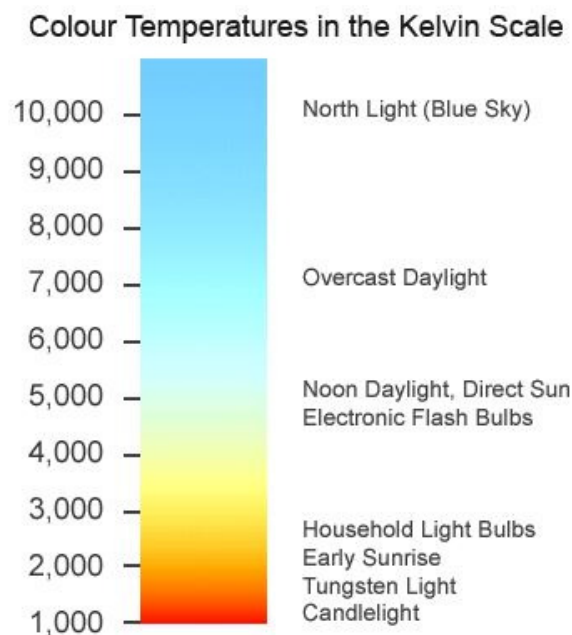


### Lighting

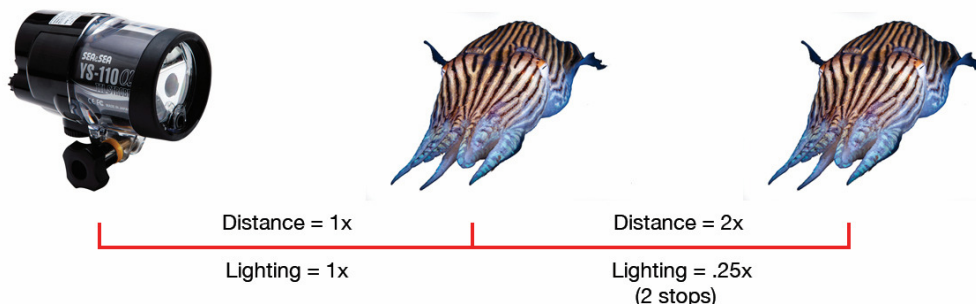
So, you have some rather expensive strobes or video lights for your underwater camera system. In this episode of tips and tricks I am going to talk about how to use them effectively.

Firstly, cameras record light so it's important to have a quality lighting system that provides an even spread of white light. The even spread of light is important so there are no parts of the image that are significantly brighter than others. And when I say white light, generally, as underwater photographers we should be looking for light with a colour temperature in the range of 5400 to 5600 Kelvin. The manufacturers of underwater lighting equipment usually advertise the colour temperature of their lights.

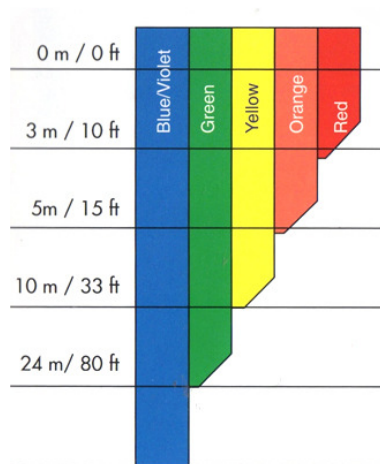


To help achieve proper exposure when using underwater lighting, it's important to remember the inverse square rule. The rule is:

“The intensity of light diminishes at a rate inversely proportional to the square of the distance it travels from its source”.



The rule is derived from astronomy for measuring the distance to celestial objects but it is equally important in photography. It's not quite right for underwater photography and videography as the light is absorbed faster in water than it is in air or the vacuum of space. But it's still a good approximation. Further, when water absorbs light, we have to remember that the water in which we are immersed absorbs light with the longer wavelengths (reds) being absorbed faster than the shorter wavelengths (blues). We start losing red after light has traveled a relatively short distance. And it's the total distance the light travels that matters, we need to consider not just the distance from the light to the subject but also the distance back to the sensor.



What this all means is that we need and even white light to add the colours back and we need to be relatively close to the subject so the light stays white and can be recorded by our camera sensor.

Now let's turn to underwater macro photography and videography. For macro work, generally the subject will fill all or most of the frame. And using artificial lights (strobos or video lights) predominately all the light recorded on the sensor should come from these light sources. That is, no ambient light is recorded. So, we should set the exposure settings to take this into account.

This doesn't mean that we should just dump a heap of light on the subject. Doing so will destroy the textures that make an otherwise good image, a great one. We should add just enough light so as to overpower the effects of ambient light. This is an art and takes some practice to achieve.

Also, with macro we should be trying to get as close as possible to the subject, with the strobos side by side and close to the lens port and pointing away from the camera housing. This will limit the amount of backscatter and mean that a lesser amount of light is required as it has to travel a shorter distance. And a lesser amount of light will also limit the impact of light on the subject. Exposure settings and strobe or video light positioning are major topics in themselves for discussion at another time.

Onto wide angle. Basically, we set the exposure for the background. Here we are considering the ambient light as part of the composition. The background is as important as the subject as it provides balance to the overall image. Too often I see a great wide angle composition spoiled by an overexposed background.

Once we have set up for the desired background exposure, we then need to light the subject. Again, we don't just dump a heap of light onto the subject, we subtly paint just enough light onto the subject to fill in the colours lost in the ambient light. Again, this is an art that takes practice to achieve. Because the field of view is very wide, we pull the strobos or video lights way out and even back behind the sensor plain. All of this will minimize the effects of scatter in your final product as well.

All this is covered in detail (with hands on practice) in our macro and wide angle master classes.