

The “Fibresnoot”

by Phil Mercurio

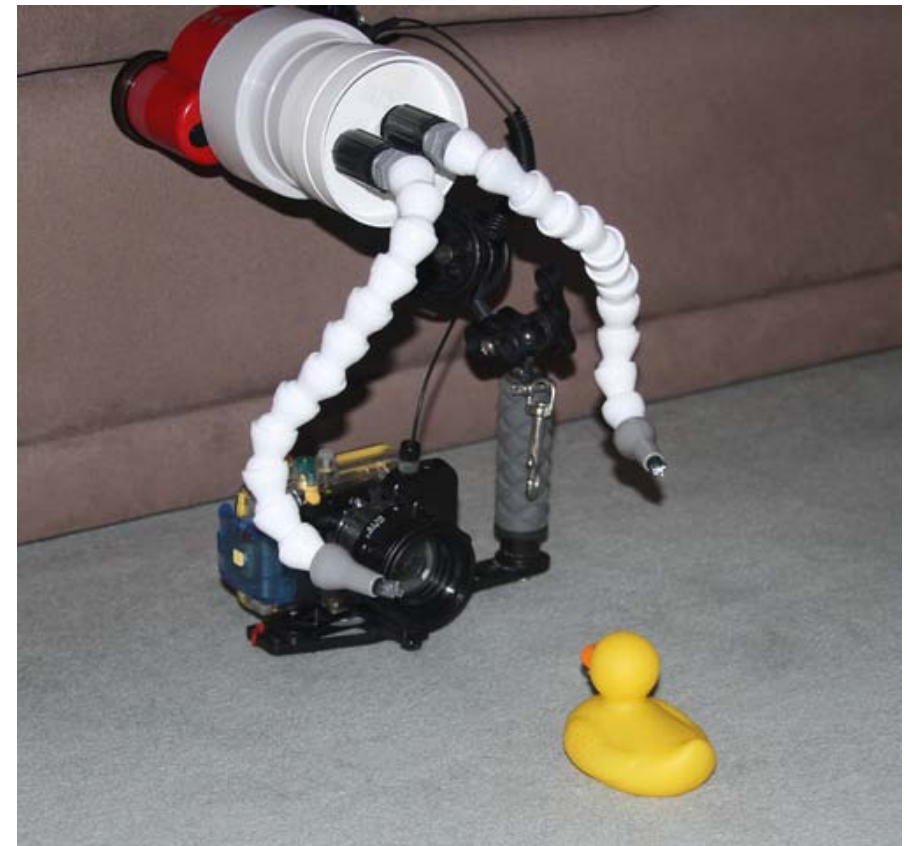
I’ve always admired ingenuity and people who can think outside the box. We have many examples of this alternate thinking in the dive industry from pioneers in the exploration of the underwater world. While taking past dive courses I read about many instances where people saw a need and found that an item was not commercially available so they made it themselves. While I am sure most are aware of past cave diving and underwater photography applications, there are still those among us who push new bounds in their respective fields. Recently in underwater photography there have been new and inventive ways to give a unique perspective, effect, or technique that often blur the lines between the art and science of this discipline. Even elements of studio photography are spilling over into the arena for underwater use.

These processes and gadgets are continuing to drive and push people to look past the garden variety happy fish snaps. One such novel invention and hot topic in several photography forums has been Keri Wilk’s photos where a selective lighting method commonly referred to as a “snoot” was used. A “snoot” reduces the spread of the strobe flash from a very wide coverage to more of a spotlight effect depending on the distance from the “snooted” strobe to the subject being photographed. This technique has even resulted in one commercial company coming out with adapters for their own strobes. While having my own DIY attempt at “snoot” photography, where I went through the motions of purchasing funnels, wandering into

hardware stores with my strobe, and generally receiving strange looks from family and friends, I had my own light bulb moment. I did trial several snoot designs with adapters, diffusers, filters, and different end caps with some decent results on land but had quite a bit of difficulty aiming it while underwater.

In a nutshell, I put together a design to redirect the light energy from my strobe using fiber optic cables. My intention was to not only pinpoint/spotlight the light like a bendable/moveable snoot but also possibly turn a single strobe into a dual strobe effect by using two separate arms to redirect the light. Hence the fiber optic project was born. Other than the fiber optic cables, pretty much everything else was found at a local hardware store. For practical purposes, I have kept this design raw and inexpensive since I really didn’t want this to cost so much that a second strobe purchase would seem more reasonable given the effort, time and initial cost. I hope the following is informative and useful for others willing to “give it a go.”

A simple purchase list would include the fiber optic cables, a mount design for the strobe head, and a flexible but supportive arm. For this project I used 70 feet of 1.5mm diameter unjacketed, end glow,



fiber optic cable (from thefiberopticstore.com). This size was a little stiff but they are supposed to be easier to cut and polish than the larger diameter cables.

One of the challenging aspects of this project was to come up with a concept for the arms of this design. I had debated using an inexpensive DIY design which I still think would have worked but in the end thought I’d spend a few extra \$\$ on what I knew would be a longer lasting and more robust option. For this I borrowed a design and easily accessible piece of kit which was able to be purchased off the shelf. If you have never heard of Loc-line, it’s a great assortment of designs for



mainly industrial, construction, automotive, or aquarium water flow applications. They are pieces of plastic that fit together into a rigid yet flexible customizable arm/tube and can come complete with threaded ends and nozzle fittings. They stay in position where directed, are light, and relatively inexpensive. I was able to find their catalog and very detailed product dimensions and blueprints online. This helped when trying to maximize the number of strands of fiber optics able to be used in a tube and whether or not it would all fit inside the arms.

The strobe and fiber optic arm mount was nothing more than a PVC storm water reducer (plus cap) with several small irrigation pipes. I was able to find a threaded irrigation tube connector that fit the Loc-Line arm perfectly, via a female/female coupling. I used a photocopy of the strobe to estimate where the irrigation pipes should be placed, wanting them directly over the flash point. I cut out the photocopied strobe and drilled small alignment/guide holes through the end cap in order to make sure they were in alignment. I put



everything together, tested light out put, and pulled it apart several times to make sure it all fit and was aligned the way that was needed prior to putting the finishing touches in place and gluing it together.

Inside each Loc-line arm I put the 20 strands of 1.5mm fiber optic cables. I cut and polished each cable end. On several DIY forums I found some references to polishing the fiber optic ends. I ended up polishing each end with 400 grit sand paper, inspecting each end with a small magnifying glass (*a loop like a geologist or gem inspector would use), polishing again with a finer abrasive paper (1200 grit) and inspecting again. As directed from web advice, a glass finish was not necessary but I was a little particular on this step. Again I was thinking long term and at the end of the day, better light transmittance means more light output and possibly saving strobe battery power during a dive. I also placed (*loosely) a length of heat shrink tubing (10mm ID) over the rest of the length of the cables to keep them semi-contained and to provide some casing to slip them up into the loc-line arms. After that it was only a matter of pushing the



other bound end of fiber optic cables down into the irrigation pipe and screwing down the loc-line arm on top into the female/female coupling.

A challenge to underwater photography for myself (*and possibly others) has been strobe placement and positioning. In order to pre-empt any difficulties with this underwater, I spent some time on land testing the equipment and getting a feel for the best position for the unit itself and repositioning the fiber optic arms themselves. As I am sure most you know, while underwater you only have a limited amount of time to find subjects, take photos, and get used to a new setup so the more time you can become familiar with its use beforehand, the better. Again the main advantage to using the Loc-line arms were the ability to fine tune where the light was coming from to allow for some creativity in lighting, pinpointing, or redirecting the light where I wanted it. Prior the first dive, I soaked