

# BASICS OF BETTER UNDERWATER PHOTOGRAPHY

# STROBE POSITIONING



**OPTICAL OCEAN SALES**  
UNDERWATER PHOTOGRAPHY EQUIPMENT



# SIMPLE STARTING POINT

Lighting and strobe positioning are major factors in capturing the rich colors and textures of an underwater scene.



There are many different theories and techniques as to how best to creatively light a subject.

The goal here is to give a simple starting point to work from.





# WHY STROBES?

## LIGHTING SUBJECTS UNDERWATER

Strobes are very important for capturing both brilliant colors and intricate details of the underwater world.



SEE OUR HANDBOOK:  
["CHOOSING AN UW LIGHTING  
SYSTEM"](#) FOR MORE TIPS.



# WHICH ONE?

## HOW DO I CHOOSE?

### Considerations when choosing strobes:

- ▶ **Power & Adjustability:** Output is gauged in guide numbers. Some strobes power levels can be adjusted manually and some can only be changed by the camera.
- ▶ **Beam Angle:** Sometimes you trade beam width for power with diffusers.
- ▶ **Built in Aiming Light:** Some strobes have this feature, the light has automatic shut-off when the flash fires.
- ▶ **Auto TTL:** Automatically adjusts brightness to provide the correct exposure. Can be electrical or optical with a fiber optic sync cord.
- ▶ **Manual:** you adjust the brightness on the strobe.
- ▶ **Diffuser:** Spreads and softens light.
- ▶ **Recycle time:** How fast the strobe cycles and is ready.
- ▶ **Batteries:** Most strobes are powered by AA batteries, but some have a Li-Ion battery pack.
- ▶ **Size & Weight:** Consider the size of your housing and the type of arms you want to use.



# FOCUS LIGHTS

## HELP YOU & YOUR CAMERA

Focus lights are continuous lights that help you to see while setting up a shot, and help your camera lock focus on subjects in dim lighting conditions found underwater. Frees up your hands at night from holding a separate light.

If you shoot faster than 1/100th of a sec. in most cases the light is never seen.

### Focus Light Features:

- ▶ **Red lights:** or a red filter, which is great for shooting shy creatures (like crustaceans or octopus) that can't see the color red.
- ▶ **Rechargeable batteries:** or packs, some can be plugged in "wet" without removing from your rig.
- ▶ **Battery indicator:** Shows remaining burn time.
- ▶ **Video Lighting:** Stronger lights can be used for shooting video.







# SYNC CORDS

## GETTING CONNECTED

A sync cord allows the camera to fire the strobe in unison with the camera's shutter. Be sure to stay within your camera's maximum sync range, otherwise the frame is cut off from the strobe light.

### There are two types:

- ▶ **Electronic Sync Cord:** Uses the camera's strobe/hot shoe to send a hard-wired signal to the strobe to fire. Fast recycle, direct TTL connection can be easier to sync.
- ▶ **Optical Sync Cord:** Uses the light from the camera's on board flash to fire the strobe through a fiber optic cord. These are becoming the industry standard as they have no electrical connections to flood or loose contact. Relies on the strobe for optical TTL.



# OPTICAL SYNC

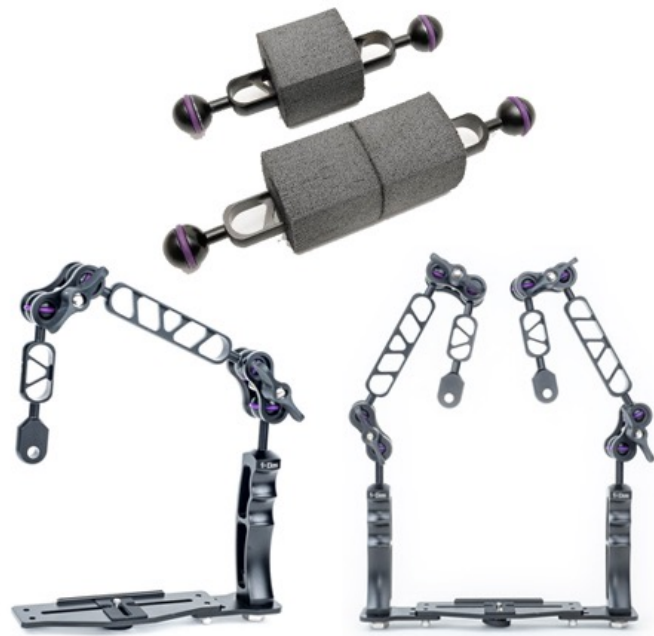
## FLASH TRIGGER OR OPTICAL CONTROLLER

A Flash Trigger or Optical Controller is for those cameras that don't have a popup flash, as well as for faster operation, as you don't have to wait for the camera's flash to recycle. They allow for the use of fiber optic cables instead of the electronic cables to fire the strobes, giving you the best of both systems.

- ▶ **Flash Triggers:** Manual operation only. Have their own batteries and efficient LED trigger lights. They generally can be used with a variety of fiber optic sync strobes. Must be used in supported housings for fit.
- ▶ **Optical Controllers:** Offer TTL or Manual operation from the housing. Have their own batteries and LED trigger lights. Must be matched with supported strobes, usually from the same manufacturer. They fit into supported housings and have buttons to control operation and give visual feedback as to exposure.







# STROBE ARMS

## FUNCTION AND FLEXIBILITY

**There are many different tray and arm types:**

- ▶ **Single or Double Arm:** Most times 2 arms with 2 strobes is preferred for more even lighting.
- ▶ **Plastic Flexible Arms:** Very versatile and can be moved in any direction. They are light weight. There are attachment restrictions and they don't hold in place with heavier lights and strobes.
- ▶ **Aluminum Arms:** Very durable and can hold the weight of even very heavy lights. They can be adjusted at each joint with the ball clamp. Modular, you can add and subtract different sizes as necessary.
- ▶ **Floats & Float Arms:** Work to offset the additional weight of your system. (Floats can also be added to regular aluminum arms.)





# LIGHT AND COLOR

## UNDERSTANDING THE CHANGES

Why additional light is important:  
Water filters out different colors  
the deeper you go.

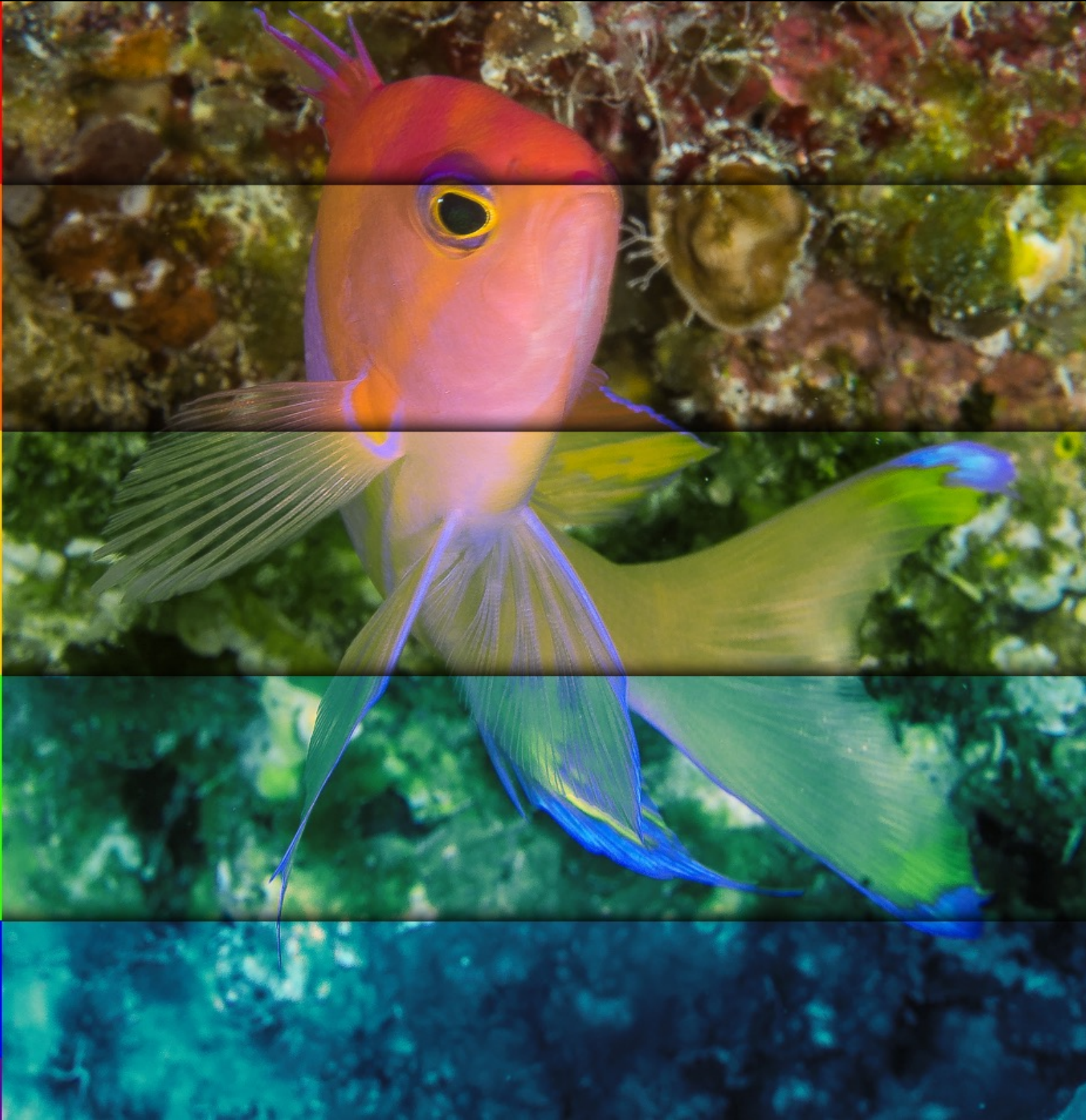
RED

ORANGE

YELLOW

GREEN

BLUE  
VIOLET



**15 FEET**

At 15 feet underwater  
the Reds are diminished

**30 FEET**

At 30 feet underwater  
the Oranges are diminished

**40 FEET**

At 40 feet underwater  
the Yellows are diminished

**50 FEET**

At 50 feet underwater  
the Greens are diminished

*Optical Ocean Sails*



# STOBES

VS. NATURAL LIGHT

Bring out the color and detail in the foreground – letting it compliment the natural blues in the background.

**NATURAL LIGHT ONLY**



**WITH STROBE LIGHT**





# BACKSCATTER

YOU DON'T WANT IT!

Even when there are lots of particles in the water - it's still possible to still get a good shot, with proper lighting.

It is important to try to avoid lighting the water column between the camera and subject. The goal is to paint just your subject with the light from the strobes.



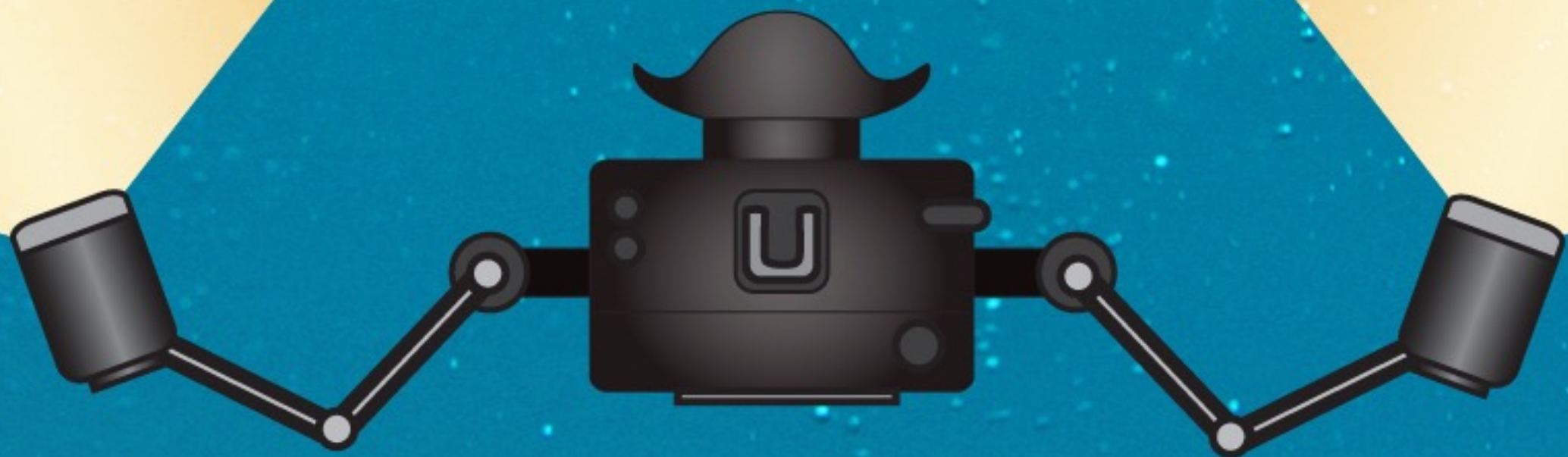


# STROBE PLACEMENT

## AVOIDING BACKSCATTER

Use “edge” lighting to light your subject – not the particles in the water.

**Backscatter will occur here – if this area is lit.**



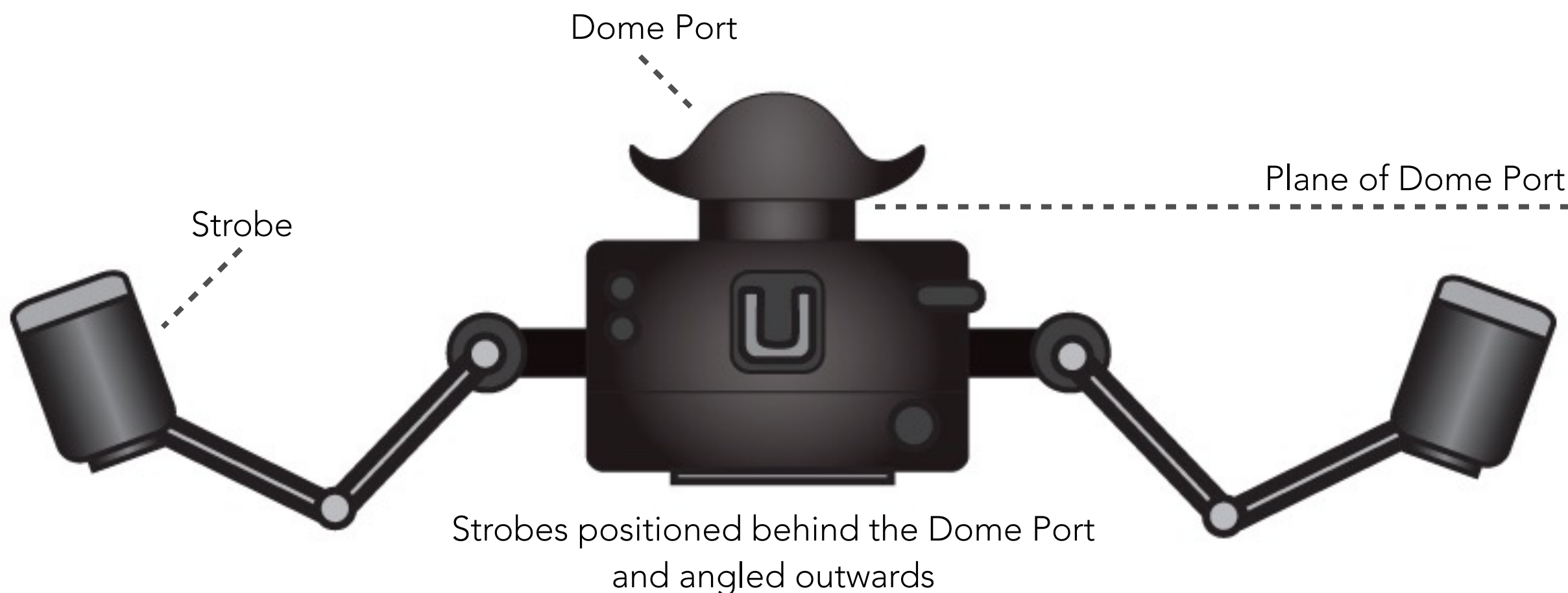


# WIDE ANGLE: LIGHTING FOR THE BIG PICTURE

Preferred positioning for wide angle photography to avoid flares and backscatter in your images.

## Shooting wide angle with strobes at higher settings:

- ▶ If the strobes are too far forward, the camera can pick up the light from the strobe – creating “flares” or “hot spots” on the sides of your image. The strobes need to be positioned behind the Plane of the Dome. Better yet, behind the plane of the housing, to avoid “flares” or “hot spots.”
- ▶ Pivoting strobes away from the housing is the best way to minimize backscatter – even if the strobe arms are at maximum extension, you want the light reflection from water particles to go back to the strobes, not back to your camera.





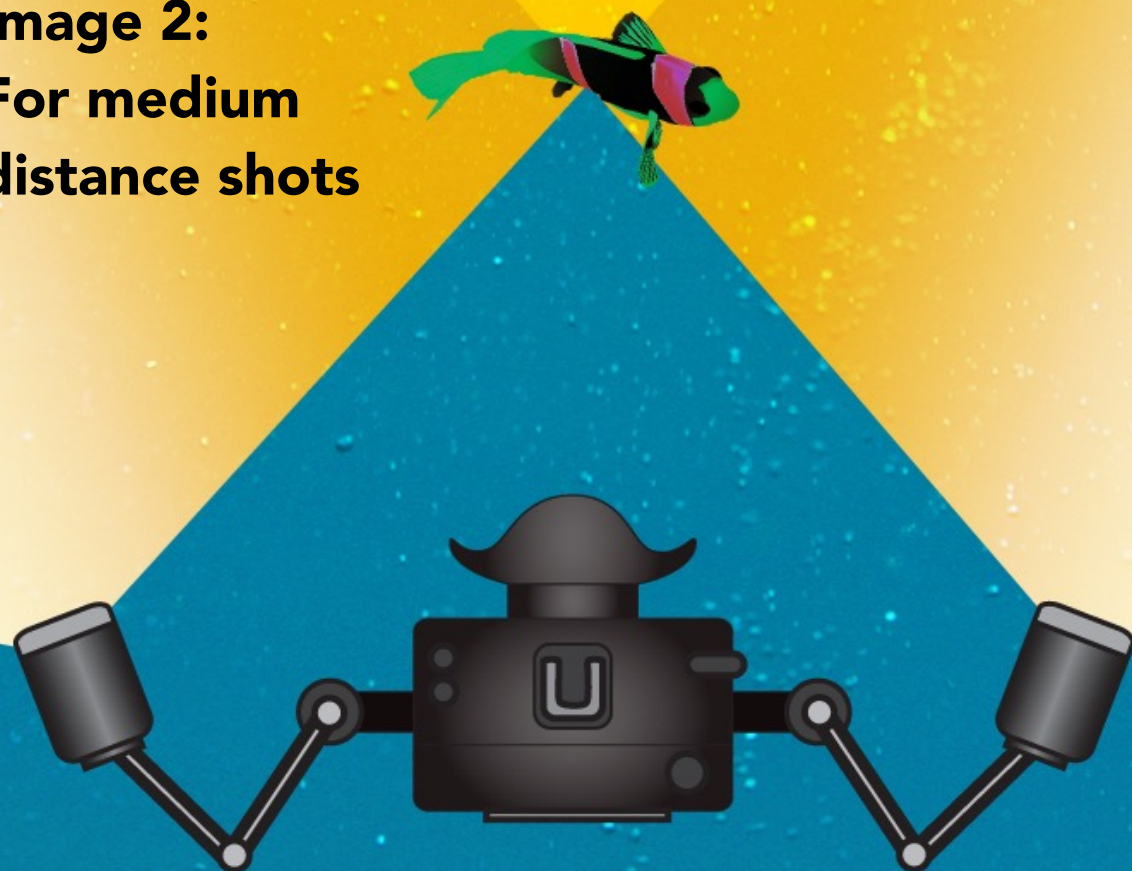
# WIDE ANGLE

## STROBE PLACEMENT OPTIONS

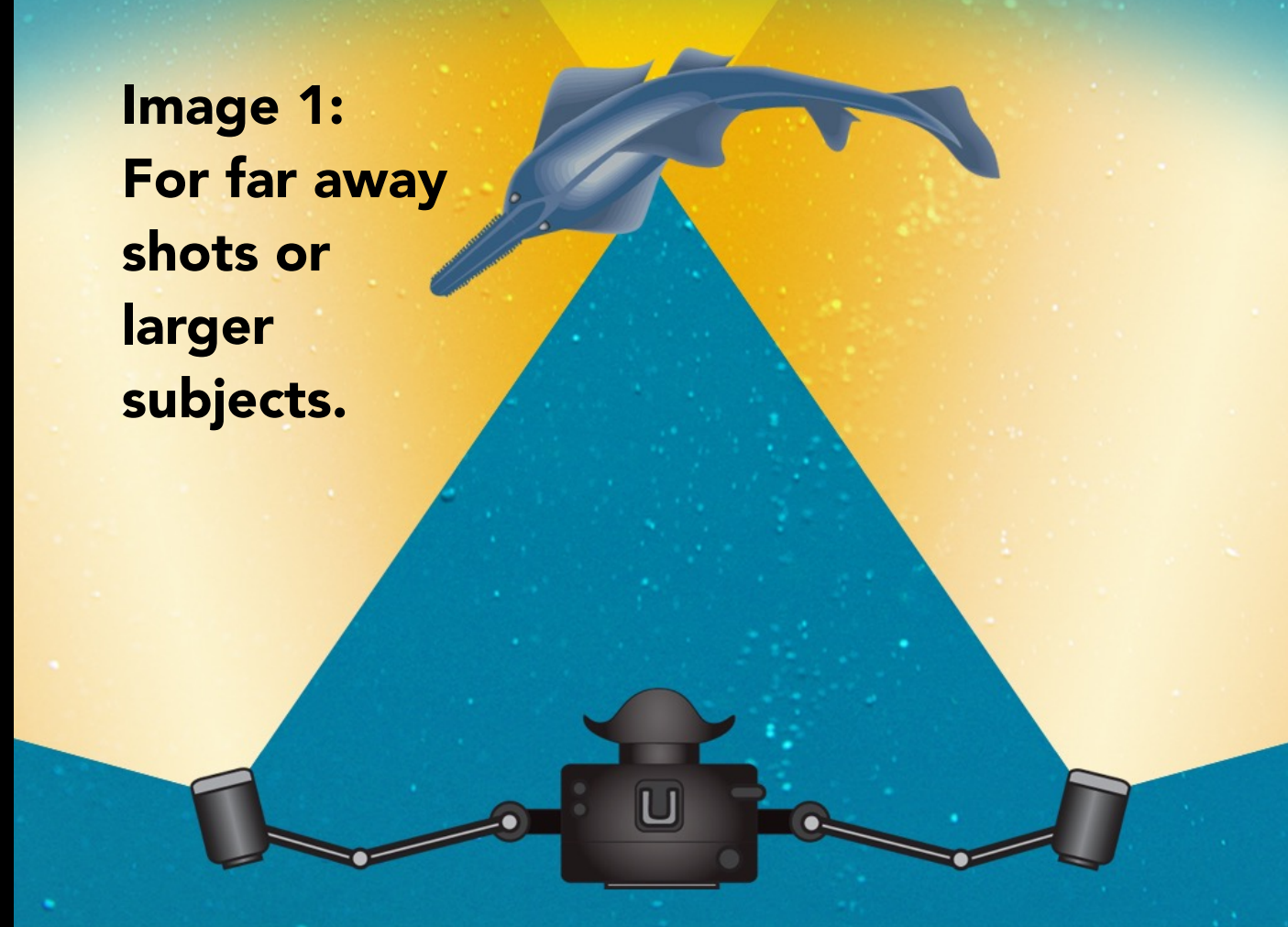
### ► Moving Strobes "In" and "Out"

With all three positions the face of the strobe is kept behind the plane of the dome port. Keep the face of the strobe aimed out and adjust by moving strobes in closer to the port for close subjects or further out for subjects further away.

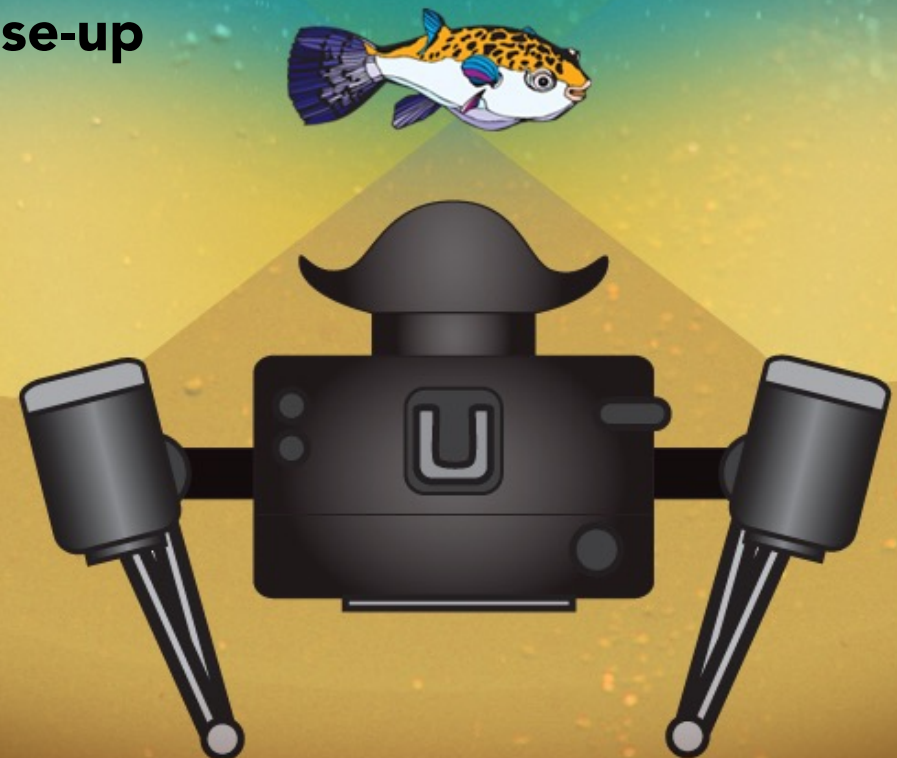
**Image 2:**  
**For medium**  
**distance shots**



**Image 1:**  
**For far away**  
**shots or**  
**larger**  
**subjects.**



**Image 3:**  
**For close-up**  
**shots**





# WIDE ANGLE

## STROBES EXTENDED OUT

### **Subject is further away:**

- ▶ Larger animals
- ▶ Groups of fish
- ▶ Reef scenes



Backscatter will occur  
here – if this area is lit.

Face of strobe stays  
pointed out.

To avoid hot spots –  
the face of the strobe is  
kept behind the plane  
of the Dome Port.





# WIDE ANGLE

## STROBES HALF EXTENDED



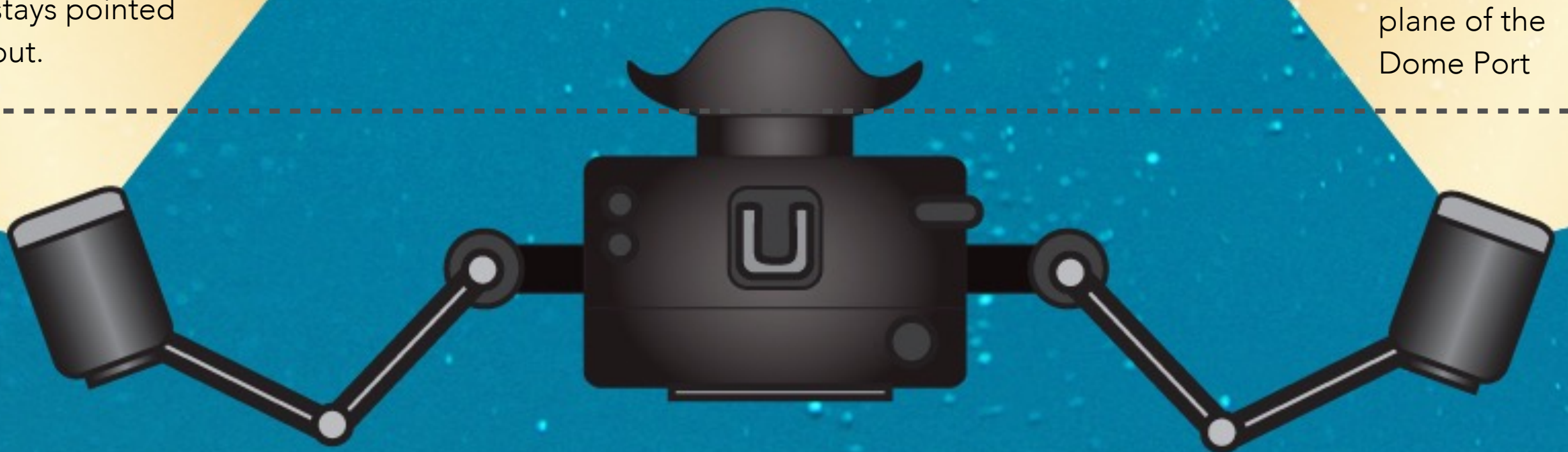
### **Subject is medium distance:**

- ▶ Larger fish
- ▶ Subject with reef scene in background

Backscatter will occur here – if this area is lit.

Face of strobe stays pointed out.

To avoid hot spots – the face of the strobe is kept behind the plane of the Dome Port





# WIDE ANGLE

## STROBES PULLED IN

### Subject is very close:

- ▶ Close-focus wide angle
- ▶ Smaller fish
- ▶ Detail shots of larger fish
- ▶ Close-up shots of coral, fans with the background behind them.

Face of strobe  
stays pointed out.

To avoid hot spots –  
the face of the strobe is  
kept behind the plane  
of the Dome Port.

SEE OUR HANDBOOK:  
"[CLOSE FOCUS WIDE ANGLE](#)"  
FOR MORE TIPS.



# WIDE ANGLE: USING ONE STROBE

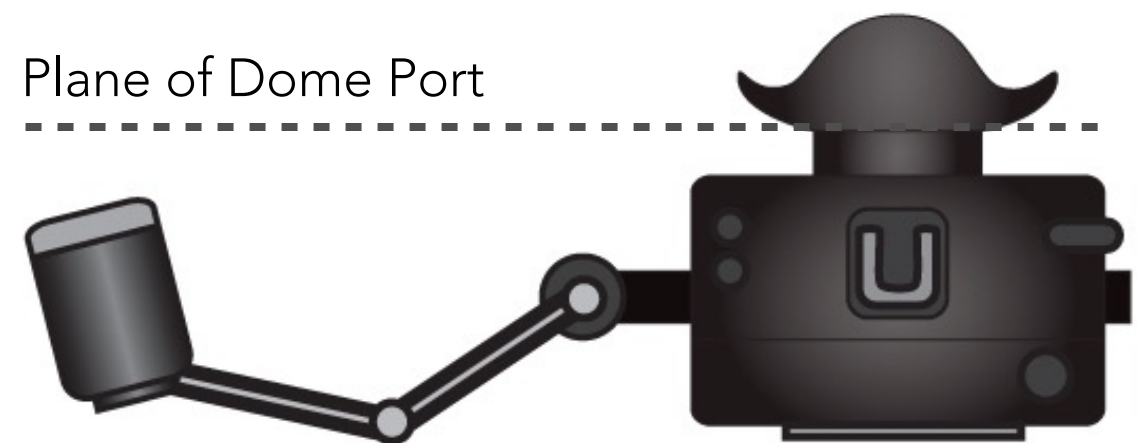
Positioning for wide angle photography when you only have one strobe.

## Single Strobe Wide Angle:

- ▶ As the distance between the camera and the subject increases – extend the strobe arm away from the housing to move the strobe further away from dome port.
- ▶ The strobe can be moved vertically to light the subject from above – in a more natural manner.



Keep strobe face aimed out



Strobe stays positioned behind the Dome Port



# WIDE ANGLE

USING ONE STROBE



Backscatter will occur  
here – if this area is lit.

To avoid hot spots – the face of the strobe  
is kept behind the plane of the Dome Port





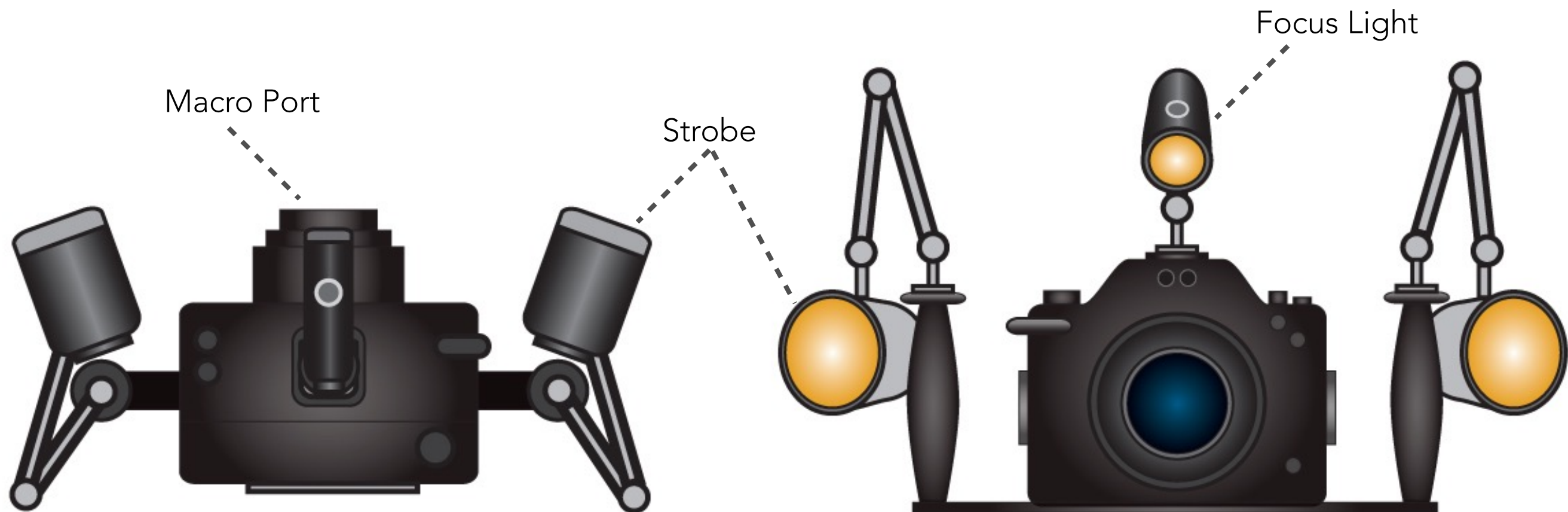
# MACRO:

## LIGHTING FOR CLOSE-UPS

Preferred positioning for macro photography to get best lighting for your images.

### Two Strobe Macro Set-up:

- ▶ When shooting macro with two strobes align the strobes parallel to the port.
- ▶ Strobes should be pivoted out (away from the port) to avoid backscatter.
- ▶ To decrease light on subject, extend arms to move strobes further from the housing.



A focus light is very important for macro photography.



# MACRO PHOTOGRAPHY

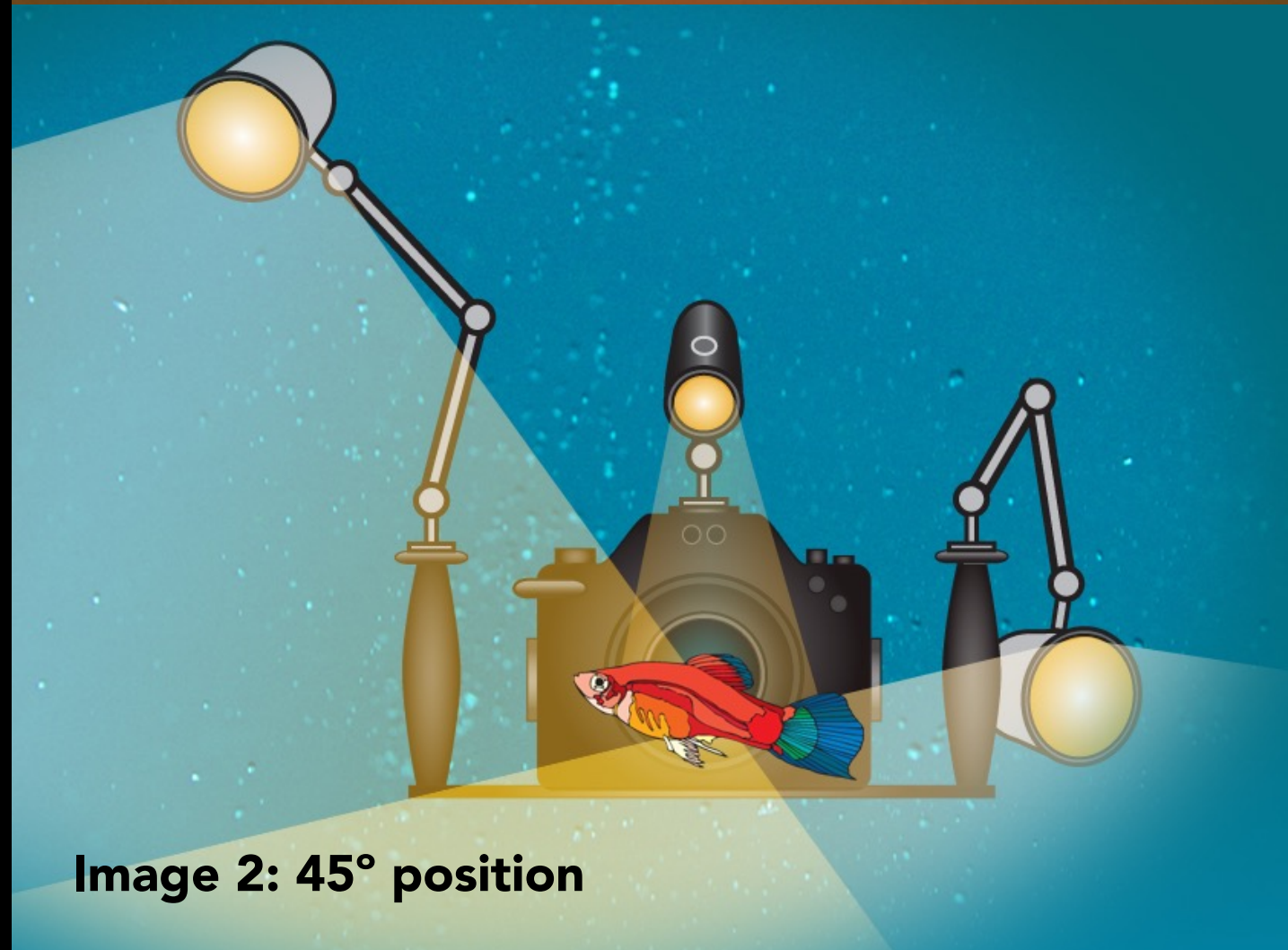
## STROBE POSITION OPTIONS

### **Pivoting strobes for different lighting effects on close subjects:**

- ▶ Strobes can be pivoted in (towards the port) to increase light on subject, being careful of creating backscatter.
- ▶ Strobes can be pivoted out (away from the port) to decrease light on subject.
- ▶ Shadows can give more dramatic effects. Strobes can be moved vertically and horizontally to create shadows.



**Image 1: "In" position**

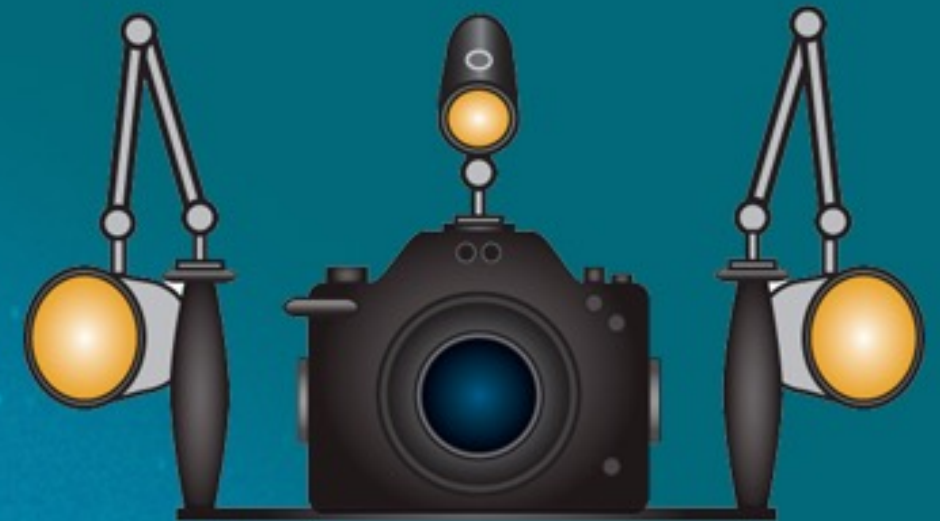


**Image 2: 45° position**



# MACRO PHOTO

STROBES IN CLOSE



Focus Light



## Aiming your strobes:

- ▶ Bring strobes in (towards the port) when the subject is close.
- ▶ Pivot strobe face out (away from the port) to avoid backscatter.



# MACRO PHOTO

STROBES IN CLOSE AND OUT AT 45°

Top strobe mimics natural light



Strobes can be moved vertically and horizontally to create shadows or mimic natural light.



# MACRO:

## USING ONE STROBE

One strobe macro set-up with focus light. TTL or manual control.

### Single Strobe Macro:

- ▶ The closer the subject is to the lens – the closer the strobe should be positioned to the housing port.
- ▶ A good starting point is with the strobe centered directly over the port as in image #1. (This is just a starting point. It will work okay in clear water, but will cause backscatter in murky conditions.)



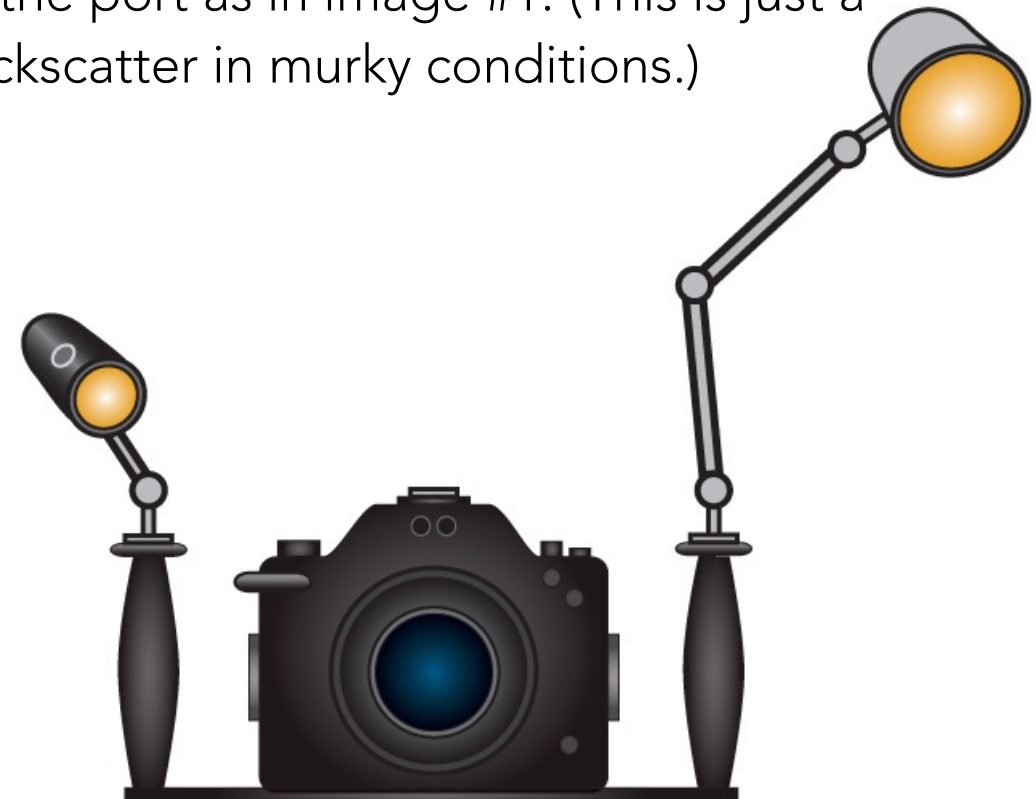
#### Strobe directly above (IN):

- ▶ Subject is very close
- ▶ Lots of light is needed
- ▶ The water is very clear



#### Strobe directly above (OUT):

- ▶ Subject is very close
- ▶ Aim strobe away from subject for indirect light and less chance of backscatter



#### Strobe extended out:

- ▶ Subject is farther away
- ▶ Less light is needed
- ▶ Aim strobe away from subject for indirect light and less chance of backscatter



# MACRO PHOTO

USING ONE STROBE



## A good starting point:

- ▶ The strobe centered directly over the port
- ▶ The closer the subject is to the lens, the closer the strobe is positioned to the housing & port.
- ▶ Only aim the strobe directly at the subject in very clear water - when the subject is very close.
- ▶ TTL or manual control will work fine.





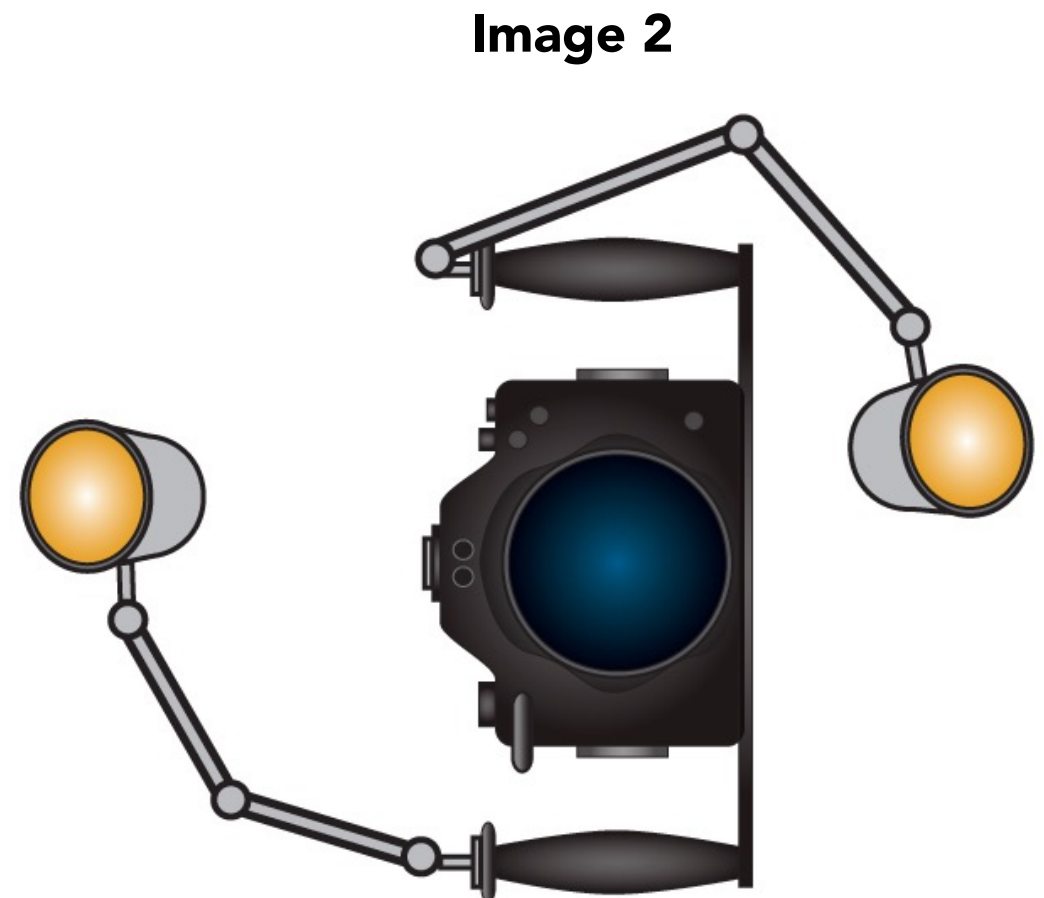
# VERTICAL SHOT:

## DON'T LIMIT YOURSELF

When shooting on the vertical, strobe positioning will depend on your main subject.

### Basic strobe positioning for vertical photos:

- ▶ **Image 1** is considered the "standard" strobe position. Good for wide angle.
- ▶ **Image 2** could be used for either wide angle or macro photography.
- ▶ Strobes can be pivoted in or out on either set-up.
- ▶ Consider using manual control.
- ▶ If you have a dome port, make sure to still keep the strobes behind the plane of the dome.





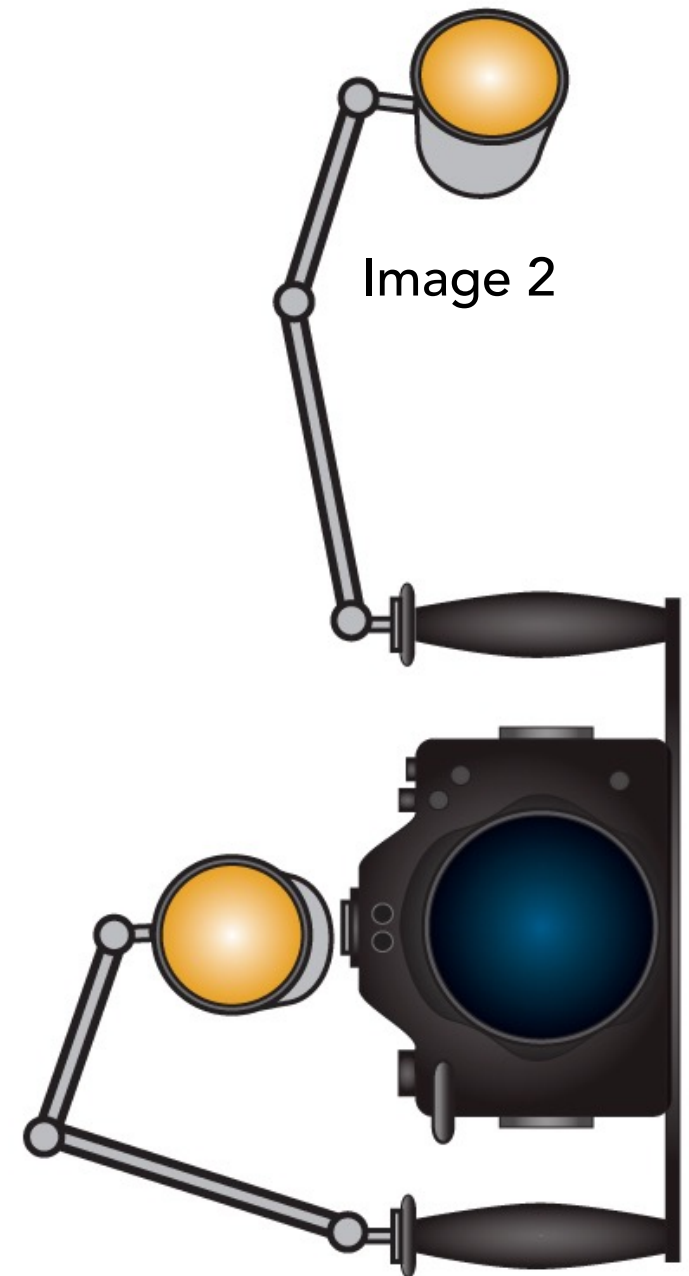
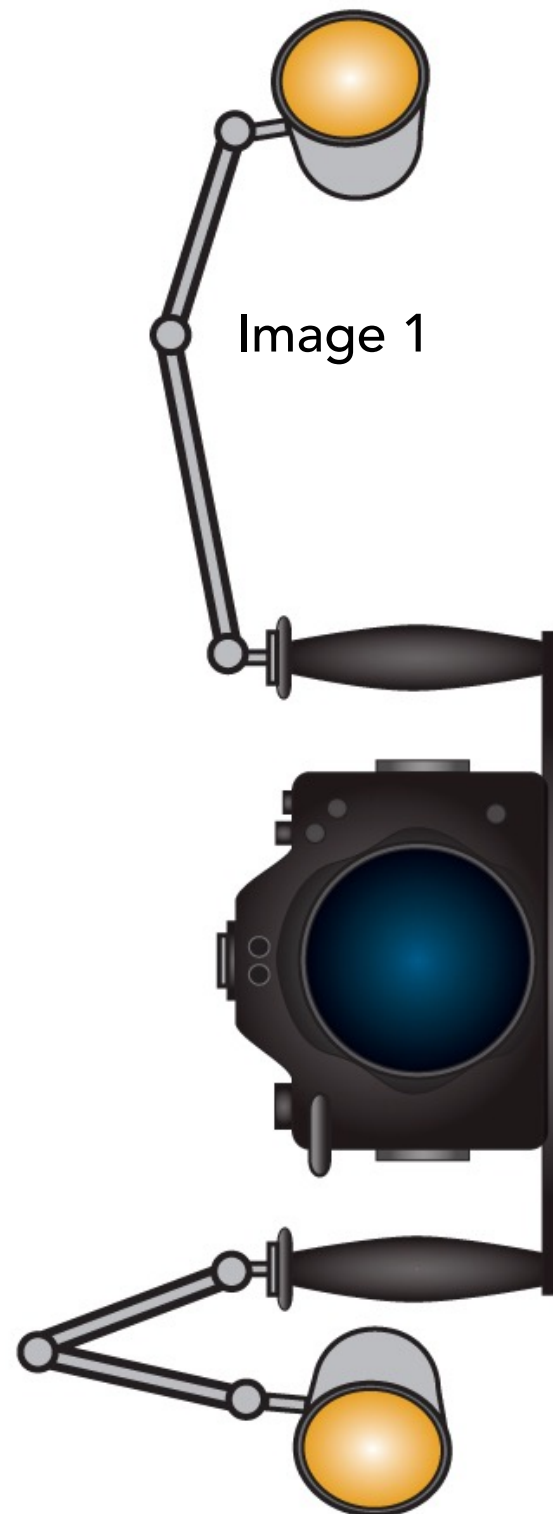
# VERTICAL SHOT:

## GETTING MORE CREATIVE

Creative strobe positioning – good for shooting walls, close focus/wide angle, wrecks and very vertical landscapes.

### Basic strobe positioning for vertical photos:

- ▶ Good for close focus wide angle shots.
- ▶ Strobes can be pivoted in or out on either set-up.
- ▶ In both examples the bottom strobe is positioned to light the main subject that should be within 1 meter of the photographer and in the “bottom” of the frame.
- ▶ Use manual power and adjust the strobes so that the light on the subject is even; turn the lower strobe down and turn the upper strobe up about 1/3 each way.
- ▶ If you have a dome port, make sure to still keep the strobes behind the plane of the dome.







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)

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