Best U/w Compact Cameras 2014

By Backscatter Staff

We at Backscatter all fondly remember the excitement (and trepidation) we felt as we purchased our first underwater camera system. This guide is diligently compiled each year to eliminate the hassle and headache often associated with shopping for underwater camera gear. Whether you are just getting started with underwater photography, an intermediate shooter looking to upgrade his/her system or an advanced image-maker looking to assemble a more compact rig for travel to combat those ever-rising baggage fees, this article is for you!

We've searched and tested dozens of compact cameras to find the best match between portability, price and the goals of aspiring and experienced underwater shooters. From our own waters of Monterey, to the Caribbean, to the Coral Triangle, and Micronesia, we've spent hundreds of hours shooting compact cameras underwater. These top performers will enable you to capture stunning images.

In 2014, we've studied a landscape that has changed considerably from previous years. Point and shoot options are fewer and further between, but exciting new low-cost options such as the GoPro and interchangeable lens mirrorless cameras like the Olympus PEN now provide alternate options for the shooter who is not interested in traveling with a bulky SLR system.

This year, rather than restricting our review to just the point and shoot class, we looked at a broader range of cameras that include everything from the GoPro, point & shoots, Micro 4/3 cameras, and the Sony NEX series. With this roundup, we've put together options for every budget and every shooter. Here are our picks for 2014.

www.backscatter.com/learn/article/article.php?ID=57

Best Entry Level Camera

GoPro Hero 3+ Black Edition
Camera & Housing starting at $400

In the past few years, the availability of solid point and shoot systems available for less than $500 has diminished, which GoPro was ready to quickly fill and maintains this year as the top pick in this category. You won't need to break the bank to get started with a GoPro system, and it will deliver high quality video unimaginable even just a few years ago, for the price.

The Hero 3+ Black edition has incredible high quality optics, and a plethora of frame rate and resolution options for capturing the best underwater video or still images. Although GoPro makes a Silver Edition, because of the image quality and additional frame rate options, our recommendation is to simply go with the Hero 3+ Black Edition. The Backscatter Flip3.1 Filter is essential for getting good results with this camera, as it makes a dramatic difference in restoring color and contrast.

While the GoPro can shoot decent stills, if photography is your main goal, we suggest looking at options in the next category as the GoPro has limited capability for stills, especially since there is no way

to make manual adjustments. There is also no way to attach a strobe, which is important for taking high quality photographs underwater. So if your primary goal is underwater photography, then it is probably worth stepping up to a more sophisticated point & shoot camera that offers manual control. But for just grabbing some great footage of your dive adventures at an entry-level price, the GoPro can't be beat.

GoPro Hero 3+ Black Edition $400
FLIP3.1 Underwater Color Correction System with DIVE $69
FLIP3.1 Combo Package with SHALLOW, DIVE, and DEEP $134

Best Waterproof Camera

Olympus Tough TG-2 Camera
Camera & Housing starting at $690

The Olympus TG-2 is an update to the previous Olympus Tough series line flagship, the TG-1. The Olympus TG-2 is a splashproof pocket camera, one that you can take snorkeling on its own, or take it deeper while diving using the same PT-053 Underwater Housing as the TG-1. In addition, the TG-2 Tough lives up to its name, as it is shockproof, crushproof, freezeproof and dustproof.

With a fast f2.0 lens, and an impressive depth rating of 50 feet, the Olympus TG-2 is a great camera to keep with you on the boat, and take with you while swimming, or in any damp environment without any concern for it getting wet. The image quality looks quite good, though we are disappointed that Olympus did not include a raw file format.

Snorkelers should be intrigued by the relatively inexpensive FCON-T01 Fisheye Converter Lens that will mount directly onto the camera for use underwater. But for most diving, you will be better off using the PT-053 housing; in addition to increasing the depth rating to 130 feet, it also allows the easy attachment of strobes, making this a fully-featured rig.

The focus and shutter are incredibly fast, making this one of the quickest firing cameras in our roundup. Even macro shooting, where most compact cameras have an issue with fast focus, was quite fast. The PT-053 underwater housing has 52mm aluminum threads on the front for attaching accessory macro and wide angle lenses.

The camera's native macro capability is very good, which just about eliminates the need for a macro lens. The TG-2 has 2 custom white balance presets, allowing you to get accurate colors in wide angle video with no artificial lighting. The 1080/30p video looks good in shallower conditions, but a color filter will be essential for use at deeper depths.

The video from the Olympus Tough TG-2 has great looking color due to a custom white balance feature being added to the Tough series. It works best in the shallows. Any deeper than about 40 feet will benefit from a color correction filter. Unlike most other compact cameras, the TG-2 has live focus like a camcorder, and it's super fast. This occasionally led to a small amount of focus hunt from time to time like a camcorder, but was not enough to outweigh the benefits of live focus.

Camera & Housing starting at $690

Today's compact cameras are now able to deliver high quality photos and video that come closer than ever to matching that of higher end SLR systems. All underwater imagery in this article was taken with compact cameras.

Best Point & Shoot Camera

Sony DSC-RX100 II

Camera & Housing starting at $1150

We're excited that Sony has taken their already fantastic RX100 compact to the next level with the Mark II. The difference in low light performance is noticeable, but it's the new hot shoe that has us excited about this camera.

At last, the compact shooter doesn't have to rely on the camera's own flash to recycle, and can have truly instantaneous shot-to-shot performance when using an electronic sync connection for their strobes. We're happy to see that the new NA-RX100II housing accommodates this feature. Easily grabbing your latest underwater photos off of the camera to share with the world on Facebook and Instagram is also a welcome bonus thanks to the new WiFi feature on the RX100 II.

This diminutive camera is a remarkable piece of engineering that delivers outstanding stills and full 1080p video in a sleek, elegant package. Featuring a very large sensor size, the Sony RX100 II has the best of all worlds, with class leading performance and extremely high image quality. Thanks to that large sensor size, the RX100 II sports a stunning resolution of 20 megapixels and still maintains great low-light performance.

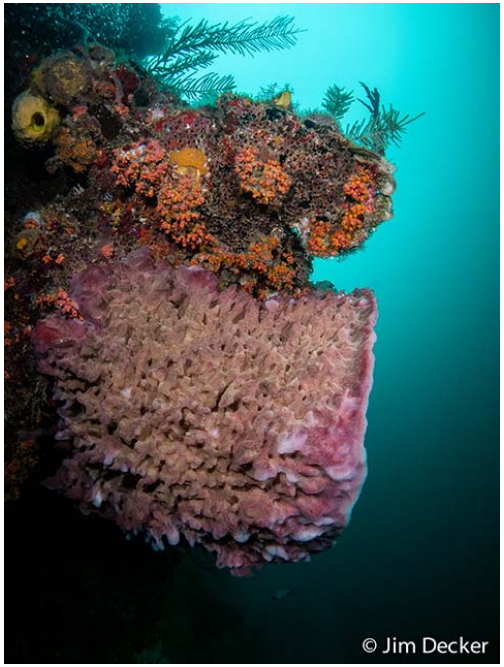
Ergonomically, the Sony RX100 II resembles the tried and true designs from the Canon S series, featuring a ring around the lens that can be programmed to control aperture, zoom, focus, and more. Similar to the S120, the camera also has a rear dial that can control other functions, so the shooter can independently control shutter speed and aperture in manual mode.

Unlike the S120, TTL flash exposure is available while shooting the camera in manual exposure mode. The lens is 28mm equivalent at the wide end making it a great match for accessory lenses such as the outstanding FIX UWL-28 Compact Wide Lens. This lens allows an extremely wide angle 165 degrees of coverage, and is quite sharp across the frame. Three housing options are available for the RX100 II, from Ikelite, Recsea, and Nauticam. The Ikelite housing represents an affordable option for housing this camera, and the Nauticam is our favorite for its balance of price and outstanding ergonomics.

The Sony RX100 II does not have a dedicated Macro mode, and must be zoomed all the way wide in order to achieve close focus. This provides a reasonable option for shooting small critters, but most users will find themselves hitting up against the limits of the camera's internal magnification.

Fortunately, accessory lenses such as the Subsee +5 and Subsee +10 can be added to the front of the housing in order to achieve closer focus. One downside of the RX100 II's large sensor is that focus must be much more precise. But the RX100 II makes it a simple matter to switch between auto and manual focus, so it's possible to lock focus and then move the camera in order to achieve maximum sharpness. Fortunately, the high resolution screen makes it easy to see critical focus.

The camera's front ring can also be configured to drive "fly by wire" manual focus adjustments, but this requires long turns in order to cover the camera's full focal range. Like



Wide angle is where the Sony RX100 II shines. Even in low light and low vis conditions, you can get smooth gradations on the background water color. Shot with the Fisheye 28M52 168 degree lens. ISO 200 F8, 1/60

Sony mirrorless cameras such as the NEX-5N and NEX-7 (discussed later in this article), The RX100 II features focus peaking which can be a useful aid when dialing in manual focus. In general, sharpness in the corners when shooting macro is a bit disappointing. But given the RX100 II's incredible 20 megapixels, there is plenty room to crop.

Camera & Housing starting at $1150

Best Entry-Level Mirrorless

Olympus PEN Series

Camera & Housing starting at $1347

Olympus changed the underwater compact camera world forever with their launch of the PEN series of cameras with underwater housings which we first reviewed in 2010. Now in its fourth generation, the PEN is better than ever with the new E-PL5. The 16MP sensor of the E-PL5 comes from the Olympus OM-D E-M5, which performs excellent in low light and higher ISO's.

We love the PEN cameras for their quick autofocus, snappy performance, and great image quality. Continuous shooting speed has been improved to an amazing 8 frames per second. Raw files delivered by both the E-PL5 are rich and detailed.

With the Olympus housing at $747, this is the most affordable interchangeable lens underwater camera system in our lineup.

In addition to wet lenses, a wide variety of lenses for the Micro 4/3 system make the PEN series a platform that you can build on for the future. Custom ports for micro 4/3 lenses are available from Zen Underwater that work with the Olympus branded housings, including versions for the Olympus 9-18, Panasonic 7-14, Panasonic 8mm, and Panasonic 45mm Macro. These

are our four favorite lenses to shoot underwater, so it's great to have them all covered.

One of our favorite features of the Olympus PEN cameras is the ability to customize them. On all of our cameras, from compact to SLR, we like to separate the shutter function from focus. This way, we can acquire focus, recompose the image, and the camera is not going to "hunt" to re-acquire focus at the moment we choose to trip the shutter. Fortunately, the PEN cameras are equipped with customizable function buttons which can be programmed to be the equivalent of an "AF-On" button found on many SLRs.

Two custom white balance settings are available. Unfortunately it can only be captured in photo mode, but can be set in both video and photo modes. We preferred to change the record button function to Custom WB. While pressing and holding the record

While shooting splits with a small dome is challenging, having 8 frames per second made getting the shot a lot easier. We were also impressed with the high ISO performance. Olympus PEN E-PL5. Taken with the 8mm Panasonic Fisheye. ISO 1600, 1/160, f18

button, and the pressing the shutter, we were able to quickly capture custom white balance and then have the option of assigning it to one of the two presets. After capturing in manual photo mode it is easy to bump the mode dial over 1 notch to the video mode setting.

The E-PL5 is capable of shooting some great video, and supports full 1080p HD resolution. Full manual exposure is our preferred way to shoot video. While we've found natural light video works best in the shallows (about 30 feet), the E-PL5 was able to white balance to about 50 feet although the colors looked a little unsaturated but with a little saturation in post, the color perked right up and looked great. This is a big bonus.

Camera & Housing starting at $1347

Best Advanced Mirrorless Camera

Olympus E-M1

Camera, Housing and Port starting at $3060

The new E-M1 improves upon the E-M5 by adding a more sophisticated autofocus system and greater customization of all available camera buttons. Although Olympus is still keeping the E-M5 in their OMD lineup, these new features alone make the E-M1 our pick for underwater use. The E-M1 is now the top camera in Olympus' mirrorless lineup.

Some of the more notable features carried over from the E-M5 is the 5 axis image stabilization but the biggest change is a max flash sync speed of 1/320. This is a huge advantage for dialing in the exposure on your background. For wide shots, you can get darker blue water backgrounds and pull in the exposure on sunball shots easier. For macro photography, a high sync speed allows one to more easily knock out any ambient light and just have light from the strobes on the subject, and also accomplish black backgrounds in the daytime.

Other improvements are 10 frames per second with a 41 image RAW buffer, and improved AF function and speed. The viewfinder is now as large as a full frame DSLR viewfinder and the resolution is 2.36 million pixels, making it one of the highest resolution EVFs on the market.

The 2x2 switch is a dream in fast action. In 1st position, the dials operate shutter speed and aperture. In 2nd position, the dials operate white balance and ISO. No need to hit multiple buttons to make those adjustments, just flip a switch, turn the dial, shoot. And like the E-M5, when changing the ISO it shows you an EV meter so you can tell if you've got the ISO in the range you need without having to pop out of the ISO settings screen.

The customization of controls on this camera are insane. Almost any button can be reassigned to another function. One of the major disadvantages to the Olympus PT-EP08 housing for the E-M5 was that you needed to sacrifice one of the 2 assignable function buttons to the fish mode as this is the only way the flash can fire in the down position inside the housing. Now with the E-M1 you can assign fish mode to one of the 2 custom buttons on the front of the camera, without sacrificing any of the importantly placed custom function buttons on the PT-EP11 housing for the E-M1. For the PT-EP11 housing, I prefer to move the AF-ON activation to the Fn1 button, which is more ergonomically located than the AF on button.

The camera has 4 custom white balance presets. With all the customization options, you can now assign custom white balance to one of the function buttons and have a true 1 touch white balance. After executing the white balance, you can then assign it to one of the 4 presets. The ease of process is unmatched in any of the Canon or Nikon SLR cameras. Having 4 presets at your disposal is more than any SLR except for the top end flagship models costing over $6000. We can only hope other camera manufacturers take note and include more presets in the future.

One downside to executing a custom white balance is that it can't be done in video mode. You can pick one of the presets to use in code mode, but you cannot execute. For that you need to move over to photo mode.

The longest macro lens available is the Olympus 60mm. While this lens is super sharp, the relatively short focal length equates to not much working distance, especially when using a wet diopter like a Subsee +10 lens. SLR's have almost twice the working distance, which is better for more skittish critters.

Images shot with prime lenses look exceptionally sharp. Olympus removed the low pass filter on the sensor and added a new image processor in the E-M1, and the results are sharpness that meets or exceeds that from SLRs.

Camera, Housing and Port starting at $3060

www.backscatter.com/learn/article/article.php?ID=57

ULTRALIGHT
CONTROL SYSTEMS

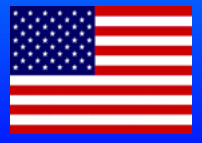
We manufacture trays for your digital camera & video housings and arms to add a strobe or light.

18 years in business.
100% customer satisfaction guaranteed.

Special GoPro mounts

The original arms with the O-ring in the ball.

ULTRALIGHT CONTROL SYSTEMS SELLS THE ONLY TRAYS, HANDLES, ARMS, CLAMPS AND ADAPTERS THAT ARE MANUFACTURED AND ASSEMBLED IN THE USA.
QUALITY AND CUSTOMER SERVICE ARE OUR #1 PRIORITIES.
ALL PARTS ARE MACHINED (NOT MOLDED) FROM THE HIGHEST GRADE ALUMINUM AND HARD ANODIZED. OTHER PARTS ARE STAINLESS STEEL.



Made in the USA

www.ulcs.com

"Often copied, never equaled"