

Macro in the Pacific Northwest

by Jens Tröger

The Pacific Northwest is a fantastic place to dive. The Puget Sound and the San Juan Islands north of Seattle are a playground for macro photography (weather permitting), and this only gets better as we head further west out onto the Olympic Peninsula, or north to Vancouver Island, its inlets and islands that are scattered along the Canadian coast. The topside weather varies a lot throughout the year, from the most beautiful sunny summer days, drizzly winter weeks completely drained of any color, to the crisp, clear and freezing snow days under blue skies.

Diving here is challenging at times, but also great fun. The Alaska Current brings in waters from the polar regions, thus ensuring a supply of cold water at around 10C to 15C throughout the year. Except for students during their checkout dives and the occasional courageous diver in a wetsuit, these are drysuit conditions, and drysuit means undergarment, which means more buoyancy, which means more weights. It also means neoprene hood and thick gloves.

This is green water diving at its best, and visibility ranges from

nothing to 15 meters and more. I remember a dive a few years ago in the San Juan Islands where we had no measurable surface current and the usual dark waters beneath us; the boat sat next to a rock and the surface vis looked quite decent. In we went, and after about 5 meters we began to descend into what looked like ink. The light from our torches would simply vanish, and I could not see the computer when I felt it bang against my mask. Those sort of conditions aren't particularly suited for photography. Then there are the crisp and cold winter days, when there's no algae bloom and the water is just freezing cold; on those days we can get 15 or 20 meters of vis, and diving becomes a whole different experience.

There is an abundance of marine life out here, from Orcas, Humpback and Minke Whales, otters, seals and sea lions, to large and small fish, jellies, corals, colorful anemones and sponges, and, of course, invertebrates. It's these small and tiny critters which I have taken to the most, and I'd like to share a bit of my experience of how to photograph some of them in our cold water conditions.

The thing with macro



*Juvenile Decorated Warbonnet . Canon 7D and a Canon EF 100mm/2.8 macro lens, Nauticam housing, and Sea&Sea YS-120 strobes. 1/320th @ F5.6. ISO 100
The panorama was taken with a Canon 40D and a Canon EF 17-85/4-5.6 lens, and then stitched together.*





Cockrell's Dorid. Canon 7D and a Canon EF 100mm/2.8 macro lens, Nauticam housing, and Sea&Sea YS-120 strobes. 1/320th @ F11. ISO 100

photography is this: I'm taking a picture of something tiny, with a camera that is, compared to my subject, rather huge. That means that what is an almost unnoticeable movement of the camera translates into a large movement for the subject, and this can ruin a picture because the focus of my picture moves.

The subjects for macro photography are tiny, and sometimes it's hard to see all of their details with the naked eye. It does take

some practice to learn how to handle the viewfinders of both camera and housing combined, and to use them and the lens as a live magnification glass. Most of the time I work with Servo Auto-Focus for two reasons: one, to offset subtle movements of the camera or the subject automatically; and two, to be faster with narrowing in on my subject and where I wish to place the focus point. Manual focus can take quite some time to set up, it can be difficult to judge through a



Blackeyed Gobi. Canon 7D and a Canon EF 100mm/2.8 macro lens, Nauticam housing, and Sea&Sea YS-120 strobes. 1/320th @ F13. ISO 100

mask and viewfinder extensions and it's harder to adapt to movements rapidly.

On one hand, macro photography is about finding an interesting subject and being lucky that it sticks around long enough to take pictures. I've learned early that it is a vain endeavor to try to recapture a picture that I've taken in the past and would like to "improve" or "take it differently," or to imitate a picture that I've seen elsewhere. This only just hinders my

own creativity and being open to what a dive can present.

On the other hand, macro photography is also about a non-distracting negative space, i.e. the background and context of the subject itself. I prefer to work with a narrow DOF (depth-of-field) to blur the background and to guide the viewer's attention more easily. This is the point where things get a wee bit tricky because a narrow DOF for a tiny subject means that even a small

movement affects the control of the focus point. Ah well, so I just need to be a bit more careful here.

The negative space is easily forgotten, but it can be the Yay or Nay for a picture. If there's too much going on in the background concerning color or forms, then this only distracts from the main subject. In contrast, too little can, sometimes, make a picture seem boring because it may isolate a subject too much from its natural context. I like the negative space that compliments or matches color with the subject and the overall mood of the image, but doesn't intrude on the subject at all; the kind of negative space that conveys some of the natural context.

The most interesting aspect to me, however, is perspective. To make a subject, for example a nudibranch, more personable and interesting, I like to take its picture from the same "eye level" or from slightly below shooting upwards. Topdown shots can often seem flat and unengaged. An interesting perspective usually takes some maneuvering and, if possible, trying out different angles and changing distance. Sometimes, though, it also means that a picture just doesn't work out because I can't position my camera and strobes the way I'd require them. Perspective also means the side or angle from which I approach my subject: ideally

it should swim or crawl towards the camera, and therewith the observer. If my subject moves away from the lens and I get only a backside then the feel of the final picture is somewhat incomplete, an open story of sorts, moving away. Twice I got very lucky and, searching for its way, the nudibranch turned its head right into the camera: a beautiful and engaging head shot.

The composition of the picture defines what I want to show of my subject and its context. The traditional composition rules like the Rule of Thirds or Leading Lines or Framing come into play here. This is where modern cameras help me out a little bit: high pixel rates allow for a certain amount of freedom to crop an image later during development. Generally though, it is important to pay attention to the immediate surroundings of my subject, for example the stick or hydroid or rock that a critter may sit on, and to make this a part of the captured picture. Composition and perspective often times complement each other, and both together should convey the natural context in which the critter lives.

While the environmental conditions for underwater macro photography are different from "traditional" macro photography, all rules and experiences apply just the same. Here in the Pacific Northwest



British Columbia Aeolid. Canon 7D and a Canon EF 100mm/2.8 macro lens, Nauticam housing, and Sea&Sea YS-120 strobes. SubSee 10x diopter . 1/320th @ F16. ISO 100

I usually shoot a 100 mm prime lens, and a SubSee 10x diopter on top of that. This kind of setup allows me to get very close to very tiny critters, while, at the same time, focus and DOF are a little challenging to implement well. One goodness of modern DSLR cameras is precise auto-focus and the many focus points. As I mentioned earlier, composition is essential, and that is guided by the positioning of the focus point which I

usually place according to the Rule of Thirds or in the center. With a shallow DOF it is important to place the focus well, ideally at the eye of a small fish or the head of the nudibranch or crab. Everything else will gradually fade out of focus, thus guiding the eye of the beholder to whatever I put into focus.

Fortunately, shooting macro underwater is somewhat independent of vis, although less silt and other

particles do make for a cleaner picture. It is, however, quite dependent on tides and currents because water movement interferes with me being able to stabilize my camera (Think buoyancy here!) and, even more so, it moves my subject around. To deal with that I either rest the lens dome of the camera on a rock (if there is one that I can use), or I invent funky finger stretches to stabilize the camera while resting my hand on a rock. You can also use a small metallic stud as a monopod connected to the bottom of your housing to stabilize the camera.

As I mentioned earlier I do like to play with focus and DOF to guide the viewer's attention. Therefore, I often times shoot with a larger aperture (i.e. smaller aperture value) to narrow down the DOF. However, as aperture and shutter speed always go together and because I prefer fast shutter speeds, I soften the available light by adjusting the strobe's strength and distance to the subject, and sometimes using a diffuser. In the end, these three, aperture, shutter speed, available light, need to balance each other to make for a well lit picture.

I found that the best way to shoot macro underwater is by having the maximum amount of control over the camera, that is fast focus and focus points, aperture and shutter speed, and bursts and quick recycle times. DSLR cameras, while on the more expensive side, give me that control by providing a manual mode. I do admit that it took me a long time to arrive at such a rig, but I wouldn't want to go back again. Another advantage of these cameras is that they capture raw sensor data instead of compressed and preprocessed .jpg images; I always shoot raw and process later.

To avoid noise, i.e. color or bright pixel grains, I usually shoot in lower ISO speeds up to a maximum of 400. Since there isn't much ambient



British Columbia Doto. Canon 7D and a Canon EF 100mm/2.8 macro lens, Nauticam housing, and Sea&Sea YS-120 strobes. SubSee 10x diopter . 1/320th @ F9. ISO 100

light around here in the Northwest, strobes are quite necessary, and that in turn allows me to lower the ISO speed. Most of the time I shoot with two strobes on short arms, one for the subject and one to brighten up the background if I want to use that. One may think that green water diving and low light conditions don't make for colorful pictures, but I quickly learned that this is not true: the abundance of color here is amazing.

Post Processing

I do all of my post processing in Photoshop. However, that doesn't mean that I pay less attention to the capturing process itself; there's only so much I can fix. A picture that's out of focus or has too much backscatter or is poorly composed or lit just can't be "photoshopped" into something that it's



Scalyhead Sculpin. Canon 7D and a Canon EF 100mm/2.8 macro lens, Nauticam housing, and Sea&Sea YS-120 strobes. SubSee 10x diopter . 1/320th @ F13. ISO 100

not.

The first step of developing the raw image into something printable is to import it into Camera Raw for some initial adjustments. Sometimes I tweak the white balance a little bit, I always disable sharpening (that comes later) and I remove noise only if there is some. Depending on the shot, I may also adjust exposure and vibrance a little, but all



Orange Cup Coral. Canon 7D and a Canon EF 100mm/2.8 macro lens, Nauticam housing, and Sea&Sea YS-120 strobes. 1/400th @ F4.5. ISO 200

the contrast and color adjustments follow later. Camera Raw has preset lens profiles which help to remove some of the chromatic aberrations and vignetting, and sometimes those come in handy. At this point I also crop the image to align it better with one of the compositional rules I mentioned earlier. Then I import that image into Photoshop.

The first thing I do in Photoshop is to zoom in to 100% and use the content-aware spot healing brush

to remove some of the residue backscatter. The beauty of this kind of brush is that it doesn't merely replicate a close-by spot of the image, but it composes an approximation based on the context of the spot to be fixed, noise and all. While this works well on "chaotic enough" spots in the picture, it doesn't work well when I touch lines that define shapes and forms of my subject. In that case the traditional clone stamp tool might be of better use, but generally a picture

isn't a keeper if I spend more than a few moments trying to clean it up.

Next, I change the color mode to LAB. In contrast to RGB (Red-Green-Blue, the default color mode), LAB (Lightness-A-B) separates lightness information of the picture from its color information. That has the advantage that sharpening (i.e. increasing of local contrast) doesn't cause colors to clip. So, in LAB mode I select only the Lightness channel and sharpen the whole picture using the Unsharp Mask from the Filters menu. After sharpening I add a Curves adjustment layer and apply an S-curve to the Lightness channel, thus increasing the contrast of the image. To further tweak the overall contrast of a picture, I sometimes add a Levels adjustment layer, and there I push the shadow and highlight input levels closer together if there's no Lightness information present at either end of the spectrum. All that without modifying the colors of the image.

When that's all done I tend to the colors. Just like shifting the white balance, so can I now change the overall tone of an image (or that of the highlights, mid-tones, or shadows separately) by slightly changing their Curve adjustment layer and its input or output values for either the A (green to red) or B (blue to yellow) channels separately. To saturate the picture's colors, I sometimes

squish the input values of the Levels adjustments closer together, thus spreading out the color range and increasing color intensity.

Finally...

And that's it. When I'm done with all that, I sometimes upload one or the other picture to my personal website. Mostly though, these images bit-rot on my hard-drive until one or the other editor likes them enough to use them in an article, so that I can share the fun and excitement of diving and underwater macro photography in the Pacific Northwest...

Jens Tröger

<http://savage.light-speed.de>



Back issues



99p per issue or buy
the complete set for
just £19.95 for all 64
issues (That's only
31p per issue!)

Yours to keep
forever.

As you know, the current issue of Underwater Photography is free to download but all of the previous issues, going right back to Issue 1, are still available to download for just 99p per issue.

It's a fantastic reference library chronicling all that has happened in underwater photography over the past 10 years.



Add UwP58 to cart

UwP58 — Jan/Feb 2011, 76 pages.

[Click to show or hide issue contents](#)



Add UwP57 to cart

UwP57 — Nov/Dec 2010, 85 pages.

[Click to show or hide issue contents](#)



Add UwP56 to cart

UwP56 — Sept/Oct 2010, 90 pages.

[Click to show or hide issue contents](#)



Add UwP55 to cart

UwP55 — July/Aug 2010, 75 pages.

[Click to show or hide issue contents](#)

Buy back issues
here