

MASWA Newsletter

(July 2000)

ATTENTION: This month's MASWA meeting is Wednesday, **26th July**. Check your calendar, because it could be the day you receive this!!!

This Month's Meeting

The meeting will be held at Frank Krause's house. Frank has had one or two meetings at his house before. Frank's tank is known as the cleanest tank in town and has been for quite some time now...you won't even find a speck of algae growing on the silicon joints of the aquarium...but this time, he has competition from his son, Ben, as he has also set up his very own reef tank! As Frank's tank has been running for quite some time now, it is another good tank for beginners to look at to see how to achieve long-lived success in this hobby. On the night, Frank will be giving a run down of just what it is he does to keep his tank so clean (*one member suggested at the last meeting that bleach might be the secret ingredient, but Frank's tank is very healthy, so that's probably not going to be it - Ed*).

The address is 31 Blackwattle Parade, Padbury. The meeting will begin at 7.30pm.

Last Month's Meeting

June's MASWA meeting was held at Tony Fiorentino's house in Padbury. Tony's tank was spectacular! The tank is predominantly a coral tank with a low number of fish compared to the average reef aquarium. Tony says he keeps fewer fish because he doesn't want to have to feed as much. This is a much more ecologically responsible and sensible idea than keeping lots of fish and just not feeding much. Tony told us that he had gone through all the same problems as everyone else, but he had just persevered and in the end, everything had come right. He says he is a great believer in the use of calcium hydroxide (kalkwasser) and told us that constant small bits of maintenance are what makes the real difference in keeping his tank healthy. Tony changes around 15% of the tank water every 6 weeks and obtains his water from Underwater World.

Tony's setup has a separate room built behind the aquarium and accessed from outside the house. The majority of the equipment for the operation of the tank (such as the DIY downdraft skimmer) plus a 160L sump are housed here. The main tank holds 540L and is 1500mm long by 630mm tall by 630mm wide. The tank is lit by one 400W and one 250W metal halide (the latter isn't turned on very often) and four 40W actinic fluorescent tubes. The MH bulbs are replaced every 9 months and the fluoro's every 12 months. Four separate devices (including the return pump from the sump) are used for circulation. Of these, three of them are powerheads hidden in the rockwork of the tank. Tony has tried to set up his rockwork to make it appear as natural as possible and has done the same with the water circulation.

Tony has been feeding his own DIY marine food which consists of seafood marinara mix (minus the "crab" meat) bought from Action supermarket. Tony adds Kent Marine Zoe to this (he says the fish love this additive) and also some abalone, crayfish leg-meat and spinach.

Nathan Cope also gave a short presentation on his recent experience of breeding and rearing Banggai Cardinalfish.

Raffle Time

Last meeting

Six main prizes were up for grabs at the May meeting; a 115mL bottle of Kent "Zoe Marine" vitamin and mineral supplement/food additive, a 250mL bottle of Flex Geo Liquid water stabiliser and flocculent, a 250mL bottle of Kent Liquid Calcium, a 235mL bottle of Kent "Poly.Ox" organic material oxidiser and 2 Vegie Clips (for holding Nori, Wakame, lettuce, etc).

Darren took first prize and chose the GeoLiquid, Greg was second and took the Zoe Marine, Sid came third and decided upon the PolyOx, Grant went with the Liquid Calcium and both Tony and Ben took Vegie Clips.

This meeting

This month's prizes are a 115mL bottle of Kent "Zoe Marine" vitamin and mineral supplement/food additive, a 250mL jar of Seachem "MatrixCarbon" unique spherical carbon, a 235mL bottle of Kent "Poly.Ox" organic material oxidiser, a 250g jar of Kent Marine "Superbuffer dKh" buffer and KH builder and a jar of Reefs Downunder "InstaKalk" calcium hydroxide. A \$2 raffle ticket puts you in the draw to pick one of 5 great prizes!

This Month's Presentation

No presentation has been formally organised for this month. If you would like to put together a presentation (or even suggest one) for an upcoming meeting, please see Nathan Cope or David Bloch.

Sand Beds: Good, Bad or Indifferent? Part III

By Nathan Cope

In Part I, the actual sand in a sand bed was described. Part II described the organisms likely to be found in a sand bed, and exactly what it is that they are doing in there. In this part, I will go into more depth in describing what conditions are conducive to sand-beds, in what situations they will be difficult to set up, why and what benefits can be obtained.

The modern-day sand bed provides two main functions:

Denitrification

The original reason that sand beds came back into popularity was that it was discovered they would provide denitrification. That is, anaerobic bacteria in the sand bed will turn nitrate and nitrite into nitrogen and nitrous oxide gas, where it will safely bubble out of the aquarium and effectively reduce the level of all nitrogen compounds in the tank.

Plankton

The organisms in a properly populated live-sand bed are constantly growing and breeding due to adequate food supplies and an optimal sand grain size. Breeding obviously produces offspring and these offspring are generally released into the water column as plankton. Plankton are a natural food source for the vast majority of fish on a reef and likewise for corals and other cnidarians. Fish are relatively easy to feed in captivity and regularly accept most foods, but corals need food too and the smaller polyped ones aren't so easy to feed. With a fairly constant stream of plankton being released into the water column from a thriving sand-bed each night, corals tend to grow quite rapidly, are extremely unlikely to become diseased and tend to retain original colouration far longer.

Under what conditions do they work best?

Live sand beds generally work best in tanks with low to medium water motion. With very strong water motion, the sand is often blown around the tank which is likely to kill the organisms in it, but at the very least, reduces its habitability. Also, strong water movement tends to oxygenate the sand, so the anaerobic conditions necessary for denitrification are lost. For this reason, the stronger the water movement, usually the deeper the sand bed has to be. Obviously, other forms of disturbance such as vacuuming or stirring the sand bed are not good for it either as they will either grind the infauna to death, or oxygenate the sand bed.

Live sand beds seem to do best at a minimum depth of 5 cm. Any shallower and anaerobic conditions do not tend to develop, so denitrification does not occur. If at all possible, 7.5 to 10cm are better depths as they provide more stratification for the infauna to move through. These organisms actually make use of the compounds that form in the low oxygen environment. It has even been suggested to me by two benthic ecologists that I should keep adding 1cm of sand to my tank every 2 weeks until dark patches begin to form at the very bottom of the sand bed because this will mean that just about all the compounds needed by the infauna will be forming through the total depth created. I stopped before the formation of the black patches at 6cm because it just looked like there was too much sand and not enough aquarium. Having said that, I know of one tank in the US where the sand bed is 20cm deep! Obviously the maximum depth is up to you, your sense of aesthetics and the size of your aquarium. Think about it, though, in the wild, there is no depth limit to a sand bed.

Sand beds are also helped along when illuminated by strong lights. The lighting is not absolutely essential, but does allow some growth of diatoms at the surface of the sand which a lot of infaunal species will eat. In a well populated sand bed, the diatoms should never be visible as they will be eaten at about the same speed that they grow.

Obviously the infauna cannot thrive without food, so it is essential that these organisms are fed. Unless you are not adding any food to your tank, it is usually quite sufficient to just feed your fish. The fish faeces and any food they don't eat will be consumed by the infauna. If a sand-bed doesn't thrive though, it is usually because it just isn't being fed enough and therefore, the infaunal populations won't grow.

Under what conditions are they not recommended?

High energy aquariums such as those simulating a reef crest generally are not suitable for live sand beds. The reason for this is that the water motion is so strong that the sand bed can never be kept at the bottom of the tank. These sorts of aquariums can have remote sand beds set up in a connected sump and it is usually of great benefit because the sorts of corals found in this environment are generally the small polyped ones that are difficult to feed and so the plankton produced are a boon.

Tanks housing certain species of fish are not conducive to a healthy sand bed. Most fish-only tanks have problems with sand beds for this very reason. For example, some species of wrasse spend a lot of time diving into the sand or blowing it around in the hope of uncovering something tasty. This obviously has a negative impact on the infaunal population and likewise, sand-sifting gobies such as the Twin-Spot Gobies and the various species of Sleeper Gobies very quickly decimate infaunal populations.

Tanks that are rarely fed or fed very sparingly do not encourage a healthy infaunal population. Ironically, it is usually the reefkeepers that have the problems here. They don't want to see detritus on their sand bed or have their nitrate level rise too high, so they feed sparingly which means the infaunal population stays low and may even decline. The infaunal population is what keeps the sand clean and breaks down any detritus that settles on the surface of the sand. They also help keep the sand from compacting which means that nutrient-laden water can percolate down to the anaerobic depths of the sand-bed and be denitrified. Both of these things are what reefkeepers actually want and would achieve more if they put more food into their tanks (of course, nutrient export mechanisms for phosphate are necessary, too). Barring the problem mentioned in the previous paragraph, sand beds in fish-only tanks can do very well due to the high levels of food being added to the tank.

Very shallow sand beds are not conducive to infauna or denitrification and seem to create elevated levels of nitrate and phosphate. The reason most often cited for this is that, there is nothing to consume the waste and leftover food in the sand, so it just decays without getting locked up in the bodies of some infaunal animal that has eaten it. Also, because of the very shallow depth, denitrification can't occur, but nitrification can, so more nitrate is created rather than being removed.

Well, I hope this three-part series on sand beds has helped you understand them a little better. By now, you should understand what components and conditions are necessary to create a healthy and properly functioning sand bed. You should also know why sand beds are useful and in what situations they are going to be more of a hindrance than a help.

If you have any further questions regarding sand beds, don't hesitate to contact me.

Another New Store!

By Darren Collins

My wife, Raqual, came across a new shop for marine aquarists the other week down in Rockingham. Tuscan Fish & Plant Nursery is a garden nursery-cum-fish shop located on Dixon Rd on the east side of the Rockingham Toyota dealership. It is open 7 days a week from 8.30am to 5.00pm.

They haven't had the marine side of the operation running for long but still have a couple of display tanks up and running. One is a nice 6' setup to give people some idea of how to keep corals and fish.

There are currently 16 different stock tanks with corals and fish mixed in each. This makes it difficult to catch the fish, but more tanks are coming soon, so this problem should be alleviated.

With the exception of a couple of dying seahorses, all fish were looking healthy and there seemed to be a good variety of both corals and fish. The owner tells me all their stock comes weekly from Queensland.

Equipment prices were fairly average compared to what I have seen around town. I wasn't able to determine the staffs' knowledge of marine aquarium-keeping, but I believe a guy by the name of Craig is the person to speak to in this regard.

Going by what they had on the shelves they're not up to speed, in comparison to other shops, with what is currently available in the way of protein skimming as only one type of small skimmer was on display.

Anyway, forget the equipment - go and have a look as they are bound to have some nice fish and corals available.

Reflections on the Quobba-by-Crowbar Trip

By Tony Fiorentino

Without an introduction, the title is going to be a little obscure for the newer MASWA members, so here's a brief explanation. Tony Fiorentino, David Bloch and, I think, Mark O'Malley (ex-member (ex-hobbyist?)) all went to Point Quobba one year to collect live rock for their aquariums. One member of this party took along a small crowbar (let's call him Mr Crowbar) to remove pieces of Quobba and bring them back home. It was said by the two crowbar-less members of this expedition that they always knew the proximity of Mr Crowbar because, whilst underwater, they could hear the constant chink-chink-chink of the crowbar hitting and breaking the rock...well, it was either that or some genetically-enhanced/steroid-abusing/super-powered parrotfish. Unfortunately, they found themselves with a bit of a dilemma, because they didn't know whether it was best to keep away from the chink-chink for fear of injury (or being stuffed into the collection bag of Mr Crowbar) or to stay close to the sound, so that Mr Crowbar could protect them if a shark showed up. Anyway, this has very little to do with the following story, but will make for an interesting talking point at the next meeting - Ed.

Three years ago some of the boys went to Quobba collecting rock, corals, etc. One of the fun things about going collecting is that you can never be sure what you are going to end up with. Although it's possible, and often is the case, to end up with a mantis shrimp (which is definitely not a good thing), there are rare treasures, such as the small money cowrie I got on this trip. About two weeks after putting all the rocks in, I noticed it crawling around (as cowries do). Unfortunately, it appeared that that was the first and last time I would ever see it. But just the other day, I found it again - what a pleasant surprise!

For those cynics, yes, it was alive and obviously well. Mind you, I haven't seen it since, but it doesn't matter (*since writing this, Tony has again found the cowry. He also discovered its "homing" spot, so now always knows where to find it - Ed*). I think this epitomises one of the attractions of this hobby in that life goes on in this closed environment despite what we, at times, do or don't do. This got me thinking about the much-maligned, unintentionally-introduced mantis shrimp. Perhaps there is a place for it in this hobby. After all, we are the ones who removed its home - it just shifted with it. As custodians of a little piece of nature we should be striving to lessen the impact on whatever we collect, regardless of whether it is good or bad. As a hobbyist society, we discourage the collection of *Goniopora sp.* coral, but what makes this group of animals more important than mantis shrimp? Anyway, that's enough of the altruistic mood I am in (must be the weather) just something to think about.

Upcoming Meetings

July 26th: Frank Krause
31 Blackwattle Parade
Padbury
Ph: 9307 7522
August 30th: David Bloch
September 27th: **Steve Tofts**
October 25th: **Grant Magill**
November 29th: **Fremantle OceanFarm**

MASWA's World Wide Web address

<http://www.wantree.com.au/~conquest/andy/maswa/>

Newsletter and General Inquiries

to Nathan Cope E-mail address: copen@one.net.au
or phone on (08) 9367 9251 a/h or 0416 09 2000 b/h

Membership and Treasury Inquiries

to David Bloch E-mail address:
aquatech@opera.iinet.net.au
or phone on (08) 9375 2438 a/h

MASWA Membership

Currently MASWA requests an annual \$20 donation from members, \$10 for Junior members. This covers the cost of newsletters, drinks, nibbles and other costs associated with the society. Members will receive information sheets and discounts on some products.

Friends in Common

Jan Anderson, David Bloch, Darren & Raquel Collins, Nathan Cope, Andy Dolphin, Tony Fiorentino, Achille Gaglia, Paul Groves, Sid Harrison, Sean Hooper, Frank & Ben Krause, Grant Magill, Phil & Caron Melvin, Phil Searle, Ronald Tan, Steve Tofts, Greg Weryk, Rick White.

If you've paid your money and your name is not on this list, tell David! Members on the web should check they are on the web site members list.

If there is anything you would like to know more about or anything you would like to add to the newsletter, call or send comments to the current editor, Nathan Cope. Remember, this is your newsletter.

DISCLAIMER

The Marine Aquarists Society of WA is a name that we, as a group of friends with like interests have applied to ourselves for the purpose of information exchange. No one person, nor the group as a whole, can be held responsible for liabilities, injuries or other that may result either directly or indirectly as a result of our gatherings or the information exchange therein. The same applies to the information contained in this newsletter.