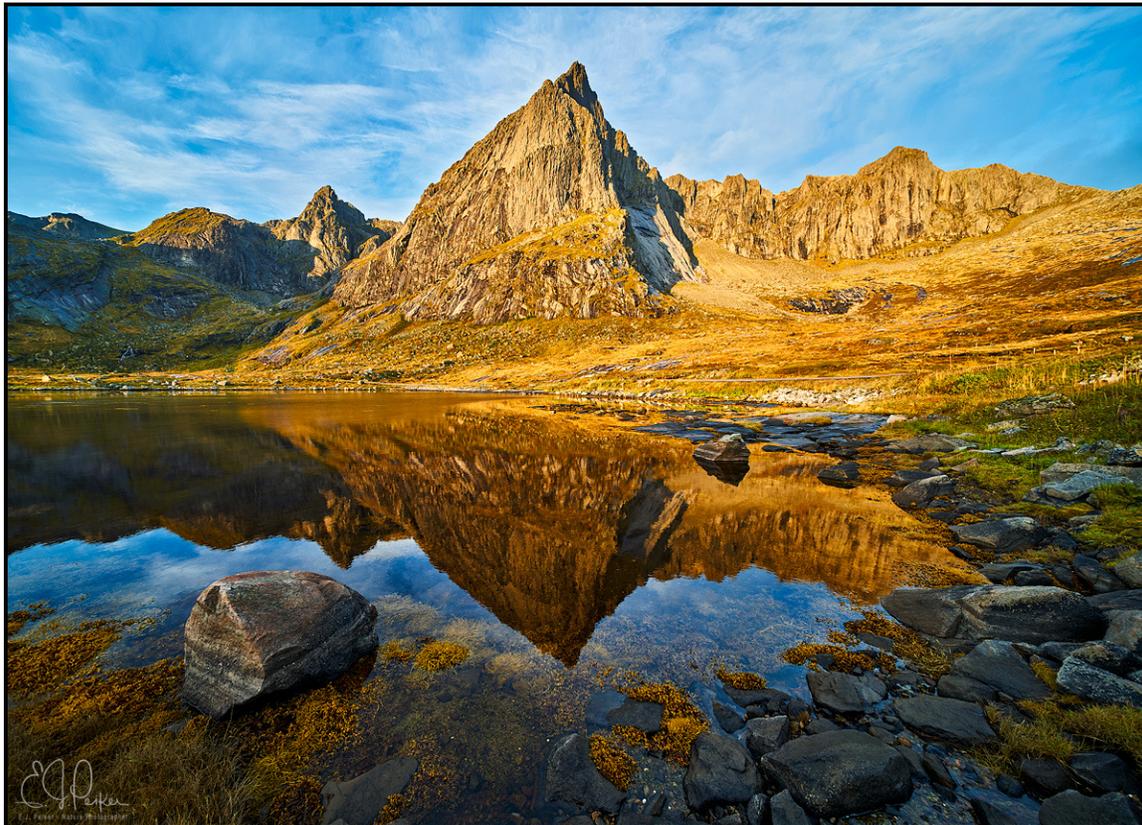




The Newsletter of E.J. Peiker - Nature Photographer

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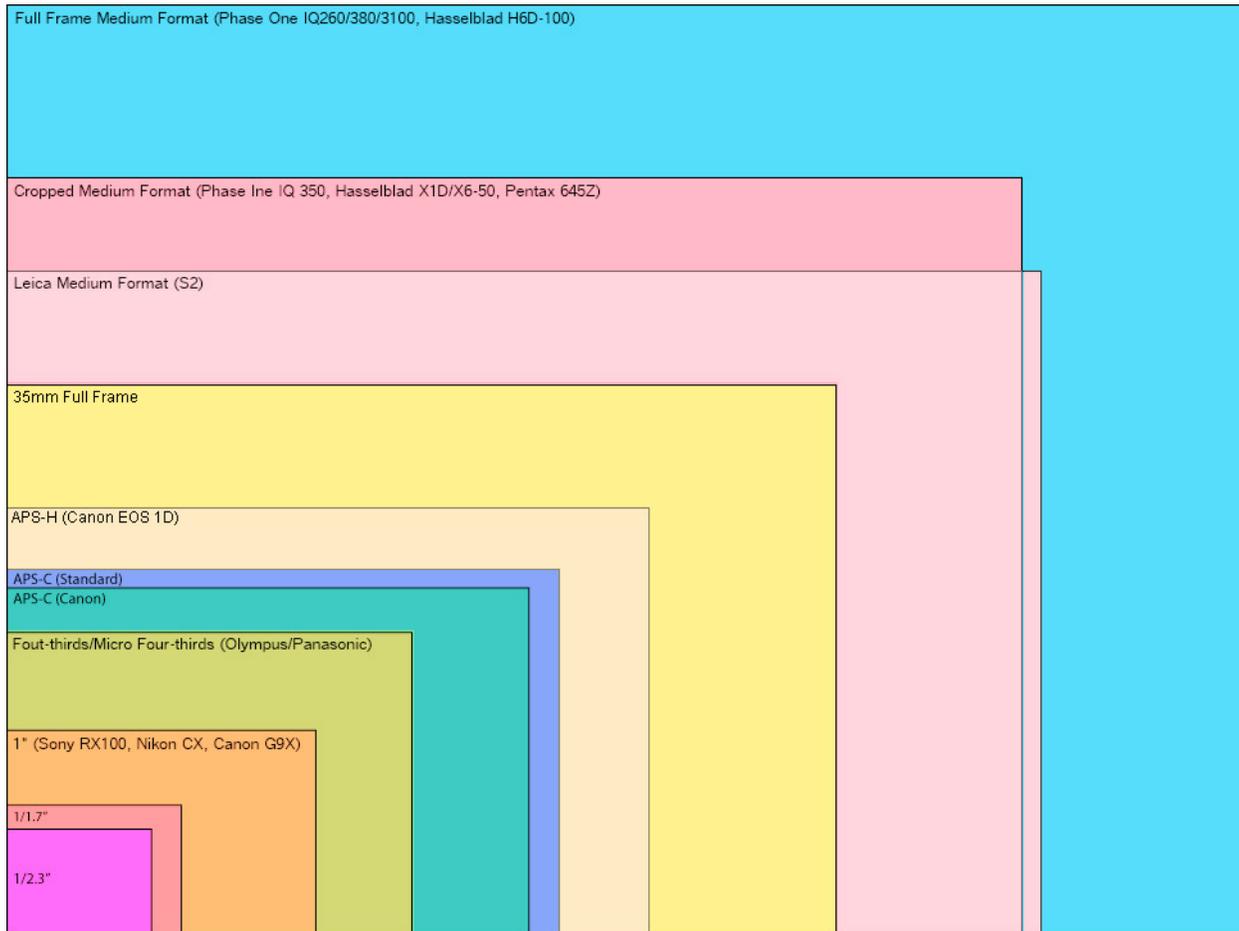
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Stortinden, Norway (Sony a7R Mk II, Voigtländer 12mm f/4.5 Heliar)

## Which Sensor Size Is Right For You

In last quarter's newsletter I shared with you the following graphic which compares all of the available sensor sizes and also covered how this affects the focal length of lenses required for an equivalent horizontal field of view:



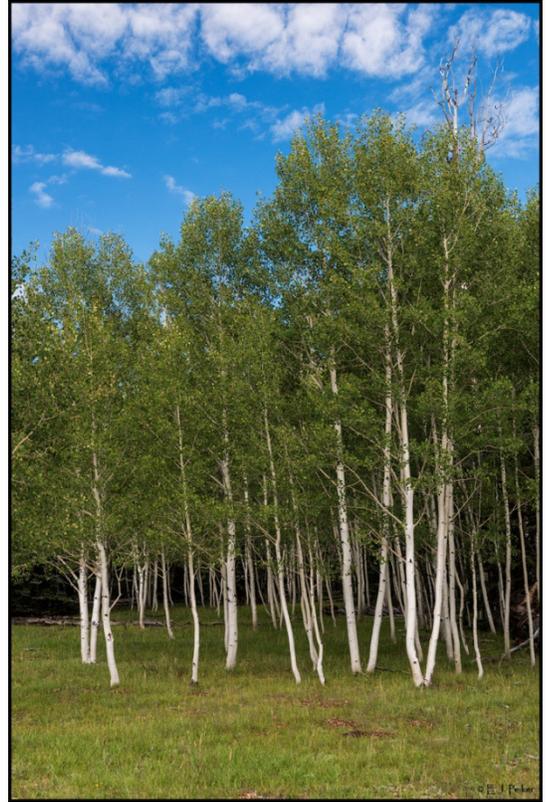
This quarter, I'd like to continue the discussion and delve into the merits of each sensor size and hopefully convey a sense of which sensor might be the best option for your photography. Again, the tiny point and shoot sensor sizes (1/1.7" and 1/2.3") will be ignored since these cameras have largely been replaced with cell phone cameras. We will start with the 1" sensor size and work our way up in size:

**1" Sensor** – this sensor size has become very popular in premium point and shoot cameras such as the Sony RX-100 series and some larger more fully featured cameras. Its horizontal crop factor is about 2.7x compared to a full frame 35mm format camera. The typical pixel count for 1" sensor cameras is 20 megapixels and most use the Sony sourced 20 megapixel sensor which has excellent dynamic range given the small size of the pixels – especially those cameras that use the Back-side Illuminated (BSI) version of that sensor. It is an excellent format for a small "go anywhere" camera including shirt-pocket cameras. It is also in use in some of the fuller sized super zoom cameras since the crop factor allows a much smaller lens with very large focal lengths. Some of these cameras have lenses that zoom from an effective focal length of 24mm to as much as 600mm with full RAW file support and even full manual exposure capability, for

those that want it, in a single travel camera that is still a bit smaller than the traditional DSLR. Clearly image quality won't be as good as a larger sensor camera with dedicated lenses but one can achieve very good results, especially with the cameras that have a more modest zoom capability in the 24-100mm (135 equivalent) or less range. Due to the crop factor, which means the actual lenses used are much shorter in focal length than the equivalent focal length would suggest, depth of field is huge. As an example, to make a photo identical in depth of field on a 1" sensor camera as a photo framed similarly on a full frame DSLR at f/5.6 would require an aperture of f/2 on the 1" sensor camera. For a given aperture, the depth of field is three stops more on the 1" sensor camera when the subject is the same size in the viewfinder. This phenomenon makes these cameras great for travel and landscape photography when ultimate image quality is not that important but portability and convenience is. On the other hand, for shallow depth of field portraits, these cameras are not well suited because it would take an aperture of f/1 to get the same out of focus background as a full frame DSLR achieves at f/2.8 - many portraits are taken at apertures that are even larger than f/2 on DSLRs. The format is also a very good format for video including 4K video. Most of these cameras are fixed lens designs except for the Nikon 1 series which is an interchangeable lens system. Besides the lack of shallow depth of field capability, the other major drawback is high ISO noise. Due to the very small pixel sizes required to achieve a 20 megapixel count, each pixel is small resulting in a lower signal to noise ratio than sensors with larger pixels can generate. These cameras can start to get pretty noisy at ISO 800 and are pretty bad by the time you get to ISO 1600.

Micro Four-Thirds – Also called m43, this format uses a sensor that has a horizontal field of view crop factor of about 2.1, we'll round that to 2.0 for simplicity. Along the same lines as the discussion above on 1" sensors, depth of field for an equivalently framed shot on a full frame camera will be much greater, in this case 2 stops greater. In the portrait example from above, an f/2.8 shot on a full frame camera will have to be taken at f/1.4 (and the lens will be half the focal length). This explains why there are some very fast m43 lenses on the market – some even faster than f/1. But at least it is possible to use m43 for shallow depth of field portraiture. There are some small cameras using the m43 sensor in the 16 to 20 megapixel range and there are also many options from entry level to full featured pro-level bodies that have interchangeable lenses, something rare in the 1" sensor format. The biggest problem with m43 is that it is diffraction limited at relatively large apertures

making the growth path in pixel count for future generations



North Rim, Grand Canyon - Sony RX-100 (1" sensor)

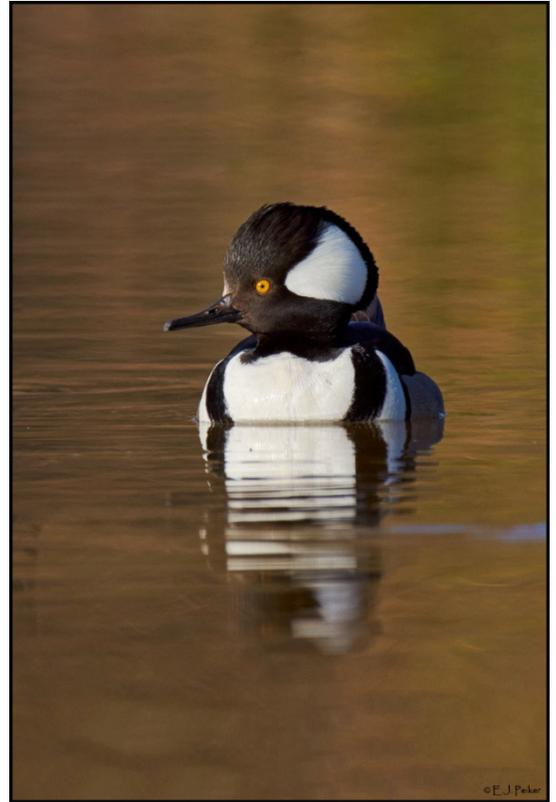


Oak Creek Canyon - Panasonic GX1 (m43 sensor)

very limited without resorting to exotic tricks. M43 cameras are primarily made by Olympus and Panasonic. Olympus cameras tend to cater more heavily to the still photographer and Panasonic cameras are found more favorable by videographers. It is an exceptional format for video and is similar in size to Super 35. Pixel sizes, especially for the 20 megapixel sensor are relatively small making this still a relatively noisy format. ISO 1600 is probably the outer limit for what is useable for most serious photographers.

APS-C – This format is a 1.5 to 1.6x crop of the full frame sensor. All manufacturers except Canon use a 1.5x crop while Canon uses a 1.6x crop. The differences due to this are so minimal it isn't even worth discussing. Cameras typically range from 12 megapixels to 24 megapixels with the discontinued Samsung NX-1 at 28 megapixels being an outlier. These cameras start to delve heavily into professional imaging territory and can use both lenses designed for APS-C and lenses designed for full frame cameras. The depth of field difference is only 1 stop from full frame for an equivalently framed subject so background isolation becomes less of an issue. This is a preferred format for many wildlife and bird photographers due to the 1.5x multiplication factor. Some cameras with this sensor type are full blown professional bodies with state of the art fast tracking auto-focus, high frames per second, excellent high ISO and good low-light performance. Dynamic range starts to get into the 12-13 stop range with these sensors making them an excellent choice for wildlife photographers and a decent compromise for landscape photographers

Full Frame – This format is similar to a full 35mm film frame which is approximately 24x36mm. It is the defacto standard that other systems are measured against. Pixel counts on current cameras go from as low as 12 megapixels on cameras made for super high low light sensitivity like the Sony a7s Mk II to 50 megapixel cameras built purely for resolution with small pixels, thereby sacrificing high ISO performance and dynamic range on cameras like the Canon EOS 5DS(R). The standard grade full frame DSLR has 24 megapixels and provides excellent resolution with outstanding noise and dynamic range. Cameras intended for the landscape and studio photographer where ISOs aren't pushed up beyond 800 very often and usually left at the base ISO of 64 or 100 have amazing image quality and generally fall in the 36-42 megapixel range. These are the cameras that landscape photographers gravitate to like the Nikon D810, Sony a7R Mk II, and Pentax K1. For action shooters, Canon, Nikon, and Sony offer their flagship cameras with full frame sensors in the 20-24 megapixel range - cameras like the EOS 1Dx Mk II, the Nikon D5, and the Sony Alpha 99 Mk II.



Hooded Merganser - Nikon D7200 (APS-C sensor)



Hamnøy, Norway - Sony a7R Mk II (Full-frame sensor)



Isle of Skye, Scotland - Phase One IQ250 (cropped medium format sensor)



Kauai, Hawaii - Phase One IQ3100 (645 medium format sensor)

Cropped frame medium format – at the current time, most cameras that fall into this category use the Sony 50 megapixel sensor that measures approximately 44x33mm. The horizontal field of view crop factor for this format is 0.82 (diagonal crop factor is about 0.80). This means that to get the same approximate field of view as a 35mm camera you actually have to use a longer lens. This means that the depth of field for an equivalent photograph will be less than the full frame 35mm format. Since the pixels are larger than an equal pixel count 35mm DSLR, the dynamic range and noise is a bit better as well. These systems can be 16 bit per color compared to the 12 or 14 bit per color in smaller formats which means more accurate colors can be recorded and it also makes it possible to get dynamic range into the 14-15 stop range. The price of systems with lenses are in the \$10K to \$45K range. They are gaining popularity among landscape photographers due to the superior fine detail rendering and what many call a more 3 dimensional look.

645 Medium Format – these super size sensors are very close to the original 645 film final image and sport a horizontal crop factor of 0.67 (diagonal crop factor of 0.63) and come in pixel counts of 40-100 megapixels. They are the current holy grail of still photography with the 80 and 100 megapixel sensors recording a mind boggling amount of detail not possible with other formats. The 40 to 80 megapixel sensors in this range are CCD sensors while the 100 megapixel sensor is the Sony 100 megapixel medium format sensor. The Sony sensor is much better if you plan on shooting ISO values above the base ISO or with live view. Base ISOs range from 32 to 100 with 50 being the most common. The systems are big, heavy and very expensive – if you don't have an absolute minimum of \$50K to spend to enter this world of photography, look at smaller sensors or the used market. This also requires large and heavy lenses with huge exit pupils and you give up more than a stop of depth of field for a given aperture on an equivalently framed image in the viewfinder. It's all about the ultimate image quality at any cost in this world.

Deciding which is the right sensor size for you depends on many factors including budget, size, weight, the type of photography you prefer and more. If you do not need to worry about cost and size of the system, as long as in motion wildlife is not your genre, the answer is easy – full blown 645 medium format is for you. But that is a very small percentage of photographers. On the other end of the spectrum, if you want something that's better than your cell phone but want to keep the size of the kit small enough to put in your pocket or you want a single camera

with fixed lens for all situations, then the 1" sensor is a good choice. For most others the answer isn't quite as clear cut. If you will never need anything above 20 megapixels and want a highly capable fully featured system with lots of lenses, a m43 camera from Olympus or Panasonic is a great choice. However if you feel that you would like more resolution and a larger choice of telephoto options for wildlife, then APS-C is a great option and these can double as a very capable landscape system. The last two formats are full frame and cropped medium format – for the wildlife photographer, the choice is clear, full frame, there simply aren't the long lenses available for cropped medium format. A serious landscape photographer must decide between full frame and cropped medium format. Both are excellent but there are more lens choices for the full frame photographer and the ultra wide angle options for the smaller medium format cameras are very limited, although Fujifilm has vowed to fix that with the lenses for their new mirrorless medium format camera. However, you will get much larger pixels in the 50 megapixel medium format offering than you will in something like the Canon EOS 5DSR which means you will get dramatically better dynamic range and noise performance. This comes at a cost though. For many, budget will be the ultimate decider.



Aurora Borealis - Hamnøy, Norway (a7R Mk II, Zeiss Batis 18mm)

## My Workflow

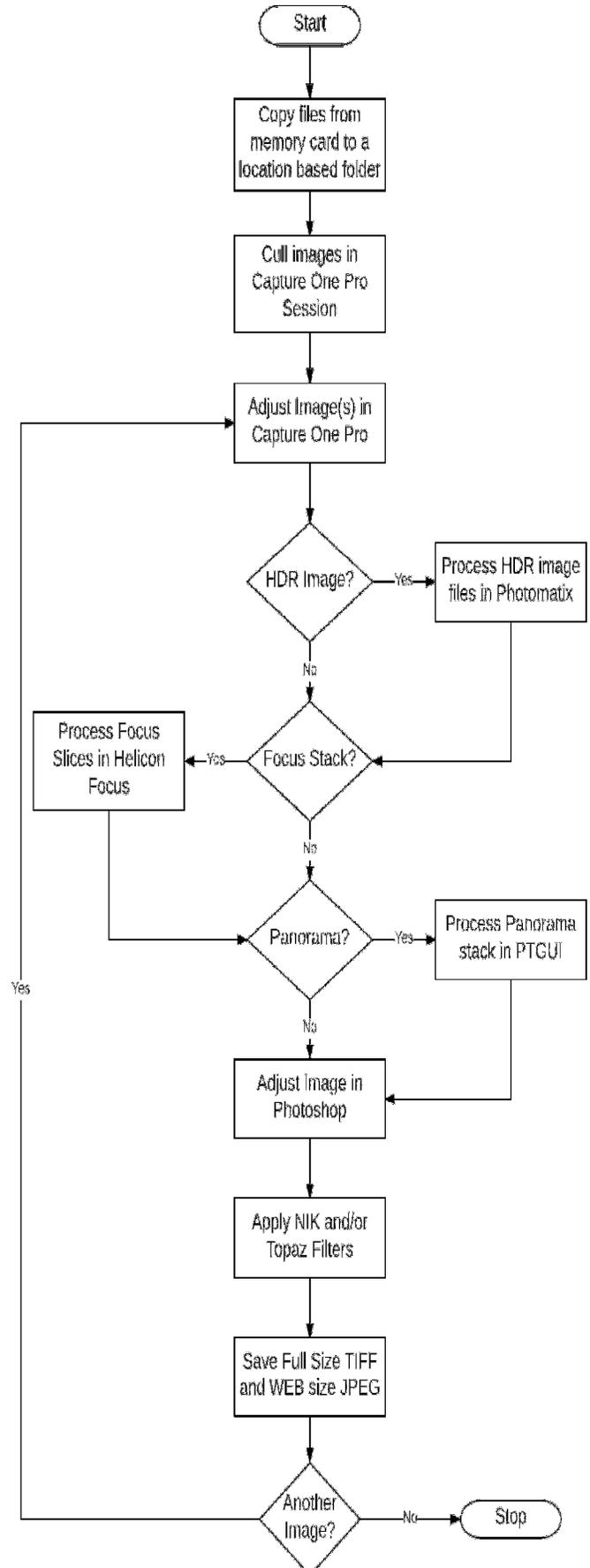
One of the questions I get most often in private communications with other photographers is to describe my workflow. It has changed a number of times over the years as software has evolved. I decided to make a flowchart for this newsletter of my general workflow...

I start by creating a location based folder on my primary storage drive. For example I recently photographed Point Reyes in Northern California so I created a Point Reyes sub folder in my California RAW file archival folder. I then enter Capture One in Session mode and cull any images that I clearly do not want to keep - poorly exposed or mis-focused shots for example. After this is complete I will select the first image to work on and make as many adjustments as the image requires within the capability of Capture One prior to RAW conversion. If this is part of an HDR series I will send the images to Photomatrix, my HDR software of choice. If this is a focus stacked image I will send the images to Helicon Focus for focus stack rendering. If this image is a multi frame stitched panorama, the images will go to PTGUI panorama software. If needed I will combine these techniques - they can be done in any order successfully but that is a bit more advanced than the intent of this quick workflow tutorial.

Once we have the image rendered by Capture One and any of the specialty programs (Photomatrix, Helicon Focus, PTGUI) as needed I will open the file in Photoshop and apply any final adjustments and filters. This can include any of the NIK filters from Coloreffex Pro 4, Viveza, Silver Effex (for black and white), or Dfine for any targeted noise reduction. I don't use a lot of Topaz filters but those are another great choice for any image finalization. Once I am happy with the photo I will save a full sized TIFF file and also a web sized JPEG for sharing on NatureScapes, Facebook, and my website.

That completes the flow for a single image. At this point I select the next photo to work on and start the flow all over again.

While this has been a very high level look at my image processing workflow, and is by no means the only flow or the best flow, it is the one that currently works best for me.





## The Voigtlander Trio

In October 2015, Austrian iconic specialty lens brand Voigtlander, now a division of Cosina, the same company that produces most Carl Zeiss camera lenses, announced that they would be bringing a line of ultra-wide angle lenses to the Sony full frame E-mount platform by Spring 2016. The announcement was for a redesigned version of the Leica M-mount 15mm f/4.5 and 12mm f/5.6, and a new design of a 10mm f/5.6. The actual names of the lenses are as follows:

- 10mm / F 5,6 Hyper Wide Heliar
- 12mm / F 5,6 Ultra Wide Heliar III
- 15mm / F 4,5 Super Wide Heliar III

The lenses are very high quality, all metal construction, direct-manual focus lenses (not focus by wire) that have the same buttery smooth, perfect tension mechanical focus mechanism of the legendary Carl Zeiss lenses and a manual aperture ring. The lenses are chipped and have electronic connections so that correct EXIF data is recorded in the image files and so that RAW conversion software can apply the appropriate lens profiles if that RAW converter chooses to support lens correction for these lenses.

The announcement was very exciting to me because the only extreme-wide lenses available at the time of announcement were very large Samyang/Rokinon, DSLR lenses with a welded on mount extension. The Voigtlander lenses are tiny and purpose built for the short flange distance of the Sony E-mount system. Also if the Leica versions are any clue, optical quality would be superb.

Voigtlander only met their Q1/2016 release target for the 15mm and I was fortunate to receive one of the very first production lenses in the USA and immediately put it to the test. I was blown away by how much better the lens is, image quality wise, than the 16mm end of the Sony-Zeiss 16-35 f/4 lens in a lens that is a fraction of the size and has drastically more robust build quality and it allows you to actually set a hyperfocal point. Simply setting the lens to f/8 and the focus ring to 7 feet renders everything from 3.5 feet to infinity sharp even with a highly conservative circle of confusion of 12 microns on the a7R Mk II's 42 megapixel sensor. A landscaper could essentially tape the lens down at that setting and never have to make another change. Linear distortion is very well controlled and while there is vignetting, it is no worse than any other wide lens and better than many. The angle of view is 110 degrees, it uses a 10 blade aperture ring and weighs just 298g or 10.5oz despite the all metal construction. The Voigtlander 15mm was so good that I had no hesitation in purchasing the lens and then using it extensively on my trip to Asturias Spain just a week later. The lens uses very economical 58mm filters. MSRP is \$850 but it can be purchased for \$800

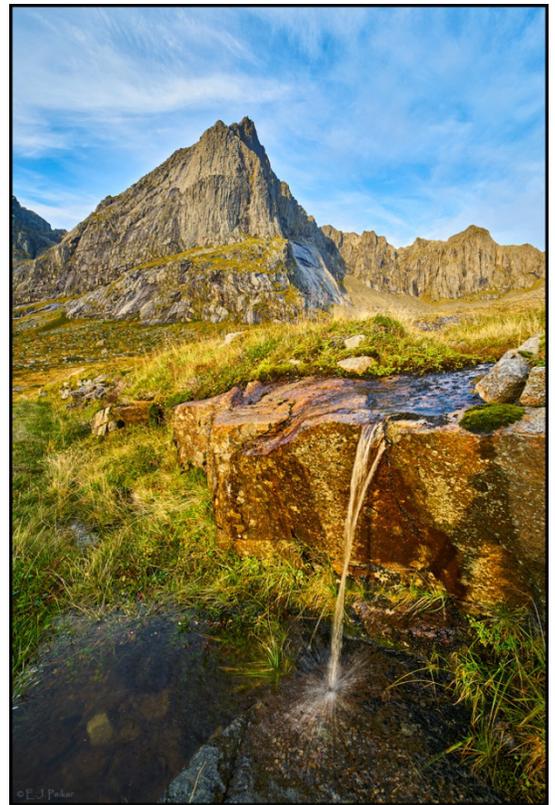


Asturias, Spain - Voigtlander 15mm

from most of the major online photo stores. My recommendation is to get it through the USA's Voigtlander expert, CameraQuest - you simply will not find a better place to do business with for specialty lenses like this.

The next lens to be released was the 10mm in Q2. I briefly tested the lens and found it to be surprisingly good for the widest full frame non-fish eye lens ever made. Construction is exactly like the 15mm and exudes quality - you really can tell that these are made in the same factory that produces the very best Zeiss lenses. As expected, things get a bit distorted into the corners if you have close-by objects due to the extreme perspective distortion in a lens this wide. Due to the bulbous front element, screw-on filters are not supported. The lens sports a super wide 130 degree angle of view, has 10 aperture blades, and weighs 375g or 13.2oz with its integrated metal lens hood. Landscapers can lock this lens down at 3 feet and f/8 and have everything from 1.5 feet to infinity be dead sharp (again using a super tight 12 micron circle of confusion). The street price for this lens is \$1100 at CameraQuest or online retailers that carry it. I did not decide to purchase this lens simply because I personally didn't think I'd have enough use for something this incredibly wide to justify \$1100 although there were times on a recent trip to Norway where it would have been fun to use.

The final lens to be released, in mid Q3 - about 2 quarters late, and the one I was most anticipating from the start, was a redesign of the legendary 12mm f/5.6 Heliar for Leica into a lens made to optimize image quality on the Sony E-mount. Super wide Leica lenses tend to not perform well on Sony cameras since they were not made for the thick cover-glass that sits on top of Sony sensors. This can result in some strange color shifts in the corners. Voigtlander set out to change the optics to be compatible with the Sony sensor and wow did they succeed. This lens is just plain crazy good! Never before have I shot with anything approaching this wide of a view with as few compromises. The lens is sharp to the edges, almost distortion free, buttery smooth, tiny, and... well... crazy good!!! Weighing in at 350g or 12.3 oz despite the high quality all metal construction with integrated metal lens hood, the lens has 10 aperture blades and covers a 121 degree angle of view. I received this lens right before leaving for Norway to photograph the beautiful islands of Lofoten and I simply could not stop using it. It provides such a unique view and allows you to place foreground elements without suffering from distortion while taking in a relatively close expanse of mountains. Setting the lens to 4 feet and f/8 gives you a "fire and forget" solution that has everything from 2 feet to infinity sharp at all times. As long as you are shooting more than 2 feet off the ground allowing the extreme foreground to be in focus, you can achieve very natural



Lofoten, Norway - Voigtlander 12mm

looking results despite the extreme wide angle - see the opening photograph of this newsletter or the inset above for an illustration of this I was just 2 feet from the little stream of water with a towering mountain behind. This lens is a definite keeper for me at \$1000.

Overall I am elated that Voigtländer has come to the E-mount party with such unique and exceptional lenses in such a small package. I could not be happier with the lenses and highly recommend them to Sony a7 series landscape shooters.

## 2016 - A Year of Travel And Photography

2016 was another great year of photography and photo related travel. The year started off with my annual Arizona DuckShop in January where I once again had the privilege of guiding a handful of dedicated photographers in an endeavor to capture as many professional grade waterfowl species as possible in the winter duck Mecca of Arizona's Valley of the Sun. This was followed in February with a journey to Everglades National Park in southern Florida after an enjoyable private client workshop on Florida's east coast. I had been to the Everglades several times before but never with the primary purpose of landscape photography. Exceptional light and skies greeted me every morning and evening and I was elated with photos I got. I shot the whole trip with the Sony a7R Mk II and Zeiss prime lenses as well as a Nikon D7100 that is converted to 720nm infra-red. Everglades pictures can be viewed here:

[http://www.ejphoto.com/everglades\\_national\\_park\\_page.htm](http://www.ejphoto.com/everglades_national_park_page.htm)

My annual vacation was in March on the beautiful small island of Great Exuma in the Bahamas. A D7200 with 16-80mm and 80-400mm accompanied me on the trip. The long zoom allowed me to get a number of Least Grebe shots as well as some waterfowl.

April took me to southern Arizona's small community of Amado for a day of photographing native desert bird species from a blind. This is always enjoyable; the Ladder-backed Woodpeckers and Pyrrhuloxia were super cooperative.

The meat of the landscape photography year started in early May with a long anticipated trip to Spain's northern coast in the provinces of Asturias and Cantabria. My Scottish friend and exceptional landscape photographer, Alister Benn, who lived in Asturias for a year put this trip together and did a masterful job of getting me and one other photographer to the best spots at the right time. While there, we also shot two sessions with my favorite Spanish landscape photographer, Jose Fernandez. This coast has to rank as one of the most spectacular coast lines on the planet. Even though the tides and the weather wasn't always to our liking, the photographic opportunities and the portfolio class images that I came away with from the trip were outstanding. This trip was photographed exclusively with the Sony a7R Mk II and native mount Zeiss and Voigtländer lenses. Photos from Asturias can be seen here:

[http://www.ejphoto.com/asturias\\_page.htm](http://www.ejphoto.com/asturias_page.htm)

Just one week after returning from Asturias I departed for Australia. Since I had a full day between landing in Sydney



Playa de Cadavedo, Spain - a7R Mk II, 35mm



Ord River Delta, Australia - XF IQ3-100, 80mm

and my flights to the far northwestern outback, an Australian friend and previous workshop attendee met me for a fun day of photography and eating. The next day I flew all the way to the west coast of Perth and then on to The Kimberley region of northwestern Australia where I met up with a Phase One Digital Artist Series (PODAS) workshop. Here I photographed for the first time with the brand new Phase One XF body and IQ3 100 megapixel digital back. My friend and Phase One employee Drew Altdoerffer runs these trips and provides attendees with a Phase One kit and user training. For those unfamiliar, Phase One is the highest end medium format photography gear in existence. On this trip I got to shoot side by side with legendary Australian photographers Peter Eastway and Christian Fletcher as well as another favorite photographer due to his incredible aerial work, Tony Hewitt. In addition to exploring a lot of the outback, we also took two incredible doors off helicopter flights and created some really unique and memorable photographs. The weather was outstanding, the company was highly enjoyable and the camera gear produced the most detailed images I have ever seen or taken. The Kimberley photos from Australia are here:

[http://www.ejphoto.com/western\\_australia\\_page.htm](http://www.ejphoto.com/western_australia_page.htm)

Just 5 weeks after returning from Australia, in July, I flew to Shannon Ireland for another Phase One shoot - this one on the Dingle Peninsula and south in County Kerry. I had the privilege of shooting with Ireland's best landscape photographer, Peter Cox and my good friend Steve Gosling from England. Again I shot with the Phase One XF camera and the IQ3-100 as well as the CCD based IQ3-80 megapixel back. While the weather left a lot to be desired, we did luck out on a couple of morning/evening shoots and by having luckily booked a trip to Skellig Michael on the only day of the 8 days in Ireland where the weather was good enough for the boat to go there. This is an island that sports an eon old monastery and also starred in a recent Star Wars film. Some beautiful coastal landscapes were photographed on this trip. I also shot a few Atlantic Puffin shots with a Sony a6300 and 70-300mm Sony G lens. Please see the landscape photos here:

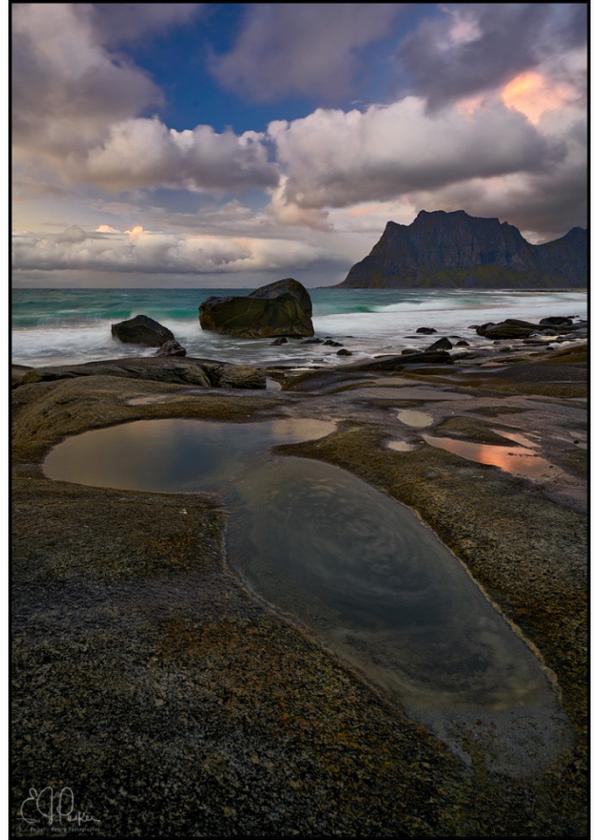
[http://www.ejphoto.com/county\\_kerry\\_page.htm](http://www.ejphoto.com/county_kerry_page.htm)



A medical procedure kept me sidelined for August and most of September but at the end of September, on the day that I got my post surgical medical release to travel, I completed another bucket list trip with a journey to the Lofoten area of Northern Norway. This collection of mountainous islands had long been an area that I wanted to photograph. Nathaniel Smalley and his Nature Odyssey Worldwide Tours put this trip together and I had an enjoyable week of photographing great coastal landscapes and Aurora Borealis with Nathaniel and one other photographer. The natural beauty of this area is mind boggling and we had some of the strongest Aurora activity I have ever witnessed with Kp indices of greater than 6. The fishing villages that dot these islands are also incredibly picturesque. I used the Sony a7R Mk II kit with Zeiss and Voigtlander primes exclusively in Norway. Please check-out the photos from this area:

[http://www.ejphoto.com/lofoten\\_page.htm](http://www.ejphoto.com/lofoten_page.htm)

In October, it was time to take my newly acquired Phase One XF IQ3-100 system on its first trip with a return to Kauai after being away from this island paradise for more than 10 years. Unfortunately many of the best "off the beaten path" photo locations that I discovered in the 80's, 90's and 00's are now private property with mega mansions on them. But there were still plenty of opportunities for great shots, especially in Waimea Canyon, Napali Coast and in the



Uttakleiv, Norway - a7R Mk II, 21mm



Muir Woods, California - XF IQ3-100, 40-80mm

Mount Waialeale area. See photos from 4 decades of shooting Kauai including all of the latest images here:

[http://www.ejphoto.com/kauai\\_page.htm](http://www.ejphoto.com/kauai_page.htm)

Finally in November, I visited an area that I had been neglecting despite its relative closeness - the area just North of San Francisco in Marin county. I spent an enjoyable few days photographing iconic places like Point Reyes National Seashore, Muir Woods, Mount Tamalpais and much more. I used the Phase One gear on this trip. Pictures can be found here:

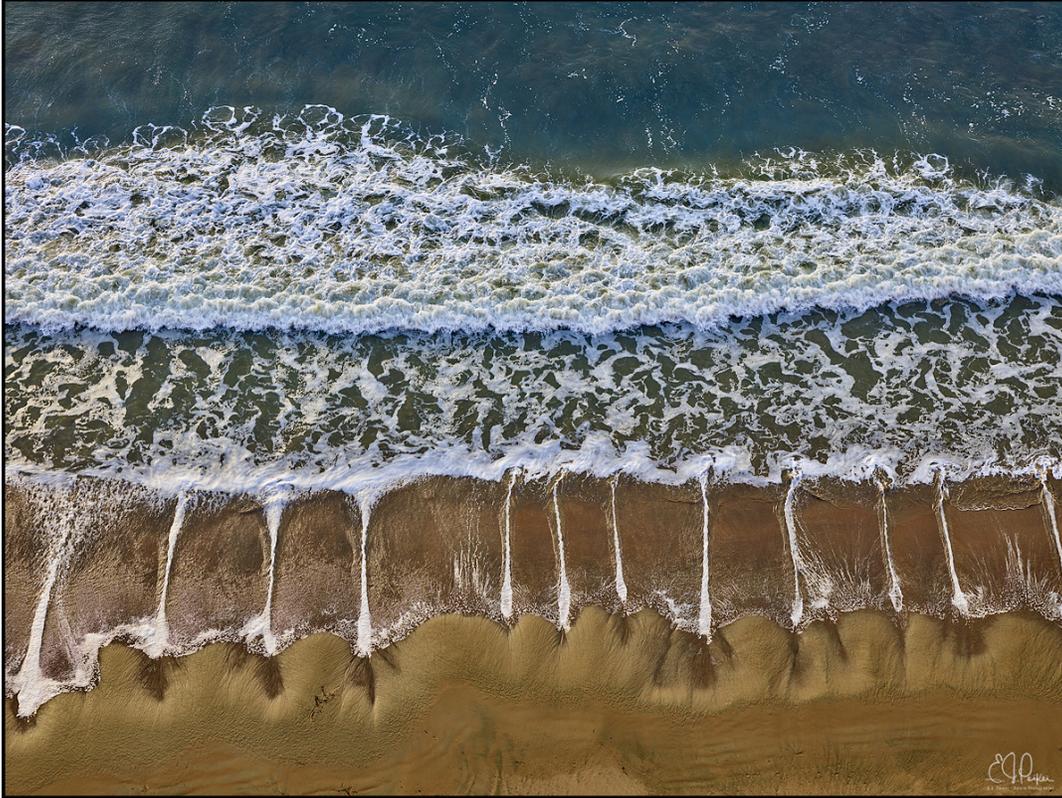
[http://www.ejphoto.com/california\\_page.htm](http://www.ejphoto.com/california_page.htm)

### **The Best Lenses For Your Nikon DSLR, Canon DSLR, and Sony (FE) Cameras**

I am very fortunate to get to try a lot of gear and from this I keep the table below of the best lenses for the Canon EF, Nikon F and Sony FE mount systems up to date and include the latest version in every newsletter. There are of course other great lenses but these are the best of the best. A trend over the last couple of years, with the increasing ascension of Zeiss and the Sigma Art and Sports lines, is the slow disappearance of Canon and

especially Nikon lenses from the best lenses available list. The OEM's still dominate in the super-telephoto arena but in the wide to standard arena, they are getting beat handily. A few changes were made this quarter with the addition of the new Sigma 500mm f/4, Nikon 70-200mm f/2.8E, and the Voigtländer 12mm f/5.6:

Lens Category	Canon EF Mount	Nikon F Mount	Sony (F)E Mount
Ultra Wide Prime	Zeiss 15mm f/2.8 ZE Canon TS-E 17mm f/4	Zeiss 15mm f/2.8 ZF.2 Nikon 19mm f/4 PC	Zeiss Batis 18mm f/2.8 Voigtländer 12mm f/5.6 Voigtländer 15mm f/4.5
Extra Wide Prime	Zeiss Milvus 21mm f/2.8 Sigma 20mm f/1.4	Zeiss Milvus 21mm f/2.8 Sigma 20mm f/1.4	Zeiss Loxia 21mm f/2.8 Tokina Firin 20mm f/2
Standard Wide Prime	Zeiss Otus 28mm f/1.4 Zeiss Milvus 25mm f/2 Sigma 24mm f/1.4 Art	Zeiss Otus 28mm f/1.4 Zeiss Milvus 25mm f/2 Sigma 24mm f/1.4 Art	Zeiss Batis 2/25 Sony 28mm f/2
Moderate Wide Prime	Sigma 35mm f/1.4 Canon 35mm f/1.4L II	Sigma 35mm f/1.4 Zeiss Milvus 35mm f/2	Sony-Zeiss 35mm f/1.4 Zeiss Loxia 2/35
Standard Prime	Zeiss 55mm f/1.4 Otus Sigma 50mm f/1.4 DG Art	Zeiss 55mm f/1.4 Otus Sigma 50mm f/1.4 DG Art	Sony-Zeiss 55mm f/1.8 Zeiss Loxia 2/50
Portrait Prime (short telephoto)	Zeiss 85mm f/1.4 Otus Canon 85mm f/1.2L II	Zeiss 85mm f/1.4 Otus Nikon 105mm f/1.4E	Sony 85mm f/1.4 GM Zeiss Batis 1.8/85
Medium Telephoto Prime	Zeiss 135mm f/2 Apo Sonnar ZE Canon 135mm f/2L	Zeiss 135mm f/2 Apo Sonnar ZF.2 Sigma 150mm f/2.8 Macro OS	N/A
200mm Prime	Canon 200mm f/2L Canon 200mm f/2.8L II	Nikon 200mm f/2G Nikon Micro Nikkor 200mm f/4ED	N/A
300mm Prime	Canon 300mm f/2.8L IS II	Nikon 300mm f/2.8G VR Nikon 300mm f/4 PF	N/A
400mm Prime	Canon 400mm f/2.8L IS II Canon 400mm f/4 DO II	Nikon 400mm f/2.8E VR	N/A
500mm Prime	Canon 500mm f/4L IS II Sigma 500mm f/4 DG OS HSM	Nikon 500mm f/4E VR Sigma 500mm f/4 DG OS HSM	N/A
600mm Prime	Canon 600mm f/4L IS II	Nikon 600mm f/4E VR	N/A
800mm Prime	Canon 800mm f/5.6L IS Sigma 800mm f/5.6APO DG	Nikon 800mm f/5.6E VR Sigma 800mm f/5.6APO DG	N/A
Wide Angle Zoom	Canon 11-24mm f/4L Canon 16-35mm f/4L IS	Nikon 14-24mm f/2.8G Tamron 15-30mm f/2.8 Di VC	Sony-Zeiss 16-35 f/4
Standard Zoom	Canon 24-70mm f/2.8L II Tamron 24-70mm f/2.8 Di VC	Tamron 24-70mm f/2.8 Di VC Nikon 24-70mm f/2.8E ED VR	Sony 24-70 f/2.8 GM
Telephoto Zoom	Canon 70-200mm f/2.8L IS II Canon 70-200mm f/4L IS	Nikon 70-200mm f/2.8E FL VR Nikon 70-200mm f/4G VR	Sony 70-200 f/2.8 GM Sony 70-200 f/4 G
Super Telephoto Zoom	Canon 200-400mm f/4L 1.4x Ext Canon 100-400 f/4.5-5.6 II	Sigma 150-600 f/4.5-6.3 Sport Nikon 200-500 f/5.6 VR	N/A
Macro	Sigma 150mm f/2.8 Macro OS	Nikon Micro Nikkor 200mm f/4	Sony 90mm f/2.8 Macro



Drake's Beach, Point Reyes National Seashore, CA (Phase One XF-IQ3100, 75-150mm)

## Workshops

All of my group workshops are run through NatureScapes Certified Workshops. Please check out all of the great offerings from NSN here: <https://www.naturescapes.net/workshops/>

Private instruction in landscape and wildlife photography are also available as well as image processing training. To learn more click here: [http://www.ejphoto.com/duckshop\\_private.htm](http://www.ejphoto.com/duckshop_private.htm)

## Facebook Page

<http://www.facebook.com/pages/EJ-Peiker-Nature-Photographer/150804446733>

## Newsletter Info

This is the 16th year of my quarterly Newsletter. I try to cover the wide array of digital imaging and products from mirrorless to medium format and everything in between. Throughout the years, the information contained herein has always been free and will continue to be free despite the many hours it takes to put it together and significant equipment and travel expenses. Most of the products I have tested and reviewed, I have purchased myself; some have been made available to me for review and evaluation by loyal readers and a few have also been made available to me by the manufacturers themselves. While the newsletter is free either via eMail subscription or via accessing it on my website at

<http://www.ejphoto.com/newsletter.htm>, if you find the information useful to you and you do wish to donate for my continuing efforts, you may do so via PayPal and sending the funds to [ejpeiker@cox.net](mailto:ejpeiker@cox.net).

## Disclaimers

E.J. Peiker conducts consulting services and product design services for a number of photographic product companies. Those that know me know I would not endorse a product even for compensation if I did not feel it were a superior product.

E.J. Peiker is a member of Nikon Professional Services and receives some services free of charge from Nikon USA [www.nikonpro.com](http://www.nikonpro.com)

E.J. Peiker is a Sony Digital Imaging Pro and receives some services at a reduced cost and free of charge from Sony USA <https://esupport.sony.com/info/1523/US/EN>

E.J. Peiker is a Wimberley Professional Services featured photographer and receives non-monetary compensation from Wimberley. Visit Wimberley at [www.tripodhead.com](http://www.tripodhead.com)

E.J. Peiker is sponsored by Hunt's Photo and Video - New England's largest photography retailer. Visit them at [www.huntsphotoandvideo.com/](http://www.huntsphotoandvideo.com/)

E.J. Peiker is a co-founder of [www.Naturescapes.net](http://www.Naturescapes.net) and leads photographic workshops under the NatureScapes Certified Workshops banner

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Waimea Canyon, Kauai, Hawaii (Phase One XF-100mp, 40-80, multi-frame pano)

E.J. Peiker - Nature Photographer