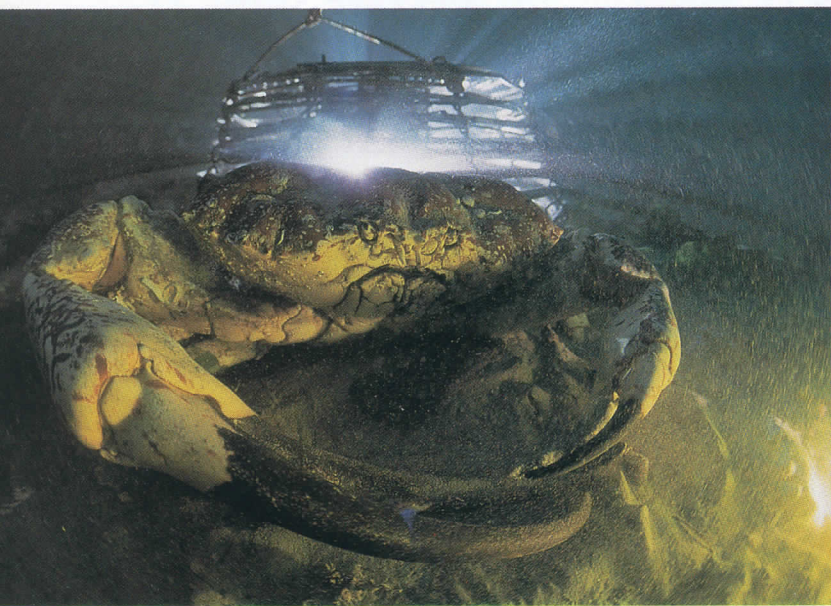


**W**ater absorbs light like a sponge absorbs water, so when David Doubilet goes diving, he usually brings his own illumination. "Clear water is an extraordinary thing," says the acclaimed *National Geographic* underwater photographer. "And there's nothing more hypnotic than the way it breaks up the sun's rays against a white, sandy bottom." But to capture the exotic sea creatures that are his subjects, Doubilet (whose 1992 book, *Pacific*, is an underwater classic) must go to murkier depths.

For submarine photographers whose ambitions extend beyond

**Right: Shooting with his favored 16mm fisheye lens and Kodachrome 200 film, Doubilet used two 1,200-watt HMI movie lights to illuminate Chandelier Cave in Palau, Micronesia. Below: Using an HMI to make a crab pot glow from within, Doubilet photographed this 35-pound Tasmanian crab with two tungsten movie lights, fill flash, and a 13mm Nikkor rectilinear wide-angle lens.**

the shallows, lighting is usually provided by underwater flash units anchored to the camera with jointed arms and controlled automatically with TTL cables. But for Doubilet, flash is more often just a source of fill light. "If you use a powerful strobe in dirty water, you illuminate every



## david doubilet

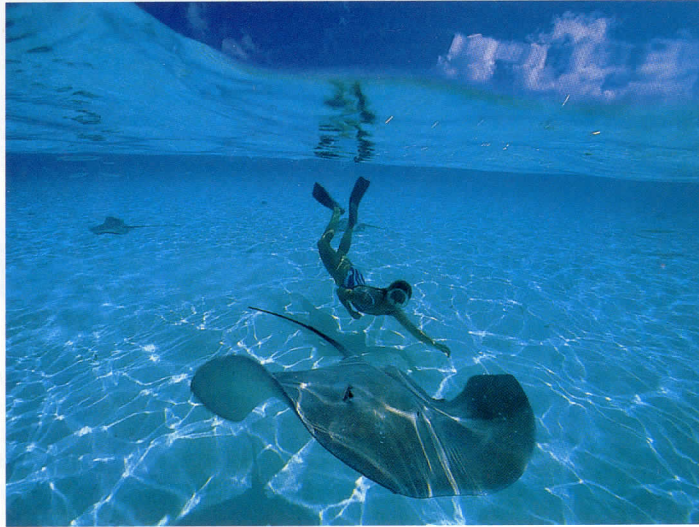
*National Geographic's brilliant underwater photographer brings new light to the sea*





particle between the lens and the subject, and the picture is worthless," says the photographer, who shoots with Aquavision-housed Nikon F4s. "So in dirty water, for my main illumination I usually use constant-burning sources such as underwater HMI and tungsten movie lights placed off camera." That rich mix of illuminants also gives Doubilet a range of color temperatures with which to add dimension to the scene.

Doubilet's technique typically begins with a strong overhead source. "I grew up next to New York's Metropolitan Museum of Art, so I was always looking at Rembrandts," he says. "Basically, I've borrowed Rembrandt's trapdoor Dutch theater lighting: I sometimes bring in a single shaft of light from the top left and bathe the creature in it." That strong light is usually provided



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**A stingray buzzes the photographer off the island of Bora-Bora. "If you make a big picture that contains water and light and animals," says Doubilet, "it seems to give people great hope."**

by a Pace HMI, its shadows filled with a Sea & Sea strobe set to half power. If Doubilet includes other divers in the scene—a visual signature that offers scale and context—he often has them hold a Subatec tungsten movie light. "It's a necessity with a cave or shipwreck," he says.

Yet the complexity of Doubilet's lighting technique often pales next to the difficulty of being in the right place at the right time. "On land, everything happens

on a single plane," he explains. "But in the sea, there's a third axis—depth. It would be like photographing lions that could levitate in the Serengeti and having only 100 feet of visibility in all directions." Doubilet calculates that on a month-long assignment, getting good pictures requires spending at least four hours a day underwater, seven days a week. Even knowing his subject's exact location is no guarantee. "A shipwreck

doesn't move at all, but the current can change and affect the clarity of the water," says the photographer. "One day you'll get a brilliant picture and the next day nothing."

It helps to have knowledgeable local contacts, and the *National Geographic* name is often a foot in the door. But Doubilet has cultivated relationships with dive-shop staffers, naturalists, and boat pilots the world over. "One of the most important accessories in photography is friendship," he says. Yet Doubilet's greatest asset is a different kind of acquaintance: his intimate knowledge of the creatures of the deep. —RUSSELL HART

on swimming	on optics	on film	on exposure
<p>"Being a good swimmer is an advantage in underwater photography. It gives you a better feeling for the ocean, and the important ability to tread lightly in the sea. When I spot a fish and the visual circumstances are right—when I feel I can make the creature stand out from the tapestry of the reef or the curtain of the open sea—I first have to figure out how to get at it: where I'm going to land so that I'm not scaring it off or crushing anything, and where my head and camera are going to be once I'm in position. In terms of movement, underwater photography is very much like stalking or hunting, and traditionally the best underwater shooters have come from hunting. I used to spearfish, and the swimming technique—the way you move and flip through the water—is very similar to what you have to do to take pictures. But it's incredibly hard for a photographer to follow one fish throughout a dive. A coral reef is the most visually complex subject in the world."</p>	<p>"Because wide-angle lenses let you get close to the subject, they reduce the haze created by stuff floating in the water. I use 13mm, 14mm, 15mm, 18mm, 24mm, and 28mm wide angles, but the 16mm fisheye is my standard lens—perfect for reef-scapes and seascapes. On dry land it's a gimmick, but underwater there are hardly any straight lines, so you can't see its barrel curvature unless you're shooting wrecks. (I use dome ports that offset the magnifying effect of water, so I get the lens's true focal length.) In terms of photographing individual marine animals, though, the best focal length is mainly a function of the creature's size and territory. You don't need a long lens for an anemone because it's not going anywhere, even if you get close. With a shark or other large animal my favorite thing is to shoot with a dome-corrected 55mm lens; it gives the creature a real presence. But the true lens for behavioral studies is the 105mm; it lets you keep your distance."</p>	<p>"I used to shoot strictly Kodachrome, but now I'm using a mixture of films. Fujichrome Velvia is my main film; I also use Ektachrome E100SW and a little bit of Fuji Provia 100. And I use Kodachrome 200 for dark, low-contrast subjects such as caves, which it renders brilliantly. I recently shot a bunch of Fujicolor 400 NPH and Super G film for a story on ultraviolet fluorescence in corals that ran in <i>National Geographic</i>. I took HMI lights fitted with special UV filters to Eilat, Israel, shot about 50 test rolls in the Red Sea, then ran the film at a local one-hour lab. I chose high-speed color negative film because of its exposure latitude, but it was unbelievably grainless, the color was supersaturated, and I could see my results every day. The lab made good \$2 8x10s, so I came home with 30 pounds of prints. I threw them all up on the layout wall at <i>National Geographic</i>, and the editor was thrilled. The pictures ran side-by-side with unfiltered shots in the August issue."</p>	<p>"I use my F4's built-in meter to come up with a starting exposure for the ambient light, which I basically control with the shutter-speed dial—an important tool in underwater photography. If you're using flash midday, you can change the shutter speed to turn water in the background from light blue to deep blue. If you're using flash late in the day, you can change the shutter speed to turn the background from dark blue to light blue—though you'll be sliding down to 1/4 second or even one second and panning with the creature. I rarely use automatic TTL flash control: If you're shooting a brilliant creature against a dark background, it will definitely overexpose it. But even a flash meter is no insurance: You can't just hold it against the subject and take incident readings, the way you do on dry land. The light has to make a round-trip through the water, and unlike air the water drinks it up. If you go with an uncorrected reading, you'll end up a stop underexposed."</p>