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UNDERWATER PHOTOGRAPHY

What Camera, Lens, Film, & Techniques You'll Need in Inner Space

by Jack and Sue Drafahl

Ever since the space race began, scientists have referred to the oceans as "Inner Space" because of the similarities between both environments. Both have vast unexplored regions that require man to don special life-support equipment in order to explore and photograph their discoveries. Weightlessness in outer and inner space is so similar that astronauts use large water tanks

1. Split-level photo of diver below, and divers on boat. Photo taken with Nikonos camera and wide-angle lens. San Salvador Island, Bahamas. Ektachrome 64 slide film.

2. Diver and tiger grouper. Self portrait taken with Nikonos-V camera and 15mm lens. Camera held at arm's length with fish between camera and diver. San Salvador Island, Bahamas. Ektachrome 64 slide film.

3. Flaming scallop on coral head. Taken with Sea & Sea Motormarine II camera and 1:3 framer and macro lens. San Salvador Island, Bahamas. Ektar 125 color negative film.

4. Puffer fish in defense mode. Taken with Nikonos-V and close-up kit. San Salvador Island, Bahamas. Ektachrome 100 Plus slide film.

5. Purple nudibranch (flabellina iodinea) grazing for food. Taken with Ikelite housing, Nikon camera, and 50mm macro lens. Santa Cruz Island, Santa Barbara, CA. Kodachrome 64 slide film.

6. Diver Wanda Liggin swimming through a school of fish. Taken with Nikonos-V camera and wide-angle lens. San Salvador Island, Bahamas. Kodachrome Gold 200 color negative film.

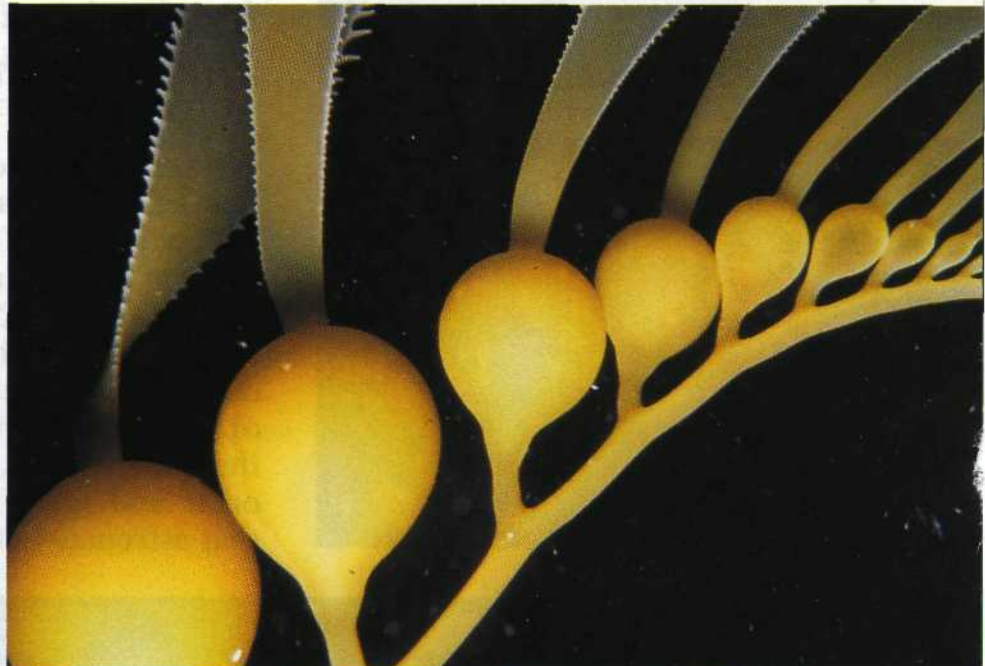
7. Photo of Jack Drafahl with Sea & Sea Motormarine II camera near a sponge/coral head. Photo taken by Sue Drafahl with Nikonos-IV camera and 15mm lens. San Salvador Island, Bahamas. Ektar 125 color negative film.



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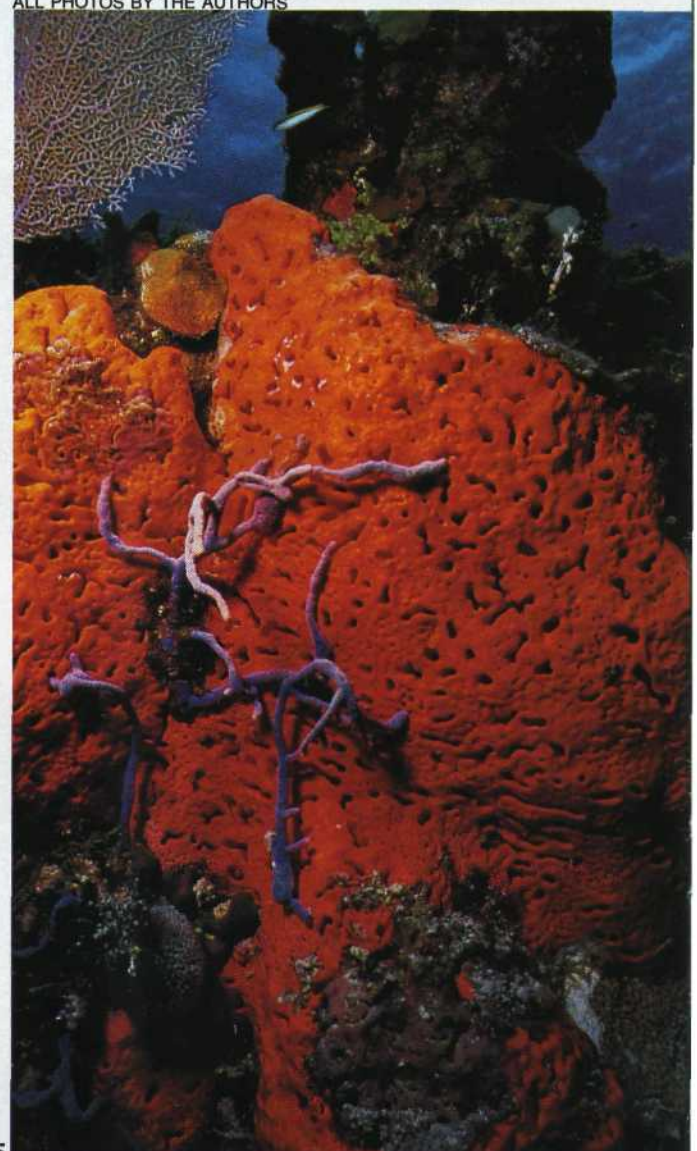


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1. Diver and large white nudibranch. Self-portrait made with Nikonos-V camera and 15mm lens. Puget Sound, WA. Ektachrome 100 Plus slide film.
2. Green moray eel on shipwreck in San Salvador, Bahamas. Taken with Nikonos-V camera and 15mm lens. Kodacolor Gold 200 color negative film.
3. Kelp ballast bulbs in kelp forest. Taken with Nikonos camera and 1:3 framer. Santa Cruz Island, Santa Barbara. Kodachrome 64 slide film.
4. Diver photographing sea anemones on Edmonds, WA, shipwreck. Diver in photo is using Nikonos-V and Nikon SB-102 flash. Photo was taken with Nikonos-IV and 15mm wide-angle lens. Kodak Vericolor III color negative film.
5. Flamingo tongue snail on sea fan. Taken with Nikonos-V camera and 1:2 framer. San Salvador Island, Bahamas. Kodacolor Gold 200 color negative film.

ALL PHOTOS BY THE AUTHORS



to practice for space flights. It's this weightless thrill and the mystery of the unknown that draws so many people to the underwater world.

SNORKEL OR SCUBA

When you slip underwater you will discover a beautiful new world beneath the surface. With face mask,

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snorkel, fins, and underwater camera, swimmers of all ages can take exciting photos of the many animals that inhabit the shallow reefs near shore. This simple type of underwater exploration eliminates the need for complex diving gear and diving boats, yet allows light packing for travel and plenty of sunlight for colorful pictures without using external flash systems.

The disadvantages of snorkeling are obvious to the scuba diver who descends past a 60-foot wall covered with colorful sea anemones and sponges to confront one of nature's finned friends face to face. The diver who swims up through a huge black cave where fish and animal life abound in colors unseen on land has no regrets for having traded in his snorkel for a regulator.

To become a scuba diver, you must be in good health, pass a certified scuba class, purchase or rent scuba equipment, get a diving buddy, and log several basic dives. Once you have perfected basic diving skills, you'll want to purchase one of the many underwater cameras available so you can document what you've seen on your diving vacation and delight your friends.

UNDERWATER CAMERAS

Deciding which camera to buy for your underwater safaris can be very frustrating. Talk to dive-shop owners, diving clubs, and other underwater photographers before deciding on the camera you want to use. Some of the special reports in *Skin Diver Magazine* (our sister publication) on new underwater equipment will also help in your decision.

UNDERWATER CAMERAS are usually grouped into two sections—housed cameras and amphibious cameras. Several manufacturers, such as Ikeite and Oceanic Products (see directory at end of article), make housings out of metal and plexiglass for many of the land cameras. These housings allow you to take advantage of the fact that you already own the camera and several lenses by making it possible for you to use them underwater in a watertight housing. These systems allow you to look through the viewfinder, and what you see is what you get; however, they are often bulky to handle.

AMPHIBIOUS CAMERAS are more compact and can be operated with a single hand, but their main disadvantage is that they are viewfinder-type

cameras, with no SLR or rangefinder focusing. These cameras offer automatic exposure control, manual and TTL metering, as well as a variety of lenses, and can be used at great depths. Sea & Sea's Motormarine II and Nikon's Nikonos-V are examples of this type of camera.

WATERPROOF CAMERAS are a cost-effective alternative to underwater and amphibious cameras. These are cameras that can be used on land or underwater at shallow depths—perfect for snorkeling. Many of the SLR manufacturers also make a waterproof 35mm compact (see directory). Don't be confused, however, between the terms "weatherproof" and "waterproof." Weatherproof cameras can get wet, but can't be submerged. Waterproof means that the camera can be used in the water.

Considerations in your camera selection should include cost, size, weight, and versatility. The most important consideration is versatility. The more versatile the system, the more subjects you can photograph underwater.

TYPES OF UNDERWATER PHOTOGRAPHY

To really understand the importance of versatility, let's take a look at the four basic types of underwater photography:

GENERAL UNDERWATER PHOTOGRAPHY allows the photographer to take pictures of other divers, large animals, and views of the coral reefs, and can be done with almost every camera that goes underwater. Focus is usually limited—from infinity down to three feet. This type of photography requires minimal camera equipment and won't cost you an arm and a leg.

CLOSE-UP PHOTOGRAPHY uses a special close-up lens attachment that is usually added to the outside of the normal lens, allowing the photographer to take pictures from about 18–24 inches away. Close-up photography is possible with cameras such as the Nikonos-V and Motormarine II, as well as various land cameras housed in a variety of metal and plexiglass housings. The Sea & Sea Motormarine II has a built-in close-up lens that drops in place behind the normal lens. With these close-up setups the photographer can take pictures of starfish, colorful fish, jellyfish, sea anemones, sponges, and a myriad of sea life relatively close-up.

EXTREME CLOSE-UP PHOTOGRA-

PHY: One method is to use a macro lens on a land camera inside a camera housing. However, most underwater close-up pictures taken today are made with a device called a *framer*, which is attached to either a close-up lens on the outside of the standard lens, or to an extension tube that fits between the lens and the amphibious camera body. The photographer merely has to place the subject in the frame and it will be correctly focused and framed on the film. This allows the photographer to compose the image without having to look through the camera viewfinder, which is especially handy for subjects that move swiftly across the ocean floor. Framers come in a variety of reproduction sizes: 1:3 (1/3 life size), 1:2, 1:1, and 2:1 (twice life size).

WIDE-ANGLE PHOTOGRAPHY, although probably the most expensive and difficult to accomplish underwater, can result in some of the most spectacular images that can be made. Wide-angle lenses not only have to be corrected for all the standard aberrations for land photography, but have to be corrected for image and color distortion found underwater. Because of these additional problems, and a smaller demand for this type of lens, you will find them somewhat higher priced than wide-angle lenses for land photography.

UNDERWATER SYSTEMS

When you descend below 15 feet, most of the full color spectrum is reduced to blue with a hint of warm tone. By using an external flash, you can restore most of the full color back into the scene. There are several things to consider when selecting the proper electronic flash. If you use a large, powerful strobe, you can light any scene, from macro to wide-angle, but you also have to deal with the added size, weight, cost, and batteries of the more powerful unit. A smaller flash allows you to sneak up more easily on the small reef creatures, and is easier to handle underwater, but the tradeoff is a lack of power.

The more sophisticated flash systems might have variable power, slave function, a test-fire button, a focus light, TTL metering, or just the manual flash mode. The most important feature is TTL metering, which allows the camera and flash to properly meter the underwater scene for a proper exposure—all without time-consuming calculations.

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UNDERWATER PHOTOGRAPHY

(Continued from page 35)

Batteries and recycle time should also be a major consideration when selecting a flash. If the flash you select uses NiCds, you will have to be concerned with chargers and extra sets of NiCds. If you use alkaline batteries, you just need to make sure you take enough spares with you. Recycle time underwater is important because your time underwater is limited, and most creatures are not in the habit of standing still. Fast recycle times can be accomplished by using heavy-duty batteries, or by using a TTL flash system. As you open the lens with a TTL system, less light is required for the exposure, so the flash saves the excess power for the next shot.

FILMS FOR UNDERWATER

There are two types of color film: slide, and negative. Slide films, such as Ektachrome, Fujichrome, and Kodachrome, are designed for the photographer who uses a slide projector. Negative films, such as Kodak Kodachrome Gold and Ektar, or Fujicolor, are designed for making color prints for your scrapbook or to decorate your home or office. We recommend ISO 100 films for all four types of underwater photography, with the ISO 25-50 films restricted to close-up and extreme close-up photography. Ektachrome and Fujichrome films can be processed on many tropical islands, so you can get instant feedback on how you are doing.

Because of the difficult lighting conditions underwater, much care must be taken to ensure good exposures when using slide films, due to the narrow exposure latitude of these films. For the beginning photographer, we recommend color negative films. There are dozens to choose from, excellent availability all over the globe, and a good range of film speeds from ISO 25-1600. Color negative films are much easier to use because of their wide exposure latitude—up to three stops under and four stops over normal will still yield acceptable prints. We have found beginning photographers have a much higher success rate using color negative film.

Underwater photography makes it possible for you to take an active part in discovering the vast, unexplored underwater frontier. Whether you

MANUFACTURERS & DISTRIBUTORS

HOUSINGS

Ikelite Underwater Systems
50 W. 33rd St.
P.O. Box 88100
Indianapolis, IN 46208
(317) 923-4523

Oceanic Products
14275 Catalina St.
San Leandro, CA 94577
(415) 352-5001

WATERPROOF CAMERAS

Fuji Photo Film USA, Inc.
555 Taxter Rd.
Elmsford, NY 10523
(914) 789-8100

Minolta Corp.
101 Williams Dr.
Ramsey, NJ 07446
(201) 825-4000

Nikon, Inc.
623 Stewart Ave.
Garden City, NY 11530
(516) 222-0200

Vivitar Corp.
9350 DeSoto Ave.
Chatsworth, CA 91313-2193
(818) 700-2890

AMPHIBIOUS CAMERAS

Nikon, Inc.
623 Stewart Ave.
Garden City, NY 11530
(516) 222-0200

Sea & Sea Div.
GMI Photographic, Inc.
1776 New Hwy.
Farmingdale, NY 11735
(516) 752-0066

snorkel or scuba, grab a camera and bring home something to remember. Let your underwater memories shine in living color as a daily reminder that you experienced life in the underwater world. ■