



Text by Don Silcock

In the previous article, the first in this series on mirrorless cameras for underwater photography, we looked at the basic technology associated with this new genre of equipment. In this second article, we will take a look at the mirrorless cameras and lenses suitable for underwater photography that are currently available as this issue goes to press.

While the number of camera manufacturers with horses in the mirrorless race has now reached critical mass with the recent entrance of Canon and its EOS-M, and the earlier entrance of Nikon with the J1 and V1 cameras, the number of models available has grown even more. However, for underwater photography the choices narrow somewhat and the early entrants in the mirrorless race, Olympus, Panasonic and Sony, are very much in the lead.

This is because of two key factors—the availability of lenses suitable for underwater photography and the availability of housings to put the cameras in. Underwater photographers look for three basic types of lenses—wide-angle, macro and general purpose “hunting” lenses for when the site is unknown.

Mid-range zooms, often the type offered as a kit-lens, will usually fit the bill for the general purpose category and most of the manufacturers have something credible to offer. However, for wide-angle and macro, the choices are more limited and because Olympus, Panasonic and Sony have been in the mirrorless

race the longest, they have much better selections of lenses available than the late entrants do.

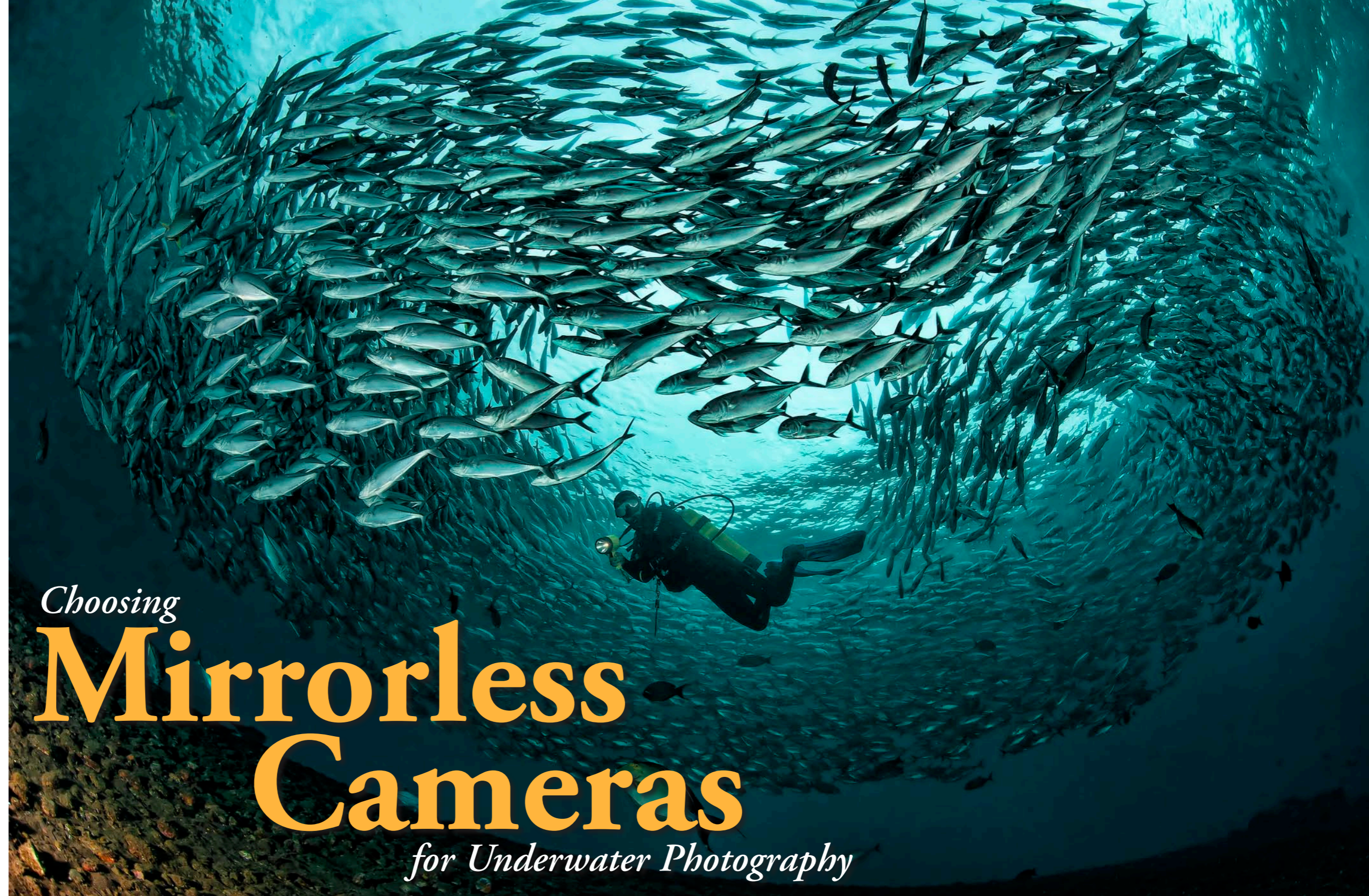
The Olympus and Panasonic Micro Four Thirds technology has a distinct advantage, because the lenses from one manufacturer are compatible with the other manufacturer’s cameras, meaning

a much larger overall selection of lenses to choose from. Whereas Sony uses its own format and therefore has less lenses available.

The current camera of choice in the Olympus/Panasonic stable is very much the Olympus OM-D E-M5, which has created a wave of interest generally, and in

many ways signifies the coming of age of the Micro Four Thirds standard.

Modeled on the very popular Olympus OM film cameras of the 1970’s and 1980’s, the OM-D was initially so popular that there was a long waiting list to get one. But even now that the initial glow has faded, it is clear that the OM-D is



Choosing Mirrorless Cameras for Underwater Photography



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an excellent camera with a nice choice of lenses as described below.

On the Panasonic side of that stable are the GH and GF range of mirrorless cameras plus the GX-1, all of which are very competent but have not really excited underwater photographers like the OM-D has!

Over with Sony the choices are around the popular NEX 5 and NEX 7 cameras, both of which excel technically because of their large APS-C sensors.

Micro Four Thirds lenses

The choice of lenses currently available for the Micro Four Thirds standard Olympus and Panasonic cameras is quite impressive across both wide-angle and macro, with some nice options for mid-range zooms also.

Panasonic offers the 8mm (16mm equivalent) fish-eye lens that has a bright f3.5 maximum aperture and has a close-focus distance of just 4".

Fish-eyes are a very important lens for underwater photography and some of the best wide-angle images ever taken are done with these extreme perspective lenses.



Panasonic also offers a very nice extreme rectilinear zoom lens, the 7-14mm zoom which is their equivalent of the very highly regarded Nikon 14-24 zoom.

The development of such a flagship lens by Panasonic back in 2009 signaled how serious their commitment to the Micro Four Thirds standard was, and the lens performs very well above water.

However extreme rectilinear lenses – lenses that create straight lines in

the corners, rather than bent ones like fish-eyes do - are notoriously difficult to get good results with underwater, because of issues related to the curvature of dome ports.

So just how useful the 7-14mm is underwater is not clear but it does appear that it suffers from softness in the corners just like the Nikon 14-24 does underwater.

Olympus offers a very nice alternative to the 7-14mm for underwater

use with their 9-18mm (18-36mm equivalent) zoom lens, which is both small and compact and



has a close-focus distance of just 6".

Wide-angle zoom lenses in this range are much easier to get good results out of underwater and the Olympus 9-18mm looks to be a much better choice than

the Panasonic 7-14mm for the underwater photographer. At the macro end of town there are two very nice lenses available for the Micro Four Thirds standard - the Panasonic-Leica 45mm (90mm equivalent) and the Olympus 60mm (120mm equivalent).

Both lenses offer true macro capability with 1:1 reproduction ratios, bright f2.8 maximum apertures, high quality glass and excellent close-focus distances of 6" for the 45mm and 7.4" for the 60mm.

Finally in the mid-range zooms, Olympus has an interesting offering with the 12-50mm zoom which is



Panasoni 7-14mm rectilinear zoom lens



Mirrorless

Olympus 12-50mm zoom lens (top left); Olympus 60mm macro lens (bottom left); Olympus 9-18mm wide-angle zoom (center); Olympus OM-D mirrorless camera (right); Panasonic 8mm fish-eye lens (bottom right)

offered as a kit lens with the OM-D. The lens has a very good range, but like most kit lenses is not a stellar performer optically above water.

But beneath the waves some of those issues don't matter too much and combined with its macro capability at a fixed focal length of 43mm when engaged, means that it is an interesting prospect for underwater photographers.

However, to utilize that macro capability requires a rather expensive port as will be explained in the next article, therefore the 14-42mm kit zooms from both Panasonic and Olympus may be better choices for that general purpose "hunting" lens!

Sony lenses

The Sony NEX cameras do not have the array of lens choices that the Panasonic and Olympus range do, but there are still a lot of very good underwater photographs being taken with these cameras as subsequent articles in this series will show.



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Panasonic--Leica 45mm macro (top left); Sony 10-18mm wide-angle lens (center left); Sony 18-55mm zoom lens (center); Sony NEX mirrorless camera (right); Sony 30mm macro lens (center right)



Currently the two most popular Sony lenses for underwater photography are the 16mm "pancake" style SEL16F28 wide-angle, which is equivalent to 24mm on the NEX cameras.

The difference in crop factor – 1.5x with the Sony NEX cameras, and 2x with the Olympus and Panasonic – is because the Sony uses a larger APS-C sensor.

The 16mm has a good close-focus distance of 9.4" and most importantly it can be used with Sony's well-regarded and relatively low-cost VCL conversion lenses that screw on to the front of the 16mm lens.

There are two conversion lenses available – the VCL ECU1 which has a factor of 0.75x and changes the 16mm in to a 12mm.

The second is the VPL ECF1 which converts the 16mm Sony in to a fish-eye lens.

Normally, serious photographers shudder slightly at the mention of conversion lenses as they are inherently a compromise and rarely produce really good results.

But Sony has clearly thought



Sony 16mm pancake lens

this through carefully and put a lot of work in to the design of the 16mm and its conversion lenses as the general buzz from underwater photographers who are using them is very positive.

Sony also has a very interesting 10-18mm (15-27mm equivalent) wide angle zoom with a good f4 maximum aperture and close-focus distance of 9.84".

Sony's macro capability is currently limited to its 30mm



(45mm equivalent) lens, which offers 1:1 reproduction, is quite bright at f3.5 and has an excellent close-focus distance of just 3.74".

However its 30mm focal length is quite limiting underwater and many NEX users seem to opt for the 18-55mm (27-82.5mm equivalent) kit-lens which has a close-focus distance of 9.8" and is a good all-round performer.

Used with external diopters such as the Inon 165 or the Subsea +10, the 18-55mm transforms into a pretty credible critter lens.

Underwater Housings

"Build it and they will come" is the adage the tourist industry often uses when developing a new resort



at a key location, and a similar thing applies with underwater housings, with the most likely candidates tempting some of the manufacturers

in to committing precious resources to design housings for the leading mirrorless cameras.

However the rapid development of new mirrorless cameras is clearly creating problems for the manufacturers and some are having

second thoughts.

Ikelite for example, normally one of the quickest to market, has announced that it will not be producing housings for the OM-D, the Panasonic GF series of the Sony NEX's.

On the other hand, Nauticam has produced several housings for mirrorless cameras and continues to do so at a quite amazing pace.

Selecting a housing and navigating through the complicated port choices available will be covered in the next article

Summary

Mirrorless technology is really carving out a very credible space in underwater photography and the camera manufacturers continue



to push capabilities to the envelope.

The current leaders are the Olympus OM-D and the Sony NEX units which are very capable cameras.



The camera manufacturers know they need to fill the gaps in the lens range and will do so over time, plus the entrance of third party lens manufacturers like Sigma is another very positive sign that the mirrorless technology has reached critical mass.

The advent of this new space in underwater photography creates a very cost-effective way to upgrade from point and shoot cameras or downsize from much larger and heavier DSLR's.

But like any emerging technology there are "gotchas" to trip you up and we hope this series of articles will guide you through the maze – stay tuned!



Sony fish-eye convertor

Don Silcock is an underwater photographer and dive writer based in Sydney, Australia. For more information, visit: Indopacificimages.com

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Nauticam NA-D600 Housing

Nauticam has announced the release of their new housing for the Nikon D600 full-frame (FX) DSLR camera. While not exactly a huge surprise, as an earlier version of the NA-D600 was on display at DEMA recently, Nauticam continues to excel at getting new housings released at an amazing rate. The final version of the NA-D600 housing is smaller and lighter than existing Nauticam designs, and features dual paddle levers on both left and right hand sides. The left-hand paddle lever controls the video record and AE-L/AF-L functions while the right-hand one controls the playback and ISO functions. The NA-D600 also has a new design of



mode dial control, which allows the mode dial to be locked in position. The housing has fiber optic strobe triggering ports as standard, but is equipped with an accessory port for the addition of an electronic flash trigger bulkhead, HDMI bulkhead or other accessory. The NA-D600 is available from the 20th December at US\$3,300. Nauticamusa.com

Nauticam announces Sony NEX-5R housing

Nauticam has released their new NA-NEX5R housing for the Sony NEX-5R mirrorless camera. The NA-NEX5R shares many of the features of the Nauticam housing for the previous version of the popular Sony NEX5, but gains a control which provides access to new control dial on the NEX-5R. The new control is accessed on the housing via the left-hand thumb and gives manual control of aperture and shutter speed. Additionally, the camera's new programmable function (Fn) button can also be accessed and hence used for manual while balance or focus mode control. Nauticam has also modified the design of the main O-ring seal and the camera tray on the NA-NEX5R. Nauticam is shipping the NA-NEX5R housing from today. Nauticam.com

Sea and Sea announces new Nikon D600 housing

Sea and Sea has announced their new housing for the Nikon D600 FX (Full Frame) DSLR camera. The Sea and Sea MSX-D600 is a lightweight and compact design, which provides access to all of the camera's essential controls. The MSX-D600 comes with two fiber optic ports and two additional bulkheads fittings for the possible installation of electronic flash triggering, HDMI or other bulkheads.



The housing is supplied with a leak detector as standard and is compatible with Sea and Sea's NX series lens ports. The MDX-D600 will be shipping from mid-January at a U.S. retail price of \$3,399.00 or \$3,499.00 with a 2-pin wiring harness for electronic strobe triggering. Seaandsea.com

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Nauticam releases new Canon S110 housing



Nauticam has released its new housing for the Canon Powershot S110 compact camera. The NA-S110 housing features a new rear O-ring sealing system that was first seen on the recent release of their NA-NEX5R housing. The NA-S110 is well featured and most importantly, allows access to both front and rear command dials for manual exposure control. The front of the housing features an M67 thread on its

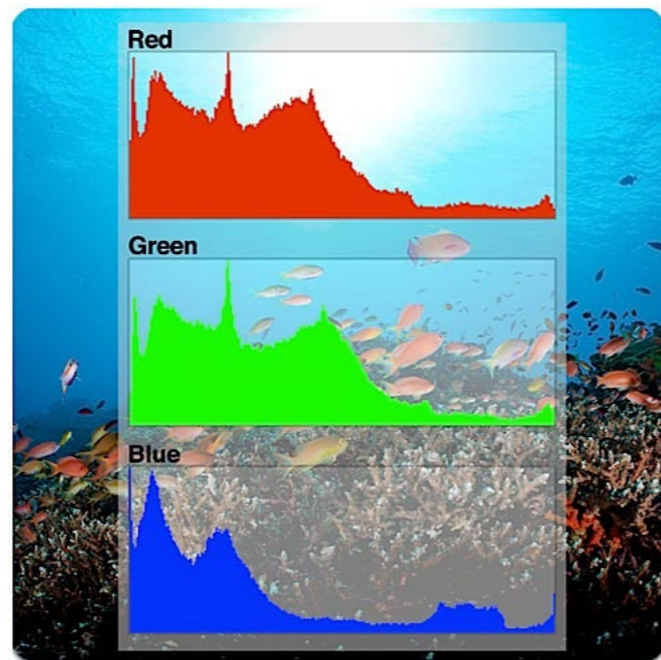
lens port for attachment of wet wide-angle or macro lenses. The housing also has ports for fiber optic strobe triggering. Nauticamusa.com



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Histograms Explained App

David Fleetham and Marty Snyderman have done it again. Now you can get the inside scoop on the mystifying world of histograms and create images like a professional with this new app, second in the series of Underwater Photography Training Applications. It's easy to use and understand, so you can quickly make improvements to your underwater photography, whether you use a DSLR or a point-and-shoot camera. There are eight fully narrated sections of training material, with photos taken by the Fleetham-Snyderman team, which illustrate histogram functions with



corresponding images. Histogram topics covered include luminance, RGB, color channels, adjustments and Bell curve myths. Features include right-to-left, left-to-right swipe technology and chapter quizzes. Get it now at an introductory price of US\$4.99 Appshopper.com

REVIEW



Mocean Armor - iSea-4

The iPhone has become the camera of choice for many of its users, and it is only natural for water enthusiasts to want to use their iPhone underwater. Mocean Armor has created the iSea-4 housing to allow the iPhone 4 and 4S to shoot either stills or video down to a depth of 200 feet.

The housing is crafted of marine grade aluminum and stainless steel and provides a clear window over the entire phone screen for easy viewing and composing. The phone is protected by a pressure active seal and a tool-less vacuum valve. They added a rectilinear fisheye lens to expand the cameras field of view underwater, and the system also includes a tray, two ergonomic handles and a wrist lanyard for safekeeping.

The iPhone touch screen is not available once in the housing, so the user must decide before the dive whether to shoot stills or video. Once in the housing, a single, mechanical button triggers video recording or still capture through the volume control button.

The lack of touch screen access also means that the phone must stay active throughout its time in the housing. To accomplish this, the phone must have Auto Lock set to Never and be put into airplane

mode so the phone does not waste battery life searching for a cell signal. Even with these safe guards, the battery life was drained quickly during my testing. At most, I got two hours of shooting time before needing to completely recharge the phone.

The vacuum seal worked well and was as simple as sipping on a straw to engage. It is a great safety feature, for that added piece of mind while underwater. However, I do wish they had put the valve on the bottom of the housing to eliminate any confusion when hitting the record button.

The housing comes with a standard 1/4-20 (6mm) threaded hole for mounting to the tray, a tripod or a ball joint. Adding a ball joint allows for easy mounting on top of a larger underwater housing if you wanted to capture stills and also shoot video with the iPhone. The iSea-4 includes the same threaded holes on top of each handle for adding ball joints, arms and video lights. External lighting will definitely help the video quality of the iPhone at depth.

Overall, I was impressed with the iSea-4 system. It is simple to use, easy to assemble, rugged and stylish.

— Don Silcock

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