Introduction to fisheye photography

Love it or hate it, fisheye photography divides opinion like few other techniques. But before you knock it, why not try it? **Ross Hoddinott** is a recent convert

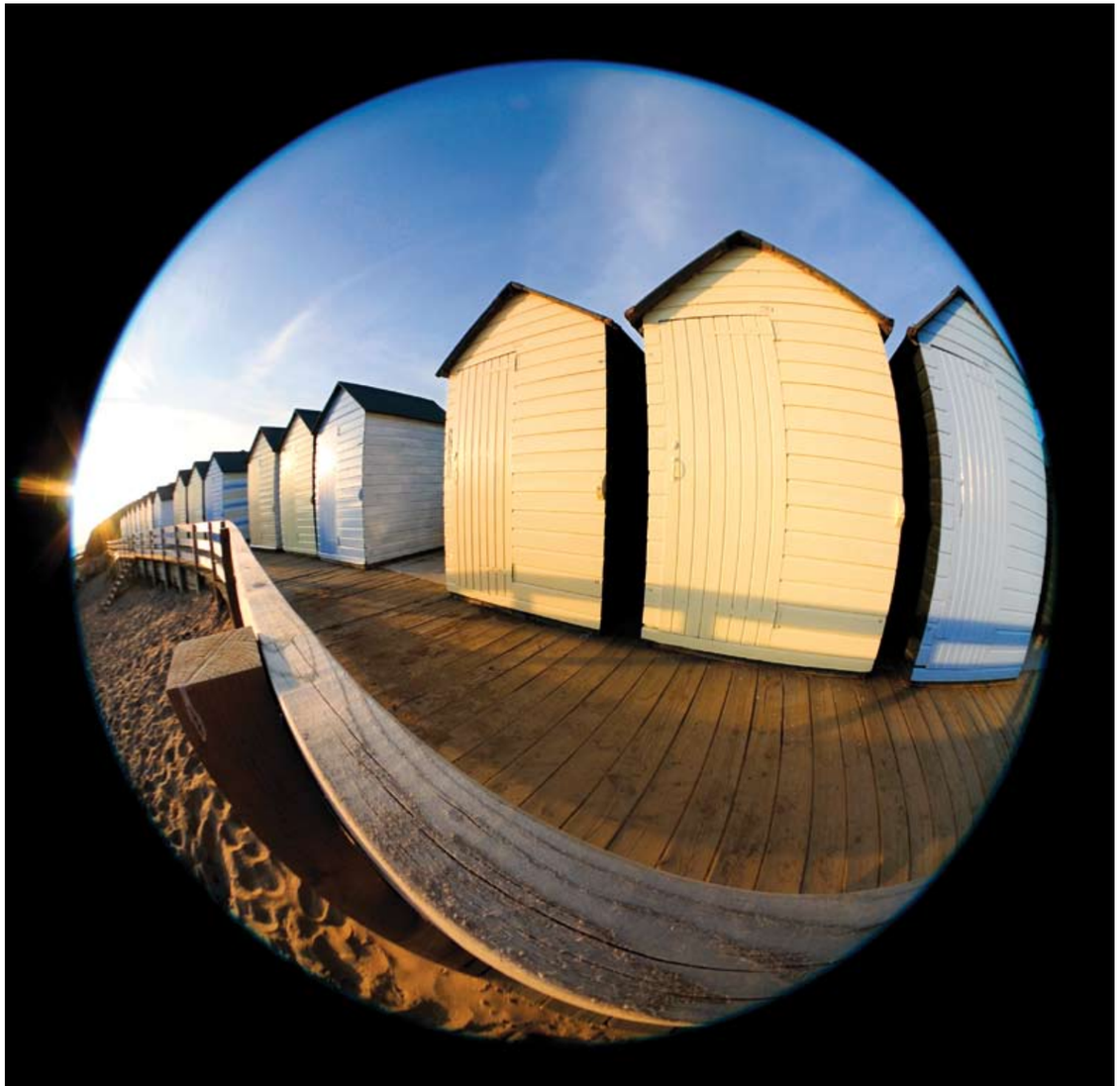
PREVIOUS PAGE **You need to teach yourself to look at the world differently when using a fisheye lens. Low and high viewpoints can work particularly well. In this instance, my camera's Live View function proved helpful when composing the shot from such an awkward, low angle**
Nikon D300 with 4.5mm fisheye lens, ISO 200, 1/250sec at f/14, handheld

BELOW **The fisheye effect won't be to everyone's taste, but the creative potential is obvious – I guarantee you will enjoy experimenting with the many different effects that are possible using this extreme focal length**
Nikon D300 with 4.5mm fisheye lens, ISO 200, 1/160sec at f/8, handheld

Photography purists may be tempted to quickly turn the page here, rather than reading on. Fisheye photography is certainly a subjective effect – you either love it or you hate it. Being quite a traditionalist myself, fisheye photography had never really appealed to me before now. However, as they say, 'don't knock it until you've tried it' and my attitude quickly altered when I actually began using a fisheye lens – maybe the same could be said of you?

What does fisheye actually mean?

A true fisheye is a lens boasting an angle of view not less than 180°. Often, this is measured diagonally, but there are fisheyes available that have a 180° angle of view in all directions, creating a circular image space within the centre of the viewfinder. The name originates from the fact that fish looking upward can see a whole hemisphere above the water, due to the refraction of light at the water/air interface. The very first fisheye images were captured using a pinhole camera, with water acting as a 'lens', and originally the fisheye concept was designed for scientific use. This is because, with hemispherical coverage, it is possible to photograph the entire sky in a single frame. While this makes them ideal for astronomical and meteorological studies, due to their unique characteristics and high level of barrel distortion, today they are most popular for their huge creative photographic potential.



LEFT **Due to the lens's remarkably wide angle of view, it can be easy to accidentally include unwanted elements within frame. In this instance, I had to take extreme care to exclude my feet from the bottom of the photograph**
Nikon D300 with 4.5mm fisheye lens, ISO 100, 1/50sec at f/11, handheld

'One of the biggest problems I encountered was excluding my own shadow from the image, particularly in morning or evening light'

How does it work?

There are two types of fisheye – circular and full frame. When using a circular type lens, the 180° angle of view is projected onto the film or sensor as a circle within the rectangular image-space. However, when the popularity of fisheyes grew in normal, everyday photography, manufacturers began producing them with an enlarged image circle, circumscribed around the entire frame. This type of full frame fisheye means that less of the image-space is wasted and the majority of fisheyes are full-frame design. By their nature, fisheyes display progressive distortion towards the periphery of the image and, while there are several possible geometries for this distortion, the majority produce equidistant projection – where the radial distance from the optical centre of the image is directly proportional to the angle of view. Phew, that's the science bit out of the way!

Using barrel distortion

While the fisheye effect won't be to everyone's taste, the creative potential is clear to see. The characteristic barrel distortion of the lens can be exaggerated further by getting very near to your subject. In fact, at small apertures, depth of field is extensive and using the 4.5mm fisheye, I found that even subjects that were practically touching the curved front element remained acceptably sharp. This presents all types of possibilities, allowing photographers to create interesting or humorous effects and place emphasis on anything close to the lens. For example, buildings can appear to bow inward or an animal's head can be made to look disproportionate to its body. At first, the merits of such effects may not seem appealing, but in reality the results can appear eye-catching and striking.

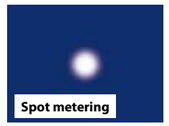
Metering with a fisheye

When using a fisheye, the darkening of the corners of the frame can fool multi-point

Now you do it!

- Meter using centre weighted or spot metering (*see below*).
- Due to the wide angle of view, be mindful of the position of the sun and try to avoid including it in the image space whenever possible, otherwise you risk burned out highlights.
- Flare can be tricky to avoid on sunny days, so select your shooting position with care.
- To exaggerate the lens's characteristic distortion, position the front element close to the subject. This will create eye-catching results.
- Before releasing the shutter, let your eye carefully wander around the frame to ensure you haven't included anything within the frame that you didn't intend to – like distracting elements, the leading tripod leg, or even your feet or shadow (*see below*)!


Centre weighted


Spot metering


Avoid the shadows!

metering systems into believing the image is darker than reality. As a result, it will automatically select a longer exposure, often resulting in over-exposed images. Therefore, when using a fisheye lens, it is best to opt for either centre-weighted or spot metering. As you would expect, it isn't possible to mount filters to the front of a fisheye, but some are designed with a gelatin filter holder at the rear of the lens. Even so, fisheyes aren't compatible with such things as ND grads, so achieving a balanced exposure in-camera isn't always possible.

In addition to shooting standard fisheye images, with the appropriate software it is possible to stitch together results to create stunning, 360° panoramas. Also their wide field of view is ideally suited to infrared photography – film or digital. Fisheyes have long been regarded as a novelty lens among some photographers, but with so much creative potential, maybe its time they lost that tag. ■

Ross is a professional outdoor photographer and freelance writer. Based in Cornwall, his images are published widely and he is a multiple award winner in the Wildlife Photographer of the Year competition.

ABOVE **By positioning the lens just centimetres away from your subject, you can exaggerate the distortion**
Nikon D300 with 4.5mm fisheye lens, ISO 100, 1/200sec at f/9, handheld

What's on the market?

Canon, Nikon and Sigma all have fisheyes within their range, but the Russian made Peleng 8mm is the only genuine budget option. Although, personally, I'd not heard of the company before, Peleng optics originate from Russian space and defence technologies, and the reviews I've read are positive. The lens can be bought in specific lens mounts (or attached via an adapter) and it sells new for around £180 on eBay – making it a cost effective introduction to fisheye photography. In contrast, the versions from Canon, Nikon and Sigma are typically priced at around £400-£600. While this is still good value for money, before buying, you need to feel confident that you will use the lens regularly. It is too much cash to part with if you think that the novelty might wear off after just a month or two!

Canon, Sigma and Nikon all produce fisheye lenses

Sigma 4.5mm fisheye

To be honest, I had never considered adding a fisheye to my kit bag before Sigma loaned me the 4.5mm circular fisheye – the first digitally optimised circular fisheye designed exclusively for DSLRs incorporating an APS-C sized image sensor. Despite being a photographer who normally prefers to record nature authentically, my attitude shifted the moment I first looked at the world through such an extreme focal length. The fisheye effect is captivating. The lens's unique perspective can be combined to good effect with practically any subject – you just need to learn to look at your environment with a creative eye. In the short time I've been using the Sigma 4.5mm fisheye, I have learnt a great deal. The stunning 180° angle of view allows you to include a huge amount within the image-space, great for giving context. However, this has its drawbacks. One of the biggest problems I encountered was excluding my own shadow from the image, particularly in morning or evening light, when shadows are long.

Also, be careful not to include your feet or tripod leg in your picture – it's easy to do. Certainly, consideration is needed when composing shots. Fisheye photography isn't something that can be rushed and the elements you include within the frame need arranging with care. Manual focusing can prove tricky as it can be difficult to know where your point of focus is exactly. Therefore, if you don't normally, consider using autofocusing.

Lens	Angle of view	SRP
Canon 15mm f/2.8 EF	180° (diagonal)	£590
Nikon 10.5mm f/2.8 ED DX	180° (diagonal)	£449
Nikon 16mm f/2.8 AF-D	180° (diagonal)	£499
Peleng 8mm f/3.5	180°	£102
Sigma 4.5mm f/2.8 EX DC	180°	£599
Sigma 8mm f/3.5 DG EX	180°	£649
Sigma 10mm f/2.8 EX DC	180° (diagonal)	£449
Sigma 15mm f/2.8 DG	180°(diagonal)	£469
Sunex 5.6mm f/5.6	185°	£410