



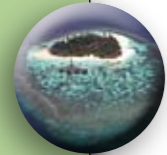
The Maldives. One of the most beautiful holiday destinations in the world, one of the most fascinating dive and snorkel resorts within a wonder of nature, known for its beauty as well as its fragility. Our aim is the protection of this paradise from the negative effects of tourism, which are easily avoidable. Together with one of the most famous UW photographers in the world, we want to promote the considerate treatment of the underwater world as well as help you achieve better photos.



Underwater photography is my passion, my job, my life. The Maldives offer fantastic photo opportunities and every tourist has the right to preserve their memories through this medium. However, nature also has the right to be treated with consideration and respect - after all you are a guest in this paradise. Technology is better and cheaper than ever and thus more pervasive. We're concerned that the burden on the reef is mounting. You can help by observing a few simple tips about how to practice more considerate UW photography. In return, we'll help you achieve better results with your camera.



Did you know that ... the Maldives would not exist without the coral reef? They are a natural protection from waves and erosion. It must be protected!



UW Photography Basics

Taking pictures underwater is challenging, for many reasons:

- In contrast to air, water has a higher index of refraction, 1.33. This means that all objects will appear a third bigger than they actually are. Due to this refraction, objects underwater look 33% bigger as well as 25% closer than when on land.
- Both the photographer as well as many subjects are often in constant motion within a 3D space; strong currents in the Maldives doesn't help in keeping the camera still.

Did you know that ... most injuries sustained by divers and snorkelers are attributed to feeding fish? Neither sharks nor poisonous animals play a role.



- It's important to have a certain amount of diving experience before even thinking of handling the camera! A considerable amount of concentration is needed for safety, depth, time, oxygen supply, dive partner and the dive equipment.

- The best time of day for underwater photography with no artificial light source - in stark contrast to the normal „surface photography“ – is during midday between 11:00 to 14:00, since the sunlight falls vertically. This is particularly important for snorkellers taking photos near the surface.

- Your subjects can surface very quickly and disappear just as quick, due to restricted visibility. You must be able to react quickly and always be prepared for surprises.

Did you know that ... angler fish can suck in their entire prey in 6 milliseconds? And this is the quickest movement in the entire animal kingdom.

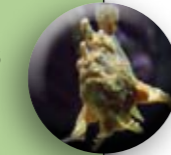
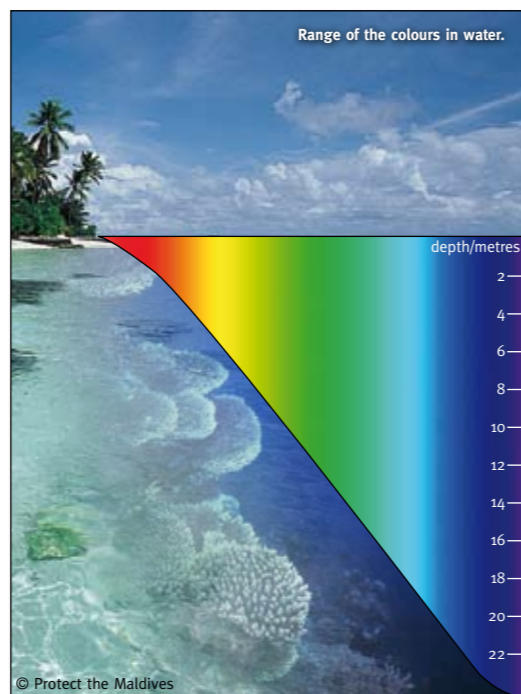


Photo Tips: interaction between water and light

Light and colour are prerequisites for good UW Photography. Underwater both of these elements become reduced after only few metres. This is based on the laws of physics: reflection, absorption and diffusion.

- At 3 metres depth the intensity of the light is already two thirds of that it is at the surface and in addition to this the red portion of the spectrum is also filtered out. At a depth of around 6 metres orange disappears, at ~12m yellow and at ~20m green. All that remains is blue.

- In order to bring the beautiful colours of the underwater world to our pictures, we need an artificial source of light. For great UW photos, a flash should be used. However, you need to pay attention to the fact that the flash will be quickly absorbed because of the water density. A shot of a fish that is only 1.5m away, in light



Did you know that ... manta rays have a sensitive layer of protective skin that if touched can be damaged which can lead to infection? Please don't touch manta rays.



- In contrast to air, suspended matter in water (sand or plankton) makes the clarity of water even worse. In the Maldives you usually have 15 to 30 metres visibility – but this is heavily dependent on current, swell, and plankton. If suspended matter is blitzed by a flash, it will reflect and this will come out as light spots on the photo.

- The remedy to this problem is to remove the flash from the lens axis, to do this you will need a “flash-arm”. Thus the light source is removed from the lens axis and flashes from the side instead. Suspended matter is then barely visible in the pictures due to the angle of reflection. Hobby cameras with built in flash are unable to do this, so you must get as close to your subject as possible.

- The waves are also a factor. Each wave breaks up the light on the surface and thus reduces the depth that the light spectrum can reach. Minimal swell is an advantage for photographers.

Did you know that ... turtles can drown if they panic? This can happen when snorkelers or divers touch or harass them. Please keep your distance to turtles.



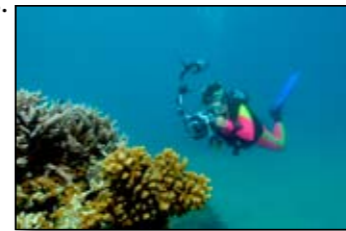
Environmental Tips: Basics for eco friendly UW photography

- Plain camera equipment is a prerequisite for eco-friendly photography. If the camera equipment is too heavy, you can counteract this with buoyancy aids. The opposite can be achieved with lead.

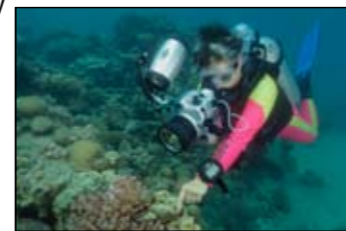


- Dangling pressure gauges and octopus hoses not only look awful in pictures, they can also drag along the sea bed and cause damage. There are numerous ways to attach the hoses close to the body.

- A practically horizontal position is necessary to achieve problem free photos in the water. You must also be able to control your buoyancy perfectly in order to remain motionless. Remember: if you're fully equipped and floating on the water with an empty jacket, whilst breathing normally the water should come up to your nose. Breath out and submerge slowly.

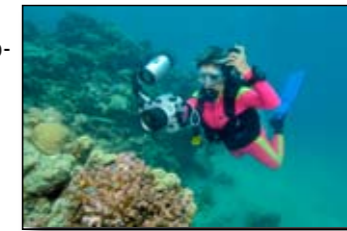


- In order to work ecologically when taking macro and close-ups, carefully stabilize yourself, using just two fingers, on an uninhabited part of the reef without your flippers or entire body being supported by the reef. To return to open water, push off gently, inhale a little or let some air into the jacket and swim away from the reef.



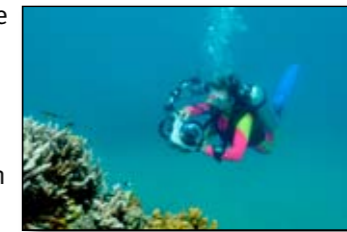
- If you approach your subject against the current, it is even easier to get away as the current will assist you.

- The buoyancy must be adjusted ahead of each approach to a subject. Once in position there's no time to grab the inflator gauge as this may scare the fish.



- The camera should also be set up a safe distance away from the subject. Once in position and stable, it would be difficult to adjust or reset the camera.

- An important factor, one that is often ignored by visitors to the reef, is the stirring up of sediment. This causes cloudy water and then the sediment can end up on the coral reef leading to considerable pressure on the coral polyps. Perfect your technique for example by kicking your flippers to the side then backwards!



- These techniques and preparation not only protect the environment - you will enjoy diving and shoot better photos. Now you belong to those photographers who are welcome at dive centres.



Did you know that ... coral is an animal? They filter plankton and live in symbiosis with algae, which provide them with nutrients. It's the algae that give off colour!



Technical Tips

- Always choose the highest resolution when using a digital camera. You can determine the best cut and crop afterwards, without sacrificing image quality.

- Ensure that you always have a full battery and space on your memory card. It's always the way that your battery will run out just as a whale shark passes by.

Did you know that ... the biggest fish in the world - the whale shark - feeds solely on plankton? To find one, you must find an area with lots of plankton!



- Be careful if you're shooting in automatic mode, ensure that the flash is turned off. Always check the camera settings before each dive.

- Look after your equipment so that it doesn't fail you at the wrong moment – worse still that it becomes water damaged.

- Temperature changes between air and water can cause condensation to build up within the camera which can settle on the lens or damage the electronics. Desiccant bags can absorb this dampness and should therefore be a part of your basic equipment. The tropical humidity in the Maldives only serves to heighten this problem!

- By saving images in RAW format, you have more options when post-processing. However, this requires some experience and specialised image editing software.

- After editing, you should be careful not to compress the image too much, because the image data as well as the quality can be lost.



Eco Tips – think outside of the box

Eco friendly photography means behaving fairly towards marine life, be it fish, coral or turtles. It is taboo for a photographer to touch, hold, scare, feed or to be disruptive towards these living things. We only touch with our eyes

Eco conscious photographers avoid contact with the reef and all living things. In order to stabilise yourself to achieve better camera work, a light hold on a dead piece of coral or bare rock should suffice. Your whole body should be balanced and gently floating in the water.

Did you know that ... the cute porcupine fish can easily bite off a finger? Moray eels, triggerfish and puffers all have powerful jaws and sharp teeth. Don't attempt to feed them!

Hunting Pufferfish until they balloon up with water or frightening a Moray Eel out of a cave is as contemptible as riding a turtle or whale shark. Hunting down fish with a camera is always a challenge. This forces the photographer to constantly work to improve their diving abilities and photography skills, thus attaining improved results.



As an UW photographer, correct behaviour serves not only to protect the environment but is also the best advertisement for other divers. The right behaviour will mean you are a welcome guest at dive centres and unlike other, the dive guides will happily give you some photographic gems.

Not even the best photo justifies the slightest destruction. Respect nature, rather than laying on the coral, you should forego the shot. Heed this advice and not only will your diving experience be more enjoyable, you will get much better pictures.

Your desire to preserve this paradise in a photo means that you believe it is something worth preserving. You too can come up with ideas for eco friendly tourism in the Maldives.

Use the dedicated reef access on the island rather than attempting to swim over the top of the reef. Pay attention to the ebb and flow of the water – in the Maldives it's at 1 metre.

Every little bit of electricity in your bungalow will have been generated by a diesel engine on the island. Do your bit to save energy and reduce the strain on the environment.

Save water. Every drop of fresh water has to be produced by a freshwater plant, which is situated on your island. Fresh water is one of the most valued commodities on the Maldives. It takes a great deal of energy to turn saltwater into fresh water.

Don't throw cigarette butts on to the beach or into the sea. They take decades to decompose.

Refuse collection in the Maldives isn't the same as we are used to. Take your batteries and packaging home with you and dispose of it correctly there.

Set an example for other tourists and ask them to stick to these easy to follow guidelines. Talk to your diving school about how to protect marine life.

Did you know that ... a mantis shrimp can smash glass with their claws? They can smash their prey with their claws at 100 m/s, thus killing the prey.



More tips for successful underwater photos

The best conditions for mixed light shots are a high sun, blue sky, calm sea and clear water.

On the subject! It is the golden rule of underwater photography. Why? It's simple: Water is a dense medium through which light cannot move as freely as in the air. In light terms, for every metre away from the subject you are, the picture quality will deteriorate.

The best distance to capture photos is between 60 and 120 centimeters - maximum two arm lengths. Otherwise, there would be too much water between the subject and the lens.



It's easy to underestimate distance underwater because of the light refraction. A good measuring tool is your own arm, on average an arm is about 60-70cm long. Whenever possible it's best to use the arm length to measure until such a point that your eyes are trained and will no longer deceive you.

True colour pictures can only really be taken without a flash directly under the surface, since the red component of light can travel only 3 metres through the water.

Suspended Matter and using the flash: if the flash is too close to the lens or is a built in flash, the suspended matter will be highlighted and look like a blizzard in the photo. In general terms, the bigger the angle of the lens, the further removed from the camera the flash needs to be (both up and away).

Did you know that ... the stonefish is one of the most poisonous creatures on earth? Their poison is so venomous that 60% of untreated victims die. Watch where you step!

To avoid disappointment, avoid zooming. The suspended matter will appear out of proportion and the light gain will be even worse.

If you are diving or snorkeling at night, don't aim your lamp directly towards the fish. It won't necessarily disturb them but a constant light source will wake them up.

Most fish are shy. Approach them slowly to your ideal distance and then take your picture. Missed it? – be patient and try again. Tip: approach the fish from the front and not from behind, because otherwise they can escape quicker.



Many fish remain in one area. If they have strayed from their normal place, they will likely be back soon. Often it's worth being patient and staying still with the camera ready to go..

The more a photographer knows about the animals, the better he can take photos. Your dive centre can answer most questions and they will also know where and when to find which animal.

No matter how enthusiastic you are, you must never lose respect for ocean life. Animal shots are taken under natural conditions. A fish doesn't always do what the photographer wants – it's a challenge of UW photography.

Did you know that ... triggerfish defend their nest so vehemently that they attack divers and snorkelers? Leave their territory if they are feeling threatened.

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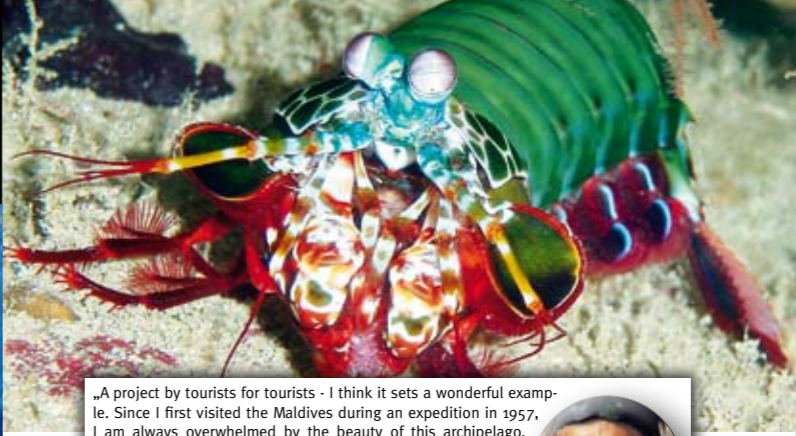
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„A project by tourists for tourists - I think it sets a wonderful example. Since I first visited the Maldives during an expedition in 1957, I am always overwhelmed by the beauty of this archipelago. Tourism is a burden on the sensitive ecosystem. If you follow the rules to help to Protect the Maldives, you will actively protect this natural wonder. I thank you very much.“

Prof. Dr. Hans Hass – Honorary member of Protect the Maldives



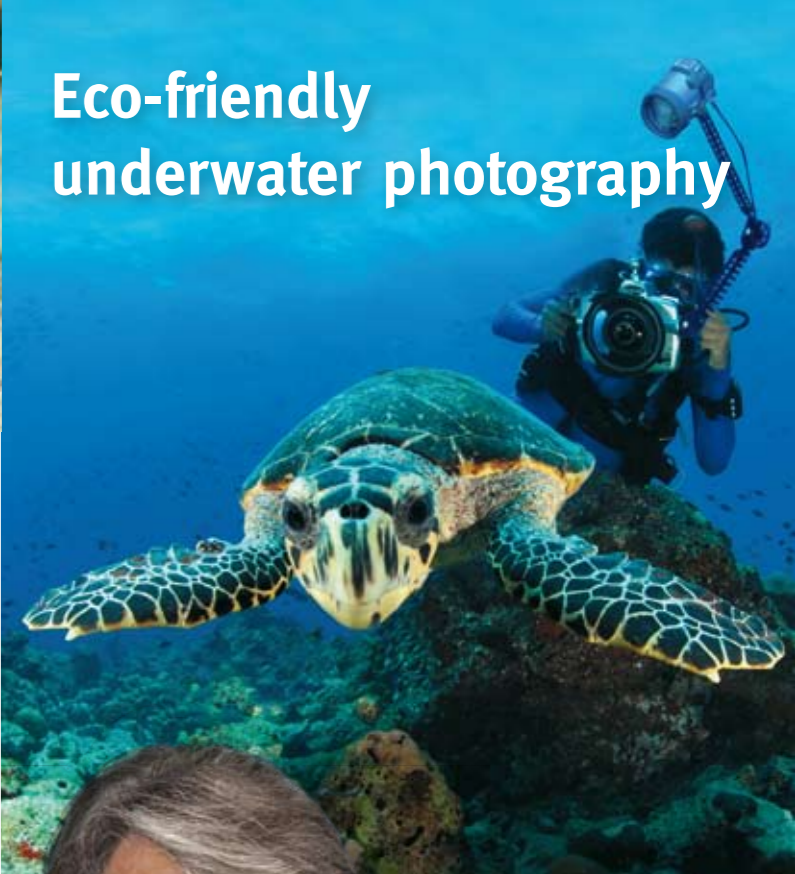
Protect the Maldives Association is a nonprofit organization and its aim is to enlighten tourists about the delicate ecosystem of the Maldives and encourage them to think more about their behaviour. All outings are funded by donations and membership fees. Visit us on the Internet: www.protectthemaldives.com



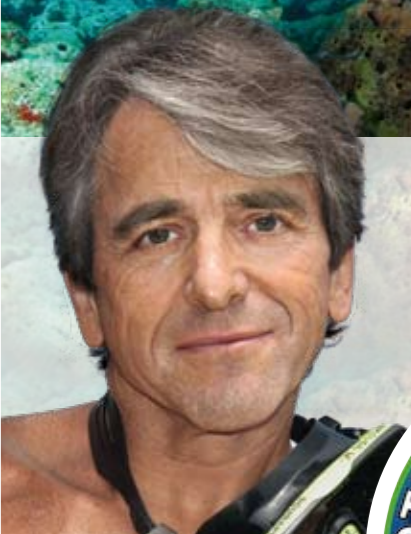
Kurt Amsler is one of the most famous underwater photographers in the world. If you want to learn more about professional UW photography, improve your knowledge in specialised disciplines or are interested in courses and publications, please visit Kurt Amsler on the Internet: www.photosub.com

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Eco-friendly underwater photography



World-famous professional photographer, **Kurt Amsler**, gives us some tips on how to take better photos and how to be a considerate underwater photographer.



By Kurt Amsler and Protect the Maldives e.V.