

Angled relay for Nauticam EMWL

by Nicolas Remy

I am a big fan of the Nauticam EMWL underwater “bug-eye” system, for it enables the most extreme, eye-catching sort of CFWA (Close-Focus Wide-Angle) imagery.

A fisheye lens – mounted behind a mini-dome – has long been the go-to setup for CFWA, but the EMWL offers higher magnification ratios and the ability to get much closer to critters, due to its pointy & tiny front optics. In short, the EMWL produces the unique perspective you’d have if you & your fisheye setup shrank by 5 times! This is why you hear EMWL users say they are “re-discovering” their favorite dive sites, when using that system.

A couple of years after the EMWL came out, Nauticam announced an accessory which picked my curiosity: an angled relay lens, which can be used as a replacement for the original straight 150mm/6in relay. At first I couldn’t quite grasp the reasoning behind this new product: in two years of shooting the EMWL, I didn’t see why I wouldn’t want to use the straight relay, what was the problem being solved?

I parked that thought until I visited the Nauticam booth at ADEX

Singapore a few months ago, where Peter Mooney (Nauticam Australia) showed me around the latest innovations. The use-case for that particular product? Frame your subject against a blue water background... even when it’s crawling on the sand!

That’s it I was hooked, and I want to thank Nauticam for providing me with an angled relay, for the purpose of experimenting and writing this review. The timing worked really well: I received the lens just before flying to North Sulawesi, for 6 days of diving at Lembeh Resort, followed by a few days at Murex Manado and Murex Bangka resorts.

It became obvious when Peter articulated it: although the assembled EMWL system is quite thin, since it is centered on your camera’s optical axis, you’re bound to shoot at a slightly downwards angle if your subject is on the sand. Same goes when using a mini-dome and it’s simply a fact we’ve learnt to accept: you can get some blue water in the photo, but the critter is going to have sand/muck behind it. So it goes.

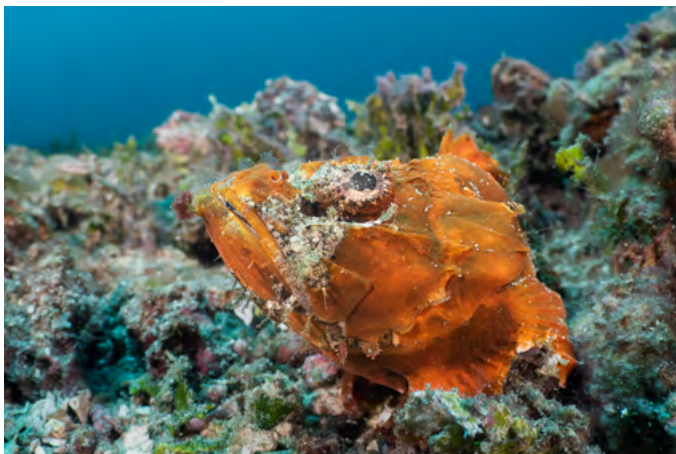


My EMWL setup ready to shoot the Lembeh strait. I attached the E-Oceans floats I normally use with the straight relay. E-Oceans are prototyping floats designed for the angled relay, which I will be trying soon.

Photo credit: Jacob Guy.



The angled relay setup, on display at ADEX Singapore 2023



Humpback scorpionfish shot with the straight relay and 100° objective lens. Nikon D810, Nikon F 105mm, Nauticam EMWL 100°, 1/50, F/18, ISO 640



The same species, shot with the angled relay and 160° objective lens. I think this doesn't need extra comments! Nikon Z9, Modified Nikon Z 105mm, Nauticam EMWL 160°, 1/160, F/18, ISO 800



This is what the whole system looks like, when the angled relay is used instead of the straight relay. Image courtesy of Nauticam.



The angled relay (right) is longer and heavier than the straight relay (left). Image courtesy of Nauticam.

The solution

Enter the angled relay lens, another Nauticam engineering feat which turns a straight optical system into a bent one with two “turns”, resulting in an upwards 45° angle, over the optical axis.

As part of my introduction to underwater photography course (now available as a gift), beginners learn that wide-angle photos generally look better when framed upwards. This produces a more flattering perspective with most subjects and including a water background contributes to the story-telling, especially when the surface is visible. The angled relay enables that while shooting small critters on the sand, with a bugeye twist!

Field observations

When I first started shooting the EMWL system, it took me a couple dives to get fully acquainted. Moving to the angled relay lens required some adjustment too, though not as much.

Subject on the sand

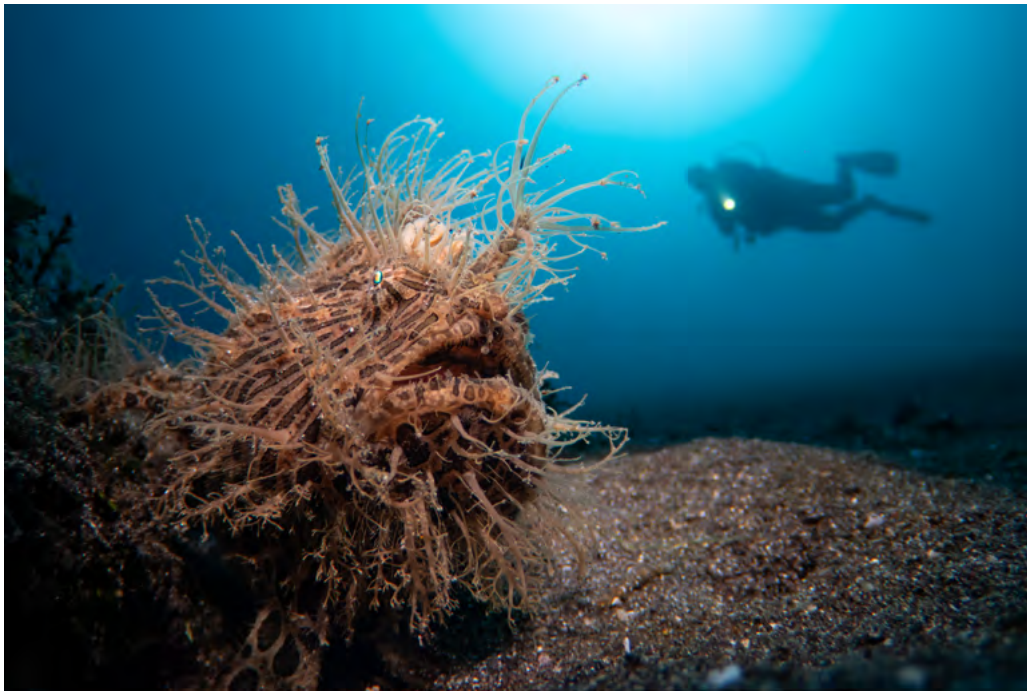
Indeed, I found myself hovering over the sandy bottom of the Lembah Strait, aiming down the EMWL system, so that the pointy end (the 160° objective lens) would lie nearly flat in front of the subject, with a slightly upwards angle.

Holding a muck stick with my left hand helped steadying myself up and this was the only contact I had with the seafloor. Shooting this way creates challenges with motion blur (the EMWL cuts down a lot of light), which saw me using higher ISO settings to increase my shutter speed. Also, the angled relay is around 170g/0.37lb more negative than the 150mm relay, so be prepared to add extra floats.

Yet, from the first dive with the new relay I took images that I really liked, which would have been impossible to produce with any other equipment. As a bonus, framing subject with the housing away from the bottom meant that size didn't matter anymore! One short-coming of using a full-sized pro



I photographed this nudibranch during my first dive with the angled relay. While it was crawling on the sand, I was able to include the sunball in the background. Nikon Z9, Modified Nikon Z 105mm, Nauticam EMWL 160°, 1/125, F/18, ISO 500.



This hairy frogfish was also sitting on the sand, but being about 8cm/3in in size, it stood out from the seafloor, making it an easier shot to compose, compared to the above nudibranch. Nikon Z9, Modified Nikon Z 105mm, Nauticam EMWL 160°, 1/100, F/18, ISO 500.

camera like my Nikon Z9 is that I can't get as low when shooting subjects on the sand, but this becomes a non-issue with the angled relay.

Subject above the bottom

Besides animals on sand, the angled relay is beneficial for the many scenarios where a subject is swimming over the bottom, or positioned low on a reef.

With the standard relay, the EMWL protrudes as far as 39cm/11in in front of the housing, making it

difficult or impossible to aim with that upward angle. The angled relay solves that problem and is much easier to use in such a scenario, where you play around with the system's 45° angle. Indeed, you can point the housing slightly down, say at 15° down, and the front lens still has a comfortable 30° upwards angle (45° minus 15°).

On that note, the 160° front lens was my favorite optic to use with the angled relay, since name of the game was to include as much water background as possible in the frame.



During a dive at Lembeh's famous "Nudi Falls" dive site, my guide showed me this nudibranch which was less-than-ideally positioned, in the middle of the reef. I decided to attempt the shot anyways, and I was surprised I could squeeze the EMWL close enough to achieve this composition. Nikon Z9, Modified Nikon Z 105mm, Nauticam EMWL 160°, 1/40, F/18, ISO 800.

Do you still need an external viewfinder?

It's a question I asked myself when I first heard about the angled relay. I normally use an external 45° viewfinder, because it makes framing upwards easier, amongst other things. With the angled relay though, the housing is pointed down and looking through my external viewfinder wasn't always as comfortable.

All-in-all, if the subject is on

the sand and I want the front optic really flat on the ground, then I would sometimes switch to the rear LCD screen and frame my photo from a distance.

Most of the time though, I preferred framing through the Nauticam 40° 0.8:1 viewfinder for extra stability. This is one scenario where a straight external viewfinder would be the most comfortable option.



Two robust ghost pipefish photographed last year in Lembeh, with the straight relay. Despite my efforts, I couldn't frame them against a water background. Nikon D810, Nikon F 105mm, Nauticam EMWL 100°, 1/40, F/13, ISO 640.

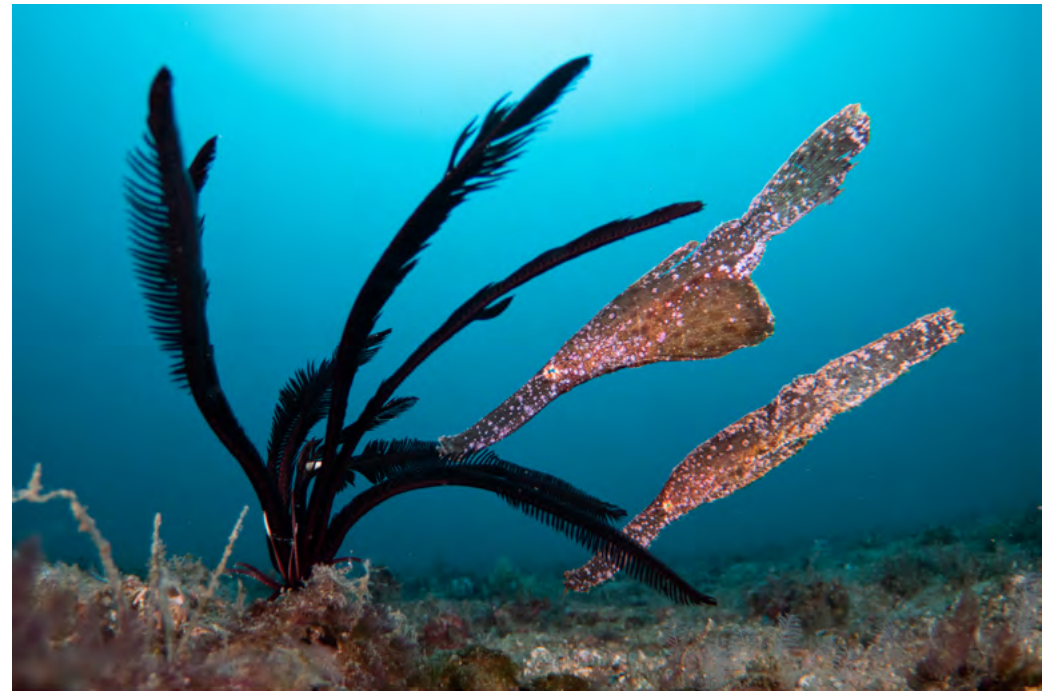
Optical quality

I found the optical quality to be excellent, especially when using the 160° front lens. The good news is: I didn't notice any loss in sharpness nor color contrast when swapping the straight 150mm relay for the angled relay.

When the standard straight relay is better

Think about all these good-looking subjects that you would have to pass on, because they are

positioned too low? The angled relay lets you shoot them from below, possibly including the surface, a model, the sun, or all of the above in the background. Great. Now think about a frogfish that is ideally positioned to shoot with a normal EMWL setup, or even a traditional CFWA setup (fisheye/minidome). It is sitting above the seafloor so you have space to bring your housing close, and it is looking slightly up, enabling a strong eye contact, what a perfect photo opportunity! Well, if you are



This year with the angled relay, the majority of my pipefish photos are framed against blue water. Nikon Z9, Modified Nikon Z 105mm, Nauticam EMWL 160°, 1/50, F/20, ISO 800.

shooting the angled relay, that subject isn't that productive anymore. Quite the contrary: unless you think the bottom jaw of said frogfish is great subject on its own, you're going to have to wiggle in mid water, upside down, trying to achieve a pleasing composition.

You get the idea: use the right tool for the right job. There will be subjects where the angled relay is unsuitable and you would be better-off with the straight relay. If your camera supports flipping the screen/

EVF, then once solution is to take-off the angled relay when you encounter such a subject and flip the screen (the EMWL's image is otherwise upside-down, without a relay lens).

The feature I missed

Verticals tend to produce the most dramatic CFWA imagery. Indeed, you get more space to spread out visually-distinct foregrounds, middle-grounds and backgrounds, resulting in images with more "depth". You can also include more water and sunlight



This scorpionfish sitting inside a barrel sponge was highly photogenic, but a nightmare to compose with the angled relay, even though I had switched to the rear LCD screen. Nikon Z9, Modified Nikon Z 105mm, Nauticam EMWL 160°, 1/200, F/20, ISO 500.



Instead, the angled relay let me frame up and get more water than muck in the frame. The final touch was the torch of my dive guide Fandy, who is also a very talented model. Nikon Z9, Modified Nikon Z 105mm, Nauticam EMWL 160°, 1/60, F/18, ISO 800.



During a night dive, this Napoleon snake eel came out of its den and bumped on the front optic of my EMWL, filling the frame. Thanks to the angle relay, I could frame it against some black background. Nikon Z9, Modified Nikon Z 105mm, Nauticam EMWL 160°, 1/200, F/22, ISO 640.

in the photo. The angled relay is a fantastic CFWA accessory, because it makes it so easy to include the surface/model/sun in your shot... but it cannot be rotated: it is usable in landscape orientation only.

Fortunately, Nauticam does listen to user feedback, and have enhanced the design since this review was first published, allowing the relay to rotate for verticals! Existing units can be upgraded, get in touch with your Nauticam dealer for more details.

Wrap-up

The angled relay is the most exciting piece of underwater photography gear that I have tried in a while, well, since I started using the EMWL two years ago really. Nothing excites me more than a product that lets me create previously-impossible images, and this is exactly what this lens does. I can think



I wish I had the straight relay lens for this shot, as framing slightly downwards would have showed more of the coconut octopus' body and tentacles. Nikon Z9, Modified Nikon Z 105mm, Nauticam EMWL 160°, 1/50, F/20, ISO 640.



A typical scenario where I wish I could have rotated the angled relay, and included more of the sunball in the frame. Fortunately V2 of the EMWL can be rotated and V1 can be upgraded. Nikon Z9, Modified Nikon Z 105mm, Nauticam EMWL 160°, 1/160, F/18, ISO 500

A classic turtle shot from Bunaken. Would you have guessed that it was taken with the EMWL? I am quite satisfied with the sharpness and the appearance of the Snell's window. Nikon Z9, Modified Nikon Z 105mm, Nauticam EMWL 160°, 1/125, F/18, ISO 640.



of so many dive sites, subjects and scenarios where it would produce "never-seen-before" images...

However there is no doubt the angled relay is a specialist tool. Whilst the recent addition of a vertical shooting mode makes it even more attractive, it won't suit all subjects, depending on how they are positioned.

Assuming you've already bought into the EMWL system, should you add this accessory to your arsenal?

Remember the fun you had when discovering the new 'bugeye' perspective offered by your shiny new EMWL? The angled viewfinder is an invitation to take it one step further, continuing that discovery of previously unseen perspectives. Whether or not this is worth the hefty price tag (USD 3,866/AUD 5,340, at time of writing), only you can decide, and I hope this review helped doing that.

Nicolas Remy
Instagram
The Underwater Club

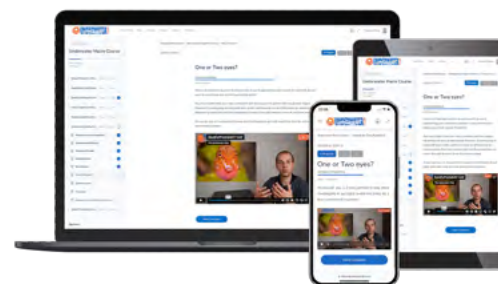
Nicolas Remy is a freelance underwater photographer based in Sydney, Australia, a Nauticam ambassador, and Founder of The Underwater Club, an online underwater photography school & community. His images have won over 40 international awards and are frequently published in print and digital media.

Nicolas would like to thank Nauticam for providing the angled relay lens used in this review.

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What our Members say



William Gladstone
2 reviews
★★★★★ 10 months ago

The course content is extensive and the modules contain clear and detailed explanations with lots of examples. The course builds from the basics to advanced techniques and Nicolas has provided the necessary theory and a range of practical applications. The forums, opportunities for feedback, info on up-and-coming competitions, and additional live webinars make this a comprehensive and very supportive learning experience. I highly recommend The Underwater Club!



Libby T
15 reviews · 1 photo
★★★★★ 3 months ago

My photography has vastly improved due to the lessons and webinars available to The UW Club members. I learn so much each time and am always impatient to get underwater and try out the techniques and ideas.

Nicolas makes the information approachable to all levels, and is comprehensive on the topics, happy to clarify details, and welcomes questions. The discussions with other club members on each others' photographs is positive and extremely valuable. Lessons cover all aspects, from techniques, equipment, gear care, and camera settings. Nicolas is an enthusiastic and encouraging teacher. A brilliant resource for any underwater photographer.