MASWA Newsletter

(January 2001)

ATTENTION: This months MASWA meeting is on Wednesday, **31st January**. Check your calendar, because it could be the day you receive this!!!

This Month's Meeting

The meeting is to be held at Paul and Merilyn Tayler's house. Paul is a relatively new MASWA member, but has been keeping marine aquariums for a while. It will be interesting to see his tank and hear what advice Paul was given when he first set up his aquarium.
Paul says that their address is a little confusing so he has provided a map, which should be attached to the newsletter, to help find their house. The address is **333A Railway Road** or **Waylen Lane Cottage, Shenton Park**. The meeting will begin at **7.30pm**.

Last Month's Meeting

The last meeting was at Nathan and Niloufar Cope's house. It was the MASWA Christmas Party and we had a sausage sizzle to celebrate. I think everyone will agree that it was a big success and a lot of fun was had by all.
Nathan's aquarium looked very healthy but since its crash in September it had been lacking a bit in the corals department. Luckily Grant Magill donated three different types of corallimorphs (mushroom polyps) and David Bloch donated two *Sarcophytons* (Leather Corals) that helped add colour and fill the aquarium. Thankyou to you both.
Also, hosts were picked for the next six MASWA meetings, so you can now pencil the meetings in to your diaries all the way up to June (see back page of the newsletter for dates).
Lastly, we discussed a trip to Quobba for the Easter long weekend (see below).

Did you know?

Oceanographers presently use three different pH scales: the so called "total","free" and "seawater". But most electronic pH meters are calibrated using buffers from the NIST (formerly NBH) pH scale (who knows what scale the chemical hobby pH test kits use). Electrodes calibrated in NIST buffers read approximately 0.2 pH units higher than electrodes calibrated on one of the pH scales commonly used by oceanographers. That means if an oceanographer measures the ocean at 8.1 – 8.3, then we need to keep our aquariums at 8.3 – 8.5 if we are measuring our aquarium water via a NIST pH test.

Discounts!

Corey from *Pet Magic* (Shop 8 / 1500 Albany Hwy, Cannington) has informed me that MASWA members are now entitled to a 10% discount on all aquarium purchases from *Pet Magic*. All you have to do to obtain your discount is say that you are a MASWA member when paying for your purchases.
This is the first time that an aquarium store has offered MASWA members a discount. A few have talked about it before, but no-one has asked for it to be broadcast to the general membership. The discount is very welcome, but for clarification it must be said that the publication of this discount in the MASWA Newsletter is not an endorsement of *Pet Magic* by MASWA. MASWA does not officially endorse **any** aquarium store as it is up to the individual member to decide if a store should be patronised or not. This decision should be based on the general health of the marine animals in that store.

Quobba Trip (13th-16th of April)

The plan is to travel to Quobba (50 kms north of Carnarvon) for the Easter long weekend to collect fish - for the extremely dexterous among us - live rock, live sand, corals and other inverts for our aquariums. Yes, this is perfectly legal, as long as the animals collected are for personal aquariums only, that none of the species collected are protected species and that none of the animals are collected in marine reserves.

In the past, locals and holidaymakers have often questioned what we are doing as we scurry up and down the beach from shore to trailer and back again. Once we explain, they are generally quite interested in the concept of a marine aquarium and ask how they would go about setting one up or tell a story of someone they know who has one. There have been a couple of incidents, though, where a local has not been happy about our collections, apparently due to an assumption that what we are doing is illegal. For this reason, a copy of the current Fisheries legislation will be brought along with us. I will also attempt to procure a letter from the WA Fisheries Department to state that it is perfectly legal for us to collect animals, including corals, from the area.

We will be camping either at Quobba or in one of the caravan parks in Carnarvon. This will be discussed at this month's meeting. It is essential that we determine where we would like to stay as soon as possible because the caravan parks are always booked out for the Easter break, so we need to make a booking early.

Depending on how many people go, we will need to take several trailers and lots of buckets and tubs. As MASWA members, we should strive to keep mortality rates from collection as low as possible. Consequently, it will be necessary for you to provide the appropriate containers for whatever you intend to collect and avoid putting too many animals in the one container. Remember, corals produce a lot of mucous (slime) when handled and/or taken out of the water. This mucous can contain nematocysts (stinging cells) that will sting other corals if they come in to contact with them. The mucous also reduces the amount of oxygen that can get to the coral if the water flow is low (which it always is in a bucket). Fish will also be affected by this mucous and stressed fish need a lot of oxygen, so fish should be kept separately from corals (and opportunistic crustaceans) when transporting them. Fleshy corals, such as the large polyped stony corals and soft corals will need to be transported underwater, but the small polyped stony corals (which produce the most mucous) can generally handle being wrapped in wet newspaper. It is best to avoid the animals cooling down too much as well, so insulating materials will also help.

If you wish to collect a lot of live rock, you may need to provide your own trailer (again, depending on how many people intend to go and how many trailers can be provided). Also, think about getting some battery powered aerators, because its an eight hour trip and the animals don't tend to do too well without oxygen! **I'm sure one of the aquarium stores that are MASWA members will supply battery-powered aerators to us at cost price. We will look forward to hearing details from them in regards to this.**

This information will be reproduced in the last newsletter before the trip (March issue), but I wanted to let you know what is necessary so that you can perhaps decide if you want to go or not and if so, start planning for the trip.

Did you know?

Over 350 fish species have been reported to function as both male and female at the same time or to change sex some time during their lives.

Clam Soup

By Nathan Cope

If you saw the 1st of January, 2001 edition of *The West Australian* newspaper, you may have noticed a large colour picture of our treasurer, David Bloch, inside. David was wearing a rubber suit and apparently showing a schoolgirl that Swan River brown-spotted jellyfish (*Phyllorhiza punctata*) "can be pretty". No, this wasn't a forensic photo from some bizarre breach of the law, the actual reason David got his mug in the paper was because *Underwater World* has now become *AQWA* (Aquarium of Western Australia).

Underwater World didn't just change it's name, either, most of it's top floor and stairway displays were completely remodelled. In fact the only parts that are still the same are the touch-pool, the Seadragon tank and the relatively new, saltwater crocodile display.

AQWA officially opened on the 1st January, 2001 but I was lucky enough to be there on the 31st December, 2000 to see all the new displays. I have to admit that after touring various public aquariums in Canada and the US in 1999, Underwater World had subsequently appeared quite amateurish to me. In my opinion, though, the transformation to *AQWA* has brought the public appearance of the facility right up to par with other world-class aquariums. This combined with the fact that all displays are themed on Western Australian marine environments will really do our state proud when *AQWA* is visited by the thousands of tourists it is likely to see each year.

I happened to be at *AQWA* that day due to the fact that two large *Tridacnid squamosa* clams had been left over from all the renovations and *AQWA* had nowhere to store them where they would receive adequate light. I had been asked if I could babysit them until they could be properly catered for at *AQWA*. One *T. squamosa* was already in residence in my tank, but I thought another two could probably fit, so I agreed to it. I took each one home in a 2/3 filled 20 litre bucket. The water was just low enough to avoid it sloshing out while driving and just high enough so that if a clam suddenly shut, it wouldn't squirt a jet out of the bucket.

The water from *AQWA* was a little less than 25C and as my tank was 29C, I had to slowly acclimatise the clams. I did this by standing the buckets in the sun and checking the water temperature every 10 minutes. Finally after 40 minutes, the water had reached 29C and I'd rearranged enough corals in my tank so that the clams would fit, so in they went. The largest clam appeared quite stressed and I'd already noticed that it was showing signs of bleaching at *AQWA*. It didn't react to shadows very much (not a good sign) and also wouldn't "blow" out the air bubbles that had been trapped in its syphonal cavity. Consequently, I had to hold the clam under water and tilt it backward and forward numerous times until all the air came out. About an hour or two later it started to spawn! I was intrigued but horrified as I'd heard the disaster-stories about spawning events in closed-system aquariums. I was extremely concerned that the spawning clam would trigger the other two to do the same. As we were hosting a New Year's Eve party that night, I could imagine my guests leaving with the idea that a reef aquarium was little more than a large tank filled with salty milk!

My original clam was smaller than the other two so I hoped that it wasn't yet large enough to be sexually mature, but I wasn't so sure about the other newcomer as it was a similar size to the spawning clam. Luckily, after about 30 minutes the clam stopped spawning, the other clams hadn't reacted, the tank hadn't become very cloudy at all and had even cleared up by the time our guests arrived.

The next day everything looked great… until 4pm. One of the clams began spawning but I don't know which one, because when I finally noticed, all three were doing it with gusto! I suspect that it was the one that had spawned the previous day. Within ten minutes, the water was so cloudy it was becoming difficult to see the opposite side of the tank. Even though clams are hermaphrodites (both sexes in the one animal), texts on Tridacnids explain that when they first become sexually mature, they only have the male reproductive organs. Not until they are a few more years older, do the female organs develop. This means that young adult clams will spawn male gametes only, but older clams will spawn male gametes followed by female gametes around 30 to 60 minutes later. The interesting thing is that the clam that had spawned in my tank the first day had released only sperm on day one and only eggs on the second day. Even more strange was the fact that my original clam only released eggs (despite being the smallest of the three) and the other new clam only released sperm.

The spawning went on for exactly one hour and I got quite a bit of video footage of it (I'll bring it to the meeting). At the end, visibility had been reduced to about 20cm and every minute, my protein skimmer was producing a litre of foam that smelled like raw oysters. I went to bed hoping that it would all be clear the next day.

Loud noises and bright lights sometimes wake me up, but I've never been woken up by a smell. This day was no exception for me, but at 5am, my wife informed me that she'd been woken up by a terrible stink. Typically after just waking, my eyes weren't working the best, but now my nose was and indeed, I could smell something like household rubbish left in the sun for a week! I went out and checked the tank the best I could in my sleepy state and although the tank was still cloudy, I could see right through to the other side now and all the corals still looked fine. I guessed that the fish were probably okay, but they were still in their night-time hiding spots, so I couldn't say for sure. The protein skimmer had stopped producing the incredible volumes of foam and was now down to about 100ml of white liquid every hour. Even so, I suspected that if the smell was that bad, in wouldn't be long before there was a fair quantity of ammonia in my tank. I had no option but to take the day off work to do an 800 L water change.

I've only changed this much water once before and that was when the tank had crashed and I'd taken all the livestock out of it. I had a spare 400L tank in my shed, but it would take ages for my normal aquarium heater to bring the water up to temperature. And where was I going to hold the other 400L that I needed?. I knew Frank Krause had a rapid immersion heater, so at 9am, I called him to see if I could borrow it. Luckily he was on holiday and he said I could come out and get it. Next I called David Bloch to see if I could borrow his two 200L barrels. He was at work, but said that his Mum was home and he'd call her to tell her I was coming. Lastly, I needed the water, so I called *Fremantle Oceanfarm*

to see if they could deliver the water that day. They said they could but the latest they could get there was 11:30.
I hadn't even had a shower at this stage and I had to drive to Padbury to get the heater, then to my parent's place in Hamersley to pick up the trailer, then to David's place in Beechboro for the drums and back to my place in South Perth all in less than two and a half hours. I took off and collected everything and made it back to my house just after Denis from *Fremantle Oceanfarm* had backed into my driveway.
The barrels I obtained from David were black and it was a hot, sunny day, so in the hope that the sun would help in warming the water, I got Denis to fill those first while I finished emptying some old water out of the tank in the shed. After that was done, Denis filled the tank in the shed and I put the rapid heater in to start it heating. I tested the water from *Fremantle Oceanfarm* and it turned out to be very good quality. pH was excellent at 8.3 (according to my hobby test kit). The salinity was 1.025 (according to my electronic salinity meter), and both phosphate and nitrate were undetectable. I don't know what the exact price for the water from *Fremantle Oceanfarm* is but I paid $50 for 800L Previously when I'd been getting 400L at a time, Denis was charging me $40, so I think the pricing is $30 for delivery and then $2.50 per 100 L. After I'd finished doing all these tests, I went out to check the temperature of the water in the barrels. They were up to 27C (from 23C) already! The water in the shed was heating at about the same rate, so in the end, both lots of water ended up getting to temperature at around the same time. With the help of my brother-in-law, I did the water change as quickly as possible with not even any die-off of the exposed coralline algae.
So why did these clams start spawning in my tank? Well, this is what well-known Tridacnid expert, Daniel Knop, had to say about it, "Under good conditions in nature, spawning normally depends on the presence of mature egg cells of at least one adult clam within the clam colony. This clam will start releasing its gametes and simultaneously release a hormone-like substance to inform other giant clams about the event. Many of the other colony-mates will detect the "biochemical message" and join the spawning event. But sometimes, giant clams also spawn sperm and eggs after rapid changes of environmental conditions or after strong environmental stress. This can be due to overheating from sunlight when the clams become dry during ebb tide, exposure to freshwater during a strong rain at ebb tide or other environmental changes that make the survival of the clam colony questionable. In this case, the clams sometimes react to the irritation by spontaneously releasing gametes. This is meant to ensure the survival of the colony and the species in case the clams die because of the environmental stress.
In the artificial breeding of clams, this strategy can even help make the clams spawn egg cells (Knop 1996). The clams are placed in the sun for 20 or 30 minutes, sometimes even longer, imitating an ebb tide on a hot summer day."
From this, I think the most likely reason the clams spawned is the relatively rapid change in temperature and the fact that the clam that initially spawned was already unhealthy when I obtained it from AQWA. The good news is that all clams and all of my other aquarium inhabitants survived the potential disaster and everything is looking as good as ever. Both of the new clams seem to have settled in and are looking as fit as my original clam.

Did you know?

You can make a "Tubastrea feeder" out of a syringe with a long 4mm reticulation riser tube jammed on the end of it. This allows you to direct the food right to the coral without even needing to get your hands wet.

AQWA – Our New Aquarium

By David Bloch

On the 1st January 2001 Underwater World Perth opened its doors under its new name, AQWA – The Aquarium of Western Australia. The aquarium had not been taken over by new owners nor gone bankrupt and reopened under the new name. The change in name was done for several important reasons, the major one being to help arrest the drop in visitation associated with the loss of the dolphins in late 1999.
The change in name was not just that! It was a total rethink of the purpose and role of AQWA as a tourist attraction. Prior to the renaming, Underwater World had become a miscellaneous collection of marine organisms from all over the world with no strong local theme or purpose. As AQWA the

aquarium now has a new focus and theme which is to display the amazing and interesting aquatic life found along the Western Australian coast.
Our new displays our grouped into five areas. Tthese include the Great Southern, which displays organisms from Perth southwards, the Temperate Sea which displays organisms from Perth to Shark Bay, the Living Ocean which displays the pelagic ocean drifters and bottom dwellers, the Coral Coast which will display the tropical coral reef inhabitants and the Far North which displays the northern mud flat and tidal residents. The touch pool is still around and falls into the Discovery Zone area, which also includes a series of "Microworld" type tanks. This new retheming has meant that the aquarium can now have a regional focus and show off what this state has to offer. Currently only four of the five areas have been constructed. The Coral Coast region is due to be built sometime in the middle of the year.
Part of the retheming and building process was to totally scrap and redesign the water delivery and life support systems for all the new and existing aquariums. Previously most of the aquariums each had their own filter and circulation systems and were in effect all separate recirculating systems. Part of the new development was to convert all the displays, both new and old to an open flow through system. This would have been problematic for our old displays as most aquariums were tropical displays however with the retheming only a few tropical tanks have remained.
Construction and installation of the new aquariums was a very stressful and problematic time! We had to construct and complete twenty-two new tanks ranging in size from 50 to 5000L within around ten weeks. At the same time we had to construct the new water delivery system, collect new animals and also care for all the new and other animals removed from the previous displays. The deadline arrived and we made it, tired and very irritable!
AQWA is a much more interesting and educational place to visit than it used to be. Come down some time and have a look and you will be impressed.
Hopefully within the next few months we will arrange a MASWA meeting at AQWA.

Annual Donations

Annual membership donations are now due. The annual membership is $22* per adult and is due by the 28th of February* 2001 (ie, the February* MASWA meeting). **There will be no extensions after that time and, except for those who have already seen me in regard to this, those who have not paid will not receive newsletters or be eligible to attend meetings until they do pay**.
*(*sorry, last month's newsletter said $20 and January which were incorrect*)

Did you know?

*Sex change from male to female is called "**protandry**" and from female to male is called "**protogyny**".*
*To help you remember, "**prot-o**" is Greek for "first" or "original"; "**andr**" is Greek for "a man"; and "**gyn**" is Greek for "a woman".*

Raffle Time

Last meeting
Six prizes were up for grabs at the November meeting:

- Kent Pro.ScraperL algae remover (24"),
- Aquarium Systems pH Test Kit,
- 250mL jar of Seachem Purigen "ultimate organic removal" filter media,
- 250mL jar of Seachem Reef Advantage (calcium, magnesium and strontium supplement), and
- 2 x 1kg jars of InstaKalk calcium hydroxide.

Ben's ticket was drawn out of the bowl first and he decided that 1st prize would be the 250mL Purigen. Next prize went to Paul T who chose the Kent Pro.Scraper L for 2nd prize. Grant came 3rd and took the 250mL Reef Advantage. Jan came 4th and chose one of the 1kg Jars of InstaKalk. Nathan was 5th and took the Aquarium Systems pH test kit and finally, Darren came 6th and took the other jar of InstaKalk..

This meeting
There are five prizes up for grabs this month:

- UltraLife X-Terminator Mantis Shrimp Trap,
- Kent Zoe Marine vitamin and mineral food supplement,
- Seachem Purigen 100mL in welded nylon bag
- Reef Invertebrates poster,
- 250g jar of InstaKalk calcium hydroxide.

A $2 raffle ticket puts you in the draw to pick one of 5 great prizes!

Anyone who would like to see different types of prizes used in the raffles or perhaps some particular types of prizes removed from the raffle, please let either David Bloch or Nathan Cope know, so that we can adjust the prize line-up accordingly.

Upcoming Meetings

January 31st:	**Paul Tayler** **333A Railway Road** **or Waylen Lane Cottage,** **Shenton Park**
February 28th:	Jan Anderson
March 28th:	Tony Fiorentino
April 25th:	Grant Magill
May 30th:	Frank Krause
June 27th:	David Bloch

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 & Raqual Collins, Nathan Cope, Andy Dolphin, Tony Fiorentino, Rob Fowler, Achille Gaglia, Paul Groves, Sid Harrison, Sean Hooper, Frank & Ben Krause, David Lee, Grant Magill, Stephen May, Phil & Caron Melvin, Wayne Mothershaw, Phil Searle, Ronald Tan, Paul Tayler, 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.