

# Olympus OM-1 underwater review

By Jim Decker

The OM System OM-1 camera is the latest top-of-the-line flagship Micro 4/3 camera from OM System, formerly Olympus. We took the new OM System OM-1 mirrorless camera underwater to the Digital Shootout in Bonaire for a complete review and performance test. With crazy specs of shooting 50 frames per second in RAW, a new autofocus system, and 4K60p video, can this camera deliver or even outgun the full-frame big boy cameras? In short, it's a surprisingly mixed answer, read on for the details.

Olympus is rebranding to OM System. The OM-1 is the first camera to carry the new OM System brand name. All the great performance from TG compacts and Micro 4/3 mirrorless cameras and lenses will carry on under the new brand name. As time goes on more cameras, lenses, and accessories will be rebranded during this transition. We're excited that the first camera bearing the OM System name knocked it out of the park as much as the OM System OM-1 did, and we look forward to seeing their progress in the future.

## Why a High-End Micro 4/3 Camera?

Micro 4/3 cameras from Olympus, OM System, and Panasonic have a sensor size half that of a full-frame. Size-wise the camera is only a tiny bit smaller than a full-frame Sony a1. The resolution on the OM System OM-1 is 20MP, while the Sony a1 is at 50MP.

While the camera body of the OM System OM-1 is about the same size as the full-frame Sony a1, the lenses of the 4/3 system are significantly smaller and lighter.

Since the sensor is 1/2 the size of a full-frame, the lenses are so much smaller and lighter too, most times less than half the size and weight. It's no wonder that higher-end 4/3 cameras are a top choice among the birding and safari community.

For us underwater shooters we get smaller housings and smaller ports due to the smaller size 4/3 lenses. This will make the OM System OM-1 appreciably smaller than a full-frame camera system when outfitted for underwater duty. For those who have travel size as their top concern, this system wins hands down against a full-frame setup.



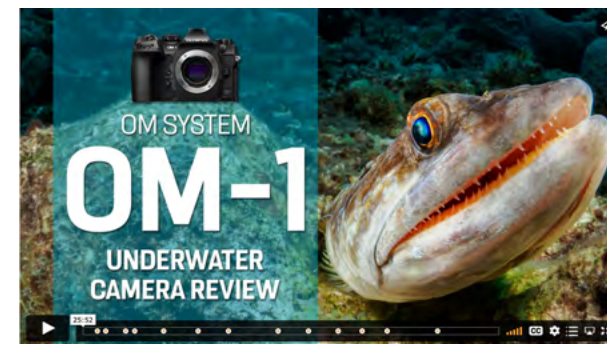
*Why go with this camera when it's the same size as a full-frame? The answer is in the lenses of the Micro 4/3 system*

Now that we've explored that size is a major driving factor for this camera let's check some of the top specs.

## Image Quality With a 20MP Sensor

The photos that are coming out of the camera look great. Very good sharp detail. The colors look spot on for underwater photography. For wide shots, I used the Olympus 8mm fisheye, which is from their pro line of lenses and exhibits excellent image quality. For macro, I used the Olympus 60mm Lens .

Olympus/OM System has always had high-quality optics and they are a



good match for this camera.

A resolution of 20MP is good for most shooters. It's more than enough resolution for social media, website use, and pretty much any electronic final delivery format. It could be argued that even 20MP is more than enough for these purposes. A 4K TV is only 8MP.



*Despite the camera only having a 20MP resolution, this image captures super sharp detail, especially when viewing at 1:1 on the damsel fish's scales.*  
**OM System OM-1 | Olympus 14-42mm EZ | AOI UWL-09 PRO Lens | 1/125 | ISO 200 | f11**

Why would you need more resolution? If you plan on making larger high-quality prints or are cropping verticals out of horizontal shots. Even then, unless you are going billboard size, it will look decent. And even at billboard size seen at 15 feet or 15 miles an hour you would never be able to see the difference.



Of course, the ultimate answer for wanting more resolution is because you can. Full frame sensors will have better image quality and detail than a 4/3 size sensor, but you can definitely get good images out of the OM System OM-1 that most people will be thrilled with. We have large prints hanging up in Backscatter, some of which were shot with older lower resolution cameras and look great. If you're a pixel peeper like me, certainly go for more resolution, but for a lot of others, this will fit the bill.

### **Mind-Boggling Shooting Speed of 50 FPS in RAW with Full AF—With a Catch**

There's been a war lately among the camera companies about who can shoot the fastest. The OM System OM-1 takes the cake in this regard with 50 FPS with full AF and 120 FPS with focus locked. The catch is these speeds are only available with certain Pro series lenses. If using other glass the speed drops to 25 FPS. Yeah, I don't see that as much of a problem...

Most underwater shooters are using strobes so

*The tracking AF of the OM System OM-1 with a macro lens and diopter was absolutely fantastic. I used a +5 diopter with the Olympus 60mm Lens lens and it has no issues in tracking the eye of a blenny.*  
**OM System OM-1 | Olympus 60mm Lens | 1/250 | ISO 80 | f16**

these specs won't be much of a concern as even the best strobes have problems keeping up with 5-10 shots per second at really low power. Free divers and those doing marlin or sardine runs without strobes will appreciate the super-fast shooting in action shots, in addition to the light weight and small size.

### **Autofocus Tracking That Will Rival the Best Full Frame Cameras**

When we evaluate the performance of continuous autofocus tracking we always base it against our personal gold standard found on Nikon's 3D AF Tracking mode. The OM System OM-1 operates exactly the same way as our favorite AF tracking systems from the Nikon Z9, and Sony a1.

For those unfamiliar with how tracking works, it goes like this: There's a focusing square in the center of the screen/viewfinder that when pressing the AF-ON button will focus on the subject in the square, and as long as the AF-ON button is being pressed, the camera will track the movement of that subject through the frame and update focus continuously.

Put the focus squarely on the eye of a subject either by moving the focus point around, or just move the camera to put the square over their eye, press and hold AF-ON, and it will track the eye of that subject. In the rare instance of the focus point slipping off the subject, just release the AF-ON



button, repoint and engage again. Once you use a competent tracking AF system, you'll never go back again.

The worst thing you could ever throw at an AF system is macro with its thin depth of field. Add on a diopter and it's the worst torture test you could do to a camera.

The tracking focus of the OM System OM-1 worked just as well as those from the Nikon Z9 and Sony a1. That's an amazing achievement for a camera that is a mere fraction of the price of those full-frame setups.

## Low ISO 80 For Dark Backgrounds

It can often be a challenge shooting macro during the day in bright ambient light conditions while trying to keep the background as dark as possible. By selecting the low "extension" ISO value of 80, you can knock out more ambient light than at the base value of 200. This will sacrifice some dynamic range in the shadows but will preserve more highlights. Any loss of shadow detail in the shadows isn't much of a concern for macro shots, which typically are not high dynamic range shots, to begin with. I could not tell any difference in image quality when shooting in the lower extension ISO ranges of ISO 100 or ISO 80.



*Having an ISO range down to 80 helps eliminate ambient light when shooting with a snoot during the daytime for the classic black background shot without the need for a night dive.*

*OM System OM-1 | Olympus 60mm Lens | 1/250 | ISO 80 | f8*

## Flash Sync Speed Spec'd at 1/250 But I Got It To 1/500

The camera lists the spec of the flash sync speed at 1/250. However, when using a manual flash trigger with only ground and fire connections, the camera has no idea a flash is connected and will allow the shutter speed to go higher than the max sync speed of the camera. I was able to shoot at 1/500 with no sign of the shutter in the image. The shutter did creep in at 1/640.

There are plenty of uses for a higher sync speed. Freezing

more ambient light to prevent motion blur of fast-moving subjects, darker backgrounds for macro while using a wider aperture, or getting more light from your strobes by increasing ISO and shutter speed for wide angle while maintaining a darker background. It's the biggest surprise this camera has and it's pretty huge in terms of flash capability. The Sony a1 is the only other flash to sync at 1/400 and this is 1/3 stop better than that. I can't emphasize how awesome this is.

Since this is not an official spec, please don't rely on this as gospel. There may be tolerances with different cameras or firmware versions. We saw the



*It's impossible to see the foreground in a sunball shot such as this. I could not see the trumpet fish at all; framing was a pure guess and I lucked out. Even though I could not see the trumpet fish, the autofocus system was still able to lock on and track the subject.*  
*OM System OM-1 | 8mm | 1/250 | ISO 200 | f13*

same 1/500 sync capability with 3 different camera bodies, then our in-studio test conducted with a camera from our inventory yielded a max sync speed of only 1/400 before the shutter just started to creep in. In either case the camera successfully exceeded the official stated spec, but keep in mind that your mileage may vary.

## Electronic and Rear Screen Live View Performance

I do believe today's electronic viewfinders (EVFs) are preferable for macro shooting to an optical viewfinder. The review in the finder is awesome without sun glare, and the focus peaking feature is great for those whose eyes aren't tuned to see absolute critical sharpness. However, I've gone on diatribes about my preference for an optical viewfinder for wide angle scenes. Nothing can beat the dynamic range of a human eye looking through glass.

Unfortunately for the OM System OM-1 the live view and EVF performance is not good with wide angle high dynamic range shots like when shooting a sunball. The foreground is in complete shadow with no detail, but the sunball can be seen to be framed. There is nothing in the menu system to adjust a tone curve on the viewfinder or back screen to boost shadows. There are

only brightness and color balance adjustments. This is a real shame as it is one of a really short list of disappointments with this camera.

For just about any other shot if I was not shooting directly into the sun, the viewfinder and screen were adequate.

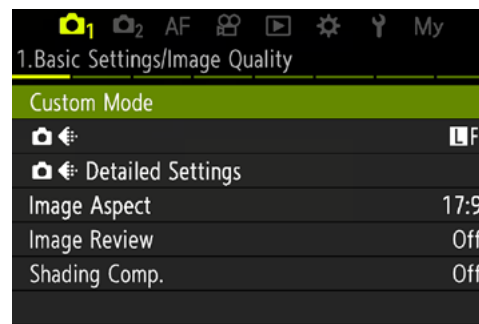
## A Return to an Excellent Body and Control Set

The previous Olympus E-M1X flagship camera had a larger pro-size body that frankly was the wrong direction to go. It made the camera way too big for what people loved about a 4/3 system—small size. We're very pleased to see the OM System OM-1 return to a familiar size format of other OM-D cameras from Olympus, all of which had excellent ergonomics.

Dedicated dials for shutter and aperture, a direct dedicated button for ISO, and lots of direct buttons and plenty of customization. Anyone coming from an OM-D camera will feel right at home with this control set.

The quick menu gives easy access to popular shooting settings for things that wouldn't be assigned to a camera button mean you can set this thing up to rarely needing to jump into a menu while shooting.

There are 4 custom modes on the mode dial allowing one to store favorite settings for macro/wide/



video/etc. Most other cameras only have 2, maybe 3.

We talked earlier about the camera not being all that much smaller than the full-frame Sony a1. I think any smaller and the camera would be harder to handle topside. I don't think it is good to think of the OM System OM-1 being as large as a full-frame camera, more that the Sony made a really small full-frame camera.

## Completely Redesigned and Improved Menu System

The menu system has been revamped and is much more user-friendly in its organization and functionality. Gone are the hidden and convoluted ways of multiple settings to do something simple such as move AF to the AF-ON button and off the shutter. Now you just have to tell it to turn off the focus of the shutter. It's almost like a shooter designed this thing instead of an engineer. Sorry, no offense engineers.



## Video- Decent 4K60p Shooting Spec, Hampered by Ambient Light White Balance

In these days and times a camera can't be considered seriously if it doesn't have at least 4K60p video, and preferably 4K120p. The video specs are pretty decent for a camera that isn't being aimed at videographers. That being said the Achilles heel for this camera is the lackluster underwater custom white balance.

What's new with the OM System OM-1 versus other Olympus cameras is that when it captures a custom white balance it actually displays the captured Kelvin temperature. This is unique among any camera and a welcome addition. Unfortunately, the color that is captured is woefully inadequate. In my experience at a depth of 30ft, the camera needs a white balance of at least 30,000K. The OM System OM-1 only produced a white balance of around 11,000K at 30ft, way too low for the conditions which results in a blue/green color cast with no reds or other natural-looking colors.





The white balance preset underwater fish mode only seemed to work within the range of snorkeling depths but performed better than a custom balance. That being said it's pretty unusable for ambient light white balances at even pedestrian depths.

A color correction filter will be necessary for any wide angle ambient light video, but that requires a dedicated dive. Otherwise, video lights can be used for both macro and wide while balancing to the lights.

Due to this frustrating limitation, I would not recommend this camera to any serious video shooter.

## Conclusion

The OM System OM-1 is the best 4/3 camera that a photo shooter can have right now. Speed of shooting is excellent combined with the speed and accuracy of tracking autofocus rivaling cameras that are 3 times the price. The 2 weak spots are the lackluster white balance capabilities and the inability to see the foreground

in sunball shots.

The hacked 1/500 sync speed is the sleeper underneath the hood that makes a big difference in controlling ambient light. No other camera can do this right now, and for me, is the biggest game-changer.

Regarding the 20MP resolution and remember that this is a smaller sensor camera, it will not be able to match the image quality of larger full-frame cameras. That being said image quality is at the top of the list for anything less than full-frame, and those full-frame cameras come at a much higher price and size premium. I found the images coming from this camera to show excellent image quality and if this was my only camera, I would definitely be satisfied with it.

## Who is this camera for?

If you already shoot an Olympus E-PL10, Olympus TG-6, or any other

compact camera, and you are ready for the next level of photo rig without breaking the size or budget bank, then take a serious look at the OM System OM-1. The performance upgrade is quite noticeable and makes getting the shot much easier.

Someone who wants a camera to do double-duty topside and needs some long glass that can be handheld will also want to take a serious look here.

The main story of this camera and lens system is that it is small and

can travel relatively light and with the right choices can be handled as a carry-on.

Someone who wants to downsize from a larger DSLR needs to know what they are giving up. The wide angle sunball shot will probably be the most frustrating, but if not doing those types of shots one can get used to the EVF to a certain degree.

This is the closest performance to a high-end full-frame mirrorless or SLR that I have ever seen in a 4/3 camera.

**Jim Decker**  
[www.backscatter.com](http://www.backscatter.com)





# *Don't settle for 2nd best*



Film - No Filter No  
White Balance



Digital - No Filter Manual  
White Balance



Magic Filter Manual  
White Balance

Digital cameras have opened up new possibilities to underwater photographers. For available light photography manual white balance is an invaluable tool for restoring colours. But when you use it without a filter you are not making the most of the technique. You're doing all the hard work without reaping the full rewards. These three photos are all taken of the same wreck in the Red Sea. The left hand image was taken on slide film, which rendered the scene completely blue. The middle image is taken with a digital SLR without a filter, using manual white balance. The white balance has brought out some of the colour of the wreck, but it has also sucked all the blue out of the water behind the wreck, making it almost grey. The right hand image is taken with the same digital camera and lens, but this time using an original Magic Filter. The filter attenuates blue light meaning that the colours of the wreck are brought out and it stands out from the background water, which is recorded as an accurate blue.

*[www.magic-filters.com](http://www.magic-filters.com)*