



The Living Reef
November 2003 - Membership for 2004 now due!

Editorial....

With Christmas just around the corner it's a good time to start dropping "aquarium" present hints to your loved ones. Fish, corals, live sand and live rock don't generally make good presents as they usually "cark it" pretty quickly and start to release foul odours that stink out all of the other presents around the tree! On the other hand gift vouchers, hardware and especially books are just perfect. So why not make the effort yourself and drop the appropriate hints at appropriate times. What better way to ensure you get what you want for Christmas!

Inside this Issue....

October Meeting Rundown	2
November Meeting Information	3
MASWA Message Board	3
MASA Presidents Report	4
Trick Filter and Deep Sand Bed Q & A	5
Buy, Sell, Swap and Wanted?	7
Membership Subscriptions Invoice	8

*MASWA Meeting
 Calendar....*

November 26th – Glenn Fletcher
84 Helena Street, Guilford
FRAGFEST

December 17th – Nathan Cope
*CHRISTMAS MEETING – Trophies, Presentations
 and Special Raffle*

January 28th 2004 – Paul Tayler
AGM and Working Guest Speaker

February 25th 2004 – David Bloch
FRAGFEST

March 31st 2004 – Elmer Elison
Special Raffle

April 28th 2004 – Grant Magil
Guest Speaker

Meetings start promptly at 7.30pm!

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.

MASWA Contact Information....

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MEMBERSHIP PAYMENTS

Cheque: Make all cheques payable to Paul M. Tayler.

EFT: Make all EFT transfers to BSB 086 217 A/C # 69355 1664 (please include your name on all EFT transfers!).

Cash: Make payment in person only.

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NEWSLETTER CONTRIBUTIONS

If you would like to make a contribution to the newsletter please don't hesitate to contact the Newsletter Editor, David Bloch on the phone number or email address listed above. Contributions to the newsletter need to be received no later than 7 days prior to the next meeting date.



October Meeting Rundown....

A MASWA year is never complete without a meeting at Tony's place and this year was no exception. The room was packed with people all eager to see and hear how Tony manages to keep his tank looking the way it does with the minimum amount of maintenance.

As usual the members who have never seen Tony's tank before were all impressed with his behind the scenes filtration room.

Earlier in the evening we had been asking Tony if his clowns had bred before as the female was looking rather plump! To Tony's surprise Dion spotted a clutch of clownfish eggs attached to a large patch of coralline algae on the front glass of the aquarium. In fact this pair of clowns would possibly be the nicest looking pair I have ever seen!

The raffle draw sold record numbers of tickets for the bounty of goodies up for grabs. On the table were aquarium shop gift vouches and livestock which was graciously donated by Peter from Oceanarium and Simon from Ocean Reef's Aquarium.

November Meeting Information....

Last month we went north, this month we go east to the home of our second youngest member, Glenn Fletcher. Glenn has a newly setup tank that has been going for a few months. His system is setup with an Aquamedic needle wheel protein skimmer, Aquamedic calcium reactor, live sand and live rock. Currently the lighting consists of fluorescent lights but shortly he will be installing 2X 400 Metal halide lamps. His light hood is almost finished and is awaiting the addition of a ventilation fan before being put above the tank.

Glenn's tank has a nice arrangement of rockwork that is very open in nature with ledges and caves which is great not only in term of its appearance but also for the fact that it allows good water circulation around and through it. His live sand bed is nice and deep and starting to get colonised by lots of worms and invertebrates. He has quite a few corals and fish already in his tank.

This month will mark the first inaugural MASWA Fragfest meeting. The focus of the meeting will be on exchanging, giving away or raffling off any propagated invertebrate or fish. The purpose of the Fragfest meetings (which will be held every 3 months) is to encourage members to get active in breeding or propagating marine animals. This helps reduce pressure on wild caught species and advance knowledge in this area. It also fosters more of a community attitude amongst members which makes MASWA meetings even more of a fun place to be.

This will be the first meeting at Glenn's place and your input and ideas would be greatly appreciated by him. His aquarium can be found at **84 Helena Street in Guilford**. The house number is not located on the house, it's on the kerb! The meeting starts at 7:30pm with drinks and nibbles provided.

MASWA Message Board....

AGM IN JANUARY!

Time is getting closer to the most important event in the MASWA calendar, the AGM. The AGM will be run in January at the first general meeting of the 2004. This year we have run MASWA without a full committee. Missing were the positions of Secretary and Vice President. Next year we want

to fill all the positions so that we can do a better job at organising and running MASWA.

The Positions in the MASWA committee are:

President
Vice President
Secretary
Treasurer
Newsletter Editor
Webmaster
Social Coordinator
Science Officer

What does it mean to be a MASWA committee member? For six days a year (every second month) you get to take an active role in the running of MASWA. You also get to sample the delights of Beryl's cooking (Paul Tayler's wife). The pay is crap - \$0.0 however the social interaction and "stories" you hear are very entertaining!

To be in the committee you need to be nominated either by yourself or someone else, and if no one else is nominated for that position you are elected to that position. If there are other nominees then a vote is taken by the members for the successful candidate for the position.

If you think you have what it takes and are keen to help out then please talk to a committee member at the upcoming meeting and make your intentions known

MEMBERSHIP SUBSCRIPTIONS FOR 2004 ARE NOW DUE!

The end of the year is quickly approaching and membership subscriptions for MASWA 2004 are now due. We will not be carrying unfinancial members for months at a time like in previous years. Memberships cost \$24 for "general membership" (includes partner or child) and \$12 for "associate/country membership" (for those not attending meetings). If your membership dues are not paid by the January 2004 meeting you will be struck off the membership register and receive no more newsletters! A membership invoice can be found on the back page of the newsletter and for payment options please see the "MASWA Contact Info" on page 2.

MASWA RAFFLE NEWS!

Due to the popularity of the 6 for \$10 raffle ticket special held last month at Tony's place the committee has decided to extend the super special indefinitely! At this price the tickets are selling like hot cakes and what's wrong with that? Nothing, especially when you see what's up for grabs on the raffle table each month!

MASWA 2004 ARTICLE PRIZE!

To try and encourage members to get actively involved we have decided to offer a \$100 prize to the person who has contributed the most hobby related articles, cartoons or jokes etc to the MASWA 2004 newsletters. The content must be suitable for general audiences (no rude jokes Nigel and Tony! Ed.). The winner will be announced at the December 2004 Christmas meeting.

MASA COMMITTEE ELECTIONS

At the last MASA (*Marine Aquarium Societies of Australia*) Committee Election, our very own Jason Booth became the new MASA Vice President and Nathan Cope retained the position of Secretary and has also become the Media Liaison Officer. David Macnamara, the former MASA president, has taken on the role of Treasurer plus has also become MASA's Partnership Liaison Officer.

MASA Presidents Report....

By David Macnamara

Well it has been a little while since the last update and much has happened in the meantime so that little voice which reminds me of things to do has been working overtime recently on the reminder for the MASA update.

First off there have been a number of changes on the MASA Committee. Dallas Warren (MASOV), Jamie Newman (MASOV), Wayne Mothershaw (MASWA), Steve Wyld (MASQ) and Matt Rains (MASAOG) have all recently stood down from the committee. I'd like to take the opportunity to thank them all for their efforts and despite him not liking the limelight I'd like to offer a special thank you to Dallas for everything that he has put in to getting the hobbyist scene in Australia where it is today. Replacing those people on the Committee are Neil Creek (MASOV), Dan Robinson (MASOV) and Jason Booth (MASWA).

In addition the MASA Committee has just conducted it's elections for 2003/04. The titleholders are:

- * President - Dan Robinson (MASOV)
- * Vice President - Jason Booth (MASWA)
- * Treasurer - David Macnamara (MASS/MASQ)
- * Secretary - Nathan Cope (MASWA)
- * Online Resource Manager - Neil Creek (MASOV)
- * Media Liaison - Nathan Cope (MASWA)
- * Business Partnership Liaison - David Macnamara (MASS/MASQ)

MASA's business partnership program continues to expand with many new enquiries coming in and

more people coming on board. Keep your eye on the MASA forum on RTAW for announcements on these as we go through the formalisation process for both the existing arrangements and the new ones.

On the regulations front we have been involved with issues from WA, QLD and VIC this year. As MASA grows and becomes better known I anticipate that the level of activity will only increase in the future. We already have some very good contacts and seem to be keeping informed on issues as they arise. Also, as many of you will be aware each society received a number of information packs from the Marine Aquarium Council (MAC) for distribution to all of its members earlier this year. Whilst MAC certification has not yet taken a big foothold in Australia we are hopeful that with further education that at some point in the not too distant future that it will. (Note - if you did not receive a pack please speak to someone on the committee in your local society).

The MASA website has been going through something of a consolidation phase in the past few months with not a lot of activity happening. Now that the MASA Committee position of Online Resource Manager has been filled we anticipate that the level of activity will increase. One of the first aims here is to get a more formal structure and procedures in place to facilitate better communications between all of the people responsible for each societies online presence. Once we have that we hope to bring a range of new features to the website.

We may also have some new additions to the MASA family if things keep progressing as they have been. In the last few months there have been people from SA, TAS, ACT, Nth QLD & Country NSW talking about setting up their own societies. Whilst these things take time to get going we certainly wish them all the best of luck should they make the transition from ideas to actually forming their own societies.

Finally, I'd like to thank you all for putting up with me! It was a privilege to serve as the inaugural President of MASA and I have gained an enormous amount of satisfaction as the pieces have come together. I wish Dan all the best of luck during his term and I hope that you are all as nice to him as you were to me.

David Macnamara
Outgoing MASA President

Trickle Filter and Deep Sand Bed (DSB) Q & A....

By Nathan Cope

Most people in MASWA use the Berlin System of filtration (live rock, protein skimmer and deep sand bed) rather than a trickle filter. However, many people new to the hobby have difficulty deciding which filtration system is best to use. This is often because the majority of literature that is readily available is very old and pre-dates popular usage of the Berlin System. Also, many aquarium stores, for reasons that most of us do not agree with, promote trickle filters over the Berlin System.

Recently on MASA's online bulletin board, Reefing the Australian Way, a number of questions were asked about this very topic. I did my best to answer the questions and received feedback from some people to say that my answers were very helpful. I thought it might be useful to pass this information on as many of MASWA's newer members are also fairly new to the hobby.

Firstly, let me say that in regard to trickle filters versus DSB's and/or Live Rock, very little in the way of scientific experiments have been conducted in this area. The workings of DSB's can be extrapolated from the scientific studies that have been conducted in the field of sedimentology, though.

Okay, so lets answer some questions:

Wouldn't bio-ball's allow more leeway for mistakes while new hobbyists come to grips with keeping a reef?

Bacterial populations are only ever big enough to handle a stable nutrient level - if there were too many bacteria, there wouldn't be enough "food" to go around for all of them, so the bacterial population is only ever big enough to handle what is normally available.

Bio-balls are known for their extremely high surface area which gives a lot of room for bacteria to grow. The key word there is "grow". If a large animal suddenly died in a newbie's tank or they added too much food one time, etc, bacterial populations have to be big enough to handle the sudden increase in nutrients in the water. As I've mentioned, there won't be enough bacteria to handle the sudden increase in nutrient levels, so the population will still have to grow. It could do this on bio-balls or it could do it on live rock or live sand - regardless, it will take time for the bacterial population to grow and they won't grow faster just because of the media and therefore, the amount of surface area for them to grow on doesn't matter.

As I understand it nitrate levels as high as 40ppm have no affect on coral growth at all but will promote algae to some degree. So are low nitrate levels promoted just for the purposes of controlling algae?

The lower the nitrate level, the better it is for many inverts. Some people say that they don't have any problems with their corals at X level of nitrate. In my experience, tanks with detectable levels of nitrate never look as healthy as ones with "zero" nitrates. The reason, I believe, is that the corals don't look as good because they don't expand as much.

Algae can also be a problem with elevated nitrate levels, so this is another good reason to keep them low.

Lastly, from my personal experience and it seems to follow with MASWA members that I've talked to about it, aquariums with non-zero nitrate levels tend to need frequent or large water changes to keep the nitrate levels under control. If this isn't done, the nitrate level keeps going up. In my experience, this seems to be at a threshold of about 10ppm (ie, if the level is above that, it keeps going up, if it is below, it tends to be stable or keep going down).

I'm not sure if this threshold exists as a natural function of an aquarium or if it is due to inaccurate test kits. Regardless, members who have close to zero nitrates, need to do far less water changes. I, for example, only do a 40% water change every 3 to 4 months.

I do run a trickle filter on my reef but have not seen my nitrate level greater than 10ppm. However, I do make fortnightly partial water changes.

It is quite probable that if you removed your trickle filter (assuming you also have live rock in your tank), that this would remain the same. However, depending on the percentage of the changes you are making, it may actually be the water changes that are keeping your nitrate levels at their current low level.

Algae seems to be controllable at your 10ppm nitrate level. The algae that people have trouble with at high nitrate levels are hair algae which grows on the rock and sand and smothers your corals. The algae we get on our glass, it seems, never goes away completely.

I haven't been convinced by arguments for DSB's because it seems to be some-what riskier than a trickle filter. I mean the worst thing said about a trickle filter is that it promotes nitrate. I have never heard a single

story of a trickle filter causing a tank to fail. I have heard and read many stories about DSB's failing, particularly those built over a plenum.

I've heard of systems failing due to trickle filters and I've heard of systems failing due to DSB's, I can't say for sure if any of these stories are true and I think, in most cases, the person reporting the story really wouldn't have the capability to know for sure either. People speculate about what caused their system to crash and no-one wants to blame it on themselves - they prefer to blame it on something that was out of their control.

A lot of LFS's promote trickle filters so it is unlikely they would put forward the idea that a trickle filter caused a tank to crash - they may feel they would be liable because they are the ones that gave the advice to use one. Likewise, LFS's are generally less likely to agree with the use of a DSB, so are quick to say that they cause crashes.

Plenums can be a problem if not set up correctly - but I guess that applies to most things.

First of all, let's leave out chemistry and just think about mechanics. So we have a layer of sand. Between each small particle is a void. If detritus falls onto the sand bed it winds up filling these voids. The bacteria in the sand bed consume the organics but this leaves mulm.

The mechanical properties of DSB's are relatively unimportant. The chemistry and biology of a DSB are for more important than the mechanics.

As for mulm well, that is actually a film of bacteria joined together by an organic matrix - its not a by-product of bacteria consuming organics.

But, bacteria are only one important part of a DSB. A DSB without micro-animals such as worms, copepods, ostracods, etc, may as well be an SSB. These animals not only eat large particles of waste such as excreta and food that fish and corals haven't eaten, but they also eat bacteria. Their waste is eaten by the bacteria and the constant predation on the bacteria allows the bacterial population to keep growing and therefore, lock up nutrients in the bacterial cells.

How long before the sand bed is exhausted mechanically (ie, all the voids between sand grains are filled up with mulm and detritus)? It certainly seems to me that it is necessary to clean the sand bed of its waste build-up. However, as I understand it, this gives rise to complications of a chemical nature.

With a healthy population of micro-animals/infauna/"sand sifters", live sand beds never get exhausted because the animals in them

eat detritus and mulm from between the sand grains.

Cleaning the sand bed kills and/or removes many of the micro-animals living in it and their death causes the part of the sand bed that was cleaned to be inert or sterile for a while.

The only complications of a chemical nature following a cleaning are that it can't function as a nitrifying filter until it regenerates.

If there are many living organisms in a sand bed consuming detritus and mulm and stirring the sand, then they must produce lots of their own waste products. Also, their activity is said to be in an anoxic zone. Now we are touching on chemistry, lets not forget that anoxic environs are toxic to most living organisms in our systems.

The waste products produced by the stirring organisms are eaten by the bacteria.

Only the deeper layers of a sand bed are anoxic. This is where denitrification occurs. The higher levels are where the micro-animals mostly live. **Most** animals cannot live in an anoxic environment because there is not enough oxygen for them to respire but there are many bacterial species that thrive in the environment. There are even many infaunal animals that deliberately burrow down to the anoxic layers (and beyond) in search of these specific bacteria as a food source. They even consume some of the chemical by-products that these bacteria produce. DSB's have very complex chemical and biological nutrient pathways.

I think little or no mechanical filtration is taking place in/on a DSB as the detritus/mulm is not being removed from the system.

Mechanical filtration in the traditional sense does not occur in a DSB. Food and other detritus that fall on it does get removed when the organisms living within it consume it though... so I guess in a sense this could be viewed as mechanical filter. A trickle filter is not a mechanical filter either, though, it is only supposed to be a biological filter.

Trickle filters certainly end up causing problems if they become mechanical filters because detritus trapped there is only broken down to nitrate by bacteria rather than being consumed by micro-animals and incorporated into their much, much larger bodies.

It seems that all I have to worry about with a trickle filter is that the pump is running but still it apparently isn't cool to run a trickle filter.

Keeping the pump running is a good idea for all types of filtration. 🤔

I don't know if keeping a trickle filter is cool or not (I certainly don't foresee it appearing on the fashion catwalks of Milan), but most of us are converts to the idea that trickle filters are not needed on reef aquariums, so we wouldn't recommend people go out and buy one.

I suppose all I am saying is that I am a chicken and I don't mind saying my system contains readable levels of NO3. I am more than happy to export via partial water changes.

There is nothing wrong with that. If it ain't broke, don't fix it. If you're happy to do the work and the tank is healthy, do whatever you want for filtration. When I first joined MASWA in 1995, I was using the Berlin system with no trickle filter. One of the guys there, despite seeing the success of my system, took three years before he finally removed his bio-balls - only to find that when he did, he stopped having algae problems. By the way, I think this is more due to the bioballs trapping detritus than it is to any inherent "nitrate factory" properties.

I don't think there is one "best" system. Doing water changes is my trade off for peace of mind and I am sure every system has it's own pros and cons.

No, there is no one system that is best for all situations, but there are systems that are best for specific situations.

In your case, you are worried about changing to a different system and you are happy with the way your current system works, therefore, your system is best for your situation.

Your system wouldn't be best for me, because I hate doing water changes. 🤔

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MARINE AQUARIUM SOCIETY OF WA **INVOICE**

PO BOX 7185
SHENTON PARK
WA 6008

INVOICE No:
DATE: 31st December 2003

Billing Address:

Paul M Tayler
Treasurer
PO Box 7185
Shenton Park
WA 6008

For:

Membership 2004

DESCRIPTION	AMOUNT
Membership fee for period 1 st January 2004 to 31 st December	24.00
Our membership fees are due and payable by the 31st December 2003	
MAWSA as not for profit organization is not an enterprise and has no reasonable expectation of profit or gain	
TOTAL	24.00

Make all cheques payable to **Paul M Tayler**

Make all EFT transfers to **BSB 086-217 A/C # 69355 1664**

NB It is important to include your name on all EFT transfers

If you have any questions concerning this invoice, contact [**Name, Phone Number, E-mail**]

THANK YOU FOR YOUR SUPPORT