

Sony A7R MKIV and Nauticam NA-A7R IV Field Review

By Phil Rudin

Sony has recently introduced the Alpha A7R MKIV 61MP full frame mirrorless camera body. This is a fourth generation of Sony camera which started with the release of the Sony A7, A7r and A7s in early 2013. These were the first mirrorless interchangeable lens cameras to feature a full-frame (35MM) sensor in a mirrorless camera body the size of the current Olympus E-M1II & E-M5III mirrorless cameras.

The A7R IV is a refinement of the highly successful A7R III introduced in Oct. 2017 and reviewed by me in uwpmag.com issues 102 and 103 using Aquapazza and Ikelite housings. At this time the A7R IV is the most technically advanced high resolution full frame camera on the planet.

In my 2017 review of the A7R III I said that Sony had made it quite clear that they intend to surpass Canon and Nikon in the Pro/Prosumer market by focusing heavily on full-frame mirrorless cameras and high quality lenses.

Sony's advanced innovation over the past six years has paid off

with the A7R IV at the top its class of cameras in DPReviews Semi-Professional Full-Frame category of cameras. With an overall score of 91% and the Gold Award this ranking is higher than any of the current Canon, Nikon or Panasonic cameras in its class.

The A7R IV is robust, covers a broad range of needs and is extremely customizable to allow quick and reliable operation. Sony has continued to add to its line of lenses with fifty-five native full frame lenses like the new 400mm F/2.8, 600mm F/4 and 200-400mm tele lenses for sports and wildlife shooters.

After market manufacturers like Rokinon/Samsung, Sigma, Tamron, Tokina, Venus Optics, Zeiss and more have also jumped on the Sony bandwagon with Sony FE full frame direct mount lenses bringing the total of available lenses too over 290. Sony has still not added a fisheye or fisheye zoom lens to its lens lineup. Adapted lenses like the Canon 8-15mm fisheye zoom work well but Sony needs to step up and offer a fisheye.



Sony Alpha A7R MKIV camera

Sony's A7R IV full frame mirrorless camera includes excellent sensor based in-body image-stabilization with a CIPA rating of 5.5 stops of stabilization. Resolution has been increased to a maximum of 9504 x 6336 from the 61MP sensor in the native 3:2 format. Many readers are familiar with the A7R III and I would like to point out some of the upgrades in the A7R IV that will be useful for underwater shooters.

The A7R IV autofocus system now has 567 phase detection points covering over 75% of the width and 99% of the height of the 35mm full frame format. The A7 III has 399 across the sensor area. Both cameras also have 425 contrast detection points. The new sensor is a back-illuminated structure with the copper



wiring layer below the photodiode substrate which gives a significant advantage in terms of transfer speeds, image quality and heat transfer.

The A7R IV has a new imaging processor and autofocus algorithms which include realtime tracking in AF-C. This auto focus system works so well that I have abandoned back button focusing and AF-S relying instead on the Lock-on AF Expanded Flexible Spot in AF-C mode. This combination allows me to lock focus with a half press of the shutter and then drag the focus point around the frame while maintaining the original

focus area. This means I can focus on an animal's eye in the center of the frame then drag the eye around the frame for the best composition without losing the tack sharp focus on the eye.

Lock-on expanded flexible spot also allows you to adjust the speed that you drag the focused point around the frame. I have changed the factory default setting and sped up the movement to meet my needs. Another subtle but very useful update in the A7R IV is that the focus area box which can be reduced or enlarged in size can also be set to white or red for ease of use.

For those who have used earlier versions of the A7 cameras and tried to locate the flat gray focus box underwater or in bright light I feel your pain. I have the A7R IV focus box set to RED and it is now near impossible not to see it as soon as you look into the electronic viewfinder.

On the subject of the electronic viewfinder it has now jumped from the 3.6 million dot panel on A7R III to 5.7 million dot panel for A7R IV. The new adjustable refresh rate goes as high as 120FPS giving a life-like view of the scene through the viewfinder. Once you have mastered using this EVF you will never want to go back to a DSLR viewfinder.

The LCD screen for the A7R IV is unchanged at 1.44M dots and three inches with touch sensitivity control. In this area Sony could do much better, the lions share of both EVF and LCD panels used for all camera brands are made by Sony. As a blackwater photographer I find the LCD screen invaluable for locating very small subjects in near zero light. A better LCD panel would enhance the ability to see fine detail.

Many readers have asked me about the new implementation of animal eye autofocus. With

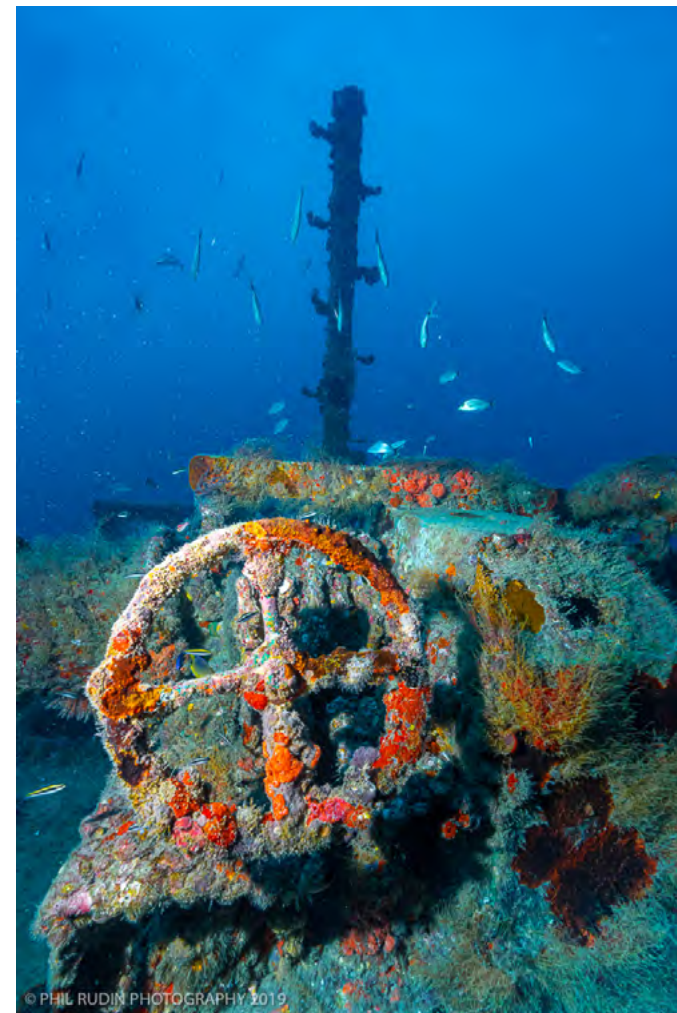


Caribbean Spiny Lobster, Sony A7R IV, Sony FE 90mm F/2.8 macro lens, Nauticam NA-A7RIV Housing, Two Inon Z-330 strobes, ISO-100, F/20, 1/250th sec.

Ana Cecilia Wreck, Palm Beach, Florida, Sony A7R IV, Sony FE 12-24mm F/4 lens at 12mm, Nauticam NA-A7RIV Housing, One Inon Z-330 strobes, ISO-640, F/13, 1/80th sec

limited testing I have found the animal eye AF is more than a bit hit and miss underwater. At this time it does not work in conjunction with lock-on expanded flexible spot because the idea with eye AF is to find the animal/human eye regardless of where it is in the frame and lock onto the eye. You can even choose between the right or left eye and select one person's eye out of a group of people in the frame.

I have used the human eye AF shooting models both underwater and while doing splits and it is spot on. For pets like cats and dogs animal eye AF works very well too. I had great success using animal eye AF for horses and a cow but it is still not ready for prime time for most marine life and some birds.



That being said Sony's eye AF for both humans and animals is leaps and bounds ahead of any of the other manufacturers attempts to compete on the same level. The eye AF has also been added to video and can be used with or without the touch screen.

The A7R IV has a larger more ergonomic grip which adds 8 grams over the A7R III. The A7R IV also has a more user friendly redesigned rear dial and a lock for the exposure compensation dial. The AF-ON and multi-selector buttons have also been



enlarged and redesigned making them much easier to find without taking your eye away from the viewfinder while shooting above water. This is important for using the AF-ON button to magnify an image in the viewfinder without having to take your eye away. The magnified image enlarges to cover the focus point so that you can immediately see if focus is correct.

I have been able to review and enlarge the image in the Nauticam housing without removing my eye from the 45 degree optical viewfinder as well. This feature definitely speeds up workflow and the new EVF panel lets you see that your images are tack sharp. The EVF & LCD panels also allow you to see a live histogram and a four color histogram in image review.

The memory card door is now a push to open and close rather than using the locking device found on the A7 III. The new arrangement improves

weather-sealing and prevents the card door from opening accidentally which has happened to me several times with past A7 models. The dual card slots have now been reassigned with the #1 slot now at the top and the #2 slot at the bottom which makes more sense. The A7R IV also accepts UHS-II SD high speed memory cards in both card slots where the A7 III only allowed one.

The A7R IV now shoots 10-FPS in compressed RAW and 6-FPS in uncompressed RAW with the mechanical shutter. The Sony A7R IV now offers tethering to a computer or tablet which is mostly used in studio work, USB-C and WiFi transfer options and a new headphone port. The A7R IV also offers pixel shift with four and sixteen captures up to 240MP's. Because the camera needs to be rock steady to use this feature it would be of no real use underwater

since everything is in motion.

The Sony menus have improved over prior models but are still one of the favorite items for reviewers to bash. My take is that this camera has over 100 menu features to select from and many of those features have multiple subsets. I have selected the menu features that I use most and moved them into the super menu accessed via the Fn function button. I can open that small subset of items underwater and easily change them using the arrow pad and OK button.

If I am shooting in TTL with the S-Turtle flash adapter I can just go into the super menu and easily change +/-flash compensation. Another A7R IV feature is that stills and movies have separate super menus so you can set up to twelve menu functions for each. I have also assigned custom key functions which are useful for me like the C3 button is assigned so that I can toggle quickly between the EVF and LCD. I have the AEL button assigned to quickly toggle between full frame and the very useful APS-C mode.

The A7R IV still uses the same NP-FZ100 battery as the A7R III but manages to capture a few more frames per charge. The A7R IV also has very robust new weather sealing which is expected with a camera of professional quality.

The A7R IV is also a capable video camera with full frame 4K

movie capture and roughly APS-C size crops for both 4K at up to 30p and 1080p, log profiles including HLG, zebras and peaking, real-time AF tracking for face and eyes, continuous shooting without time restrictions and more. My take is that the main function of the A7R IV is to shoot high quality stills first and video second so I will confine the rest of my review to shooting stills.

The most endlessly discussed feature of the new A7R IV in forums and chat rooms is its 61MP full frame sensor. Who is it for, why does anyone need so much resolution, will I need a new computer to handle the file sizes and on and on.

The 61MP A7R IV provides exceptional image quality with plenty of dynamic range and an ability to do large crops. In APS-C mode the focus points cover the entire frame and produce an excellent 26.2MP image larger than most current APS-C cameras. This matters to me because I get a faster work flow and additional options when shooting.

The Sony FE 90mm F/2.8 macro lens is a must-have for underwater macro shooters and a one push toggle to APS-C gives an AOV equivalent of a 135mm macro lens extending my lens range. I have already found this to be quite useful with the Sony FE 90mm and FE 50mm macro lenses. I am aware that I can just crop the

FF image to achieve APS-C or other format sizes. However what I see in the viewfinder in APS-C mode is exactly what I get giving me two cameras in one with all of the additional features of the A7R IV system.

While the 61MP sensor continues to be the hot topic it is only a sidebar to the outstanding new features found in the A7R IV. File sizes run from around 118mb in uncompressed RAW full frame to 59mb compressed FF and 26mb compressed in APS-C.

Viewed as a complete package the A7R IV is the best full frame camera available in today's market for overall performance. If you are not looking to produce exceptional prints up to billboard size this camera should still be on your short list because of all the other things it does so well. If you think 61MP is just overkill read my past uwpmag.com review for the Sony A7R III 42MP which can now be found new for around \$2500/£2500. At a rollout price of \$3500/£3500 I think the Sony A7R IV is still a bargain considering all it offers.

Nauticam NA-A7R IV Housing and Ports

The Nauticam NA-A7R IV is the fourth generation of housings for the Sony full frame line of mirrorless cameras. Nauticam has always continued to improve with age because as their mission statement says they “Think beyond what has been done before and never rest on past accomplishments”.

My first Nauticam NA-NEX5 housing review for uwpmag.com dates back to 2010 and I am always amazed to see the subtle improvements introduced with each new generation of housings



and accessories.

The latest N100-N120 35.5MM port adapter II (for A7RIV) is one example. The new housing extends further to accept the larger battery grip on the new A7R IV so the prior N100-N120 adapter for Sony A7 II & III cameras no longer fits. In addition to the redesign which retains the same 35.5MM length the port locking device has been moved to the top of the adapter making it easier to align and lock ports. The adapter also has a new redesigned gearbox with an increased zoom/focus gear ratio which means a faster and more precise control of lenses for video. This new gearbox is also found in the new NA-A7RIV housing zoom/focus control wheel.

The new NA-A7IV housing now features M14 & M16 mounting point on the rear housing plate for vacuum valve, flash sync ports and more. An M24 accessory port has been added to the front left side of the housing for HDMI 2.0 output connectivity.

Other new features include a new O-ring sealing design for the LCD window and new handle brackets designed to enhance stability underwater. All of these subtle improvements help the user to focus less on the equipment and more on the creative process.

The NA-A7IV housing has the same excellent twin locking system used on all of the Nauticam DSLR housings. This secures the front half of the housing to the rear by turning the locking device 90



degrees. To unlock push in the two red safety locking buttons and turn the locks.

The housing has corresponding levers, push buttons and control dials for every function on the camera body. These controls are very well placed and should be easy to use even with thick gloves.

The rear half of the housing has a large LCD window and a quality optical glass pickup finder for the outstanding EVF. I always replace the Nauticam pickup finder with their excellent 45 degree optical viewfinder. This is at least the seventh Nauticam housing I have used with the same 45 degree optical viewfinder. Switching between the pickup finder and the 45 degree viewfinder takes me less than a minute and does not require any tools.

Once installed the larger viewfinder really helps those of us with ageing eyes who are seeking better critical focus and composition. Nauticam also offers an optional 180 degree optical viewfinder which works very well for wide angle and motion shots. Both of the viewfinders

have a plus & minus diopter control which can be adjusted underwater.

The signature Nauticam red port locking lever is on the front lefthand side of the housing and the lens release button is on the right viewed from the front of the housing. This allows you to remove the port or port adapter and install or remove a lens without removing the camera or even opening the housing.

The housing even has a blue reset switch for the vacuum system if you change ports without opening the housing. This is a very useful feature because larger lenses like the Sony FE 12-24mm F/4 zoom must be mounted from the front of the housing.

The switch to turn on the vacuum system electronics is located in the rear half of the housing along with the audible alarm, LED warning light and battery mount. The vacuum system is an accessory I highly recommend since the housing already comes with all of the electronics and a flood alarm built in. The M14 or M16 vacuum valve kit with the vacuum pump and tool for user installation cost around

\$250.00. I average over 100 dives a year and I change the alarm system battery once a year as routine. I also recommend carrying spare batteries for all of your needs when traveling just to be on the safe side.

The rubberized handgrips are removable and include the newly designed stainless mounting plates to reinforce the stability of the handgrips. The handgrips are very comfortable, they adjust depending on your hand size and the thickness of the gloves you may be wearing. The grips include standard ball head mounts for strobe and video support arms as well as other accessories.

I have added two additional ball mounts to the housing over the support brackets for things like focusing lights, additional strobes, video lights and more. The top of the housing also features two threaded fiber optic ports with caps for optical sync cords. Compatible strobes are triggered using the optional Nauticam flash trigger for Sony Alpha 7-series cameras and Nauticam universal fiber optic cables.

The Nauticam Mini flash for Sony Alpha-7 (\$250.00 USD) triggers a verity of strobes with fiber optic compatibility including Inon Z-330, Z-240 type4, S-2000, D-2000 type4, D-200 as well as Sea & Sea YS-250, YS-D1 and YS-01 strobes (will not trigger S&S YS-D2) with more being added. The Mini is a manual flash trigger and has NO TTL function. The Mini flash trigger is sold with two batteries that provide thousands of flashes to reduce the drain on the camera battery associated with on-board flash recycling.

The Mini flash trigger also recycles much faster than an on-board camera flash allowing you to shoot between six and ten frames a second if your external strobes can keep up. After market products like the S-Turtle flash trigger can also add TTL flash operation using fiber optic sync cords.

If you are making the move from the NA-A7RIII housing to

the NA-A7RIV housing remember you will also need the new Nauticam N100 to N120 by 35.5 mm port adapter II for A7RIV.

All of your additional ports and accessories can be carried over with no problems. Nauticam and Zen Underwater have a verity of port options for the NA-A7RIV housing using both the N100 mm and N120 mm DSLR port mount options. This will allow owners moving over from Nauticam DSLR housings to use some of their ports and to migrate some DSLR lenses by using the Metabones EF or Sigma MC-11 lens adapters.

The Nauticam NA-A7RIV housing retails for \$3050.00 USD and the N100-N120 port adapter II for NA-A7RIV (part #37305) retails for \$525.00

It is not hard to imagine that an A7 IV in the 24-30MP range is in the works and that it will be built on the same chassis as the A7RIV. Having one housing, one lens set and one port set that will work with two quite different camera bodies is a remarkable advantage for working photographers. I used the A7 III as a backup to the A7R III underwater and also as my go to land camera and hope I will be able to do the same with an A7 IV.

Field Testing the Sony A7R IV/NA-A7RIV System

Let me start by saying that Sony has definitely arrived and that the A7RIV system is no longer a work in progress. While the A7RIV is a huge improvement over the A7RII I reviewed in 2017 Sony is still filling in its lens lineup which is



incomplete compared to Canon and Nikon DSLR's but much improved since the 2017 review. Sony has been concentrating on the full frame premium lens line and each new release has been very well received.

For this review I selected the Sony FE 90mm F/2.8 macro G OSS lens which easily handles the larger A7RIV 61MP sensor and is without question the best macro lens I have ever used with any camera. The 90macro was paired with the dedicated Nauticam N100 macro port with 67 mm threads. This allows you to add a flip adapter and closeup lenses while shooting in full frame or APS-C formats.

I also used the super wide (12-84 AOV) rectilinear Sony FE 12-24mm F/4 G zoom. This lens was paired with the Zen Underwater N120 mount 230 mm optical glass dome port and the Nauticam N120 40 mm port extension. All of the N120 ports require the new N100 to N120 35.5 port adapter II referenced above.

Simple physics require full frame lenses to be made larger than lenses for sub full frame cameras, this is true for both mirrorless and DSLR cameras. But while lenses like the Sony 12-24mm F/4 zoom may be about the same size the weight difference can be noticeable. The Sony 12-24 F/4 weighs in at only 565g while lenses like the Canon 11-24 F/4,



Ana Cecilia Wreck, Palm Beach, Florida, Sony A7R IV, Sony FE 12-24mm F/4 lens at 12mm, Nauticam NA-A7RIV Housing, One Inon Z-330 strobes, ISO-640, F/13, 1/80th sec.

Nikon 16-35 F/4 and Nikon 14-24 F/2.8 weigh-in at 1180g, 680g and 1000g respectively. Sigma's 12-24 F/4 "art" lens for Canon and Nikon weights in at 1150g. Not apples to apples but about as close as I could get within the AOV range.



Dusky Jawfish, Sony A7R IV, Sony FE 90mm F/2.8 macro lens, Nauticam NA-A7RIV Housing, Two Inon Z-330 strobes, ISO-100, F/20, 1/250th sec.

In addition the Nauticam port charts indicate that the 230 mm port gives the most well optimized results for the Sony 12-24 F/4 zoom while the Canon 11-24 F/4 and Nikon 14-24 F/2.8 zooms need to use the Nauticam N120 250 mm dome port for the most optimized results. These lenses also require longer port extensions.

Sony has yet to announce any FE fisheye lenses so I have been using the Canon 8-15mm F/4L Fisheye with a Metabones IV lens adapter. This Fisheye lens is paired with a Nauticam N120 140 mm Fisheye port with removable port shade and an N120 30 mm port extension. I am also experimenting with a port extension solution for the newly released Rokinon AF 14mm F/2.8 FE lens with the Zen 230mm dome port.

For macro I also used the Nauticam SMC-1 closeup lens and flip adapter with the 90mm macro setup. I used one RGBBlue System 02-2 video light for focusing when needed on macro, night



Dusky Jawfish, Sony A7R IV, Sony FE 90mm F/2.8 macro lens in APS-C same distance to subject, Nauticam NA-A7RIV Housing, Two Inon Z-330 strobes, ISO-100, F/20, 1/250th sec.

Diver Ana Cecilia Wreck, Palm Beach, Florida, Sony A7R IV, Sony FE 12-24mm F/4 lens at 21mm, Nauticam NA-A7RIV Housing, One Inon Z-330 strobes, ISO-640, F/13, 1/160th sec.

and blackwater dives. For video I use two of the RGBBlue system 02-2 lights. I own two Inon Z-330 strobes and most of the stills for this review are captured with two Z-330's with standard strobe diffusers or the 4600K and 4900K color dome filters.

I configure the 90mm macro lens with the focus limiter set from 1:1 to infinity in auto focus. On past Sony A7 cameras I always set the focus limiter from 1:1 to 0.5 meters which renders everything from life size, 1:1 to about 1:10 in focus. I find that most of the macro/closeup subjects I want to photograph fall well within that shooting range.

As I have said in past reviews it takes a few dives to get the hang of shooting within this rather



short focusing range. By using the focus limiter I find that the lens is less likely to hunt and that the lens acquires focus more quickly than when it is set from 1:1 to infinity. With the A7R IV set to AF-C with tracking flexible spot the camera does not hunt like it did with prior versions set to infinity.

I have also equipped the macro lens with a focus gear and switch from AF to manual in the super menu. This allows me to rack the lens out to 1:1 if I want and just leave it there when I



Caribbean Spiny Lobster, Sony A7R IV, Sony FE 90mm F/2.8 macro lens, Nauticam NA-A7RIV Housing, Two Inon Z-330 strobes, ISO-100, F/20, 1/250th sec.



Ana Cecilia Wreck, Palm Beach, Florida, Sony A7R IV, Sony FE 12-24mm F/4 lens at 12mm, Nauticam NA-A7RIV Housing, One Inon Z-330 strobes, ISO-640, F/13, 1/160th sec.

want to use the SMC-1 for greater magnification. Once I have a subject in focus at 1:1 I can add the SMC-1 and just move the port closer to regain focus in the viewfinder. I also use the SMC-1 with AF but some subjects are easier to acquire in manual.

The Sony 12-24mm F/4 with the Nauticam zoom gear has a buttery smooth zoom action and outstanding auto focus all the way to the dome

port. I found the best results for both depth of field and corner sharpness at F/13 or higher. Most photographers will be more than happy in the F/8 to F/16 range but for best corner sharpness F/13 or greater renders the best results. The F/13 and above aperture setting is my standard starting point across all full frame DSLR or mirrorless cameras with like AOV lenses not just the Sony

cameras.

For stills I used my two Inon Z-330 strobes with two 50 mm X 250 mm Nauticam float arms and two 200 mm double ball arms. The float arms and the 230 mm port seem well balanced and easy to control in the water. I use the same arm configuration with the macro port and 140 mm port.

For those of you thinking about moving from a sub-full frame system to a full frame system the reduced depth of field at any given F/stop over sub-full frame can present a few issues. First high megapixel cameras including the A7RIII and especially the A7RIV tend to highlight flaws associated with many lenses, so choose wisely when making lens purchases. Second the shallower DOF associated with full frame cameras requires more critical focus so taking a machine-gun approach to shooting may result in high numbers of poorly focused images.

In the water the NA-A7IV is well balanced and a dream to use. All of the controls fall easily at your finger tips and after a few dives I did not find myself having to look away from the

viewfinder to change any of camera my settings.

If you are seeking the very best in image quality and a full frame camera with quality lenses is within your budget the Sony Alpha A7R IV and Nauticam NA-A7RIV housing should be at or near the top of your wish list.

Thanks to the Nauticam USA (nauticam.com) team for assistance with equipment used for this review and to Pura Vida Divers (puravidadivers.com) for assistance during diving operations.



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