

Point & Shoot

Step-By-Step Images With Today's Gear

Text by Larry Cohen. Photos by Larry Cohen and Olga Torrey

In order to create images with point-and-shoot digital cameras that are a step above snap-shots, we have to use the same techniques used with DSLR cameras. By using a few different techniques, one can get outstanding results no matter what size camera is used.

Get close wide-angle

This is the most important rule in underwater photography. When you think you are too close, get closer. Water is denser than air, and even the clearest water has particles floating in it. So, the less water we put between our lens and our subject the better. It is best to never be more than two feet (0.6m) from the subject. The closer one is to the subject the better the images.

So, how does a photographer fit a large underwater scene in the frame? He or she needs to use the widest lens possible. Most point-and-shoot cameras have lenses around 28mm to 24mm. Since everything looks 25 percent larger and closer underwater, this is not wide enough. Photographers need housings that allow them to use accessory lenses.

Many point-and-shoot housings have 67mm or 46mm filter threads on the lens port. So, by using an auxiliary wide-angle lens, photographers can move in close and still photograph a large area. Wide-angle lenses are impractical on some camera



Olga Torrey on *Carbisea* shipwreck in North Carolina with Olympus XZ-1 in Olympus PT-050 housing, Dual Sea & Sea YS-01 strobes, Beneath The Surface tray and arms, Olympus PTWC-01 100 degree wide-angle lens





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housing rigs due to vignetting. These rigs make use of auxiliary domes. The dome corrects for the size distortion that happens underwater. This way the camera will have the same angle of view underwater as it does on the surface.

In most cases, this equipment will not have an angle of view as wide as a DSLR with a prime wide-angle or fisheye lens. The trick here is that one has to pick subjects to match the lens. If one concentrates on smaller subjects and scenes, one will get better results.

Get close macro

Small subjects are much easier to photograph with a point-and-shoot

camera. All point-and-shoot cameras have a macro mode, so one can move in and document all the tiny creatures on the reef. If the housing allows one to attach accessories, a close-up lens could be helpful with really tiny subjects. It is best to be four to eight inches (10-20cm) away from the subject. This way one has room for lighting and is less likely to frighten the subject.

When working close, depth of field has to be considered. Because point-and-shoot cameras have lenses with very short focal lengths, photographers usually are able to keep the whole subject in focus. If a photographer has aperture control, he or she will want to stop

The author on a small wreck in Dutch Springs. Photo by Olga Torrey. Shot with the Olympus XZ-1, in the PT-050 housing with Sea & Sea YS-01 strobes

the lens down to keep everything sharp. Most of these cameras will only stop down to f/8.

Shoot RAW

RAW files are uncompressed files that capture more color tones. When working with RAW files, photographers will be able to make better corrections including color in post-production. Since these files are larger than compressed jpeg's, many point-and-shoot cameras are slow when shooting RAW. So, photographers have to decide if having more control is worth losing the speed.

Correcting color in available light

As one goes deeper underwater, one loses the warm colors in the spectrum. Warm salt water acts as a blue filter over the lens, while cold and fresh water acts like a green filter. Using the

camera's custom white balance setting along with adding filters can bring back the subject's natural color. This is usually effective in water no deeper than 80 feet (25m).

Many housing manufactures make either screw-on or push-on filters for both blue and green water. Magic filters are gel type filters that are easy to cut. They can be cut to size and placed inside the housing in front of the lens.

When using a filter, it is important to make sure that one is not using any artificial light. So, don't forget to turn off the camera's built-in flash.

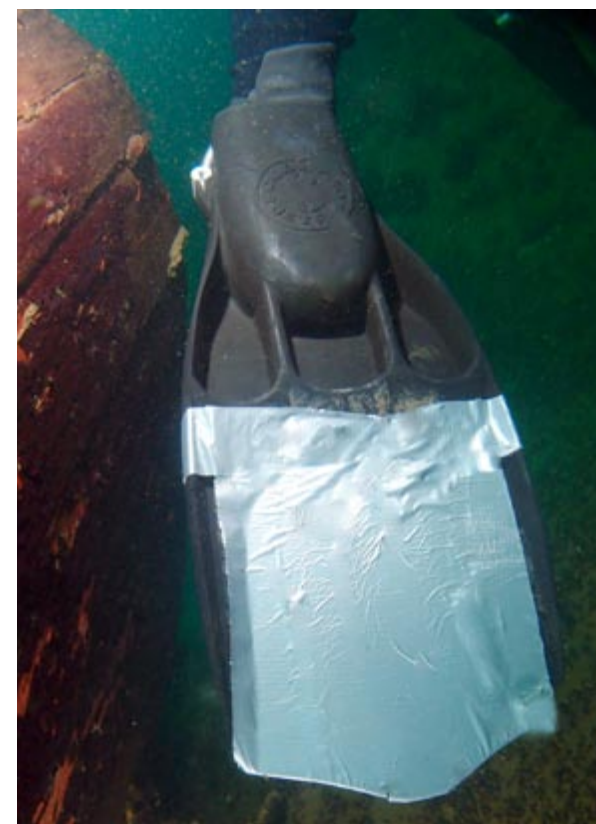
Many point-and-shoot cameras have an underwater white balance. This sets

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up a digital blue water filter. Aquarium mode can be used as a digital green water filter. Not all water has the same colorcast. The color will also change with how deep you are and the time of day. So, these filters and underwater modes will give images a general but not perfect color correction. As a quick easy fix, underwater mode is effective.

All digital cameras have a custom white balance feature. By pointing the camera at a neutral colored object, capturing color data, the camera will correct the colorcast caused by the lighting and environment. This is a more accurate method of correcting color, but takes more skill than adding a filter. It is important to fill the entire frame with the object and not to cast a shadow. Putting neutral colored duct tape on a fin makes for a convenient target. One can also use a large slate. Using a custom white balance and a physical filter together will give us the best available light color.

When photographers use filtering and



Duct tape on a fin makes a good target for doing a custom white balance



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The author, Larry Cohen, on the *Carbisea* shipwreck in North Carolina. Olga Torrey took this photo with the Olympus XZ-1 in the Olympus PT-050 housing

white balance techniques, they are correcting the background and the subject. So the backgrounds in these images will not have the same vibrant blue or green color one gets when using strobes. The exposure value of the background and the subject will be close. This will flatten out images, and they will have less contrast. These available light techniques are suited to certain subjects, including wreck scenes and are effective in less than stellar visibility.

Using strobes

Another effective way to bring back natural color is to use a color corrected light close to the subject. For still images, strobes (flash) are the best solution. Strobes have other advantages besides color. A photographer can work in very low light, letting subjects be illuminated by just the strobe light, or he or she can balance the available light to get vibrant backgrounds and create

dramatic images.

In the past, SLR housings would fire the strobes with a hard wired sync cord system. On the outside, a sync cord connects the strobe to the housing's bulkhead. On the inside of the housing, there is a connection from the camera's hot shoe to the bulkhead. Most point-and-shoot cameras don't have a hot shoe, but typically they do have a built-in flash.

So, firing the external strobes with a slave sensor is the solution. On some strobes, a slave sensor has to be added to where the sync cord would plug into. Other strobes have built-in slaves. In some systems, the slave sensor is exposed, and a reflector is used to block the light from the built-in flash from hitting the subject and redirecting the light to the slave.

Other strobes have the slave set back, and one needs to connect a



Hot shoe connection inside housing

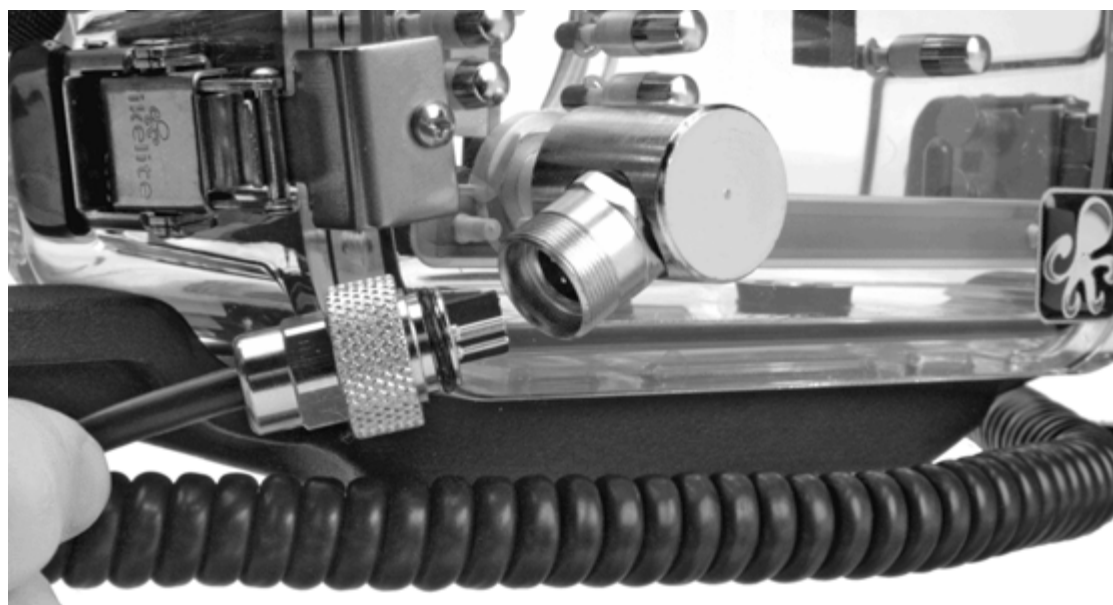
fiber optic cable to move the light from the camera's built-in flash to the slave on the external strobe. Using fiber optic cables has become the preferred method on point-and-shoot camera rigs. There are a few point-and-shoot housings that use a sync cord, but even if the camera has a hot shoe, many housings just use fiber optics. Using fiber optics has proven to be much more reliable than sync cord systems. Today, high-end DSLR housings have fiber optic cable ports if the camera has a built-in flash.

When working with strobes it is best to use the camera in manual exposure mode. When the f-stop is changed, it will affect both the strobe and the available light exposure. So, it is best to pick an f-stop and keep it constant. Changing the shutter speed will have a greater affect on the available light exposure. By controlling the shutter speed one can lighten or darken the background. Changing the power on the strobe will affect the strobe exposure, having an affect only on the subject.

This is why having a strobe with a power dial is best. Use an f-stop that allows you to have the strobe dial in the middle of the dial, when the subject is about one foot (30cm) away. This way if you move closer, the dial gets turned down. If you move farther away, the dial gets turned up.

Pick a shutter speed that has the cameras light meter reading around one and half stops underexposed. This will produce a dark background, but it will still have color. If a lighter background is desired, use a slower shutter speed. For a darker background, use a faster shutter speed. By doing this, one can create images that have contrast and separation between the subject and background.

It is best to start every dive photographing



Sync cord connecting into housings bulkhead

DivePhotoGuide.com

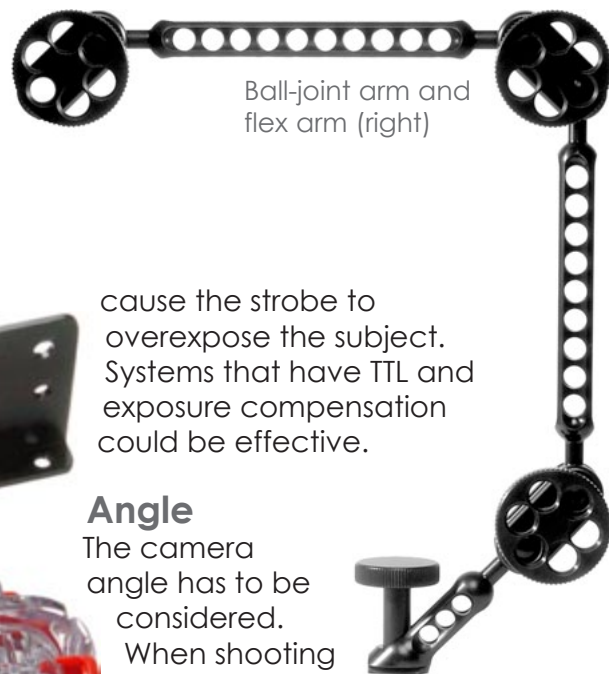
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Ball-joint arm and flex arm (right)

cause the strobe to overexpose the subject. Systems that have TTL and exposure compensation could be effective.

Angle

The camera angle has to be considered. When shooting upwards underwater, backgrounds will appear lighter. Subjects will also look bigger and more majestic. Shooting eye level will produce darker backgrounds. If shooting downward, the background will be closer to the subject and will be textured.

Last but not least, one needs to pay attention to the strobe angle. As a starting point the strobe should be out to the side at a 45-degree angle. From this point, the strobe can be moved further to the side to show texture in the subject. For some subjects, top lighting may be more effective.

Since everything looks closer underwater, a common mistake is to aim the strobe where one thinks the subject is, instead of where it really is. When this happens, the strobe will be lighting the water in front of the subject. This lights up all the particles in the water, enhancing backscatter when one is trying to minimize it.

In order to position the strobe where desired, an arm system is used. All point-and-shoot housings have a 1/4"-20 socket on the bottom. One can use this socket to attach a tray to the housing. The tray can be used to attach a number of different kinds of strobe arms. Ball joint



arms allow the most flexibility in postponing strobes. These systems do get expensive and are used primarily with DSLR systems. Flex arms are reasonably priced and are easier to adjust. Most photographers that use point-and-shoot rigs go with a flex arm.

Once you've got your point-and-shoot camera in a housing with strobes attached to an arm system, it's time to get wet. Digital photography allows us to see our images instantly, so experiment and take chances. Look at the image, adjust and shoot again. Photographers are no longer limited to 36 frames on a roll of film. So, go out and shoot and shoot some more. The more photos we take the better we will get. Have fun, and bring back images that tell a story and show non-diving friends why we spend so much time underwater.

Today's gear

The lifespan of today's digital camera is very short, as new models come out daily. Let's talk about camera models, housings and accessories that are available today, which allow photographers to capture images underwater. By no means is this a complete list.

Nikon COOLPIX P7100

The Nikon COOLPIX P7100 has all the features we look for in a camera to use

The author inside the helicopter at Dutch Springs. Photo by Olga Torrey. Shot with the Olympus XZ-1, in the PT-050 housing with Sea & Sea YS-01 strobes

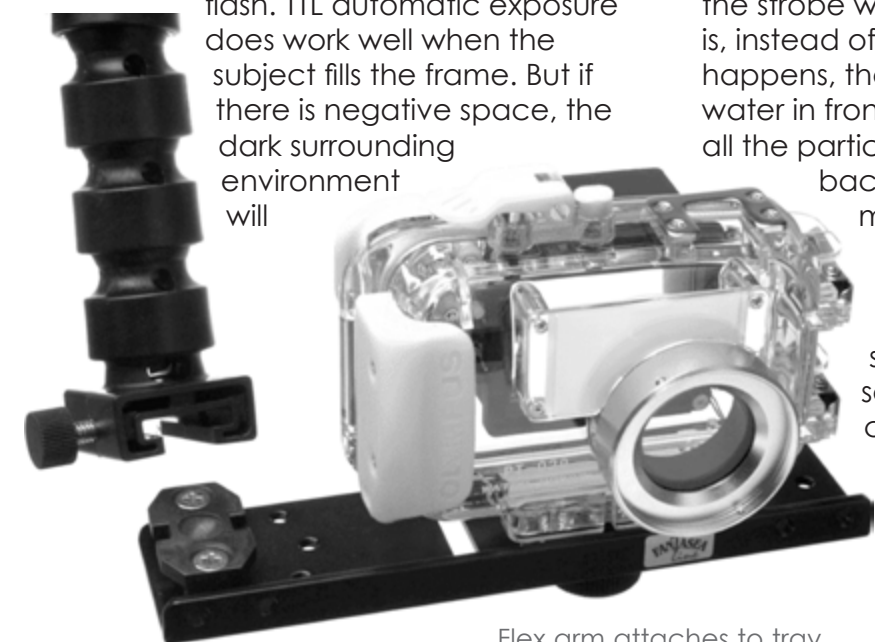


Tray attaches to the bottom of the housing

a stationary subject. This way photographers can get settings for the current conditions.

Some point-and-shoot housings that use a sync cord support TTL (through the lens) automatic exposure control with certain strobes. In recent years, a few fiber optic housing/strobe combinations will support what is being called D-TTL. In this system, the external strobe mimics the auto setting of the camera's built-in

flash. TTL automatic exposure does work well when the subject fills the frame. But if there is negative space, the dark surrounding environment will



Flex arm attaches to tray

underwater. The camera has a 1/1.7 CCD sensor with an effective 10.1 megapixels. Having a sensor larger than most point-and-shoot cameras, and having fewer pixels, means the pixels are larger. So, image quality is better, especially in low light and when using high ISOs. The camera can capture RAW files and has complete manual controls. It also captures 720p HD video, and the manual control and optical zoom does work during video capture. One very cool feature is that when doing a custom white balance, the camera auto-

atically zooms to a 200mm equivalent. So even if the target is a few feet away, it fills the frame.



Nikon COOLPIX P7100

Fantasea Line FP7100 Housing

This housing for the Nikon COOLPIX P7100 is very compact and allows access to all controls. The controls are marked just like the controls on the camera. It has a double o-ring seal and is rated to 200ft (60m). The housing features dual fiber optic cable ports. The ports are designed for Sea & Sea style cables, and adapters for Inon style cables are included. There is an accessory shoe above the lens port



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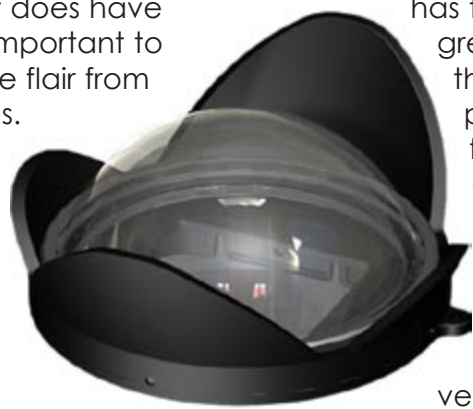


Fantasea Line FP7100 housing for the Nikon COOLPIX P7100

for a focus light. Fantasea has a number of accessories to enhance the images captured with this housing.

Fantasea Line BigEye Wide-Angle Lens

The Fantasea Line BigEye Wide-Angle Lens is not really a wide-angle lens. It is an auxiliary dome. This optic corrects the 25 percent size distortion that happens underwater. So, the P7100's 28mm equivalent lens will have the same angle of view underwater as it does on land. When using dual strobes, flair could be a problem with this dome. It does have a built-in dome shade. It is important to turn the shade to reduce the flair from both the sun and the strobes. At this time Fantasea Line is testing a dome with better anti-flair coatings. This should reduce the problem significantly. Fantasea Line also produces these domes for many Canon, Sony and FujiFilm housings. They also manufacture them with a 67mm and 46mm filter thread.



Fantasea Line BigEye Wide-Angle Lens

Fantasea Line SharpEye M67

The Nikon COOLPIX P7100 does focus down to 0.79 inches (2cm) in macro mode. But, in order to have some room for lighting and to not scare skittish subjects, a macro lens could be handy. Fantasea Line SharpEye M67 UW Macro Lens will allow the photographer to get some distance from the subject but still

have the magnification.

The SharpEye has a 67mm filter thread. Since the port on the FP7100 is not round we need the EyeDaptor FP7000 - F67 in order to add this or any other macro lens with a 67mm thread to the housing.

Fantasea Line RedEye and PinkEye

The best way to bring back natural color underwater is to bring a white light source close to the subject, but in water no deeper than 60ft (18m) a filter could be effective. For blue water, Fantasea has the RedEye Filter; for green water, they have the PinkEye. Fantasea produces these filters for a number of different housings and filter threads. The filters for the FP7100 housing come with a holder that snaps onto the housings lens port. A very nice feature is the filter can be removed from the holder and slipped into a filter pocket on the BigEye dome.

Ikelite's housing for the P7100

Ikelite takes a different approach to manufacturing housings. They have a few different size polycarbonate boxes. They then take the box the camera fits best and creates the controls for that camera model. With this method of manufacturing, Ikelite can produce new



Ikelite housing for the Nikon COOLPIX P7100

housings faster than any other company. All Ikelite housings are rated to 200ft (60m).

The Ikelite housing for the P7100 is slightly larger than the Fantasea Line housing. Instead of using fiber optic cables, Ikelite uses a bulk-head, sync cord system to fire the strobes. On the outside, a sync cord goes from the strobe to the housings bulkhead. On the inside of the housing, there is a connection from the camera's hot shoe to the bulkhead.

When using Ikelite DS strobes, photographers have real TTL automatic exposure control. In order to use dual strobes, a dual (Y shaped) sync cord is employed. The housing includes a single release handle. Purchase a dual release handle if you want to use two strobes.

Ikelite accessories

Due to the camera's optics, Ikelite also uses a



Olympus XZ-1



Ikelite WD-4 wide-angle conversion dome

dome for wide-angle work. The WD-4 wide-angle conversion

dome snaps onto the housings lens port. For macro work, one can use the Ikelite external macro adapter on the housings lens port. Once this is in place, the Fantasea Line SharpEye M67 or any other close-up lens with a 67mm filter thread can be used.

Ikelite produces both blue and green water filters for all their housings.

For the Nikon P7100 housing, a filter #6441.46 is needed for blue water and #6441.86 for use in green water.

Olympus XZ-1

The current advanced point-and-shoot Olympus camera is the XZ-1. This camera has all the features needed for shooting underwater. Complete manual control, captures RAW files and has a large 10 megapixel 1/1.63 inch CCD sensor. The camera also captures 720p HD video and has a fast f/1.8 (W) - 2.5 (T) lens with a zoom range of 28-112 mm 35mm equivalent. There are a number of options for taking this camera underwater.

Olympus PT-050 Underwater Housing for the XZ-1

Olympus does a better job than most



Olympus PT-050 housing for the Olympus XZ-1

camera manufactures in meeting the needs of the underwater photographer. All camera controls are easily accessed from the housing. The controls are marked just like the controls on the camera. The PT-050 housing has a 67mm filter

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Olympus PTWC-01
100 degree wide-angle lens



thread on the lens port, so an auxiliary wide-angle lens, macro lens or filter can be added directly to the port. The housing is rated to 130ft (40m). Olympus includes a single fiber optic cable port in front of the camera's built-in flash. This is one of the housings weak points. Firing dual strobes becomes a challenge. Sea & Sea Strobe Mask Set is a fiber optic cable port and mask set for adding a port to housings that don't have one. Photographers can use two of these Mask sets on the housing's included diffuser.

Accessories for the Olympus PT-050

For wide-angle photography, the Olympus PTWC-01 100 degree wide-angle lens can be attached directly to the housing's lens port. The lens has a magnification of 0.6x. So, the 28mm 35mm equivalent lens of the XZ-1 becomes a 16.5mm lens. This allows one to get really close to large



Sea & Sea Strobe mask

subjects. For macro work, the Olympus PTMC-01 can be used. This auxiliary lens will double the subject's image size. The XZ-1 does have an underwater white balance setting. For available light photography, this is the same as using a digital blue water filter. If you still want to use a blue or green water filter, Equinox has them available with 67mm threads.

The Olympus UFL-2 underwater Strobe is designed to work with many Olympus cameras, including the XZ-1. In remote mode, photographers can control the strobes power from the camera. This allows for easy and creative lighting. The beam angle of the UFL-2 is on the narrow side, but by adding the optional diffuser, one strobe could cover a scene shot with the PTWC-01 wide-angle lens.

Ikelite Housing for the Olympus XZ-1

The Ikelite housing for the XZ-1 is very close in design to the Ikelite housing

for the Nikon P7100. They share the same polycarbonate box and lens port. The WD-4 wide-angle conversion dome, external macro adapter, #6441.46 and #6441.86 filters can all be used with this housing. The housing utilizes the camera's hot shoe, using a bulkhead and sync cord for firing the strobes. When using Ikelite DS strobes, photographers have real TTL automatic exposure control.

Nauticam NA-XZ1 for the Olympus XZ-1

Nauticam NA-XZ1 housing is machined from solid aircraft grade aluminum. Usually this material is reserved for DSLR housings not ones for point-and-shoot cameras. This housing is rated to 300ft (100m). This depth rating and small size makes it perfect for the deep tech diver. Nauticam PowerShot S100 uses fiber optic cable ports to connect strobes and has a 67mm filter thread on the lens port. They also manufacture a similar housing for the Panasonic Lumix DMC-LX5.

Canon PowerShot S100

The Canon S100 is the smallest of



Nauticam NA-XZ1 housing for the Olympus XZ-1

the advanced point-and-shoot cameras, but it is large in features. This camera has a 12 megapixel 1/1.7 inch CMOS sensor, captures RAW files and has complete manual control. The lens has a 35mm equivalent 24-120mm.

Canon WP-DC43 Underwater Housing for the S100

Canon produces a number of underwater housings for their cameras. These are inexpensive plastic housings with very few features. Photographers are able to access the important camera



Canon

controls, and the buttons are marked just like they are on the camera. A diffuser so one can get some decent results with the camera's built-in flash is included, and the housing is rated to 130ft (40m). There is a standard 1/4"-20 socket on the bottom, which can be used to add a light. What is missing is a way to attach lens accessories and to use fiber optic cables.

The WP-DC43 is very popular, and with a little bit of effort, one

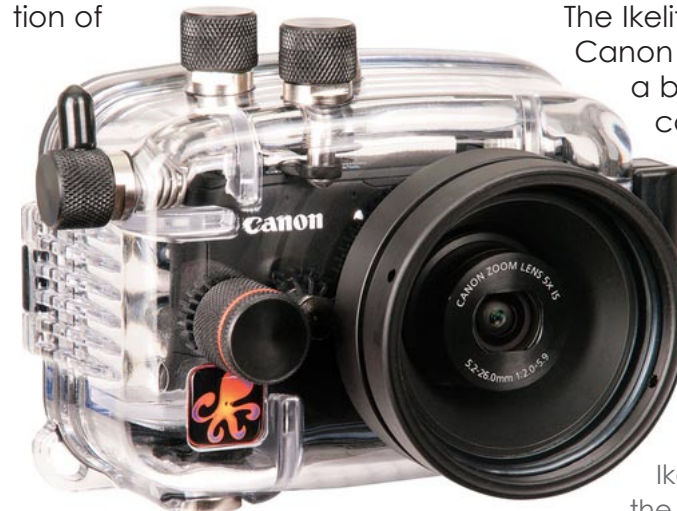
Canon WP-DC43 housing for the Canon S100



can still add the accessories needed to take professional underwater images. By using the Sea & Sea Strobe mask set, a fiber optic port can be added to the housing. Fantasea Line does have a BigEye dome and an EyeDaptor for this housing. With the EyeDaptor, macro lenses and filters with a 67mm thread can be used.

Ikelite Housing for the Canon S100

This Ikelite housing is very compact and form fitting to the camera. It is rated to 200ft (60m) and allows complete camera control. The lens port has a 67mm thread. For wide-angle photos, the Ikelite W-20 wide-angle conversion lens can be used. This lens has a magnification of



Ikelite housing for the Canon S100

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0.56X. When used on the S100, you will have a 13.45mm lens equivalent, but you will get vignetting. To avoid this, you have to zoom the lens to a slightly more telephoto setting. This will still give you an angle of view of a 16mm lens. Macro lenses with a 67mm thread can be attached directly to the lens port. For available light work, Ikelite has the push-on #6441.41 filter for blue water and the #6441.81 filter for use in green water.

The Ikelite housing for the Canon S100 does not have a bulkhead or fiber optic cable ports. The housing includes a diffuser and reflector. The diffuser is for trying to get decent results with the camera's built-in flash. The reflector is used to bounce the light from



the camera's flash to a slave sensor. The sensor on the Ikelite AutoFlash AF35 is positioned to fire the strobe with this system. This strobe is designed for Ikelite's compact housings and other manufacture housings. It includes the tray and flex arm with the slave sensor attached. The strobe can be used in auto TTL mode. This works by mimicking the auto exposure of the camera's built-in flash. The strobe has exposure compensation, so the flash exposure can be fine-tuned. The AF35 also features manual control with six power settings.

Fix Housing for Canon S100

The Fix housing for the Canon S100 is manufactured from aluminum alloy and is rated to 230ft (70m). The housing allows for complete camera control including the camera's rear control wheel. All camera functions can be accessed with one hand. The housing has dual fiber optic ports and includes 52mm and 67mm filter adapters. The Fix UWL-28 Fisheye Conversion lens can be used on this housing. This will give you an angle of view of 168 degrees.



Fix housing for the Canon G12



Canon WP-DC34 housing for the Canon G12

Canon PowerShot G12

The Canon G series has been the advanced point and shoot digital camera to get since the year 2000 with the G1. These cameras have always been a favorite to take underwater. The Canon Powershot G12 is the current model. The camera features a 10 megapixel 1/1.7 inch CCD sensor, manual controls, shoots RAW files and has a 28-140mm 35 mm equivalent zoom.



Canon PowerShot G12

If you want to keep it simple and inexpensive, the Canon WP-DC34 is the way to go. This housing shares all the same traits as the Canon WP-DC43 housing for the Canon S100. To go high-end, the Fix Housing for the Canon G12 has the same specs as the Fix for the Canon S100. There is a version of this housing rated to 300ft (100m). The Ikelite housing for the G12 is very similar with the Ikelite housings for the Nikon P7100 and Olympus XZ-1.



Ikelite AF35 strobe for compact cameras

Strobes

We discussed the Olympus UFL-2 and the Ikelite AF35. The Ikelite DS-51, DS-160 and the DS-161 strobes should be considered when using Ikelite housings for the Canon G12, Olympus XZ-1, and the Nikon P7100. These strobes are available in a kit with Ikelite arms that are compatible with the quick release handle that is included with these housings. All of the strobes could be attached to the housings bulkhead and will provide TTL exposure control.

The DS-160 is a powerful 160-watt seconds strobe, that has a beam angle of 90-degrees without a diffuser. It recycles in 1.5 seconds at full power, and the strobe is powered by a NiMH battery pack that provides 225 flashes per full charge.

In manual mode, the strobe has nine power settings. There is a 5-watt LED aiming light that turns off when the strobe fires. This way, you won't get a hot spot when shooting with a slow shutter speed. The DS-161 has the same features but has a 15-watt LED video light. The LED



Ikelite DS-161 strobe



Ikelite DS-51 strobe

has 45-degree beam angle and produces 500 lumens of light. This light can also be used as an aiming light and will shut off when the strobe fires.

The DS-51 has 50-watt seconds and has a beam angle of 70 degrees without a diffuser. It is powered by four AA batteries and recycles in 3.5 seconds at full power. The strobe does not have an aiming light, but it is compact and affordable. The Sea & Sea YS-01 and YS-02 can only be fired with a fiber optic cable. These very compact powerful strobes have a 100-degree beam angle and are powered by four AA batteries. For manual exposure control, there is a dial with ten settings. The YS-01 also has DS-TTL, which mimics the camera's built-in flash; it has a LED aiming light.



Sea & Sea YS-01 strobe



Light & Motion Sola 1200 LED video light



Ikelite Pro-V8 LED video light

lumens. The light has a 45-degree beam angle. The Light & Motion 1200 is an excellent to use with a point-shoot camera. This compact, you could next to a strobe with ball clamp. The light wide-angle and spot produces 1200 lumens a built in rechargeable battery. The light has three power settings and has a one-hour run time at full power. ■

45-degree beam angle. Sola LED light and-light is so mount it a triple has a setting. It and has a battery.