your darling that you will be late for dinner while simultaneously combining 25 multiple exposures, every camera works according to the above-listed basic principles. Simple.

Technical quality

It would be a bit single-minded to judge any image by technical quality alone. Let me give you an example: One of the most expensive photographs in the world is "Rhein II" by German photographer Andreas Gursky, which



Rectangle (the frame itself) and a circle. When working on such simple subjects, a circle and a square crop can give such photograph a geometric expression, disconnected from the photographed subject.

Back to basics

In photography, there is no need for "always faster, always better, always fancier." The key to good photography does not rely on always looking forward, always striving for the best and newest or for special effects realized with special equipment. It might actually rely on looking back. Yes. Looking back means to go back and look at the basics that can make a photograph of any subject look great and impressive. I said "great and impressive", not successful, in terms of profit. If it's money you seek, go and shoot weddings.

Whether or not you can afford

high-tech equipment, or travel to exotic locations, it in no way limits your options for underwater photographic expression. So, let's go back to the basics and back to geometry, specifically—especially to geometric shapes. Geometry? Shapes? Relax, everything will be just fine!

Understanding geometry

To understand how geometry and geometric shapes can improve your underwater photography, it is a good idea to first understand what geometry actually means. According to Wikipedia, "A geometric shape is the



Whilst the jellyfish is actually not a very photogenic subject, this image still works due to its expression of geometry: two circles in one rectangle.

Triangles in a single rectangle. Some fish do come with a sort of triangular shape. Lucky shot this is, as the three fish do form a third triangle.

geometric information which remains when location, scale, orientation and reflection are removed from the description of a geometric object."

Oh dear, it's getting scientific now! Let's get even more basic. There are only three geometric shapes in existence: the rectangle, the circle and the triangle. Any other geometric shapes are just variations or combinations of one or more of the former. See? In the end, it is all very simple. It is even more simple in the art of photography, as we only have to deal with two dimensions. Now let's check out how we can use those three geometric shapes in our underwater photography.

The rectangle

As long as it does not morph into a circle or triangle, the rectangle can be



whatever shape it likes. Length of sides, straight or diagonal, it does not matter. A rectangle has four corners. Period. Fancy geometric shapes like octagons or hexagons are a combination of rectangles and triangles.

The most obvious rectangle we have

to deal with in photography is the frame itself. Whether it is a 3:2, 4:3 or 16:9 ratio, the image frame is the most basic geometric element of image composition, defining where our image begins and where it ends. Even the very simple rule of thirds would not work without a rectangular frame.

Seven rectangles are present in the super-expensive "Rhein II" photograph, which I mentioned earlier. The entire image consists of only rectangles, which makes it a masterpiece. If you count them, you will find six, but don't forget the image frame itself is a rectangle, which makes it seven.

Within the pre-given rectangle of the frame, you can position or compose all other elements of your shot just as you like. Following the rule of thirds, or the golden spiral, always works. However, it is always best to see your image frame as part of the composition.

Be it rectangles, triangles or circles, take it as a rule that two in each image are enough. Although there can be exceptions, viewers perceive an image including all three geometrical shapes not as pleasing. Keeping it simple is the



The eye of a pufferfish—a perfect circle



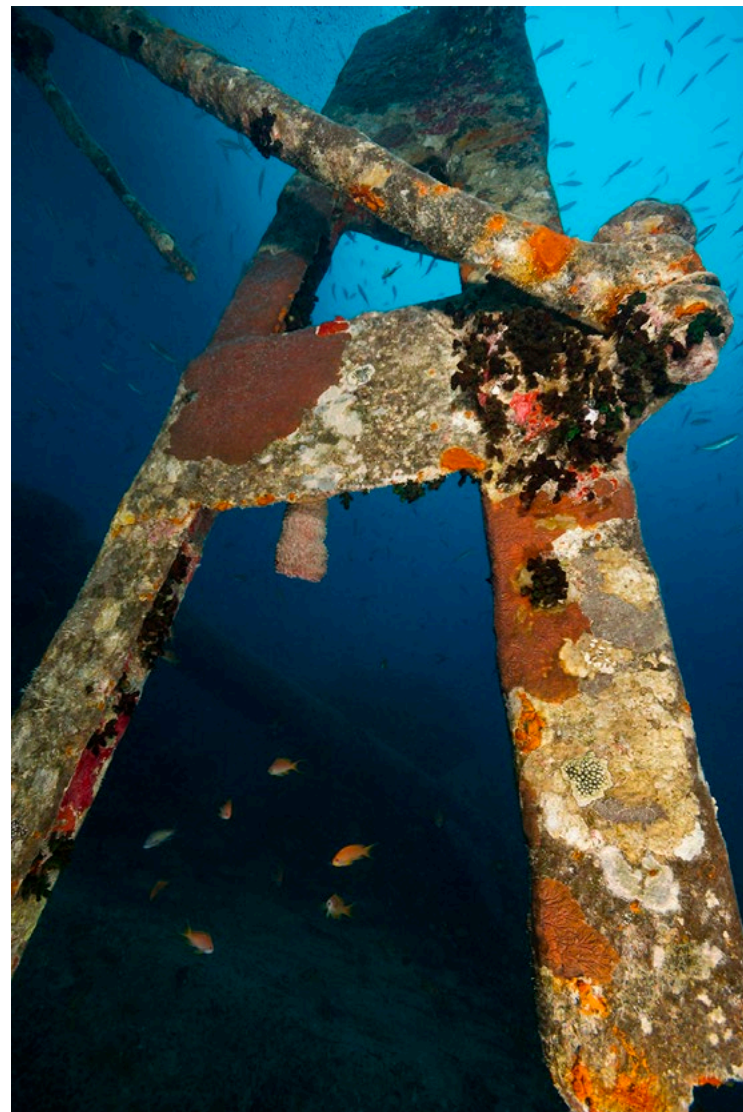
could be the shape of a circle or triangle as well, but you might also want to think of fine art prints that come with a mat board or passepartout. Whether framed or not, it is the same thing—combination of rectangles—and it always works.

An underwater image solely consisting of rectangles (such as that million dollar baby, “Rhein II”) might not be that easy to realize. But if it was easy, everyone would do it, right? So, the task remains open. Just think about it, especially if you want your work to be appreciated by not only other

key. To work with just one or two geometric shapes in a photograph is usually enough.

Rectangles might find their place in wreck shots or shots of anything artificial in the underwater world. In most cases, the good ol’ frame-in-a-frame (or window-in-a-window) concept actually works with rectangles. One frame is the image frame itself, the second is a rectangle in the image itself. Note: The second element (or window)

photographers but fine art photography specialists, museum owners and art curators. It isn’t enough to shoot something beautiful underwater, as buyers in the art scene are looking for images that step beyond ordinary beauty.

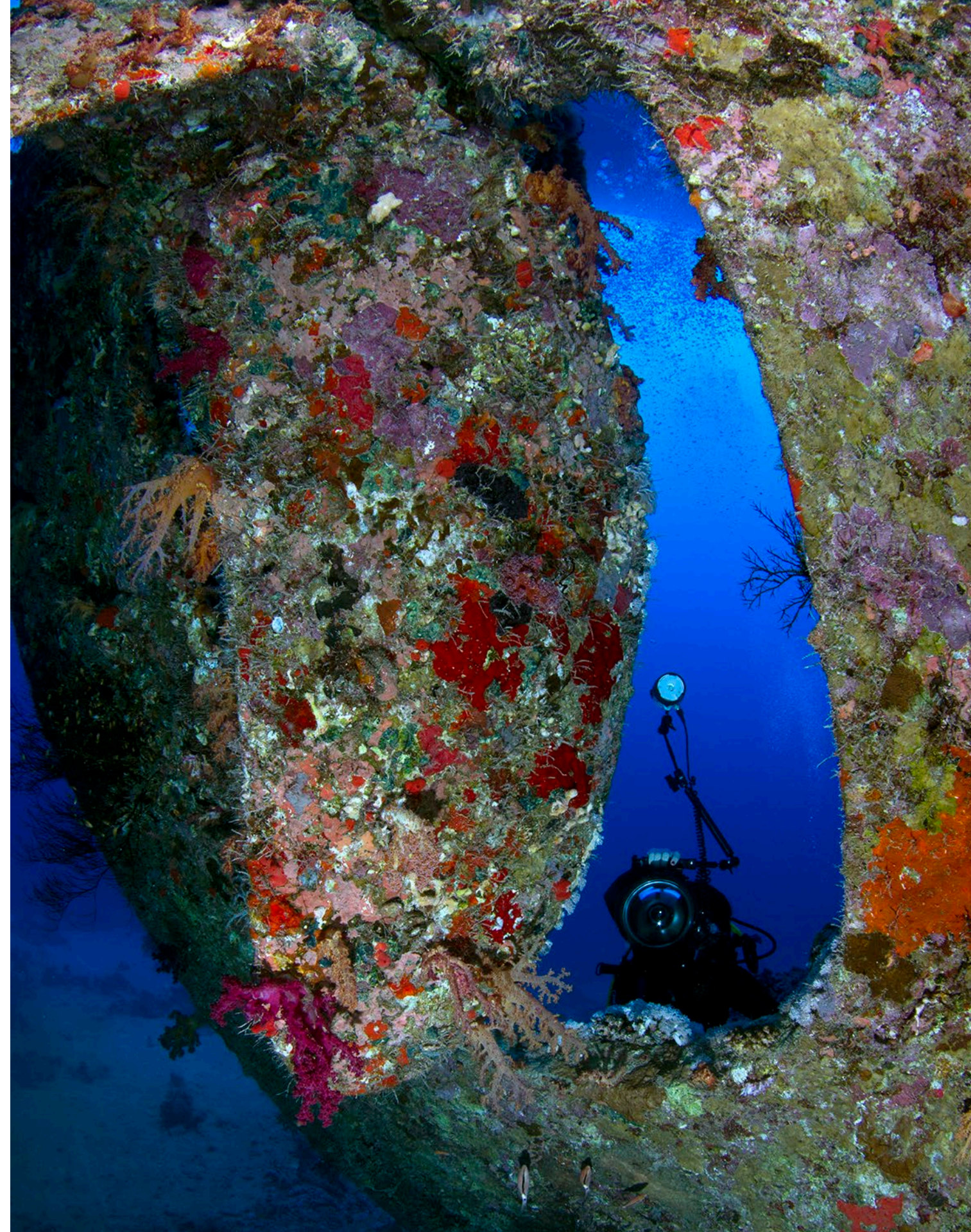


The circle

Round is the world, round is the eye and round is the circle. Eye? Circle? Hmmm.

In the evolution of mankind, the circle is one of the most powerful geometric shapes of all. The sun is round. Even ancient gods were symbolized with circles. The world is round and almost everything in nature appears round. Rectangular and triangular shapes are often artificial, in many cases, created by humans. This makes the circle the

The popular frame-in-a-frame photographic concept (right) does come with geometrical aspects as well. There’s a small extra gimmick in this shot: the window reminds one of a triangle; One triangle and plenty of rectangles (left)—indeed a very “geometric” shot.



Rectangles and triangles but no circle (left). Wrecks are perfect subjects for photographs working primarily with geometric shapes. Remember: to work with just two geometric shapes (and variations of them) is in most cases more than enough. Adding a third geometric shape can sometimes disturb the overall image.



This image (left) would not be such an interesting scene, if it weren't for all those interesting shapes; Propellers (lower left) of aircraft are usually quite static subjects, but with a swirl (made in camera, not in Photoshop), it serves nicely as a geometrical interlude of rectangle and circle. Geometry!

Geometric Shapes



Using geometric shapes in photography does not always need to result in "static" images. Sometimes, just a intimation of a shape (here, a circle) can create intrigue.

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most natural geometric shape we can utilize in our photography.

In underwater photography, the circle is a powerful geometric shape to play with. Sun, eyes, shipwreck's portholes or the effect of a circular fish-eye lens—they all work well. Just keep in mind that you will always have to deal with the rectangle of the mainframe.

The triangle

The geometric shape of the triangle has a deep meaning in human culture. It stands for many things but all of them were made by humans, not nature. But what about fish? Actually, many fish are perfect examples of triangles. Look closer. Many of them are, in one way or another, of triangular shape. Let's remember, it does not have to be a perfect triangle with equal lengths. Any triangle shape will do as long as it has three corners, which logically

makes it a triangle, correct? You now might want to look closer at the fins of a shark or any other fish. Are there triangles around? Of course, there are!

Be aware of geometric shapes and utilize them in your images. There is no need to travel far for sharks or super-special macro critters; the right subject might be waiting in the pond next door.

Underwater photography still requires learning some basics of photography itself. Geometry is one of the core elements, the subject to shoot is not. So, at your next dive with your camera, think of geometry. Add colors and other basics of image composition, and you will do just fine. In the end, only one question remains: Are you a photographer who loves to dive, or are you just someone who owns a camera? The choice is yours. ■



Circles in a rectangle. Keeping it simple.

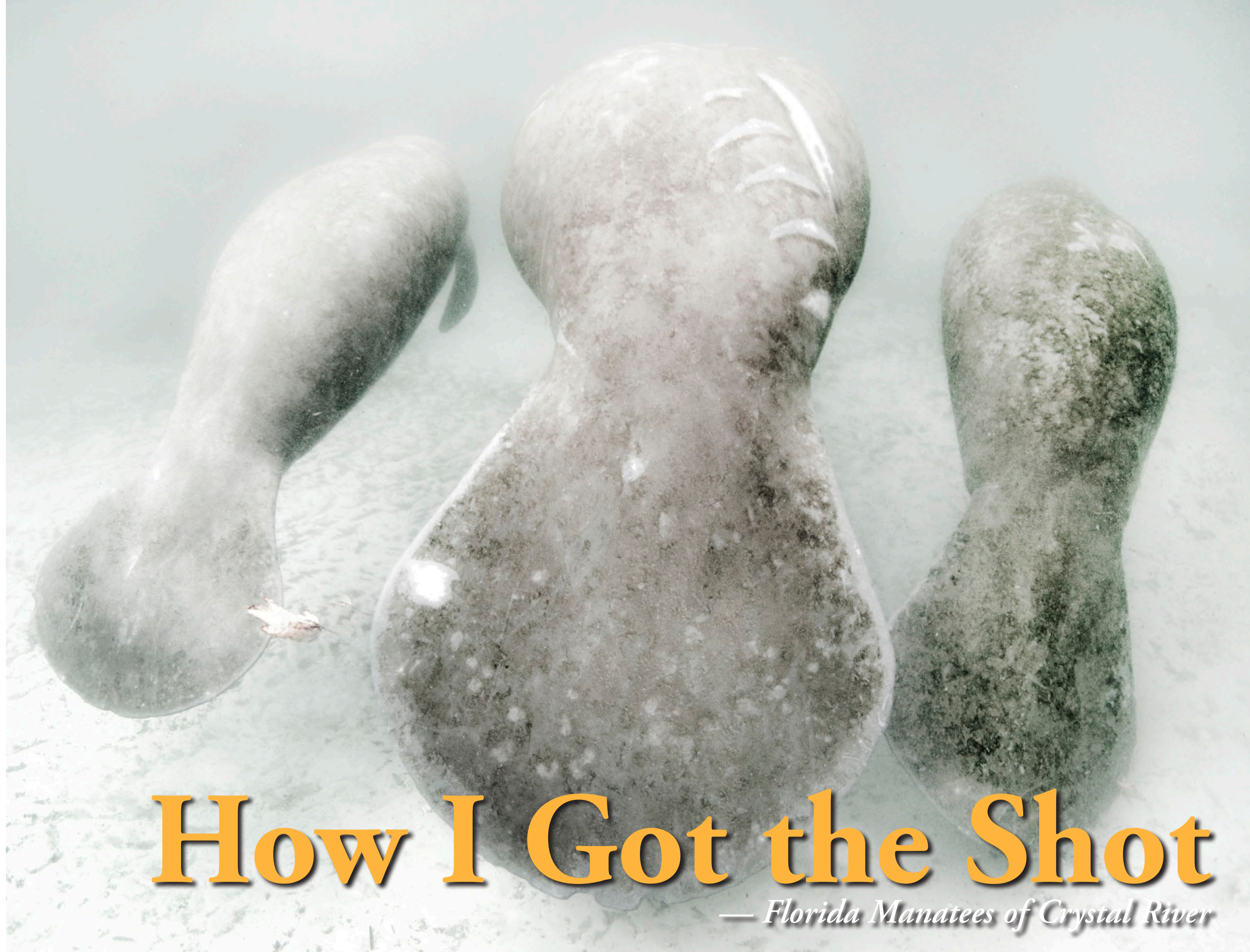


Text and photos by Amanda Cotton

Florida manatees are an endangered species found in the rivers, springs and ocean around the state of Florida in the United States. By far, one of the best places to encounter these gentle giants is at Three Sisters Springs in Crystal River, a state park filled with crystal clear blue water, perfect for capturing imagery of this sometimes curious and playful species.



Florida manatee in this issue's cover shot by Amanda Cotton



How I Got the Shot

— *Florida Manatees of Crystal River*

Under special permit, underwater photographers are allowed to enter the water with camera in hand to photograph manatees within the state park. Strict regulations are in

place to protect the manatees from harassment and abuse as they move into the spring head area to rest and to keep their young warm, as temperatures fall in the winter months.

Many times, manatees will approach swimmers and photographers alike, as this species can be quite playful. With a friendly and outgoing manatee, the photography

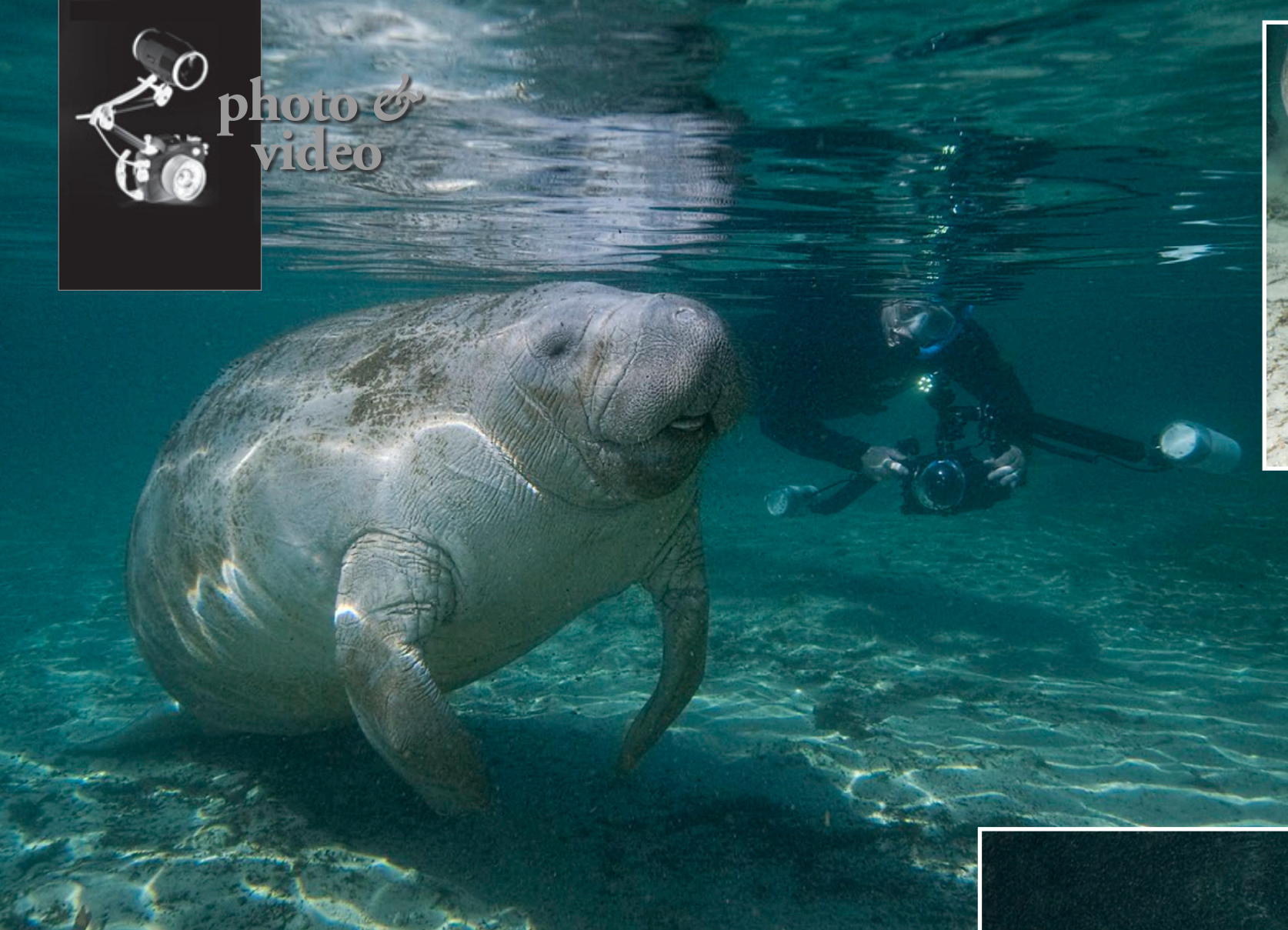
opportunities are endless.

In this particular image (left), a young manatee moved in close to my camera several times, curious over its reflection in my large dome





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THIS PAGE:
Underwater
scenes with the
Florida manatees of
Crystal River

*published
underwater
photogra-
pher based
in Florida.
Her work has
been featured
in science
and diving*

photographer interested in photographing the Florida manatees in and around Three Sisters Springs to contact the Florida Fish and Wildlife Conservation Commission in Crystal River for more information on how to safely and respectfully interact with this species. ■

*Professional Nikon Photographer
Amanda Cotton is a widely*

*magazines as well as National Geographic, BBC, Discovery Channel, The Weather Channel, Smithsonian Magazine, Times Publishing, CNN, Natural History Magazine and Earthweek. A member of The Explorers Club and the Ocean Artists Society, Cotton was recently inducted into the Women Divers Hall of Fame. For more information: **Acottonphoto.com.***

port. The sun breaking through the trees directly behind us added a nice dramatic backdrop for the scene.

Darkening the exposure on the ambient light helped make the sun rays stand out against the dark sand and roots in the background. The area inside the spring head of Three Sisters Springs is great for photography, with so many different lighting scenarios available to underwater photographers due to the tall trees and light-to-dark changes in sand color.

It never ceases to amaze me how incredible it feels to have a wild animal initiate contact and the interaction. Many times, manatees will attempt physical contact with swimmers.

According to the rules of the park, if a manatee initiates the physical contact, swimmers are allowed to touch the manatee in return. This has been

somewhat controversial over the years because of confusion in determining who initiated the contact and encounter.

At Three Sisters Springs magical encounters happen often. We, as underwater photographers and swimmers in the area, need to stay vigilant in respecting the animals and the surrounding environment of this special place so that generations to come can continue to enjoy it.

Recent changes to the park and its regulations in regards to swimming with manatees have restricted some access to them. These updated rules have been put into place to further protect manatees in the area from harassment. Many of the rules directly impact underwater photographers, both professionals and amateurs. It is recommended for any underwater



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FG9X

Fantasea's FG9X Housing for the Canon PowerShot G9X is depth rated to 60m (200ft) and provides full access to all camera buttons, with clearly labeled controls and access to essential contact points on the camera touch screen. The housing is shock resistant and compatible, with a wide range of underwater photo accessories. It comes with a removable double fiber optic cable connection plate, removable flash diffuser and moisture alarm and detector. Double o-rings provide the main seal. Approximate weight submerged in salt water is 74g. The lens port features a 67mm thread. **Fantasea.com**



Hands-free

iBubble—the first autonomous and hands-free underwater drone, according to the inventors—is designed to give divers unprecedented possibilities to capture underwater video while quietly enjoying their dives. Using innovative underwater tracking technology, the drone follows its owner via a connected bracelet for one hour and up to a depth of 60m (200ft). Hands-free, it won't require any other input but the choice of filming angle. iBubble will follow the diver for one hour on one battery. Batteries can be swapped easily for multiple outings. **ibubble.camera**

Nauticam optical TTL converter

Nauticam has released its first optical TTL converter and LED flash trigger for Nikon cameras and Nauticam housings. The NN-2/IS supports both optical and electrical strobe triggering and is compatible with popular strobes from Inon and Sea & Sea. Whether using in TTL or manual mode, the converter will eliminate the delay of recharging the pop-up flash, while maintaining the efficiency of fiber optic cables. The trigger is easy to install, has an incredibly long battery life and is reported to deliver highly reliable, consistent results. **Nauticamusa.com**



Three new lights from Keldan

The Video 8X CRI is a brand new light that features a cutting-edge 8,000-lumen LED lighting module, which generates an extremely high color rendering index (CRI) of 96. The light is color balanced to match sunlight at 5,600K and has a wide and even beam angle of 110 degrees. The battery packs are interchangeable in the field, include an LED battery life indicator, and boast a burn time of 45 minutes at full power. The Video 8X CRI is priced at US\$1,990. The 8X FLUX and 4X FLUX are higher-powered updates to Keldan's existing, similarly-named lights, and both produce a slightly lower CRI of 82. The 8X FLUX has increased its output from 10,000 to 12,000 lumens, while the 4X FLUX has jumped from 6,000 to 7,000 lumens. This increase in power does not affect burn time, which stays at 45 minutes for both lights. The Video 8X FLUX and Video 4X FLUX are priced at \$1,890, and \$1,370, respectively. **Keldanlights.com**



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Nik photo editing software collection now free

Nik software is a popular plug-in photo-editing program for underwater photographers. Silver Efex Pro is a go-to tool for creating powerful black and white images. Additionally, HDR Efex Pro delivers top-notch high dynamic range photo editing.

Acquisition

Google acquired Nik software back in September 2012 and started selling a discounted version of the entire suite for the low price of US\$150 (originally valued at \$500). If you previously purchased the software in the last year, Google will automatically be refunding all purchases.

The Nik collection can be downloaded free from this URL: **Google.com/nikcollection**