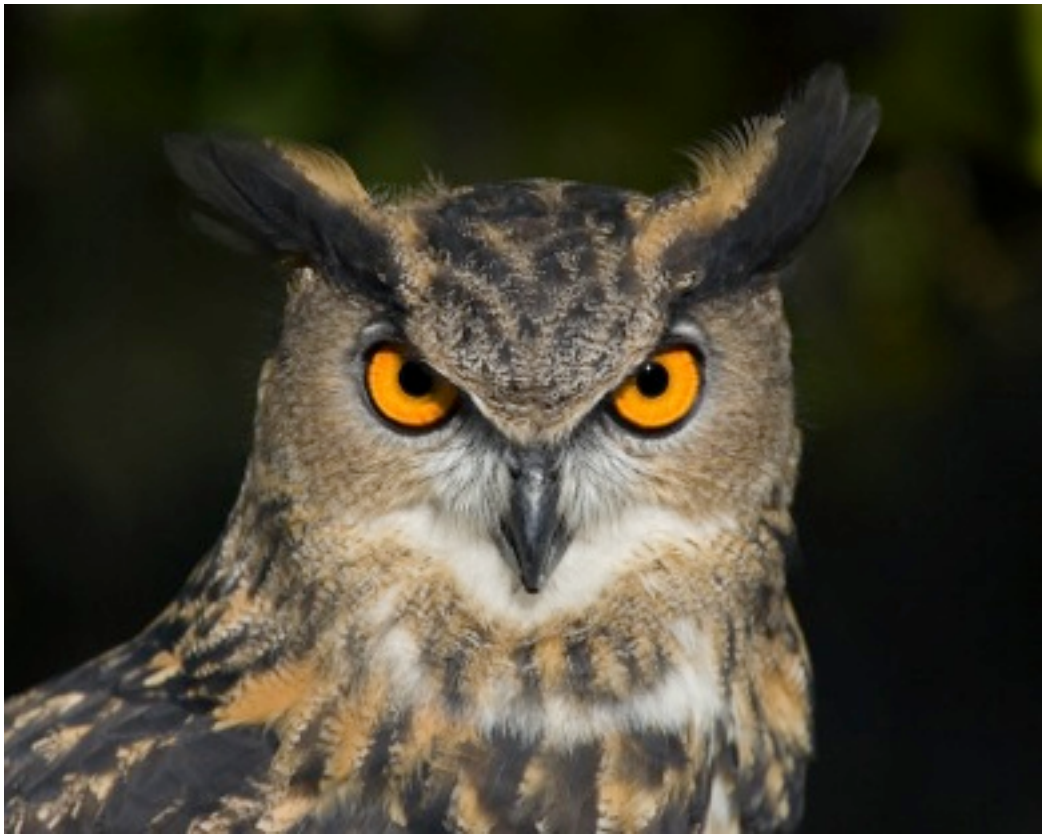
S c o t t B o u r n e



A Photographer's E-Guide To Making Sharp Photographs

All text and photographs by Scott Bourne Except For Bourne Portrait Courtesy M. Katz

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While not every photograph needs to be utterly sharp to be successful, it's important to understand how to achieve maximum sharpness when you need it.

With that in mind, I've decided to put together a guide to sharper images. Please note this is not a scientific guide or a white paper. It's got more information in it than my typical blog posts, but it's not EVERY SINGLE THING you can think of when it comes to sharp photos. It does contain just about everything you *really need to know*. It's a thesis based on my own decades of

experience trying to both understand what a sharp picture is all about, and how to go about getting one. It's written with one goal - to help you get sharp photos.

GEAR

For me, it all starts with the right camera gear and lenses. While generally, I don't believe that camera gear is close to the most important component of a great photograph, I do believe it's a factor in achieving maximum sharpness.

All things being equaled, the results you get from a $400 combination of lens and camera body will generally not match up (sharpness-wise) with that

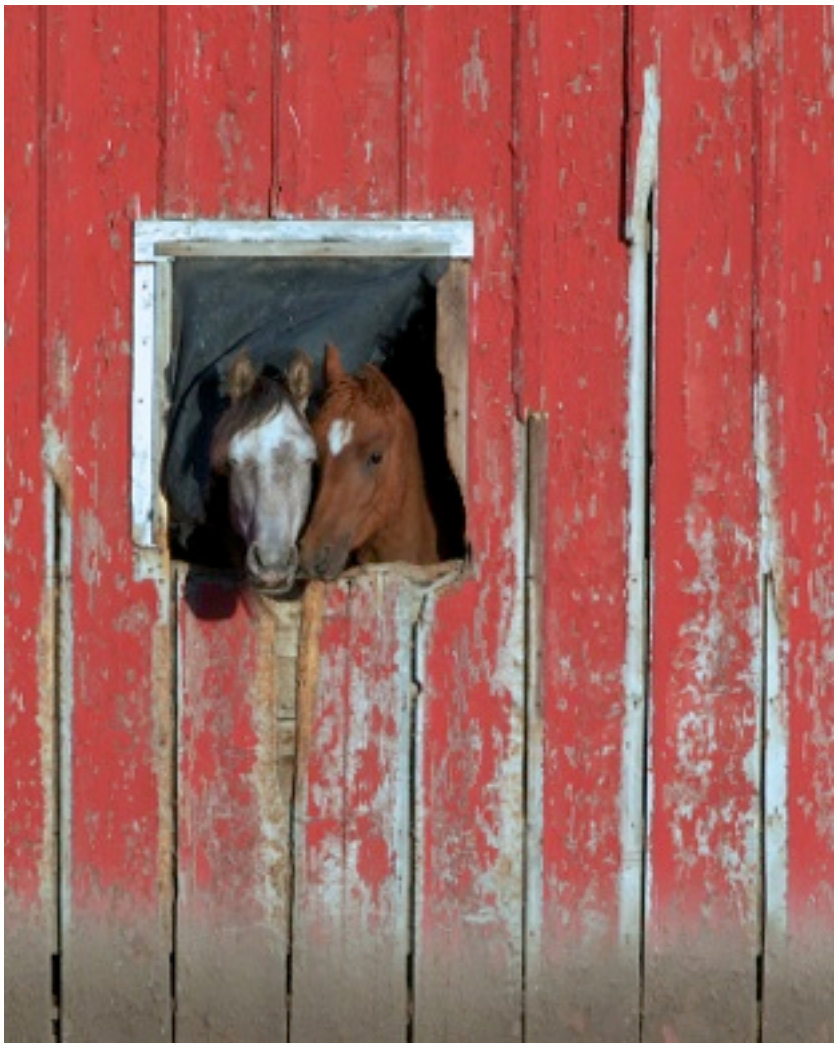
you get from a $4000 camera and lens combo. The difference may be minimal, but it's there. You may never notice it and you shouldn't fixate on it if you can't afford pro gear. What you can do is get the most out of what you have.

In order to get the sharpest photo possible, start with a high-quality, fast lens. You won't shoot this lens wide-open to get a sharp image, but if you start with great glass, you usually have all you need to end up with a sharp image. And don't put cheap filters on your lenses. They cause lack of contrast via varying degrees of lens flare and light refraction.

The camera body must be capable of providing noise-free images at its lowest ISO. I am not talking about low-light performance here. I am talking

about pure, unadulterated noise. It's a fact that some sensors are more prone to noise than others. This usually has to do with pixel count and pixel size. Big Pixels capture more light/data than small pixels and are less likely to capture motion blur as a subject moves across the frame. Hence you get a sharper image.

Don't be tricked into buying a camera with zillions of megapixels. That's not the answer. Better to have fewer megapixels with large light sensors than the other way around.



LIGHT

To make the sharpest photo possible, you usually need at least decent light. Light is everything. With great light comes great photographs. If you can't find it, make it, but don't assume that the very sharpest pictures will come from low-light situations. You may be able to get the sharpest photo possible in THAT particular situation, but not the sharpest photo period. It's a fine point, but I want to make it for those who care to apply some critical thinking to the concept.

Pay attention to the direction, quality, color and quantity of light. All of these things can have an impact on sharpness. I could talk for a long time about this subject but it's not really going to matter much. All you really need to know about it is this. If you want to shoot sharp pictures, make sure you have good quality light in copious amounts available to you.

After good light, it's all technique.

TECHNIQUE

The bulk of what's left here relates to technique. I want to sort out some concepts before I give you some tips. When photos are not sharp it's usually because of one of the following six problems.

1. The camera was improperly focused
2. The camera moved during the exposure
3. The subject moved during the exposure
4. Poor technique
5. Poor Post Processing
6. Some combination of all of the above

It's very important to stop and think about this before we go on. If we know WHY photos aren't sharp, we're closer to fixing the problem.

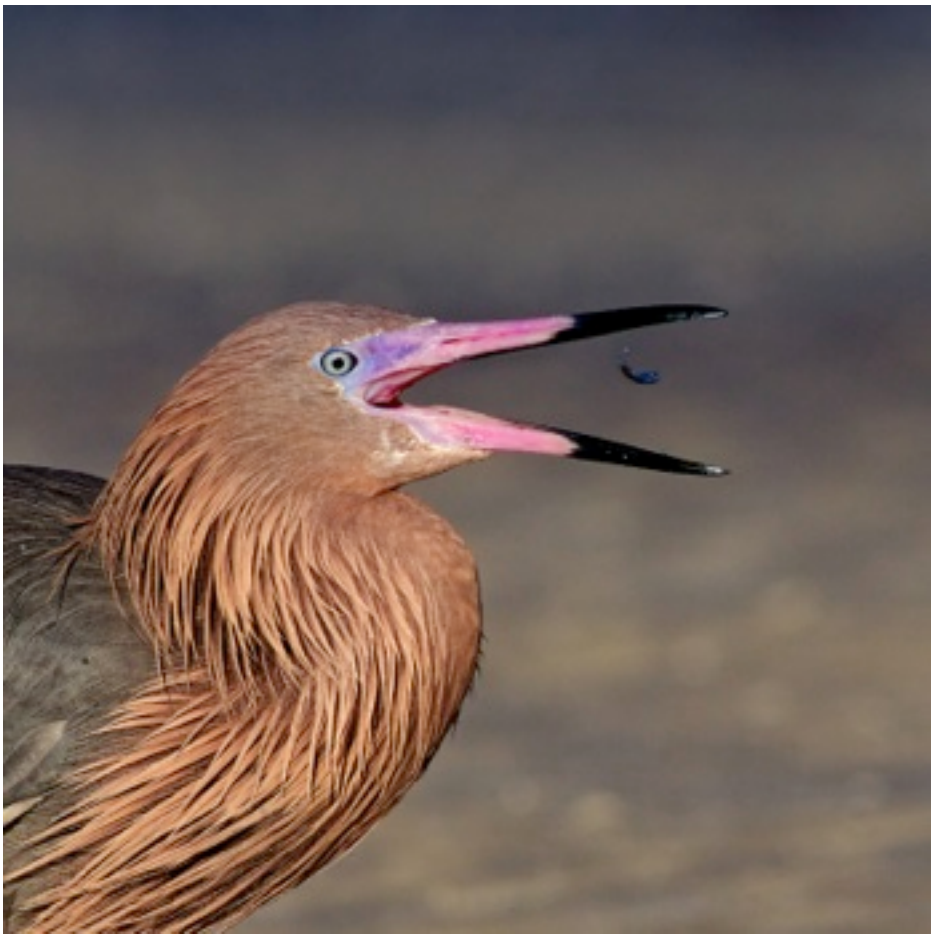
a. Improper Focus

This is a big problem with new photographers. They don't understand critical focus. You can either use manual or auto-focus. By a very wide margin, most photographers use auto-focus. Most auto-focus systems, particularly those found on advanced cameras, are very fast and reliable. But they are not perfect. The photographer has a job to do and that is simple: Tell the camera what to focus on.

Seems simple enough right? Well it's not always that simple. If you use one of the advanced point-and-shoot cameras that has face detection, but you shoot wide open, you may have a picture that has the face in focus but not the

eyes. On some people's heads, the eyes are several inches from the tip of the nose. The camera's auto-focus system usually selects the closest thing in the frame to focus on. That means when you use shallow depth-of-field, the eyes may be out of focus. That's usually not what we want in a portrait. We want the eyes in focus. Learn to use the focus point indicator on your camera and position it on the part of the picture you want in focus. If your camera doesn't have movable focus points, then use the center focus point, establish focus and recompose.

It's hard for cameras to autofocus in conditions such as low contrast or low light. There are tricks for getting the AF to work in low contrast, low light situations. Just bring a flashlight and shine it on the subject long enough for the camera's AF to work. Then lock in the focus, turn off the flashlight and make your shot. When all else fails you can resort to manual focus. This is something you should practice anyway so that when you need it, you can achieve manual focus.



b. Camera Stability

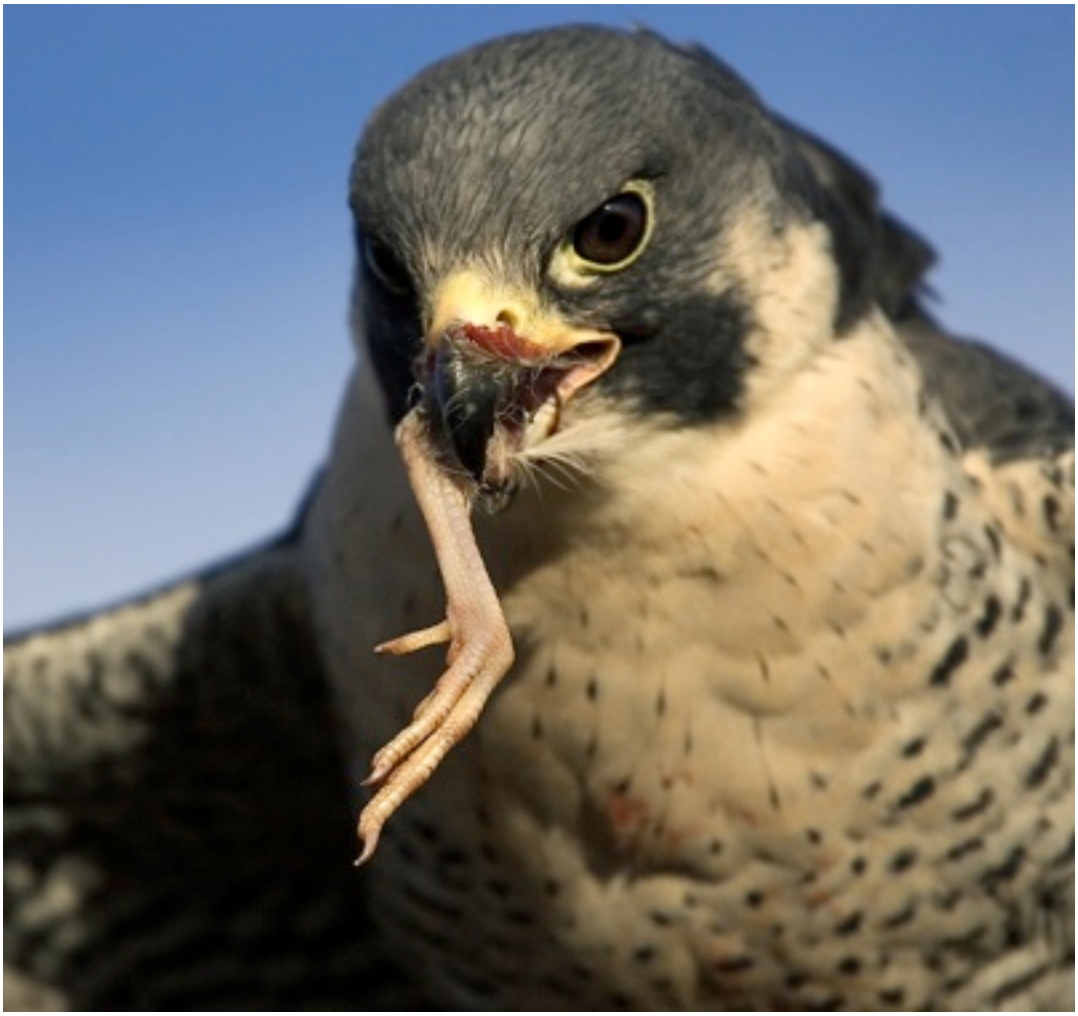
Cameras move and shake and while the movement and shaking may be imperceptible to you - it shows up as blur in your photographs. There are many causes for camera movement - sometimes it's nothing more than the mirror bounce of a DSLR. Regardless of the cause, there are many things you can do to make your camera still. Here are the primary choices available to you.

I. Tripod - use a tripod and you'll almost always get a sharper result because a good tripod and solid head will stabilize cameras, even when using very slow shutter speeds.

II. Mirror lock - when using slow shutter speeds, the mirror bounce in a DSLR will often cause camera movement. Many modern cameras come with the

ability to lock the mirror up after you compose a shot. This will give you the least camera movement possible when using a DSLR. Check your camera's manual to see how to lock up the mirror.

III. Fast shutter speed - the faster the shutter speed, the less likely you will be to notice and camera movement. Using shutter speeds that are at least equal to the focal length of your camera lens, you should be able to hold the camera still using only your hands. Cheating to a slightly faster shutter speed makes that more certain.



IV. Cable release - using a cable release while your camera is mounted reduces the amount of time you are in physical contact with the camera and accordingly, makes the camera more stable.

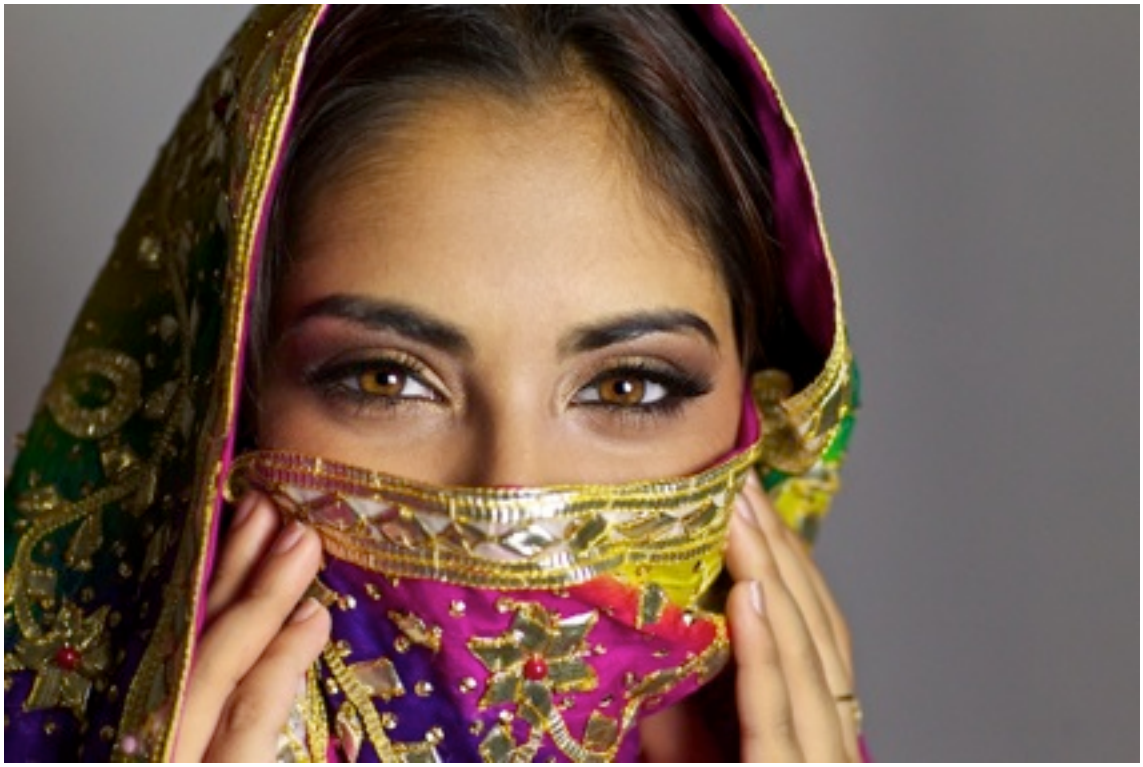
V. Image/Optical Stabilization & Vibration Reduction - buying cameras or lenses with these technologies installed can reduce camera/lens shake considerably. In my personal experience, the stabilization installed in lenses works better than that installed in camera bodies, but every little bit helps. Note that in some cameras you need to turn this feature off when shooting from a tripod. Read your manual to see if your camera/lens combination is impacted by this rule.

VI. Wind - believe it or not, wind is one of the most common causes of camera movement outside. No matter how slight, a wind gust can cause your

camera to move. Shielding the camera from the wind and/or using any combination of the techniques already described will minimize this problem.

c. Subject Movement

When you're photographing anyone or anything that moves, the subject's movement can lead to an out-of-focus image. Since it's much more likely the subject will move or need to move during photos that include people, animals, machines, etc., you need to be able to reduce the appearance of the subject's movement in your shot. As with camera shake, using a fast shutter



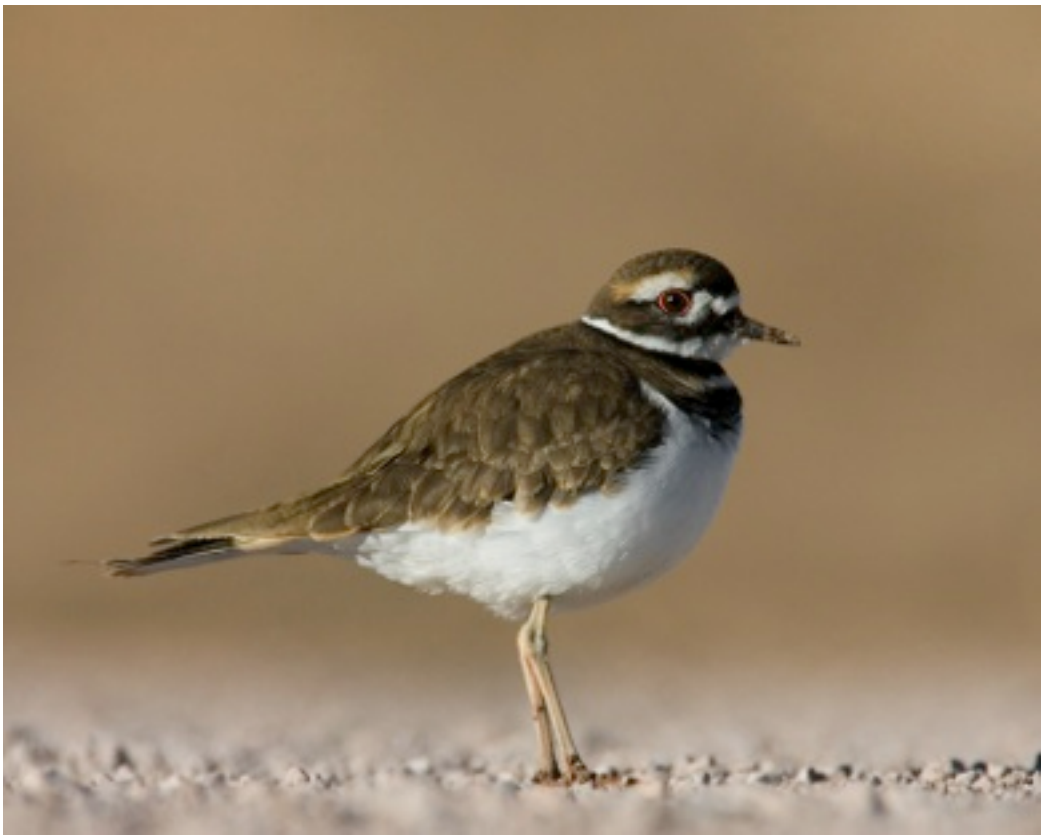
speed is the easiest way to thwart this problem. Use a fast shutter speed and subject movement's impact on sharpness is usually eliminated. You can also try using a flash/strobe to "freeze" the subject's movement in order to make things appear more sharp.

d. Technique

Everything from how you hold the camera to how you stand can impact your ability to make a sharp photograph. While this may seem elementary, a surprising number of photographers have never received formal instruction on this subject and consequently, their camera holding technique is abysmal.

Here's what you need to know.

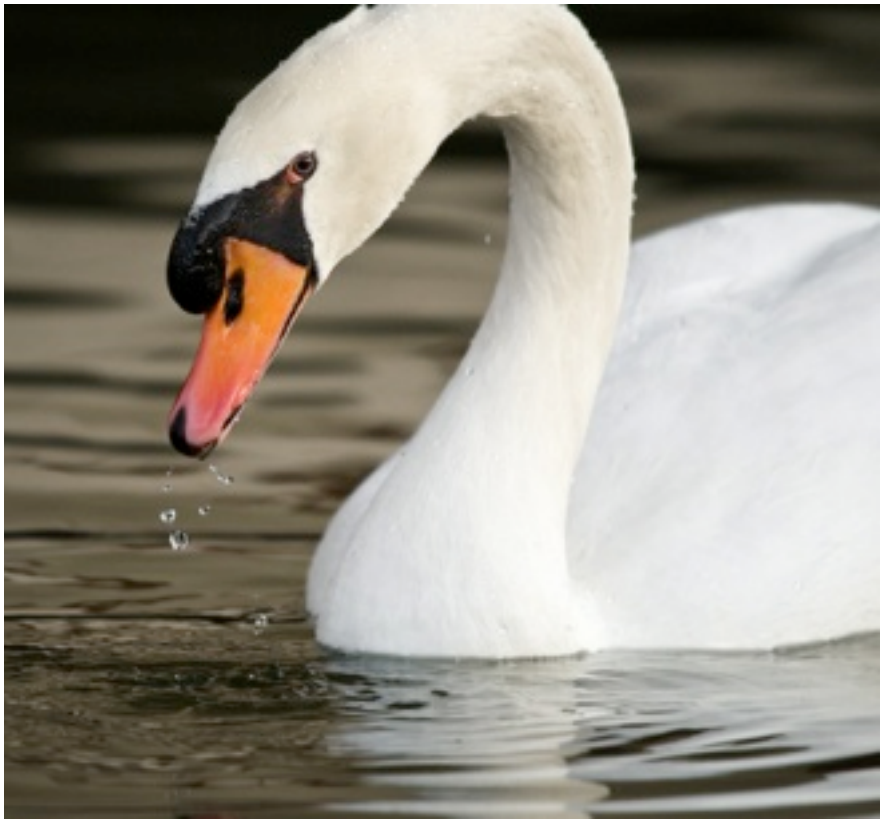
Keep your elbows tucked in close to your sides. Stand with your feet shoulders apart. This makes a more stable shooting platform. Cradle rather then HOLD the lens in your hands. It should rest their nicely. Use your face and press it firmly against the camera back to add another point of stabilization. If your camera offers a rubber eye cup get one. This will minimize movement caused by blinking eyes or breathing. Lastly, roll your finger ACROSS, not DOWN on the shutter. It makes a big difference in how much movement the camera records during your shot.



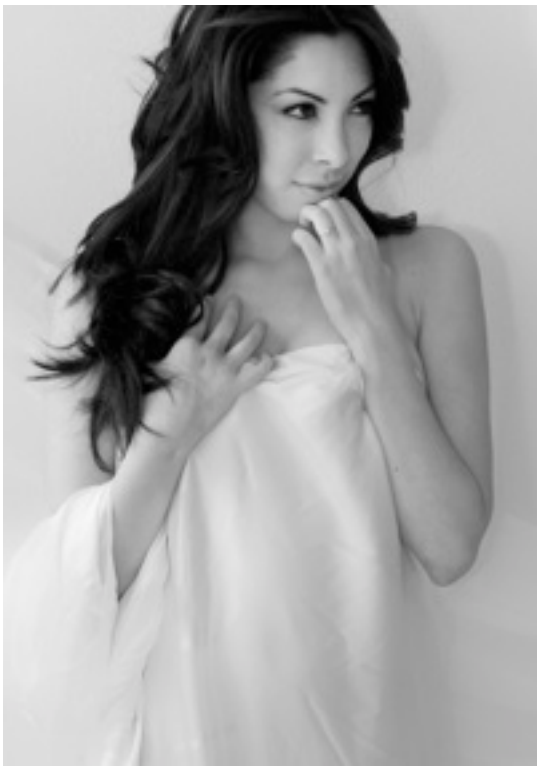
Practice these camera holding techniques when it DOES NOT count so that when it does, you will be ready to get a sharp image.

Here are some other things to consider when talking about technique.

Proper Aperture: Many new photographers confuse depth of field with sharpness. The depth of field controls the area - from front to back that is in focus. But it doesn't make a photo sharper if you automatically just set your lens to the smallest aperture. In fact that often does the opposite. Here's why. Lenses tend to be sharpest in the middle - it's called the "sweet spot." At their



extremes, they TEND to be softer. So f/32 is probably softer than f/8 on most lenses. All a small aperture buys you is a deep depth of field. It doesn't buy sharpness.



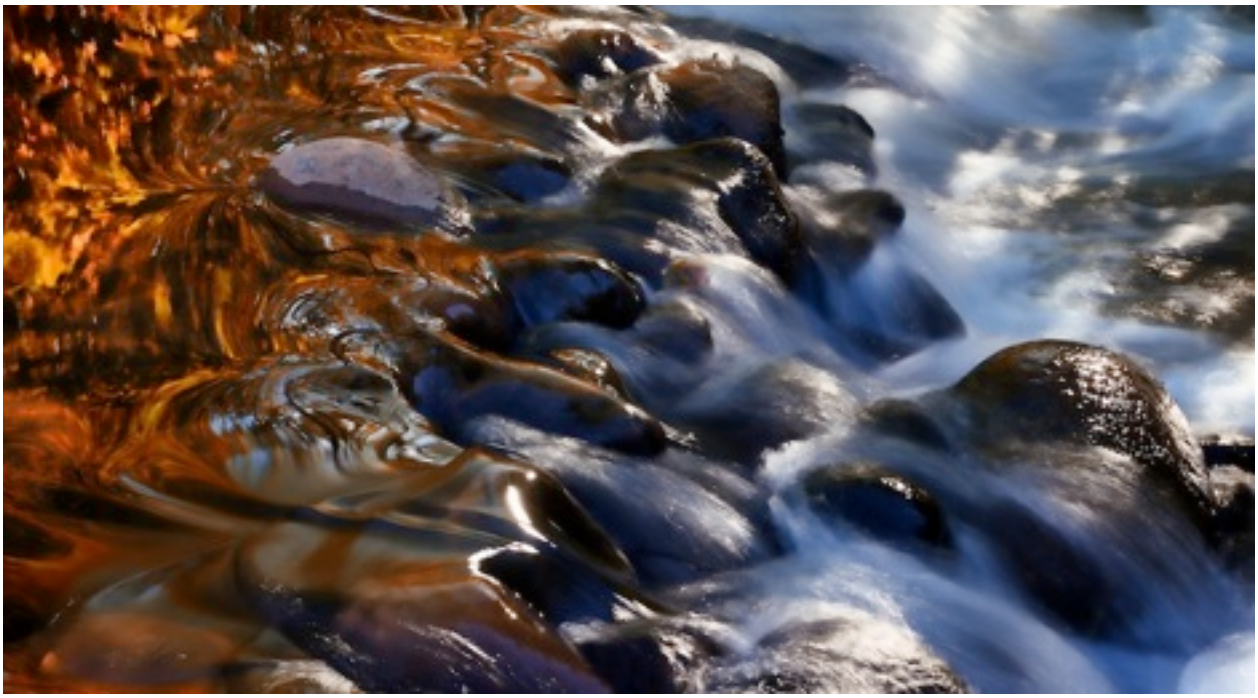
Continuous Mode: If you shoot with a camera that has an auto-advance, what we used to call a motor drive, then set your camera to shoot on continuous and hold the shutter button down long enough to get at least a three-shot burst. This means that the camera movement caused by pressing the shutter and releasing it will be minimized because your "keeper" shot is stuck in between.

e. Poor Post Processing

It's possible to start with a great, sharp photograph and then mess it up in post. Typically new photographers overdo their post work. Adding too many filters, or harshly applying filters or messing up the application of unsharp mask can make a good photo look like crap. When in post, take the attitude of a chef. A small amount of seasoning - then taste - then more seasoning if needed. Less is usually more in post. You can't fix an out of focus picture in post (unless you are using a light field camera and 99.99% of you are not) so don't rely on post to fix what you should have gotten right in the camera. The sharpening you do in Photoshop is merely intended to restore the information lost during the conversion.

When you send an image to the web, the rule of thumb on sharpening is simple. For the web, sharpen until the picture looks good to you on screen at full size. For print, over sharpen by 10-15% on the screen so it will look good on paper.

While there is no secret formula for setting up your post processing sharpening, here are some settings I recommend for those of you using Photoshop. Remember these are just STARTING POINTS - NOT formulas. Each photo is different. Use your own best judgment when applying sharpness.



Assumes Photoshop Unsharp Mask

For web:

Amount - 85

Radius - 1

Threshold - 4

For print:

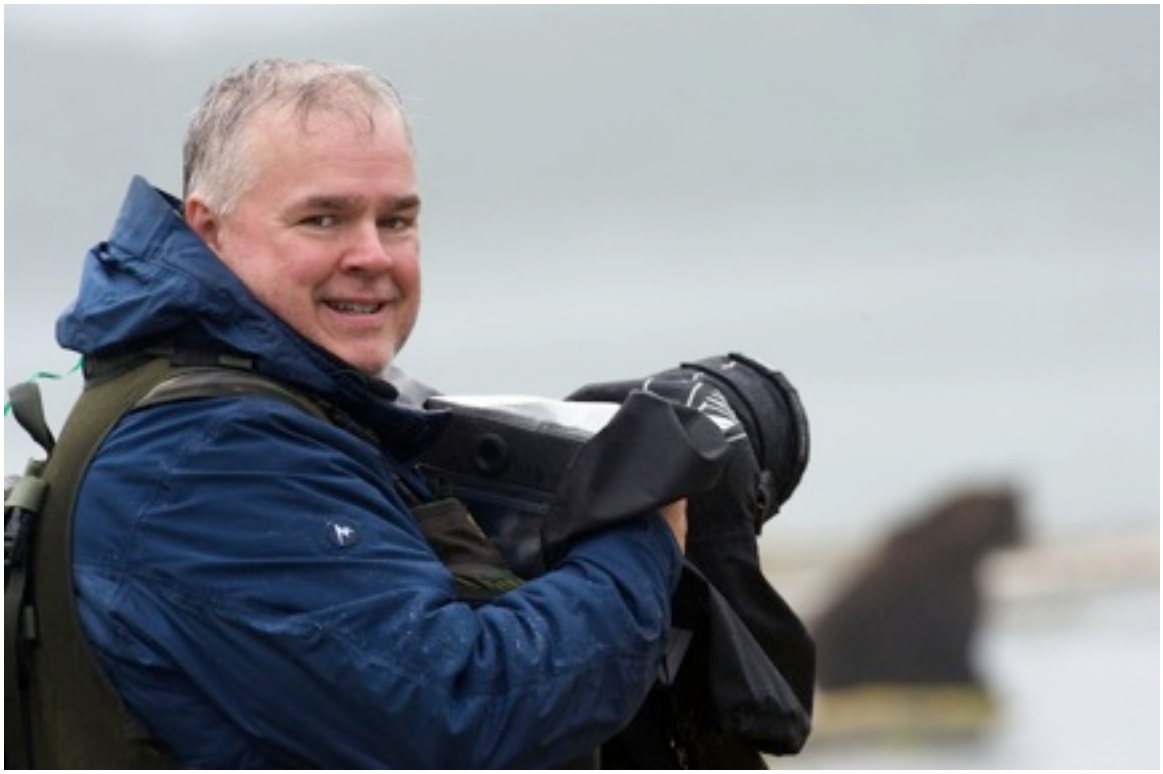
Amount - 100-120

Radius - 1.5

Threshold - 3

I'll leave you with a few final thoughts. Sharp photos, like anything else, require practice. You can know everything I talked about here like the back of your hand, but if you don't execute on it - if you don't practice it - if you don't put it in play, you will have soft photos. Just because you can read the music doesn't mean you can offer a good performance. That takes practice. The more you shoot, the better your photographs will become. Spend time making pictures while thinking about the things discussed here. Don't be afraid to make mistakes. Shoot your brains out. Think. You'll end up doing well.

The End



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Thanks and enjoy.

Scott Bourne
Las Vegas, Nevada - January. 2012
(Scott Bourne portrait courtesy M. Katz)

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