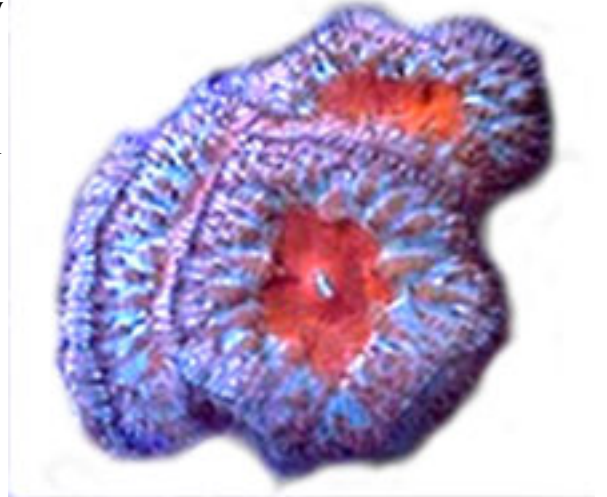


# Devastating Coral Predators

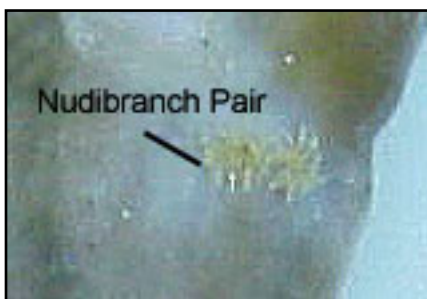
*The Aeolid Nudibranch by Blane Perun*

I have been fascinated by captive coral reefs systems for nearly a decade; the passion has carried me through a myriad of display systems and eventually a small-scale coral farm. My desire to build a farm was motivated by my love for the natural tranquil setting of the coral reef. Setting up a farm to captively raise and propagate coral was no small task in itself; countless hours of reading and planning are a necessity to the process. Harming or slowing the growth of captive species by faulty hardware or chemical concentration was nothing new to me being somewhat of a veteran, but I was never prepared for what I was about to



encounter. After spending a few years in the hobby most of us have heard of predatory organisms that prey on coral, like starfish, and nudibranchs. For the most part most of us may have had a local fish store sell us a chocolate chip star fish in our first few months of reefing. After a year or so we mostly know what to avoid, but the small less conspicuous hitchhikers are more lethal than anything I could imagine.

Moving from a display system to a farm mentality, my objectives were geared towards obtaining a wide diversity of species for parent stock. Living in Pittsburgh this means traveling unless you are prone to shipping in stock. I have always preferred to hand select and meet the growers or at least see first hand the conditions and variables that the organism is currently living with. Through my travels I eventually started making acquisitions of some individuals that were trans-shipping directly to the states but I later learned they avoided the timely step of



quarantine. Not isolating my acquisitions when they arrived put me to blame as much as anyone else, and frankly that's where the problems began. Four hundred gallon display systems offer a lot of stability, but unfortunately many places to hide. In the late winter of 2001 I inadvertently acquired and added a pesky predator to my system, the Aeolid Nudibranch.

The order of Nudibranchia is classified as a Gastropod within the Phylum of Mollusc. The Aeolid belongs to the suborder Aeolidioidea, and is very unique amongst other Nudibranch relative to its defense mechanism. My first instinct for controlling this nuisance was to identify a predator. I soon learned that Aeolids mainly feed on hydroids and corals, which possess stinging cells, and there has been no recorded predation amongst the suborder. The Nudibranch actually separates these stinging cells within its digestive track. Interestingly the stinging cells (nematocysts) are not digested at all, but relocated to the tips of its extremities. Basically when a fish or any animal would attempt a bite it would receive a mouthful of stings that would have been delivered by the original host. Further more the Aeolid can maintain the stinging cells for some time itself similar to the host organism.

After understanding a bit more about my new friend the Aeolid I knew the introduction of a new / temporary predator was out of the question, my next thought was manual removal. Removing these guys from specimens was going to be a daunting task, but necessary nonetheless. Once I set out to remove them my next thought was potentially how many are in the tank, and what is the rate and ideal conditions for the reproductive process. I visually inspect all the specimens I acquire like most everyone doing hand selection. From the photo you can see this Nudibranch is very small, so I estimated that I might have missed as little as two to as many as a dozen.

The original specimen being consumed was a piece of *Montipora Capricornis* and I first noticed some of the outer edges losing the brilliant pink color I had grown accustomed to. While studying the coral with a small dental mirror I realized the underneath had been stripped of all its tissue. Species in the family of *Montipora* seem to be a favorite of the Aeolid Nudibranch, but when the food source runs out the organism will consume other coral. I learned this first hand; with the aid of 5 separated growing systems, I moved all of my *Montipora* species to racks in these breakout tanks for observation. Cutting off all of the *Montipora* food supply, the organism began hosting on *Acropora* within just two weeks. After witnessing that incident I then separated all of the *Acropora* to process. another set of tanks and left the rest of the tank alone which consisted of nearly 12 specimens of *Porities* which were never touched



other than a small section about the size of a dime on a specimen of *Vaughani*. The organism was far too small to be 100% sure of the elimination, so my assumption was they died out from loss of food source or had not reproduced quickly enough prior to the end of life cycle. *Porities* alone was certainly not enough to sustain this parasite and continue it's reproductive chaos.

So I was gearing off for battle on two fronts, one with a strain that was hosting on Montipora and another that had adapted to Acropora. One immediate observation was that the strain that was hosting on the Acropora consumed the coral at a much slower pace, and appeared as though it was sampling different species of the family rather than actually devouring a whole colony. Within the family of Montipora the organism would stay with one specimen and almost one species for that would stay with one specimen and almost one species for that matter until



there was nothing left. After reorganizing fragments from the a Capricornis I intentionally spread them throughout a grow tank amongst other species like Digitatta, and Verrucosa the nudibranch actually avoided all other species until it consumed all of the fragments of the Capricornis. The Aeolid can reach lengths of 30 to 40 mm as an adult but begins to spawn as soon as 12 mm in length. During consumption of the Montipora the Nudibranch in my system was reproducing, depositing egg masses within crevasses of the coral. These egg masses were very small and hard to spot, and actually appeared to be fine grains of sand stuck within the slime coat of the coral.

Prior to manual removal and treatment I wanted to make some system wide changes that may or may not have helped, but in my mind it was worth the effort. Over a period of two days I slowly decreased the temperature of the tanks with a remote chiller from the average temperature of 80 Degrees Fahrenheit to 74.5 degrees. My expectations were to slow or halt the reproductive cycle of the Nudibranch. Additionally I lowered the salinity of the tank from 1.024 specific gravity to 1.019 over the course of 7 days, I had no documentation to support the effects this may have, but I used knowledge based on parasitic infestations. I proceeded to remove the specimens serving as host to these organisms one by one. During the first week I simply gave the fragments and colonies a freshwater bath for 5 minutes making sure the temperature and PH matched the saltwater solution. Piece-by-piece I removed the Aeolids with a small pipette sometimes sucking them off under water, or squirting them off out of the tank with salt water. The more difficult ones on the base rock of the coral I removed with tweezers. In some cases I would squirt streams of



fresh water across them while out of the tank, which seemed to detach many immediately. In week two I proceeded to dip the pieces in Tetra Oomed for a few minutes, which was a technique I read about in an article from Tracy Gray. Oomed, a treatment for flatworms sounded good to me as a second measure against this mighty parasite. Initially out of hesitation I had only dipped the coral for about one minute and thirty seconds which

ultimately had no affect on the Nudibranchs or the egg mass. After waiting three days I repeated the procedure but lengthened the dip period to a full five minutes at twice the recommended dose. One immediate effect was the animal took on a pale blue tone, seemingly it had absorbed the medicine. Initially the animal seemed stunned as well as the coral which looked a bit pale blue as well. A few of the Nudibranch actually seemed to detach and come off the coral but most stayed and within 36 hours they returned to their original color and were again running rapid through the colony and fragments.

nearly devistated colony



I ran though these procedures for the Montipora only, while I observed the organisms in the Acropora tank with the changed parameters. While I can't be certain the temperature or salinity had an affect on the Nudibranch there, I'm certain the egg production fell off all together. After seemingly the reproductive cycle was halted, I took the painstaking procedure of attempting the removal of these organisms each time they were spotted. Through my experience cooling the tanks, in conjunction with fresh water dips seemed to be the only defense. As hard as one could dedicate him or herself to eradication of this pest I believe its ultimately an uphill battle so be prepared. I'm sure there are medicines out there that would have an adverse effect on the Nudibranch but most likely at the risk of the coral itself. For the record I also tried elevated PH levels in independents vats with calcium hydroxide, and dips in a diluted Lugos Solution, neither of which had any impact Important lessons from this experience for me were inquire in more detail about the origins of the species you acquire, only purchase specimens that have been in captivity for a few weeks, quarantine your animals when arriving at home for another few weeks. Lastly so much is new to all of us, that is why it is of the utmost importance to photograph anything and document everything in situations like this for everyone's benefit. Man and animal. More information on this and other parasites are available on my educational web site [www.thesea.org](http://www.thesea.org). The site primarily deals with natural coral reefs and maintaining captive specimens for show and propagation.