The Underwater "Golden Hour"

by Don Silcock

The "golden hour" is that time of the day when the best outdoor photos are usually said to be taken and landscape photographers wax lyrically about its effect!

What they are referring to is the first & last hour of sunlight each day when the sun is low in the sky and rather than shining straight down, as it does during the brightest part of the day, it's rays are traveling obliquely through the atmosphere.

The sun's position near the horizon, and the distance traveled, means that the light during the golden hour produces a wonderful softening & warming effect as it strikes objects at an angle compared to the harsh effect created by an overhead sun. The result is that the brightest parts of the image are much less likely to be overexposed, the shadows are much softer and the warming light enhances the colors to make the overall image "pop"…

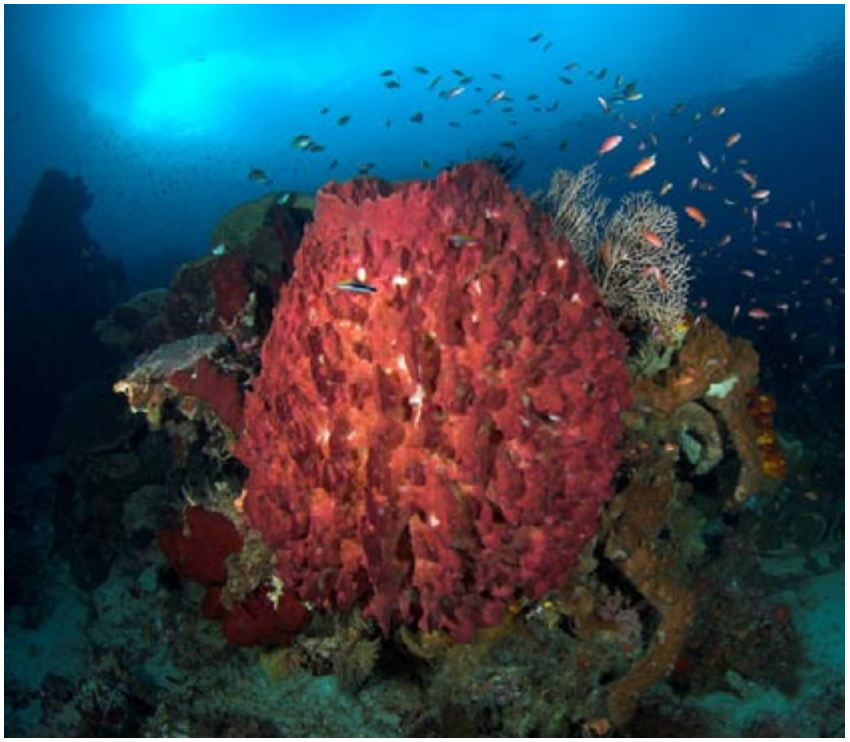
Underwater however, the golden hour does not really apply, because that warming & softening effect cannot penetrate more than a few feet below the surface.

So my usual approach to the first dive of the day when I am on a dive trip is to go for macro photography as I figure that at this time of the day it will still be relatively dark underwater and the best images would be of fish & critters emerging from their overnight sleeping hideaways and looking for breakfast!

However on a recent trip I decided to try something different and rather than starting the first dive with a critter hunt I went into the water with a wide-angle lens on my camera.

The spot we were diving that morning was the Procco Channel in the Patintie Straits between Halmahera & Bacan Island in the "far north" of Indonesia. The dive tenders dropped us the edge of a channel in an area rich in large soft corals & gorgonian fans and I was with the first

Both shots. Nikon D200, Tokina 10-17 @ 12mm, Inon 240 strobes, manual, ISO 200, f13 @ 1/250



Nikon D200, Tokina 10-17 @ 10mm, Inon 240 strobes, manual, ISO 200, f11 @ 1/60

group of divers to enter the water.

However, rather than following the group down into the channel where the "action" was supposed to be with schooling pelagics and cruising reef sharks, I stopped & looked back and knew I was onto something quite special!

The water was so calm on the surface and the angle of the sun was such that a superb example of Snell's Window had been created that provided the perfect backdrop to frame the beautiful fans & soft corals.

Snell's Window is a function of the refraction that occurs as light passes from air into water and is easy to see when the sea is calm by just looking upwards to the surface when underwater. What you will observe is a bright circle of light surrounded by darker water and it can add a very interesting dimension to a photograph.

The effect that morning was quite profound and I realized that I really was in the underwater golden hour, but I knew it would not last 60 minutes and I better move fast if I wanted to capture the moment!

I actually had about 20 minutes of this superb light and moved around the soft corals & gorgonian fans looking for the best compositions that I could set against Snell's Window with the maximum impact.

To further enhance the impact of the light, I set the shutter speed to 1/250 which "freezes" the sun rays and took great care to position my strobes to illuminate just the fans & soft corals to make them stand out against the darker water outside of Snell's Window.

I learnt a lot that morning and in the future will always be on the look-out for the right conditions for the underwater golden hour!

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Snell's Window

Snell's Window is named after the 17th century Dutch mathematician Willebrond Snellius, who fully quantified the mathematics around the phenomena first detailed by Ibn Sahl of Baghdad in 984.

Snell's Law states that the ratio of the sines of incidence and of refraction is a constant that depends on the media. The Reader's Digest version of this is that rays of light are "bent" to a different angle as they pass from air into water and is best illustrated by a chopstick placed in a glass of water - it appears to be broken when in fact it is perfectly straight.

A good description of Snell's Window, that explains it technically, can be found on the following link to Dave Read's website:

http://www.daveread.com/uw-photo/comp101/snells_window.html

What Snell's Window means for underwater photographers is that at certain times of the early morning and late afternoon, when strong rays of sunlight hit the surface of calm water at an oblique angle, it creates a circle of light surrounded by darker waters that can be used to dramatic effect.

Don't settle for 2nd best

Film - No Filter
No White Balance

Digital - No Filter
Manual WB

Magic Filter
Manual WB

Digital cameras have opened up new possibilities to underwater photographers. For available light photography manual white balance is an invaluable tool for restoring colours. But when you use it without a filter you are not making the most of the technique. You're doing all the hard work without reaping the full rewards.

These three photos are all taken of the same wreck in the Red Sea. The left hand image was taken on slide film, which rendered the scene completely blue. The middle image is taken with a digital SLR without a filter, using manual white balance. The white balance has brought out some of the colour of the wreck, but it has also sucked all the blue out of the water behind the wreck, making it almost grey. The right hand image is taken with the same digital camera and lens, but this time using an original Magic Filter. The filter attenuates blue light meaning that the colours of the wreck are brought out and it stands out from the background water, which is recorded as an accurate blue.

www.magic-filters.com