

Nauticam Midrange Focus Optimizer (MFO-3)

By Mike Bartick

The MFO-3 is a wet lens and the latest version of mid-range focus optimizers, which debuted at the 2024 DEMA show with the release of the MFO-1. Mainly designed to correct optical anomalies in various native lenses and lens port matchups, and to enhance overall performance when shooting at mid-range distances, the MFO-3 further builds on this innovative concept by offering several advantages and additional features that boost its predecessor's capabilities, but in distinctly different ways.

I had my first chance to use the MFO-3 during a recent trip to South Australia. I took it into my possession in Hong Kong while traveling to SA, where we briefly discussed the new lens, engineering, and what to expect when using it. The lens slipped easily into an already tight camera bag, and I continued my trip with this conceptually new and secret device.

Winter conditions prevailed in SA, bringing waves, wind, rain, and sediment into the water. I had planned to use my 8-15mm lens and CFWA techniques to photograph the

Leafy Seadragons, but then realized that, given the conditions, it was impossible. Changing my strategy, I swapped lenses and ports, grabbed the MFO-3, and put it to the test.

Our first stop was in Tumby Bay. It took us two freezing dives to find our target, but soon after we started the second dive, we struck gold.

Leafy seadragons are mesmerizing to watch as they drift with the surge, moving up and down with each wave while rocking back and forth in hypnotic motion. Due to their shape, using a longer macro lens can present several challenges with framing and lighting. Leafys live among the seaweed and seagrass they closely mimic, maneuvering with transparent dorsal and pectoral fins. Their intricate leaf-like appendages and elaborate headgear offer perfect camouflage, allowing them to blend in and hunt without detection. Leafy seadragons are arguably some of the most whimsical creatures on our planet, so when we finally found our target, I was more than excited.

I approached the solitary Leafy as I usually would, using my 105, but

At 4.5 inches (114mm) long, the MFO-3 adds appreciably to the size of your rig, but it also adds useful stability in the water



Leafy seadragon, Tumby Bay, South Australia: This was the first image I shot with the new MFO-3. The lens was easy to use and noticeably improved focus in low-light conditions, resulting in excellent contrast (Nikon Z8, Nikon AF-S 105mm f/2.8, Nauticam MFO-3, f/16, 1/160s, ISO320)

when I looked through the viewfinder, I immediately noticed that I had more frame space than expected. I quickly glanced at my camera, thinking the subject was too far away, but surprisingly, I saw it was looking directly into my lens, only 15cm away. Surprised, I motioned for my model to come over and easily brought her into the frame.

As explained, the MFO-3 is designed to shorten the working distance while expanding the field of view, and I immediately noticed these two features when I looked through my viewfinder for the first time. The lens length also aids in stabilizing the camera during shots, which I found especially helpful for handheld video, especially when capturing blackwater macro footage.

Later, we explored a razor clam area beneath a different jetty, where we discovered a Clingfish with eggs tucked deep inside a clam shell's recesses.

I tried shooting it with a straight 105 but couldn't get close enough for proper lighting. I backed off, attached



Leafy seadragon and model, Tumby Bay, South Australia: The MFO-3 is designed to reduce working distance while expanding the field of view, and I immediately noticed these two features when I looked through my viewfinder (Nikon Z8, Nikon AF-S 105mm f/2.8, Nauticam MFO-3, f/14, 1/200s, ISO320)

the MFO-3, held my snoot by hand, and tried again. This new approach allowed me to get as close as I needed while still lighting it the way I wanted. Stabilized with fin tips on the sand and shot straight down. I had pushed my patience to the limit when the fish finally moved into position. My lens quickly focused, and I was able to capture this special moment.

Back on my home turf in Anilao, I was able to further test the MFO-3 by

photographing some of the local subjects. This included testing for sharpness, clarity, depth of field, bokeh, focus, and anything else I could think of.

After some searching, we found the perfect setup—a family of hyperactive anemonefish tending to their eggs. We were just below the boat in 5 meters of water, with beautiful ambient light filtering down. I engaged 3D tracking, reduced my working distance, and focused on



Clingfish on eggs, Edithburgh, South Australia: Lightweight underwater, the MFO-3 allowed me to shoot well within the inner working distance of my 105mm and provided superb depth of field (Nikon Z8, Nikon AF-S 105mm f/2.8, MFO-3, f/16, 1/160s, ISO250)



Anemonefish with eggs, Anilao, Philippines: Using Nikon's 3D Tracking, this fast-moving anemonefish presented a new challenge that the MFO-3 tackled with ease (Nikon Z8, Nikon Z 105mm f/2.8, Nauticam MFO-3, f/6.3, 1/10s, ISO32)



Feeding flamboyant cuttlefish, Anilao, Philippines: Timing and reliability are everything. A photographer relies on their gear, regardless of the circumstances. If it's cumbersome or awkward, agility is compromised (Nikon Z8, Nikon Z 105mm f/2.8, Nauticam MFO-3, f/18, 1/200s, ISO250)

taking photos. I used both fast and slow shutter speeds, and watched as the aggressive anemonefish cared for their ready-to-hatch eggs. My focus peeper would lock onto the fish's eye and track it smoothly through the frame—by moving in, out, side to side; it made no difference. Even with the intense ambient light and low contrast, my autofocus had no problems.

Before proceeding, my guide pointed out a nearby flamboyant cuttlefish. These incredible hunters camouflage themselves as they glide across the substrate, pulsating colors and mesmerizing their prey. Suddenly, the cuttlefish froze as its tentacle stretched out and snatched an unsuspecting Lizaerdfgish with lightning speed.

I didn't realize what I had photographed until I reviewed the images afterward. When capturing behavior, quality is crucial, and after seeing this shot, I was convinced that the MFO-3 significantly improved my focus and overall image quality.

Shooting blackwater video with a macro lens is challenging, especially when



Seahorse silhouette, Anilao, Philippines: The MFO-3 gives 90mm, 100mm and 105mm lenses a wider angle of view—like a 50mm or 60mm macro lens (Nikon Z8, Nikon Z 105mm f/2.8, Nauticam MFO-3, f/25, 1/200s, ISO80)

Horn Shark- California Side lighting and snooting with the MFO-3. The MFO-3 was an easy choice for charging the surf when shore diving in California due to its lightweight. (Nikon Z8, Nikon Z 105mm f/2.8, Nauticam MFO-3, f/14, 1/30s, ISO320)





For the purity of shooting, alternating between full-frame FX mode (top) and cropped DX mode (bottom) offers a viable solution for close-up photography when using the MFO-3. Working within the inner focal range allows the native lens to focus closer with minimal compromise to the depth of field while gaining in-frame presence (Nikon Z8, Nikon Z 105mm f/2.8, Nauticam MFO-3, top: f/7.1, 1/160s, ISO64; bottom: f/5.6, 1/160s, ISO64)



*Sarcastic Fringehead- California
The reduced working distance and extra frame space are well appreciated in silty conditions.
(Nikon Z8, Nikon Z 105mm f/2.8, Nauticam MFO-3, f/13, 1/25s, ISO250)*

using autofocus, because the lens tends to gain and lose focus easily as the subject moves through the water, often spinning or spiraling. I usually rely on manual focus, but I was pleasantly surprised by how well the AF managed with the MFO-3. My 105mm focused and stayed sharp easily with laterally moving subjects and performed above its native capabilities when subjects moved toward or away from the lens. My blackwater tests have shown that anyone using the Sony 90mm or Canon 100mm lenses now has a solution to the lack of 60mm lenses for blackwater diving—a real breakthrough for anyone facing this challenge.

The most accurate test was that the MFO-3 allowed me to capture images I couldn't have without it and because of that, it has found its place in my travel bag and its own place in my arsenal of lenses.



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Mike Bartick is a working underwater photographer residing in Anilao, Philippines. He has an insatiable love for finding unique marine life, observing and photographing their behavior, and sharing his insight and knowledge with others. His curiosity and drive for firsthand experiences have led him across the globe in search of that special critter encounter. Mike is a widely published, award-winning photographer, writer and international public speaker with work appearing monthly across various magazines, websites and online publications. He also hosts photo clinics, workshops and seminars at Crystal Blue Resort, concentrating on different aspects of underwater photography as well as the natural history of Southeast Asia and the Indo-Pacific.



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