

BASICS OF BETTER UNDERWATER PHOTOGRAPHY

# CHOOSING AN UW LIGHTING SYSTEM

**OPTICAL OCEAN SALES**  
UNDERWATER PHOTOGRAPHY EQUIPMENT



# WHY DO WE NEED LIGHT UNDERWATER?

ADDING A LIGHTING SYSTEM  
CAN MAKE ONE OF THE LARGEST  
DIFFERENCES IN THE SUCCESS  
OF YOUR PHOTOGRAPHY.

There are a few things that determine the amount of color saturation and image clarity in underwater photography: depth, ambient light, and water clarity. Obviously you're not in control of the depth that your subject is at, or the water clarity, but you do have some say in the amount of light.





# UNDERWATER DEPTH & COLOR

## DISAPPEARING COLOR

Think about rainbows; they are a vision of light refracted into individual colors through rain (drops of water). So, it's only natural that when we're under water, colors change based on the light from above being refracted and absorbed by the water. Each color is a different wave length and energy level, which means that each color absorbs at a different rate.

Colors vanish underwater in the same order as they appear in the color spectrum.

- ▶ **Red** – The first to disappear, you may see a noticeable difference in red at 5ft and a complete loss at 15ft.
- ▶ **Orange** – The next to go, oranges will be lost at between 25 and 30ft.
- ▶ **Yellow** – Next are yellows, which fade at 35 to 40ft
- ▶ **Green** – The last to go are greens at anywhere between 50 and 75ft.



## QUESTIONS TO ASK YOURSELF

What: Still or Video?

Where: Cold or Warm Water?

How: Camera Model and Lenses?

Why: Fun, Art, Document?

# WHERE DO I START?

To choose the right underwater lighting system, you will have to think about a number of things:

- ▶ **What kind of photography** will I primarily be shooting, stills or video?
- ▶ **What subjects** will I be shooting?
- ▶ **What will the available light be like** where I dive?
- ▶ **What kind of camera**, housing and lenses will I be using?
- ▶ **Why am I taking the photos** and what do I plan to do with them?

# TWO TYPES OF LIGHTS

## CONTINUOUS & STROBE

- ▶ **Continuous Lights** – These are lights that you turn on and they stay on until you turn them off. Their output is measured in lumens, which defines the total amount of visible light emitted, and can range anywhere from 300 to 18,000 lumens. **Focus lights** and **video lights** fall into this category.

- ▶ **Strobe Lights** – These are lights that emit a short burst of intense, extremely powerful light, providing crispness, sharpness and color saturation to your photos. They are usually connected to your camera housing with a sync cord, allowing the camera to signal the strobe to fire. Their output is measured in underwater guide numbers that range from 12 to 32 or more.



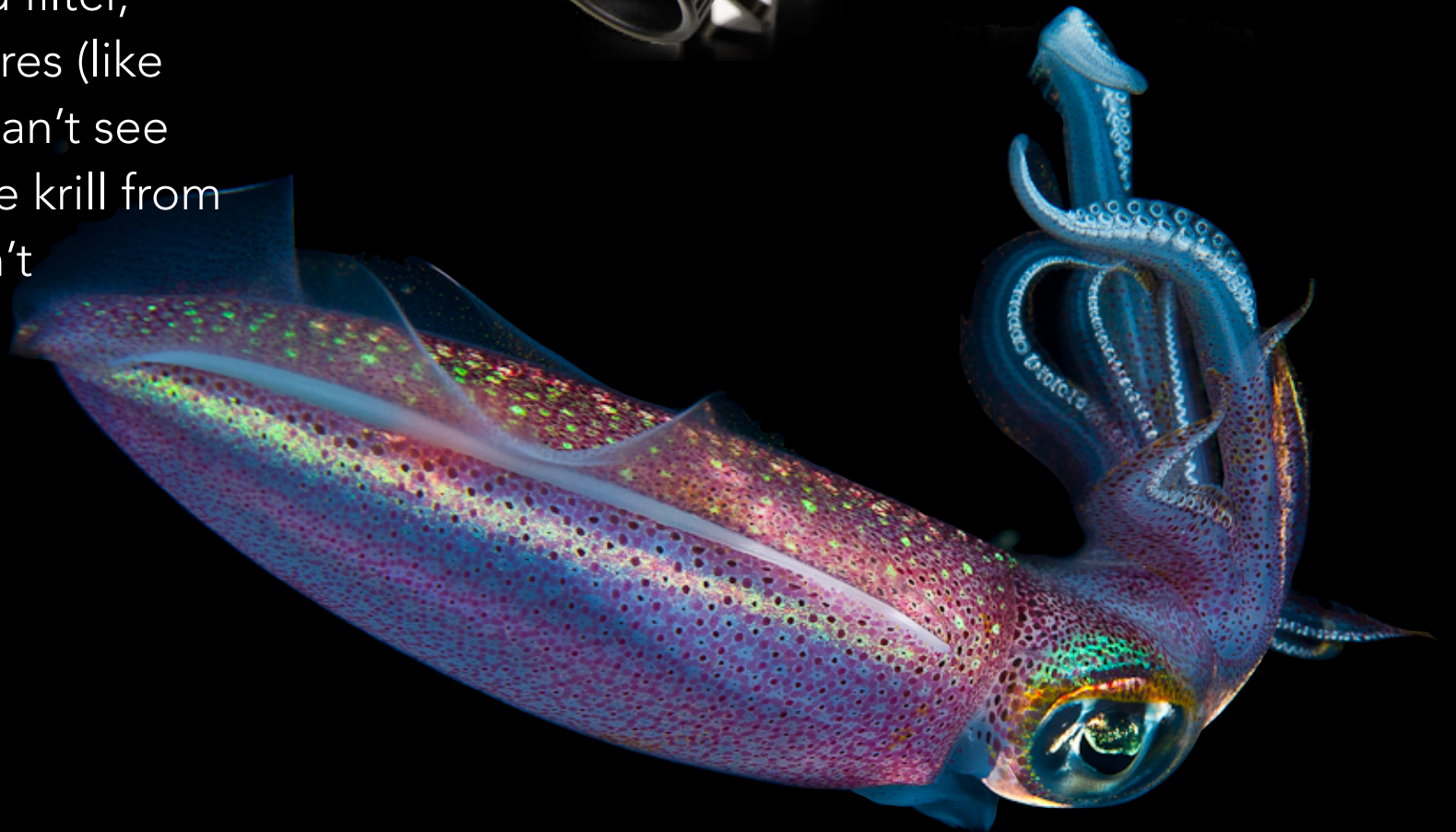


# CONTINUOUS LIGHTS

## FOCUS LIGHTS

Focus lights are generally lower lumen, continuous lights. They help you to see while setting up a shot, and help your camera lock in focus on subjects in the somewhat dim lighting conditions found underwater. They are essential for night diving.

Some have built-in red lights, or a red filter, which is great for shooting shy creatures (like crustaceans, squid, or octopus) that can't see the color red. It also helps to keep the krill from showing up in your shots as they aren't attracted to red light.





# CONTINUOUS LIGHTS

## VIDEO LIGHTING

### Video Lights

When shooting video you'll need a strong light, at least 800 lumens, but 1200 or more is recommended, with a wide beam angle.

When shooting video with a wide angle lens, you'll want 2 lights in order to have even coverage. For macro video, a single 800 lumen light might do the job.





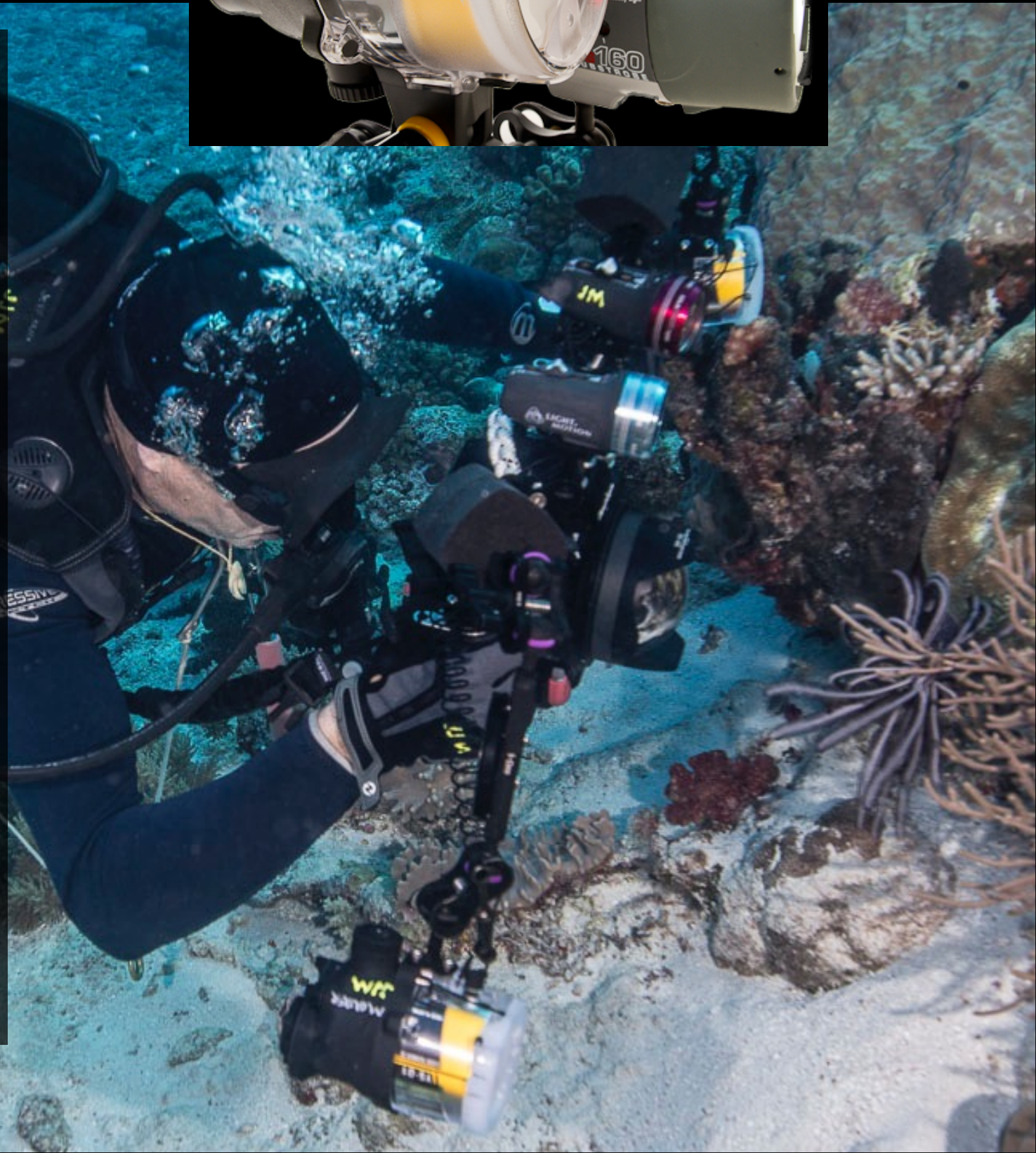
# STROBE LIGHTS

## FOR STILL PHOTOGRAPHY

**Strobes** are essential for still photography. Yes, your camera has a built-in flash, but that flash was intended for above water photos, where you don't need to worry about things like refraction of light through water and reflection from particles called **backscatter**.

It's also built-in, which means it is in a fixed position on the inside of your housing, where it will be shadowed by the housing port, and the light it emits will always be straight ahead. This will light up the particles in the water creating backscatter that looks like snow.

With a strobe, you can position your strobe to point outwards and away from the subject to use edge lighting and have the reflections from the particles come back towards the strobe, not the camera lens.





# STROBE LIGHTS

## MANUAL OR TTL?

**Manual and TTL Exposure:** Strobe can have two different exposure control systems; manual and auto-TTL.

**Manual** is just that; a control to change the power (duration) of the strobe's output.

**TTL (Through The Lens metering)** is a method for the strobe to either be controlled directly from the camera with an electrical sync connection, or by using an optical sync, to mimic the camera's flash. This is also sometimes referred to as D-TTL, or slave TTL.





# USE A LIGHT INSTEAD OF A STROBE?

**Can I use a high-powered continuous light instead of a strobe? The answer is: Not well.**

Even the smallest strobe puts out thousands of candle power of light intensity instantaneously. This very quick, high-powered light gives you the color saturation and sharpness desired for still photos. If you use a continuous light for still photos, you'll have to shoot at high ISOs, with slow shutter speeds and open apertures, as the light just doesn't have the same intensity. Your photos will tend to be soft looking and darker, without intense colors, sharpness or detail. It will be very hard to stop motion.

This is an area of some debate, and again, it depends on how you're going to use your photos.



Shot with Strobe



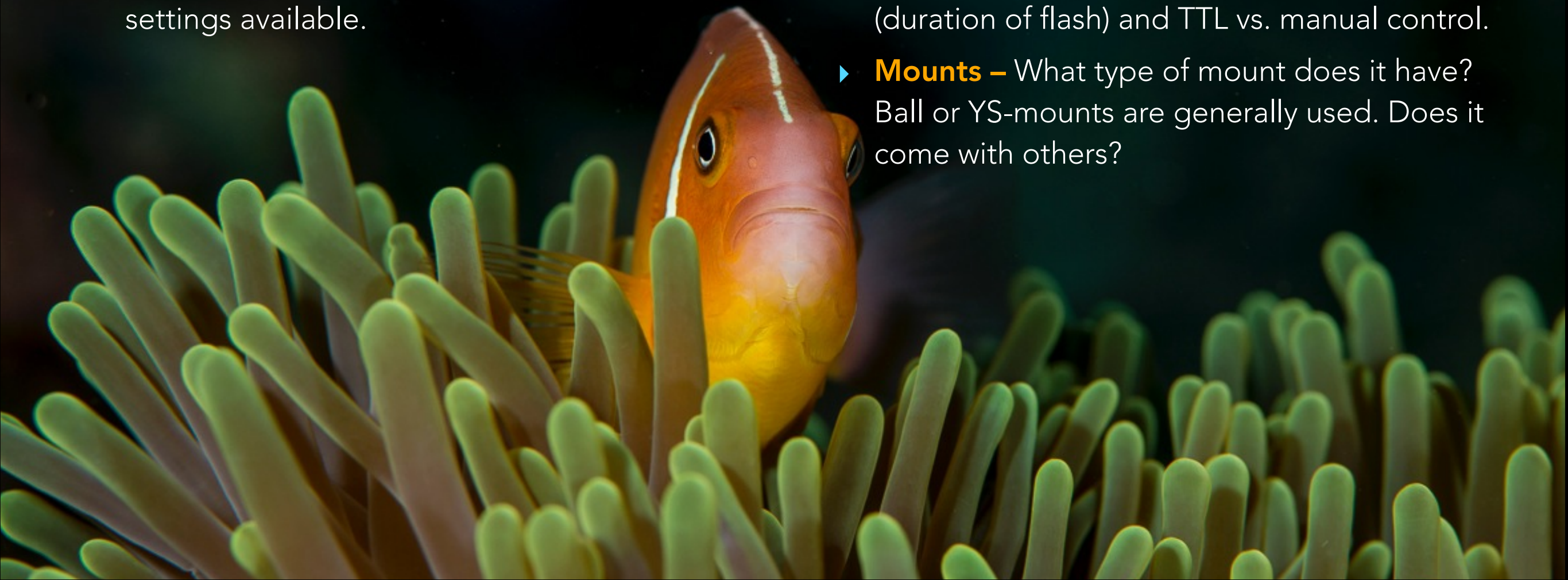
Shot with Light



# THINGS TO CONSIDER

## WHEN BUYING LIGHTS & STROBES

- ▶ **Construction** – Look for anodized aluminum, or high-quality plastic construction with double o-rings. For strobes, look for a sealed battery compartment.
- ▶ **Features** – Look for battery life indicators, power settings, swappable batteries, varying beam width, Red or UV color. For strobes; a target light, ready and/or TTL indicator lights, a test function, and the number of pre-flash settings available.
- ▶ **Batteries** – Does it use standard batteries or lithium rechargeable? How many? Does it come with a spare set? What is the capacity/runtime? What type of charger does it use? Can it be "wet-charged" and not use an external charger?
- ▶ **Controls** – Look at ease of use, readability, the number of brightness settings and filters. For strobes, also look at power settings (duration of flash) and TTL vs. manual control.
- ▶ **Mounts** – What type of mount does it have? Ball or YS-mounts are generally used. Does it come with others?





# LIGHTING SYSTEMS

## HOLD IT TOGETHER

Lighting only makes up part of the overall system necessary to take photo underwater.

Trays, handles, ball and joint arms and clamps are needed to place the lights and hold it in the right position.

Sync cords run between the housing and strobe to fire the strobe with the internal flash.

There are many variations of these products and many individual preferences.



**1. Strobe**

**2. Sync Cord**

**3. Tray & Handles**

**4. Handle Mount Ball**

**5. Focus/Video Light**

**6. Strobe Arm**

**7. Clamp**





Part of the “Basics of UW Photography” Series

# OPTICAL OCEAN SALES

## UNDERWATER PHOTOGRAPHY EQUIPMENT

*More handbooks and other free information at:*

[OpticalOceanSales.com/Education](http://OpticalOceanSales.com/Education)

1800 Westlake Ave. N, Seattle, WA 98109

800-359-1295 / 206-284-1142

[orders@OpticalOceanSales.com](mailto:orders@OpticalOceanSales.com)

© 2014 Optical Ocean Sales, LLC