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Issue 62 • Summer 2016
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See page 16 for details

IDEAS FOR SUMMER!

43 NIKON PROJECTS

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- ✓ Colourful portraits
- ✓ Creative Abstracts

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Fit it all in with our in-depth round-up

Hit the beach!

Join us on a surf lifestyle shoot in sunny Cornwall



The shark took a bite out of my strobe and it exploded. He came at me again, but then these dolphins came and the shark went away

Michael Aw, *underwater photographer* p96



Be inspired

The year's best travel photographs revealed **p8**

In the swim

Take your Nikon safely for a dip this summer **p88**

Eagle-eyed

Could you wait two weeks for a single perfect shot? **p106**

Future



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About the cover



Title Texas Sunflowers at Sunset

Photographer Tod Grubbs & Cynthia Hestand

Camera Nikon D800

Lens Nikon 14-24mm f/2.8

Exposure 1/200 sec, f/10, ISO400

Description We were not alone trying to capture this scene along Interstate 35; many drivers had stopped to take pictures. Farmers are now including sunflowers in their crop rotation, so they can go on for miles in some areas.

Web <http://beecreekphotography.com>



Welcome to issue 62

Which is your favourite season for taking pictures? The natural spectacle of autumn? Winter, with its soft light and dramatic skies? How about the fresh greens of spring? Chances are, summer is kicking around the bottom of your hitlist. The light's just too harsh for decent photography...

Or is it? This issue, we bring you a range of ideas that will give you a greater appreciation for the photographic potential of this time of year. We go big on beach photography; our Apprentice hits the Cornish coast on a surfing lifestyle shoot, while Jason Parnell-Brookes shows you how to keep your camera dry when you're shooting inside a wave. Even Joe McNally's getting in on the act, with the story behind one of his iconic flash-lit beach portraits.

We take a double dip into the world of underwater photography, too. Our main interview is with Michael Aw, a wildlife photographer who's scooped up almost 70 awards for his awe-inspiring aquatic work. Closer to home, we show you how to shoot a striking underwater portrait in your local swimming pool. All of this *and* 43 inspirational photography projects that will help you make the most of summer, whatever the weather.

If you're wondering where Paul is, he's taking an extended summer vacation. With his Nikon, of course. He'll be returning from his adventure to edit these pages in the autumn. See you next month!

Chris

Chris George, Group Editor-in-Chief
chris.george@futurenet.com

THE NEW WAY TO SUBSCRIBE **SEE PAGE 32**
Photo Club

Subscribe today and get a Lowepro Traveler bag worth £49, plus our Creative SLR Skills DVD worth £19.99, a copy of *Outdoor Landscape and Nature Photography* worth £14.99, and ebooks, bonus video tutorials and more! **Turn to page 32...**

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Keep your copies of *N-Photo* neat and tidy (and make it easier to find the one you're looking for) with our bespoke binder. Each stores up to a year's worth of your favourite photo magazine – and costs from £9.99! Order yours at www.myfavouritemagazines.co.uk/n-photo-binder



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Master your Nikon with our expert videos



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02 Capture the curls of crashing waves



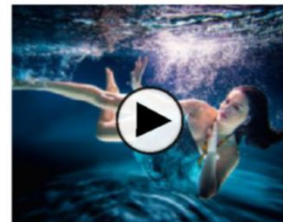
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04 Build your own affordable macro lighting setup



05 Use masks to define areas for tonal adjustment



06 Capture a stunning underwater portrait



07 Eliminate lens-created distortion and fringing



Watch all our
videos online!
bit.ly/NPhoto62

TURN TO PAGE 6 TO MEET THE TEAM

CONTRIBUTORS

NPhoto

This issue's special contributors...



James Paterson

PAGE 48

If you've ever wondered how to take great underwater fashion shots, James takes you through it step-by-step this issue. Prepare to make a splash!



Anthony Greenwood

PAGE 54

Anthony took this issue's Apprentice to the beach for a masterclass – capturing the laid-back surfing lifestyle takes skills and hard work.



Michael Freeman

PAGE 78

Everything you photograph will have a texture. Michael explores the angles and light that will help you convey any surface from slick water to craggy rock.



Dan Ballard

PAGE 95

In one image, Dan felt he'd finally achieved the effect he'd been seeking in his travel photography – and it fuelled his career. Discover that photo...



Laurie Campbell

PAGE 106

Getting great shots of golden eagles on location takes more than skill with a camera. Laurie reveals you also need patience, and a talent for disguise.



Joe McNally

PAGE 130

Fire against a dark background is an exposure challenge. When that fire is moving, it takes an expert to capture it. Joe revisits an iconic image this month.

The N-Photo team on... summer



Chris George
Group Editor-in-Chief

This is the perfect time of year to capture blazing sunsets – contrast can be too high during the daytime anyway.

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Jason Parnell-Brookes
Staff Writer

After seeing this issue's Apprentice (page 54), I'm tempted to head to the beach myself, for a bit of that surfing lifestyle!

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Ali Jennings
Lab Manager

This is a great time of year for shooting really colourful landscapes: gold fields, green trees, the bluest skies...

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Rod Lawton
Head of Testing

Many cities are at their best in summer – people linger outside, and have fun together. It's great for street photography.

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LIGHTBOX

Nikon images from the National Geographic Travel Photographer of the Year contest





National Geographic is renowned for the high quality of its photography – so it's no surprise that the entries to its travel photography competition are of an incredible standard. See for yourself...

THIRD PLACE, Cities

Celestial reverie

Jeremy Tan



Lightning seemingly strikes Komtar Tower, the most iconic landmark of George Town, capital of Penang state in Malaysia. It is symbolic of the rejuvenation that the city has enjoyed in recent years. While many of its old neighbourhoods fell into neglect in the 1990s and early 2000s, a UNESCO World Heritage listing in 2008 sparked a transformation.

Nikon D7100, 11mm, 20 secs, f/10, ISO100



SHORTLISTED, Nature

The Wave

Kenji Yamamura



Getting to this location involved a long drive and a long hike, but it was truly worth it. The shutter sound was echoing around the canyon. It was a pleasure to frame this moment.

Nikon D810, Nikon AF-S 14-24mm f/2.8G ED, 1/100 sec, f/13, ISO80

SHORTLISTED, Nature

Tree of Life

Jassen T



This is the incredibly beautiful and extremely remote Koehn Lake, in the Mojave Desert, California. This aerial image was shot from a plane at approximately 1,500 feet above the ground.

Nikon D810, Nikon AF-S 70-200mm f/2.8G ED VR II, 1/400 sec, f/4.5, ISO100

SHORTLISTED, Cities

This is Not a Cigarette Commercial

Jakub Rybicki



This is not a Marlboro commercial, this guy wasn't posing. He was just standing and smoking, probably enjoying the end of a working day.

Nikon D610, Nikon AF-S 50mm f/1.4G, 1/100 sec, f/2.8, ISO800

See page 16 for our brilliant Cuba photographic trip competition

© Kenji Yamamura, National Geographic Travel Photographer of the Year Contest



© Jassen T. National Geographic Travel Photographer of the Year Contest



© Jakub Rybicki, National Geographic Travel Photographer of the Year Contest



© Mattia Passerini, National Geographic
Travel Photographer of the Year Contest



© John Rollins, National Geographic Travel
Photographer of the Year Contest

THIRD PLACE, People

Remote Life

Mattia Passarini



An old woman in a remote village in Himachal Pradesh, India, carries a big log back home to warm up her house.

Nikon D800, Nikon AF-S 24-70mm f/2.8G ED, 1/320 sec, f/2.8, ISO200

HONOURABLE MENTION, Nature

Bears on a Berg

John Rollins



A female polar bear and her yearling perch atop a huge snow-covered iceberg near Baffin Island, Canada. To me, the relative smallness of these creatures when compared to the immensity of the iceberg in the photo represents the precariousness of the polar bear's reliance on the sea ice.

Nikon D800, Nikon AF-S 24-70mm f/2.8G ED, 1/500 sec, f/8, ISO100

SHORTLISTED, People

After the Hunt

Florian Leidoux



A hunter hauls a seal up to Kulusuk village in Greenland. This seal will feed his dogs after two days of hunting on the ice, and also his family.

Nikon D4s, Nikon AF-S 14-24mm f/2.8G ED, 1/2000 sec, f/4, ISO100



© Florian Leidoux, National Geographic Travel Photographer of the Year Contest



SHORTLISTED, Nature
Mist at Cemoro Lawang
 Achmad Sumawijaya

← Morning mist fills the area around Cemoro Lawang village in Mount Bromo, East Java. I took this picture from Penanjakan Hills II.

Nikon D750, 92mm, 1/320 sec, f/8, ISO800

SHORTLISTED, People
Fade to Black
 Enrique López-Tapia

→ In southern Ethiopia, in the area of the lower Omo valley, live many different tribes, including some of the most striking and surprising in Africa. People of different tribes still take pride in belonging to their people, their ethnicity, their land. And that nobility is transmitted in the dignity of this young man's gaze.

Nikon 800, Nikon AF-S 24-70mm f/2.8G ED, 1/125 sec, f/2.8, ISO800



SECOND PLACE WINNER, Nature
Double Trapping
 Massimiliano Bencivenni

← This image was taken in the Brazilian Pantanal. There were lots of yacare caimans in the shallows of this river. I saw one sink suddenly, and looked for the best location to photograph when it resurfaced. The whole thing lasted for a fraction of a second.

Nikon D4, Nikon AF-S 80-400mm f/4.5-5.6D ED VR, 1/4000 sec, f/6.3, ISO2800

All the images in this issue's Lightbox are from the 2016 National Geographic Travel Photographer of the Year contest. For more information go to travel.nationalgeographic.com/photographer-of-the-year-2016



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COMPETITION



Images: Olive Minnitt & Phil Malpas/Light & Land

WIN! A 10-DAY TRAVEL PHOTOGRAPHY WORKSHOP IN CUBA WORTH £4395

In association with Light & Land Photography Tours, we're offering one lucky reader the chance to go on a 10-day photography tour of Cuba this November

We've teamed up with the UK's leading photography tour company, Light & Land, to offer readers the chance to win a once-in-a-lifetime opportunity: a 10-day travel photography workshop that will take in the best that Cuba has to offer.

Few places in the world provide the photographer with more opportunities to capture vibrant and colourful images.

Your tour will be focused on the western end of the main island in the capital city of Havana and its surrounding provinces.

From the moment you arrive in Havana, it becomes apparent that this is a very special place. It's a city of great contrasts: from beautifully restored to faded grandeur, every street offers something new to photograph.

While in the capital you will stay in the luxurious Hotel Parque Central, which is ideally located to allow you to venture far and wide across this captivating city, to photograph colonial squares, brightly-painted 1950s saloon cars, and the photogenic Habaneros.

After three nights in Havana you will travel to Cienfuegos, 'The Pearl of the South'. Here, you will spend time exploring

the town, with its fine examples of colonial architecture. The truly beautiful Teatro Tomas Terry is a gift for photographers, while the wonderful, palm-lined Malecon is a constant source of imagery for those prepared to watch and wait.

Your next destination will be the UNESCO World Heritage town of Trinidad. Minute in comparison with the capital, but oozing character, Trinidad boasts myriad photographic opportunities.

Cobbled streets, gorgeous pastel colours, sumptuous colonial architecture and the occasional cigar-toting local make it seem as if you're in the middle of a film set.

Finally, after the relative quiet of our more rural locations, you'll head back to

Havana, and the Hotel Parque Central, for your last two nights. Cuba is unique, a place not to be missed. The people, the music, the architecture and the overall atmosphere of excitement and enthusiasm for life are intoxicating.

This very special country is undergoing rapid change, which will make your photographs from this tour even more special – visual reminders of a country and culture that will never be the same again. The 10-day tour will include international

flights, airport transfers, all accommodation and breakfasts, local transport in an air-conditioned coach, and expert tuition throughout the course.

The tour will be led by acclaimed pros Paul Sanders and Peter Hendrie, who will be on hand at all times to guide and assist you with your photography, no matter what your level of experience.

FLIGHTS FROM THE UK INCLUDED!



HOW TO ENTER

To be in with a chance of winning this once-in-a-lifetime opportunity, simply follow the link below and answer the following question:

What is the capital city of Cuba?

A) **Trinidad** B) **Banana** C) **Havana**

bit.ly/lightlandcuba

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Entries must be received by 31 August 2016. The winner will be selected at random from all correct entries received by this date. The prize is as stated: no alternatives, cash or otherwise, are available. For full terms and conditions please visit www.futuretcs.com







43



Photo projects for summer

Don't waste the season's dazzling sunshine, sunsets or celebrations – Jason Parnell-Brookes has got 43 ways for you to capture it all with your camera

At the peak of summer, there can be so much to photograph it can feel overwhelming. How do you know which subject to focus on? What if it's raining? Can you shoot in midday sun? Well, allow us to remove any photographer's block you might be experiencing. Here are 43 summer photo projects for you to choose from. Whether you have a drizzly British summer

or a dazzling Californian heatwave, there'll be at least one to keep you busy. You could pick a single project and focus on that all summer, or you could try to shoot all 43. It doesn't matter which one you choose, they are all designed to get you out in the world, Nikon in hand. Don't forget to share your shots with us online (www.facebook.com/nphotomag) or on Twitter at @nphotomag. So, let's start our first project...



01 Fill up with flowers

Faced with a beautiful floral display, the temptation is always to reach for a wide-angle lens to fit as many as possible in the frame – but zoom in with a telephoto instead and the blooms will appear more densely packed, for a photo that's absolutely blooming with colour. You won't be able to get every flower sharp this way, so pick one to focus on, choose a wide aperture (your choices may be limited by bright light on a particularly sunny day) and let the rest become an impressionistic blur. The flowers will move in the slightest breeze, so set a fast shutter speed and shoot handheld.



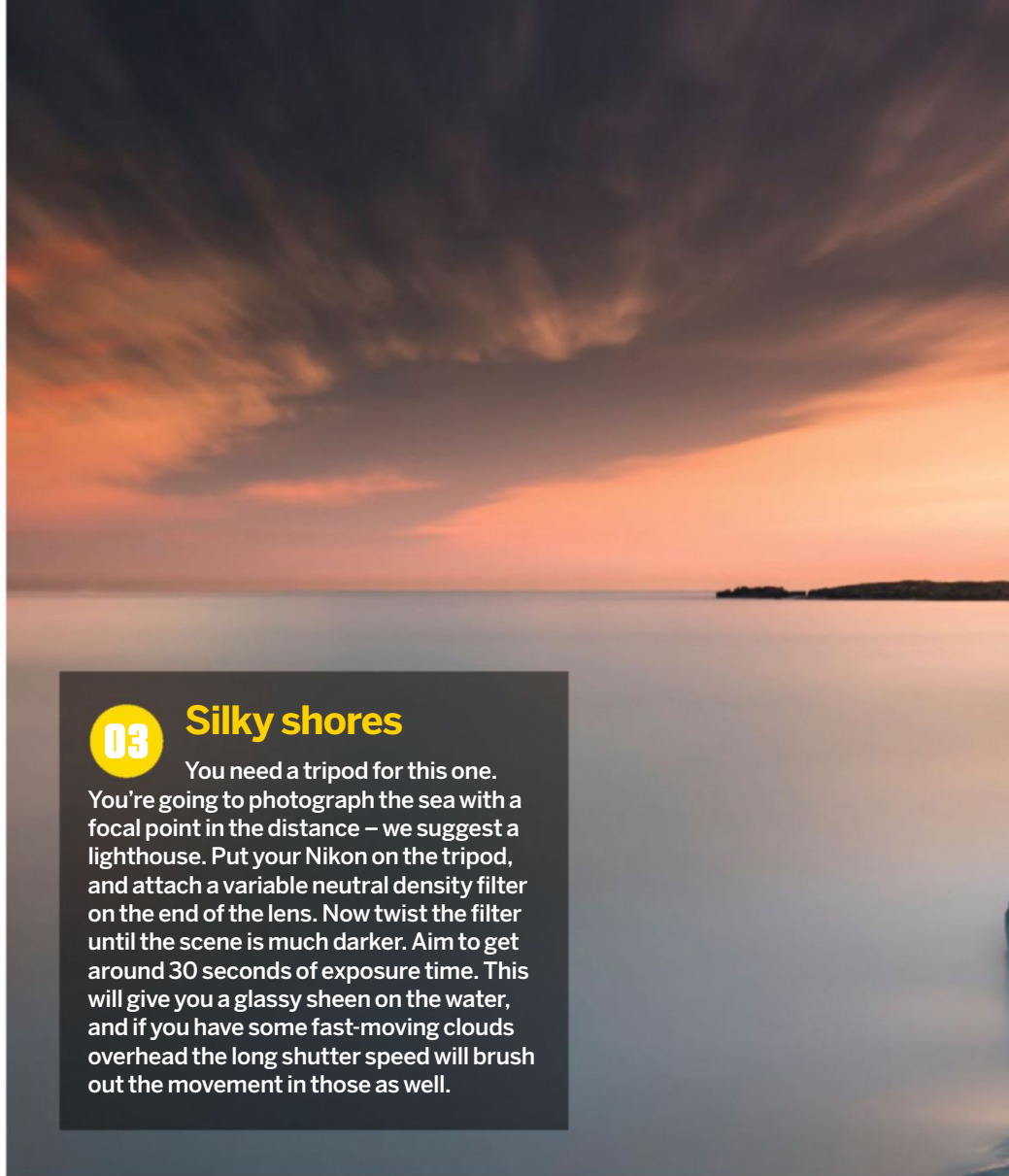
02 Sprinkle lips

There are hundreds and thousands of ways to shoot summer, and this is one of them. This is an easy project that you could do anywhere and still get that summery vibe. Get some hundreds and thousands (sprinkles) and lick your lips. Pucker up and coat your lips in the sprinkles. Pick away any excess bits that don't conform to your lip shape, then take a shot in a well-lit area. The more colourful the sprinkles, the better the shot will look. Boost the colours in post-production using Photoshop's Vibrance slider.

Images: © iStock

03 Silky shores

You need a tripod for this one. You're going to photograph the sea with a focal point in the distance – we suggest a lighthouse. Put your Nikon on the tripod, and attach a variable neutral density filter on the end of the lens. Now twist the filter until the scene is much darker. Aim to get around 30 seconds of exposure time. This will give you a glassy sheen on the water, and if you have some fast-moving clouds overhead the long shutter speed will brush out the movement in those as well.





06 There's always one...

...That child that gets his hands on an ice cream and proceeds to plaster it all over his face. Instead of wiping it up straight away, grab your Nikon and capture the innocence of youth. If you can combine this with a winsome expression – you're made. Because children move so quickly put your Nikon in Continuous AF mode and switch to Continuous high burst drive mode to take multiple photos quickly while holding down the shutter button.



07 Up, up and away

Try a fantastical take on the levitation photo. Make a surreal composite by photographing different sections of your photograph separately: first, shoot your model jumping in the air, the balloons on a tether and the background separately, but take all three photos in the same location so the lighting is identical in each. Then it's just a matter of cutting them out in your favourite image editing software and putting them in the right place. In Photoshop go to File>Scripts>Load files into stack, then select your images. Once you've clicked on OK, add a layer mask and, with the Brush tool, paint out everything you don't want on that layer. Then with the Move tool, move the pieces around until it all fits together.



04 Brolly good show

Repetition is beautiful in photography. Colour, shapes, patterns – they can all coalesce to create works of art. When you're at the beach, find a long stretch of sand with beach umbrellas/parasols. Stand back and shoot long with a telephoto lens to capture 10, 20 or even more in a single frame.

05 Cool in the shade

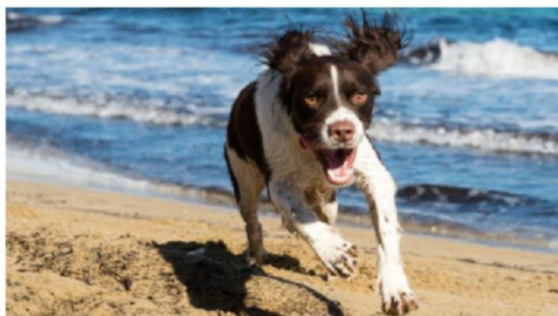
If you can't find a line of matching beach umbrellas, you can come in close with a 50mm or even a wide-angle lens to get the detail of the pattern on a single one. Fill the frame with it, and make sure it has striking lines or vibrant colours for that uplifting, summery vibe.





08 A splash of colour

You can get this shot in a splash. All you need is a cheap fish tank, some water and some fruit. With your Nikon in hand, drop the fruit in the water and press the shutter button just after the fruit drops into the tank. If you time it right you'll end up with a splash on the water line, some bubbles and a clear view of the fruit. To make sure you're getting the fruit absolutely pin-sharp, put a Speedlight to one side of the tank (or both sides, if you have two of them). Choose a 1/200 sec shutter speed (the maximum sync speed of flash) and shoot away. Turn the power of your flash up (or down) and try again if the scene is too dark (or bright).



09 Man's best friend

A dog is only one of man's best friends; the other is your Nikon. Take both to the beach (or find a willing dog when you're there) and get down low, so your camera is at the dog's eye level. Throw a ball, and when the dog bounds back to you, fire away. Use Continuous burst to take lots of photos quickly.



10 The blue moment

The sun's gone down, it's the end of the day, but don't pack away your Nikon just yet! Wait for the 'blue moment', that special blue glow after sunset where everything around is almost the same exposure value. Set a narrow aperture and a long shutter speed (one or two minutes is good) and blur the water and clouds into a painterly blur.



11 Make your own postcard

In Photoshop, the Horizontal and Vertical Type tools make adding simple text to your landscapes, just like you see on holiday postcards, a cinch. Hold down Shift and tap T to cycle through the four versions of the Type tool. To make two-dimensional text look like solid, three-dimensional shapes, go to the fx menu below the Layers panel and add a Bevel and Emboss layer style. This made our design's text look like it was carved from marble.



12 Text on the beach

Carefully lit three-dimensional-looking text doesn't merely sit on the surface of an image, it looks like it's within the scene, and it's easy to add in Photoshop CC. First you create the text by typing in a slogan in a blocky font, then going to 3D>New 3D Extrusion From Selected Layer. Highlight the background layer and choose Filter>Vanishing Point, then match your text's vanishing point to that of your image so it has the same perspective as the scene. Finish off



by adding colours and materials (selectable in the Properties panel), light from the same direction as the lighting in the image (via Infinite Light in the 3D panel) and a reflection in any water (Environment>Properties>Ground Plane).



13 Frozen summer

Here's one you can do whatever the weather. Take a plastic tray and fill it with 1cm of water. Freeze it for eight hours, then place the head of a flower on top and pour more water over it. Freeze for a further eight hours and then take it out of the tray. With your Nikon, focus closely (use a macro lens if you have one, or the minimum focusing distance of your lens). Now you'll have an icy textured macro flower shot.



Jim Mortram

15 Long-term documentary

Why not shoot a story that's going to last for weeks, months or even years? It's best to pick something physically close to home as well as close to your heart.



16 Old and new

Start with an old photo of your favourite place, then head there with your Nikon and photograph the same location, from the same angle. Blend them together on the computer to reveal just how much has changed since the original picture was taken. Just lay the two images atop one another in Photoshop and mask out one side of one layer by adding a vector mask, then use the Brush tool to fine-tune the blend.

14 Long-exposure seascapes

The haze has set in over the beach and it's low tide. There are no waves, and a featureless grey sky. Surely there's nothing you can photograph now? But there is. If you find just one focal point and put your minimalist hat on, you can shoot even in the most uninspiring conditions. Derelict piers, groynes, or structures reaching out into the sea, like The Cobb at Lyme Regis in this image, all make good focal points for minimalist seascapes.

If you want to reduce detail even further, use a 10-stop neutral density filter plus a long shutter speed to blur ripples in the water and any clouds passing across the sky. (If you're in a busy area, it will also remove any people walking through the scene.) A shutter speed of 30 seconds is a good starting point, but if the water is quite rough increase this to a minute, or even ten minutes. You'll need an external intervalometer for anything over 30 seconds, though, and you'll need to put your Nikon into Bulb mode. A tripod will be essential too, as there's no way you'll be able to hold a camera in your hands for that long without causing severe blur.





17 The heart of the wedding

It's summer, it's wedding time and you've been asked to snap some shots with your trusty Nikon during the big day. Here's one shot that you can't afford to miss, and it doesn't take a lot of time to set up. Propping the wedding ring over a holy book or a dictionary turned to the page with the definition of love on it, with a light behind it, will cast a heart-shaped shadow beneath. Put the two wedding rings together for interlocking hearts. Use a macro lens for this shot, or, if you don't have one, set your lens' minimum focusing distance (focus as close as you can to the subject) to get the rings and book filling the frame.

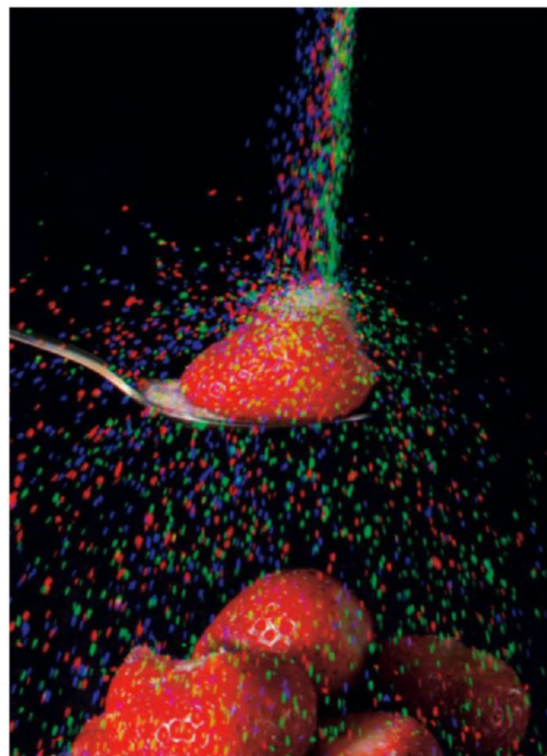


18 Gig photography

The summer is festival time and parties go on late into the night. It's time to ramp up the ISO on your Nikon and shoot your lens wide open to capture the sharpest and more dramatic gig photos. Don't forget to shoot the crowds, too – they're full of personality.

19 Harris shutter effect

The traditional way to get this effect is to expose the same frame of film three times through red, green and blue filters while the camera remains in a fixed position, so in the resulting image static elements retain their normal colours, but moving elements are rendered as red, green and blue. However, it's much simpler to achieve digitally. Take three consecutive shots of a moving subject, isolating the red, green and blue colour channels in Photoshop, and then combining the three images with a Multiply blending mode on each layer. Any still elements in the photo – such as our strawberries – will appear in their correct colours – but moving ones will be broken down into red, green and blue.



20 A mad tea party

Make the most of the sunshine and have a tea party in your back garden, or go and have a picnic at the park. Either way, set up your scene with plenty of nibbles and star in your very own self-portrait composite image. By keeping your Nikon on a tripod and taking a photo when you're in each position you'll be able to mask in the different 'you's' together for the final shot. You might even get costumes and make a themed photo, like this Alice in Wonderland-themed shot here. Use the same technique as project 7 (Up, up and away) to composite your images together in Photoshop.





21

The Brenizer portrait

Named after famed wedding photographer Ryan Brenizer, this technique will make your shot look like it has an ultra-shallow depth of field. Choose a telephoto lens and open the aperture wide (for example, $f/4$) then take multiple photos of and around your subject, working in rows as you

would when shooting a panorama to ensure sufficient overlap. Stitch the shots together in Photoshop by going to File>Automate>Photomerge and selecting your images, then click OK. You'll end up with a shot that looks like it was taken at an extraordinarily wide aperture.



22

A colourfoil abstract

This is a great one to do when you're putting on a barbecue. Grab some spare foil and scrunch it up. Wrap it around a colourful object, like a couple of glasses of oil, and photograph the reflected colours in the crumples of the foil.



23

Upside down, downside up

When you happen upon a still, mirror-like lake you know you just have to pull out the Nikon for a photo. But what you may not think of is flipping that image upside down. If the reflection's good enough, it might fool people into believing the photo is the right way up.





24 Tilt-shift toy story

Get up high above a city and shoot down with a tilt-shift lens. Use the tilt function to create the 'toy town' shallow-depth-of-field effect. Alternatively, you could shoot on a regular lens and add a tilt-shift blur in your favourite image editing software. A narrow aperture will help to enhance this technique, but it's not essential.



25 A sheet of paper

Here's a quick inside project to get your creative juices flowing: take a sheet of paper and try to create five different photos with it. Set yourself one rule to make it harder – you can't cut it up. You could even see if you can recreate the *N-Photo* logo with just one sheet. Use a desk lamp for some light to embellish the texture of the creases.



26 Shoot a popular saying

This is a great way to beat photographer's block. Take a popular saying, (such as 'a storm in a teacup') and bring it to life with your Nikon. It doesn't have to be complicated to work. If you want more of a challenge, try representing song, movie or book titles. For the image illustrated, stick a lit sparkler in a tea cup and use an exposure of around 1 sec to capture the motion of the flying sparks.



27

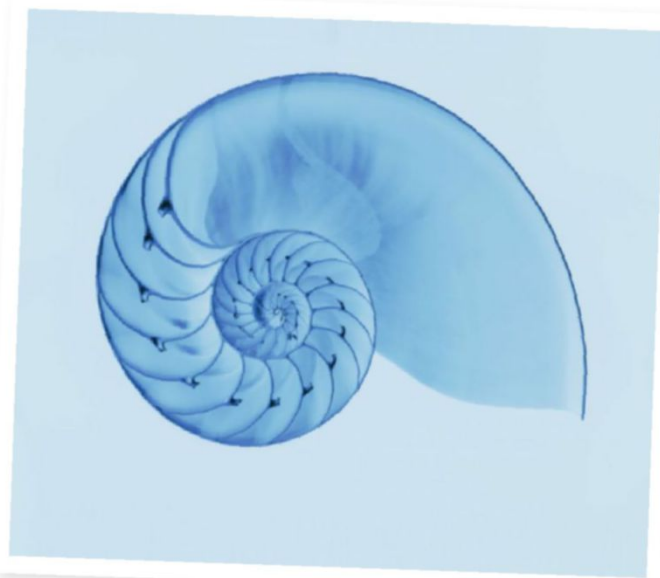
Master the art of the abstract

When we're faced with a big scene or a big subject, we instinctively try to fit the whole thing in. Why not fight your urges and use your Nikon to isolate sections of the subject? Filling the frame with one detail is a great way to make an impact. Look for shadows, shapes and textures, and don't be afraid to be abstract – you don't need the final shot to be indicative of the original subject. Create something new out of something familiar.

28

Scanograms

When it comes to beach combing, you might not think that what you find could end up in print. However, taking a quick shot of a shell on a piece of black card can be impactful, especially if the shell has a degree of symmetry, or curves in a logarithmic spiral. Invert the colour image in Photoshop for a different 'X-ray' look.





29

Slow sync flash dancer

This shot combines a model's movement with a finished pose at the end of the exposure. Set your flash to rear-curtain sync, so it will fire at the end of an exposure. In a dark room, set a slow shutter speed (1 sec is good, though the exact speed will depend on the darkness of the room) and use some continuous lights to highlight a portion of your model's body. As your model moves, their body will blur under the continuous light. Position the flash at their face and shoulder line to freeze the model at the end of the movement.

30

Summer in close up

Sun-drenched beaches and golden cornfields are all very well, but you don't have to look at summer from a distance. Find flowers, grasses and other small subjects, and get really close to them with your macro lens (or a regular lens used with a reversing ring, if you don't have a dedicated macro lens) to capture the little gems that help make the season.

Lighting is important for subjects like this; you want your subject to be well-lit enough for the detail and texture to be visible, but not lit so harshly that strong shadows spoil everything. If you're shooting your subjects on location, diffuse the sunlight. You could use the diffuser part of a five-in-one reflector, but for really tiny subjects a sheet of paper or translucent plastic will work just as well, and will be much easier to transport.



31

Aim for the stars

Shoot a long exposure at night during a period of clear weather. Heading to the coast is a good way of avoiding light pollution, and can provide some dramatic rocky foregrounds, especially when you have interesting formations like Durdle Door here. Take your wide-angle lens – a Nikon 14-24mm is a great full-frame choice – as it'll fit a lot of sky in and you may even be able to capture the Milky Way.

Stephen Banks



32

Capture a single colour

Restrict yourself to one colour and capture a collection of photographs entirely, or predominantly, in that colour. You might choose black, or yellow perhaps (not that *N-Photo* would be biased towards those colours at all...), or some suitably summery colour. Try to shoot 20 photos of each colour. You'll find your eye picking things out as the summer progresses.

Image: iStock



33

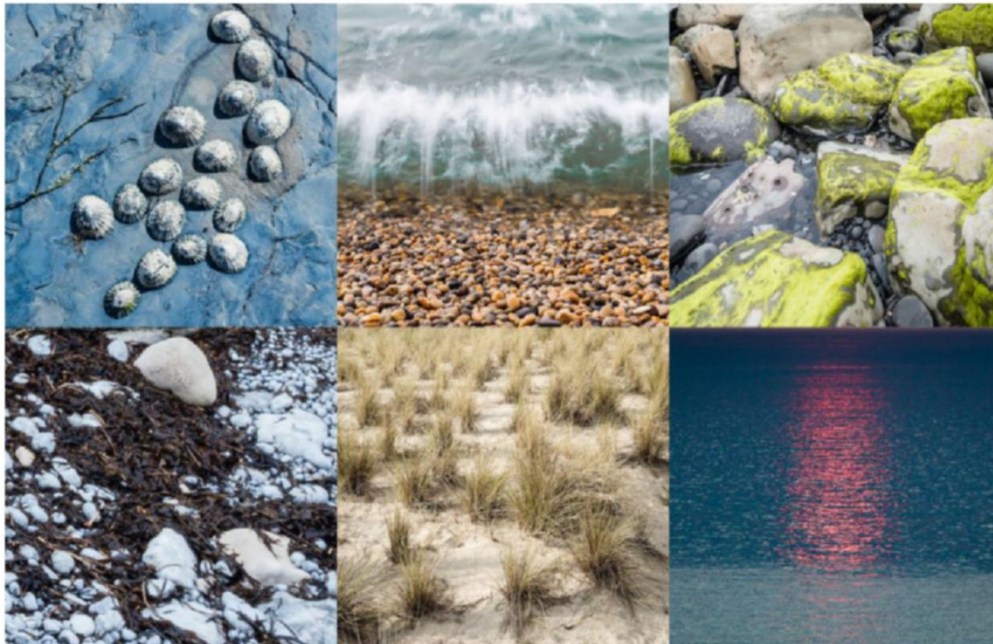
Double-exposure portraits

Make a double-take on your standard portrait by shooting the same portrait twice using either the Multiple Exposure option in your Nikon's Shooting menu or the Image Overlay option in the Retouch menu. Have your subject alter their expression slightly between photos, but line up the eyes as best you can with each photo.



34 The window lightbox

Want that classic high-key look without spending a lot of money on backdrops? Tape some tracing paper over a window on an overcast day, then photograph your subject in front of it. Overexpose the shot a little to clip the highlights. You can do this by adding positive exposure compensation in aperture- or shutter-priority modes, or by simply opening the aperture wider or increasing the ISO if in manual mode.



35

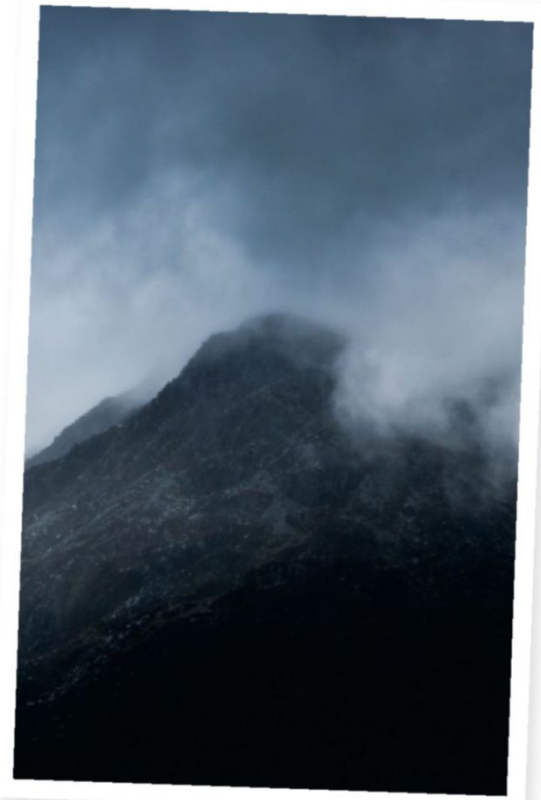
Deconstruct a landscape

Convey the essence of one big landscape using smaller portions of it. By moving in close with your Nikon and photographing details, such as individual plants, rocks or creatures, you can capture the essence of a landscape without having to fit the whole thing in one perfect frame. Once you have multiple photos of your scene, crop each one square on the computer and create a multi-panel image by placing them alongside each other.



36 Extraordinary ordinary

This is a hard one to get right: to take something dull and everyday, and turn it into something artistic. You'll need to take some time perfecting your composition, lighting and depth of field to suit your subject, but try not to alter anything in your scene – shoot what you're presented with, the blander the better. Be selective about what you include in the frame, too, as these will affect how your boring object is perceived. Remember, if it's not in the frame, it doesn't exist!



37 Photos in the rain

It's not always going to be sunny during the summer (especially if you're in Britain!), so make the most of the rain if and when it does come. Look for low cloud dragging across craggy mountains or hilltops, and desaturate your image a little in your editing software later.





38

Free lensing

This one is cheap and fun, although it can leave your Nikon's sensor exposed to dust: just take your lens off your camera and hold it just in front of the lens mount. As you twist and angle the lens you can get some cool blurred and vignetted effects. Shutter and ISO are the only two controls you can adjust, unless your lens has an aperture ring.



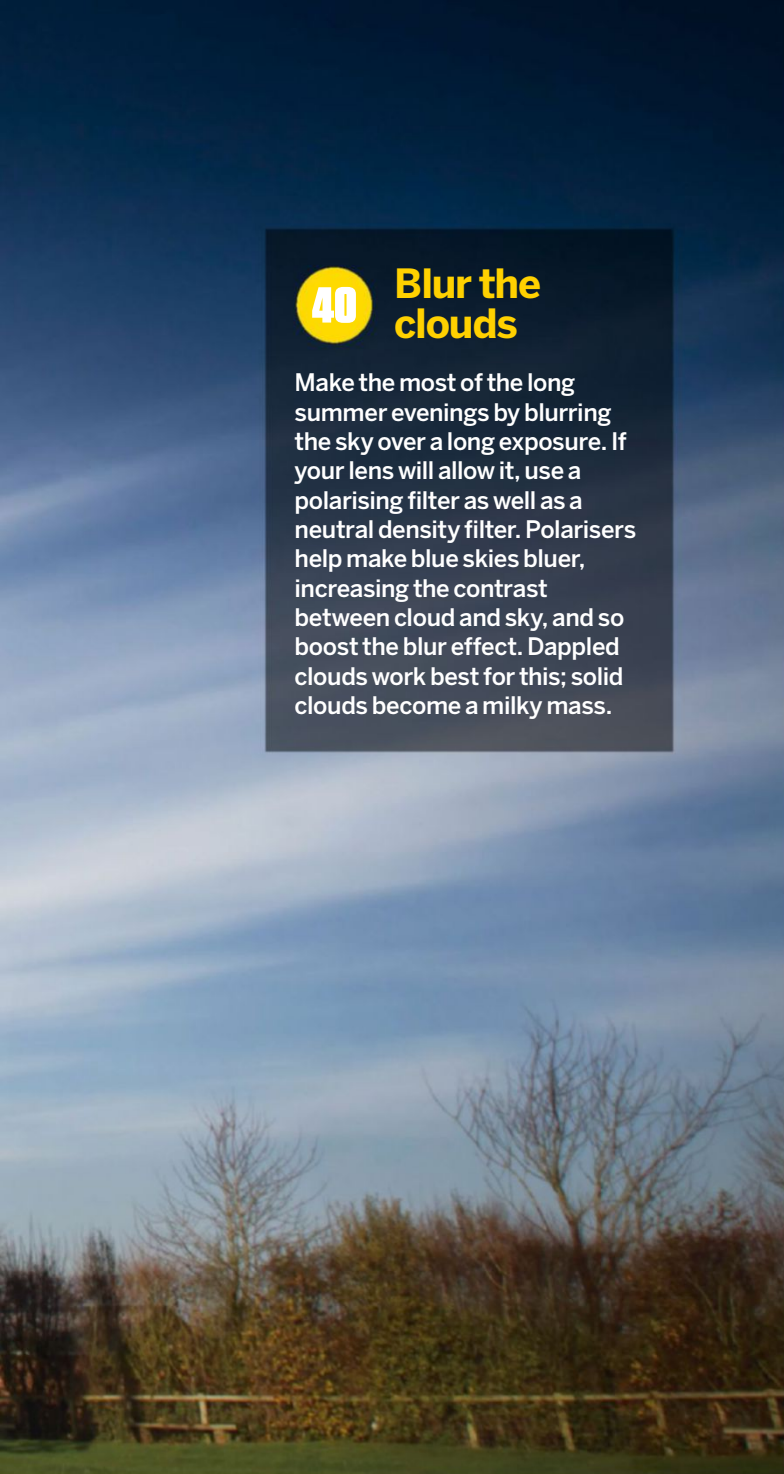
39

Portrait with reflection

If you're lucky enough to be by a pond or lake this summer, use that mill-pond-like reflection for a portrait that makes twice the impression. Have your model or friend sit down next to the lake and fit both them and their reflection in the frame, with the point where lands meets water placed centrally for symmetry. Use a medium aperture, of around $f/5.6$ or $f/8$, to give a decent depth of field, ensuring the model and reflection are both as sharp as possible, and a short shutter speed to capture the texture of the water.

40 Blur the clouds

Make the most of the long summer evenings by blurring the sky over a long exposure. If your lens will allow it, use a polarising filter as well as a neutral density filter. Polarisers help make blue skies bluer, increasing the contrast between cloud and sky, and so boost the blur effect. Dappled clouds work best for this; solid clouds become a milky mass.



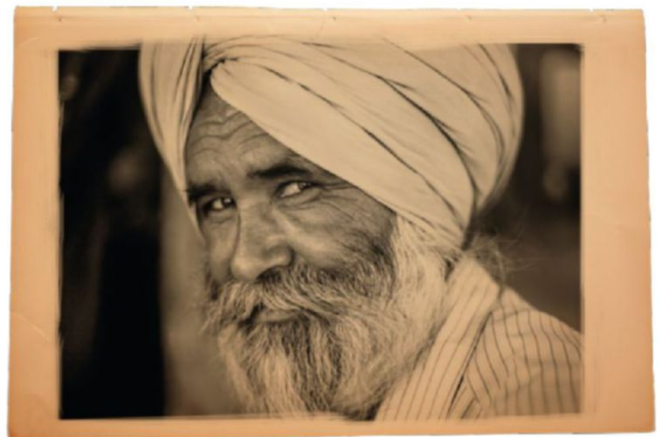
41 Through the viewfinder

Light goes through the lens, bounces off your D-SLR mirror, refracts through a glass prism and comes out through the viewfinder. The this also happens the other way – light goes through your viewfinder, refracts through the glass prism, and bounces off the mirror. If you look at the mirror you'll see a tiny, blurry scene coming in through the viewfinder. Grab a macro lens and photograph that scene. Or if you have one, use a twin lens reflex camera as it has a larger viewfinder on the top of the body and any flaws in the lens and viewfinder give a charming vintage effect.



42 Unique photo prints

If you're looking for ways to make your prints stand out from the crowd, we'd suggest trying products from inkAID (www.inkaid.com). The company has developed a range of 'inkjet-receptive' coatings which enable you to print on almost any product you can run through your printer. Simply brushing on a couple of coatings and allowing them to air-dry turns fine-art paper, fabric, film, plastic, wood, copper and more into print-ready substrates. While paper poses no problem for a regular photo printer, you'll need a model that features a straight paper path when dealing with thicker, rigid material. As you might expect, experimenting is key, and some inkAID coatings are more effective with certain materials than others. The way you apply the coating also makes a difference to the finish. Although you can use a glass rod to ensure a smooth application across the surface, using a brush will give an additional layer of texture that can enhance the bespoke nature of your prints.



43 Polar panorama

Create a globe in the same way you'd shoot a 360-degree panorama. Once you have shot your scene, open Photoshop and go to File>Automate>Photomerge to stitch the panorama, using the Clone Stamp Tool to add more sky if required. Crop the shot square, then go to Image>Image Rotation>180, and finally apply Filter>Distort>Polar Coordinates, ticking Rectangular to Polar.



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NIKON SKILLS

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INGENIOUS RECIPES FOR STUNNING SHOTS



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Get a fantastic underwater portrait in a swimming pool



WATCH THE VIDEO



Whenever you see this logo, it means there's a video to accompany the tutorial, taking you through things step-by-step. You can watch all of our photography tutorial videos online – just go to bit.ly/NPhoto62



The mission

- To include strong lines in your frame to lead the eye around the image

Time

- One hour

Skill level

- Beginner
- Intermediate
- Advanced

Kit needed

- Nikon D-SLR
- Wide-angle lens
- Tripod (optional)
- ND filter for long exposures

PROJECT ONE / CAMERA TECHNIQUES

Take the lead

James Paterson explains how strong lines can improve the composition of your landscapes

When we gaze upon a scene or an image, our eyes are naturally drawn towards lines and shapes that lead from one point to another. Scientific studies that track eye movement have proved

this, and as photographers we can use it to our advantage when composing a photo. Include strong lines and you can lead the eye towards your subject.

It's a simple but very powerful visual device. Look around and

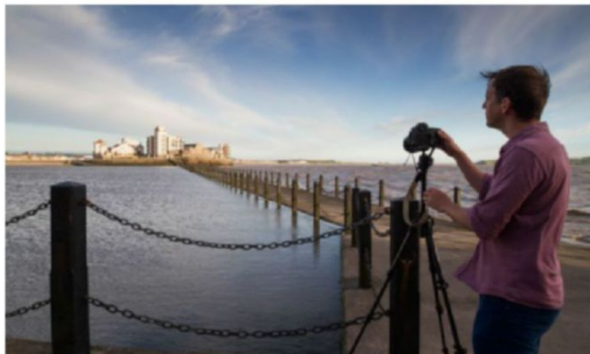
you'll find leading lines everywhere in the landscape. There are man-made lines created by roads, walls and buildings, then there are natural lines like rivers, trees and the horizon. But if there's one location that guarantees lines more than any other, it's the coast. Not only is there the natural break between land and sea, there are also many man-made lines in piers, jetties and walkways that offer plenty of compositional gifts for those willing to look for them.

Leading lines are a useful way to simplify a composition, so it's a visual device that goes hand in hand with other simplifying techniques like using a long exposure to blur water here. In this project, we'll explore both techniques – how to use both leading lines and motion blur to strengthen your compositions.



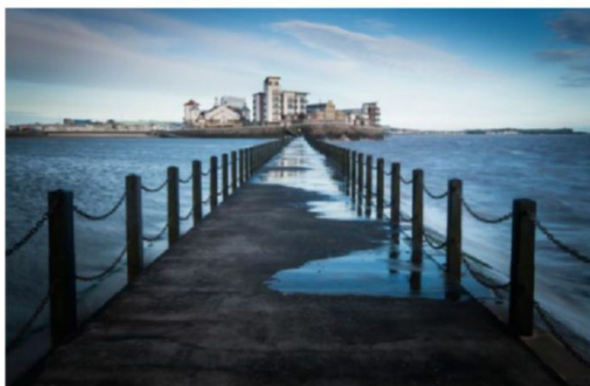
Our eyes are naturally drawn towards lines and shapes that lead from one point to another

TOP TIPS / On the straight and narrow



1 Walk the line

Stroll around any location and you'll find plenty of lines to work with. For landscapes, the ideal line leads the eye from the foreground to a distant subject (a path or wall will do this), but interpreted more loosely, 'leading lines' could mean any line that draws the eye into the frame.



3 On the road

Paths are a classic compositional device for drawing the eye. You can either position the path so that it comes into the frame from the side, or shoot from the centre for symmetrical lines that lead inwards. If you opt for the latter, make sure your camera is placed dead centre.



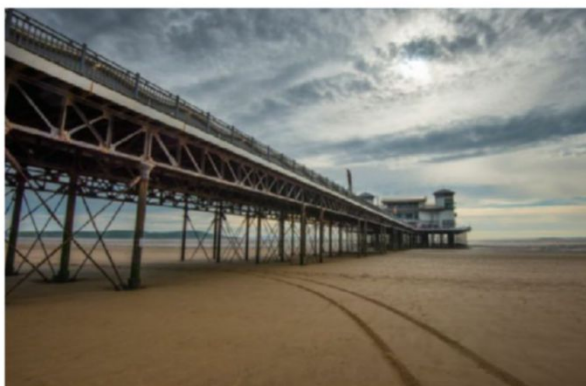
5 Point to a person

Often you'll see a strong line, but find it doesn't lead anywhere interesting. Try including a person in the frame, positioned at the perfect point where the lines converge. You could either direct someone into place, or set up the shot and wait for a convenient passer-by.



2 Into a corner

Try framing lines so they spring from one of the corners, leading the eye towards background details. A wide-angle lens can help to exaggerate the perspective so that the line converges towards a distant point. We've used a 16-35mm lens on a D800 here.



4 Line drawing

If there aren't any lines to hand, why not make your own? You could do it by positioning a piece of driftwood, shifting a few stones, or marking a line in the sand. Here the tracks of a beach buggy strengthen the composition and help to draw the eye towards the pier.



6 Sea changes

As well as solid lines, there are also lines that will appear and disappear throughout the day. When the tide came in here, the trails of water created their own lines and patterns. Fleeting lines can appear in cloud formations and shadows too, especially when the sun is low.

Beautiful blurred water

Neutral Density filters lessen the flow of light into your lens, enabling you to lower your shutter speed (making a tripod a must) for a blurred water effect. ND filters come in different strengths or 'stops', from subtle to almost opaque. The strength you need will depend on how slow you want to go. Each stop lets you double your shutter speed, so a three-stop ND reduces 1/60 sec to around 1/8 sec, while a 10-stopper takes 1/60 sec to 15 seconds.



Quick tip

Depth of field extends twice as far beyond the point of focus than in front of it, so if you focus one third of the way into the scene and use a narrow aperture, you can be sure of front-to-back sharpness



The mission

- To capture the curl of a wave

Time

- 30 minutes

Skill level

- Beginner
- Intermediate
- Advanced

Kit needed

- Nikon D-SLR
- Wide-angle lens
- Waterproof bag or housing
- Towel

PROJECT TWO / CREATIVE TECHNIQUES

Catch a wave

Jason Parnell-Brookes shows you how to stay below the water line with this deceptively simple technique for shooting inside waves

We've all sat on the beach with a long lens shooting the waves as they lap against the shore. But have you ever run into the sea with your Nikon in your hands? That's not as crazy as it sounds. With a waterproof bag for your Nikon D-SLR you can keep your pride and joy dry while hopping in the water and photographing inside a wave.

You'll need to use a wide-angle lens and pop your Nikon inside a

waterproof bag (or housing). Remember to bring a towel as well so you can dry off afterwards. Checking the tidal swell online and punching in a couple of settings beforehand is

really important, too. As long as you prepare for this shoot properly, you can come away with some sharp images of the water in no time. So let's take a dip and get our toes wet...



Checking the tidal swell online and punching in a couple of settings beforehand is really important... Prepare for this shoot properly



STEP BY STEP / Sea for yourself



1 Feeling swell

On a shoot like this, weather isn't as important as tidal swell and wind speed/direction. To find out the size of the surf in your location use the website magicseaweed.com (or the MSW smartphone app) – it'll tell you the size of waves you can expect over the next week or so.



2 Suits you

If the weather is good and you just want to have a play with your Nikon, pop some old shorts and a T-shirt on, but if the weather is bad, or you're taking things a bit more seriously, you'll be much more comfortable in a wetsuit. Renting one costs about £10/\$20 a day.



3 Bag it up

Keep your camera dry by putting it in waterproof housing. Dedicated D-SLR waterproof housing can cost thousands, whereas a waterproof D-SLR bag costs between £50-£100/\$75-\$150. We recommend testing the bag without the camera before starting out.



4 Sharp continuous focus

Select AF-C in the autofocus menu (hold down the AF button and turn the command dial until AF-C is displayed). If you find that it isn't hitting the mark, put your lens into manual focus and preset the focus to around one to two metres to get the first part of the wave nice and sharp.



5 Freeze the sea

In aperture-priority mode, set an aperture of f/13 to maximise the depth of field and get as much of the scene in focus as possible. Set continuous burst drive on your Nikon. Choose an ISO between 400-800 to ensure the camera chooses a fast shutter speed to freeze the wave.

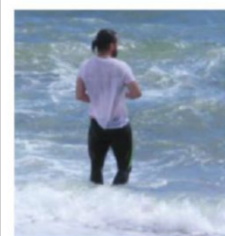


6 Check for clipping

In the Playback menu, under Playback display options make sure Highlights is ticked, then navigate to a photo and use your multi selector to check for clipped highlights – clipped areas will flash. We dialled in -0.67 stops of exposure compensation for this reason.

Composition

It'll be tricky to look through the viewfinder underwater, if at all, so periodically move back towards the beach and double-check your composition. Try working with the rule of thirds, or if there's a bit of seaweed, stick it in the centre of the frame for a symmetrical shot.



Quick tip

A wide-angle lens will make it easier to focus and include a lot more of your wave in the final shot – which means you don't have to go too deep into the water to get great results



The mission

- To shoot a dynamic action shot with a fisheye lens and a flashgun

Time

- 30 minutes

Skill level

- Beginner
- Intermediate
- Advanced

Kit needed

- Nikon D-SLR
- Fisheye lens
- Flashgun
- Wireless trigger
- Tripod or light stand

PROJECT THREE / GEAR ESSENTIALS

Take it all in

Fisheye lenses offer an unusual angle of view that perfectly complements flash-lit action shots, explains **James Paterson**

Manufacturers take great care to ensure lenses will produce minimal distortion, so that straight lines in a scene will be captured straight in the image. With fisheye lenses, however, they forego this approach and instead cram as many degrees of

view as possible into the frame. The result is extreme distortion, with curvature that gets more pronounced the further things are from the centre of the frame.

The widest fisheyes can capture a 180-degree view, but these are the 'circular' kind that produce a circular image

surrounded by black. The 'diagonal' fisheye lenses are less wide but produce a more practical rectangular image. The Nikon 10.5mm DX lens we used here gives a rectangular image and offers 180 degrees across the diagonals of the frame.

A fisheye is a specialist lens, and you wouldn't want to use it every day. But it can give images a dynamic feel that's ideal for certain subjects, like sports. It's also the kind of look that will benefit from moody off-camera flash. Here's how to get started...



A fisheye... can give images a dynamic feel that's ideal for certain subjects, like sports



STEP BY STEP / On your bike



1 Find unusual angles

Find an unusual angle to make the most of the fisheye effect. For our shot, James lay down on the ground and composed it so that the path and rails are at the edges of the frame, where the curvature is most extreme.



3 Light with flash

A flash set to Manual at 1/4 power and fired by a wireless trigger lights the subject from the side. You can see the burst in the top-left corner of the image – a happy accident that shows the extreme angle of view.



2 Get in close

It's best to use a fisheye lens really close to your subject. The minimum focusing distance on our Nikon 10.5mm is just 3cm, so we had to wait until the bike wheel passed a few inches from the lens before firing the shutter.



4 Exposure info

When using off-camera flash, it's usually best to put your Nikon in Manual mode. We set 1/250 sec, ISO400. As the apparent depth of field with fisheyes is huge, even an aperture of f/5.6 gives near front-to-back sharpness.

Which fisheye?

Broadly speaking there are two kinds of fisheye: those that produce a circular image surrounded by black, and those that give more image, but less field of view. The Nikon 10.5mm f/2.8 lens used here is a DX lens, so designed for crop-sensor cameras. Nikon's 16mm fisheye may be a better option if you use a full frame camera. A good fisheye doesn't come cheap, so it might be one to rent or borrow before you buy. If you're on a tighter budget, there are also good third-party options, like the Sigma 10mm and Samyang 8mm.



KEY SKILLS / When to pull out the fisheye



1 Curvy architecture

Fisheyes can come in handy for architectural shots, especially for scenes where the curvature adds something extra to the composition. It is possible to correct the distortion with software like Photoshop, but we think the distortion is part of the charm.



2 Funny portraits

A fisheye is a lens to pull out of the kitbag if you want to try a funny portrait or pet photo. Framing the head in close to the lens will give you an unusual, distorted angle of the subject. It's also great if you like to shoot video with your Nikon, as you can go for extreme angles.



Quick tip

Unwanted fisheye distortion is a cinch to correct in Lightroom – simply click 'Enable Profile Corrections' in the Lens Correction panel



The mission

- To make a mobile macro lighting studio

Time

- 30 minutes

Skill level

- Beginner
- Intermediate
- Advanced

Kit needed

- Nikon D-SLR
- Flashgun
- Flash bracket
- Flash trigger cable
- Flashgun diffuser

PROJECT FOUR / TEACH YOURSELF FLASH

Think small

Jason Parnell-Brookes shows you how to make a robust, mobile, macro lighting studio that fits into your hands

This issue, we're going to show you how to go guerilla-style and make your own macro lighting set-up that will work anywhere, at any time, and save space in your camera bag, as well as being relatively cheap. There's no

need for clunky ring flashes, or dual flash heads that sit on the end of your lens. You need just one flashgun, a Nikon D-SLR, a lens, a flash bracket, a wired flash trigger and a light diffuser to make a robust, mobile, macro studio. Diffusing the light is the

extra step that will enable you to take a studio-like portrait of your macro subject. You can mount everything together using the flash bracket and can lock in the settings you need to get perfect results every time. Here's how it's done...

Teach Yourself Flash
Part 4



STEP BY STEP / Macro for not mucho



1 Reverse gear

A macro lens or even a kit lens is fine for this shoot, but we opted to reverse a wide-angle lens to keep our kit as light and as cheap as possible. We used a Nikon 24mm f/2.8 lens. Whatever you use, switch the lens to manual focus and choose the minimum focusing distance.



2 Down to the wire

Cables are the most reliable way to trigger an off-camera flash, and they're ideal for this project. (We used the Yongnuo SC-28A.) Put one end on your Nikon's hotshoe and lock the wire in place, then seat the flashgun on the hotshoe at the other end of the cable.



3 A place for everything...

Use the bracket to position the flash above the lens, but without it poking over the front element. You want the light to be as close to the subject as possible – that way, you'll need less power, resulting in quicker recycle times, and the light will be softer, too.



4 Soft options

You need to soften the light, and there are many options for this. You could just use a sheet of paper, or make a softbox from a box with tissue paper over the flash hole. We chose a blow-up diffuser designed for flashguns because it's waterproof and can be inflated quickly.



5 Settings

Use manual mode. Set your aperture to f/8, and a shutter speed to match the sync speed of the flash (for us, 1/200 sec) and as high an ISO as you can. (We used ISO200 as ISO100 was too dark.) We set 1/16 flash power as it exposed our subject well without clipping the highlights.



6 Keep going

The depth of field is so narrow with macro photography that you'll need to rock back and forth from your subject while shooting in continuous drive. This way, a different portion of the subject will be in focus in each shot, and you can be selective when choosing the best photo.



Quick tip

We put the lens on backwards to give us close-focusing capabilities. Simply hold the lens backwards against the camera body, or use a reversing ring to hold the lens in place. (See issue 58's Big Project for more on this)



Spray and pray

Arthropods move more slowly in cold conditions, so early morning is the best time to photograph them. It's likely that you'll get dew on the plants and arthropods because of the colder temperatures overnight, but if you don't want to get up early, spray them with water to create the same effect.





BEFORE



AFTER



The mission

- To use masks to select areas for adjustment

Time

- Ten minutes

Skill level

- Beginner
- Intermediate
- Advanced

Kit needed

- Lightroom 5 or later

PROJECT FIVE / TEACH YOURSELF LIGHTROOM

Edit with masks

George Cairns helps you to use masks to precisely select areas for tonal adjustment

Last issue we demonstrated how to use the Adjustment brush to dodge some dark standing stones, while burning more detail into the brighter sky. By altering the size, softness and flow of the Adjustment brush, you can target and tweak the tones of specific objects with precision.

When you click on a photo with the Adjustment brush you place an Edit pin. This pin records the

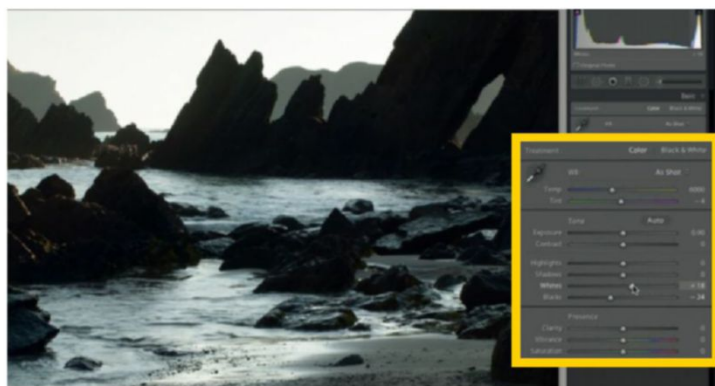
position and strength of all the tonal adjustments you make. Thanks to Edit pins you can make multiple adjustments to a photo and then click on a pin to fine-tune its effect at any time. If you click on a pin and drag it to the right, you can increase the value setting of each associated slider to, say, brighten the image more or boost the contrast more. Drag left on a pin to reduce the slider settings.

Last issue we also introduced masks. By moving the mouse over a particular pin, you can see a red mask overlay that indicates which areas are being adjusted by that pin. The Adjustment brush strokes we used to lighten the stones were fairly soft and imprecise. It would be quite easy for the brush tip to stray over the background and lighten the sky or ground. This time we'll show you how to use auto masking to dodge and burn with much more precision, so you can lighten the complex jagged edges of the dark rocks in our starting image without blowing out the background details.



We'll show you how to use auto masking to dodge and burn with much more precision

STEP BY STEP / Behind the mask



1 Improve the tonal range

Import the start file, TYLR12.dng, into Lightroom's Library and click on Develop. In the histogram window you can see that the graph doesn't quite stretch to the far left. Drag the Blacks slider to -24 and Whites up to +18. Push Clarity up to +30 to increase the midtone contrast. The colours are rather weak, so push Vibrance up to +49.



2 Get specific

To tackle the under-exposed rocks, press K to select the Adjustment brush. Click on the Effect menu and choose Dodge (Lighten). Set Exposure +0.43, Contrast +34, Shadows +24 and Clarity +26. Push the Flow slider up to 100. Use the Navigator to zoom in to 1:2 magnification. Click to put a pin on the rock and paint to reveal detail.

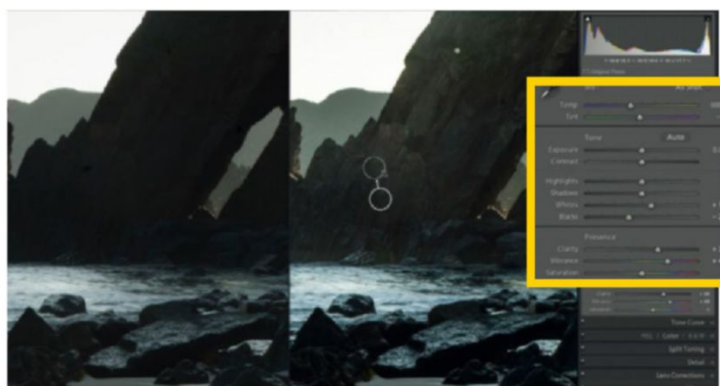


3 Activate the mask

Hover the cursor over the Edit pin to see a red mask overlay indicating the edited areas. To turn the overlay on permanently, tick the Show Selected Mask Overlay box at the bottom-left of the photo. Some of the Adjustment brush's strokes may have strayed over the background; fortunately you can tidy up the mask.

4 Erase the untidy areas

Go to the Brush section and click on Erase. This gives you a new cursor with a minus icon inside it. Set Size 10, Feather 21, and Flow 100. By default the Auto Mask box is ticked. This enables the Erase brush to understand changes in contrast. Paint on the edges of the rock. The Erase brush will protect the lighter background from the adjustment.



5 Use Auto Mask

In the Brush section, click on A to access your original Adjustment brush settings. Tick the Auto Mask box. Paint around the edges of the dark rock – Auto Mask will stop it selecting lighter background details. Keep Auto Mask active as you paint around the edges, but turn it off when painting inside the remaining sections of the rock.

6 Add the finishing touches

Turn off the mask overlay to see the lightened rocks. Boost the Shadows to 44 to reveal even more texture. Click on Done when you're happy. Click on the Before and After icon to see the effect of your adjustments. Lightening the rock has revealed some sensor spots. Use the Spot Removal tool (see issue 60) to replace them.



The mission

- To set up, light and shoot an underwater portrait

Time

- Two hours

Skill level

- Beginner
- Intermediate
- Advanced

Kit needed

- Nikon D-SLR with pop-up flash
- Underwater D-SLR case
- Two flashguns with waterproof cases
- Two light stands
- Clamps
- Diffuser panel
- Goggles

PROJECT SIX / THE BIG PROJECT

Take the plunge

Ever wanted to try an underwater portrait shoot but not sure how to go about it? **James Paterson** guides you through uncharted waters

With dedicated camera housings, waterproof lights and all manner of accessories, underwater photography can be expensive. The kit could easily cost thousands. But that type of gear is built to withstand the open seas. In a swimming pool, you don't need to jump in at the financial deep end and you can achieve great results at a fraction of the cost.

It's not the easiest shooting environment, but

being underwater has an effect on hair and clothes that's impossible to find anywhere else. As such, the swimming pool at your local sports centre, school or even a holiday villa is the ideal place to stage a portrait shoot with a difference. You could capture the kids having fun, or go all-out for an underwater fashion shoot like this.

As for the gear, all you need is a waterproof D-SLR bag like the ewa-marine case we used here. These

are soft, so you control the camera through the material. They're far cheaper than dedicated hard underwater housings, and fit for purpose on a shoot like this. Slightly more involved is the lighting. While it's possible to use ambient light alone (especially in outdoor pools), light falls off very quickly and turns blue as it passes through water, so for greater clarity, a couple of flashguns, also placed in waterproof bags, will do the job. Here's how...







ON LOCATION / Just add water

1 Housing

The camera sits snug and dry inside the soft, watertight housing. You compose, focus and press the shutter through the clear material.

2 Flashguns

Two flashguns are placed in watertight bags and clamped to stands. They are set to optical slave, so that they are triggered by the Nikon's pop-up flash.

3 Camera settings

We set manual mode, 1/200 sec, f/10 and ISO160, with the flashes in manual on full power. We jammed the pop-up flash open with a piece of foam.

4 Diffuser panel

Whether above or under water, light from a flashgun is hard-edged. Fire the frontal light through the diffuser part of a five-in-one reflector to soften it.

Safety first

This is a shoot only worth attempting if you and your subject are comfortable in the water. Safety is our first concern, so we stuck to the shallows. The outfits we used are all made of light material, which not only means they float attractively, but also won't let them get too sodden and heavy.

KEY SKILLS / Simple underwater lighting



1 Trigger the flash

You need to go old-school and use the camera's pop-up flash to trigger the two remote flashguns (each set to optical slave). For simple 'cross-lighting', position one flashgun behind and above the water, and the other to the side of the camera with a diffuser panel to soften it.



2 Backlight the body

Backlighting the subject with a flash from behind creates an edge highlight along their side, separating them from the background. Once the flashes are in the bags it's hard to adjust the power, but you can move them closer or further away to control the intensity.



STEP BY STEP / Things to try in the pool



1 Surface reflections

Seen from below, the surface creates beautiful reflections of your subject, so try shooting with an upwards angle. Get in close to the subject with a wide-angle lens, too, as the further away you are, the more interference there will be from the water.



2 Work the poses

Posing underwater takes some getting used to. You don't want the subject to look as if they're holding their breath, and ideally you want their eyes to be open. Try asking them to swim towards you, or capture a side-on, sinking pose like this.



3 Bring floaty outfits

The outfits we used are all made of really light material. Not only does this give them an ethereal, fluttering quality, it means they won't weigh down the model. Some materials like silk can be ruined by the water, so look for synthetic chiffon, netting and light polyester.



4 Try a dive

A dive from the side of the pool can look fantastic when seen from under the water. Here our video expert Pete took the plunge. When the subject is coming towards you fast like this it's easier to pre-focus on a spot, then fire when they reach it.



5 Billowing bubbles

Ask your underwater model to plunge down from out of the water to create beautiful trails of backlit bubbles. Our model Catherine found that it worked best to sink down first, then to break the surface of the water with her arms and drag downwards.



6 On the surface

As well as taking photographs under the water it's also worth trying a few shots on the surface, or perhaps with the subject half-in, half out. This shot also gives you an idea where our Speedlight is placed for the backlighting that you can see in some of our shots.

Waterproof D-SLR bags

Three well known brands of waterproof D-SLR bags are DiCAPac, ewa-marine and Aquapac. For our shoot here we used the ewa-marine for the D-SLR then put the flashguns in the other bags, although the flashes could just as easily go in any watertight clear container.

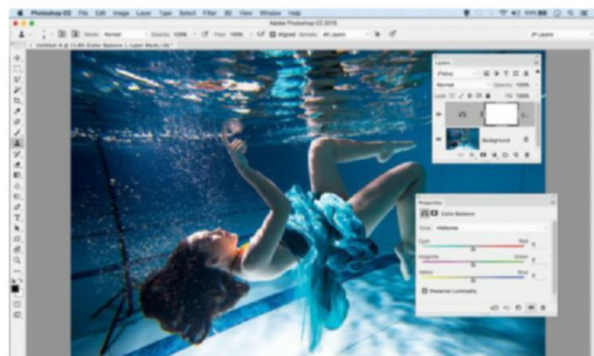
Teamwork

A shoot like this is as much about teamwork and communication as it is about technique and lighting skills. Before going under, explain to the model how things will work. It helps to co-ordinate, perhaps with a 'one-two-three-go' as you both duck under. Take regular breaks too, as it can be hard on the eyes as well as the lungs.



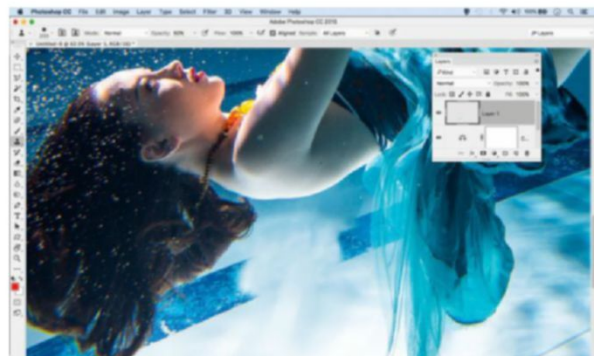
STEP BY STEP /

Post-production perfection



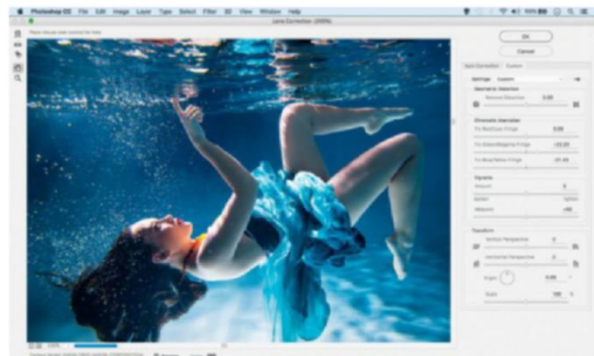
1 Water colours

White balance can be off underwater, so shoot in RAW. In Adobe Camera Raw, grab the White Balance tool and click over a point that should be neutral to fix colour casts. Next, open the image in Photoshop and tweak the colours with a Color Balance Adjustment Layer.



2 Tidy the background

Pool markings can be distracting, so remove them for a seamless background. The two tools for the job are the Clone Stamp Tool and Spot Healing Brush. Both can be set to Sample All Layers, so make your edits on a new, empty layer to preserve the original image.



3 Fix chromatic aberration

Using a housing means shooting through extra glass or plastic, so you might find colour fringing affects edge details in your image. If this is the case, go to Filter>Lens Correction, then use the Manual tab and experiment with the three colour fringing sliders.



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Forthcoming workshops

Here are just a few of the workshops that Nikon School has got coming up in the next months...

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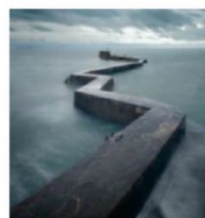
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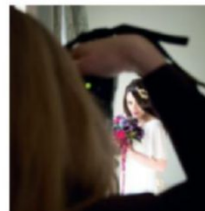
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OVER TO YOU...

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One lucky reader heads to the beach to capture the surf lifestyle



66 Portfolio review

A reader looks for help in taking architectural shots with more edge



All this issue's readers are making the most of the great outdoors, whether that's the incredible scenery of Scotland, or London's stunning modern skyscrapers. Our Apprentice is

capturing other people enjoying the outdoor life, as he gets a masterclass in photographing the ever-cool lifestyles of surfers down in Cornwall. Let all of them inspire you to pick up your camera and get out of the house – the perfect subject is waiting beyond your front door.

**N-Photo Magazine, Future Publishing,
Quay House, The Ambury, Bath, UK, BA1 1UA**

mail@nphotomag.com



THE **N**Photo APPRENTICE

Help me capture the soul of surfing!

We asked pro Anthony Greenwood to help reader David Eales capture the laid-back glamour of the surfing lifestyle, so they headed off to beautiful Cornwall for the day. Let's see their gnarly results...

THE PRO...

NAME Anthony Greenwood
CAMERA Nikon D700

Anthony's background is in fine art and design, and photography has always been a big part of his professional and private practice. In 2010 he became a pro photographer, and delivers marketing images for clients in the design, hospitality and holiday sectors in Cornwall. He always uses Nikon cameras, and only uses prime lenses, saying, "They are great quality and well made... they are more than capable of taking some abuse!"

anthony-greenwood.com

THE APPRENTICE...

NAME David Eales **CAMERAS** Nikon D810 & Nikon D4s

David started his working life in the Royal Marines and spent many years as a diver, so he was the perfect candidate for this issue's Apprentice. Now he's studying for a BA (Hons) degree in Photography at Plymouth College of Art as a mature student. After getting all the photography kit he'd ever need, including his D810 and D4s, he wants to be more hands-on, so he's rolled up his trousers and waded into the waters once more to join us on this surf lifestyle Apprentice shoot.



Introduction

Pro Anthony Greenwood and reader David Eales teamed up on Hayle beach in Cornwall. The three miles of flat golden sands, plus beautiful undulating dunes, offered the perfect spot to take some surf lifestyle photos. Armed with a D810, a few lenses and a flashgun, they had just one day to create a portfolio of atmospheric photos. Here's how they got on...

Technique assessment

WHAT'S THE PRIORITY?

Anthony says... I asked David to set his D810 up for our first shot of the day. He put it into aperture-priority mode and set an aperture of f/13. "I'll need it all in focus because we're in front of a landscape," David told me. But I suggested using a wider aperture like f/3.2 because we didn't actually want the whole scene to be in focus. We needed some blur to isolate our model, Jen, from the backdrop.



SPOT METERING

Anthony says... On a shoot like this, you need to be able to balance the light for your subject, not the surroundings.

Lifestyle clients quite like the scene to be blown out or thrown into shadow, as long as the subject (the model, or the clothes if you're shooting for a catalogue) are well exposed. I had David switch from matrix-metering mode to spot metering for more accurate light readings.



CONTINUOUS HIGH BURST

Anthony says... David was shooting in single-frame mode, which meant that even if he held the shutter button down longer than the shutter speed, the Nikon would only shoot one frame. I changed it to Continuous high burst mode for him, and then he could shoot multiple photos quickly as Jen walked up the dunes. This is essential when the model's position is always changing, like when she's walking. It's better to do this and pick out your favourite photograph on the computer later.



Our Apprentice says...

When we first rocked up at Hayle beach, Anthony suggested getting up high to pick spots to shoot. Our model, Jen, walked up the dunes first and we were so pleased at how this looked we decided to shoot her at the top.

Anthony suggested that the leading line of the sandy path should be placed on the bottom right-third of the frame, with Jen at the end of it. I was shooting this at the 24mm end of my 24-70mm lens to start with, but Jen was disappearing amid the grass. Anthony suggested I zoom to about 45mm and take a few steps forward to enlarge her in the frame and help separate her from the sky.



The atmosphere 1

← 'Lifestyle' means capturing the essence of what it is you're shooting. That sometimes means taking note of everything surrounding your subject. The model seems to be relaxing here before going for her surf. Note the props around her – the sandals, the blanket, the sunglasses. These details are all essential to bring this shot together.

The atmosphere 2

→ Push in closer with a tighter crop and focus on one thing. Here the model reads atop the dune, but you can still tell she's ready to surf because of the surf board behind. It's carefully considered details like this that will help to make your lifestyle images stand out from the crowd. Think in terms of the story that you're trying to tell and how you can get that across using just one or two items.



Expert insight Working with flash

Anthony says... If you're shooting towards darker or dull background then a bit of fill flash on your model's hair can help to highlight the top of their head and help them stand out more. If the model's close to a suitable prop, such as the open book in the shot above, or a white towel, that will also bounce light back into their face.

HOT SHOT #1

EXPOSURE 1/640 sec, f/3.2, ISO100
LENS Nikon AF-S 24-70mm f/2.8G ED



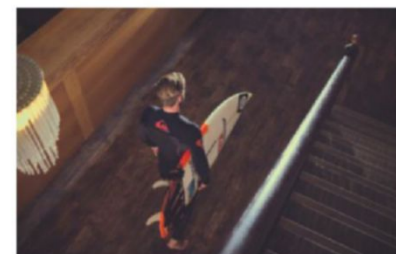


HOT SHOT #2

EXPOSURE 1/1250 sec. f/2.8, ISO100
LENS Nikon AF-S 24-70mm f/2.8G ED

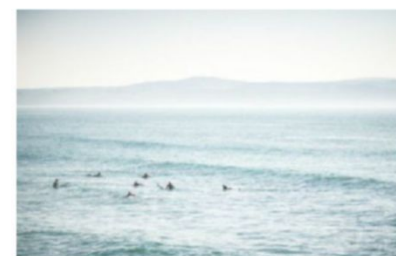
Pro Portfolio New wave

THREE OF ANTHONY'S FAVOURITE SHOTS
CAPTURING THE PLEASURE OF SURFING



SURFERS WELCOME

This was taken for the Fistril Beach Hotel in Newquay and represents how it is a relaxed and surf-friendly hotel, where you can go from your room to the surf. The main light was a reflector with a grid from the front, and the second light was a large softbox to soften the shadows on the model's back. It was shot in the reception of the hotel.



ALL AT SEA

This photo was taken at high tide at Gwithien. I was not the only photographer out on the beach that day, there were lots. I tried to simplify the composition to allow the viewer's focus to fall on the subject. Taking away any potentially distracting elements from this scene gives the photo a sense of serenity that is synonymous with surfing.



FAMILY VALUES

This photo was taken for a client, and is a representation of family, passion, and creativity, three principles that the client embraced as unique selling points. Post-production was quite heavy on this image, nudging towards Instagram filter styles. High contrast, over-saturation and colour bleeds help to give it a unique feel.



Our Apprentice says... Anthony and I moved down to our second location, a soft, clean sandy pathway leading down to the shore. I was tempted to use a narrower aperture, like f/8 or f/11, to maximise my depth of field, but Anthony suggested using a wide aperture still, to keep separating Jen from the background. I combined this technique with a low vantage point to emphasise the sharp/blur contrast between the model and the grassy dunes behind.

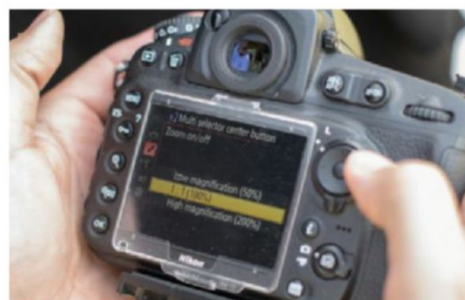
Expert insight Take control

Anthony says... Paying attention to the direction of the sun is crucial on a shoot like this. For the first photo we were shooting with the sun at our back or to the side, but now the clouds had parted a little and we were getting harsh shadows on the floor. I told Jen to walk away from David as he crouched down on the beachy path. The sky has blown out here, but that doesn't matter. It adds to the summery feel of the photo. "Sometimes rules can restrict your creativity," I reminded David.



Set the scene

Take in your whole surroundings and see what stands out. Look for the trails running to the beach. A well-placed model in among the tall rushes on a perfectly winding walkway shows scale. The splash of blue on her board and clothes pick her out against the green rushes, and the greenery itself is something different from the consistent sandy beach shots you'll get down at the sea front.



100% zoom

In order to check your focus quickly, go into the Nikon menu and under the Pencil and F Controls section, choose the sub-menu Multi selector center button. Change this to 1:1 100%. Now if you click the centre button when viewing an image, it'll zoom straight to 100%.

Pro's killer kit A blanket

Anthony says... When you're outside in the glaring sun, it's almost impossible to see what's on your screen. You have no real idea of what the image looks like. I always carry a small sheet of black fabric to throw over my head and camera. It's light and packs into my bag. The advantage of this over a loupe is that you can show multiple people the shots simultaneously, and even cover a laptop if you're shooting tethered.



HOT SHOT #3

EXPOSURE 1/3200 sec, f/2, ISO100
LENS Nikon AF 135mm f/2D DC





Our Apprentice says... We were now on the beach and Jen was getting ready to go in the water. She put half her wetsuit on and started to stretch and move around to warm up. I wanted to shoot this process to capture the atmosphere on the beach before the surfers get wet.

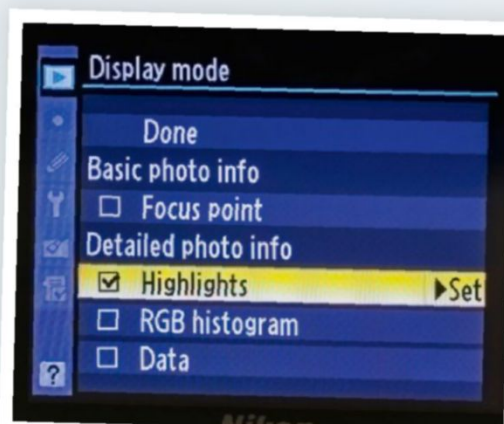
However, my photos were coming out slightly blurry.

Anthony saw that my shutter speed wasn't fast enough. He took a meter reading and recommended I use a wide aperture of f/2 to give me a fast shutter speed of 1/3200 sec to freeze the action. Here Jen was mid-stretch, and quickly folded down into a leg stretch soon after I took this shot. Anthony also held a flashgun camera-left to provide a little fill flash, in Auto FP mode to keep the fast shutter speed.



Expert insight Check the highlights

Anthony says... I shocked David when I told him I don't pay attention to the histogram. But it's true, I don't. I use a light meter to get my readings so I rarely under- or over-expose my subject. One thing I did recommend to David was to go to his Playback display options and tick the Highlights option. Now when he views his images, any clipped highlights in the image will flash. It's a valuable time-saver.



Pro's killer kit Multi-tool

Anthony says... This is one bit of kit I always take with me on a photo shoot. It's not camera equipment per se, but it's saved my bacon more than once. My multi-tool was helpful on this occasion when we were popping some fill-flash in, but I needed to change the screw thread to fit the flashgun on. If I hadn't had the multi-tool in my bag and been able to change the screw thread, we wouldn't have got the shot.



Both formats

↑ When you're busy shooting away it's very tempting to focus on your subject and hold your camera in the same orientation the whole time. Take a deep breath, stop shooting, and orientate your Nikon in the other format and your images will take on a different look immediately. Both vertical or horizontal worked well in this instance because of the upright posture of the model and the horizontal position of the surf board.



It's in the details

↑ As well as altering your framing, think more abstractly. You don't have to include the whole body or surfboard in your shot; fill the frame with fragments. The reason why this shot works is because the surfboard is out of focus but recognisable. It adds to the scene without overwhelming it. Also note the leash on the board and round the ankle – even without the whole leash running through the frame you can tell the model and board are linked.



Pro's killer kit A polariser

Anthony says... A good polariser will cut down on reflections and reduce glare in your shots. Some say it can even boost colour contrast. If used in the right way it can really enhance your photographs, but knowing when not to use it is equally valuable. I suggested David take his polariser off for this last shot, and the specular highlights glittering on the waves really were the finishing touch.



Our Apprentice says...

This is my absolute favourite shot, and it was taken right at the end of the day before the sun set. I combined all of Anthony's tips from the day: a shallow depth of field, quick shutter speed, and minimum ISO to reduce noise. I framed Jen off-centre using the rule of thirds, and even rolled my trousers up and bent down low to get almost eye-level with her. My trousers did end up getting a bit wet, so I felt I'd earned the shot of the day!



Our pro's verdict...

David did a great job with this photo. He directed Jen into a relaxed and natural position. Having the ability to do this is key to lifestyle photography, which essentially is a highly managed situation, meant to look unmanaged and natural. He used the breaking waves to great effect, creating a graphic element behind Jen. Shooting into the sun also works well; metering off of Jen gives great dimensionality to the image. The over-exposure in the water gives a twinkly effect that lifts the shot.

SHOT OF THE DAY

EXPOSURE 1/2000 sec, f/2.8, ISO100
LENS Nikon AF-S 70-200mm f/2.8G ED VR II



Next month: glorious gardens



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Exposing rural Britain



Waldemar Matusik uses long exposures to unveil the dramatic landscapes of rural Britain, and he does it all without masses of fancy equipment



Mission: To share the beauty of Britain

Photographer: Waldemar Matusik

Age: 43

Location: Bathgate, Scotland

Kit: Nikon D7100, Nikon AF-S DX 18-200mm f/3.5-5.6G ED, Nikon AF-S DX 35mm f/1.8G, Sigma 10-20mm f/3.5 EX DC HSM

Website: <https://500px.com/waldemarmatusik>

About two years ago, when I was just a beginner, I bought my first D-SLR camera, the Nikon D3200. After about a year I upgraded my gear to the Nikon D7100. I choose to shoot landscapes in Scotland – there are so many beautiful places and amazing views, it's a photographer's treasure trove.

After my Nikon D-SLR, my most important piece of equipment is, of course, my

tripod. I have a carbon-fibre AFAITH tripod and monopod with a ball head. It's light and small but pretty steady. I wouldn't do any of my long exposures without it. Before I go anywhere I always try to



I always try to plan where and what I'm going to shoot, and checking weather conditions beforehand is a very important part of this

plan where and what I'm going to shoot, and checking weather conditions beforehand is a very important part of this.

One of my long exposures was taken at Finnich Glen (also known as The Devil's Pulpit) **[1]**. It's about two miles from Queen's View towards Drymen. I find that being a member of Facebook pages like 'Scotland's Landscape Photographers' is useful. On the page people share locations which are worth visiting, so I don't need to explore on my own very much. Finnich Glen is not easy to find, and it is pretty dangerous to explore, so not



suitable for everybody. The biggest challenge in taking this picture was getting down the cliffs as the surface is muddy and slippery. I climbed down for the breathtaking view.

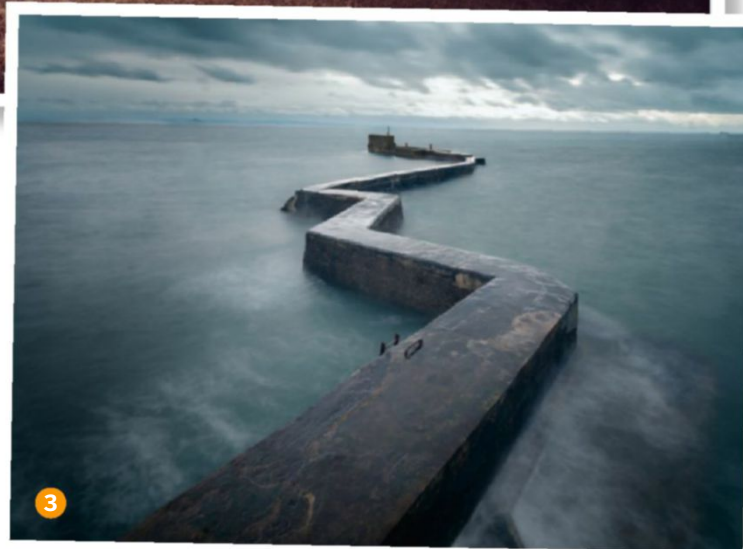
For this photo I used a four-stop ND Cokin filter. The white lines you see are made by the water itself. At the bottom of the waterfall there are lots of jagged rocks so the water froths up as it reaches the river beneath the fall. The water flows at different speeds in different places and you can't really see that with the naked eye – I deliberately used a long exposure to reveal the areas that flow more quickly.

The woods [2] are near my hometown, Bathgate. This was an exposure time of around 1.6 seconds. I used a longish shutter speed because the mist was moving from the left of my frame to the right, and I wanted it to cover the whole frame. With the shutter open longer, the mist swept across and filled the whole scene. Originally the picture was taken in black and white, but I used Lightroom to

transfer it into a more colourful, mystical scene.

Four seasons in one day

Living in Scotland you need to be prepared for all seasons in one day, maybe even one hour, and my shoot at St Monans Pier was proof of that. I went there a couple of times before I got this shot [3], but the tides weren't quite right – I needed the water level to be higher to accentuate the zig-zag pattern of the pier. I left the house in the morning on a sunny day, and after about a 40-minute drive the weather turned dark and windy. The biggest challenge for me in taking this shot was to keep myself safe and the tripod with the camera on it steady. I used a Sigma 10-20mm lens at 11.5mm, with a two-stop ND filter to make the water more silky and blur the moving clouds. In the end, the exposure time was eight seconds. I would've gone for a slower shutter speed to increase the effect, but the storm was quite severe and I couldn't keep the tripod still enough!



1
Finnich Glen
Nikon D7100, Sigma 10-20mm f/3.5 EX DC HSM, 8 secs, f/16, ISO100

2
Bathgate Woods
Nikon D7100, Nikon AF-S DX 18-200mm f/3.5-5.6G ED, 1.6 secs, f/9, ISO100

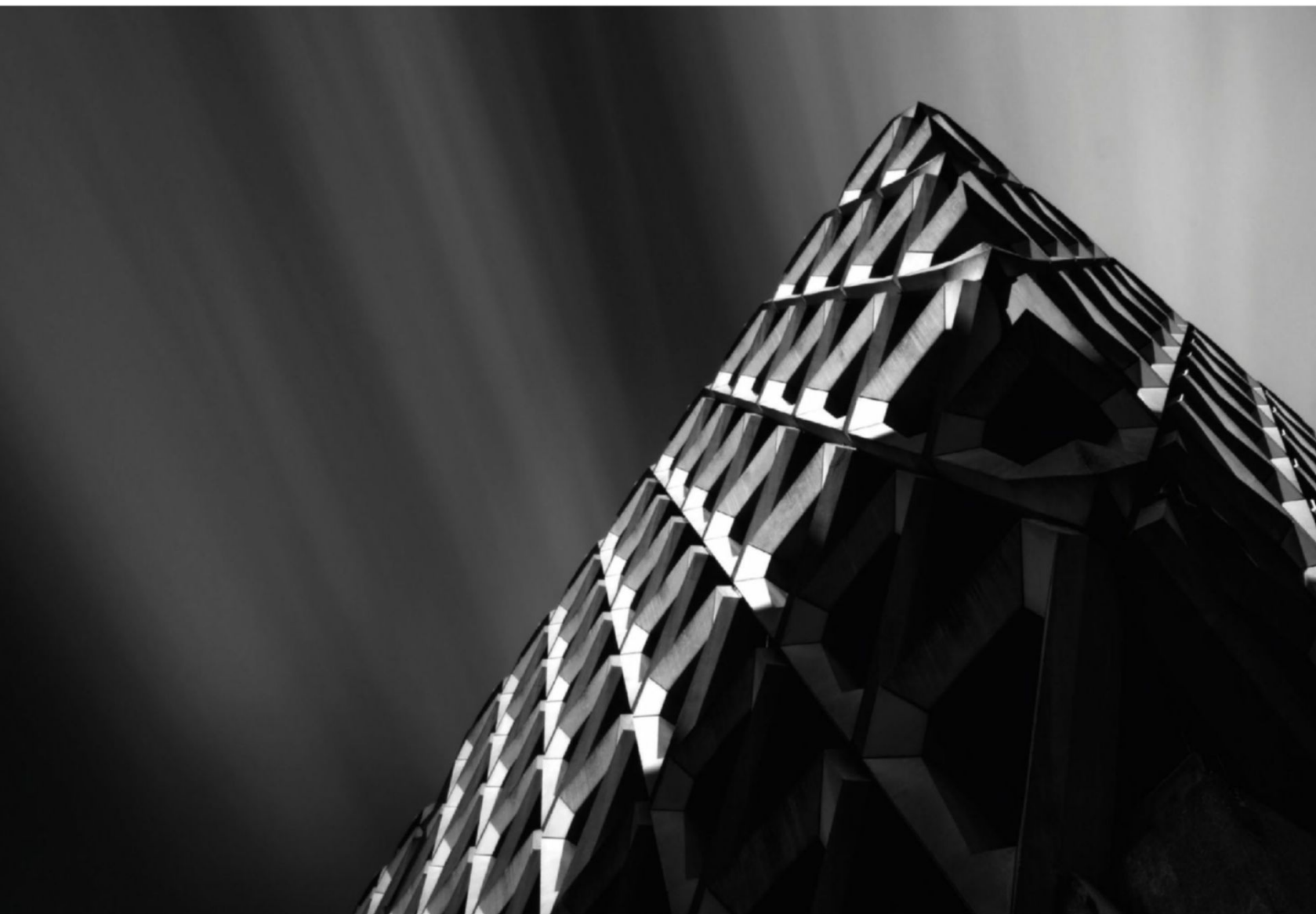
3
St Monans Pier
Nikon D7100, Sigma 10-20mm f/3.5 EX DC HSM, 8 secs, f/16, ISO100



Waldemar's top tips

- A polariser, neutral density and graduated neutral density filters are all the filters you need to get started photographing landscapes
- Tie a bungee cord around your tripod, then strap a camera bag to the cord to weigh the tripod down and make it steadier
- Look up the weather before you go. It's disheartening to arrive somewhere and get driving rain

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Architecture with an edge

YOUR PROJECTS CRITIQUED



Michael Townsend wants to make his architectural repertoire fresh and unique

From a photographic point of view I am lucky to live in London (although great pictures can be taken in any location). Every day I am surrounded by interesting people and iconic architecture. However, the views in London are repeated fairly regularly in many photographers' repertoire. The challenge to me is to produce something new and fresh. This can mean either focussing on a detail, or choosing an odd perspective of a well-known building such as the Lloyds Building [2] or the Golden Jubilee Bridge [3]. There's an exterior of a car park near Oxford Street [1] that seems to stumble over itself and I feel it hasn't been as frequently photographed as other spots.

One aspect of my photography that I'd like to improve upon is my use of colour. Although colour is present in some of my photos, I feel I have neglected it.

1

Car park

Nikon D3200, Sigma 10-20mm f/4-5.6 EX DC HSM, 95 secs, f/22, ISO100

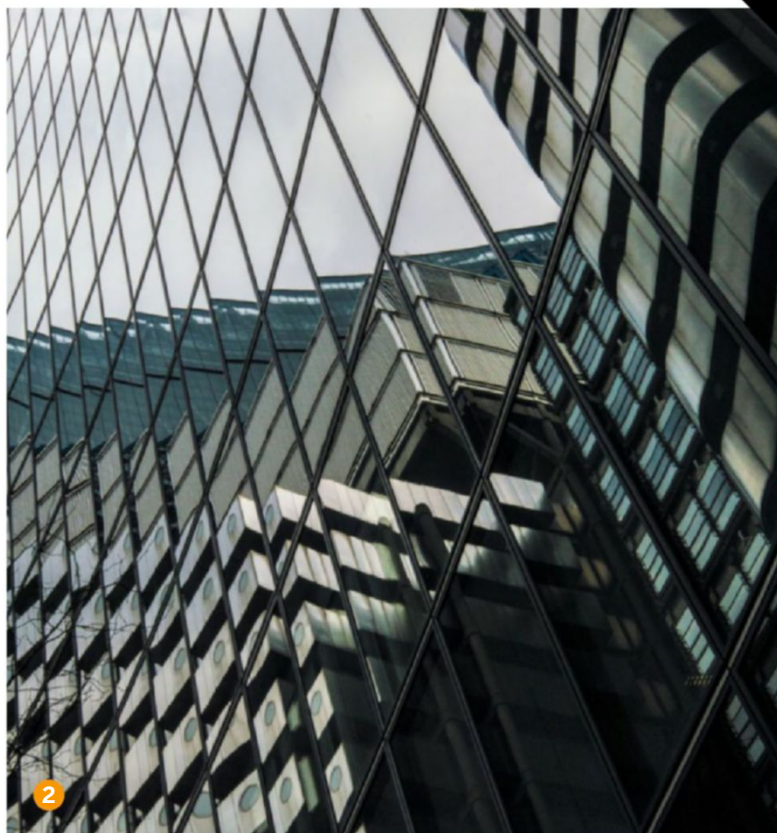
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Therefore, any guidance on the use of colour in abstract/ architectural photography would be welcome.

N-Photo says

Michael, your work speaks for itself. You obviously love clear geometric elements, with strong leading lines and straight, cut edges, so you're definitely in the right city to find subjects that will inspire you. We see your point that you want to learn more about colour; a lot of your work is just straight-out black-and-white, or has naturally muted tones that make it feel close to monochrome. Black-and-white is a fantastic form of photography, and we even did a black-and-white special issue of *N-Photo* last year (issue 49), but an



2

Lloyd's Building

Nikon D3200, Sigma 10-20mm f/4-5.6 EX DC HSM, 1/200 sec, f/13, ISO100

3

Jubilee Bridge

Nikon D3200, Sigma 10-20mm f/4-5.6 EX DC HSM, 1/640 sec, f/5.6, ISO100



ability to work with colour will present you with even more artistic opportunities in your photography.

Naturally, the best way to play with colour is to find colourful subjects (though light also has an impact on colour, especially in urban areas where artificial lights abound). Your image of the corner of a building in the City of London [4] has a strong yellow hue and is complemented well by the blue sky – this shot wouldn't have worked as well if you'd taken it on an overcast day. Looking for buildings that contain colour, as you have here, and

4
City of London
Nikon D3200,
Nikon AF-S 50mm
f/1.8G, 1/80 sec,
f/1.8, ISO200

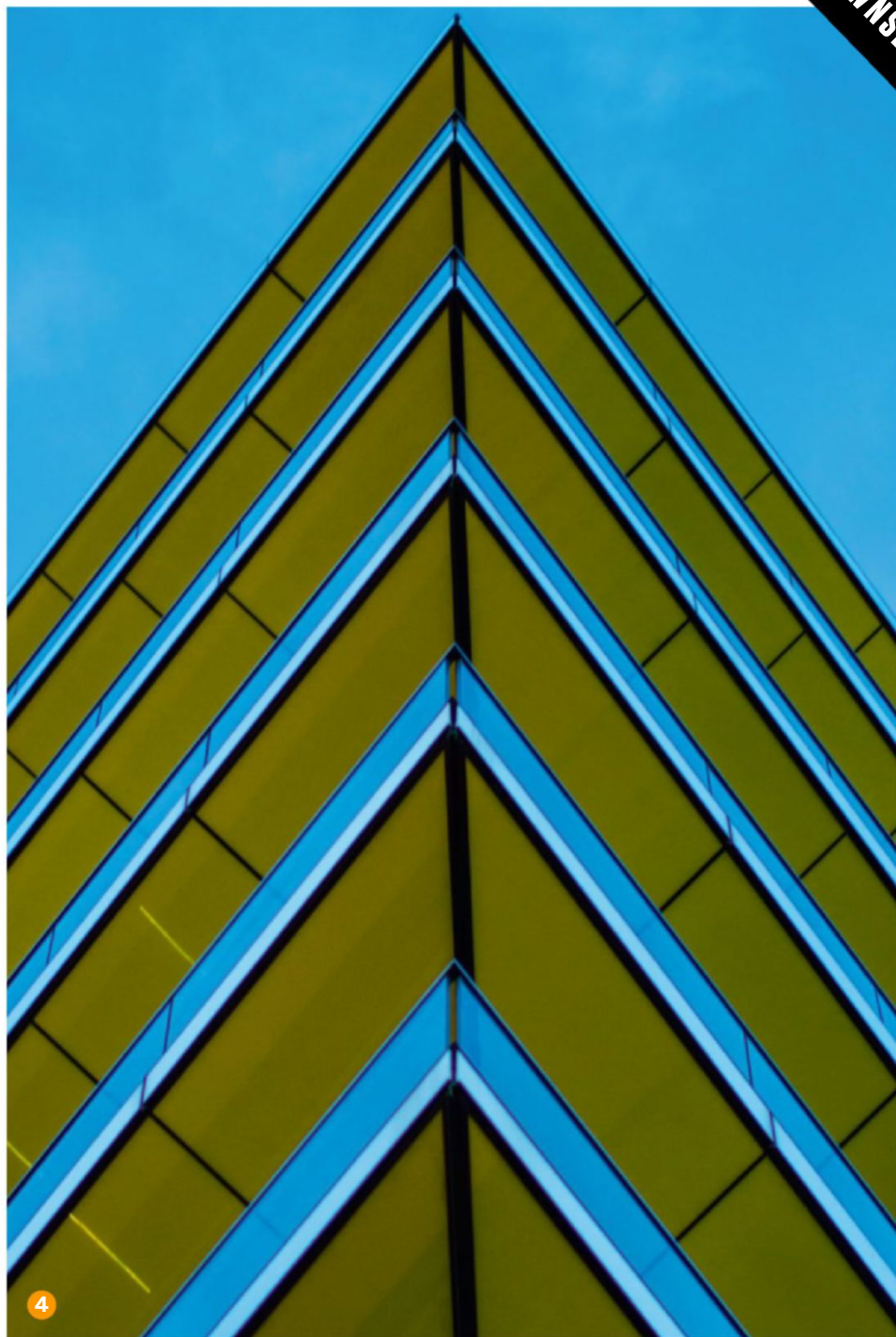
waiting for the right time of day to shoot them is crucial; the sky quickly goes from blue to orange, pink and red, to blue again as the sun sets behind the horizon, and the temperature of the light will shift as it

does, so the apparent colour of your subject will alter along with the sky.

Maybe finding some new vantage points would help you get a fresh look at London's more familiar buildings – many of your photos are taken shooting up (such as the City building, and the car park [1]). Instead, find a tall building and shoot down on the ones around it. It'd be fantastic to get in a helicopter or plane for some aerial shots, though not many of us have this luxury!

Don't neglect London's older buildings, either. Hawksmoor's churches would suit your taste for geometry, while presenting you with slightly more detail to challenge and inspire you.

Your composition is good, with attention to the rule of thirds, and capturing shapes and patterns. If we were to suggest anything, it might be that your framing is slightly too tight. Try to leave a bit of breathing space around the subject, rather than placing it right up against an edge of the picture. Although we realise that may not be doable; perhaps you frame as you do to eliminate other nearby buildings.



TECHNIQUE TIPS

The N-Photo experts say...

CITIES ARE CRAMMED WITH SUBJECTS. GET SHOTS THAT STAND OUT

SEEK THE BORING

A photo is only as interesting as the subject, so look for the unusual, but also explore the mundane – why do our eyes pass by it so easily? What's boring about it? Maybe you can concentrate on a detail no one else has spotted.

KEEP IT STEADY

Pop your camera on a tripod – it's clear from Michael's long-exposure shot of the car park that he's already doing that, as it's sharp in all the right places. A tripod also allows you to experiment with long exposures, too.

CAPTURE CLOUDS

Long exposures are great. If you can, wait to shoot on a day when the sky is scattered with puffy cumulostratus or altocumulus (mackerel clouds) clouds. High winds help create streaks as the clouds move across the sky.

TRY A NEW LENS

As well as using a wide-angle lens to capture the scale of a building, try switching to a telephoto zoom to isolate details and geometric patterns. Longer lenses can also be used to make a cityscape appear more densely packed.

NEXT MONTH: POWERFUL POWDER PORTRAITS



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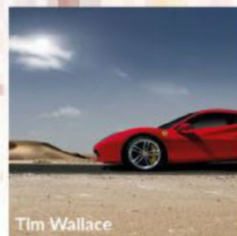


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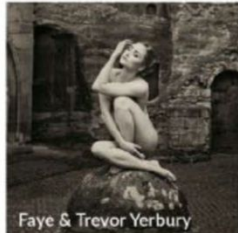
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Jonathan Chritchley



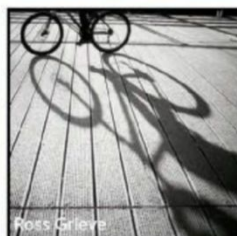
Steve Bloom



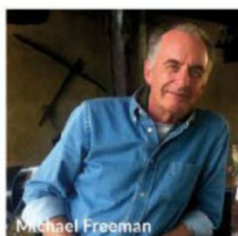
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Letters

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LETTER OF THE MONTH

Professional courtesy

As a vicar and photographer, thank you for your feature on weddings. It was very helpful to see photographers encouraged to exercise discretion, courtesy and professionalism in how to be part of an event where there are many players, each with their own job to do.

Being a photographer means I can appreciate both sides of the issue: the need to get the picture for the happy couple, but also to not 'get in the way' at the most important times. A colleague of mine was mid-ceremony when the photographer was crawling down the aisle to get one picture, leading to ridicule and a disaster for those wed.

The majority of photographers are entirely respectful and aware of the necessary boundaries. Common-sense, discretion, working with people and their permissions, and being respectful of everyone involved is all it needs to make sure we all work well together and end up with the best outcome.

Revd. Daniel Richards, Douglas

Crawling down the aisle? Not something we'd recommend. While capturing the event is important, it's better to miss one or two shots than to spoil the day for everyone, including the couple, with that sort of antic.



A great wedding photographer knows when to take control – and when to step back



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Don't look down

I was eagerly looking forward to the DX vs FX feature in the current edition of *N-Photo*, so I was disappointed to see that it consisted of just a list of specifications and lab test results for each model, with not a single image. Most readers are not interested in all the technical stuff, they just want to know what the images will look like.

In virtually every photography magazine there is a constant looking down on anyone who uses a camera with an APS-C sensor as though they are not proper cameras, see "DX outfits are ideal for travel and walkabout photography", and the constant reference to "upgrading". This suggests that real photographers only use FX. Please, more actual images and less criticism of the small guy.

Terry Newman, Tonbridge

We love crop sensors – the D500 is the most exciting Nikon D-SLR we've seen in years. Don't miss next issue, when we put it head-to-head against the D750.



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N PHOTOGRAPHER OF THE YEAR 2016

We're now into the third month of our year-long photography contest, which features a different theme each month, with all shortlisted images being put forward for the coveted title of N-Photo Photographer of the Year. The theme we set last issue was 'weddings', and as you'll see from the images on the following pages, the bar has already been set pretty high.

If you've been inspired by these images, our next themes are 'summer landscapes' and 'sports'. To enter, or to vote for your favourite photos, head to www.photocrowd.com/challenges

The prize for our monthly competition is a superb **1TB My Passport Wireless hard drive** from Western Digital, **PLUS a £100 voucher** from online printing specialists WhiteWall, while the overall N-Photo Photographer of the Year will win a **Nikon D500**, and a **metre-wide acrylic print of the winning image** from WhiteWall (see below).

HOW TO ENTER

Here's how our photo competition works:

- A theme is set each issue by the *N-Photo* team. We'll tell you about it in the magazine, but because of the way our deadline falls, the easiest way to see when a new theme launches is to check our Facebook page, www.facebook.com/nphotomag

- Visit www.photocrowd.com/challenges/ to enter.

- Images are judged by the *N-Photo* team. Your fellow *N-Photo* readers are also able to vote for their favourite image over on Photocrowd.

- The Judges' Vote winner will receive a 1TB MyPassport Wireless hard drive, PLUS a WhiteWall voucher worth £100, while the Crowd Vote winner will receive a bundle of photography guides.



WORTH
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WIN A NIKON D500 AND A METRE-WIDE ACRYLIC PRINT!

Each issue we judge on a theme, but for our grand prize, the winning image simply has to be the best, and a photo that good deserves a fantastic prize. If you've read our review of the new Nikon D500 in issue 60, you'll know what an amazing camera it is – and we're delighted to be able to offer one as the grand prize for this year's contest.

The winner will also receive a £300 voucher from WhiteWall – enough to buy a metre-wide print of their winning image mounted under acrylic glass, so they can show it off to friends and family in style. And remember, the more months you enter, the more chance you have of winning. Happy shooting, and good luck!



WORTH
£300!



WORTH
£1730!



1

01 Story Pál Szilágyi Palkó

↑ This photo shows how a wedding can be a pivotal event in a person's life, but not the whole of the story. The lady and her life in pictures are beautifully exposed and sharp.

Nikon D70, Nikon AF-SDX
18-70mm f/3.5-4.5G, 1/1600sec,
f/3.5, ISO200

02 Bride's joy Angus Fanshawe

→ Anyone who's ever tried to shoot a wedding can tell you that it's very difficult to take a perfect candid. This captures the happiness of the day, in sharp focus.

Nikon D750, Nikon AF-S24-70mm
f/2.8GED, 1/200sec, f/7.1, ISO400



2



03 Traditional Hindu wedding

Janet Pumphrey



Janet has been very clever in the way that she has framed this image. The viewer's eye is naturally drawn to faces within a photograph, so by omitting the faces of the wedding guests, she's ensured viewers focus on the most important people in a very busy scene.

Nikon D7100, Nikon 28-200mm, 1/100 sec, f/6.3, ISO800

04 Two brides

Sophie Merlo



Sophie has made the most of what could have been a problem: lens flare caused by shooting towards the setting sun. Instead of it ruining the image, the flare seems almost like confetti of light, combining with the hues of sunset to create a romantic, dreamy image.

Nikon D7000, Nikon AF-S 18-105mm f/3.5-5.6 G ED-IF VR, 1/250 sec, f/8, ISO180





05 Centre of my universe

Weizhong Deng



Always check out a wedding venue in advance for decent photo locations. Here the leading lines of the spiral staircase sweep your eye straight down to the bride and groom, even though they're relatively small within the frame.

Nikon D810, Nikon AF-S 14-24mm f/2.8G ED, 1/60 sec, f/2.8, ISO800

06 Dimitri and Maria

Chris K



Here the series of frames formed by the architecture draws your eye to the bride and groom. Shooting at the correct time of day was vital; no shadows are falling against the walls, so they remain a smooth blue, and the bride and groom are in softer shade.

Nikon D800e, Nikon AF-S 24-120mm f/4G ED VR, 1/50 sec, f/4, ISO800

07 Ring bearer

Terry Wild



Getting down to the level of small children gives a completely different perspective on an event like a wedding. This tiny bridesmaid stands out between two darker-clad guests, but her expression stops the image from becoming too saccharine.

Nikon F2, Nikon 80-200mm, 1/125 sec, f/2.8, Tri-X Pan ASA400 film





08 A & H, Balliol College, Oxford
Darrell Godliman

← Scenes like this are terribly tricky to expose for. The balance Darrell has achieved is therefore really impressive, as there's sharp detail in the bride's dress but also detail visible through the doorway. The backlighting effect also works beautifully.

Nikon D300s, Nikon AF-S 50mm f/1.4G, 1/3200 sec, f/2, ISO200

8

09 Hands upon hand
Harish Halemane

↙ This crucial part of a Hindu wedding has been captured wonderfully crisply. The judges liked the way the fast shutter speed has allowed Harish to capture droplets falling from the groom's hands; it gives a greater sense of motion to the water and stillness to the hands of the couple.

Nikon D7000, Sigma 18-200mm f/3.5-5.6, 1/200 sec, f/8, ISO400

10 Just married
Rebecca Clark

↓ This is such a charming photo. Like faces, words are something that naturally draws viewers' attention, and careful management of depth of field by Rebecca ensures the crisp faces of the couple are what you look to, not the lightly blurred names.

Nikon D800, Nikon AF-S DX 17-55mm f/2.8G ED-IF, 1/500 sec, f/6.3, ISO320



9



10



CROWD VOTE WINNER
Bride
Sourabh Gandhi

← The unusual angle of this image sets it apart from most portraits of brides. The right aperture, giving a shallow depth of field, was essential in order to capture detail in the bride's face, but not her dress or feet, which would be distracting.

Nikon D5100, Nikon AF-S50mm f/1.4G, 1/30 sec, f/2, ISO320



Next issue we'll be showing off your best summer landscape photos – to enter visit www.photocrowd.com/challenges



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78 Michael Freeman on...

Using light to capture images that make you want to reach out and touch them



IN NIKOPEDIA THIS MONTH



84 Nikon software

Correct lens-created problems such as barrel distortion, pincushion distortion and chromatic aberration using Nikon Capture NX-D



86 Ask Jason

From filter kits to compact Speedlight options for a new Nikon without a pop-up flash, Jason is here to answer your Nikon-related queries



88 Head to head

Want to take your Nikon for a dip this summer? We pit a D-SLR in a waterproof case against a waterproof Coolpix





Our globetrotting Contributor at Large, renowned photographer and prolific author **Michael Freeman**, presents a monthly masterclass that's exclusive to *N-Photo*. Michael has published dozens of books on photography, including the bestselling *Perfect Exposure*.

INTRODUCTION

Freeman on... Capturing texture

When the quality of a surface is important to a shot, use lighting, helped by scale and contrast, to bring it to the fore

Last issue's article on capturing form was about taking a photo that sums up the entirety of an object. This time, it's all about surface texture. If it helps, think of it as the difference between taking a firm hold of something and reaching out to touch it. Which gives you a better sense of what something is, whether it's river-smoothed stone, a rough-skinned pineapple or a leather handbag? This is up for debate, but photography generally conveys

surface qualities well, so long as you make good use of lighting, scale and contrast. This trio of factors is more or less all you need to refine and enhance what is essentially the visual translation of touch.

Texture is above all tactile, and so it's no surprise that studio still-life photographers tend to have a head start when it comes to working with texture, because capturing it is one of the skills essential for selling many products in advertising. Consider most luxury goods (or anything bought for pleasure rather than out of sheer necessity), and you can see that their surface qualities are a major part of their appeal, whether it's clothing, a handbag, a new gadget or a ceramic collectible. A single issue of the luxury lifestyle magazine *How To Spend It* is full of objects that, apart from price and desirability, have one thing in common: they are all exquisitely lit to show off their textural qualities to best advantage, and so to enhance their desirability.

In the wider world, texture also plays a role in bringing scenes to life, and one of the key reasons why the golden hour is so popular among landscape photographers is that the low angle of the sun starts to reveal tactile qualities in the land, from rocks to grass, which can give the viewer a sense of what it was like to be there.



Low-key lighting in the form of daylight through a doorway in an otherwise unlit shop just grazes the cheek of this man, bringing out the texture of his skin and beard



Late afternoon light at Persepolis reveals every last detail in a bas-relief, while sunrise does a similar job on the intricate facade of the Bank of England in London

A LIGHT TOUCH

The texture of this pressed cake of tea leaves needed an almost horizontal beam from a focusing spot (Dedolite) in this studio shot



Raking light is the standard for a range of surfaces

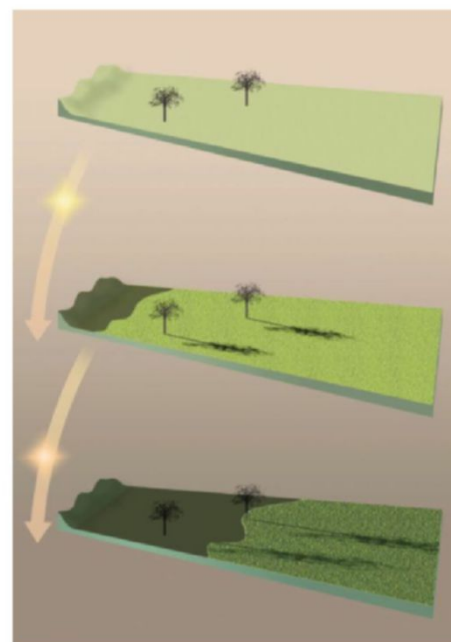
A glancing angle of light throws even small surface irregularities into sharp relief

For almost any formal photographic quality there's a classic treatment, and in the case of texture it's when the light source, typically the sun, strikes the surface at an acute angle, hence the term 'raking light'. It works on anything with a slightly roughened surface, and best of all when that surface texture is a little too fine to register under ordinary, flattened light. If you've ever tried searching for something tiny dropped on the floor by shining a torch horizontally, you'll appreciate why it works.

Ultimately, it's the play of light and shadow that helps to convey texture, and while raking light is something of a cliché, it really works.

You still need to take into account the kind of texture you're dealing with, though, and this varies hugely from subject to subject. Raking light works for textures of fine-to-medium roughness, but with a bumpier, larger-scale texture it can create too many shadows that disrupt any sense of texture. And with very smooth textures, it's a very different game altogether – see page 80.

Above are three examples of different textures at different scales, from a building facade to a close-up of a compressed cake of tea. What they have in common is that they're all lit by a single raking light source that helps to reveal texture and detail.



With landscapes, as the sun sets the shadows of large objects lengthen, while smaller-scale textures become more defined

TAKE THE ROUGH WITH THE SMOOTH

Lighting smooth surfaces

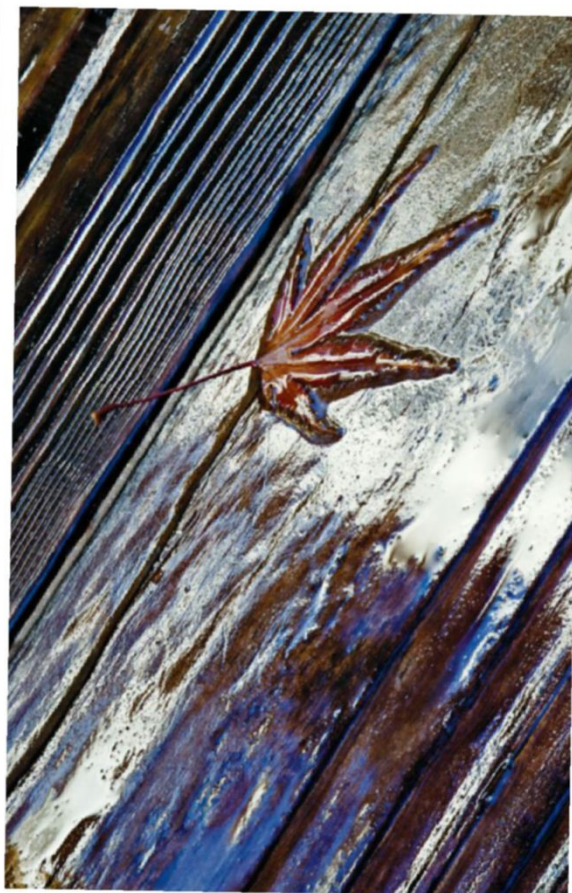
No texture is also a texture, and at its most extreme is a mirror polish that needs a different lighting approach

The word 'texture' suggests some roughening of the surface; something for the fingertips to actually feel. At the smooth end of the scale the sensation is more subtle, but even a shiny surface has a texture. And wetness, too, is a variety of texture.

In the case of very smooth surfaces, the low light from a sharp source of light won't do much, because shiny surfaces have to reflect something. Controlling that reflection is the key to lighting smooth subjects, and – in the case of liquids – to getting across the sensation of wetness. The solution is to use a light source that's broad and even – and broader than the thing you're shooting. In this example, the source is



A waxed table after a heavy rain shower. The maple leaf stuck to its glistening surface helps to exaggerate the feeling of wetness



the sky, but controlled in the sense that we're in a garden enclosed by high walls, so that the sky appears as more like a skylight.

The next essential ingredient is angle: that of the camera to the surface and the surface to the light. Camera, light and subject need to be aligned so that the surface catches the light. In a studio, the equivalent is a large softbox; the larger the subject, the larger (or closer) the softbox needs to be.



! A textural lighting table

BRING OUT THE TEXTURE OF ANY SUBJECT

As we've discussed, capturing texture in photographs isn't simply a matter of finding an interesting texture and shooting it. It's the wide and subtle variety of the way surfaces look and feel that makes it such a rich area to explore. Here's a very basic guide to the kind of lighting that might work best for each...

TEXTURE	Fine-to-medium	Rough	Silky, furry	Slightly shiny	Mirror-like
EXAMPLE	Sandstone, bas-relief, building facade	Pebble beach	Silk, animal pelt	Leather, plastic, skin, polished stone	Glass, water, polished metal
LIGHT REQUIRED	Low-angle point source	Medium-angle slightly diffuse source	Broad source above, in front or to the side	Broad source high	Broad, shaped and even source, behind or 3/4
PHOTO EXAMPLE					
LIGHTING DIAGRAM					



IT'S ALL IN THE DETAIL

Tactile landscapes

A clear sun just above the horizon sharpens up any landscape, but there are risks



Low sun and the clear air of the 5000-metre plateau of western Tibet give a crisp texture to the hills

This type of lighting is naturally attractive and naturally popular for landscapes because of the way in which it sends long bands of light and shade across the scene.

As with the other, smaller-scale raking-light situations, it depends not just on the sun

being low, but also on really clear air. As the sun gets lower, its light has to pass through much more atmosphere than when it's shining straight down onto the land, and this acts like a softening filter. On top of this, haze and pollution tend to hug the ground, so that those last few degrees often see a rapid softening of shadow edges. In practice, this means that what looked like a bright day an hour before sunset unexpectedly becomes almost shadowless three-quarters of an hour later. The lesson here is not to expect the crisp light to last for a moment longer than you can see it, even though hanging on until the last minute is what most of us do in these conditions. The answer is to start early and keep shooting as the sun drops towards the horizon, because the frame you just shot may well turn out to be your best.



From a distance, rice ready for harvesting takes on an almost fur-like texture in late afternoon sunlight, while the terraces cast distinct shadows

TASTE SENSATION

Mouth-watering texture

Food photography relies on convincing the viewer to take an imaginative bite

Food photography has become one of the most specialised genres of photography, and is in great demand both editorially, for magazines and books, and commercially, for advertising. This is hardly surprising, given that it has become one of the Western world's great lifestyle obsessions. Above all, food is in one way or another being sold to the audience, and that means it has to look appetising.

How mouth-watering a dish looks is the most important gauge of success in food photography. Fashions change, but the current trend is for close framing and selective focus, which help to make the viewer feel the food is right in front of them, and ready to eat. The arrangement and the lighting aim to convey texture, because the way food feels in the mouth is the sensation that translates most easily from photography. Even though the recognised tastes now number five

(sweet, sour, bitter, salty and the relatively recently adopted 'umami', meaning a kind of lip-smacking savoury taste), in the West texture stands apart. The Chinese, by contrast, formalise it with the term 'kou gan', which roughly translates as 'mouth feel'.

Selective focus plays a vital role in emphasising texture, because it concentrates the attention on very small areas of the dish, and if you arrange the food so that two or three different textures are all in focus – as in this shot of a contemporary Indian dish – the viewer can take in all of these textures at a glance.



Grilled pomfret served in a contemporary style, with viewpoint, focus, arrangement and lighting (natural late afternoon sunlight) all geared to show off the contrasting textures of fish and vegetables

OPPOSITES ATTRACT

Heightening texture through contrast

Setting one texture off against its opposite can help to emphasise both

In the same way that some dishes aim to bring out the taste of certain ingredients by pairing contrasting flavours (such as sweet and sour dishes in China, or cheese with apple pie in Lancashire), so different textures can be combined in a photograph to bring out the texture of both.

There's nothing new about using contrast in this way. During the 1920s the Bauhaus movement was hugely influential on art, design and architecture, and in its Basic Course, which all students had to complete, the first exercise was to express contrasting

qualities of things, including the pair rough-smooth. Johannes Itten, who ran the course, called it the 'general theory of contrast' and wrote that "Finding and listing the various possibilities of contrast was always one of the most exciting subjects." Juxtaposition – setting one thing (shape, colour, action, expression, whatever) against another – has long been a staple of photography, too, and in the case of texture, it's

a relatively simple matter to arrange. The example here, though, wasn't arranged; it was happening already. In close-up the work-worn hands of a woman from the Akha community in Thailand contrast with the bright red dye with which she is dyeing a headdress.



An Akha hill tribe woman's hands as she dyes chicken feathers. The very tight framing limits the image to two contrasting textures: rough and dry and shiny and wet





DISTANCE MATTERS

Making use of scale

For every texture there's an ideal area, and therefore an appropriate scale, from centimetres to kilometres

When you think about it, it's obvious: texture depends on scale and distance. As the main landscape on page 81 illustrates, subjects in their own right, like rice stalks, look like surface texture when seen from far enough away. The opposite also holds true. Some textures come alive only when you close in on them so that the eye focuses on the macro detail.

In the example here, of a Japanese 'hibachi' or brazier (shown at two scales), the lighting is very different in the two versions. In the wider view (above), a high broad light, plus a secondary broad light under the camera, help reveal the form of the

hibachi, whereas the craftsmanship that went into the surface texture needs something different.

Only a close view reveals the carpenter's skill, which extends to the creation of what looks like wood grain, but which in fact has been carved by hand. The mixture of this rough, wood-grain texture and the smooth rounded curves of the carved gourd calls for a flash (modified with a softbox), aimed from a low angle – in effect, a hybrid of the textural lighting styles shown on page 80.

Framing can also help emphasise texture if you completely crop out any background, so that the texture becomes a kind of pattern.



An overall and close view of an exquisitely carved Japanese hibachi; one scale reveals form, the other texture



The studio texture toolkit

Studio lighting has a range of functions, and one of them is to control the visibility of texture in the surfaces of objects – usually to emphasise it, but sometimes to hide it. Seen purely from the point of view of texture control, here are some of the most useful photographic lights.

Lensed focusing spot

For ultimate precision, use a Dedolight, which uses a parabolic mirror and lenses to focus the light for precise, sharp shadows. It has a long 'throw', so further away it can serve as more of a point source.

Bare bulb

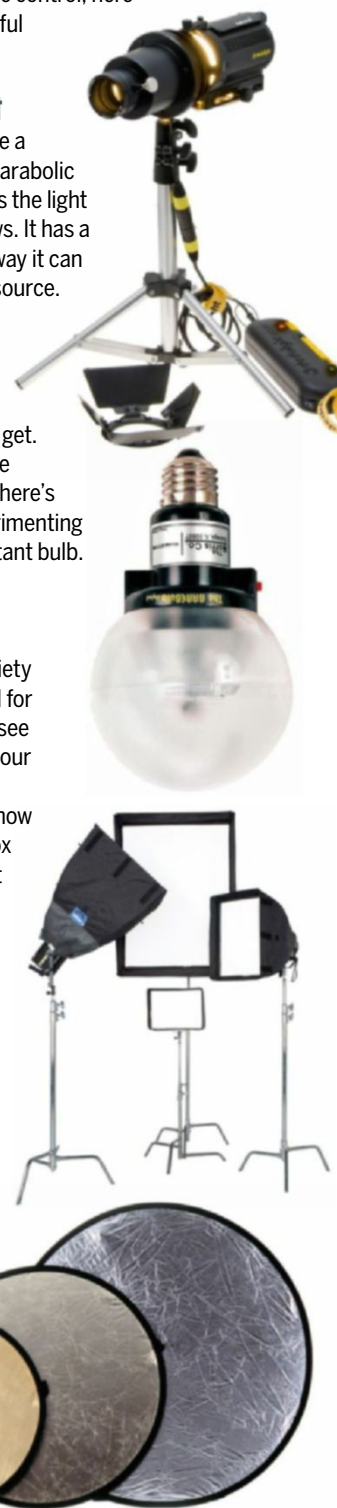
Exactly as it says – a single point source of light, as harsh as you can get. Bare-bulb studio lights are generally flashguns, but there's nothing to stop you experimenting with a regular, clear constant bulb.

Softbox aka window /area light

These come in a wide variety of sizes, and are essential for shooting shiny surfaces (see the table on page 80). If your subject has a mirror-like surface, however, it will show any wrinkles in the softbox fabric, so a flawless sheet of opalescent Perspex may be best in this case.

Reflectors

Use a reflector to reduce texture from a main light by placing it opposite the light, to fill in shadows. Reflective surfaces give the strongest effect, while plain white gives a more moderate, neutral, effect.





Correct lens distortion

George Cairns uses Capture NX-D to remove lens-created distortions

After light travels through your Nikon's lens it is focused onto a specific point on the camera's sensor. However, the image captured via your camera's lens may not be an accurate representation of reality due to a variety of lens-related factors. Camera lenses differ in their manufacturing quality, and various types of lens (such as telephoto and wide-angle) are prone to capturing a distorted version of the subject.

A fisheye lens captures a very wide field of view, but to do so it

dramatically warps the captured scene and make it looks spherical (see page 42). This is an extreme example of lens distortion, but all lenses will introduce some degree of distortion. A wide-angle zoom zoomed out to its widest point, for example, can add barrel distortion (see page 112): this causes the image to bulge outwards from the middle (as if it's wrapped round a barrel). When zoomed in, the same lens may introduce pincushion distortion: this is the opposite of barrel distortion, and causes

the image to pinch inwards from the edges (much like the edges of a pincushion are pinched inwards).

In addition to geometric distortion, lenses can also introduce artefacts such as chromatic aberration, where colour fringes appear along high-contrast edges. Capture NX-D can read a photograph's metadata, discover what lens and settings were used, and then counteract any distortions and colour fringing to create a more accurate representation of the subject.

JARGON BUSTER

FOCAL LENGTH

This refers to the distance between the lens and the sensor when the subject is in focus. Geometric and chromatic distortion may vary depending on the focal length used.

MOIRÉ PATTERNS

Textures with densely packed detail can cause strobing, wave-like patterns and unwanted colour banding. Architecture and clothing are both particularly susceptible to moiré patterns.

Reduce distortion and fringing

You can use Capture NX-D to correct common lens-related problems in a click



1 CAMERA AND LENS CORRECTIONS

Click here to summon the Camera and Lens Corrections panel.

2 AUTO DISTORTION CONTROL

Tick this box. You will also need to set the dropdown menu below to On. Capture NX-D will then read the photo's metadata to discover what lens and focal length were used to capture the shot so that it can counteract any lens-induced geometric distortion.

3 COMPARE IMAGES

When fixing photos, it helps to be able to compare the edited version with the original, especially when counteracting geometric distortion. To see both versions of the photo, click on the Multi icon and pick Compare Before and After Images. To remove barrel distortion, Capture NX-D has to warp the image and this can cause a slight change in composition. Here we've lost the top edge of the frame.

4 SHOW GRID

The Image>Show Grid command summons an overlay grid. This grid is especially useful when attempting to identify geometric distortion caused by

a wide-angle lens. As the horizontal and vertical lines are perpendicular and straight, you can see if a building's walls are straight or curved. In our unprocessed image the building's horizontal lines curve up near the middle and down towards the edges – that's barrel distortion. In the corrected version of the shot, the building's horizontal lines are straighter.

5 VIGNETTE CONTROL

The light entering the edge of a lens isn't as bright as the light entering the centre. This uneven exposure can cause the edges – and particularly the corners – of the frame to be darker than the middle. To lighten up dark corners, tick this box and drag the slider right. This will result in a more evenly exposed sky in a landscape, for example. Drag left to darken the corners of the frame.

6 PF FLARE

This tool can be used to reduce ring or circular flare produced by bright lights.

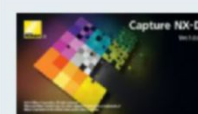
7 FISHEYE

This section will become accessible if Capture NX-D detects that a fisheye lens has been used to take your shot. When counteracting the extreme distortion produced by a fisheye lens

you can choose to crop out the edges that feature no data, or fill them with a chosen colour.

8 IMAGE DUST OFF

This enables you to browse to a 'dust off' reference image taken by your Nikon. Capture NX-D can then analyse the dust in the reference image and so reduce it in a RAW photo. This saves you the hassle of manually removing dust using the Auto Retouch Brush.



WHERE TO GET CAPTURE NX-D

It's made for Nikons, and it's completely free!

Capture NX-D is available from the Nikon website at <http://nikonimglib.com/ncnxd/>. As new Nikons are introduced, Capture NX-D should be the first software to support them. Another advantage is that it exactly replicates Picture Controls and other settings.

NIKON KNOW-HOW

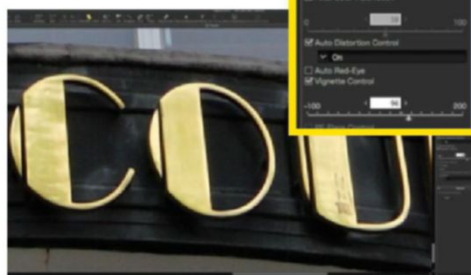
Remove colour fringes

Counteract chromatic aberration in a click



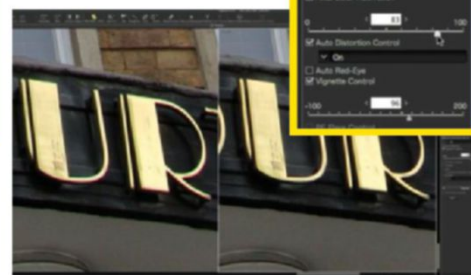
1 ZOOM IN

Browse to our supplied start file, distortion_start.NEF. To identify problem colour fringes more clearly, select the Zoom tool from the View Tool section of the toolbar. Click to zoom in on the building's sign. You can clearly see green and purple fringes clinging to the edges of the letters.



2 CORRECT LATERAL ABERRATION

Chromatic aberration occurs when varying wavelengths of light aren't focused on the same part of the sensor. Lateral aberration is more noticeable at the edges of the frame. A click on the Lateral Color Aberration box is all it takes to banish this type of fringing.



3 CORRECT AXIAL ABERRATION

Axial (or longitudinal) aberration refers to the appearance of blurred colours caused by a lens's inability to focus on the same focal plane. A slider enables you to fine-tune the correction. There's no noticeable axial aberration in this shot so we can leave that box unticked.



Q+A

Ask Jason...

Our resident Nikon expert Jason Parnell-Brookes answers your questions and solves your problems. If you'd like Jason to come to the rescue regarding your Nikon-related question, email it to mail@nphotomag.com. Please note that we reserve the right to edit queries for clarity or brevity.

? I've bought a filter kit that contains coloured and full and graduated ND filters. What subjects will give the best results?

Craig Wallace, via email

JASON SAYS... Your filter kit sounds ideal for landscape photography, Craig. Orange filters can boost the colours of sunrise and sunset, while graduated ND (Neutral Density) filters are designed to darken bright skies without affecting the landscape below, enabling you to capture, say, sunrises and sunsets without the sky blowing out. Full ND filters, meanwhile, reduce the amount of light reaching the sensor, which means you can set a long exposure even in very bright light – ideal if you want to blur moving water or passing clouds in the middle of the day.

When using coloured filters, use the preset white balance setting that best matches the lighting conditions, for example Daylight, Cloudy or Shade. The Auto setting won't work so well, as it will try to counteract the colour of the filter. Matrix metering works fine with full ND filters and, to some extent, with ND grads too.



For optimum exposures with ND grads, take a light reading of the land with no sky in the frame before fitting the filter, then set the exposure for the land in manual mode

? Is Adobe Photoshop CC a good investment if I'm predominantly shooting in JPEG mode rather than RAW with my D750 and D5300?

Alan Connor, via email

JASON SAYS...

Because you're able to convert RAW files to JPEGs in Nikon's own Capture NX-D program, RAW processing is perhaps the least compelling case for investing in the Adobe Creative Cloud Photography Plan.

Photoshop is best known for – and best suited to – its

high-end, layer-based image-editing facilities, rather than its Adobe Camera Raw plug-in. Similarly, Lightroom is superb for more basic photo editing, as well as for organising your images. All things considered, Adobe's monthly subscription plan is well worth the money, even if you never shoot in RAW.



You'll need a wide aperture to enable a faster shutter speed, so the whole of the fish may not be in focus

? I've been trying to shoot fish in an aquarium, with my lens up against the side of the tank. Why are most of my images blurred?

Kevin Hatfield, via email

JASON SAYS... There are several possible causes. First, it could be a focusing issue. Select a single AF point and align it with the part of the fish you want to be in focus. Use continuous autofocus to track any movement, and fire off a short burst in continuous shooting mode.

Avoid slow shutter speeds as they can result in motion blur (up your ISO setting if necessary). Aim for a speed of 1/125 sec or faster.

Resting a lens against the side of the tank can increase the effect of mirror-bounce, giving rise to blurred images. Ease back a little, but watch out for reflections.



Adobe's subscription plan entitles you to new editions of the software as and when they're released

? I've updated my D5300's firmware and now my Sigma lenses won't autofocus. Nikon's support services say they can't help because they don't support third-party lenses. What can I do?

Luiz Barrella, via email

JASON SAYS... Due to the application of Nikon's recent firmware release, some Sigma lenses will need an update. For

'Global Vision' lenses in the Art, Contemporary and Sport lines, owners can apply updates directly to the lenses, via Sigma's USB Dock. This is available to buy for around £40/\$60, and connects the lens to a Mac OS- or Windows-based computer. For other lenses, or in the absence of a USB Dock, customers can send their lenses to a local Sigma repair centre for a free update. The repair centres are listed at www.sigma-photo.co.jp/english/network

? I'm delighted with my new D500 but, unlike my old D300s, it doesn't have a pop-up flash. What compact flashgun would you recommend that's smaller than my SB-900?

Conrad Dobson, via email

JASON SAYS... The lack of a pop-up flash on the D500 is a shame, as it would have been useful not only for adding a bit of fill-in lighting, but also for wirelessly triggering off-camera flashguns. (In most current Nikons, this is easily done by setting the pop-up flash to Commander mode.)

Nikon's smallest and cheapest flashgun is the SB-300 (£120/\$150) but the SB-500 is a better buy, at £195/\$250. It's still fairly compact, but more versatile. It features wireless Commander and Slave modes, making it more useful for creative lighting techniques based on multiple flashes (including your SB-900). It even includes a secondary constant LED light, which is handy for close-ups and shooting video.



? Why do pros at football matches and other events use their flashguns in strobe or repeating mode?

Phil Preston, via email

JASON SAYS... High-end flashguns can usually fire a burst of multiple flashes throughout a long exposure, to create a stroboscopic effect. At a football match, for example, it might be used to show the flight of the ball.

? Which is more versatile, an 85mm f/1.8 or a 90mm f/2.8 macro?

James Maxwell, via email

JASON SAYS... Go for the macro lens if you want to shoot close-ups of tiny objects. If you don't want to do that, buy the 85mm with its wider available aperture for enabling a tighter depth of field in portraiture, and faster shutter speeds in general shooting.

Secondhand Superstar

? I'm keen to try a fisheye lens on my D5200. Which one would you recommend as a secondhand buy?

Matt Davidson, via email

JASON SAYS... Nikon makes an AF DX 10.5mm f/2.8G ED fisheye lens, but it won't autofocus on camera bodies like yours that lack an internal AF motor. A better solution is either Sigma's 4.5mm circular fisheye lens, or the Sigma 10mm diagonal fisheye lens. I prefer the latter.

Sigma 10mm f/2.8 EX DC HSM Diagonal Fisheye

FOR EXTREME WIDE-ANGLE SHOTS, THIS LENS IS A GREAT SECOND-HAND BUY

RELEASED (YEAR): 2008

PRICE NEW: £600/\$900

PRICE USED: FROM £200/\$250

Like other 'diagonal' fisheye lenses (sometimes confusingly referred to as 'full-frame' fisheyes), this lens produces an image circle that covers the whole of the camera's image sensor. In this case, it's for a DX sensor. Whereas circular fisheyes give a 180-degree viewing angle on both the horizontal and vertical planes, diagonal ones give a narrower viewing angle of 180 degrees on the diagonal of the frame. Even so, that still gives stupendous wide-angle coverage.

This Sigma is fairly compact and lightweight, and delivers very good image quality. The extremely short 13.5cm closest focusing distance and enormous depth of field make it great for funky close-ups (see page 42). The lens comes with a built-in 'hypersonic' autofocus system, compatible with your D5200, and a built-in lens hood that helps protect the bulbous front element. As with any fisheye lens, you can't screw filters onto the front, but a gelatin filter holder is built into the rear of the lens.



KEY POINTS

Built-in hood

This helps to reduce ghosting and flare, but its main benefit is that it protects the lens's bulbous front element.

HSM autofocus

Ring-type ultrasonic or 'hypersonic' AF is fairly rapid and whisper-quiet. It also has a full-time manual override facility in 'single' autofocus mode.

Mounting plate

The metal mounting plate includes a built-in holder for the insertion of gel filters.

SPECS

Elements/groups: 12/7

Aperture range: f/2.8 to f/22

Autofocus type:

Ring-type ultrasonic

Minimum focus distance: 0.13m

Maximum magnification: 0.3x

Filter thread: Rear filter holder

Dimensions: 76x83mm

Weight: 475g

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Best waterproof solution

What's best for fun on the ocean waves, a waterproof bag or a waterproof camera?

→ Nikon Coolpix AW130

WEB www.nikon.com
SIZE 110x66x27mm
WEIGHT 221g
MATERIAL Mostly plastic
FLOATS ON WATER No
SHOCK-RESISTANT Yes
SUBMERSIBLE Yes
MAXIMUM DEPTH 30m
PRICE £200/\$330



Design

This tough compact is shockproof to two metres, dustproof, can operate in temperatures down to -10 °C and, most importantly, is fully waterproof. So much so, in fact, that it'll work down to a depth of 30 metres – though at that depth you'll need additional lights.

Features

As a compact camera, the AW130 is very slim. It's barely more than an inch thick yet packs in Wi-Fi, NFC, GPS, an electronic compass, altimeter and a depth gauge. Shooting benefits from a 5x optical zoom lens (24-120mm effective) and VR (Vibration Reduction).

Sink or swim?

If you drop this camera into the water, it'll sink to the bottom and potentially disappear without trace. To avoid this happening, Nikon also offers a 'waterproof floating strap' that attaches to the strap lug of the camera. It costs around £10/\$10.

Ease of use

All of the camera's controls remain easily visible and accessible, so you can easily navigate menus and make shooting adjustments. The only caveat is that the small size of some buttons makes them tricky to operate when wearing wetsuit/diving gloves.

Versatility

An amazingly versatile camera, the Coolpix AW130 is great for both land and sea. You can take it pretty much anywhere and simply shoot, without needing to enclose it in a bag or case to protect it against the elements.

Vs

→ Aquapac Waterproof D-SLR Case

WEB www.aquapac.net
SIZE 145x185x100mm
WEIGHT 216g (without camera)
MATERIAL Polyurethane
FLOATS ON WATER Yes
SHOCK-RESISTANT No
SUBMERSIBLE Yes
MAXIMUM DEPTH 5m
PRICE £80/\$100



A beach-friendly bag for your D-SLR, the Aquapac will keep your camera safe from both water and sand. It's also ideal for taking on a boat, as you don't need to worry about your camera getting splashed, and it's fully submersible to a depth of three metres.

No glorified plastic bag, the Aquapac is made of high-grade thermoplastic polyurethane with an optically clear acrylic window at the front. Size-wise, it's big enough to accommodate a D7200 at a pinch, but it's too small for a D810.

Once your Nikon has been sealed inside, there's typically enough air in the Aquapac to enable it to float on the surface. Reassuring as this is, the trapped air can also result in condensation. Three desiccant sachets are supplied to absorb moisture.

The Aquapac's polyurethane is substantial, so you can be reasonably confident it won't get punctured during use. However, this makes camera controls difficult to operate. You're also limited to lenses with a maximum size of about 80x100mm.

It works well as a splash-proof case but is tricky to use underwater. Condensation can be a problem, even when using the desiccant sachets, and the edge of the lens housing can end up in the shot if you use small zoom lenses at their wide-angle settings.

NEXT MONTH: TELECONVERTERS V SUPER-TELEPHOTOS

VERDICT

There's something to be said for taking your Nikon D-SLR into the water, as it means you can carry on shooting with a camera that you're

familiar with. The Aquapac facilitates this, but it's fiddly and tricky to use. The Nikon Coolpix AW130 is much more enjoyable

and versatile, and it's nice to have an additional (and small) compact camera for snapshots on dry land as well as on (or in) the waves.

**“Which renowned
photographer did
Nicole Kidman play
in the movie Fur?”**

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- Wildlife masterclass
- Take the perfect classic car shot



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- Travel zooms on test
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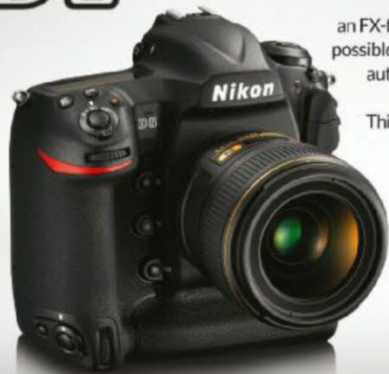
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D5

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D500

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D810 Body **£2,199.00 or £34.47 P/M**

D750

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INTERVIEW

96 Michael Aw

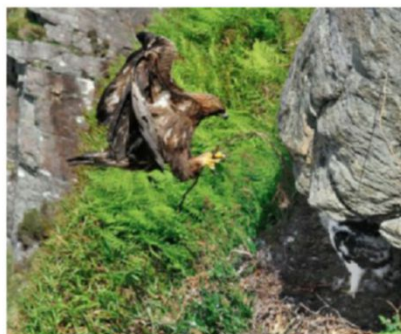
Being attacked by sharks and thrown into the air by whales is all in a day's work for legendary underwater photographer Michael Aw



MY BIG BREAK

95 Dan Ballard

Discover how a single shot changed the way Dan saw his travel photography, and helped kickstart his successful career



ON ASSIGNMENT

106 Laurie Campbell

Capturing images of majestic golden eagles in the wild requires great skill, unimaginable patience and some cunning camouflage...

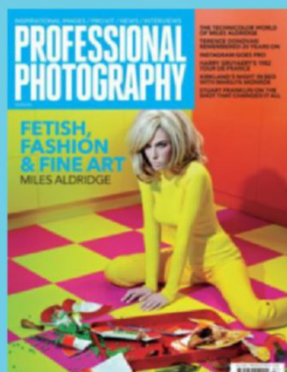
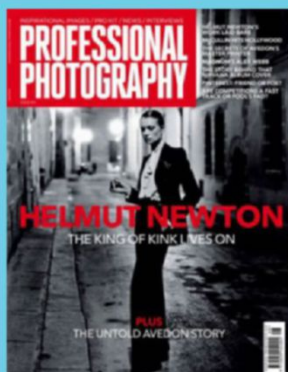
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My big break

Dan Ballard



Travel photographer **Dan Ballard** has visited more than 50 countries across five continents. His work has been published in numerous magazines, including *National Geographic*, *Digital Camera* and *N-Photo*. To see more of his work visit www.danballardphotography.com

13 SEPTEMBER 2009 • LAOS • NIKON D700

Dan Ballard grew up in a village of 75 people in Colorado where most people never ventured beyond the state border, let alone overseas. Yet he grew up with a passion for travel and photography, thanks largely to his mother, who was also a professional photographer (“She shot Nikon, which is why I do”), and a grandfather who regaled him with stories of his journeys. “He had hitchhiked up to Alaska and fixed tyres on the side of the road to get there. When I was growing up, he was always talking to me about travelling.”

So, aged 20, Dan decided he wanted to be a travel photographer, and followed his grandfather’s advice to see the world. However, his early images proved disappointing: “I would travel to all these countries and I’d love the experience,” he says, “but then I’d come back and show people the images, and I just didn’t feel they expressed that emotion at all. It was always such a let down.” He continued to feel this

way for the first few years of shooting professionally. “The one thing I could never do was really express how I felt about a place through my photography.”

All that changed in 2009 when he made a three-month trip to Southeast Asia, and found himself wandering through a rice field in Laos late one afternoon. “I had been in the area for about a week at that point,” he recalls, “just walking through the rice fields for hours and hours, trying to look for moments, for things happening. I was trying to find something to put in front of those incredible hills with the low-lying mist and the sun breaking through. I could tell it was going to be something cool if I could just find a subject.”

The breakthrough

Dan fitted a 20mm f/2.8 Nikon lens to his D700 when he found his subject: a woman walking down the path ahead of him. “I got one or two quick shots and she was gone.” Looking back, he believes this image marked a breakthrough in his attempt to convey the essence of a location. He explains: “Even though I had been shooting professionally for a few years before I took this, nothing before it really captured a place in the way that I wanted it to. This image made me realise it was possible, and really affected my later work.”

It also inspired Dan to change the direction he was taking with his work. “At the time I didn’t want to be a travel photographer, I wanted to be a landscape photographer that included the culture, so this image represents a little of that transition.”

Seven years on, this transition has proved to be instrumental in Dan’s success, and his stunning travel images have since appeared in *National Geographic*, *Trail Runner*, *Men’s Journal* and numerous other international publications.

Keith Wilson



Profile

MICHAEL AW IS AN AWARD-WINNING PHOTOGRAPHER, AUTHOR AND EXPLORER...

● Michael is the winner of nearly 70 international awards, including the Gold Diver award for the Portfolio category at the 2010 World Festival of Underwater Pictures.

● His pictures have been published in *National Geographic*, *Nature*, *BBC Wildlife*, *Smithsonian*, *Ocean Geographic* and *Asian Geographic*.

● He is a Fellow of the International League of Conservation Photographers and a Fellow International of The Explorers Club, New York.

All images: © Michael Aw

MICHAEL AW

As Michael Aw prepares for an expedition to the Arctic, he tells Keith Wilson about going head to head with sharks, being thrown into the air by whales, and why he talks to fish...



Born and raised in Singapore, Michael Aw was in his mid-30s when he decided life would be better if he spent more of his time underwater rather than trying to keep his head above it...

What triggered your interest in the underwater world?

I worked in advertising for 14 or 15 years and I've always been curious about exploring anything new, so when I finished my commercial life and was out exploring the world, I started scuba diving and taking pictures. I feel more comfortable underwater than on land because at least it's not hot!

How old were you when you were first learned to dive?

I learned to dive in 1981. I turn 60 this year, and when I was 34 or 35, I quit my full-time job and decided to travel and start taking pictures.

What do you particularly enjoy about diving?

I love nature and animals, but if you go into a forest or even on safari there is always a barrier between you and the animals, whereas underwater you are part of that environment and the animals come straight up to your face. You can reach up and touch them if you want to, whereas in the forest you can hear the animals but sometimes you can't even see them, or you only get a glimpse and they're gone. I feel so much a part of the environment once I'm in the water that I feel I belong there.

You must have had some magical encounters with aquatic creatures while diving...

Oh yeah, many. Every time I go into the water, every dive – I stopped counting when I reached 5000, and I think I have had 10 or 15,000 dives now – rarely has there been one where I have not had an interaction with an animal. I like to see the fish,



Previous page
BRYDE'S WHALE
GULPING DOWN
SARDINES
Nikon D3s, Nikon
AF-S 14-24mm
f/2.8G ED, 1/250
sec, f/9, ISO800



CLOWN FISH LIVING
IN WHITE ANEMONE
Nikon D300s, Nikon
AF-S 60mm f/2.8G
ED, 1/160 sec, f/36,
ISO250

whether small or big. Every time I talk to the fish!

When was your first underwater image published?

I first got published in the early 1990s. I got on the cover of a magazine with an image of a clown fish. Incidentally, the first animal I saw underwater – I learnt to dive in Singapore where the water is murky and dirty – was a clown fish. Then, when I did my first book in 1993, I spoke to the publisher and insisted on having a certain picture on the cover, but he came back and said, 'No, you can't have this on the cover because it won't sell the book.' Next thing, he looked through the book and picked the same clown fish for the cover of the book! We had two reprints and sold 20,000 copies, which for a coffee table book that sold for \$80 was not bad.

Scuba or snorkel?

Well, to get into the environment, to stay down because we are not a fish,



I stopped counting when I reached 5000 dives, and I think I've had 10 or 15,000 now



I was just shooting, hoping to get my shot, when the whale came up from the deep and lifted me out of the water

I choose diving, because I can go where I want to be and I don't have to come out for any length of time. But the freedom and quietness of snorkelling is unbeatable, because even if you scuba you can hear your bubbles, whereas with snorkelling you're freer, you move much faster and you're less invasive. Basically, I'll do whatever works to do my job, but as a personal preference when I'm not shooting, when I just want to enjoy the environment, I'll choose scuba because I can stay down and pretend to be a fish!

You have won numerous photography awards. What do you look for in your own pictures?

I compose a shot in my mind before I shoot it, and it has to be possible for me to shoot it in that moment. I want to take pictures that are my own and that nobody can duplicate. For example, the shot that won the Underwater category of last year's Wildlife Photographer of the Year, which was taken off the Eastern Cape of South Africa [see main image, previous spread] – I don't think anyone can duplicate that picture.

It's an extraordinary image. Did you feel at the time that you were taking something that was truly special and that you wouldn't be able to repeat?

For that shot I was in that particular situation for many hours – in fact, it was from 9.30 in the morning till about four in the afternoon, and I was totally exhausted. There were three or four whales around us, there was this huge big ball of sardines, and I was just shooting, hoping to get my shot, and I was thrown up out of the water by the whale maybe five times. The whale came up from the deep and lifted me out of the water and



threw me, holding onto the camera. At the end of the day I know I have good shots, but I also know that I don't have the shots I had imagined.

It's getting harder to get that kind of scene, because the sardine has been depleted to the point that there's no sardine at all. This year will be my first year of not going since 2004 because there's no more fish. It's a very sad state, and I can't see that shot happening again.



Clockwise from top:

DEEP SEA JELLYFISH

YELLOW BOXFISH, LARVAE STAGE

PYGMY SEAHORSE ON CORAL

Which lenses do you use?

When I started in the early 1990s I shot a lot of macros of small animals, so my main lens was the 60mm macro. I used that lens about 80 per cent of the time and the other 20 per cent I used a wide-angle lens, like the 18mm prime lens. Those were the two lenses I brought with me for the first five or six years of shooting, and sometimes I used Nikon's 105mm micro. But these days, as I get older,



the small things become more difficult to see. Now, we are shooting small little snails or shrimp the size of a grain of rice, but it's easier for me to shoot a shark or a whale because I can't miss! So I use a wide-angle lens like a 15mm Sigma or the 16mm fisheye, then if I'm not sure what I'm getting I put on my 16-35mm zoom lens. It's like my insurance lens, so I pack that first, but I never go without the 60mm macro.

Can you list the typical array of Nikon cameras, lenses and other equipment that you take with you? I'm leaving in a few days for Socorro

and I always have the fastest camera possible, because I shoot a lot of action like the sardine run, animal movement and behaviour. Right now, I have a D5, but my housing for the D5 is not ready yet, so I'm using my D4. That's my main camera body, because it's fast and I rarely miss a shot. Then, for my seascape stuff, that will be a D800 because I can be slow and compose my shot. But I'm considering going back to a crop-sensor camera like the new D500 or D7200. They are very good cameras, and when I shoot macro I gain because of the cropped sensor, so when using the 60mm macro lens it's



**GREEN SEA
TURTLE, BORA
BORA, TAHITI**
Nikon D2x, Nikon
AF-S DX 10.5mm
f/2.8G ED Fisheye,
1/160 sec, f/16,
ISO160



**MANTA RAY,
CORAL BAY,
WESTERN
AUSTRALIA**

actually a 90mm. So, the three cameras I will carry for a main expedition will be a D4 or D5, then a D800 and now maybe I will also carry a D7200 or D500.

How do you stay on top of your image workflow?

First of all, I don't delete any pictures on any of my cards. I bring enough cards to cover the whole trip, so when I come back from a dive at the end of the day I will back up my cards onto a portable hard drive. I have all my cards there and I know I have some good shots then, so I look through it and I start renaming the shots, and entering any new animals or interesting information, and at the same time including the metadata. When I get home I load up the whole thing onto my hard drive at home, so it's now backed up twice. Then my assistant will get involved and start looking at the good pictures, and the editing and post-processing I will handle myself.

You must take a lot of cards then – how many and what size?

I still won't go to those extreme cards like 128Gb – I still prefer to work with 32Gb cards because if they get corrupted, you know, the bigger the card the more trouble you get. I like to take my card out at the end of the day, or even after a couple of hours. I like to load up with a new card on every dive. You don't want to go into the water with, say, half a card, because you know when you do that you will run out of pictures and you're stuck underwater. I don't like that happening to me, so I bring 50 to 100 cards all the time.

I have just placed an order for another 20 cards today.

Where do you derive your photographic inspiration? Are you ever inspired by other underwater photographers like David Doubilet?

David has been my personal friend for a long time now, since the mid-1990s. He always manages to stay ahead of the game. How do you get ahead of him? That is the challenge! I always try to do something that he hasn't done before, and every once in a while I manage to do that and I can go to David and say 'Look, I've just



QUICK AS A FLASH

FLASH IS CRUCIAL FOR UNDERWATER PHOTOGRAPHY, AND MICHAEL HAS FOUND A WAY TO SHOOT A PROLONGED BURST OF FLASH-LIT IMAGES

What flash system do you use for taking photos under water?

I usually bring around four strobes with me and the ones I use are the Seacam 150 strobes, or the Ikelite 161s. They all have an exposure setting of 24, and the beauty of the Ikelite 161 is that if I set it at quarter power I can fire continuously for 50 frames and the flash will keep up with it! I've tested it to prove that it can be done, and actually used the Ikelite this way.

Really?

It's amazing, yes, you just trigger and 50 flashes fire non-stop. You release it, recharge, and you go again. I like to get very close to my animals, with the mantas and the whales. I like to use a fisheye. I'll be about two or three metres away from the animals. I only like a little light on the animals, so I have good shadows, reflection on the eyes and also part of the body. I don't like to light the whole animal entirely.







done this.' That is my motivation, to do something that he has not done before.

Is there a particular species of marine life that you never tire of photographing?

I like to say sharks, but that's not true. The animal I find that can almost anticipate what I am doing is actually a species of fish, the blennies. They're small with big brown eyes. They seem to read what you're doing. They bounce around a lot. That has been a challenge for me since I started shooting in the early 90s. So, to this day, I will always have my cameras ready to shoot blennies, because that fish has personality and there's maybe about a hundred species of them found in all parts of the world, including the Arctic and Antarctic Oceans, but especially in the Tropics there are a lot of them.

You also mention sharks?

I have a lot of time for sharks because they are like this beast in the ocean

that people are afraid of and they are very smart, they can read you. I always say the most dangerous shark is the shark that you can't see. Sometimes, one will come up right in front of you and give you a dare, and that's when you put your camera in front of you and it will come at you and give you a nudge and take a bite on the housing port. I lead dive trips, and in one situation I had six guests around me and I saw a shark come in and check up every single port and then he came back to one and just bit the port. So, I've got time for sharks. I've done all major sharks from the tigers to the hammerheads, to the great white, silky sharks, threshers.

Which assignment has presented you with the biggest challenge?

The last few years from 2009 to now, because of climate change, we have to work more in the polar environment and we're not meant to survive -1°C water! In 2001 we were constantly dealing with -1° and -2°C water, then last year when we were in



GREAT WHITE, GUADALUPE, MEXICO

Nikon D2x, Nikon AF-S DX 12-24mm f/4G IF-ED, 1/250 sec, f/8, ISO250



SARDINE RUN, SOUTH AFRICA

Nikon D3s, Nikon AF-S 14-24mm f/2.8G ED, 1/250 sec, f/3.2, ISO2000



A LEOPARD SEAL COMES IN CLOSE TO INVESTIGATE MICHAEL'S CAMERA

the Arctic, because of global warming, we were dealing only with +1°C water, because it's warmer now than ever before. But for cameras, equipment, our own comfort, cold is a big challenge. If your hand is frozen you can't shoot, so it's more challenging as an environment and your camera takes a beating.

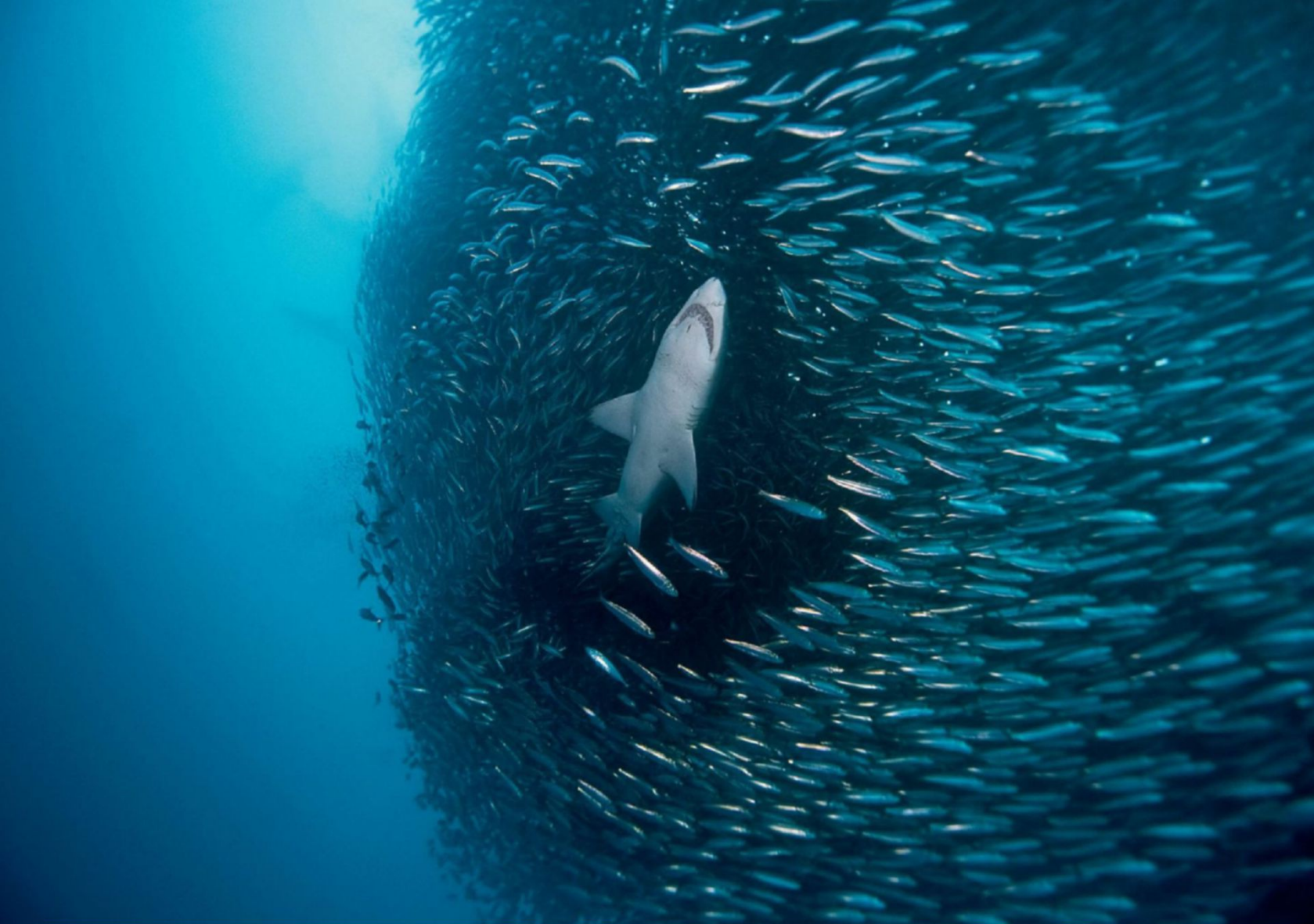
You're off to the Arctic again soon. What is the purpose of that trip?

I'm off with a scientific group from the University of Alaska. We're going into the Barents Sea, so we're shooting above water and at the same time underwater and doing a lot of sampling of animals, seeing how warming water affects the food source, plankton, of animals up there. It's a 45-day expedition. There will be whales as well, I hope!

Are you expecting to find some species that you haven't photographed before?

With the deep oceans you always get new animals. Always. We know so







**SCALLOPED
HAMMERHEADS,
COSTA RICA**
Nikon D4, Tokina
10-17mm, 1/640
sec, f/2.8, ISO1250



**DOLPHINS,
BAHAMAS**
Nikon D3s, Nikon
14-24mm, 1/500
sec, f/2.8, ISO1600

little of the deep ocean. When you start trawling, start bringing animals from the deep up to the surface, you always have something new.

Speaking of marine animals, has there been a particularly close encounter with one that you have experienced as an underwater photographer?

My most memorable experience was in about 2005. I did a shoot in French Polynesia and this guy says, 'I can get you to the open ocean and we are going to bring some open water

sharks into your environment so you can get some pictures of them.'

I said, 'What will we get?'

'Oh, you'll get some silky sharks, some great hammerhead sharks.'

There are four of us: him, me and my assistant, and the driver of the boat. We head up the channel and out into the open ocean, then descend down to 25 metres. The next thing I know the guy in the boat is throwing rocks into the ocean. So it's raining little rocks and these rocks stimulate the sharks to come up from the deep to investigate what is happening up

above. In the ocean, little rocks raining down is like sick fish, or fish struggling in the water, that's how it sounds, and a big shark comes in to check us out. Open water sharks are always very hungry sharks, as there's not much to eat out there, so they begin circling us. I've got my set-up with me and my assistant has my other camera with her.

I'm shooting for 20 minutes and when I finish with one camera I take the other camera. Halfway through, I think "This is not good because we can't go to the surface," because



when sharks are circling you, they go tighter and tighter. Sure enough, the shark comes in and charges me, so I have to use my camera to push it away! Of course, you can do this a few times but you get tired. So my assistant is holding me, and her eyeballs are wide open and she



The shark took a bite out of my strobe and the whole thing exploded



is pushing the shark from the back and I'm pushing the shark away from the front. The guy on the surface has no idea what's happening beneath because we're 25 metres down and he is still throwing little rocks in and getting more sharks!

The shark takes a bite out of my strobe and the whole thing explodes. He's still coming and this strobe is dangling from its arm, but we are fortunate in that while all this is happening a dolphin appears.

A dolphin?

A group of dolphins, actually. Half a dozen of them. As soon as the dolphins come the shark disappears. Once you go into the open ocean there's no place you can hide. Now, whenever I'm dealing with big animals I'm very careful.

What is the best piece of advice you can give to someone wishing to become a professional underwater photographer?

You need to answer another question: how much do you want to do it? You must have the passion. If you want to be a professional at doing this then you have to keep on trying, never stop, get out there and shoot as much as you can. Keep on trying and you will get your break. Now, with social media, it is quite easy to get attention, but getting likes on Facebook, putting pictures up there, that's not what you

SAVING SHARKS

SINCE 2000 MICHAEL HAS BEEN CAMPAIGNING TO PROTECT SHARKS, ESPECIALLY IN SOUTH-EAST ASIA AND CHINA, BY LOBBYING AGAINST EATING SHARK FIN SOUP...

How effective is the campaign from your point of view?

Numbers have dropped, for sure. In the last few years, in Hong Kong and Singapore, there's been a 50 per cent drop in the import of shark fins. That is a very dramatic drop, but because the industry is so big – you're talking about 100,000 tons – a typical shark fin restaurant in Singapore can sell about one ton of shark fins a week. For one ton of shark fins, you're talking about 2000 sharks.

want. What you want is to get people to recognise your work, and to do something new. Get out there and do something that nobody has ever done before. I think that is the most important thing.

See more of Michael's amazing work at www.michaelaw.com

NEXT MONTH: INTO THE WILD WITH NEW NIKON AMBASSADOR RICHARD PETERS

Golden opportunity

You need more than camera skills to photograph golden eagles – **Laurie Campbell** reveals he's also a master of disguise

My work photographing golden eagles in Scotland is part of an ongoing project, partly subsidised by the North Harris Trust, to build up a library of photographs of a wide variety of subjects to promote the area for wildlife tourism. Over the last two years I have spent 172 days working on the North Harris estate, and there is still lots to photograph.

I have used Nikon equipment for over 40 years, mostly because it's so durable. When I was photographing golden eagles from my winter bait hide, I used a combination of Nikon D3s, D3x and D300 bodies with a 500mm f/4 VR lens and either a 1.4x or a 1.7x Nikon teleconverter.

I first developed the technique of tempting golden eagles down to bait in winter in the early 1990s. Baiting with red deer carrion is permissible by law, but only with the consent of the landowner. For my recent work on Harris, I used a 'flat-pack' hide design consisting of a timber framework and waterproof covering, which I then camouflaged with a mixture of netting and natural materials to help it blend in. I make my hides as habitable as possible. The more comfortable you are, the longer you'll wait, and the more you'll see.

All being well, golden eagles can respond to baiting within a couple of weeks. I had golden eagles visiting the site regularly after three and a half weeks of a five-week trip. They only

visited the carcass early or late in the day, though, and came most often in bad weather. They rarely stayed for more than a quarter of an hour.

Light levels were often so low that I needed to shoot exposures as long as a quarter of a second, which meant I needed to wait until the bird was perfectly still and had paused to look up between feeding. As the eagles became conditioned to the noise of the camera, I started



I used a flat-pack hide design consisting of a timber framework and waterproof covering, which I then camouflaged with a mixture of netting and natural materials

to introduce other sounds, to subtly prompt them to look up.

Nesting instinct

I also photographed golden eagles at the nest. This is more controversial nowadays, but with over a dozen pairs breeding on North Harris, I was determined to record this aspect of their lives. The eyries of virtually all golden eagles in Scotland are monitored by raptor groups, and I had the advantage of working with a local recorder. I decided to work at a site where I could install a hide on

a narrow cliff ledge. Hides must be introduced gradually and the reactions of the adults must be checked after each stage, from a distance, to ensure that they have accepted the changes to the environment around their nests.

During the early stages of constructing my hide, I left a 'dummy lens' in place to help get the adult eagles acclimatised to a shiny object being near their nest. It was made from an aluminium can and section of plastic drainpipe.

When it came to using the hide, it was almost impossible to risk changing lenses at such close range, so I used two together, alternating between a 200-400mm and a 500mm attached to a heavy-duty fluid Sachtler tripod head, and a 70-200mm attached to a Manfrotto 'Magic Arm' clamped onto one of the tripod legs. I could use the lenses with or without 1.4x or 1.7x teleconverters, and with either my full-frame Nikon D3s or D3x bodies or my cropped-sensor D300, which gave me great flexibility. Added to the mix was a Nikon 1 V1 with an FT1 adaptor, which I reserved for long-range photography.

My favourite image so far from this project is of a female eagle returning to her nest with prey (see right).

To learn more about Laurie's work with golden eagles, visit www.lauriecampbell.com



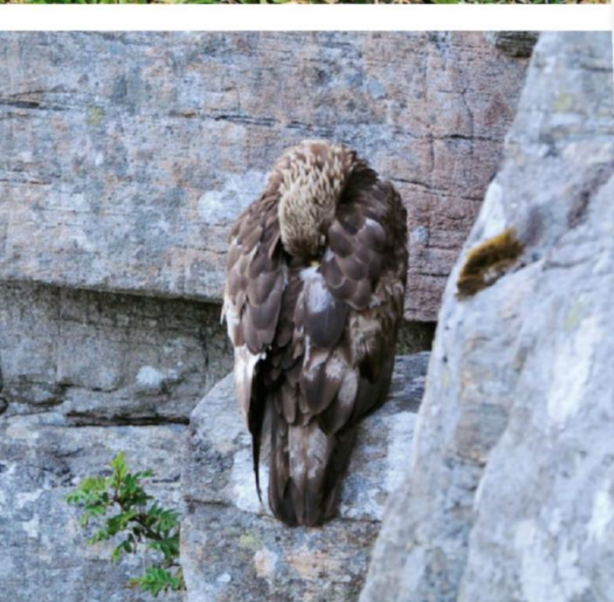
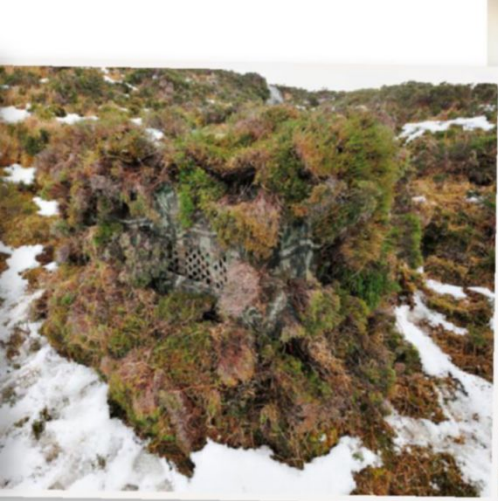
1 Laurie's hides consist of a timber framework with a waterproof covering, which is then camouflaged using natural materials

2 On Laurie's D300, his 500mm lens has an effective focal length of 750mm – great for getting close-up shots

3 Introducing the hides gradually gave the eagles the chance to become accustomed to them, so they'd behave naturally



NEXT MONTH: ON ASSIGNMENT WITH FINE ART PRO JONATHAN CHRITCHLEY



NEXT MONTH

**On sale
Thursday
1 September
2016**



Which is best? D500 **vs** D750

Should you go full-frame? With the launch of the D500, upgrading has got a lot more complex. Rod Lawton explores the issues

GARDEN SECRETS

Our Apprentice heads to RHS Wisley for a one-day masterclass on how to get the best shots of flowers and gardens

ON YOUR MARKS

Top sports photographer Andy Hooper shows you how to improve your reaction times

**PLUS
FREE
eBOOK
WORTH
£6.99!**



Gear Zone

Five scores,
Five meanings

- ● ● ● ●
Forget about it!
- ● ● ● ●
Below average
- ● ● ● ●
Good for the money
- ● ● ● ●
Excellent product
- ● ● ● ●
Best-in-class product

Our awards
in a nutshell



The best performance, design and value



A product that gives you more for your money



The very best kit that really sets the standard

IN-DEPTH REVIEWS / GROUP TESTS / BUYER'S GUIDES



THE BIG TEST

112 Wide-angle zooms

Get the bigger picture with one of these eight rectilinear wide-angle zooms, all designed to get a wider angle of view with the minimum of distortion



NEW GEAR

110 The latest kit

Our pick of the newest Nikon-fit kit, including a polarising filter to deliver brilliant blue skies and a handy mobile drive for storing your photos as you travel



BUYER'S GUIDE

120 Nikon cameras

After a new camera? Get the key facts and figures on all current Nikon D-SLRs and the best Nikon 1 models

123 Nikon-fit lenses

From aperture range to weight to street price, we've got all the information you need to make your next lens purchase

New gear

Expert opinions on all the latest hot kit

G|Drive Mobile USB-C

£99, \$119

www.g-technology.com

This 1TB portable hard drive utilises the latest USB-C technology, which enables headline transfer speeds of up to 136MB per second, but it's still backwards-compatible with standard USB ports (using the included adapter), so there's no need to worry if you're not using the latest hardware. At present only a few machines actually feature the new USB-C socket, but it's widely accepted that in the coming year this new connector will become the standard. For now, even on older USB devices transfer speeds are pretty good.

Compact enough to slip into a kit bag, it features a traditional 7200rpm hard drive rather than the latest solid state technology. This means that you get a good amount of storage at a reasonable price, but you do also need to be a careful when handling the drive when out on a shoot, as hard drives are less robust than their SSD equivalents. In our tests, using USB 2, the drive's performance was impressive, with read speeds of 35MB per second and write speeds of 30MB per second.

Unlike fast Thunderbolt drives, which are primarily restricted to Mac users, USB-C looks like it will become more widely accepted on Macs and PCs, so you can use this drive safe in the knowledge that it won't become obsolete any time soon.



Gold



Silver



Space Grey

SpiderLight Hand Strap

£50, \$65 www.spiderholster.com



Although unconventional, this small handgrip works incredibly well and makes an ideal companion for a small, lightweight camera such as a Nikon 1. One end of the strap attaches to the normal strap lug on your camera, while the other is designed to be fastened between your camera and a conventional tripod base plate. Once attached, the strap loop gives you a good solid handhold without the annoyance of a strap flapping around, and when you need to attach your camera to a tripod, the base is already in place and ready to go.



BenQ W2000

£900, \$985 www.colorconfidence.com

A projector is an ideal way to show your images off to a crowd, enabling you to display a photo far larger than it would be practical to print, and to multiple people simultaneously. The BenQ W2000 really couldn't be easier to use, and features a variety of input options that will enable you to get up and running in minutes. It projects a Full HD image at 2000 lumens and produces bright, natural colours. If you need a projector or are looking for one for a club, this is a solid solution.



Rogue FlashBender 2 XL Pro

£84, \$79

www.rogueflash.com

The XL Pro is the latest and largest addition to the FlashBender line of light modifiers. It looks and works very much like the smaller versions, containing a series of flexible rods that can be bent to shape it and direct the light. Fashioning a simple tube is straightforward, although a little additional Velcro would make securing more experimental shapes easier. Crucially, the neutral inner material keeps your flash output cast-free.

The XL Pro features a belt and buckle system that makes it quick to attach to your flash. This strap design is very easy to adjust, and so the FlashBender will fit any hotshoe flash with a circumference between eight and nine-and-three-quarter inches. It stays firmly in place, and you can remove it very quickly. The size and shape also mean that it can be quickly folded and stored flat in your kit bag. It's actually been designed to slot into the 15-inch laptop slot in a backpack, which is a nice touch.

While very similar to its siblings and predecessors, the design has seen a few modifications that have increased its versatility. A new Pro Grip Strip and diffuser can be attached to the FlashBender, and although it might all look a bit flimsy when connected, in use it works well. The Pro Grip Strip helps to limit the spread of light from the FlashBender, making it ideal for transforming your off-camera flash and creating attractive edge or rim light around your subjects.

The larger size of the reflector does mean that the XL model is heavier than its siblings, but Rogue has been researching materials and has actually been able to reduce the material weight. This new material is now being rolled out across the range.



SRB Polariser

£12, \$16 www.srb-photographic.co.uk

Polarisers give an instant and dramatic improvement to contrast and colour in skies in landscape shots, and should be at the top of any photographer's list of accessories. Usually a good polariser will set you back a considerable amount of money, but SRB's polariser is incredibly cheap and produces excellent results. The effect on skies isn't as dramatic as the result you get from more expensive alternatives, but it does the job. If, however, you need a filter to kill reflections in water or from shiny surfaces, then the SRB is ideal.



www.digitalcameraworld.com

Manfrotto Off Road Stunt

£120, \$149 www.manfrotto.co.uk

Few backpacks break the mould when it comes to design, but with the Off Road Stunt backpack almost every design feature is unique. It's been designed for action cameras and CSCs (such as the Nikon 1) and features a zip down the centre of the bag with two separate pull-out sections that store your kit safely. There's even plenty of room on top for a jacket. This bag has been designed to fit snugly and is ideal if you're an active photographer into, say, running or mountain biking.



Summer 2016

NPhoto

111



Play the angles

Going wide can give you a new perspective on life. **Matthew Richards** investigates...

How wide is wide? Back in the days of 35mm film, a 35mm lens was considered 'wide-angle', and anything with a shorter focal length was simply extravagant. We expect more from our wide-angle lenses nowadays. Most 'standard' zoom lenses for full-frame cameras shrink to 24mm at the short end, while the typical minimum of 18mm for DX-format standard zooms gives an 'effective' 27mm focal length. That equates to maximum viewing angles of around 84 degrees and 76 degrees respectively, measured on the diagonal of the image

frame. But is even that really wide enough?

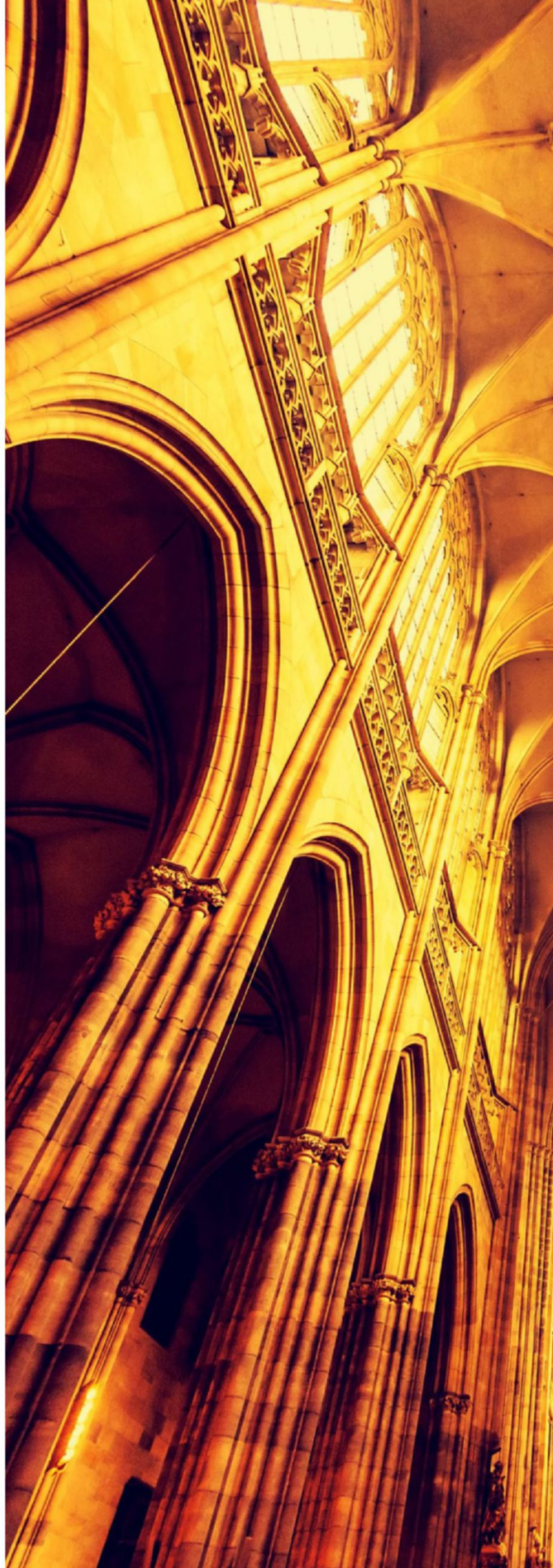
Even with the relatively generous maximum viewing angles of modern standard zoom lenses, you can still find yourself wanting more. When you're shooting indoors you're literally walled in, and can't always move back far enough to fit everything you want to include into the shot. Venture to the great outdoors and shoot anything from expansive cityscapes to rolling hills, and you might still not be able to squeeze everything you want into the frame.

A wide-angle zoom comes to the rescue with a



The contenders

SIGMA 10-20mm f/3.5 EX DC HSM	£330, \$450
TAMRON SP AF 10-24mm f/3.5-4.5 Di II	£350, \$500
SIGMA 12-24mm f/4-5.6 II DG HSM	£530, \$950
NIKON AF-S 18-35mm f/3.5-4.5G ED	£550, \$750
NIKON AF-S DX 10-24mm f/3.5-4.5G ED	£640, \$800
TAMRON SP 15-30mm f/2.8 Di VC USD	£850, \$1200
NIKON AF-S 16-35mm f/4G ED VR	£900, \$1000
NIKON AF-S 14-24mm f/2.8G ED	£1460, \$1700



WIDE-ANGLE ZOOMS



much greater than average maximum viewing angle. To make the most of this type of lens, you'll need to buy one that's specified as DX- or FX-format, to suit your camera body. For DX wide-angle zooms, the shortest zoom setting is usually 10mm, whereas it's generally between 14mm and 16mm for FX lenses. 10mm on DX and 15mm on FX both give you a maximum viewing angle of around 110 degrees. It'll deliver a serious 'wow' factor when you put your eye to the viewfinder.

Wide-angle lenses aren't just useful for shoehorning more of a scene into the image frame. They're also brilliant for exaggerating the effect of perspective. Get up close to the main subject of interest and you can really stretch the apparent

distance between it and the background. You can make objects look larger than life compared with their surroundings, and make parallel lines converge rapidly as they recede into the distance. There's massive potential for creating eye-popping visual effects.

Straight up

All the lenses in this test group are 'rectilinear'. This means that, as far as possible, distortions are kept to a minimum and straight lines are reproduced as straight

in the resulting image. For a wider angle of view, you'd need a 'curvilinear' or fisheye lens (see page 42). These typically deliver a viewing angle of either 180 degrees on the diagonal or 180 degrees in both the vertical and horizontal planes. They're called diagonal and circular fisheyes, respectively, the former projecting an image circle that covers the whole image sensor for rectangular images, the latter giving a smaller image circle that covers only the central region of the sensor,

resulting in circular images. In both cases, the amount of barrel distortion is severe. Straight lines, for example in the outer edges of walls, take on a very bowed appearance.

There are bargains to be had in both DX and FX camps when buying a wide-angle zoom. However, fully professional-grade Nikon FX-format lenses tend to be expensive, as you'd expect. Differences in price typically have more to do with the quality of the lens than the maximum width of the viewing angle. Even so, 'ultra-wide' lenses with more extreme viewing angles represent more of a technical challenge in terms of both design and manufacture. Let's take a closer look at what's on offer, and how quality and prices compare.



Differences in price typically have more to do with the quality of the lens than the maximum width of the viewing angle

What to look for...

HOW WIDE DO YOU NEED TO GO, AND WHAT FEATURES DO YOU NEED?

OPTICAL STABILISATION

Camera shake in handheld wide-angle photography isn't usually a problem, but stabilisation can still be useful if you're shooting in very low light.

FOCAL LENGTH (MINIMUM)

A shorter minimum focal length equates to a wider viewing angle. For this class of lens, it's usually a more important consideration than the size of the zoom range.

Top tips

VIEWING ANGLE

This can be measured on the horizontal or vertical plane of the image frame, but manufacturers usually quote it on the diagonal, as it's the largest number.

FILTER THREAD

For the three lenses on test that lack a filter thread, Lee Filters' SW150 Mark II system enables easy filter attachment.



LENS HOOD

The widest-angle Nikon 14-24mm, Sigma 12-24mm and Tamron 15-30mm lenses on test all have permanently fixed, built-in lens hoods with no filter attachment threads.

AUTOFOCUS SYSTEM

The Tamron 10-24mm DX-format lens has a basic electric autofocus motor. All others in the group have ring-type ultrasonic systems, with the availability of full-time manual override.

FOCAL LENGTH (MAXIMUM)

The long end of the zoom range might have roughly the same focal length as your standard zoom at its shortest setting, but it is likely to produce much less distortion.

APERTURE RATING

The Nikon 14-24mm and Tamron 15-30mm have the 'fastest' aperture rating of f/2.8. Other lenses are a little slower, and their widest available aperture may shrink at longer zoom settings.



DX

Sigma 10-20mm f/3.5 EX DC HSM

£330, \$450

HIGH-END FEATURES COME AT A BARGAIN PRICE

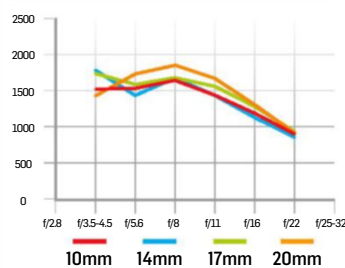
Undercutting the Tamron 10-24mm for price, the Sigma doesn't stretch as far in terms of zoom range, but has pretty much the same maximum viewing angle. Build quality feels better in the Sigma, and higher-end features include a ring-type ultrasonic autofocus system. This improves handling, as the focus ring doesn't rotate during autofocus, while also adding the bonus of full-time manual override.

Another feature that's unique among the DX-format lenses on test is the constant-aperture design. The Nikon and Tamron 10-24mm lenses match the Sigma's f/3.5 rating at the short end of the zoom range, but it is two-thirds of an f-stop faster at the long end, as the other two lenses shrink to f/4.5.

Performance

The autofocus system is quick and quiet, and image quality is boosted by the inclusion of one SLD (Special Low Dispersion) and two ELD (Extraordinary Low Dispersion) elements. These help to maintain good sharpness and contrast, while keeping colour fringing low.

Centre sharpness (Higher is better)



Good across the frame, and consistent across the aperture and zoom ranges.

Edge fringing (f/8) (Lower is better)

Wide 2.26 Mid 2.86 Long 1.66

At the short end of the zoom range, it's the best DX-format lens on test.

Distortion (Nearer 0 is better)



Almost non-existent at mid-zoom settings; well-restrained at the extremes.

Verdict

Features
Build/handling
Performance
Value for money
OVERALL



For a DX-format ultra-wide zoom, it's the best buy on the market.



DX

Tamron SP AF 10-24mm f/3.5-4.5 Di II

£350, \$500

INEXPENSIVE TO BUY, BUT NOT THE MOST REFINED CHOICE

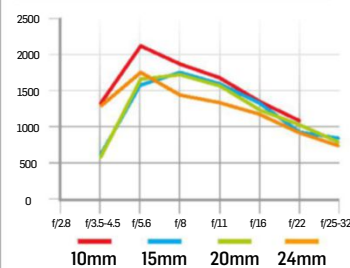
This Tamron boasted the biggest zoom range of any wide-angle zoom for DX-format SLRs when launched back in 2008. That was a landmark year for Tamron lenses, as some of the other Nikon-fit models in the lineup were refreshed to add an internal autofocus motor, instead of relying on autofocus drive from the host camera. This makes autofocus possible on bodies like the D3300 and D5500.

The flip side is that the autofocus motor in the 10-24mm lens is a relatively basic electric affair, which is a little sluggish and clearly audible in operation. Unlike every other lens on test, the focus ring rotates during autofocus, which can impair handling.

Performance

Four aspherical elements, two LD (Low Dispersion) elements and an HID (High-refractive Index) element boost sharpness and contrast as well as reducing fringing and distortions. Overall image quality is good, considering the price, but the lens is outperformed by the even-less-expensive Sigma.

Centre sharpness (Higher is better)



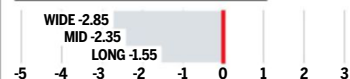
At medium zoom settings, centre sharpness is poor at the widest aperture.

Edge fringing (f/8) (Lower is better)

Wide 4.29 Mid 2.28 Long 1.77

A little worse than average at 10mm, but diminishes through the rest of the range.

Distortion (Nearer 0 is better)



Quite well controlled at 10mm and, like fringing, reduces at longer zoom settings.

Verdict

Features
Build/handling
Performance
Value for money
OVERALL



Compact and lightweight, but handling and performance are a bit disappointing.



FX

Sigma 12-24mm f/4-5.6 II DG HSM £530, \$950

DELIVERS AN EYE-POPPING VIEWING ANGLE

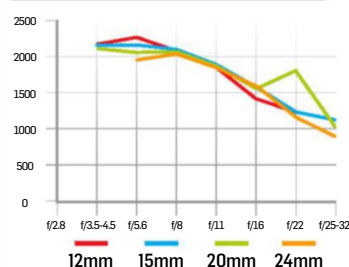
You could be forgiven for thinking that this is a DX-format lens, considering its minimum focal length. In fact, it's an FX lens that delivers an astonishing maximum viewing angle of 122 degrees, leaving the Nikon 14-24mm and Tamron 15-30mm in its wake. The built-in lens hood precludes the use of screw-in filters, but at least the two-part hood enables the use of 82mm filters at the long end of the zoom range.

Top-quality glass includes four FLD (Fluorite-grade Low Dispersion) elements, one SLD (Special Low Dispersion) and four aspherical elements. Build quality also feels impressive.

Performance

The ring-type ultrasonic autofocus system is fast and quiet, while sharpness and contrast are very nearly as impressive as from the Nikon 14-24mm lens. The Sigma does extremely well to maintain edge sharpness, considering its incredibly wide viewing angle. To get the same viewing angles on your DX camera, the Sigma 8-16mm is essentially the same lens in APS-C format.

Centre sharpness (Higher is better)



Clever design maximises sharpness across the whole image frame.

Edge fringing (f/8) (Lower is better)

Short 5.6 Mid 3.6 Long 1.36

At the shortest length, there's more corner fringing than from any other lens on test.

Distortion (Nearer 0 is better)



Hefty barrel distortion at 12mm is to be expected. Minimal at longer settings.

Verdict

Features
Build/handling
Performance
Value for money
OVERALL



Phenomenal viewing angles and a very attractive price make this a smart buy.



FX

Nikon AF-S 18-35mm f/3.5-4.5G ED £550, \$750

THE CHEAPEST NIKON ON TEST – BUT THE LEAST WIDE

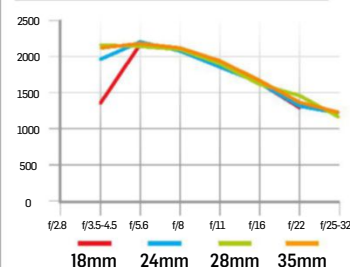
Similar to using a 12mm lens on a DX camera, this FX-format zoom has a widest available viewing angle of 100 degrees. That's the least impressive of any lens on test, but at least it has a compact and lightweight build for an FX wide-angle zoom. Indeed, at 385 grams, it's even lighter than the 460-gram Nikon 10-24mm DX zoom, and only just over a third of the weight of the Nikon 14-24mm.

Despite being a lightweight, the lens feels reasonably well put together. Attractions include ring-type ultrasonic autofocus, ED (Extra-low Dispersion) glass and a rubber weather seal on the mounting plate. Unlike some of Nikon's more lavish lenses, it has SIC (Super Integrated Coating) rather than Nano Crystal Coat, but resistance to ghosting and flare is pretty good nonetheless.

Performance

Along with the modest maximum viewing angle comes relatively little distortion at the shortest zoom setting. Fringing is also minimal, but levels of sharpness towards the edges of the frame are disappointing.

Centre sharpness (Higher is better)



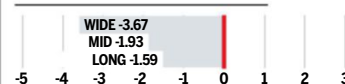
Plenty of sharpness at the centre of the frame, but it drops off towards the edges.

Edge fringing (f/8) (Lower is better)

Wide 1.62 Mid 1.27 Long 1.54

There's very little fringing in evidence, throughout the entire zoom range.

Distortion (Nearer 0 is better)



Distortion at the maximum viewing angle is less than with the other Nikon lenses.

Verdict

Features
Build/handling
Performance
Value for money
OVERALL



Performance is good, but the maximum viewing angle is a little underwhelming.



DX

Nikon AF-S DX 10-24mm f/3.5-4.5G ED £640, \$800

IT'S AN EXPENSIVE OPTION FOR A DX WIDE-ANGLE ZOOM

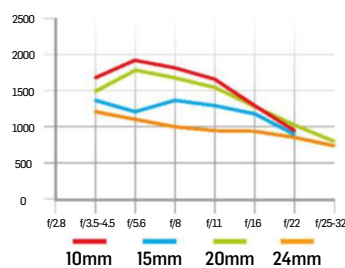
This lens lacks the f/4 constant-aperture design of Nikon's older 12-24mm DX-format optic but beats it for zoom range and maximum viewing angle. It's also cheaper than the 12-24mm, but there's no hiding the fact that it's about twice the price of the Sigma and Tamron DX-format lenses on test. So what do you get for the extra outlay?

The lens features a ring-type ultrasonic autofocus system (lacking in the Tamron), and a weather-sealed mount (lacking in the Sigma). Quality glass includes three aspherical elements and two ED ones. The overall build doesn't feel as robust as that of the Sigma lens, though both designs feature a focus distance scale beneath a viewing window. The Tamron's distance scale is printed on the surface of the focus ring.

Performance

Not altogether inspiring, levels of sharpness fade away towards the long end of the zoom range, and around the edges of the frame. Barrel distortion at the short end is also more pronounced than in the Sigma and Tamron DX-format lenses.

Centre sharpness (Higher is better)



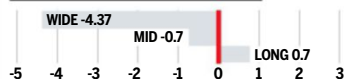
Very good at 10mm but drops off as you extend through the zoom range.

Edge fringing (f/8) (Lower is better)

Wide **3.89** Mid **2.67** Long **1.29**

There's evidence of fringing in corners, especially at short to mid zoom settings.

Distortion (Nearer 0 is better)



Quite pronounced at 10mm, but there's little distortion at mid to long settings.

Verdict

Features
Build/handling
Performance
Value for money
OVERALL



A decent lens, but poor value compared with the alternative Sigma 10-20mm.



FX

Tamron SP 15-30mm f/2.8 Di VC USD £850, \$1200

A RELATIVELY NEW, HIGH-QUALITY FX CONTENDER

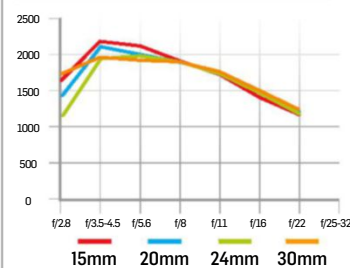
Launched last year, Tamron's ultra-wide FX-format zoom is much more upmarket than its 10-24mm DX lens. It boasts ring-type ultrasonic autofocus, optical stabilisation and a fast f/2.8 aperture that is available throughout the zoom range. The maximum viewing angle is almost as wide as from the Nikon 14-24mm, but narrower than from the Sigma 12-24mm. Like these two competitors, the Tamron has a built-in lens hood.

High-end glass includes a large XGM (eXpanded Glass Moulded Aspherical) element in the front group, with several more aspherical and LD (Low Dispersion) elements further back. The weather-resistant construction includes a fluorine coating on the front element.

Performance

The Vibration Compensation stabiliser is worth about two f-stops in handheld shooting (almost as capable as the VR system in the Nikon 16-35mm). You need to stop down to f/5.6 for good sharpness around the edges but overall image quality is excellent, making this outstanding value at the price.

Centre sharpness (Higher is better)



Very good, but for edge sharpness it lags behind the Nikon 14-24mm at f/2.8.

Edge fringing (f/8) (Lower is better)

Short **1.67** Mid **1.84** Long **0.91**

There's very little colour fringing throughout the zoom range.

Distortion (Nearer 0 is better)



Typically heavy barrel at the short end of the range, otherwise very well controlled.

Verdict

Features
Build/handling
Performance
Value for money
OVERALL



Excellent image quality makes this FX-format lens great value for the price.



FX

Nikon AF-S 16-35mm f/4G ED VR £900, \$1000

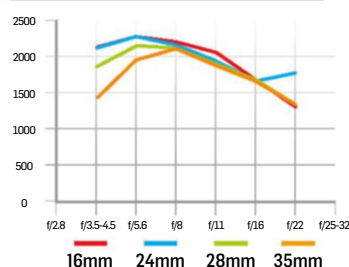
ONCE INNOVATIVE, IT'S SINCE BEEN OVERTAKEN

When announced back in 2010, this lens was proclaimed to be the first-ever FX-format ultra-wide zoom to have optical stabilisation. The maximum viewing angle is wider than from the Nikon 18-35mm lens that's also on test, at 107 rather than 100 degrees. The aperture is more well-rounded, based on nine rather than seven diaphragm blades, and the widest available aperture remains fixed at f/4. However, the 16-35mm VR is beaten by the Tamron 15-30mm for maximum viewing angle and the latter has an f/2.8 constant aperture rating, while also featuring optical stabilisation.

Performance

Given that you can get away with fairly slow shutter speeds in ultra-wide handheld shooting, it's not surprising that VR is only worth about 2.5 f-stops. That's still better than nothing in low light. Image quality is very good on the whole, with excellent sharpness and contrast, and minimal colour fringing. The only slight niggle is that barrel distortion is pretty extreme at 16mm.

Centre sharpness (Higher is better)



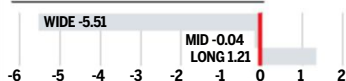
Excellent sharpness is available when stopping down a little, across the frame.

Edge fringing (f/8) (Lower is better)

Wide 1.13 Mid 1.91 Long 1.25

There's very little fringing throughout the zoom range, particularly at the short end.

Distortion (Nearer 0 is better)



Extreme barrel distortion at 16mm dies away at mid zoom settings.

Verdict

Features
Build/handling
Performance
Value for money
OVERALL



Of all the Nikon lenses, it strikes the best balance between price and performance.



FX

Nikon AF-S 14-24mm f/2.8G ED £1460, \$1700

IT'S A BIG LENS, WITH BIG PERFORMANCE AND A BIG PRICE

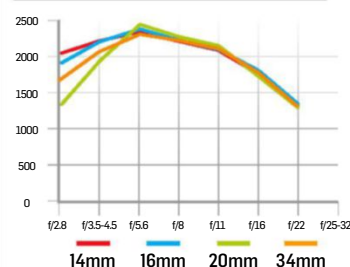
This is the biggest Nikon lens on test and weighs a full kilogram, but it's physically shorter and 100 grams lighter than the Tamron 15-30mm. It outdoes the Tamron for maximum viewing angle, at 114 degrees versus 110 degrees. In fairness, this is only a slight difference that will often go unnoticed in practice. It has a fast and constant f/2.8 aperture and an integral lens hood.

Nano Crystal Coat is applied to fend off ghosting and flare. This is important, because ultra-wide lenses tend to take in a lot of sky in outdoor shooting, and the bulbous front element physically extends at shorter zoom settings, coming near to the leading edge of the hood.

Performance

All aspects of image quality are outstanding. Superb sharpness reaches right into the corners of the frame, even at f/2.8. This is a real achievement for such an ultra-wide lens. Barrel distortion at 14mm is less pronounced than in the Nikon 16-35mm lens at its shortest zoom setting, despite the more exaggerated viewing angle.

Centre sharpness (Higher is better)



Excellent, throughout the zoom range and across the entire image frame.

Edge fringing (f/8) (Lower is better)

Wide 2.29 Mid 1.06 Long 1.35

As in the other Nikon FX lenses on test, there's very little colour fringing.

Distortion (Nearer 0 is better)



There's barrel distortion at 14mm but next to none at the long end of the zoom range.

Verdict

Features
Build/handling
Performance
Value for money
OVERALL



It's the best-performing lens in the group but it comes with a hefty price tag.

Comparison table

HOW THE LENSES COMPARE

								
	SIGMA 10-20mm f/3.5 EX DC HSM	TAMRON SP AF 10-24mm f/3.5-4.5 Di II	SIGMA 12-24mm f/4-5.6 II DG HSM	NIKON AF-S 18-35mm f/3.5-4.5G ED	NIKON AF-S DX 10-24mm f/3.5-4.5G ED	TAMRON SP 15-30mm f/2.8 Di VC USD	NIKON AF-S 16-35mm f/4G ED VR	NIKON AF-S 14-24mm f/2.8G ED
	www.sigma-global.com	www.tamron.co.uk	www.sigma-global.com	www.nikon.com		www.tamron.co.uk	www.nikon.com	
Street price	£330, \$450	£350, \$500	£530, \$950	£550, \$750	£640, \$800	£850, \$1200	£900, \$1000	£1460, \$1700
DX/FX	DX	DX	FX	FX	DX	FX	FX	FX
Effective focal length (DX)	15-30mm	15-36mm	18-36mm	27-52.5mm	15-36mm	22.5-45mm	24-52.5mm	21-36mm
Angle of view (diagonal)	110-71°	108-60°	122-84°	100-63°	109-61°	110-71°	107-63°	114-84°
Elements/groups	13 / 10	12 / 9	17 / 13	12 / 8	14 / 9	18 / 13	17 / 12	14 / 11
Diaphragm blades	7 blades	7 blades	6 blades	7 blades	7 blades	9 blades	9 blades	9 blades
Minimum aperture	f/22	f/22-f/29	f/22-f/29	f/22-f/29	f/22-f/29	f/22	f/22	f/22
Optical stabiliser	No	No	No	No	No	Yes	Yes	No
Autofocus motor type	Ultrasonic (ring)	Electric motor	Ultrasonic (ring)	Ultrasonic (ring)	Ultrasonic (ring)	Ultrasonic (ring)	Ultrasonic (ring)	Ultrasonic (ring)
Internal focus	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Min focus distance	0.24m	0.24m	0.28m	0.28m	0.24m	0.28m	0.28m	0.28m
Max magnification	0.15x	0.20x	0.16x	0.20x	0.20x	0.20x	0.25x	0.15x
Filter size	82mm	77mm	82mm (slip-on)	77mm	77mm	N/A	77mm	N/A
Lens hood	Supplied	Supplied	Built-in	Supplied	Supplied	Built-in	Supplied	Built-in
Dimensions (dia x length)	87x88mm	83x87mm	87x120mm	83x95mm	83x87mm	98x145mm	83x125mm	98x132mm
Weight	520g	406g	670g	385g	460g	1100g	680g	1000g
FEATURES								
BUILD/HANDLING								
PERFORMANCE								
VALUE FOR MONEY								
OVERALL								

The winner is...

Tamron SP 15-30mm f/2.8 Di VC USD **FX** £850, \$1200

What's good: Image quality, ultra-wide viewing angle, fast f/2.8 aperture, optical stabilisation.

What's bad: Edge sharpness isn't as good as from the Nikon 14-24mm or 16-35mm lenses at f/2.8 to f/4.

Our verdict: It's a fabulous lens with excellent handling, and is very reasonably priced.

Make no mistake, the Nikon 14-24mm is a phenomenal lens with spectacular performance, but it is expensive. Unless ultra-wide shooting is your thing, the Tamron 15-30mm is a better buy. It matches the Nikon for its constant f/2.8 aperture yet adds optical stabilisation, is beautifully built with a weather-resistant construction, and delivers fabulous image quality. It marginally loses out to the Nikon for maximum viewing angle



and edge sharpness at very wide apertures, but is much less expensive.

If you don't need quite such a generous maximum viewing angle, or such a wide aperture, the Nikon 16-35mm f/4 VR is another very good buy, while the Sigma 12-24mm is unbeatable if you want to take viewing angles to the extreme.

In the DX camp, the Sigma 10-20mm f/3.5 is the best choice for performance and it's a steal at the price. For an even wider viewing angle on a DX body, the Sigma 8-16mm is the direct equivalent of the 12-24mm FX lens on test.

Runners-up

Nikon AF-S 14-24mm **FX** f/2.8G ED £1460, \$1700

What's good: Spectacular image quality – superb sharpness.

What's bad: No optical stabilisation; expensive.

Verdict: The ultimate ultra-wide FX-format lens, but so pricey.



Sigma 10-20mm f/3.5 EX DC HSM £330, \$450 **DX**

What's good: Very good image quality, refined handling.

What's bad: Sharpness could be slightly better.

Verdict: It's the best DX-format ultra-wide zoom on the market.



NEXT ISSUE

WINNING OPTIONS: THE BEST LENSES FOR SPORT AND ACTION

Buyer's guide Nikon cameras



Not sure which Nikon body will be the one for you? Here's a rundown of the current range

NIKON 1 COMPACT SYSTEM CAMERAS

NIKON 1 J5, 10-30mm



A CSC THAT D-SLR USERS WILL LOVE, the J5 has the highest resolution of any Nikon 1 camera to date (20.8Mp) and a decent sensitivity range. The top dial now also gives access to semi-automatic and manual exposure modes, plus you can shoot in RAW, which is real bonus.



NIKON 1 S2, 11-27.5mm



SMALL IN SIZE BUT BIG ON QUALITY, the svelte Nikon 1 S2 is responsive and speedy. With a 14.2Mp image sensor, and the omission of built-in Wi-Fi or a touchscreen, it's more basic than the J5, but still a highly capable camera that you can slip into your bag as a lightweight backup.

NIKON 1 AW1, 11-27.5mm



VERY MUCH THE ACTION ADVENTURER, the Nikon 1 AW1 is shockproof, waterproof to a depth of 15 metres, and even freeze-proof down to -10°C. To keep pace with a truly active lifestyle, it also has a built-in compass, altimeter, depth gauge and GPS.



NIKON 1 V2, 10-30mm



FOR COMFORT AND FAMILIARITY, the V2 has a very conventional layout, including a sculpted finger grip, electronic viewfinder and shooting mode dial – users of traditional cameras will feel right at home. It's been largely superseded by the V3 (below), so look out for it at bargain prices.



NIKON 1 V3, 10-30mm, EVF AND GRIP



THE FLAGSHIP NIKON 1 CAMERA adds a vari-angle touchscreen to the comfortable ergonomics of the preceding V2, along with key upgrades to the image sensor, processor and autofocus system. It also includes built-in Wi-Fi. The electronic viewfinder is optional.



NIKON D3200



AN INSTANT FAVOURITE WITH BEGINNERS when launched back in 2012, the D3200 eases you into creative photography with a built-in Guide mode that serves up interactive tutorials. There's impressive picture quality to match, thanks to its 24.2Mp image sensor and EXPEED 3 processor.



TESTED IN ISSUE 47 PRICE: £300/\$495

Sensor	20.8Mp, CX (5232x3488)
Processor	EXPEED 5A
Viewfinder	N/A
ISO	200-12800
AF	171 area-contrast (105 area-phase)
LCD	3-inch touch-sensitive tilting
Max burst	60fps
Memory card	microSD/HC/XC

PRICE: £270/\$350

Sensor	14.2Mp, CX (4592x3072)
Processor	EXPEED 4A
Viewfinder	N/A
ISO	200-12800
AF	135 area-contrast (73 area-phase)
LCD	3-inch
Max burst	20fps (60fps fixed AF)
Memory card	microSD/HC/XC

TESTED IN ISSUE 46 PRICE: £550/\$700

Sensor	Sensor 14.2Mp, CX (4608x3072)
Processor	EXPEED 3A
Viewfinder	N/A
ISO	160-6400
AF	135 area-contrast (73 area-phase)
LCD	3-inch
Max burst	15fps (60fps fixed AF)
Memory card	SD/HC/XC

TESTED IN ISSUE 19 PRICE: £370/\$900

Sensor	14.2Mp, CX (4608x3072)
Processor	EXPEED 3A
Viewfinder	1440k
ISO	160-6400
AF	135 area-contrast (73 area-phase)
LCD	3-inch
Max burst	15fps (60fps fixed AF)
Memory card	SD/HC/XC

TESTED IN ISSUE 46 PRICE: £750/\$1100

Sensor	18.4Mp, CX (5232x3488)
Processor	EXPEED 4A
Viewfinder	Electronic
ISO	160-12800
AF	171 area-contrast (105 area-phase)
LCD	3-inch touch, vari-angle
Max burst	20fps (60fps fixed AF)
Memory card	SD/HC/XC

TESTED IN ISSUE 53 PRICE: £230/\$330

Sensor	24.2Mp, DX (6016x4000)
Processor	EXPEED 3
Viewfinder	Pentamirror, 0.8x, 95%
ISO	100-6400 (12800 expanded)
AF	11-point (1 cross-type)
LCD	3-inch
Max burst (buffer)	4fps (18 RAW/80 JPEG)
Memory card	SD/HC/XC

ENTRY-LEVEL D-SLRs

NIKON D3300



CONTINUES THE D3200'S BEGINNER-FRIENDLY TRADITION of an interactive Guide shooting mode, and boosts performance with a later-generation EXPEED 4 processor, faster continuous shooting and greater low-light potential. There's also a new 'easy panorama' mode.



TESTED IN ISSUE 53 PRICE: £300/\$400

Sensor	24.2Mp, DX (6000x4000)
Processor	EXPEED 4
Viewfinder	Pentamirror, 0.85x, 95%
ISO	100-12800 (25600 expanded)
AF	11-point (1 cross-type)
LCD	11-point (1 cross-type)
Max burst (buffer)	5fps (11 RAW/100 JPEG)
Memory card	SD/HC/XC

NIKON D5200



THE D5200 HAS BECOME A VERY AFFORDABLE INTERMEDIATE-LEVEL CAMERA, now that the D5300 and D5500 have hit the market. Originally launched in early 2013, its specifications still look appealing, and the vari-angle LCD makes for easy shooting from tricky angles.



TESTED IN ISSUE 17 PRICE: £330/\$500

Sensor	24.1Mp, DX (6000x4000)
Processor	EXPEED 3
Viewfinder	Pentamirror, 0.78x, 95%
ISO	100-6400 (25600 expanded)
AF	39-point (9 cross-type)
LCD	3-inch vari-angle
Max burst (buffer)	5fps (8 RAW/35 JPEG)
Memory card	SD/HC/XC

NIKON D5300



A SIGNIFICANT UPGRADE OVER THE D5200, this camera features a newer generation processor, plus built-in Wi-Fi and GPS, wrapped up in a carbon-fibre-reinforced body shell. As with the D3300, the optical low-pass filter is omitted to maximise the potential for image sharpness.



TESTED IN ISSUE 53 PRICE: £450/\$650

Sensor	24.2Mp, DX (6000x4000)
Processor	EXPEED 4
Viewfinder	Pentamirror, 0.82x, 95%
ISO	100-12800 (25600 expanded)
AF	39-point (9 cross-type)
LCD	3.2-inch vari-angle
Max burst (buffer)	5fps (13 RAW/100 JPEG)
Memory card	SD/HC/XC

NIKON D5500



THE SAME PIXEL COUNT AND PROCESSOR AS THE PRECEDING D5300, built into the same style of monocoque (one-piece) body shell. The most notable upgrade in the newer D5500 is that its vari-angle LCD is a touchscreen. However, it loses the D5300's built-in GPS.



TESTED IN ISSUE 61 PRICE: £500/\$800

Sensor	24.2Mp, DX (6000x4000)
Processor	EXPEED 4
Viewfinder	Pentamirror, 0.82x, 95%
ISO	100-12800 (25600 expanded)
AF	39-point (9 cross-type)
LCD	3.2-inch vari-angle touchscreen
Max burst (buffer)	5fps (13 RAW/100 JPEG)
Memory card	SD/HC/XC

NIKON D7100



THE D7100 GETS A NOTABLE HIKE IN PIXEL COUNT compared with the preceding D7000, along with the removal of the optical low-pass filter to maximise sharpness. Its autofocus system gets a boost too, and a 1.3x crop facility increases the maximum drive rate to 7fps.



TESTED IN ISSUE 19 PRICE: £710/\$800

Sensor	24.1Mp, DX (6000x4000)
Processor	EXPEED 3
Viewfinder	Pentaprism, 0.94x, 100%
ISO	100-6400 (25600 expanded)
AF	51-point (15 cross-type)
LCD	3.2-inch
Max burst (buffer)	6fps, 7fps crop (6-9 RAW/33 JPEG)
Memory card	2x SD/HC/XC

NIKON D7200



BUILDING ON THE D7100'S SPECIFICATIONS, the D7200 boasts better low-light autofocus, a bigger memory buffer, an updated processor, built-in Wi-Fi and NFC connectivity, plus new trick modes for doing light-trail photography and time-lapse movies in-camera.



TESTED IN ISSUE 61 PRICE: £750/\$1100

Sensor	24.2Mp, DX (6000x4000)
Processor	EXPEED 4
Viewfinder	Pentaprism, 0.94x, 100%
ISO	100-25600 (102400 expanded, mono only)
AF	51-point (15 cross-type)
LCD	3.2-inch
Max burst (buffer)	6fps, 7fps crop (18-27 RAW/100 JPEG)
Memory card	2x SD/HC/XC

NIKON D610



FULL-FRAME PHOTOGRAPHY STARTS HERE, with the most affordable of Nikon's FX cameras. It's no slouch, with a 6fps maximum drive rate and a quiet (but slower) continuous drive option. It also features a weather-sealed body and, compared with the D600, a revised shutter unit.



TESTED IN ISSUE 61 PRICE: £1000/\$1500

Sensor	24.3Mp, FX (6016x4016)
Processor	EXPEED 3
Viewfinder	Pentaprism, 0.7x, 100%
ISO	100-6400 (50-25600 expanded)
AF	39-point (9 cross-type)
LCD	3.2-inch
Max burst (buffer)	6fps (14-26 RAW/51 JPEG)
Memory card	2x SD/HC/XC



NIKON D750



THE D750 IS EASILY MANAGEABLE FOR A SEMI-PRO FULL-FRAME BODY. A recent addition to the line-up, it includes a tilting LCD screen and built-in Wi-Fi. The pixel count strikes a happy medium between the 16.2Mp Df/D4s and the 36.3Mp D810.



TESTED IN ISSUE 61 PRICE: £1390/\$2000

Sensor	24.3Mp, FX (6016x4016)
Processor	EXPEED 4
Viewfinder	Pentaprism, 0.7x, 100%
ISO	100-12800 (50-51200 expanded)
AF	51-point (15 cross-type)
LCD	3.2-inch tilt
Max burst (buffer)	6.5fps (15-33 RAW/87 JPEG)
Memory card	2x SD/HC/XC

NIKON D500



NIKON'S SEMI-PRO DX-FORMAT D-SLR is in many respects a dream camera. It boasts a fast, effective AF system, 10fps shooting, a 200-shot RAW buffer and first-rate metering and white balance. For the money, it might just be Nikon's best D-SLR yet.



TESTED IN ISSUE 61 PRICE: £1730/\$2000

Sensor	20.9Mp, DX (5568 x 3712)
Processor	EXPEED 5
Viewfinder	Pentaprism, 1x, 100%
ISO	100-51200 (50-1640000 expanded)
AF	153-point (99 cross-type, 15 sensitive to f/8)
LCD	3.2-inch tilting touchscreen
Max burst (buffer)	10fps (200 RAW/200 JPEG)
Memory card	1x XQD, 1x SD/HC/XC

NIKON Df



ICONIC DESIGN MEETS HIGH-TECH EXCELLENCE IN THIS RETRO BEAUTY. The Df is amazingly compact for a full-frame body but direct-access dials and buttons ensure that shooting controls are always within easy reach. The lack of a video shooting capability is a surprise omission.



TESTED IN ISSUE 54 PRICE: £1900/\$2750

Sensor	16.2Mp, FX (4928x3280)
Processor	EXPEED 3
Viewfinder	Pentaprism, 0.7x, 100%
ISO	100-12800 (50-204800 expanded)
AF	39-point (9 cross-type)
LCD	3.2-inch
Max burst (buffer)	5.5fps (25-47 RAW/100 JPEG)
Memory card	SD/HC/XC

NIKON D800E



A SPECIAL EDITION OF THE ORIGINAL D800, this one has a modified optical low-pass filter that omits an anti-aliasing feature. It's therefore better able to capture extraordinary levels of fine detail, maximising the potential of its ultra-high-resolution image sensor.



TESTED IN ISSUE 11 PRICE: £2250/\$2900

Sensor	36.3Mp, FX (7360x4912)
Processor	EXPEED 3
Viewfinder	Pentaprism, 0.7x, 100%
ISO	100-6400 (50-25600 expanded)
AF	51-point (15 cross-type)
LCD	3.2-inch
Max burst (buffer)	4fps, 5fps DX crop (16-25 RAW/56 JPEG)
Memory card	1x CF, 1x SD/HC/XC

NIKON D810



THE KING OF THE RESOLUTION STAKES, the D810 boasts 36.3 million pixels and, unlike the older D800E, has no optical low-pass filter. It has a later-generation processor and an extended sensitivity range. A specialised D810A edition for astrophotography is available (£2700, \$3795).



TESTED IN ISSUE 54 PRICE: £2140/\$2800

Sensor	36.3Mp, FX (7360x4912)
Processor	EXPEED 4
Viewfinder	Pentaprism, 0.7x, 100%
ISO	64-12800 (32-51200 expanded)
AF	51-point (15 cross-type)
LCD	3.2-inch
Max burst (buffer)	5fps, 7fps DX crop (18-58 RAW/100 JPEG)
Memory card	1x CF, 1x SD/HC/XC

NIKON D4s



NIKON'S FLAGSHIP D-SLR DELIVERS 11FPS SHOOTING, and image quality is immaculate, even at ultra-high ISO settings, making it popular with pro sport and wildlife photographers for years but the D4s has been superseded by Nikon's newest flagship D-SLR, the D5.



TESTED IN ISSUE 54 PRICE: £4450/\$6000

Sensor	16.2Mp, FX (4928x3280)
Processor	EXPEED 4
Viewfinder	Pentaprism, 0.7x, 100%
ISO	100-25600 (50-409600 expanded)
AF	51-point (15 cross-type)
LCD	3.2-inch
Max burst (buffer)	11fps (36-176 RAW/200 JPEG)
Memory card	1x CF, 1x XQD

NIKON D5



CAPABLE OF SHOOTING 12 FRAMES PER SECOND, and with a buffer capacity of 200 RAW files, Nikon's new flagship D-SLR also boasts 153 AF points – three times more than the D4s. The pixel count has also gone up, to 20.8Mp, as has the maximum ISO, to a staggering 3.3 million.

TESTED IN ISSUE 59 PRICE: £5200/\$6500

Sensor	20.8Mp, FX (5568 x 3712)
Processor	EXPEED 5
Viewfinder	Pentaprism, 0.72x, 100%
ISO	100-102400 (50-3280000 expanded)
AF	153-point (99 cross-type, 15 sensitive to f/8)
LCD	3.2-inch touchscreen
Max burst (buffer)	12fps (200 RAW/200 JPEG)
Memory card	2x XQD (version with 2x CF also available)

Buyer's guide Nikon-fit lenses



Vital statistics – find the right lens at the right price point

KEY: ■ GREAT VALUE ■ BEST ON TEST AWARD

		Price	DX/FX	Max zoom	Stabilizer	Autofocus	Max aperture	Weight	Min focus	Magnification	Filter	Aperture blades	Issue	Rating	Awards
WIDE-ANGLE ZOOMS	WIDE-ANGLE ZOOMS														
	Nikon AF-S DX 10-24mm f/3.5-4.5G ED	£640/\$800	DX	2.4x	No	Ultrasonic	f/3.5-4.5	460g	0.22m	0.2x	77mm	7	62	★★★★	
	Nikon AF-S DX 12-24mm f/4G IF-ED	£840/\$1150	DX	2.0x	No	Ultrasonic	f/4	465g	0.3m	0.12x	77mm	7	32	★★★★	
	Nikon AF-S 14-24mm f/2.8G ED	£1460/\$1700	FX	1.7x	No	Ultrasonic	f/2.8	970g	0.28m	0.15x	None	9	62	★★★★★	
	Nikon AF-S 16-35mm f/4G ED VR	£900/\$1000	FX	2.2x	Yes	Ultrasonic	f/4	685g	0.28m	0.25x	77mm	9	62	★★★★★	
	Nikon AF-S 18-35mm f/3.5-4.5G ED	£550/\$750	FX	1.9x	No	Ultrasonic	f/3.5-4.5	385g	0.28m	0.2x	77mm	7	62	★★★★	
	Nikon AF-S 17-35mm f/2.8D IF-ED	£1500/\$1750	FX	2.1x	No	Ultrasonic	f/2.8	745g	0.28m	0.22x	77mm	9			
	Sigma 8-16mm f/4.5-5.6 DC HSM	£530/\$700	DX	2.0x	No	Ultrasonic	f/4.5-5.6	555g	0.24m	0.13x	None	7	47	★★★★	
	Sigma 10-20mm f/3.5 EX DC HSM	£330/\$450	DX	2.0x	No	Ultrasonic	f/3.5	520g	0.24m	0.15x	82mm	7	62	★★★★★	🏆
	Sigma 10-20mm f/4-5.6 EX DC HSM	£350/\$400	DX	2.0x	No	Ultrasonic	f/4-5.6	465g	0.24m	0.15x	77mm	6	32	★★★★★	🏆
	Sigma 12-24mm f/4.5-5.6 II DG HSM	£530/\$950	FX	2.0x	No	Ultrasonic	f/4.5-5.6	670g	0.28m	0.16x	None	6	62	★★★★★	🏆
	Tamron SP AF 10-24mm f/3.5-4.5 Di II LD	£350/\$500	DX	2.4x	No	Electric	f/3.5-4.5	406g	0.24m	0.2x	77mm	7	62	★★★★	
	Tamron SP 15-30mm f/2.8 Di VC USD	£850/\$1200	FX	2.0x	Yes	Ultrasonic	f/2.8	1100g	0.28m	0.2x	None	9	62	★★★★★	
	Tokina 10-17mm f/3.5-4.5 AT-X DX Fisheye	£530/\$530	DX	1.7x	No	Electric	f/3.5-4.5	350g	0.14m	0.39x	None	6			
	Tokina 11-16mm f/2.8 AT-X PRO DX II	£600/\$480	DX	1.5x	No	Electric	f/2.8	550g	0.3m	0.09x	77mm	9	32	★★★★	
Tokina 12-28mm f/4 AT-X Pro DX	£530/\$450	DX	2.3x	No	Electric	f/4	530g	0.25m	0.2x	77mm	9	32	★★★★		
Tokina 16-28mm f/2.8 AT-X PRO FX	£700/\$630	FX	1.8x	No	Electric	f/2.8	950g	0.28m	0.19x	None	9	33	★★★★		
Tokina 17-35mm f/4 AT-X PRO FX	£550/\$450	FX	2.1x	No	Electric	f/4	600g	0.28m	0.21x	82mm	9				
STANDARD ZOOMS	STANDARD ZOOMS														
	Nikon AF-S DX 16-80mm f/2.8-4E ED VR	£870/\$1070	DX	5x	Yes	Ultrasonic	f/2.8-4	480g	0.35m	0.22x	72mm	7	56	★★★★★	🏆
	Nikon AF-S DX 16-85mm f/3.5-5.6G ED VR	£430/\$700	DX	5.3x	Yes	Ultrasonic	f/3.5-5.6	485g	0.38m	0.22x	67mm	7	56	★★★★	
	Nikon AF-S DX 17-55mm f/2.8G IF-ED	£1000/\$1500	DX	3.2x	No	Ultrasonic	f/2.8	755g	0.36m	0.2x	77mm	9	59	★★★★	
	Nikon AF-S DX 18-55mm f/3.5-5.6G VR II	£200/\$250	DX	3.1x	Yes	Ultrasonic	f/3.5-5.6	195g	0.28m	0.31x	52mm	7	56	★★★★	
	Nikon AF-S DX 18-105mm f/3.5-5.6G ED VR	£200/\$395	DX	5.8x	Yes	Ultrasonic	f/3.5-5.6	420g	0.45m	0.2x	67mm	7	56	★★★★	
	Nikon AF-S 24-70mm f/2.8G ED	£1200/\$1800	FX	2.9x	No	Ultrasonic	f/2.8	900g	0.38m	0.27x	77mm	9	57	★★★★	
	Nikon AF-S 24-70mm f/2.8E ED VR	£1850/\$2400	FX	2.9x	Yes	Ultrasonic	f/2.8	1070g	0.38m	0.27x	82mm	9	59	★★★★★	🏆
	Nikon AF-S 24-85mm f/3.5-4.5G ED VR	£360/\$500	FX	3.5x	Yes	Ultrasonic	f/3.5-4.5	465g	0.38m	0.22x	72mm	7	57	★★★★	
	Nikon AF-S 24-120mm f/4G ED VR	£850/\$1100	FX	5.0x	Yes	Ultrasonic	f/4	710g	0.45x	0.24x	77mm	9	57	★★★★	🏆
	Sigma 17-50mm f/2.8 EX DC OS HSM	£310/\$420	DX	2.9x	Yes	Ultrasonic	f/2.8	565g	0.28m	0.2x	77mm	7	56	★★★★	
	Sigma 17-70mm f/2.8-4 DC Macro OS HSM C	£330/\$400	DX	4.1x	Yes	Ultrasonic	f/2.8-4	465g	0.22m	0.36x	72mm	7	56	★★★★	
	Sigma 18-35mm f/1.8 DC HSM A	£640/\$800	DX	1.9x	No	Ultrasonic	f/1.8	810g	0.28m	0.23x	72mm	9			
	Sigma 24-70mm f/2.8 IF EX DG HSM	£550/\$800	FX	2.9x	No	Ultrasonic	f/2.8	790g	0.38m	0.19x	82mm	9	57	★★★★	
	Sigma 24-105mm f/4 DG OS HSM A	£600/\$900	FX	4.4x	Yes	Ultrasonic	f/4	885g	0.45m	0.22x	82mm	9	57	★★★★	
Tamron SP AF 17-50mm f/2.8 XR Di II VC	£330/\$650	DX	2.9x	Yes	Electric	f/2.8	570g	0.29m	0.21x	72mm	7	56	★★★★	🏆	
Tamron SP AF 24-70mm f/2.8 Di VC USD	£680/\$1300	FX	2.9x	Yes	Ultrasonic	f/2.8	825g	0.38m	0.2x	82mm	9	57	★★★★★	🏆	
Tamron SP AF 28-75mm f/2.8 XR Di	£320/\$500	FX	2.7x	No	Electric	f/2.8	510g	0.33m	0.26x	67mm	7	57	★★★★		
TELEPHOTO ZOOMS	TELEPHOTO ZOOMS														
	Nikon AF-S DX 55-200mm f/4-5.6G IF-ED VR	£230/\$250	DX	3.6x	Yes	Ultrasonic	f/4-5.6	335g	1.1m	0.23x	52mm	7	35	★★★★	
	Nikon AF-S DX 55-200mm f/4-5.6G ED VR II	£255/\$350	DX	3.6x	Yes	Ultrasonic	f/4-5.6	300g	1.1m	0.23x	52mm	7			
	Nikon AF-S DX 55-300mm f/4.5-5.6G ED VR	£270/\$400	DX	5.5x	Yes	Ultrasonic	f/4.5-5.6	530g	1.4m	0.22x	58mm	9	35	★★★★	
	Nikon AF-S 70-200mm f/2.8G ED VR II	£1600/\$2100	FX	2.9x	Yes	Ultrasonic	f/2.8	1540g	1.4m	0.12x	77mm	9	59	★★★★★	🏆
	Nikon AF-S 70-200mm f/4G ED VR	£1000/\$1400	FX	2.9x	Yes	Ultrasonic	f/4	850g	1.0m	0.27x	67mm	9	29	★★★★	
	Nikon AF-S 70-300mm f/4.5-5.6G IF-ED VR	£430/\$500	FX	4.3x	Yes	Ultrasonic	f/4.5-5.6	745g	1.5m	0.25x	67mm	9	45	★★★★★	🏆
	Nikon AF 80-400mm f/4.5-5.6D ED VR	£940/\$1850	FX	5.0x	Yes	Body-driven	f/4.5-5.6	1360g	2.3m	0.21x	77mm	9	8	★★★★	
	Nikon AF-S 80-400mm f/4.5-5.6G ED VR	£1860/\$2300	FX	5.0x	Yes	Ultrasonic	f/4.5-5.6	1570g	1.5m	0.2x	77mm _{equiv}	9	45	★★★★	
	Nikon AF-S 200-400mm f/4G ED VR II	£4900/\$7000	FX	2.0x	Yes	Ultrasonic	f/4	3360g	1.95m	0.27x	52mm	9	45	★★★★★	🏆
	Nikon AF-S 200-500mm f/5.6E ED VR	£1180/\$1400	FX	2.5x	Yes	Ultrasonic	f/5.6	2300g	2.2m	0.22x	95mm	9	55		
	Sigma 50-500mm f4.5-6.3 DG OS HSM	£1000/\$1500	FX	10.0x	Yes	Ultrasonic	f/4.5-6.3	1970g	0.518m	0.32x	95mm	9	45	★★★★	
	Sigma 70-200mm f/2.8 EX DG OS HSM	£800/\$1200	FX	2.9x	Yes	Ultrasonic	f/2.8	1430g	1.4m	0.13x	77mm	9	52	★★★★	
	Sigma 70-300mm f/4-5.6 DG Macro	£130/\$150	FX	4.3x	No	Electric	f/4-5.6	545g	0.95m	0.5x	58mm	9	35	★★★★	
	Sigma APO 70-300mm f/4-5.6 DG Macro	£150/\$180	FX	4.3x	No	Electric	f/4-5.6	550g	0.95m	0.5x	58mm	9	35	★★★★	

KEY: ■ GREAT VALUE ■ BEST ON TEST AWARD

	Price	DX/FX	Max zoom	Stabilizer	Autofocus	Max aperture	Weight	Min focus	Magnification	Filter size	Aperture blades	Issue reviewed	Rating	Awards
TELEPHOTO ZOOMS														
Sigma 120-300mm f/2.8 DG OS HSM S	£2700/\$3600	FX	2.5x	Yes	Ultrasonic	f/2.8	3390g	1.5-2.5m	0.12x	105mm	9	45	●●●●●	
Sigma APO 150-500mm f/5-6.3 DG OS HSM	£700/\$870	FX	3.3x	Yes	Ultrasonic	f/5-6.3	1780g	2.2m	0.19x	86mm	9	45	●●●●●	
Sigma 150-600mm f/5-6.3 DG OS HSM S	£1450/\$2000	FX	4.0x	Yes	Ultrasonic	f/5-6.3	2860g	2.6m	0.2x	105mm	9	45	●●●●●	■
Sigma 200-500mm f/2.8 EX DG	£12700/\$26000	FX	2.5x	No	Ultrasonic	f/2.8	15,700g	20.50m	0.13x	72mm _{drop-in}	9			
Sigma 300-800mm f/5.6 EX DG HSM	£5500/\$8000	FX	2.7x	No	Ultrasonic	f/5.6	5880g	6.0m	0.14x	46mm _{drop-in}	9	45	●●●●	
Tamron SP AF 70-200mm f/2.8 Di LD (IF) Macro	£500/\$770	FX	2.9x	No	Electric	f/2.8	1320g	0.95m	0.32x	77mm	9			
Tamron SP AF 70-200mm f/2.8 Di VC USD	£930/\$1500	FX	2.9x	Yes	Ultrasonic	f/2.8	1470g	1.3m	0.13x	77mm	9	52	●●●●●	
Tamron AF 70-300mm f/4-5.6 Di LD Macro	£130/\$150	FX	4.3x	No	Electric	f/4-5.6	458g	0.95m	0.5x	62mm	9	35	●●●●	
Tamron SP AF 70-300mm f/4-5.6 Di VC USD	£290/\$450	FX	4.3x	Yes	Ultrasonic	f/4-5.6	765g	1.5m	0.25x	62mm	9	35	●●●●●	■
Tamron SP 150-600mm F/5-6.3 Di VC USD	£870/\$1070	FX	4.0x	Yes	Ultrasonic	f/5-6.3	1951g	2.7m	0.2x	95mm	9	45	●●●●●	■

SUPERZOOMS	SUPERZOOMS													
	Nikon AF-S DX 18-140mm f/3.5-5.6G ED VR	£460/\$500	DX	7.8x	Yes	Ultrasonic	f/3.5-5.6	490g	0.45m	0.23x	67mm	7	27	●●●●
	Nikon AF-S DX 18-200mm f/3.5-5.6G ED VR II	£550/\$650	DX	11.1x	Yes	Ultrasonic	f/3.5-5.6	565g	0.5m	0.22x	72mm	7	39	●●●●●
	Nikon AF-S DX 18-300mm f/3.5-5.6G ED VR	£670/\$900	DX	16.7x	Yes	Ultrasonic	f/3.5-5.6	830g	0.45m	0.31x	77mm	9	39	●●●●
	Nikon AF-S DX 18-300mm f/3.5-6.3G ED VR	£550/\$700	DX	16.7x	Yes	Ultrasonic	f/3.5-6.3	550g	0.48m	0.32x	67mm	7	39	●●●●
	Nikon AF-S 28-300mm f/3.5-5.6G ED VR	£660/\$1050	FX	10.7x	Yes	Ultrasonic	f/3.5-5.6	800g	0.5m	0.32x	77mm	9	21	●●●●●
	Sigma 18-200mm f/3.5-6.3 DC Macro OS HSM C	£250/\$400	DX	11.1x	Yes	Ultrasonic	f/3.5-6.3	430g	0.39m	0.33x	62mm	7	39	●●●●●
	Sigma 18-250mm f/3.5-6.3 DC Macro OS HSM	£295/\$350	DX	13.9x	Yes	Ultrasonic	f/3.5-6.3	470g	0.35m	0.34x	62mm	7	39	●●●●●
	Sigma 18-300mm f/3.5-6.3 DC Macro OS HSM C	£350/\$500	DX	16.7x	Yes	Ultrasonic	f/3.5-6.3	585g	0.39m	0.33x	72mm	7		
	Tamron 16-300mm f/3.5-6.3 Di II VC PZD Macro	£400/\$630	DX	18.8x	Yes	Ultrasonic	f/3.5-6.3	540g	0.39m	0.34x	67mm	7	39	●●●●●
	Tamron AF 18-200mm f/3.5-6.3 XR Di II LD Macro	£135/\$200	DX	11.1x	No	Electric	f/3.5-6.3	405g	0.45m	0.27x	62mm	7	39	●●●●●
	Tamron AF 18-270mm f/3.5-6.3 Di II VC PZD	£330/\$450	DX	15.0x	Yes	Ultrasonic	f/3.5-6.3	450g	0.49m	0.26x	62mm	7	39	●●●●
	Tamron 28-300mm f/3.5-6.3 Di VC PZD	£570/\$850	FX	10.7x	Yes	Ultrasonic	f/3.5-6.3	540g	0.49m	0.29x	67mm	7	16	●●●●
	Tamron AF 28-300mm f/3.5-6.3 XR Di LD Macro	£330/\$400	FX	10.7x	No	Body-driven	f/3.5-6.3	435g	0.49m	0.34x	62mm	9		

WIDE-ANGLE PRIMES	WIDE-ANGLE PRIMES													
	Nikon AF DX 10.5mm f/2.8G ED Diagonal Fisheye	£550/\$689	DX	None	No	Body-driven	f/2.8	305g	0.14m	0.2x	None	7	12	●●●●●
	Nikon AF 14mm f/2.8D ED	£1240/\$1890	FX	None	No	Body-driven	f/2.8	670g	0.2m	0.15x	None	7		
	Nikon AF 16mm f/2.8D Diagonal Fisheye	£625/\$1000	FX	None	No	Body-driven	f/2.8	290g	0.25m	0.1x	None	7	12	●●●●●
	Nikon AF-S 20mm f/1.8G ED	£680/\$800	FX	None	No	Ultrasonic	f/1.8	355g	0.2m	0.23x	77mm	7		
	Nikon AF 20mm f/2.8D	£465/\$625	FX	None	No	Body-driven	f/2.8	270g	0.25m	0.12x	62mm	7		
	Nikon AF-S 24mm f/1.4G ED	£1570/\$2000	FX	None	No	Ultrasonic	f/1.4	620g	0.25m	0.18x	77mm	9	59	●●●●●
	Nikon AF-S 24mm f/1.8G ED	£630/\$750	FX	None	No	Ultrasonic	f/1.8	355g	0.23m	0.2x	72mm	7		
	Nikon AF 24mm f/2.8D	£370/\$395	FX	None	No	None	f/2.8	270g	0.3m	0.11x	52mm	7		
	Nikon PC-E 24mm f/3.5D ED (tilt & shift)	£1465/\$2200	FX	None	No	None	f/3.5	730g	0.21m	0.37x	77mm	9	25	●●●●●
	Nikon AF-S 28mm f/1.8G	£495/\$697	FX	None	No	Ultrasonic	f/1.8	330g	0.25m	0.22x	67mm	7	25	●●●●●
	Nikon AF 28mm f/2.8D	£245/\$290	FX	None	No	Body-driven	f/2.8	205g	0.25m	0.18x	72mm	7		
	Nikon AF-S 35mm f/1.4G	£1295/\$1500	FX	None	No	Ultrasonic	f/1.4	600g	0.3m	0.2x	67mm	9	25	●●●●●
	Nikon AF-S 35mm f/1.8G ED	£430/\$597	FX	None	No	Ultrasonic	f/1.8	305g	0.25m	0.24x	58mm	7		
	Nikon AF 35mm f/2D	£255/\$390	FX	None	No	None	f/2	205g	0.25m	0.24x	52mm	7		
	Samyang 8mm f/3.5 IF MC CSII Di Circular Fisheye	£285/\$260	FX	None	No	None	f/3.5	435g	0.3m	N/S	None	6	12	●●●●●
	Samyang 10mm f/2.8 ED AS NCS CS	£410/\$385	DX	None	No	None	f/2.8	600g	0.25m	N/S	None	6		
	Samyang 12mm f/2.8 ED AS NCS Diagonal Fisheye	£480/\$350	FX	None	No	None	f/2.8	530g	0.2m	N/S	None	7		
	Samyang 14 mm f/2.8 IF ED UMC	£320/\$320	FX	None	No	None	f/2.8	560g	0.28m	N/S	None	6	33	●●●●●
	Samyang 16mm f/2 ED AS UMC CS	£435/\$360	DX	None	No	None	f/2	590g	0.2m	N/S	77mm	8		
	Samyang 24mm f/1.4 ED AS UMC	£560/\$530	FX	None	No	None	f/1.4	680g	0.25m	N/S	77mm	8		
	Samyang T-S 24mm f/3.5 ED AS UMC (tilt & shift)	£900/\$700	FX	None	No	None	f/3.5	680g	0.2m	N/S	82mm	8	25	●●●●●
	Samyang 35mm f/1.4 AS UMC AE	£440/\$450	FX	None	No	None	f/1.4	660g	0.3m	0.2x	77mm	8	40	●●●●●
	Sigma 4.5mm f/2.8 EX DC HSM Circular Fisheye	£600/\$800	DX	None	No	Ultrasonic	f/2.8	470g	0.14m	0.17x	None	6	12	●●●●●
	Sigma 8mm f/3.5 EX DG Circular Fisheye	£620/\$900	FX	None	No	Electric	f/3.5	400g	0.14m	0.22x	None	6	12	●●●●●
	Sigma 10mm f/2.8 EX DC HSM Diagonal Fisheye	£480/\$600	DX	None	No	Ultrasonic	f/2.8	475g	0.14m	0.11x	None	7	12	●●●●
	Sigma 15mm f/2.8 EX DG Diagonal Fisheye	£475/\$600	FX	None	No	Electric	f/2.8	370g	0.15m	0.26x	None	7	12	●●●●●
	Sigma 28mm f/1.8 EX DG Asp Macro	£360/\$450	FX	None	No	Electric	f/1.8	500g	0.2m	0.34x	77mm	9	7	●●●●
	Sigma 35mm f/1.4 DG HSM A	£650/\$900	FX	None	No	Ultrasonic	f/1.4	665g	0.3m	0.19x	67mm	9	40	●●●●●
	Voigtlander 20mm f/3.5 Color-Skopar SL II	£500/\$550	FX	None	No	None	f/3.5	205g	0.2m	N/S	52mm	9		
	Voigtlander 28mm f/2.8 Color-Skopar SL II	£400/\$530	FX	None	No	None	f/2.8	180g	0.22m	N/S	52mm	9		
	Voigtlander 40mm f/2 Color-Ultrn SL II	£440/\$500	FX	None	No	None	f/2	200g	0.38m	N/S	52mm	9		
	Zeiss Distagon T* 15mm f/2.8 ZF.2	£2250/\$2950	FX	None	No	None	f/2.8	730g	0.25m	0.11x	95mm	9		
	Zeiss Distagon T* 18mm f/3.5 ZF.2	£1090/\$1400	FX	None	No	None	f/3.5	470g	0.3m	0.08x	82mm	9		
	Zeiss Distagon T* 21mm f/2.8 ZF.2	£1450/\$1845	FX	None	No	None	f/2.8	600g	0.22m	0.2x	82mm	9		

KEY: ■ GREAT VALUE ■ BEST ON TEST AWARD

	Price	DX/FX	Max zoom	Stabilizer	Autofocus	Max aperture	Weight	Min focus	Magnification	Filter size	Aperture blades	Issue reviewed	Rating	Awards
WIDE-ANGLE PRIMES														
Zeiss Distagon T* 25mm f/2 ZF.2	£1270/\$1700	FX	None	No	None	f/2	570g	0.25m	0.17x	67mm	9			
Zeiss Distagon T* 28mm f/2 ZF.2	£980/\$1285	FX	None	No	None	f/2	500g	0.24m	0.21x	58mm	9			
Zeiss Distagon T* 35mm f/1.4 ZF.2	£1450/\$1845	FX	None	No	None	f/1.4	830g	0.3m	0.2x	72mm	9			
Zeiss Distagon T* 35mm f/2 ZF.2	£850/\$1120	FX	None	No	None	f/2	530g	0.3m	0.19x	58mm	9			

STANDARD PRIMES	STANDARD PRIMES													
	Nikon AF-S DX 35mm f/1.8G	£150/\$180	DX	None	No	Ultrasonic	f/1.8	200g	0.3m	0.16x	52mm	7	28	● ● ● ●
	Nikon PC-E Micro 45mm f/2.8D ED (tilt & shift)	£1395/\$2050	FX	None	No		f/2.8	740g	0.25m	0.5x	77mm	9	25	● ● ● ●
	Nikon AF 50mm f/1.4D	£275/\$420	FX	None	No	Body-driven	f/1.4	230g	0.45m	0.15x	52mm	7		
	Nikon AF-S 50mm f/1.4G	£350/\$450	FX	None	No	Ultrasonic	f/1.4	280g	0.45m	0.15x	58mm	9	59	● ● ● ● ■
	Nikon AF 50mm f/1.8D	£110/\$135	FX	None	No	Body-driven	f/1.8	155g	0.45m	0.15x	52mm	7	7	● ● ● ● ■
	Nikon AF-S 50mm f/1.8G	£150/\$220	FX	None	No	Ultrasonic	f/1.8	185g	0.45m	0.15x	58mm	7	28	● ● ● ●
	Nikona 50mm f/1.4 EX DG HSM	£350/\$470	FX	None	No	Ultrasonic	f/1.8	190g	0.45m	0.15x	58mm	7		
	Nikon AF-S 58mm f/1.4G	£1300/\$1700	FX	None	No	Ultrasonic	f/1.4	385g	0.58m	0.13x	72mm	9	40	● ● ● ●
	Samyang 50mm f/1.4 AS UMC	£420/\$440	FX	None	No	None	f/1.4	575g	0.45m	N/S	77mm	8		
	Sigma 30mm f/1.4 DC HSM A	£370/\$500	DX	None	No	Ultrasonic	f/1.4	435g	0.3m	0.15x	62mm	9	28	● ● ● ●
	Sigma 50mm f/1.4 EX DG HSM	£320/\$400	FX	None	No	Ultrasonic	f/1.4	520g	0.5m	0.14x	77mm	9	28	● ● ● ● ■
	Sigma 50mm f/1.4 DG HSM A	£670/\$950	FX	None	No	Ultrasonic	f/1.4	815g	0.4m	0.18x	77mm	9	52	● ● ● ● ■
	Voigtlander 58mm f/1.4 Color Nokton SL II	£409/\$490	FX	None	No	None	f/1.4	320g	0.45m	N/S	58mm	9		
	Zeiss Planar T* 50mm f/1.4 ZF.2	£560/\$725	FX	None	No	None	f/1.4	330g	0.45m	0.15x	58mm	9		
	Zeiss Otus 55mm f/1.4	£3170/\$3990	FX	None	No	None	f/1.4	970g	0.5m	0.15x	77mm	9		

TELEPHOTO PRIMES	TELEPHOTO PRIMES													
	Nikon AF-S 85mm f/1.4G	£1200/\$1500	FX	None	No	Ultrasonic	f/1.4	595g	0.85m	0.12x	77mm	9	59	● ● ● ● ■
	Nikon AF-S 85mm f/1.8G	£400/\$430	FX	None	No	Ultrasonic	f/1.8	350g	0.8m	0.12x	67mm	7	52	● ● ● ● ■
	Nikon PC-E Micro 85mm f/2.8D (tilt & shift)	£1300/\$1980	FX	None	No	None	f/2.8	635g	0.39m	0.5x	77mm	9	25	● ● ● ●
	Nikon AF DC 105mm f/2D (defocus control)	£850/\$1200	FX	None	No	Body-driven	f/2	640g	0.9m	0.13x	72mm	9		
	Nikon AF DC 135mm f/2D (defocus control)	£1030/\$1390	FX	None	No	Body-driven	f/2	815g	1.1m	0.14x	72mm	9	14	● ● ● ●
	Nikon AF-S 200mm f/2G ED VR II	£4100/\$6000	FX	None	Yes	Ultrasonic	f/2	2930g	1.9m	0.12x	52mm _{lens}	9	29	● ● ● ●
	Nikon AF-S 300mm f/2.8G ED VR II	£4000/\$5900	FX	None	Yes	Ultrasonic	f/2.8	2900g	2.3m	0.16x	52mm _{lens}	9	14	● ● ● ●
	Nikon AF-S 300mm f/4D IF-ED	£1030/\$1490	FX	None	No	Ultrasonic	f/4	1440g	1.45m	0.27x	77mm	9		
	Nikon AF-S 300mm f/4E PF ED VR	£1470/\$2000	FX	None	Yes	Ultrasonic	f/4	755g	1.4m	0.24x	77mm	9		
	Nikon AF-S 400mm f/2.8E FL ED VR	£10400/\$12000	FX	None	Yes	Ultrasonic	f/2.8	3800g	2.6m	0.14x	405mm _{lens}	9		
	Nikon AF-S 500mm f/4G ED VR	£5850/\$8600	FX	None	Yes	Ultrasonic	f/4	3880g	4.0m	0.14x	52mm _{lens}	9		
	Nikon AF-S 600mm f/4G ED VR	£7070/\$10300	FX	None	Yes	Ultrasonic	f/4	5060g	5.0m	0.14x	52mm _{lens}	9		
	Nikon AF-S 800mm f/5.6E FL ED VR	£13995/\$17900	FX	None	Yes	Ultrasonic	f/5.6	4590g	5.9m	0.15x	52mm _{lens}	9		
	Samyang 85mm f/1.4 IF MC	£305/\$289	FX	None	No	None	f/1.4	539g	1.0m	0.11x	72mm	8	40	● ● ● ●
	Samyang 135mm f/2 ED UMC	£420/\$600	FX	None	No	None	f/2	830g	0.8m	N/S	77mm	9		
	Samyang 500mm MC IF f/6.3 Mirror	£125/\$150	FX	None	No	None	f/6.3	705g	2.0m	N/S	95mm	0	8	● ●
	Samyang 500mm MC IF f/8 Mirror	£105/\$130	FX	None	No	None	f/8	320g	1.7m	N/S	72mm	0	8	● ●
	Samyang 800mm MC IF f/8 Mirror	£170/\$200	FX	None	No	None	f/8	870g	3.5m	N/S	30mm _{rear}	0		
	Sigma 85mm f/1.4 EX DG HSM	£650/\$970	FX	None	No	Ultrasonic	f/1.4	725g	0.85m	0.12x	77mm	9	52	● ● ● ●
	Sigma APO 300mm f/2.8 EX DG HSM	£2280/\$3400	FX	None	No	Ultrasonic	f/2.8	2400g	2.5m	0.13x	46mm _{lens}	9		
	Sigma APO 500mm f/4.5 EX DG HSM	£3760/\$5000	FX	None	No	Ultrasonic	f/4.5	3150g	4.0m	0.13x	46mm _{lens}	9		
	Sigma APO 800mm f/5.6 EX DG HSM	£4320/\$8000	FX	None	No	Ultrasonic	f/5.6	4.9kg	7.0m	0.11x	46mm _{lens}	9		
	Zeiss Otus 85mm f/1.4 ZF.2	£3250/\$4390	FX	None	No	None	f/1.4	1140g	0.8m	0.13x	86mm	9		
	Zeiss Planar T* 85mm f/1.4 ZF.2	£990/\$1285	FX	None	No	None	f/1.4	570g	1.0m	0.1x	72mm	9		
	Zeiss Apo Sonnar T* 135mm f/2 ZF.2	£1600/\$2125	FX	None	No	None	f/2	920g	0.8m	0.25x	77mm	9		

MACRO	MACRO													
	Nikon AF-S DX 40mm f/2.8G Micro	£185/\$250	DX	None	No	Ultrasonic	f/2.8	235g	0.16m	1.0x	52mm	7	34	● ● ●
	Nikon AF 60mm f/2.8D Micro	£370/\$520	FX	None	No	Body-driven	f/2.8	440g	0.22m	1.0x	62mm	7		
	Nikon AF-S 60mm f/2.8G ED Micro	£370/\$600	FX	None	No	Ultrasonic	f/2.8	425g	0.19m	1.0x	62mm	9	34	● ● ●
	Nikon AF-S DX 85mm f/3.5G ED VR Micro	£375/\$530	DX	None	Yes	Ultrasonic	f/3.5	355g	0.29m	1.0x	52mm	9	34	● ● ●
	Nikon AF-S 105mm f/2.8G IF-ED VR Micro	£660/\$900	FX	None	Yes	Ultrasonic	f/2.8	750g	0.31m	1.0x	62mm	9	59	● ● ● ● ■
	Nikon AF 200mm f/4D IF-ED Micro	£1180/\$1790	FX	None	No	Body-driven	f/4	1190g	0.5m	1.0x	62mm	9		
	Sigma 70mm f/2.8 EX DG Macro	£360/\$450	FX	None	No	Body-driven	f/2.8	525g	0.26m	1.0x	62mm	9	20	● ● ●
	Sigma 105mm f/2.8 EX DG OS HSM Macro	£390/\$670	FX	None	Yes	Ultrasonic	f/2.8	725g	0.31m	1.0x	62mm	9	34	● ● ● ● ■ ■
	Sigma APO 150mm f/2.8 EX DG OS HSM Macro	£700/\$1100	FX	None	Yes	Ultrasonic	f/2.8	1150g	0.38m	1.0x	72mm	9	20	● ● ● ●
	Sigma APO 180mm f/2.8 EX DG OS HSM Macro	£1200/\$1700	FX	None	Yes	Ultrasonic	f/2.8	1640g	0.47m	1.0x	86mm	9	14	● ● ● ●
	Tamron SP AF 60mm f/2 Di II LD (IF) Macro	£330/\$525	DX	None	No	Electric	f/2	350g	0.23m	1.0x	55mm	7	34	● ● ●
	Tamron SP AF 90mm f/2.8 Di Macro	£370/\$500	FX	None	No	Electric	f/2.8	405g	0.29m	1.0x	55mm	9	34	● ● ● ●
	Tamron SP AF 90mm f/2.8 Di Macro VC USD	£400/\$750	FX	None	Yes	Ultrasonic	f/2.8	550g	0.3m	1.0x	58mm	9	34	● ● ● ●
	Tamron SP AF 180mm f/3.5 Di Macro	£700/\$740	FX	None	No	Electric	f/3.5	985g	0.47m	1.0x	72mm	7	14	● ● ●
	Tokina 100mm f/2.8 AT-X PRO Macro	£370/\$380	FX	None	No	Body-driven	f/2.8	540g	0.3m	1.0x	55mm	9	34	● ● ●
	Zeiss Makro Planar T* 50mm f/2 ZF.2	£1000/\$1450	FX	None	No	None	f/2	500g	0.24m	0.5x	67mm	9		
	Zeiss Makro Planar 100mm f/2 T* ZF.2	£1450/\$1845	FX	None	No	None	f/2	660g	0.44m	0.5x	67mm	9		



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- Total Digital Photography Magazine

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T1571-T1579 Turtle Inks Originals: Set of 8 Colours 25.9ml each £149.99 Set of 8 Colours 25.9ml each £18.99		T7601-T7609 Killer Whale Originals: Set of 9 Colours 25.9ml each £169.99 Set of 9 Colours 25.9ml each £18.99	

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Replacement rechargeable Li-ion batteries, manufactured by Hahnel or Blumax. All come with a two-year guarantee.

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AA Lloytron 1300mAh (4)	£3.99
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CR2025, CR2032 etc.	£1.99

Filters

One of the largest ranges of screw-in threaded filters in the UK, from Hoya, Kood and Marumi. We carry sizes from 24mm, up to 105mm, and offer Clear Protectors, UVs, Skylights, Circular Polarisers, ND4s, ND8s, ND16s, ND32s, ND64s, ND500s, ND1000s, Variable NDs, Starbursts, Close Up Sets and more! Below are just a few examples...

KOOD Slim Frame UV Filters		Marumi DHG Slim Frame Multi-coated Clear Protectors		Hoya HMC Slim Frame UV Filters	
37mm	£4.99	37mm	£10.99	37mm	£12.99
40.5mm	£4.99	43mm	£10.99	40.5mm	£12.99
46mm	£4.99	46mm	£10.99	46mm	£12.99
49mm	£4.99	49mm	£10.99	49mm	£11.99
52mm	£4.99	52mm	£10.99	52mm	£11.99
55mm	£5.99	55mm	£11.99	55mm	£14.99
58mm	£6.99	58mm	£12.99	58mm	£16.99
62mm	£7.99	62mm	£14.99	62mm	£18.99
67mm	£8.99	67mm	£15.99	67mm	£21.99
72mm	£9.99	72mm	£17.99	72mm	£25.99
77mm	£11.99	77mm	£19.99	77mm	£29.99
82mm	£14.99	82mm	£22.99	82mm	
86mm	£19.99				

KOOD Slim Frame Circular Polarisers		Marumi DHG Slim Frame Multi-coated Circular Polarisers		HOYA Pro-1D Slim Frame Multi-coated Circular Polarisers	
37mm	£12.99	52mm	£13.99	52mm	£16.99
40.5mm	£12.99	58mm	£15.99	58mm	£31.99
46mm	£12.99	62mm	£17.99	62mm	£35.99
49mm	£12.99	67mm	£19.99	67mm	£39.99
52mm	£14.99	72mm	£21.99	72mm	£49.99
55mm	£15.99	77mm	£24.99	82mm	
58mm	£17.99				
62mm	£19.99	Marumi DHG Slim Frame Multi-coated Circular Polarisers		HOYA Pro-1D Slim Frame Multi-coated Circular Polarisers	
67mm	£22.99	52mm	£31.99	52mm	£52.99
72mm	£26.99	58mm	£35.99	58mm	£60.99
77mm	£29.99	62mm	£39.99	62mm	£67.99
82mm	£34.99	67mm	£44.99	67mm	£75.99
86mm	£39.99	72mm	£49.99	72mm	£90.99
KOOD ND4 & ND8 Filters		77mm	£54.99	77mm	£79.99
52mm	£26.99	82mm	£69.99	82mm	£120.99
58mm	£34.99				

Square Filters

We stock three widths of square filters: A-type (67mm wide), P-type (84mm wide) and Z-type (100mm wide). Made in the UK, Kood square filters are optically flat, with excellent colour density, neutrality and stability. They received a maximum 5 star rating from Digital Camera Magazine.

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Wide Angle Holder	£6.99	Adapter Rings 52-95mm	£8.99
Filter Wallet for 8 Filters	£9.99	ND2 Solid	£16.99
Adapter Rings 49-82mm	£4.99	ND2 Soft Graduated	£17.99
Circular Polariser	£27.99	ND2 Hard Graduated	£17.99
ND2 Solid	£12.99	ND4 Solid	£16.99
ND2 Soft Graduated	£13.99	ND4 Soft Graduated	£17.99
ND2 Hard Graduated	£13.99	ND4 Hard Graduated	£17.99
ND4 Solid	£12.99	ND8 Solid	£18.99
ND4 Soft Graduated	£13.99	ND8 Soft Graduated	£19.99
ND4 Hard Graduated	£13.99	ND8 Hard Graduated	£19.99
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ND8 Soft Graduated	£15.99	Light Blue Graduated	£17.99
ND8 Hard Graduated	£15.99	Light Blue Graduated	£17.99
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Dark Blue Graduated	£12.99	Dark Sunset Graduated	£18.99
Light Tobacco Graduated	£12.99		
Dark Tobacco Graduated	£12.99	A-Type: 67mm wide Filters	
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Dark Sunset Graduated	£14.99	Adapter Rings 37-62mm	£8.99
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A popular kit containing an ND2, ND2 Soft Grad, ND4, ND4 Soft Grad, Filter Holder, plus Adapter Ring of your choice (49-82mm).		ND4 Graduated	£11.99
		ND8 Solid	£11.99
		ND8 Graduated	£12.99

Lens Accessories

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EW-78D Canon 18-200 IS	£9.99	55mm Rubber Hood	£3.99
EW-78E Canon 18-55 IS	£12.99	55mm Shaped Petal Hood	£6.99
EW-83E Canon 17-40/4.0	£12.99	58mm Rubber Hood	£3.99
HB-32 Nikon 18-105 VR	£7.99	58mm Shaped Petal Hood	£6.99
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		62mm Shaped Petal Hood	£7.99
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and Pentax		£2.99	
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VR II

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It's a burning question: how *do* you expose for a knife fire dancer?

Recently I was in Hawaii, which is always a treat. It was even more so in that my wife Annie and I were invited to teach a workshop at the Four Seasons Hualalai Resort.

A photographic staple of visiting Hawaii is a session with a fire knife dancer. Always hard, playing with fire, photographically. It's tough, sometimes, to know what to do when a big part of what you are trying to expose for is whirling like a dervish. You need a measure of darkness and simplicity in the background, not to mention pictorial eloquence. A darkening sunset sky is perfect. You need to expose for the flames, but not too much; fire goes from orange to white in the blink of an overlong shutter speed. And you need to have a degree of sharpness in the dancer. That's tough to do when you use the actual fire knife as your principal source of light. The fire and the dancer are moving, and you need something to freeze the action. Enter flash.



It's tough, sometimes, to know what to do when a big part of what you are trying to expose for is whirling like a dervish



White-light flash, thrown from the hotshoe of the camera, ain't gonna cut it. White light is an intruder here, out of colour sync with the romantic colour palette of fire and Pacific sunset you are painting with. Frontal light also means flat light, generally, and you want some shadows to enhance dimensionality and mystery. Hence, a light from the side, gelled warm, is called for. The photo above was shot with a single Nikon SB-5000 Speedlight, off to camera left, on a simple Manfrotto stand,

and I controlled it with a WRR-10 radio transceiver. Pretty simple, really. It was shot at 1/60 sec, f/2.8, and ISO400 on a Nikon D5.

How to get the shot

Observe the dancer. Figure out which is his better hand. Most of these guys are so good, they can put the fire knife exactly where you want it.

Get near some water. This will give you some tiny bit of highlight in the background, and not absolute darkness. It will also assure you of a clear throw to the western sky.

Position your light, gel it, and do some testing. You will be shooting relatively slow shutter speeds, and the flash will help you retain sharpness.

Start before the sky gets too dark! That was my issue with

this particular picture. If you have to use a seriously slow shutter speed to get detail in the sky, the fire will become white. It is quite bright and needs to be managed with care.

Shoot a lot of pictures! Give the dancer a break and let them rest, but once they start twirling, go for it. If you can position your flash relatively close to your subject, you will drain less power with each exposure, thus hyping your recycle rate. That way you can rat-a-tat, shooting lots of frames in series. You never can tell when the flying flame might obscure the dancers's face, or be otherwise uncontrolled. So, shoot a lot. And, be careful playing with fire.

The workshop was a hit, so we will hopefully do another. The dates will be on my blog.

IN NEXT ISSUE: HARD LIGHT vs SOFT LIGHT ON THE COAST OF PERU

Images: Joe McNally, Profile shot of Joe by Mike Corrado.



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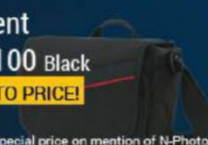


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