

Telephoto

By Alexander Mustard

Telephoto theory



My set-up for the telephoto photography underwater. Note how the strobes are as far out from the lens as possible and pushed forwards towards the subject.

Water ruins more underwater pictures than anything else. It saps colour, mucks up clarity and drops contrast. The key to successful underwater photography is to get rid of the water! The best quality underwater images are produced when we keep the distance between the subject and us to a minimum. As a result, we only use certain lenses: the widest lenses to photograph scenery and close focussing macro lenses to snap the little stuff. In my opinion this leads to a rather restricted view of the underwater world. Other lenses would allow us to view the underwater world with a different perspective. This article is about my attempts at using a telephoto lens underwater.

A telephoto lens is defined as a lens that incorporates a telescope, thus providing greater magnification than we can see with our eyes. Put another way a telephoto is a lens with a focal length longer than a standard lens of 50mm. On a 35mm format camera a short telephoto lens has focal length greater than 75mm, a medium telephoto greater than 135mm and a long telephoto greater than 300mm. On a cropped sensor DSLR these values would be lower (divide by approx. 1.5).

For the purposes of this article I define UW telephoto photography as using a lens with a (35mm equivalent) focal length of greater than 100mm. Many of us will already have a macro lens of this focal length, but we shoot it close to subject, usually framing a picture area (much) smaller than a postcard. Telephoto photography is different because we are much further from the subject photographing a picture area larger than 30cm (1 foot) at the point of focus. My main motivation for trying telephoto photography is to exploit the different perspective it offers. Wide angle lenses produce steepened perspective, pulling the subject forward away from the background and giving a



The narrow angle of view of a telephoto enabled me to isolate this silhouetted Anthias against the evening sunlight. Nikon D100 + 160mm (35mm equiv.), Subal housing. 1/500th @ f8. 2 x Subtrobic Alpha strobes.

shot an almost three dimensional effect. This is great. And it is one of the reasons why we like them so much underwater. But if you have ever sat through a reel of wide angle slides you will soon



Flattened perspective gives fish a flatter more human looking face, that is easier for a viewer to relate to. Nikon D100 + 160mm (35mm equiv.), Subal housing. 1/180th @ f16. 2 x Subtronic Alpha strobes.

realise that the effect is used repetitively in underwater photography. A long focal length shows less background and flattens perspective, pulling the background much closer to the subject. While less



The telephoto allowed me to photograph this difficult to approach Mantis shrimp at a long camera to subject distance. Nikon D100 + 160mm (35mm equiv.), Subal housing. 1/180th @ f22. 2 x Subtronic Alpha strobes.

suitable for many underwater situations if used selectively it can create stunning images that add a spark of originality to a portfolio.

Telephoto technique

Well, that is the theory. It is rather more difficult in practice. The first problem with a lens designed to “bring distant objects into closer view” is that by shooting through lots of water the image will lose the three Cs: colour, contrast and clarity. Lighting the picture with flash is part of the solution, but also creates the additional problem of backscatter. All that water filled with plankton, sediment and other particles provides plenty of potential to create a snowstorm image. The final problem is that many telephoto lenses have minimum focus distances greater than several metres. It is important to choose a lens that can focus down to at least 1 metre (3 feet) for underwater use, as 1-2 metres is the typical range for underwater telephoto.

There are several schools of thought for lighting underwater images with strobes. In my opinion there are no hard and fast rules because what works artistically and what doesn't is to great extent subjective. Lighting techniques can also vary with visibility. Here, I will just describe the approach I use and discuss why I think it is successful and how I modified it for telephoto. Invariably I use my strobes as a pair, positioned either side of the lens pointing directly forward, or angled slightly inward. I find that this approach provides the nice even light that I like, and also makes my camera rig easy to handle. I adjust the distance between the strobes and the camera lens depending on how far from the subject I am, pretty much irrespective of what lens I am using. For close-focus-wide-angle and macro my strobes are packed in close to the lens. When I shoot fish with a

standard lens or sharks (or other large creatures) with a wide angle my strobes migrate much further out. For telephoto I have the strobes as far out as I can. I also push them forward, closer to the subject than the lens, and angle them in slightly so that the centre of the beams crosses about 1.5 metres in front of the camera.

This lighting setup solves colour and helps contrast a lot, without creating a blizzard. Although to some extent that will depend on the visibility because backscatter will increase as visibility decreases. The lowest visibility water I have so far tried telephoto in was about 8 metres in Lembeh. Hardly atrocious viz, but the images were as clean as a whistle!

Clear water really helps overcome problems of image clarity in telephoto shooting. I have found that the old rule of thumb that visibility must be at least 5 times your camera to subject to distance is a good guide (2 metres camera to subject needs 10m Viz). The other way to increase the apparent clarity of an image is to choose a higher contrast film. This is particularly easy with a digital camera as the contrast of the “film” can be adjusted during the dive, or even after the dive if we shoot RAW.

Exploiting telephoto

OK, so we have a technique that works with a telephoto lens. How can we create new and eye-catching images that exploit the characteristics of the lens?

Here are a few of the things I have tried.

The factor that first made me try a telephoto was the chance to photograph fish behaviour that is hard to approach. When I have dived with



With a commonly photographed subject like a coral trout grouper, a telephoto is one way to produce a shot with a different look. Nikon D100 + 160mm (35mm equiv.), Subal housing. 1/45th @ f13. 2 x Subtronic Alpha strobes.

videographers I have always been jealous of the behavioural sequences that they have captured.

One of the reasons they are able to get such great shots (in addition to their skill, of course) is



A telephoto lens flattens perspective, shorting the distance between the background (in this case a wall of fish) and the main subject. Nikon D100 + 160mm (35mm or digital full frame equivalent), Subal housing. 1/45th @ f13. 2 x Subtronic Alpha strobes.

that they often film the action from more than 1 metre from the subject. At this distance they still get good frame filling images and at the same time do



The difficulty with photographing this saddleback anemonefish being cleaned by a shrimp living in its anemone was if I got too close to the fish would come charging of its anemone and attack me. The long lens allowed me to get the shot without disturbing the natural behaviour. Nikon D100 + 160mm (35mm equiv.), Subal housing. 1/180th @ f11. 2 x Subtronic Alpha strobes.

not disturb the natural behaviour. A telephoto provides the still photographer the same opportunity.

From a photographic point of view my favourite use for a telephoto is to flatten perspective. I can use this effect to my advantage both on the main subject and the background. Compared with us humans, fish have long and pointy faces. If we photograph a fish head-on with a wide angle or standard lens their face is distorted. Furthermore, the mouth usually is out of focus if the eyes are sharp.

The telephoto perspective flattens fish faces making them appear more human and arguably more familiar and pleasing for the viewer. A telephoto also pulls the background of the image closer to the main subject. This lets us draw attention to background details that would be lost in a wide angle photograph. For example, the long lens helped to emphasise the wall of fish behind the main grumpy looking snapper.

The narrow angle of coverage of a telephoto is also very helpful for isolating a subject against a particular background. This allows us to create simple images of subject on an uncluttered background of our choice. The backlit Anthias photo is an example of this. The evening sun was creating beautiful patterns on the surface that I wanted to use a background. The narrow angle of coverage let me completely fill the background of the frame with these patterns.

Finally the shallower depth of field, from a given camera to subject distance, of a telephoto lens can be used creatively to draw the eye to the main subject and to give the image more impact. Narrow depth of field can be accentuated by using wider apertures, that also help account for the long flash to

subject distances. But it is important to remember that a narrow depth of field does not mean that the background of the image does not contribute the story that the image is telling.

Conclusion

My main fear when first trying this technique was that other photographers would laugh at my inability to get close to a subject! “Who is that idiot photographing fish from more than a metre away? Doesn’t he know the basic rules of underwater photography? There is no chance his pictures will come out.”

Etc. Indeed I had scared myself off underwater telephoto photography until I could try it with the comfort blanket of immediate image review that comes with a digital camera!

Thinking about it, we probably take 90% of our images from between just under a foot to slightly less than two feet (20-50cm) from the subject. To get a different view, we don’t move we just change lens. By using just a few lenses from pretty much the same position relative to the subject, we are severely limiting the types of images we can produce. The telephoto encourages us to try something different, to back away, and get a new perspective on the subject. I say let them laugh.

Alexander Mustard
alex@amustard.com
www.amustard.com

Alex will be giving a digital presentation at Visions in the Sea on October 23rd in London

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