

SKIN DIVER MAGAZINE
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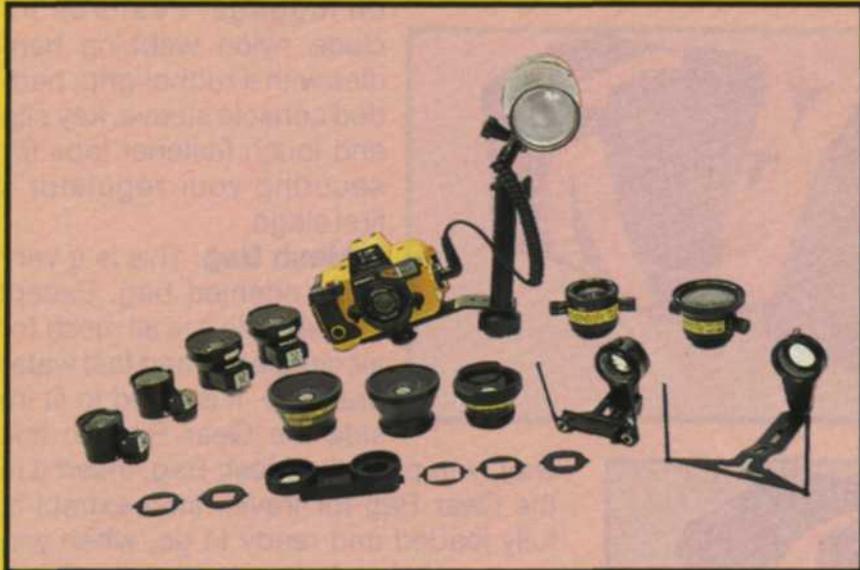
U/W PHOTO EQUIPMENT

SEA & SEA

FOR THE MOTORMARINE II AND THE NIKONOS

SEA

UNDERWATER LENSES



Above: The Motormarine II has a 35mm lens permanently mounted to the camera. The 20 and 16mm lenses can be attached on land or U/W as long as the space between the lenses is flooded when U/W. Right: A full selection of lenses and accessories is offered for the Motormarine II and Nikonos.



TEXT AND PHOTOGRAPHY BY JACK AND SUE DRAFAHL

For many years underwater photography was restricted to a few dedicated participants owing to the technical expertise required, bulky and complex equipment and a lack of choices when buying cameras. Today, one company is trying to remedy this problem by offering a large variety of equipment, for all levels of photographers, guaranteed to meet all U/W photo requirements. Sea & Sea is solely based in Japan and distributed in the United States by GMI Photographic of Farmingdale, New York. Sea & Sea makes underwater cameras, flashes and lenses for both its own cameras and the Nikonos system.

LENS CATEGORIES AND CONFIGURATIONS

Sea & Sea offers prime, conversion and close-up lenses. Prime lenses attach directly to the camera body and have no other glass elements in the light path. The 15 and 20mm Sea & Sea

lenses for the Nikonos are two good examples. Conversion lenses are added to the prime 35mm lens. For example, the Sea & Sea 16 and 20mm lenses are attached to the front of the 35mm lens on the Motormarine camera, creating a versatile yet inexpensive wide angle lens system.

Macro and close-up photography can be accomplished by using the built-in close-up lens inside the Motormarine II with Sea & Sea's extension tubes for the Nikonos or the company's macro lens adapters that attach to the Motormarine II 35mm lens.

LENSSES FOR THE NIKONOS

Sea and Sea makes two black anodized wide angle lenses for the Nikonos camera. The newest one is the 20mm f/3.5, which provides a 79.5 degree angle of coverage underwater. This very compact lens attaches directly to the Nikonos camera via a spring loaded bayonet mount. The focus control on the left side of the lens has a smooth, continu-

ous movement from 1.3 feet to infinity. The number scale on this control is marked in both feet and meters (white for feet, yellow for meters). The f/stop control on the right side has click stop movements from f/3.5 to f/22 and uses full stop increments for marking.

A highly visible chart on the top of the lens gives depth of field measurements for one meter and infinity at f/4, f/8 and f/16. The 20mm f/3.5 lens is hardened aluminum and pressure resistant to 200 feet. Sea & Sea recommends the use of the Sea & Sea MVF viewfinder for best image composition.

The Sea & Sea 15mm f/3.5 wide angle lens for the Nikonos is not much larger than the 20mm but has an exceptional 96 degree angle of coverage. This attaches to the camera via a bayonet mount and has controls on each side of the lens that are identical to those on the 20. The f/stop scale is also identical, running from f/3.5 to f/22. The focus scale, on the other hand, focuses from one foot to infinity and has

greater depth of field, as shown on the chart on the top of the lens. There is a new viewfinder available for the 15mm lens that has internal masking.

If you own a Nikonos camera the 16mm conversion lens can be added to your 35mm Nikonos lens for wide angle work. The 16mm lens is completely sealed and can be attached underwater. To use this lens, first set your distance and f/stop using the controls on the 35mm lens and then screw on the conversion lens. If you want to be able to change the settings, focus and f/stop markers can be added to the controls on the 35mm lens. The quality of the lens is excellent but will still be less than a prime lens of the same focal length. The Sea & Sea MVF viewfinder is also recommended for this lens.

LENSES FOR MOTORMARINE II

Some of the most unique underwater lenses we have seen are the Sea & Sea 20 and 16mm lenses for the Motormarine II. The 35mm lens is permanently mounted and sealed to the camera and is never removed. It can be used both on land and underwater at distances ranging from three feet to infinity and has apertures from f/3.5 to f/22. It also has an internal close-up lens that works as close as 18 inches (flip the lever marked CU on the outside of the camera). The 35mm lens has a bayonet on the front that accepts sealed front glass elements that convert the 35 to a 16 or 20mm wide angle lens. Aperture control with the 35 and these lenses is achieved via a rubber boot—with f/stops marked on it—that slides onto the Nikonos aperture knob. The 20 and

16mm lenses can be attached on land or underwater as long as the space between the lenses is flooded when underwater. The water acts as the final lens element.

The maximum aperture for these lenses is f/5.6, so it is important for photographers to know they should not set the aperture control on the camera for more than f/5.6. Both lenses can be carried on a device called a lens caddy, which mounts on the side of the flash bar, allowing you to switch from 20 to 16mm or to the prime 35mm lens itself—all underwater.

The Sea & Sea 1:3 Motormarine Macro lens is also a floodable rear element that attaches directly to the prime 35mm lens on the Motormarine II. F/stops are set with the controls on the prime lens and focus is set to one me-

ter. Two uprights are threaded and attached to a bar that extends from this configuration. Actual picture area is slightly inside these framed areas. If for some reason you find one or both of the uprights prevent you from properly framing your subject, you can unscrew them and store them under the bar with special clips. The 1:3 Macro lens and framer disassemble into five parts for storage and shipment.

The 1:2 Motormarine Macro lens resembles the 1:3 Macro lens with modifications. The 1:2 Macro lens attaches in the same manner as the 1:3 and the focus and f/stops are set the same way. The framers, however, are permanently attached to the front bar and fold down if necessary for proper subject framing. The 1:2 Macro lens and framer disassemble into two parts. ➤

Sea and Sea manufactures three lenses for the Nikonos: a 20mm that provides a 79.5 degree angle of coverage U/W, a 15mm lens with a 96 degree angle of coverage and a 16mm conversion lens that fits directly over the Nikonos 35 lens.



COMPARISON OF SEA & SEA UNDERWATER LENSES									
Model	Price	Focal Length	U/W Angle of Coverage	Optical Design	F/Stop Range	Focus Range	Optical Viewfinder	Price	Comments
NIKONOS LENSES									
WL15 f3.5	\$1,075	15mm	96 degrees	10 elements 8 groups	f3.5 to f22	1 foot to infinity	Multi-viewfinder	\$270	Prime lens that attaches to Nikonos camera, underwater use only.
WL20 f3.5	\$515	20mm	79.5 degrees	7 elements 7 groups	f3.5 to f22	1.3 feet to infinity	Multi-viewfinder	\$270	Prime lens that attaches to Nikonos camera, underwater use only.
SWL-16 f5.6	\$262	16mm	91 degrees	4 elements 4 groups	f5.6 to f22	1 foot to infinity	Parallax adjustable viewfinder	\$115	Conversion add-on lens, underwater use only.
MOTORMARINE II LENSES									
20mm UW/Wide	\$359.95	20mm	80 degrees	4 elements 4 groups	f5.6 to f22	3 feet to infinity	Multi-viewfinder	\$270	Conversion add-on lens, underwater use only.
16mm UW/Wide	\$299.95	16mm	91 degrees	4 elements 4 groups	f5.6 to f22	3 feet to infinity	Multi-viewfinder	\$270	Conversion add-on lens, underwater use only.
1:2 Macro	\$122.95	N/A*	N/A	3 elements 3 groups	f3.5 to f22	Set focus to infinity	N/A	N/A	Frame subject inside upright bars, underwater use only.
1:3 Macro	\$99.95	N/A	N/A	3 elements 3 groups	f3.5 to f22	Set focus to 3 feet	N/A	N/A	Frame subject inside upright bars, underwater use only.

N/A = Not Applicable