



Sea hares in the Aquarium

Julie Van Horn

Most aquarists regard sea slugs with one idea in mind: algae eaters. It is true that they do eat large quantities of algae, but sea slugs are singular creatures in their own right. First it is important to distinguish among the types of sea slugs. The sea slugs most commonly appearing at an aquarium store near you are likely either nudibranchs or sea hares. Nudibranchs are generally less than a few inches in length, brightly colored and have highly specific dietary requirements. Sea hares are significantly larger, less brightly colored and have more general diet preferences. Responsible aquarium keepers know what they are buying and its proper care. Many people have heard of nudibranchs, but sea hares are a different story.

A sea hare in an aquarium store is likely to be of the genus *Aplysia* (Photo 1). A sea hare from the species *Bursatella* is shown in Photo2. The largest *Aplysia* is the California sea hare (*Aplysia californica*), which can grow to 3 three feet in length! Not to worry though, this kind of growth is unlikely in a home aquarium. Sea hare growth is limited by the quality and quantity of food they receive. *Aplysia* are not overly fond of hair algae, but if that is all that is there, they will reluctantly try to eat it, even though it is not their natural food. To really make a sea hare happy, feed it freshly collected seaweeds like sea lettuce (*Ulva*). Terrestrial plants (romaine lettuce or zucchini) will suffice, as will dried seaweed (nori). A young healthy sea hare will literally eat as much as is put in the tank, but beware, it passes through the sea hare's digestive tract almost as quickly.

In the best of circumstances, a sea hare's life expectancy is just over a year. With so little time, reproduction is paramount. Sea hares are hermaphrodites, but this doesn't mean they can reproduce without a partner. Because of the way the plumbing is laid out, they cannot self fertilize. Instead, a second sea hare will act as either a male,

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Sea hare of the genus *Aplysia*.



Premnas biaculeatus - A beautiful but ornery clownfish

Premnas biaculeatus - The Maroon Clownfish

Bob Fenner

Maroon clownfish have got to be one of the most striking of marine tropicals... with apologies to the "Nemo" lovers of the world. With their overall bold salmon red body and fin coloring, demarcated with white to yellow barring. As far as personalities go, *Premnas* are just as "comical" as other clowns when young. However, very often they can and do become belligerent sometimes to the extreme as they age and grow.

Keeping this species is relatively easy; particularly tank bred and reared stock as opposed to wild-caught. Though this *Amphiprionine* will gladly host with a number of anemones and other stinging-celled life, it can happily and often less belligerently get along without such symbionts. Captive produced specimens can be easily acclimated to aquarium conditions but wild-caught individuals should be carefully selected, dipped/bathed in freshwater and quarantined for at least two weeks before introduction to a main display tank. Imported specimens are quite susceptible to *Cryptocaryon* (marine ich), *Amyloodinium* (velvet) and *Brooklynellosis* ("clownfish disease"). And these protozoan parasites are WAY better "treated" by exclusion during quarantine, then trying to fight them in your principal system.

Classification

All other clownfish species (subfamily *Amphiprionae* of the Damsselfish family *Pomacentridae*) are classed in the genus *Amphiprion*. The Maroon is monotypic... the only member of its genus; *Premnas*. The rest of its name, *biaculeatus*, gives the most substantial reason or explanation for its separation: the presence of two (look closely Photo 2) spines on this fish's gill covers. Another common name for the species is "Spine-Cheek Clownfish". In photograph 2 you can clearly see the barb on the preoperculum.

What about the "yellow stripe" versus "white stripe" Maroons? These are the same species... and in fact, though they tend to stay one or the other color; they can and do change in the color of their banding on the basis of nutrition.

Behavior (Territoriality)

Maroon Clownfishes can be, or become outright MEAN particularly if crowded, and especially, if placed with other fishes, clownfish species included, that will not "back down" recognizing the obvious superiority of *Premnas*. Some folks try to diminish this tendency to "rule all" in their Maroon tanks with the addition of anemones, more décor but this almost NEVER works.

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Premnas biaculeatus - The Maroon Clownfish

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About Cnidarian Symbionts & Tankmates

Maroons will take on a number of other organisms (and inanimate objects) as symbiotic hosts. Most naturally the Bubble Tip Anemone, *Entacmaea quadricolor*, is well matched with them... and the matching of captive produced fish with captive produced anemone is especially sweet.

Of all Clownfish species, Maroons are likely the very most changeable, flexible in their behavior, but also the downright orneriest as well. They can easily take on even larger triggerfishes, puffers, basses... and tear up hexacorallian tankmates... corals and anemones especially. The key descriptor in their intelligent care is "keen observation". You must keep your eye on them, lest they "go ballistic". It is highly recommended that you intentionally place your Maroon/s last or close to last as fish livestock AND that they be what you want as the "alpha" fish. Even in tanks of a few hundred gallons. "Oh, I'm going to have a few anemones so I can keep different clowns together" Think again... often *Premnas* will "hog" any and all such symbionts.



Two spines on the gill cover give this fish its species name "*biaculeatus*".

Yes, *Premnas* will accept "strange bedfellows" like *Trachyphyllia* (Brain Coral), Flower Pot Coral (*Goniopora*), Plate Corals (*Fungiids*), all sorts of soft corals, even faux corals, rocks, powerheads and the like, but they do NOT need these organisms to live healthy, long lives. Tank bred specimens have very likely never been exposed to cnidarians period and may not take to them in your system.

Systems

This fish gets big, nearly seven inches long in the wild, just slightly smaller in captivity. And can be, to put it mildly, feisty with its own kind and other livestock. I would not place a single individual in any aquarium smaller than a forty gallon, or two fish in a minimum of sixty gallons. If mixing a new individual with an established one, it is strongly suggested to separate them for a solid week, with a partition or my favorite, a floating plastic colander (spaghetti strainer). Put



Photo by Bob Fenner

A wild-caught "pair" in a wholesaler's cubicle. The male is the smaller, lighter colored individual in the foreground.

the "old" one in the colander, allowing the new one to become familiar with the system, AND closely observe them the day of actual fin-to-fin introduction.

Premnas do best in "reef" type settings, irrespective of their tenacious personalities and the possibility of their tearing up sedentary invertebrates. They may dig in the substrate, particularly around a host organism/item, but this is nothing to be alarmed about. They greatly prefer a mix of rocky decoration to cruise about in, and your other agile livestock will appreciate this as well... to get out of sight of the Maroons.

Reproduction

This fish has been spawned many times commercially over the last few decades. Times were that tank bred/reared Maroons were clearly inferior to wild-caught, with less color, some behavioral anomalies and at times, shortened lifespans. Nowadays, this is far from the case, and except for folks who don't want to wait to bring up their own small individuals to pair and perhaps reproduce, captive produced individuals are far superior in quality, disease resistance, overall adaptation to aquarium conditions.

Pairs of this species, males are much more red, diminutive in size by comparison, can be purchased as such or if one of yours should perish, another of the approximate size of the lost one may be introduced (within a few weeks to discount aggression). Raising your own broodstock is not hard to do, with the usual approach of acquiring a handful of small individuals and having them "grow-up together". This requires either a good-sized system or vigilant observation on your part, to notice pairing behavior and likely removing these to other quarters.

Foods/Feeding/Nutrition

Small to large Maroons will accept all foods with gusto. In the wild, the species principally feeds on zooplankton and macroalgae, but in captivity they will gladly take flakes, pellets,

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Premnas biaculeatus - The Maroon Clownfish

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Photo by Bob Fenner



A *Premnas* with *Brooklynellosis*.

frozen/defrosted. The species does best being afforded regular spontaneous feeding through the use of a live sump (refugium) but will also fare well being offered foods twice daily.

Diseases of All Sorts

As clean and easy to keep biologically disease-free as captive produced stock of this species is, the wild-caught is VERY often funky and gunky. Almost all imports are hosts to a goodly amount of parasite fauna, and coupled with the stress of captivity, handling, shipping, starving, are a recipe for disaster IF not given

respite from their journey. Lots of T.L.C. in quarantine for a few weeks to rest up... and for you to observe, possibly treat them for problems is the best approach.

Crypt/Ich and *Amyloodinium* can be treated with copper based medications and/or environmental manipulation. *Brooklynellosis* almost never responds to any treatment not containing formalin/formaldehyde. Beware of "reef safe" and "herbal" voodoo and other ingredients label-less treatments - they do NOT work. And do make sure and NOT attempt treatment in your main system... this must remain fish-less (free of hosts) for a good month, while you're treating your fish livestock (all of them) elsewhere. The logic of quarantine becomes immensely clear to any/all who have suffered these experiences.

Cloze

So... you can read this off like a checklist: Do you have a large enough tank (forty gallon for one, sixty for two minimum), which can use a "boss" fish? Where its hexacorallian organisms might end-up shredded? Lots of time to wait on a beautiful fish or two? Well, you just might be a candidate for Maroon keeping. Most problems with this fish are self-generated... people trying to keep them in too small a system, not as the alpha fish, buying large wild-caught specimens and not properly quarantining them... Avoid these common mistakes. 🐟

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Photo by Julie Van Horn



A sea hare from the species *Bursatella*.

transferring sperm to the first via an eversible penis located on the right side of the head, or as a female, receiving sperm from the first through a gonopore located in the middle of a sea hare's back. Groups of mating sea hares form loops or chains that can be quite extravagant. Obviously, it's much more fun for the aquarist and the sea hares if more than one are kept.

The end result of all this activity is eggs. Sea hares stick their eggs, which resemble green spaghetti, onto the walls of aquariums. In about a week the eggs will hatch and the egg masses will disappear, releasing microscopic larvae called

veligers. Most veligers are removed by the filtration system in fairly short order. Survival in a home aquarium is not likely, as the veligers require phytoplankton food and specific types of algae upon which to metamorphose into adults.

Sea hares are low-key creatures. They don't bother other animals and other animals don't bother them. On the rare occasion that a sea hare is genuinely annoyed however, it is capable of ejecting purple ink. The color is derived from pigments in the diet. Starved or old sea hares release blue ink.

Nearly blind, sea hares depend on their senses of touch and "smell". When food is put into the

aquarium, they immediately stop what they are doing and begin casting about with their heads to zero in on the source. The two "ears" on top of a sea hare's head are called rhinophores. The rhinophores, along with the "mustache" or oral tentacles around a sea hare's mouth receive chemical cues from objects in the water of interest to them, namely food or other sea hares. The oral tentacles, combined with the anterior part of the foot are used to grasp and manipulate food.

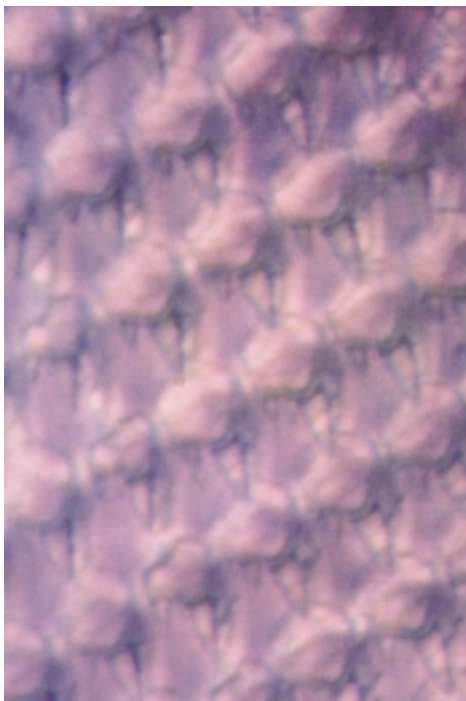
Sea hares do not have teeth. They grasp their food by means of a rough tongue like structure called the radula. Photos 3 and 4 contrast the radula of the sea hares in the species *Aplysia* and *Bursatella*, respectively. Different kinds of sea hares have distinct looking radulas, which are adapted to the type of food they prefer. The radula is lined with rows of radula teeth. *Aplysia* radula teeth are short and fairly blunt while those of another sea hare, *Bursatella*, has radula teeth that are long and hooked. Between the mouth and the gizzard is a crop that stores food on its way to a muscular organ called the gizzard. The gizzard is endowed with gizzard teeth made of chitin that serve to further grind up food. Then it's just a short trip through the intestine and out through a siphon in the center of the sea hare's back, posterior to the shell. Because a lot of what they eat is not digestible, the majority passes right through. Frequent bottom siphoning is a must if you insist on a neat aquarium with sea hares.

Some sea hares can swim. They have large wing-like extensions, or parapodia, on either side of their bodies that they beat against the water, lifting them up. Other sea hares cannot swim, and must be content with slow sluglike movement along the sea floor with the aid of the muscular foot.

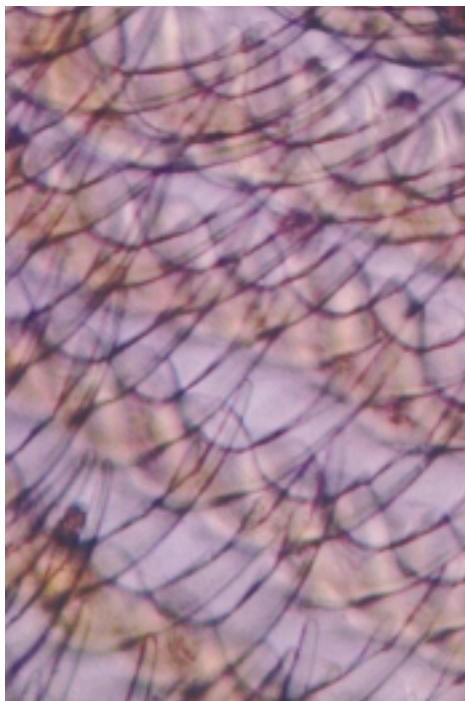
Although the term slug implies that sea hares are without a shell, in fact, *Aplysia* does have a shell (Photo 5). It is much reduced and internal, but can be felt in the middle of its back. The sea hare larva, or veliger, always has a shell, but some species lose it as they mature.

Sea hares are not a solution to hair algae. Forcing them to eat it is no fun and they will not thrive. Instead, if you decide to keep sea hares, feed them well and enjoy their slow motion antics as a contrast to the energetic swimming of tropical fish. 🐌

Photo by Julie Van Horn



Close-up of an *Aplysia* radula.



Close-up of a *Bursatella* radula.

Photo by Julie Van Horn



The shell of an *Aplysia*.

Photo by Julie Van Horn