

# Slugs and Snails

by Mark Webster

Most underwater photographers are internet savvy (or you would not be reading UWP!) and are likely be familiar with the website Dive Photo Guide which is full of useful news and tips. One series of articles I enjoyed reading there is by Mike Bartick extolling the attractions of the nudibranch population on his local Californian dive sites. He also made a visit to Scotland and seemed surprised to find healthy populations of similar species there. So, I felt it was a good prompt to make an expose of the nudibranchs and some other slug varieties and the technical challenges for underwater photographers visiting Cornwall or the south coast of the UK.

This group of invertebrates includes some of the most exotic and colourful creatures to be found in British waters and they compare well with their tropical cousins. However they are often missed as most are of “macro” size, but once you have slowed down to look for them and learn a little of their habits they become easier to spot and rewarding to photograph.

There are more than one hundred species of nudibranchs, sea hares and flat worms to be found along the English channel and Atlantic coasts. Although many are vividly coloured they are easily missed as the colours and patterns often blend in with their immediate environment. Many are found in similar habitats in shallow waters but each group has its own feeding patterns and habits, which makes them a little easier to track down.

These critters are often much less than 12mm



*Flabellina pedata* – When breeding this species is often found on kelp in pairs and small groups. This shot is in fact a double exposure on film which is fun to try on film or with image overlay with a digital camera. Nikon F90X, Subal housing, 105mm micro and 20mm with star burst filter, Sea & Sea YS50 flash gun, Elitechrome 100 f22 1/250 and f11 1/125.



*Aplysia punctata* – Sea hares have acquired their common name due to their (some say cute?) rabbit or hare like ears, particularly when viewed head on. Nikon D300, Subal ND2, 60mm micro, Sea & Sea, ISO 100 f11 1/30.

(1/2") long so are not only difficult to spot but also can be difficult to photograph as well. Most images are taken with a macro lens and many will need additional magnification to come close to filling the frame or will require cropping. Personally I use a 105mm Nikkor micro (the older version which sometimes focuses slower than the speed of a moving nudibranch....) often coupled with a Inon wet lens when required which gives close to 2:1 reproduction. For greater magnification you can stack wet lenses, dependant on your choice of manufacturer, but obviously the more you add there is a risk of poorer image quality and depth of field reduces even further.

Another option is to add a teleconverter (with a port extension) to both increase focal length and magnification, but the down side of this is a reduction in maximum aperture which often affects the auto focus to such a degree that a manual gear is needed. You can also consider using dry diopters on the lens inside the port, which work well but will limit the range of focus of the lens at infinity. If you need yet more magnification then combinations of these three options will provide that, but be prepared to practice with this set up as the depth of field becomes wafer thin.

You can of course use a macro lens with a shorter focal length (e.g. 50 or 60mm) and achieve the same magnification but I find that your port will often end up too close to the subject to light effectively, unless you are using a teleconverter.

Focusing on these small subjects can be a challenge due to their size, the narrow depth of field at high magnifications and also due to lens hunting when light levels or contrast is low. A focus light, either separate or built in to the flash, will help the lens focus and lock on or you may



***Prostheceraeus vittatus*** – *The candy striped flat worm might look like a nudibranch but it is an unrelated worm species. Some marine biologists theorise that flat worms mimic nudibranchs for defensive purposes. Nikon D300, Subal ND2, 105mm micro, Inon Quad flash, ISO 100 f22 1/125.*

need to resort to manual focus. If you do not have a manual focus gear on your lens the alternative technique is to focus (on anything) to the maximum or the desired magnification and then to lock the lens in this position by switching the camera body to manual focus. You can then 'rock focus' and release the shutter when the subject is sharp. If your housing does not have this function then you can try either locking the focus by keeping the shutter half depressed or using the AF lock button – some photographers assign the activation of auto focus entirely to this button for this reason and use the shutter button only to release the shutter.

Compact cameras have a macro setting which on some cameras may once again put you too close to the subject to light it easily and some compact models even disable the onboard flash in macro



***Pleurobranchus membranaceus*** – *The largest sea slug that you are likely to encounter is possibly closer to a sea hare than a nudibranch. Found in river estuaries and sea lochs in the north it is quite colourful when illuminated and can apparently swim like a Spanish dancer! Nikon D300, Subal ND2, 10-17mm FE, 2x teleconverter, Subtronic Mini flash guns, ISO 200 f11 1/25.*

or super macro mode. The solution is to add a wet close up lens to the housing which then allows good magnification with the telephoto function thus increasing the distance to the subject and allowing good flash positioning.

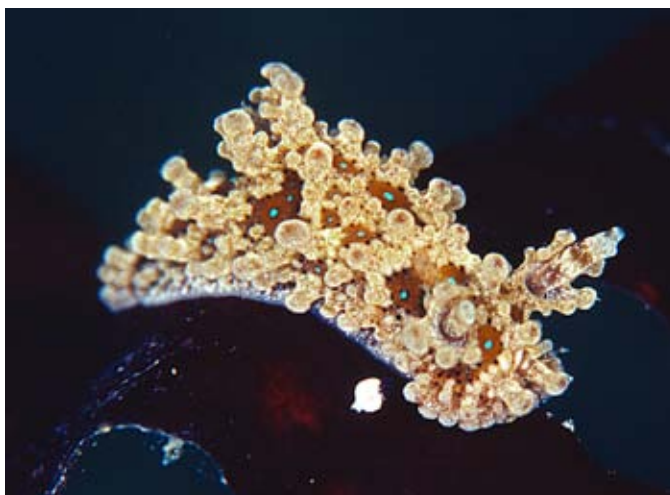
Flash lighting is essential for these subjects and there is more than one solution to successful lighting. Quite often your subject nudibranch is in a position surrounded by other reef features or marine growth, which are good at casting shadows if you are not cautious with your lighting position. I favour my Inon Quad (ring) flash which often defeats this problem but you can replicate this flat lighting technique by positioning your flash guns alongside your port which leaves you to concentrate on the

composition. Small guns are best for this technique but you can also use larger guns or a single flash to light the subject successfully. Sometimes strong shadows behind the subject or a black background are just what you need to emphasise the colour, pattern or shape of the nudibranch, so keep an open mind on flash positioning and perhaps consider snoots to vary the lighting techniques.

UK nudibranchs may be small but they make up for this with variety in their colouring, pattern and appearance. There are two major groups to search for; the Dorids, or sponge eaters, and the Aeolids which feed mostly on algae's, ascidians, hydroids and bryozoans.

Nudibranchs are hermaphrodite (both male and female at the same time) and breeding frequency may vary from every month to once every twelve months. However, April and May appear to be very active months in the British Isles when the rocks will be peppered with the egg rosettes and spirals which are often pigmented with the dominant colour of the parent or food source. Once you have spotted the egg clusters it will not be long before you find the parents.

The most common of the Dorids is the 'sea lemon', so called due to its often vivid yellow colouring and knobby texture which it has adopted to resemble the encrusting sponges which are its main food source. Sea lemons do in fact come in a variety of colours and textures, from smooth grey to orange and purple, dependant on which species of sponge they feed upon. They all rely on their camouflage as their first defence against predators, but apparently are also able to excrete an acidic fluid as well if attacked. Size of this species varies enormously from a few millimetres to 12 centimetres (1/4" to 5") and all have a wide flat



*Aegires punctilucens* – this is a very small (5mm) and possibly rare species which has excellent camouflage despite the fact that it contrasts well with red seaweed in this image. Nikon F90X, Subal housing, 105mm micro, Inon wet lens, Inon Quad flash, Fujichrome Velvia 50 f18 1/125.

shape developed to firmly grip their sponge and reef habitat. They lay their eggs in very attractive rosettes which vary in colour from pure white to bright pinks, yellows and oranges. The spirals will be seen on the reef surface, kelp stipes, seaweeds and many other stable surfaces. If you are lucky then you will find the nudibranch actually laying the eggs, but if not then search carefully around the area of the eggs and you will soon spot the parent.

The Aeolids adopt a different defensive strategy and aim to be seen as clearly as possible by their predators. They come in a quite surprising array of shapes and colours which advertise the fact that they are poisonous, sting or just taste unpleasant. This group feeds on bryozoans and



*Polycera quadrilineata* – These small nudibranchs (15mm) are often seen singly in early spring, but come together in large groups during the summer months to breed. The groups congregate on kelp fronds where they lay their egg spirals and feed on sea mats. Nikon D300, Subal ND2, 10-17mm FE, 2x teleconverter, Inon Z240 flash guns, ISO 200 f16 1/25.

hydroids especially, which have their own stinging cell system, and occasionally on the eggs of other nudibranch species. The nudibranch is able to ingest the stinging cells and then store them often in the tips of their cerata (the spiky filaments on their backs) which they shed and regenerate if they are attacked. Some species are also able to graze upon the stinging cells of anemones for the same purpose. These species are generally quite small, perhaps 5-25mm (1/5" to 1").

I find that looking at the preferred food source is often the best way to spot these species which are not always obvious despite their bright colouring. So begin by looking for colonies of ascidians, hydroids and bryozoans and then look closely over a small area. You will also find bryozoans growing on seaweeds and the nudibranchs will often be found feeding here or laying eggs. On the reef itself these species are also seen when moving between feeding areas and this makes them easier to spot and also offer an opportunity to photograph from a variety of angles.

There are a couple of sea slug species which are somewhere between a nudibranch and a sea hare. One example is *Colpodaspis pusilla* which is considered rare in UK waters but this may be because it is extremely small (5-10mm) and

not often spotted. When looking for this species and other very small nudibranchs I normally concentrate on any white spots on the weed, then look through the lens and quite often will be surprised that it is a slug on the move. This species has a small internal shell which is covered by the mantle and there are two prominent head tentacles. The tentacles, tail and mantle are almost pure white in colour and all have a textured appearance.

Similar but much larger is *Pleurobranchus membranaceus* which is perhaps the biggest sea slug we are likely to see in UK waters and again is maybe closer to a sea hare than a nudibranch as it retains a small shell hidden in the mantle. They are supposed to like muddy or silty environments and in fact I have only seen them in the Helford estuary amongst the eel grass. The average size of these slugs is 10-15cm (4-6") and I generally spot their large inflated egg spiral first on the seabed and if you look carefully then the *Pleurobranchus* will not be far away, but they are often covered by silt unless they are on the move or feeding. When illuminated by flash they are quite brightly coloured in red or orange with a white or creamy spotted mantle. They can also swim like Spanish dancer apparently, although I have never seen this behaviour myself. To capture an



*Tritonia nilsodhneri* – This tiny (5mm) nudibranch is only found on the orange sea fans found mostly on offshore reefs. Their camouflage is excellent and you will need additional magnification to fill the frame. Nikon D100, L&M Titan housing, 105mm micro, Inon wet lens, Inon Quad flash, ISO 200 f18 1/125.

image of one or more of this species together you will need a wider lens, perhaps a short range zoom like a 12-24mm or a fish eye zoom with a teleconverter.

Sea hares are also very common and some of the more colourful



*Lomonatus genei* – This is a splendid looking quite large nudibranch (40mm) which is found infrequently but is well worth looking for. More often found on reefs which are exposed to strong tidal currents. Nikon F90X, Subal housing, 105mm micro, Inon Quad flash, Fujichrome Velvia 50 f16 1/60.

varieties are often mistaken for nudibranchs, but they are in fact closer to their snail ancestry as they retain a small shell on their backs covered by a mantle, which also covers the gills which are exposed on a nudibranch. There are four species of sea hare

*Aplysia punctata* – Sea hares are close relatives of nudibranchs but retain a small shell under their mantle. There are three or four species found in the UK and they are generally much larger than their close cousins. Nikon D300, Subal ND2, 10-17mm FE, 2x teleconverter, Inon Z240 flash guns, ISO 200 f11 1/50.



found around our coasts which all have a large pair of tentacles which look a little like rabbit ears which leads to the common name. Colour and pattern varies markedly and is often affected by the food source, but some also have extremely good camouflage and blend well with the colour of the seaweeds. The average size is between 2cm to 12cm, but there are occasional visits by larger species from warmer waters. During 2007 the late summer and autumn had been very warm and unusually calm and there was an invasion of hundreds of the large (up to 30cm) sub tropical species *Aplysia depilans*. Whilst these monsters were not particularly colourful it was an impressive sight to see the seabed so well populated with them and their large coils of pink and orange egg strings.

Sea hares feed on seaweeds almost exclusively and are often found on the red varieties. They have very strong jaws and are able to shred and ingest even the toughest of green seaweeds. Once again these animals are hermaphrodite and have the unusual habit of mating in chains of individual animals, each fertilising the one behind, which in human terms might be described as an orgy. They then lay clusters of several million eggs wound in a tortuous ribbon around the base of seaweeds and on the reef. These animals also carry a toxin (opaline) which they will release in a dark purple coloured ink if disturbed or stressed.

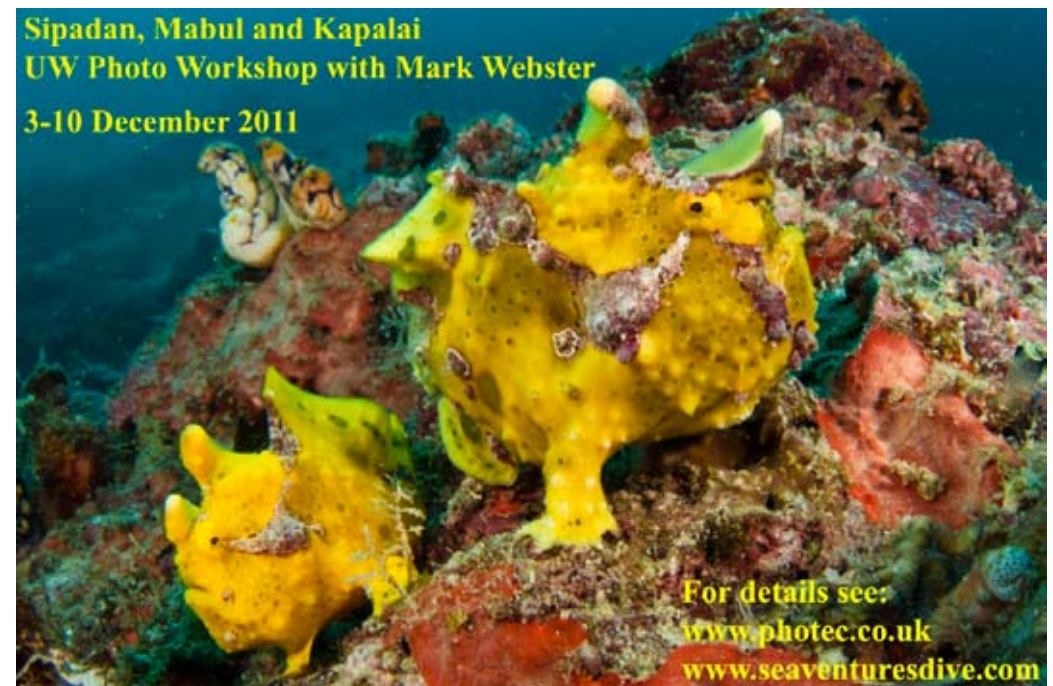
Flat worms are another very attractive little reef animal which are often mistaken for sea slugs and it has been suggested that they

mimic nudibranchs for defensive purposes. They are however a totally different species and are more closely related to the thread worms and segmented worms. The most common is the Candy Striped Flatworm (*Prostheceraeus vittatus*) which are seen in profusion during spring and summer. These animals normally between 25 mm long and 12 mm wide (1" x 1/2") and have two 'horns' at their head end. They are so thin that they seem to glide, sometimes quite quickly, over the surface of the rocks and sea weeds as they search out tunicates to feed on.

So, although we might lack

the extensive number of sea slug species that populate the Californian coastline, we do have enough variety here to keep our cameras and macro lenses productively employed. Each breeding season can produce variations and different species so you can never be certain what you may see. The hunt for nudibranchs and their relatives requires a slow and focused approach but is very rewarding when you succeed and they are fantastic colourful subjects that demonstrate the diversity of the marine world.

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