

Filters in Underwater Archaeology

by Augusto Salgado

In underwater archaeology, unlike when we are doing underwater photography for pleasure, we just cannot go searching for a better spot or other subject to take a photo. Wrecks and artefacts lay where they are, and we are not supposed to move them from one place to another. So, we have to adopt our tools to achieve our aims.

Even for those not directly linked to underwater archaeology, it is easy to understand that photography is a very important tool for this activity. The photography can be used for several reasons and to achieve different aims. Either we want to photograph an artefact in situ, or we want to “transport” the viewer to where we were doing our work. Nowadays, we can also use photography in order to obtain 3D images of the objects, from a coin to a full wreck.

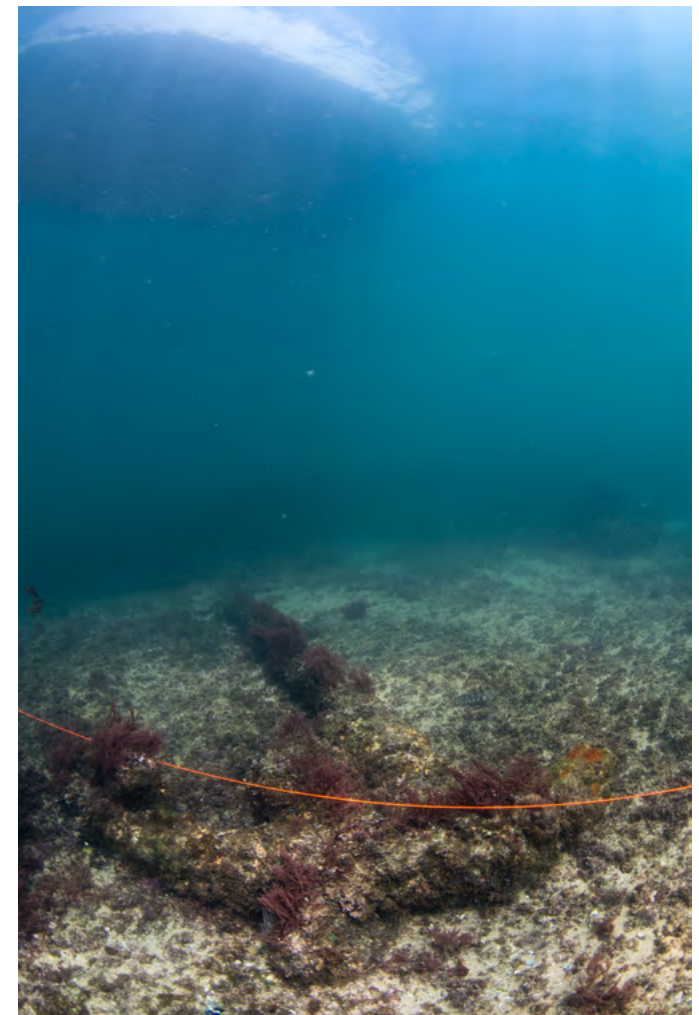
A major part of the underwater heritage campaigns that I do, with the Portuguese Navy Research Centre, are conducted in shallow waters, at the entrance of the river Tagus, near Lisbon. As you can imagine, our working environment has very few similarities with the Red Sea’s waters where I have attended two workshops with Alex Mustard. The conditions aren’t the same, but we can use the same techniques.

The first problem we have is colours. Although



Carlos Martins, team member with a bronze XVII century piece with lots of suspension. Nikon D300, Tokina 10-17 mm, Sealux Housing, one Inon Z240 Strobe on camera other on diver with TigerFish slave trigger. ISO 400 1/160th f14

we read that blue is the colour that stays after all the others have gone, where we conducted our campaigns, green is the “our” area colour. From sand to yellow sponges, all turns green just after 3



Anchor and our boat. Nikon D7100, Tokina 10-17 mm, Hugyfot Housing, Magic Filter. ISO 400 1/200th f10

meters deep. How we can correct it? How can we avoid ending up with flat pictures?

Although most of our objects are not very deep, less than 10 meters deep, in our area water

can be, many times, very dark. So, as all underwater photographers know, the first choice to return the colours of our photographs, is to use strobes.

The problem using strobes is all the suspension we get from diving at the mouth of the river Tagus, that causes enough backscatter per photograph to keep us busy for a long time... Solutions? Either we try to position our strobes in such a way that it will reduce the backscatter a bit, or we use slave-triggered strobes', even when not inside a wreck. Inside a wreck, the same techniques I used inside the SS Thistlegorm apply perfectly... The problem is our wrecks are much smaller, and when we try to pre-position your strobes, just breathing inside will cause suspension to fall to a point we are not even able to focus... Again, a slight deviation, and I placed the slave strobe on the archaeologist and take the pictures before all the sediment blocked my view.

Although I was getting the pictures I wanted, I felt I could try something different, mainly when I wanted to capture how our work was done. And, as we were working at so shallow depths, why not use Magic Filters, for green waters, of course.

I have never seen them been used in underwater archaeology and several people told me, for example, that filters cannot be used for 3D processing... But I decided to give it a try and soon my Magic Filters did arrive and I was ready to start a new season.

At the entrance of the river Tagus, we have two different underwater heritage realities. Near the north shore, we mainly have loose artefacts, like iron guns or iron anchors. In some places, we find the remains of ships, but all very scattered and broken up by the winter southerly storms. In this environment, the filters proved very useful, because



Team member, Jorge Freire, recovering artefact from Patrão Lopes. Nikon D7100, Tokina 10-17 mm, Hugyfot Housing, one Inon Z240 Strobe on camera other on diver with TigerFish slave trigger. ISO 400 1/100th f7.1

not only I didn't need to search for the artefacts carrying not only my housing but a pair of strobes, but also, I was able to capture the archaeologist doing his work, with colour and depth.



Stern of Patrão Lopes with team member Jorge Freire. Nikon D7100, Tokina 10-17 mm, Hugyfot Housing, Magic Filter. ISO 400 1/100th f8

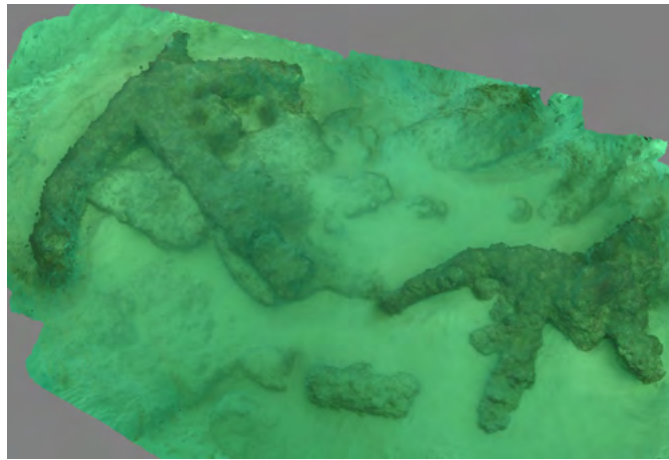
In the middle of the mouth of the river Tagus, there is a lighthouse, placed on a round fortress. It marks the south part of the main entrance channel of the harbour. And, not that long ago, when I was



The Patão Lopes and the barge. We can see the suspension, but I was able to get both wrecks in the picture. Nikon D7100, Tokina 10-17 mm, Hugyfot Housing, Magic Filter. ISO 400 1/50th f8

a junior lieutenant in the Portuguese Navy, there was a huge sand bank, with plants on top, that linked the lighthouse to the south shore. With the sand disappearing, a 70 meters long intact wreck, pop up showing all its splendour. And it wasn't just any wreck, it was one of the 72 German ships that Portugal seized in 1916, and made Germany declare war on Portugal. Further, until she was lost in 1936, she was "the" Portuguese Navy Rescue ship Patão Lopes, doing all kind of rescue and salvage operations along the Portuguese coast.

Could I use the Magic filters here? The keel lays at a depth of 12 meters and the deck around 7 meters deep. Naturally, and as I said before, all the photographs I took inside the wreck I had to use strobes... the challenge was to try to capture the all wreck, or most of it, so non-divers could have the same view we have underwater. More complicated, was to try to get the two wrecks that lay side by side... Because on the starboard side of the Patão



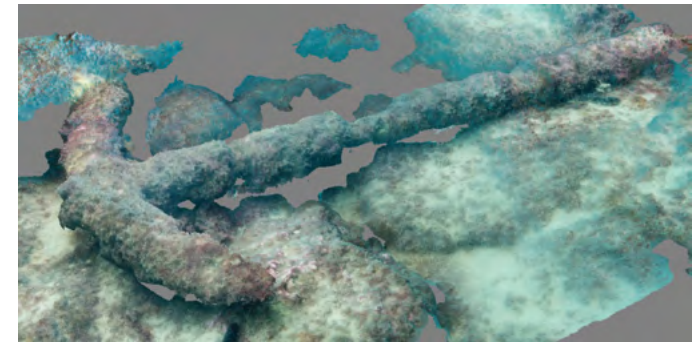
3D model of another anchor done by team member Tiago Dorez without a Magic Filter. Canon G12. ISO aut, 1/100th f2,8

Lope, lays the German barge that was responsible for her sinking in 1936, during a stormy night.

Last year, on the smallest tide, I decided to go with the Magic Filter. Lucky me, as we were surprised by the best visibility we had so far, although with some suspension. I felt I had done the right choice... I wasn't able to get the full ships, but I got the entire stern and I was able to get both wrecks in a single shot.

For me, the Magic Filters were approved for our field work, in our very "green" waters... but we wanted to try the filters for 3D imaging. And we were able to do it this year. Not me, because I confess I hate taking 400 pictures of an anchor, but another member or team did it, and the results we great, in our opinion.

We really think Magic Filters are also perfect for 3D imaging. When we compare the 3D result of a pair of anchors with pictures taken without any filter, and the 3D anchor done with Magic Filter, the



3D model of anchor done by team member Tiago Dorez. Nikon D7100, Tokina 10-17 mm, Hugyfot Housing, Magic Filter. ISO 400

results are quite different.

I've been doing underwater archaeology since 1996, and most of the times with a camera in my hand. Contrary to most underwater archaeology campaigns, we believe that our can and has benefit a lot with pictures of our work. They have to reach the general public and the those that can finance us the same way when we want to advertise a diving destination. Because, not only we need the funding, but we need the local people with our project. They will be the best guardians of our wrecks, and they will "give" us local knowledge that isn't available in any textbook. So, we need to be able to give talks to the general public, presenting not only our work, but the Underwater Cultural Heritage they "have" in their waters. And Magic Filters proved to be a great tool to achieve our aim.

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We've got you covered!



Magic filters are now available in 3 options. Original Magic for use in blue water with DSLR and compact cameras with Manual White Balance, Auto-Magic for compact cameras in automatic point and shoot mode. GreenWater Magic for use in green water with DSLR and compact cameras with Manual White Balance. Prices start at just £22.



The Auto-Magic formula is now available in a Plexiglass filter that can be added or removed underwater.

www.magic-filters.com