

Nauticam WACP tech notes & observations

by Kevin Palmer

Since underwater photography went digital so many years ago, there has been a love/hate relationship with wide angle rectilinear lenses behind domes – particularly with full frame cameras. A lot of the WA lenses from the film days just did not perform that well behind a dome port with digital sensors. Edges and corners were mushy and distorted and largely unusable unless in blue water. People resorted to diopters to reduce this effect (many manufactures of housings still frequently recommend these today), but diopters impart pin cushion distortion, reduce the angle of coverage and generally add a piece of glass that lessens optimal quality.

The other solution seemed to be ever increasing diameters of dome ports to try and replicate “in air” performance. The “super-dome” craze lead to people using (or at least claiming to use) domes of 12” diameter and larger. This helped image quality somewhat and bragging rights at the bar, but were extremely awkward to dive and travel with.

The introduction of newer lenses designed for digital sensors

did offer improvement – particularly with APS-C cameras where the excellent Tokina 10-17 fisheye zoom revolutionized wide angle shooting options and even the APS-C wide rectilinear zooms from Nikon and Canon made progress towards a little better behind-dome performance. But as more people migrated to Full frame cameras, many were struck by how limiting a fixed fisheye lens was. And equally frustrating was the 100 degree angle of view wide angle lens like the 16-35 zooms that produced soft corners and edges that still only look good in blue water.

Current rectilinear wide angle full frame lenses have to be shot at a minimum of f8 to produce marginal results at the edges in at least a 230mm dome. Ideally, even smaller apertures should be applied to improve things, but this often isn’t

The Nauticam WACP is a much smaller form factor than a 230mm wide angle dome.

Turtle ISO 125 1/125 f6.3





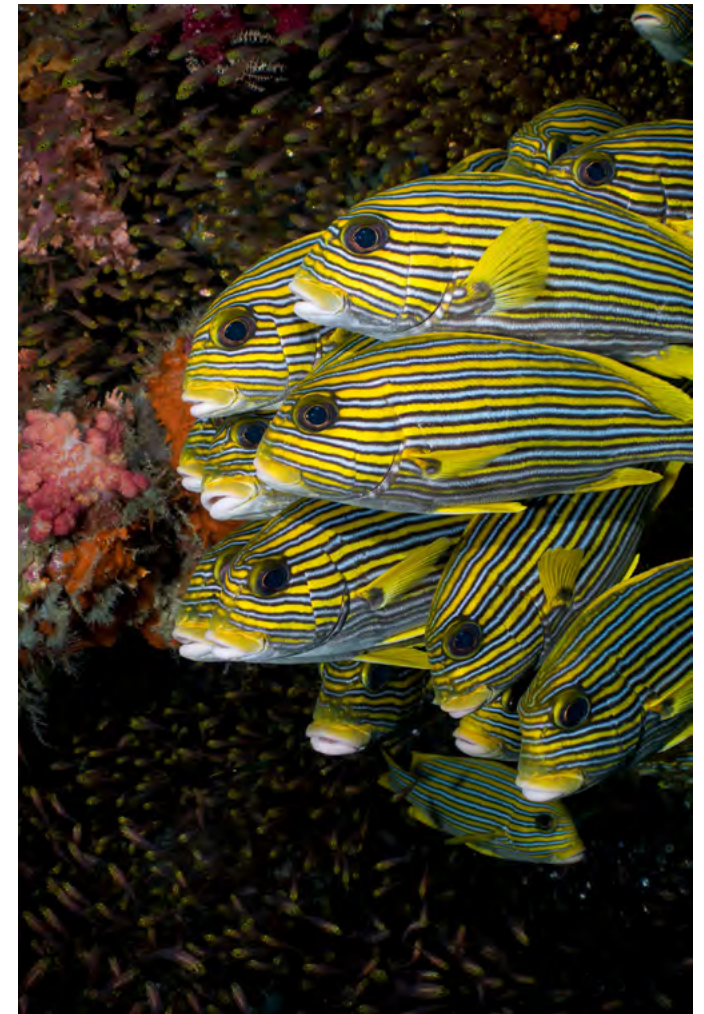
ISO 250 1/100 f5.6

practical and edges will never be truly “sharp”. Also important: what about the range between 180 degree fisheye and 100 degrees? There are minimal options that really work, though the \$3000 Canon 11-24 is a little improvement but still falls short of ideal. Surely there had to be a solution.

Enter the Nauticam WACP (Wide Angle Conversion Port). “Game Changing” gets tossed around a lot these days, but most of the time the described item falls pretty far short of my definition of that. But after a few weeks in the water with one

on my Nauticam NA-D850 housing, it is a term I will readily apply. I know already it will change the way I shoot wide angle forever.

The WACP is water contact lens – designed from the start to be used only underwater. For those of you old enough: Remember how crispy from edge to edge the Nikonos 15mm or RS 13mm lenses were? Those were that sharp because Nikon designed them to be water-contact lenses – and they could be relatively small! This was because every element in the lens was designed, front to



ISO 250 1/250 f9

back, to work together while shooting underwater. People use large domes on their rectilinear lenses to compensate for not being designed specifically for a particular lens and its minimum focus point. This is part of the secret, but there is a lot more going on with the WACP. Thanks to another 25 years of software and optics evolution, the WACP does things Nikon couldn’t have imagined back in the



ISO 160 1/80 f8



ISO 160 1/80 f11

Nikonos days.

Picture yourself going on a dive to shoot a stunning reef filled with Sweet Lips. You need to get close and wide. 130 degrees of coverage is about 14-15mm on an APS-C Tokina 10-17 zoom – kind of the sweet spot – super wide, but not excessive distortion. Now imagine it is late in the day and you want some ambient light, so you'd like to shoot at f4.5 or f5.6 – you would never do that with an ordinary lens port, but you know this isn't ordinary. You nail it – and the image is wider and the corners are sharper than that \$3000 11-24 lens

is when shot at F11 behind a super dome. Now you want to just frame the faces of seven or eight sweet lips – but you can't move closer – you will spook them. So you just zoom in, frame the prettiest fish, take the shot. How cool is that.

How big is the dome on the front of the WACP? Less than 6.5" including the shade. Because any lens you shoot behind the WACP will allow you to focus down to the glass, you can also shoot amazing close focus wide angle with this arrangement. There are dozens of lenses being tested for performance

behind the WACP and there will no doubt be dozens more – but so far the selection is great and growing rapidly. What lens did I shoot these images with? A discontinued Nikon 28-70 3.5-4.5. Cost: \$100, and thanks to the WACP, it outperformed any lens you can put behind a traditional dome in most categories, regardless of price.

In my book, this is the definition of a game changer. I was able to shoot in ways I never thought possible and got better results than I would have any other way. And just as important – it is incredibly fun to use – I kept thinking of things to try.

You have to reprogram your brain to what is possible, as it is a whole new ballgame. By the end of my trial I literally thought to myself "I will never shoot my 16-35 underwater again". I also didn't pick up my fisheye for two weeks...

It is important to note that although full frame shooters have had the most grievances in regard to wide angle image quality, APS-C DSLR shooters and even some mirrorless cameras can benefit as well with all the same parameters carrying over – only the focal lengths of the ideal lenses would change.



ISO 250 1/200 f8

If you have read this far, your skeptical brain is probably saying “what’s the catch – there is always a catch”. For most people there will be two primary considerations. One is the weight – there is a lot of optical glass, so it is a bit hefty in air – about 9lbs. But this may be less of a factor for many people – the WACP comes with a protective case and it is fine to throw in checked luggage as I did. I traveled to Sarong Indonesia and back with no overweight. If you eliminate some of the other redundant gear, it might be a wash. And most places we travel these days whether, land

based or liveaboard, there is always some smiling staff member to carry and handle your camera for if you are not keen on carrying it. Once you are in the water – you can make your rig as weightless as you prefer. I could balance mine on one finger.

At first glance, the second concern could be price at about \$3900 right now. But if you think of the cost of a 230mm dome (\$1900) and wide angle lenses (\$1100-\$3000) and what you gain in the process – it actually seems very reasonable.

Pros:

Much wider angle of coverage than



ISO 160 1/160 f8

any other rectilinear option – 130 degrees

Better, sharper detail on the edges at larger apertures

Sharper in the center than any other zoom behind a dome at the same focal length

Closer Focus

Smaller Dome

Greater zoom range than other wide angle lenses available

The flexibility to shoot many different lenses with different extensions

The WACP is not the perfect set up for every photographer, but there will be a whole lot of people who will

be taking more great pictures more often when they discover this new piece of gear. For help in figuring out how you might benefit from the WACP, give us a call or shoot us an email. We will be happy get into the details.

Kevin Palmer
www.reefphoto.com

We've got you covered!



Magic filters are now available in 3 options. Original Magic for use in blue water with DSLR and compact cameras with Manual White Balance, Auto-Magic for compact cameras in automatic point and shoot mode. GreenWater Magic for use in green water with DSLR and compact cameras with Manual White Balance. Prices start at just £22.

The Auto-Magic formula is now available in a Plexiglass filter that can be added or removed underwater.

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