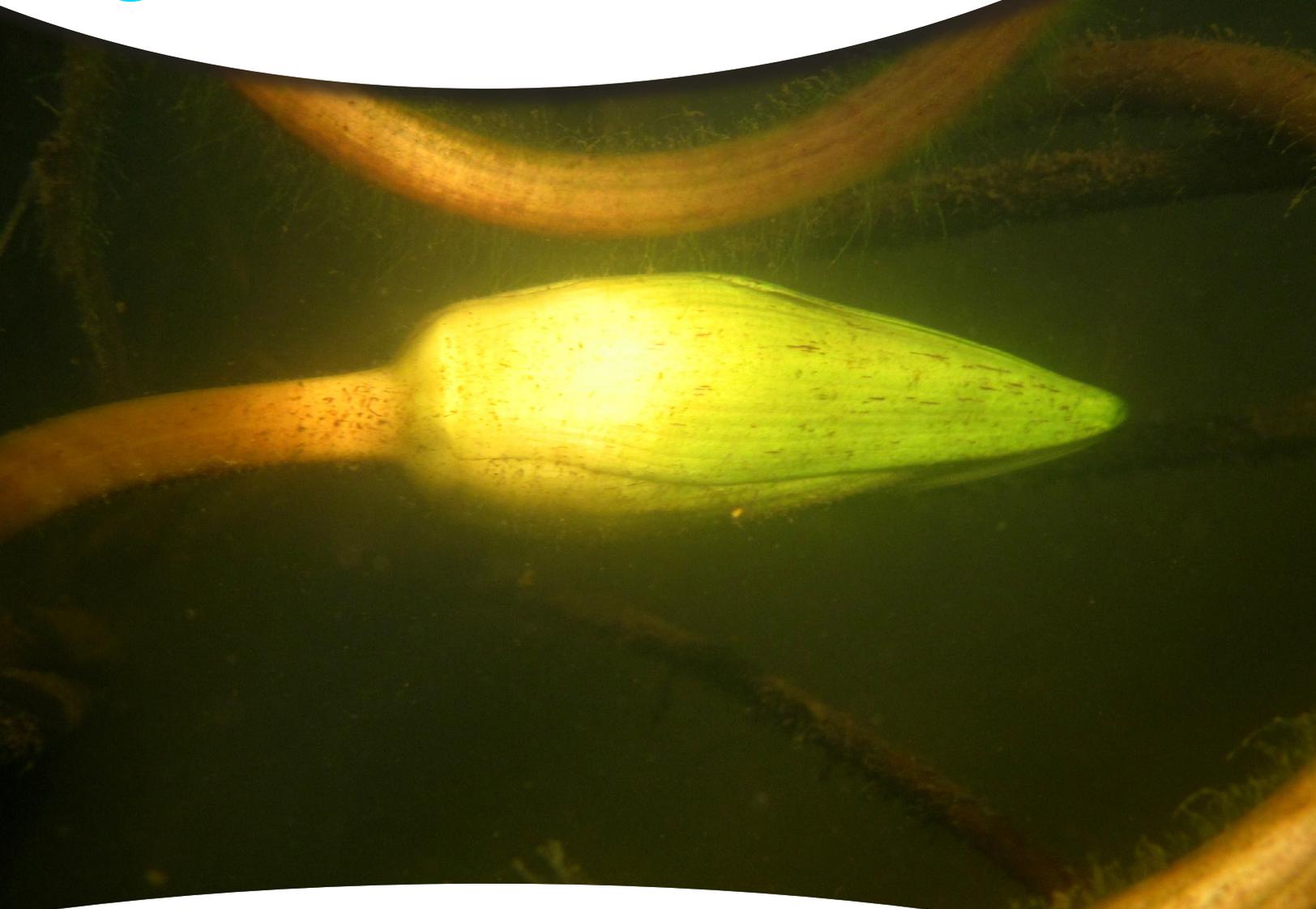




November 2010

Underwater Photography

Digital Camera Evaluation



Canon PowerShot S90
with underwater case Fisheye FLX



Front cover photo are taken by Nicholas Hellmuth in the swamps of Monterrico with Canon PowerShot S90 with underwater case Fisheye FIX

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Introduction (Nicholas Hellmuth)

This PDF is a report on the result of evaluating an underwater camera system in the Monterrico mangrove swamps in Guatemala, Central America. Our institute (FLAAR) has been doing botanical and zoological research in this eco-system for about four years now.

FLAAR is a digital camera evaluation institute. Our evaluations are read by almost half a million photographers every year around the world.

FLAAR does photography for decades: we are not a commercial reseller. This means that we do not take sales commissions. FLAAR does not publish the PR releases issued by PR agencies for the camera manufacturers. The result is that we are the more independent of the photography evaluators.

A FLAAR evaluation is not a sham review. A sham review is really a PR release or a sales pitch that is wrapped up as though it were a review.



Photographs taken by Sofia Monzon in the swamps of Monterrico with Canon PowerShot S90 with underwater case Fisheye FIX

A FLAAR Report is not a pseudo-review (meaning a sales pitch camouflaged as a review). I estimate that 75% of the so-called reviews on the Internet are either a sham or a pseudo-review. FLAAR states what does not work with a camera; what is missing; what should be added for the next generation. Actually some manufacturers have been very grateful, saying that no one else ever told them the actual truth about their products.

Normally a camera, a software, or an accessory has lots of good features, a few aspects that are okay but not stellar, and a few issues or things that should be improved in the next generation. A photographer will still buy a product even if it has a few downsides (because no product is perfect). The benefit of learning the downsides in advance, is that they you know what you are getting, and you are not disappointed since you already know the one or two issues in advance.

As a result FLAAR evaluations are used by photographers for them to decide what to consider purchasing. The reason a FLAAR Report is a better indication of reality is because we actually use the equipment that we evaluate.

FLAAR is a photography institute

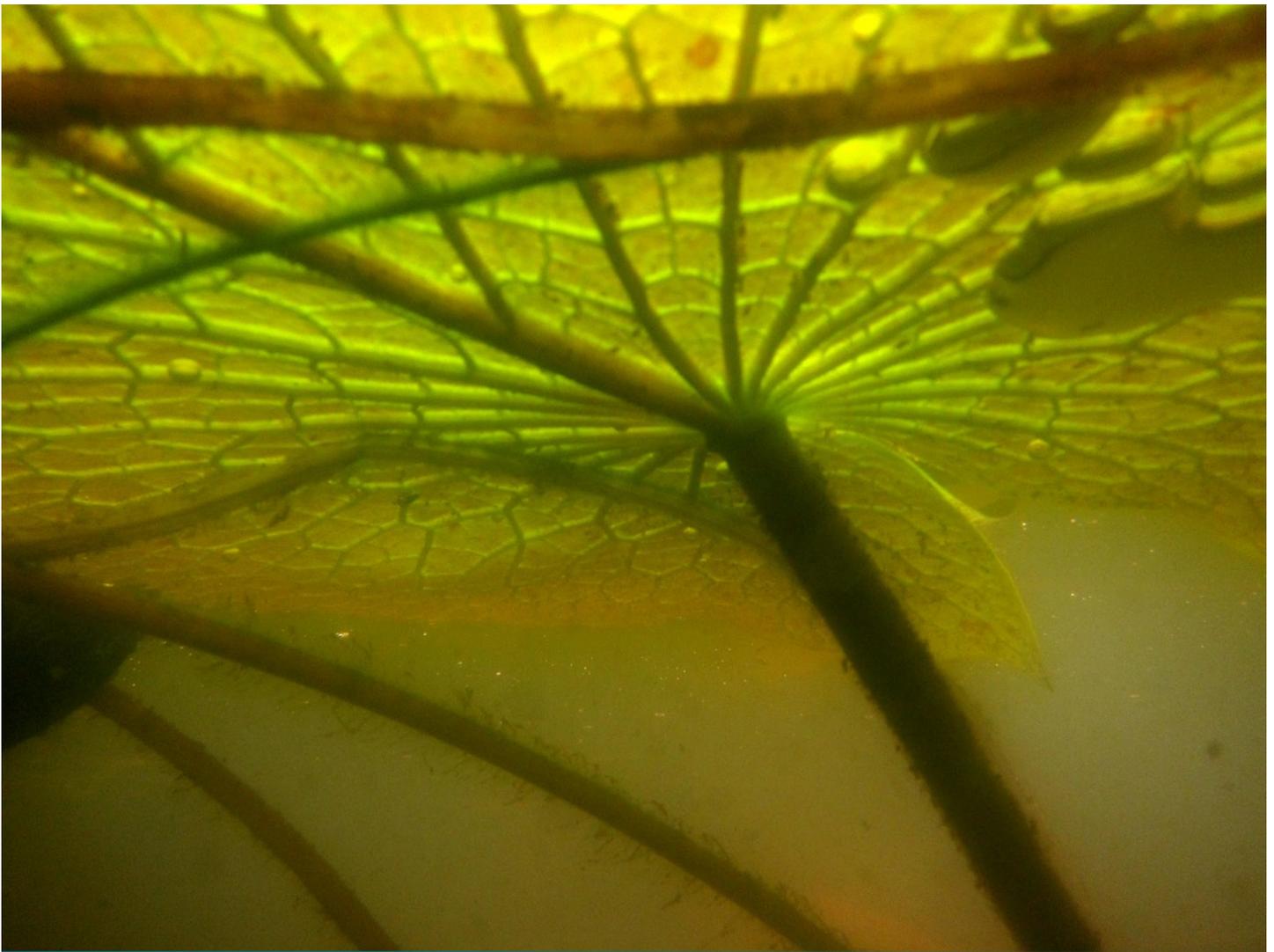
FLAAR photos have been published by National Geographic, and in Japanese coffee table books. So we have professional experience for many decades. This is a polite way to say that usually we know what equipment works well, and which equipment is not as good as it should be.



Photographs taken by Sofia Monzon in the swamps of Monterrico with Canon PowerShot S90 with underwater case Fisheye FIX

We evaluate digital cameras, studio lighting, tripods, tripod heads, software, and wide-format inkjet printers: the entire workflow. “We” is over 23 people of whom four are photographers at a professional level. Our focus is primarily on professional level equipment: large-format digital (BetterLight and Cruse); medium-format digital (Phase One, Hasselblad, Leaf, etc). For 35mm DSLR we evaluate primarily Nikon (four models) and Canon (five Canon cameras counting the two underwater models).

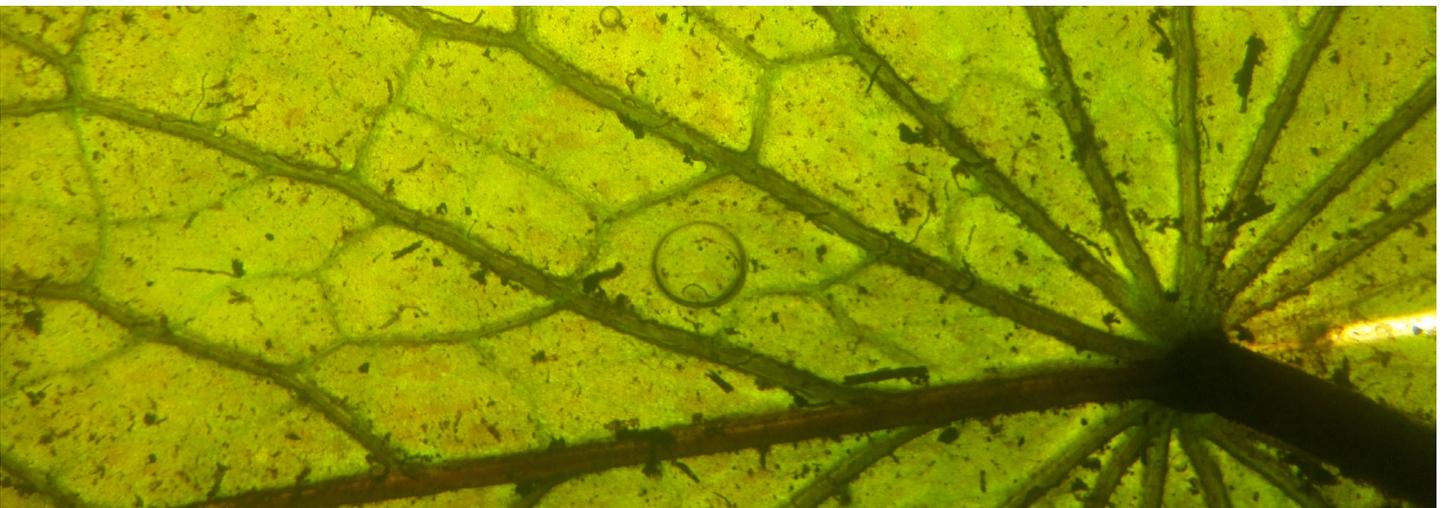
We do occasionally evaluate point-and-shoot cameras since in many instances they have benefits (less bulky, less complex etc). But normally we shoot with a 21 megapixel Canon EOS-1Ds Mark III or a Hasselblad with 20 megapixel Phase One digital back.



Photographs taken by Nicholas Hellmuth in the swamps of Monterrico with Canon PowerShot S90 with underwater case Fisheye FIX

Comments by Sofia Monzon, who used this camera for many hours

Pictures taken with this camera are taken in the swamp of Monterrico, in freshwater coastline mix with salt water. They were also taken on the rainiest time of year so significantly that the water remained cloudy.



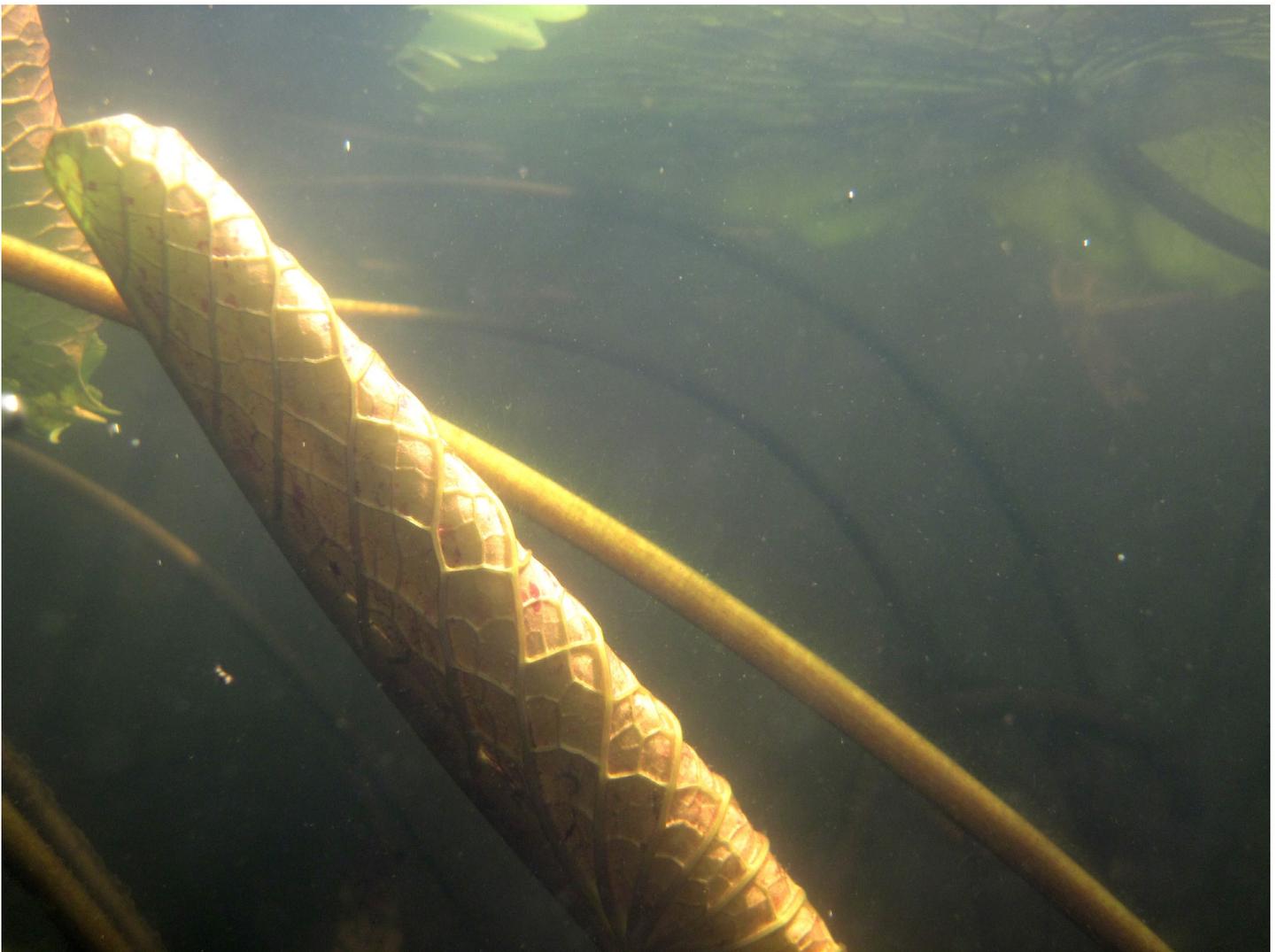
Photographs taken by Sofia Monzon in the swamps of Monterrico with Canon PowerShot S90 with underwater case Fisheye FIX

The camera itself is very good, the definition of colors is unbelievable and is very easy to use; but the problem that I noticed is that when I use the case for underwater camera, since it is much more difficult to manage the values of the camera, This is uncomfortable because the photograph is to capture moments and if you do not have the required values at the right time you can lose the picture of your life.

There is a factor that probably influenced that the pictures results not be as I wished but in my opinion I was because the water are so muddy, but having a flash Sea & Sea YS-110A DS-TTL Strobe the photos it supposed to come out better significantly, but when the need it was depth of field the pictures come out to much blurred, despite the efforts to take some without this problem.

The good things

The camera meets with the basic requirements, if you want to take photos in clear water and with automatic settings, it's easy to take acceptable photos (if the water is really clear). If the water is murky, see the problems we had in water that was a typical jungle river: not the Caribbean Sea with crystal clear views.



Photographs taken by Sofia Monzon in the swamps of Monterrico with Canon PowerShot S90 with underwater case Fisheye FIX

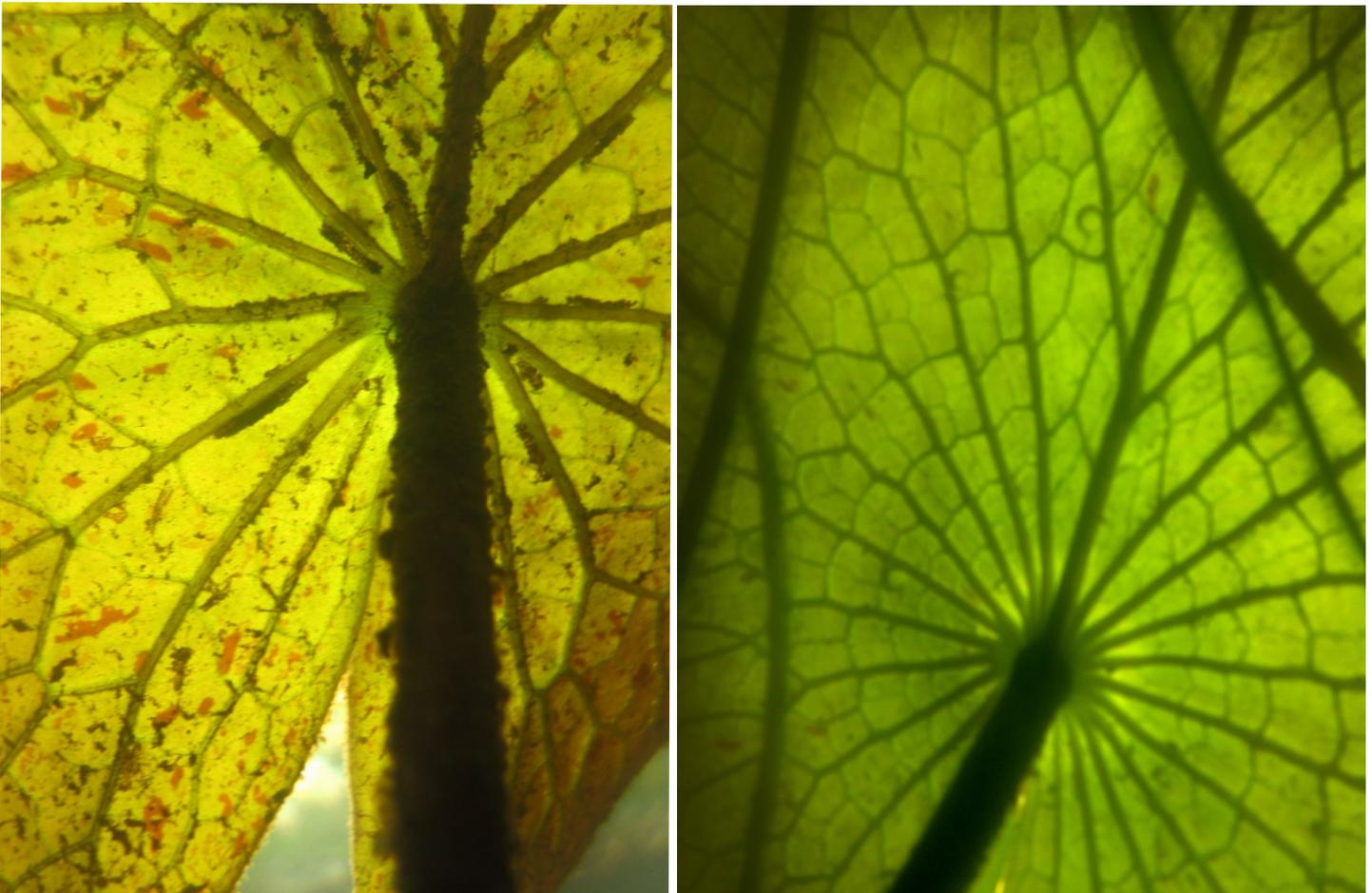
Pros

I have spoken with people who use the Canon S90 in normal photography (meaning not underwater). They are content and really like the Canon S90. My dissatisfaction is not with the camera, but with the fisheye system.

I can't yet think of anything about the underwater casing or Fisheye FIX housing for this camera that amazes me, and not yet even anything that impresses me. The Canon PowerShot D10 cost only a few hundred dollars (\$299) and frankly did the same or better job than the \$3,000+ Fisheye FIX housing and fisheye conversion lens system. TEN TIMES THE COST.

Cons

When I saw such a wimpy point-and-shoot camera (after paying almost three thousand dollars), I seriously questioned why we had bought this Canon S90 Fisheye FIX system. We already have a Canon PowerShot D10 camera that can go underwater with no extra housing. The photos that resulted from the Canon D10 varied from good to really good. Plus it was idiot-proof easy to use.



This are some examples of pictures taken by Dr. Nicholas Hellmuth in the swamps of Monterrico with Canon PowerShot S90 with underwater case

When I first saw the results I was even more disappointed. The results from the Canon D10 on the same trip were about the same quality. If you looked at the roughly 70 shots from the SEA&SEA with Fisheye FIX system (Canon S90 with housing), more than 40 were total junk and not usable at all. Another 15 were barely usable; and less than 15 were usable. I found only two or at most three of usable quality. I am not sure I would classify any of the results as of professional quality (quality being defined as sharpness and image quality). To say I was disappointed was an understatement.

What to me is the most unconvincing is putting a plastic sphere atop a housing (plastic plate) which is atop a lens. So the image is shot through three sets of plastic (I have no idea if the lens is glass or plastic).

I was tempted to return the entire system to Backscatter and ask for my money back, but I figured we would wait until we were in clearer water to see if the results would be better. However frankly I am prepared to be disappointed (and if I am, I will return the system as unacceptable and ask for 100% of my money back).

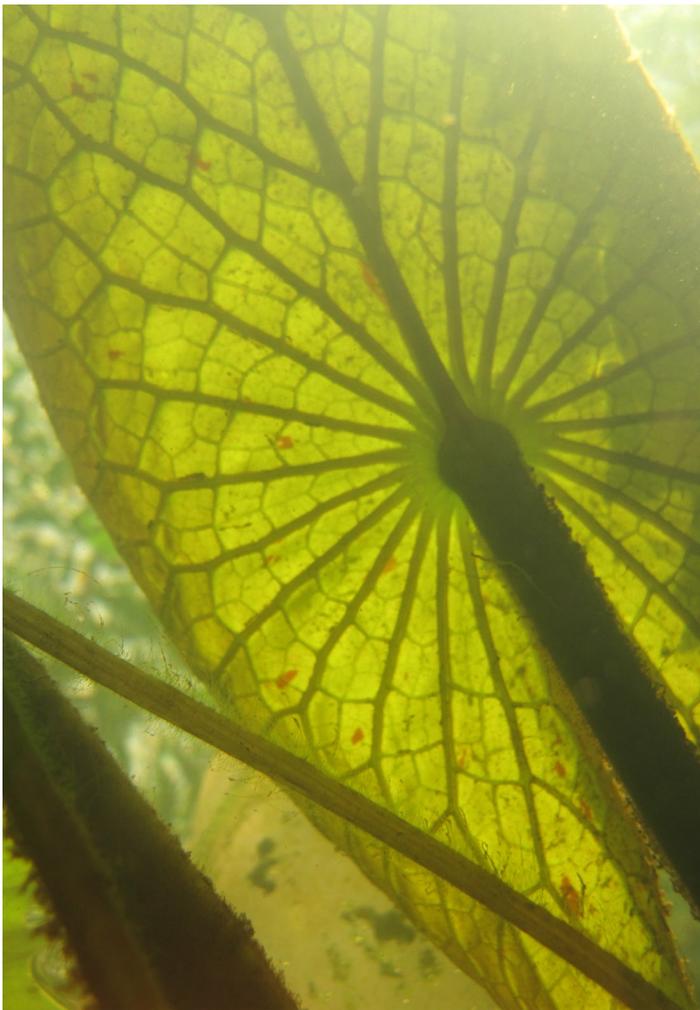
The only reason we have not cancelled payment on our credit card is because the owner of Backscatter was polite and pleasant and took the time to provide some tips.



Photographs taken by Sofia Monzon in the swamps of Monterrico with Canon PowerShot S90 with underwater case Fisheye FIX

However if this \$3000 system requires all this learning curve, and the \$299 Canon D10 took better photos without me even having an instruction book, then I question why not just stick with the cheap point-and-shoot camera, or if you want serious photographs, opt for a more professional quality housing such as the ones exhibited at Photokina 2010.

Comparison between Canon PowerShot D10 and Canon S90 with underwater case in similars conditions



Canon S90 with underwater case



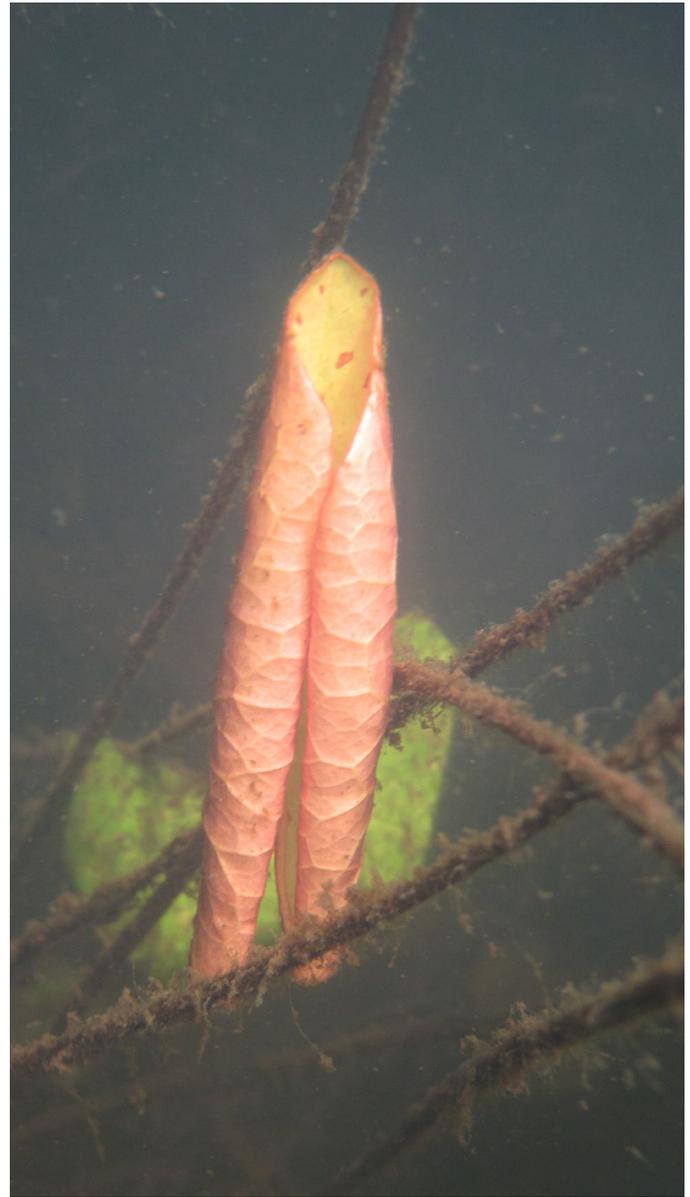
Canon PowerShot D10 underwater camera

Canon S90 with underwater case at total price of about \$3000. Canon Power Shot D10 camera, at total cost of about \$300 (simply hold it underwater, no expensive case needed). Perhaps now you can see why we are not ready to recommend the Sea&Sea solution. It is not 10x better than the \$300 camera.

Comparison between Canon PowerShot D10 and Canon S90 with underwater case in similars conditions



Canon S90 with underwater case



Canon PowerShot D10 underwater camera

Canon S90 with underwater case from Sea& Sea at total price of about \$3000. Canon Power Shot D10 camera, at total cost of about \$300 (simply hold it underwater, no expensive case needed). Perhaps now you can see why we are not ready to recommend the Sea&Sea solution. It is not 10x better than the \$300 camera. We are considering asking for our money back for the Sea&Sea unit.

Appendix A

Suggestions by the owner of Backscatter to improve the results

It looks like the camera was probably set to auto rather than manual or aperture priority. One of the problems with auto exposure in underwater photography is that the camera wants to compensate for an overly bright background.

Most of the shots you supplied are overexposed backgrounds and underexposed foregrounds. This usually requires shooting higher f stops to knock down the foreground and using the underwater strobe to light the foreground which to achieve a better balance. You can see this technique being used in the photos on our website articles that you can see on our homepage for the Canon 5D2, 7D, and Rebel T2i.

It doesn't look like the external strobe is lighting the foreground. This can be caused by not have the strobe pointed properly at the subject, not having the external strobe set to the correct setting for the camera mode you are in, or by the internal flash of the camera not firing due to the flash not being set to force flash.

Also in some of the pictures it looks like there is motion blur, particularly in the fish shots. Again this is usually from shooting in one of the auto modes where the shutter is being set to slow by the camera to try to make up for the low light conditions underwater.

Also make sure you are close to your subjects, within 2-3 feet of your foreground subject. Water filters out light very effectively. The further away you are, the most light gets filtered out, and results in poor contrast. This is where the wide lens allows you to get closer to your subject to get the most contrast by eliminating water between the subject and lens.

I suggest practicing in a pool. UW photo is definitely not easy and requires lots of practice and patience, even for experienced land shooters. But when you nail it, the pictures will be spectacular.

The owner took the time to send additional information:

I have looked at the pictures and the meta data. Many different settings are being used. Here's my suggestions as a starting point for camera settings.

Macro mode
ISO 100
Av mode
F8
EV set to -.7
Flash set to force flash fill

On the strobe:
Right dial set to max
Left dial set to TTL

Set slave to ON

In this configuration the strobe should take care of the foreground and adjust the EV to dial in the background exposure.

You can also shoot in full manual with these settings:

Macro mode

ISO 100

M mode

F8

1/125

Flash set to force flash fill

On the strobe:

Right dial set to 1/2 power

Left dial set to Manual 2

Set slave to ON

In this configuration adjust the power dial on the strobe for your foreground exposure and adjust the shutter speed to dial in the background exposure.

There also looks like there were air bubbles on the lens in some shots. You can take your hand and rub off the bubbles. Also sometimes bubbles get trapped in between the wide lens and the housing front port. I suggest taking the wide lens off the housing underwater to “burp” the lens to remove any trapped air and then put the lens back on.

Best regards,

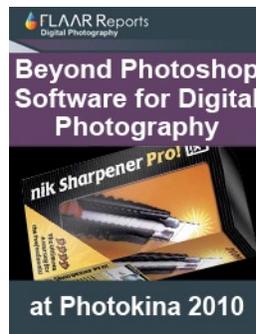
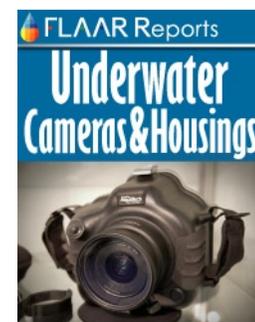
Jim

Jim Decker, CEO

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These are the FLAAR Reports that are being issued first



FLAAR Reports that will result from Photokina 2010

