

Landscape Photography Notes

The Fundamentals - the basic triangle of exposure (Aperture, ISO and Shutter Speed).

Although you may be confident about this already I always recommend this link as a useful refresher of the relationship between Aperture, ISO and Shutter Speed. It's fundamental to get confident with this [here](#).

Important Initial Comment

In my opinion the two main requirements for creating high quality landscape images are: strong composition and the quality of the light. The quality of camera equipment and lightroom/photoshop skills trail a distant third to this.

Landscape Photography Basic Technique and Settings

In these notes I recommend a mid to small aperture of around f11 to give you good depth of field. This is useful for landscapes to enhance the feeling of depth and 3 dimensions but for most other types of photography (eg travel, wildlife, sports, portraits etc) a much wider aperture is preferable (eg f4 or even wider) to reduce your depth of field to help blur the background, focus attention on the single subject and also to give you faster shutter speeds to allow handholding. To summarise, f11 or similar for landscapes and as wide as possible for other stuff is a reasonable benchmark.

Note - If you are using a 4/3 sensor then f8 will give you the same depth of field as a cropped sensor (APS) SLR at f11 or a full frame camera at f16. If you are using a point or shoot or a bridge camera these cameras provide a very deep depth of field and so your choice of aperture isn't so important. Something around f4 will be fine. The difficulty with point and shoot or bridge cameras is achieving blurry backgrounds.

Workflow (*these points are expanded upon later in the notes*)

- Maximise the quality of the light by shooting in the golden hours (say 45 minutes either side of sunrise and 45 minutes either side of sunset).
- Consider the angle of the sun, the weather forecast and tide heights.
- Carefully find your composition.
- Shoot in RAW. Select Aperture Priority f11 for an SLR (or f4 for a point and shoot, f8 for a 4/3 sensor or f16 for full frame). Choose ISO 100 (or the best/lowest available).
- In aperture priority mode, the camera will set the shutter speed for you. I find that matrix metering mode (Nikon) or evaluative metering mode (Canon) are the most consistent.
- Focus 1/3 of the way up the screen (or better still just beyond the hyperfocal distance).
- Filters - rotate and check if a polarising filter benefits the image.
- Filters - consider using a graduated filter if the contrast range is very high.
- Filters - consider using a long exposure filter to achieve motion blur with water/clouds/crops etc.
- Use a tripod and remote/camera release to remove/minimise camera shake.
- Once you've taken the image review the histogram for blinkies and if you have blown the highlights then use exposure compensation (the +/- button to make the image darker) or use a graduated filter if the contrast range is high (eg your image shows the sky too bright and the ground too dark)
- Review the image to check all areas are sharp and in focus. Adjust your focus if not.

Detailed Workflow Version

- Shoot in RAW for best results.
- Select Aperture Priority (on a Canon this is Av and on a Nikon and other cameras it is A) then select the aperture (f11 for a normal cropped sensor SLR camera, f8 for Olympus 4/3 sensors, f16 for a full frame camera and anywhere from f2.8 to f5.6 for a bridge/point and shoot camera). Over time you may find that you prefer to shoot in Manual (rather than Aperture Priority) - see later for further comments on this.

- Choose ISO 100 (or the lowest available), the camera will then select the shutter speed for you (if you are handholding the camera then keep your shutter speed up to an absolute minimum of 1/60 sec by increasing the ISO to say 400 although better than this leave the ISO at 100 and use a tripod).
- Once you've found a composition a quick rule of thumb for focussing is to focus a third of the way up the screen. I prefer to know exactly where the camera is going to focus and so I set the camera to have a single point of focus (rather than lots of boxes where the camera decides which one to focus with) and you could move the position of this focussing box so that it is roughly 1/3 of the way up from the bottom. Similarly, in live view you can move the focussing box so that it is 1/3 of the way up the screen. Once you've focussed 1/3 up your screen then you could switch the lens to manual focus so that it doesn't waste time hunting for focus on subsequent shots of the same composition. Or if you set back button focussing on your camera then the shutter button will no longer focus (you focus first with one of the back buttons) and so there is no need to keep switching the lens back to and from manual focus).
- Having said all of this if you forget to focus carefully you may well get away with it because with the apertures quoted above (eg f11) you get a deep depth of field especially if you're using a wide angle lens. For the perfect place to focus (for longer focal lengths the perfect distance is much further away) then you should read about hyperfocal focussing, skip the next bullet point if you'd rather not learn about this yet. Note that for point and shoot/bridge cameras the point where you focus doesn't matter too much as the depth of field with these smaller sensors is so large.
- *This paragraph is about hyperfocal focussing. Rather than focus 1/3 up the screen for more accurate results (particularly if there is foreground interest close to the camera) then I will consider hyperfocal focussing as follows:- I look up the hyperfocal distance for the combination of aperture and focal length (eg with a normal APS sensor SLR camera a focal length of 18mm and aperture f11 has a hyperfocal distance of 5 feet, I use an app to calculate this - see later). The hyperfocal distance is the closest point you can focus and still get infinity sharp. I then use back button auto focus to focus on something just beyond that point (ie say 5.5 feet away). The hyperfocal distance is usually close with wide angle lenses and small apertures (typically less than 6-8 feet) and so it is relatively easy to estimate, one boot length is 1 foot and one large stride is 3 feet (1 yard). If you don't use back button focussing then once you've focussed you would need to switch the lens into manual focus so it doesn't change from this distance and so the lens doesn't waste time hunting for focus. KEY POINTS - if you focus on the furthest object you can see (this is effectively infinity) then everything from the hyperfocal distance onwards will be sharp (in this case 5 feet). If you focus just beyond the hyperfocal distance (in this case 5 feet) then everything from half the hyperfocal distance (in this case 2.5 feet) to infinity will be sharp. It is important to focus slightly beyond the hyper focal distance (say 5.5 feet) as if you focus short of the hyperfocal distance then infinity (and probably your focal point) won't be sharp. If there is nothing in the image closer than the hyperfocal distance then I tend to focus on the main focal point in my image (to maximise the sharpness of this key element).*
- Rotate the polariser (looking through it at your composition) until it gives you a nice result and fix it to the lens in this position.
- Use a tripod and remote/camera release to avoid touching the camera. On an SLR camera it is also sensible to use the mirror lock up feature if your camera has it to prevent any vibration caused by the moving mirror. If you are taking the picture from Live View then you don't need to lock up the mirror prior to shooting (as it is already raised).
- Once you've taken the image review the histogram and make sure there are no blinkies (over-exposed pixels which flash on the screen) and make sure all critical points are sharp, consider re-focussing (if the critical points aren't sharp) and using exposure compensation +/- to darken the image if you have the blinkies.
- If the histogram graph is not clipped at either end then you have captured the whole dynamic range. In other words on the right hand side of the histogram graph the white highlights have been captured without the flashing warning light and on the left hand side

of the graph (the dark side) there is a gap between the left hand axis and the darkest pixel in your image and the main dark side peak isn't crammed up against the left hand side of the histogram. In these circumstances I wouldn't use a graduated filter. It could be that the histogram peaks (usually two, 1 corresponding to the sky and 1 for the ground) are quite a long way apart but I can correct this in Photoshop or Lightroom later (by brightening the dark areas and darkening the bright areas) as I haven't actually lost any data. If the whites or blacks are clipping (data lost) then I may not be able to rescue it later in software and so I will add a graduated filter to darken the sky (or consider bracketing several exposures – more on this later) which will ensure that the full dynamic range is captured without clipping at either end.

- If the sky histogram peak (on the right) and the shadow histogram peak (on the left) have a big gap between them (happens regularly at sunrise and sunset) and you want to get the image looking correct *in camera* without having to do as much software adjustment later then you should add a graduated filter. If you want a more scientific approach to this bit then take a shutter speed reading by pointing the camera at the sky part of your composition and another reading pointing at the land part of the composition and if the shutter speed for the sky is 8 times faster or more then you probably need a graduated filter. An example, if when you pointed your camera at the sky and the camera recorded a shutter speed of 1/250 second and then you pointed the camera at the ground (i.e. everything but the sky) and then the camera recorded a shutter speed of 1/30 second then the exposure difference between sky and land is more than 8 times and is probably more than the camera can cope with comfortably. In this scenario we would use a graduated filter and pull it down to the horizon. The camera will then choose the correct shutter speed with your graduated filter in place and the overall scene should be nicely balanced.
- A simpler technique is just to look at your image and decide whether the relative brightness of the sky and the ground look about right compared to real life. If, as is often the case around sunrise and sunset, the ground looks too dark then you probably need to add a graduated filter to help the camera get a more balanced image. If the ground is well lit in direct sunshine then a graduated filter may not be required. I often use a 2-stop graduated filter initially switching to a 3-stop when the contrast range gets greater at sunrise and sunset. It is important to position the graduated filter correctly so that you don't darken the ground or sea or leave it too high so that the horizon is an over exposed bright band. It is also important to avoid over graduating your image. If the sky ends up looking darker than the ground (rarely happens in real life) then you've probably over graduated and so use a weaker graduated filter or don't use one at all. In digital photography you can also make changes to the exposure of the sky and the ground with the highlights and shadows sliders in Lightroom or Photoshop, these are very useful adjustments and allow you to fix things later. You can also use a digital graduated filter later in software but this wouldn't bring back lost detail so using a real graduated filter in the field may be required.
- Another advanced technique if you are shooting RAW is 'exposing to the right', skip past the next paragraph if you prefer.
- *'Exposing to the Right' - over half of the tonal information within the sensor is located in the right hand 20% of the histogram (the brightest part) and so for best results you should deliberately expose to the right (by adding positive exposure compensation using the +/- button) so that the histogram advances to the right hand edge. The image will appear brighter than life but you can darken it later with software. The 'exposed to the right' image will be more detailed with a smoother transition between tones in comparison to the underexposed image which may also suffer more noise as you brighten it later in Photoshop/Lightroom. As you push the histogram to the right your image will start to show the highlights warning 'blinkies' meaning burnt out white pixels but with a RAW file you can push the exposure beyond this point (perhaps by a stop or more ie a doubling of the shutter speed) and still retain full detail in the highlights by later adjusting the brightness, contrast and highlights in Photoshop/Lightroom. NOTE - it is worth testing this on your camera to see how far you can push the RAW file before you*

permanently lose highlight detail as all cameras have different dynamic range capabilities.

- As you get more experienced you will probably switch from aperture priority to fully manual (as I do) especially if you have a live view histogram as it is quicker in manual to adjust the exposure (and therefore the position of the histogram) by rotating the main dial in comparison to aperture priority where you may need to hold both the +/- button and rotate the dial.

Long Exposures

For a different mood consider using a long exposure filter (Neutral Density Filter) to blur water or clouds. Some suggestions for shutter speeds:

- Recording crashing waves with just a little blur 1/4 to 1/2 sec.
- Sea and waves receding down the beach, anywhere between 1-10 seconds.
- Recording the sea as mist, great at sunset and sunrise, 30 to 120 seconds
- Silky smooth sea and clouds recorded as brushstrokes 4-5 minutes.
- Also consider slightly blurring grasses, crops and trees 1 to 10 seconds.

You will need to use a solid ND filter to get your shutter speed close to these timings and then you can tweak the shutter speed from there with ISO (ie make shutter speed faster by going to 200, 400 etc) or aperture (ie make shutter speed slower by choosing a smaller aperture ie if you were at f11 you could go to f16). I have 4 of these filters, a 3-stop which lengthens your shutter speed 8 times, a 6-stop which is 60 times, a 10-stop which is 1000 times and a 15-stop which is 32,000 times!

Technique notes when using long exposure filters

- You will often find that the camera will be unable to focus when the dark filter is being used and so you should set your composition and also focus before you slide in the filter. If focussing is likely to be a problem you should then switch to manual focus to prevent the camera/lens hunting and failing to achieve focus (or use back button focussing so that the shutter button doesn't try and focus).
- Also make a note of the shutter speed without the filter before you slide in the long exposure filter. In aperture priority the camera may be able to read the correct exposure once you've added the long exposure filter but just as often it will get it wrong and under-expose significantly. If this happens then work out what the shutter speed should become with the filter using an app or the small chart that comes with the filter (eg if the shutter speed without a filter is 1/2 second and you add a 6-stop filter which slows the shutter speed 60 times then the correct shutter speed using the filter should be 30 seconds). In this example if the camera underexposes in aperture priority mode you could switch to manual exposure and dial in 30 seconds.
- During long exposures light can enter through the SLR's viewfinder and so it is advisable to cover this up during the exposure.

Long Exposure Workflow

1. Before you add the stopper compose your picture.
2. Focus and then switch lens to manual focus (or use back button focussing) so that the shutter button doesn't subsequently try and focus once the stopper is in.
3. Note the shutter speed without the filter (eg at current settings - aperture priority f11, ISO 100)
4. Slide the stopper into the nearest slot in your holder.
5. Work out what the new slower shutter speed should be using the Lee Filters app.
6. If the camera doesn't set this new slower shutter speed automatically then switch from aperture priority to manual and dial in the required shutter speed. Make sure the aperture hasn't changed when you move to manual eg it is still at f11.
7. Take the picture and check the histogram to ensure exposure is ok.
8. If you want to tweak the shutter speed to make it
 - (a) longer – switch the aperture to f16 which will double the shutter speed.

(b) shorter – switch to f8 or increase ISO to 200 to half the shutter speed.

Note - During long exposures light can enter through the SLR's viewfinder and so it is advisable to cover this up during the exposure.

Additional notes to help with sunrises

For sunrises, I would recommend being on location 45 minutes before sunrise. At this time the darkness presents challenges for focussing and accurate exposure.

Accurate Exposure

- With many cameras aperture priority becomes unreliable after sunset and before sunrise (the camera underexposes). Live view histograms can also be unreliable at these times. Switching to manual exposure and controlling the shutter speed yourself, checking the histogram and adjusting the shutter speed accordingly becomes necessary. It is easier dealing with these issues after sunset as you have been shooting for some time already and have the shutter speed about correct. When you arrive at sunrise, however, you are starting from scratch with no shutter speed reference point and aperture priority and live view histograms are not reliable.
- Where should you start? I tend to plan to be on location 45 minutes before sunrise and at this time I usually start with 30 seconds at ISO 400 (f11). I then check the histogram and make adjustments from there. In bulb mode you could alternatively go for 1 minute at ISO 200 or 2 minutes at ISO 100. If you're a little later on location then at say 30 minutes before sunrise you could go for 30 seconds at ISO 200 (f11).
- With long exposures in the darkness if you have an SLR you should also make sure the viewfinder is covered/blocked off to prevent light leakage ruining the image.

Focussing issues

- Focussing can be very difficult in the semi darkness. Some cameras are much better than others.
- If my Nikon camera struggles (which it usually does) I use Live View and in manual exposure I open the aperture (eg switch from f11 to f4), this significantly brightens the exposure on the LCD screen allowing me to judge the composition better and also making focussing easier for the camera. Remember to return the aperture back to f11 before taking the image. With a Canon you can do the same but you will need to ensure that live view exposure simulation is enabled as this allows you to simulate the brightness of the actual image. There may be similar adjustments required for other cameras.
- If opening up the aperture in this way still doesn't allow the camera to focus then consider using a head torch to illuminate the area to be focussed on. With a wide angle lens at small apertures the hyperfocal distance is usually within 6 feet or so and focusing on something around 6 feet away usually works.
- When you focus also consider using back button focussing so that the camera doesn't try and re-focus each time you subsequently press the shutter. Alternatively, if you don't want to use back button focussing, switch the lens to manual focus after you've focussed.
- If auto focus still presents a problem then consider manual focussing by reading the distance scale on the lens, again focussing 6 feet away is good for focal lengths up to 18mm on a APS sensor at f11 and up to 24mm on a full frame camera at f11. For longer focal lengths or wider apertures check the hyperfocal distance and make sure you focus just beyond that.
- Another method with wide angle lenses is to focus close to infinity as your image will be sharp from the hyperfocal distance onwards which is close with a wide angle lens. One thing to be aware of is if you rotate your focussing barrel all the way until it stops this isn't actually infinity. It's 'beyond infinity' (a way to reduce costs in volume batch manufacture) and everything will be blurred. Just back off from fully rotating it.

Composition

Composition is tricky to teach as it is very much a personal thing. You could argue that there is no right or wrong way. That said there are several accepted guidelines and the 3 most common are the rule of thirds, using lead in lines and using foreground interest. The full list on what I look for in a composition is as follows:

- Focal Point - most successful images include a strong focal point. Build your composition around this focal point. These can include a tree, mountain, prominent building, a pier, a headland, a rock stack, a lighthouse, a church etc.
- Wide Angle lenses - representing 3 dimensions in 2 dimensions. Wide angle lenses help with stretching and exaggerating perspective and enhancing lines and angles. Most of my images are taken with a wide angle lens.
- Simple - keep it simple, identify key elements (typically a focal point and foreground interest) and arrange them effectively.
- Balanced & Harmonious, Breathing space - does the image feel balanced, be true to what you like the look of and you will develop your own style. Allow breathing space in your composition or around focal points.
- Explore all angles, take your time, slow down. Zoom in and out and physically move back and forth to change the relative sizes of the key elements. Vary your height, don't ignore low down as shooting from high can have the middle distance looking empty due to the way the wide angle opens things up. Moving a step to the left or right will significantly shift the relative positions of foreground and focal point.
- Foreground - wide angles can leave the foreground and middle ground empty and so allied to a wide angle lens use foreground interest to maintain a feeling of depth and don't be afraid to get low and close to the foreground element. Foreground interest creates an entry point for the eye pulling the viewer through the frame. Can be dramatic. Use appealing bold foregrounds which introduce you to the rest of the image. Don't over dominate foreground, it should compliment the background.
- Thirds - the rule of thirds to achieve harmony, focal point on an intersection of thirds, horizons 1/3 from top or bottom depending on where the main interest is. Placing the main subject in the centre leads to a static composition where the eye is anchored and not encouraged to move around or explore.
- Lead in lines - to lead the viewers eye through the frame, enhances the feeling of depth, roads, paths, hedgerows, coastal ledges, rivers, streams and a row of objects are all good lead ins.
- Triangles and diagonals are dynamic, lead the eye and make good pointers. Squares and rectangles can be static and block the view. A wide angle lens can create diagonals and pointers out of parallel lines. Start a diagonal (e.g. a river or a track) from near the corner. Is there a composition where other elements point to the focal point.
- Sky - for me an interesting sky is usually a critical part of my composition.
- Exclude - think about what to exclude, look around the perimeter of your composition. Exclude anything distracting.
- Use longer focal lengths in woodland interiors or to pick out a distant focal point from a high viewpoint. Longer focal lengths can also be used well in fog and mist as they compress perspective to increase the density of the mist and to create attractive recessionary layers.
- Planning - good images rarely happen by accident, research a locality and look for compositions, check weather, tides, direction of sun etc.

Camera Systems

Great landscape images can be made on bridge, point and shoot cameras and smartphones. In my opinion, however, SLRs and mirrorless cameras offer greater functionality, versatility and creativity. As a landscape photographer, I look for a decent number of megapixels to give me fine detail and just as important is a wide dynamic range to enable me to capture the huge contrast range that typically exists at sunrise and sunset. I value high resolution and impressive dynamic range well ahead of frames per second and fast auto focus systems. I use live view to aid with composition and I use a live view histogram to aid with correct exposure and so live view needs to be usable even in low light situations.

Mirrorless Cameras

An increasing number of landscape photographers are now favouring mirrorless cameras. With the mirror removed they are smaller and lighter but crucially the sensor remains the same size. They are often packed with additional features such as focus peaking and they rival the quality and versatility of a traditional SLR.

Their disadvantages are no through the lens viewfinder and so autofocus is slower and the camera struggles to focus on moving objects and in low light. There is also a limited choice of lenses (and they are often just as large as SLR lenses) and battery life is diminished.

My Preference

Speaking personally, I still prefer the handling of an SLR and the easier navigation of menu systems. Also, as someone who spends a lot of time photographing insects using manual focus I much prefer the large bright optical viewfinder of an SLR.

Full frame vs APS

If budget allows a full frame camera should provide superior image quality. They possess larger photosites allowing them to capture more light with less noise and so they usually provide slightly better dynamic range, cleaner shadow detail, better low light performance, lower noise and enhanced tonal transitions.

A larger sensor also makes it easier to blur backgrounds for portraits, wildlife and sports.

Note that a cropped sensor (Nikon 1.5x, Canon 1.6x) provides a magnification factor which can be useful when photographing macro subjects such as butterflies as it increases your working distance.

ISO sensitivity

- Low – always go as low as possible eg 100 as this gives you a wider dynamic range, saturated colours, smooth transition between tones, more detail and less noise (grain).
- High ISOs (eg 1600+) give you faster shutter speeds but the image suffers from noise (like grain on film) which acts to obscure detail and sharpness.
- If you're using a tripod then long shutter speeds are not a problem (and can be a good thing) so keep ISO low.

RAW vs JPEG

Advantages of RAW

- RAW files contain more information, they are a 'digital negative' capturing everything.
- They capture a greater dynamic range (very important for landscape photography) and are more tolerant to over exposure errors.
- They retain much more detail in the shadows and highlights (areas that are particularly important for Landscape Photography) and so processing these tricky areas using the highlights and shadows sliders in Lightroom or Photoshop is *much* more effective with a RAW file than with a jpeg.
- Wider level of tones and improved ability to adjust white balance later.
- Jpegs are compressed and can produce artefacts i.e. poor edge definition, poor tonal transitions and posterization and they are a 'lossy' file type i.e. loses quality each time you save it.

Time of Day

The best single way to improve your images is to take your pictures around sunrise and sunset. This is because the sun is much lower (eg less than 6 degrees from the horizon) and so light has to travel through a lot of the atmosphere and so is richer, softer, more diffuse and warmer with more vibrant colours compared to the harsh contrast and blocked out shadows of the rest of the day. I aim to arrive on location 45 minutes before sunrise and I have usually left an hour after sunrise. At the other end of the day I aim to be on location an hour or so before sunset and often take pictures up to say 45 minutes after sunset (especially at the coast).

Sun Angles

I tend to plan a *landscape* shoot (ie not coastal) at sunrise or sunset with *side* lighting in mind. For *coastal* photography and pre-sunrise/post-sunset colour I plan to shoot in the direction of where the sun is/will be (see below).

The app TPE (see later) will show you where the sun will be rising and setting at your location at various times of the year. Side lighting (at sunrise and sunset) is flattering, you benefit from soft long shadows which have a lovely modelling effecting on the landscape revealing form and texture suggesting depth and a polariser also works well at right angles to the sun.

Sun behind you - with the sun behind you colours are saturated but the light is rather flat with no shadow detail and your own shadow can be a problem especially if you are including foreground interest.

Backlit/towards the sun - shooting toward the sun can be dramatic but is challenging and it is sometimes wise to resist the urge to include the sun unless it is very low and therefore weaker or if there are clouds and haze holding the sun back. As the sun breaks the horizon you can usually shoot at it and with a small aperture of say f22 you can sometimes get an attractive starburst effect. Using long focal lengths to pick out a composition from high viewpoints can work well shooting towards the sun especially if you exclude the sky from your image.

Coastal - shooting after the sun has gone down or before it has risen can be very rewarding especially as this is when there is the most colour in the sky. Without direct sunlight on the landscape it is still surprising how much modelling of shape and form occurs, however, it is still worth concentrating on subjects that reflect colour and light like coastal scenes, rivers, lakes and ponds. This is why coastal photography can be so great before sunrise and after sunset and to maximise the colour plan to shoot in the direction of the sun. Often the best seascape images are taken before the sun has risen or after it has set.

Choice of lenses

Wide Angle lenses (on a standard SLR camera 10-30mm)

Suitable for the vast majority of situations (although not all). Good for large sweeping views, stretching out perspective, placing emphasis on foreground objects making them bigger adding to the 3D feel. If you want to change the relative size of the foreground and the background just step further away and increase the focal length. The foreground remains the same size as before but the background is now larger. Or alternatively move closer and select a wider angle. Again, the foreground stays the same size but the background is now smaller.

Standard Lenses (on a standard SLR camera 30-50mm)

Similar to the human eye and so provides a natural perspective. Used to place more emphasis on the background or to avoid foreground objects over dominating.

Telephoto (on a standard SLR camera above 50-200mm)

Compress perspective, place emphasis on a single, perhaps distant, subject like a single tree or a church, minimises distraction. Great in fog and mist, in woodland interiors and from raised vantage points (often excluding the sky).

Specialist Wide Angle Lens

Most people who are coming on the workshops have a digital SLR camera (an APS/cropped sensor SLR is the commonest) and a lens which can go down to 18mm (i.e. 18-55mm) which is good for landscapes but if you want to carry on and do more landscapes then I would recommend thinking about getting a lens which can go down to say 10 or 12mm (eg 10-20mm or 12-24mm). This is expensive but probably more than half my landscape images are taken below 18mm as it opens lots more possibilities. As an example these are great

landscape lenses for Nikon users – Nikon 10-20mm [here](#) and Sigma 10-20mm [here](#). For Canon users the 10-18mm lens [here](#).

For a full frame camera, I would recommend a lens which gets you down to focal lengths of 16mm. For Nikon, the Nikon 16-35mm f4 lens is superb and great for landscapes. For Canon both the 17-40 f4 lens and the slightly more expensive 16-35mm f2.8 have great reviews.

For the Olympus 4/3 sensor the 9-18mm lens [here](#) is nice and wide and even better (but very expensive) the 7-14mm which is £1,399! [here](#)

Filters

I regularly use filters:

- 1) Graduated Filters - to address the dynamic range contrast problem between the sky and ground which most cameras have & which is greatest at sunrise and sunset. Graduated filters deal with this to help you achieve detail in the shadows and the highlights at the same time. Rectangular graduated filters which slide into a holder are preferable to screw on ones as the screw on ones mean that you need to place the ground/horizon transition line in the middle of your image and effective compositions often require you to place the horizon off centre.
- 2) Neutral Density Long Exposure Filters - to artistically blur movement in water and clouds.
- 3) A Circular Polariser - to cut reflections and glare, to deepen the blues in the sky to make clouds pop and to boost colours by restoring natural saturation.

In order to attach filters to your camera the front of your lens must have a filter thread and not all point and shoot or bridge cameras have a filter thread. Assuming you have a filter thread then before buying any filters I'd recommend you do your own research first and maybe speak to WEX (an online camera retailer with excellent customer support www.wex.co.uk) or whatever retailer you've found to make sure that the filter set will work with your lens.

The size of filter system you should go for depends on how wide your widest angle lens is. If you buy smaller filters (eg the first section below) for a lens which can get down to 10mm (on an APS sensor), 16mm (on a full frame camera) or 8mm (on a 4/3 sensor) then you will see a black circle/edging to your image (vignetting) where the lens can see the filter holder. The only way you can avoid vignetting when using an ultra wide lens and smaller filters is by using an ultra thin filter holder with only 1 slot as per this Cokin Filter holder [here](#). Using this will virtually eliminate vignetting even with an ultra wide lens but the downside is that you have only 1 filter slot and so you can't, for instance, use a graduated filter and a long exposure filter at the same time. If you want the ability to use more than 1 filter at a time with a wide angle lens (as I do all the time) then you will need bigger filters. Also note that if your polariser attaches to your lens in between the lens and the filter holder and you use a UV filter for protecting your lens then keep in mind that these filters move the other filters further away from the lens and so increase your chances of vignetting.

If you don't have an ultra wide lens then the filters in the next section (3 paragraphs) will be fine. If you have or may buy an ultra wide lens then you will probably need to buy larger filters (see the 'Filters for ultra wide lenses' section below).

Filters for lenses which go down to 18mm on an APS SLR camera (27mm on a full frame camera and 12mm on a 4/3 sensor)

Mid Price

A set of the graduated filters made by Cokin (for balancing the exposure i.e. making the sky darker) will work well. Here's a link for the medium strength graduated filter [here](#). You can also buy the light and strong graduated filters. For this filter set you would need to buy a filter holder [here](#). You could buy the full set of 3 graduated filters in varying strengths and the filter holder in one package [here](#). You will also need an adapter ring like this one [here](#) so that

the filter holder in the previous links can be attached to your lens. Once you have the filter holder you can also add a 3 stop solid ND filter [here](#) which is excellent for slowing water down to get that dreamy effect and for really creative stuff you can get a 10-stop filter which slow the shutter down 64x and 1,000x [here](#). This filter will fit the Cokin P 85mm filter holder.

More Expensive

My strong recommendation would be to spend a little more and get the Lee Seven5 system. Optically the Lee filters are superb and very few professional photographers would use anything else. They also have a slightly harder edge to the transition on the filter and so you can place it more accurately. Here is the starter kit [here](#) and to this you add the 3-stop, 6-stop (Little Stopper) and 10-stop (Big Stopper) filters as per these links [here](#) [here](#) and [here](#). Note that you will also need to buy a filter ring adaptor to fit your lens eg 58mm, 62mm etc so that the holder can be attached.

Ultra Cheap

If you wanted to try them out before you spend a lot of money then the following large range of filters are available through Amazon at an amazing £14.99 [here](#) **I can't honestly recommend them** especially if you've spent £600 on your Camera and Lens (and then put a £5 filter in front of it!) but they work and give you an idea if you want to take it further and spend a little more later.

Filters for ultra wide lenses which go down to 10mm on an APS SLR camera (16mm on a full frame camera and 8mm on a 4/3 sensor)

If you have (or think you might get) an ultra wide angle lens with a focal length in the ranges quoted in the line above then this lens will 'see' the normal smaller filters and you would get a black ring around your image (vignetting). The exception being an ultra thin single slot filter holder as discussed earlier. If you want the ability to use more than 1 filter at a time (which I'd recommend) with a wide angle lens then you will probably need to look at larger filter systems (100mm). There are 3 options - Cokin Z Pro, Lee or Hitech. For each of these 3 systems you would need to buy a wide angle filter ring adaptor like this [here](#) with the size (eg 67mm, 72mm, 77mm etc) depending on the diameter of your wide angle lens, you would need to buy a filter holder as per these links for the 3 systems [here](#) for Cokin Z Pro, the Lee Filter system (which I use) [here](#) or the Hi-tech System [here](#). Finally graduated filters - if you only buy 1 filter then buy the 2-stop (also known as 0.6) hard graduated filter like this one [here](#) or this one [here](#). I bought a set of 3 in various strengths but that is expensive and the one I use the most is the 2 stop (0.6).

The filters which I like the most are the solid ND long exposure filters which are all dark and lengthen your shutter speed. I have 4 different strengths a 3-stop filter to slow water down like this one [here](#), 6-stop and 10-stop long exposure filters like these [here](#) and a 15-stop filter [here](#). I probably use the 6-stop the most.

Whether you need to buy the smaller or larger filter systems my recommendation is to get the Lee filters both in terms of build quality and optical quality. If in doubt about what filter size you need then you can check your lens in the Lee Filter match checker [here](#)

Polariser

The polariser is a useful filter and impossible to replicate in Photoshop. It reduces glare and reflections and restores natural saturation. It deepens the blue in the sky to make clouds pop and boosts the intensity of colours by restoring natural saturation. A polariser has the strongest effect at right angles to the sun. By rotating the filter you can see the effect it has and you simply choose the position you like the best. Be careful that you don't over polarise and make the sky unrealistically dark or if using a polariser with a wide angle lens that the effect on the sky isn't uneven, back off with the polarisation if you have either of these issues.

If you need advice on what polariser to get (if you don't already have one) then I would recommend speaking to WEX as there are so many variables depending on your lens and filters.

Hot Shoe Spirit Level

I use one of these especially for coastal photography when a level horizon is essential [here](#). You can correct wonky horizons in Photoshop or Lightroom later but you lose some of your composition.

Hoodman Loupe

I use a device which allows you to carefully review your image even when it's a very bright day - [here](#)

Tripods

If you're thinking about changing your tripod then my advice is:-

All my landscape images are taken on a tripod to prevent camera shake causing blurred images. I have always used Manfrotto tripods and it's a false economy to go any cheaper than £70 especially with an SLR camera. Make sure it goes high enough so you can use comfortably at eye level and preferably without having to extend the central column which reduces stability. Dramatic landscapes often come with close foregrounds, I regularly shoot quite low to the ground so make sure you can use it at knee height or even lower if possible.

I would go into London Camera Exchange in Southampton (the one near the Civic Centre) and try their tripods out. For me a tripod and especially how the head works can really add or detract from your enjoyment significantly. Take your camera and lens so you can do it properly. People spend loads on cameras and lenses and very little on tripods and get soft images despite the quality of the camera/lens. Here are some examples [here](#) (some of these you have to buy the head separately). Aim to spend at least £70 if you can and even better if you buy the tripod head and the tripod legs separately (more expensive) rather than an all in one. There are 3 main types of tripod heads as shown [here](#) 3 way pan and tilt, ball heads and specialist heads (eg geared heads). It's probably best to try them yourself as everyone likes different things. See how well the tripod heads hold your camera and lens and whether you enjoy using it. I love the geared heads for real precise placement although the ball heads are slightly quicker and lighter but they can have a little more play in them so your composition can slip a bit.

My equipment

Sometimes people ask me what equipment I use and so I have included some information here. I use a full frame Nikon D850 camera and my main landscape lens is the 14-24mm f2.8 [here](#) I use a set of the Lee Graduated filters [here](#), a full set of ND long exposure filters (3-stop, 6-stop, 10-stop & 15-stop) and the Lee filters ultra thin polariser [here](#). I have the Gitzo Carbon Fibre GT3542LS tripod and the Arca Swiss D4 geared tripod head.

Apps

The apps I use are:

- 'The photographers ephemeris' (TPE) which shows you where the sun will rise and set (there is also an android version).
- The app to help you with hyperfocal focussing is 'setmycamera' on apple or 'DOF Calculator' on android.
- Lee Filters have created a useful app (Lee Stopper) to show you what shutter speed to use when you've added an extreme long exposure filter. It's only for Apple at the moment although you can use 'ND Filter Timer' for android.
- The best app for tidal information is TidesPlanner as it includes lines indicating when sunrise and sunset is and it allows you to look back at previous years.
- Sun Scout provide an app which uses your phones camera to project where the sun will be at various times of the day and year.

- Magic Seaweed provide an app (for surfers) which forecasts wave height and swell and general conditions for surfing at various locations. This is useful information for photographers for judging whether you are likely to see energy and activity in the water which is preferable to still and benign 'lapping' conditions.

Book

The book I would recommend is [here](#). Ross and Mark are good friends of mine but I genuinely think this is the best book for helping you improve your Landscape Photography. They have also just published another really good book which focuses on composition [here](#).

Processing

Just some brief notes on basic processing for your image - the main things to change in processing are:

- Adjust the exposure to make sure your image is the correct brightness especially if you have deliberately exposed to the right (you will probably need to darken your image slightly if you have)
- Adjust the white balance and tint (you can only do this effectively if you shot a RAW image). This has a big effect on the mood of your image and is a very useful adjustment. I like cooler temperatures eg 5500 and a positive tint eg a slight magenta look.
- Adjust levels i.e. drag the black and white points so that the darkest pixel in your image is all the way to the left and so that your lightest pixel is all the way to the right [here](#). This way your image fills the entire dynamic range.
- Most software also includes some way of adjusting highlights and shadows to add some detail in shadow areas and to darken highlights to also bring back more details (I use the highlights and shadows sliders a lot, they really help especially with a RAW file which retains much more information in shadows and highlights than a jpeg).
- If your software can do it then increase clarity a little and boost vibrancy. I find vibrance a much more natural way of boosting colour compared to saturation which can be heavy handed and should be useful carefully.
- The final thing to do is apply some sharpening as a RAW file is naturally rather soft and sharpening makes it pop.

If you're not sure what software to buy then Lightroom gets my recommendation. You can still buy Lightroom as a one off for around £90 but soon you will need to rent Lightroom & Photoshop via the Creative Cloud for £9.98pm. If you rent it (which is what I do) then you will also get the full version of Photoshop and all future updates of Lightroom or Photoshop will be free. If you'd rather rent then head over to the Adobe Creative Cloud [here](#) and choose the Photography Bundle currently £9.98 per month.

If you'd like 121 training on using Lightroom then just let me know, my hourly rate is £25 (most people find 2 hours about right) and I can come to your home to work on your images with you. My mileage rate is 20p per mile.

Focus Stacking and landscape images

Just a quick example of when I would focus stack images in landscape photography.

On a full frame camera the hyperfocal distance at f16 and a focal length of say 24mm is 4 feet. The hyperfocal distance is the closest point you can focus and still get infinity sharp. In this example, therefore, if you focus on the furthest object you can see (this is effectively infinity) then everything from 4 feet onwards will be sharp. Also, if you focus just beyond the hyperfocal distance (in this case 4 feet) then everything from half the hyperfocal distance (in this case 2 feet) to infinity will be sharp. This will be fine for most situations but if there is something in your composition that is closer than 2 feet away then whatever you do you can never get this really close object sharp and still retain the distant focal point sharp. The solutions are to make the aperture even smaller say at f22 the hyperfocal distance is just

under 3 feet and so if you focussed at 3 feet you could get everything from roughly 1.5 feet onwards sharp. F22 images are slightly softer and so another option would be to take 3 images all at a sharp aperture of f8. The first image focussed on the close object, the 2nd in the middle and the 3rd on the distant focal point. You then focus stack these 3 images in Photoshop to get a really sharp image throughout.

Some additional notes on Contrast Range Problems

One of the main challenges for Landscape Photographers is dealing with the huge contrast range that landscapes often present and which are usually even greater around sunrise and sunset. The issue is that the sky is so much brighter than the ground and this dynamic range is often more than the camera can record. What happens in practice is that the camera may expose the ground correctly and blow out the highlights in the sky or it may expose the sky correctly making your ground very dark or it tries to get both correct and achieves neither. There are various solutions.

Taking the image in one shot without using graduated filters

As my camera has an excellent dynamic range (Nikon D850) it does a great job of capturing a huge range from shadows to highlights. This makes it possible to capture lots of scenes without graduated filters and without resorting to bracketing. The image will require some processing later including some usage of the shadows slider.

When I set the exposure I make sure I am exposing to the right (making the image as bright as possible by making the shutter speed longer) but I'm careful to ensure that I don't significantly blow the highlights. Shoot in RAW as you will retain significantly more detail in the shadows and highlights and these are areas that can be enhanced later in lightroom with the shadows and highlights sliders. Pulling out detail in these areas is not so effective with a jpeg. If you're shooting in RAW then your file has additional headroom compared to a jpeg (a stop or more) and so you can push (perhaps double) the shutter speed even if you are starting to see the over exposure 'blinkies'. Remember that the histogram/blinkies on your LCD screen relates to a jpeg even if you are shooting in RAW only. Get to know your camera's dynamic range before you push the RAW file too far.

By making the image as bright as possible you are brightening the shadows which are currently very dark. You risk bringing out detail-obscuring noise when you brighten the shadows later and so it's good to have these shadow areas as bright as possible (to reduce noise) at the time of capture. The files from my Nikon D850 are amazingly clean even if I have to brighten the shadows significantly in post processing. This is the easiest solution for dealing with the large contrast range but does require you to shoot in RAW and expose to the right and have a camera with an excellent dynamic range.

Using Graduated Filters

Graduated filters allow you to reduce the dynamic range of the scene into something that the camera can record. They do this by darkening the sky which is the brightest part of the image. Rectangular graduated filters which slide into a holder are preferable to screw on ones as the screw on ones mean that you need to place the ground/horizon transition line in the middle of your image and effective compositions often require you to place the horizon off centre. You can use a combination of the camera's metering system, the histogram or your eyes to judge whether you need a graduated filter, as follows:

If the histogram graph is not clipped at either end then you have captured the whole dynamic range. In other words on the right hand side of the histogram graph the white highlights have been captured without the flashing warning light and on the left hand side of the graph (the dark side) there is a reasonable gap between the left hand axis and the main shadow peak on your histogram. In these circumstances I may not use a graduated filter and process the image in line with the comments in the section above.

If the sky histogram peak (on the right) and the shadow histogram peak (on the left) have a big gap between them (happens regularly at sunrise and sunset) and you want to get the image looking correct *in camera* without having to do as much software adjustment later then you should add a graduated filter.

If you want a more scientific approach to this bit then take a shutter speed reading by pointing the camera at the sky part of your composition and another reading pointing at the land part of the composition and if the shutter speed for the sky is 8 times faster (3-stops) or more then you probably need a graduated filter. An example, if when you pointed your camera at the sky and the camera recorded a shutter speed of 1/250 second and then you pointed the camera at the ground (i.e. everything but the sky) and then the camera recorded a shutter speed of 1/30 second then the exposure difference between sky and land is more than 8 times and is probably more than the camera can cope with comfortably. In this scenario I would use a graduated filter and pull it down to the horizon. The camera will then choose the correct shutter speed with your graduated filter in place and the overall scene should be nicely balanced.

Another strategy is just look at your image and decide whether the relative brightness of the sky and the ground look about right compared to real life. If, as is often the case around sunrise and sunset, the ground looks too dark then you probably need to add a graduated filter to help the camera get a more balanced image. If the ground is well lit in direct sunshine then a graduated filter may not be required. I often use a 2-stop graduated filter initially switching to a 3-stop when the contrast range gets greater at sunrise and sunset.

Bracketing several images of different exposures and blending them later

There are several occasions when I prefer not to use graduated filters.

1. If significant objects are breaking the horizon, things like prominent trees, coastal headlands or buildings such as lighthouses. A graduated filter would darken these areas in an unnatural way.
2. If the scene presents a huge dynamic range which a graduated filter would struggle to control.
3. I may not use a graduated filter if I'm deliberately including the sun in the image as this can lead to serious flare issues which are increased significantly if you're using resin graduated filters.
4. Using graduated filters to control the sun in an image can also leave the sky looking darker than the ground which shouldn't really happen.
5. I regularly find it difficult to keep graduated filters clean particularly when there is sea spray in the air as they can become impossibly greasy or in humid cool conditions when condensation can be a problem. I will then abandon the graduated filter and consider bracketing (as below) or single shot processing as per the first section.

An alternative to using graduated filters is to blend various exposures. Lightroom can do this automatically in a very natural way. My approach is to set up bracketing on my camera so that the camera takes 5 images 1-stop apart with the darkest image first and the remaining 4 images 1-stop brighter each time eg with the shutter speed doubled each time (check your manual to see how to do this).

I expose to the right with this first image so that the histogram is over to the right hand side but making sure I don't blow the highlights, this first image will be rather dark. With bracketing selected I then take the 5 images in continuous shooting mode keeping the shutter button down on the cable release. The camera will take 5 images of various exposures from too dark to too bright. If you're shooting in aperture priority then leave the bracketing order unchanged so that the camera takes the first image 'in the middle' and the subsequent images darker and brighter.

I then blend these images in Lightroom with the HDR merge feature. Select all of the bracketed images and then choose Photo>Photo Merge>HDR... I find that the merging process in Lightroom produces natural results. Always tick auto align and if you want most of the processing done for you then also tick auto tone. I prefer to leave auto tone unticked and the RAW dng file that lightroom creates requires post processing in a similar way to the way you would process a normal exposed to the right RAW file (eg use of the highlights and shadows sliders). The ghost amount selection refers to how Lightroom deals with parts of the picture which move between images eg water or clouds. You can try the various options from low to high (temporarily ticking the auto tone box will help you see the results). If you select low then on water, for example, the appearance is of a longer exposure than if you choose high.

Chris Button Photography
links and text correct as of October 2017