



The Living Reef

October 2004

Editorial....

Whilst deleting old files off my computer the other day, I started reading a newsletter I first wrote when I was the newsletter editor for ANGFA (Australian and New Guinea Fishes Association). This was the first "fish" related society that I had ever joined and to my surprise this was back in 1994. You could say I have been a member of one society or another for the last ten years. In fact I have attended most of the fish clubs over the years including the *Aquarium Society*, *The Cichlid Society*, *ANGFA*, *MASWA* and most recently the *Bormeliad Society* (not really fish related but close!). I don't know if this means I have no life, I'm a geek or just a club junky but what I do know is that through these different groups I have made some really good friends. That got me thinking how important the social aspect of societies is. In fact when I thought back to what I found were the most enjoyable aspects off these societies the same two ideas popped into my head. The first was the social aspect of meeting and catching up with like minded people and the second was the raffle. The chance of wining something was and to this day still is an alluring aspect of all societies. This idea of the importance of the raffle got me thinking about our MASWA "Special Raffle" that we have every three months. Currently we have a few expensive prizes, usually books but how popular would it be if instead of a few higher cost items we had lots of lower cost items? Does the act of winning a prize outweigh the value of the prize? It's good to win an prize full stop, but is it better for more people to win a cheaper prize than a few win more expensive prizes? Just something to contemplate.....

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MASWA Meeting Calendar....

27th October 2004 – Jan Anderson
50 LaFayette Blvd, Bibra Lake

24th November 2004 – **Bryan Kendal** (FragFest V)

15th December 2004 – **Nathan Cope** (X-Mas Meeting)

26th January 2005 – **Paul Tayler** (AGM)

Meetings start @ 7:30pm, Formalities begin @ 8:00pm!

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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.

Postal Address:

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Shenton Park WA 6008

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 10 days prior to the next meeting date.

September Meeting Rundown....

The MASWA meeting for September was a great success. Marine West drew a good crowd of people to the meeting with three new members signing up on the night. Paul and Danuta from Marine West were very welcoming and laid on a great spread including BEER!

The display tank at the shop was very impressive and included some nice rare and very beautiful specimens of coral. The coral selling tank was also very impressive and well stocked with colourful small and large polyp stony corals and soft corals. Of particular note was the way the coral selling tank was situated so that corals could be viewed from both the side and above.

Not really fish related but interesting all the same was the green tree frog tank at the entrance to the shop. I like corals but I reckon the frogs were pretty awesome in their own right!

The raffle went really well, in fact for a change both Dion and Elmer didn't win a prize! The prizes included marine identification/aquarium books, gift vouchers and a box of corals donated by Peter Fullarton from Oceanarium, thankyou Peter.

Thankyou Paul, Danuta and Dion (you know which Dion I mean!) for hosting the meeting, thankyou to Meryl for bringing the food and thankyou to everyone who came along for the night. See you at the next meeting.

REEFY HINTS & TIPS

Did you know that salt deposits on your fluorescent lamps can reduce there light output and even damage the phosphor coating? So go and clean our fluoro lights ASAP. ☺

October Meeting Information....

Those lucky southerners from the wrong side of the Swan River will be celebrating this month as we will be once again holding a meeting in their backyard. This month we head down to Bibra Lake to the home of Jan Anderson. For those of you who don't know Jan, Jan is a HE, not a she and HIS name is pronounced *Yarn*, not *Jan*! There is a funny story to tell about this, when Jan first joined I never got to put a name to a face so actually thought Jan was a female and would often wonder why I would never see her at meetings! Once I realised I felt like a real d**k! Now that I have been set straight, I can tell you all about Jan and his tank.

Jan hails from Norway and arrived in Australia with more marine aquarium knowledge and technical equipment than most people had here. He used to have an amazing aquarium back in Norway and if you ask him he may just show you a picture. Back to the present..... Jan's tank is a great tank for the reason that it's very deep from front to back. Jan has taken advantage of this and created a canyon that run from the front to the back. The glass at the rear of the canyon is not painted and actually has another aquarium behind it (known as the

"w**k" tank by Tony). The idea of this is to give the aquarium even more depth so that it appears to be endless blue water in the background.

Jan used to be the biggest *Xenia* farmer in Perth until one day when he just got too greedy and lost his *Xenia*! To cut a long story short Jan gave me a small piece of *Xenia* a few years ago which like its parent colony in Jan's tank was extremely prolific. If I remember I will be giving him a piece of *Xenia* back to repopulate his tank again! I guess you call this the circle of marine life!

The meeting should be very interesting and well worth coming along too. If we are lucky we may even get to sample some of Jan's wife's cooking. At previous meetings she has always made something delicious! We were going to have a talk at this meeting but unfortunately this fell through so we will still do something.....but as of yet we are not sure what it will be! Call it a mystery meeting ☺. The address of Jan's home is **50 La Fayette Blvd in Bibra Lake**. The meeting starts from 7:30pm with formalities beginning from 8:00pm. See you there.

MASWA Sponsors....

It's official, MASWA now has two commercial sponsors! MASWA sponsors get an A5 sized add and a banner in the newsletter each month. The advertisement can be used to advertise monthly specials etc. Depending upon what has been agreed with the sponsor they may offer MASWA such things as member discounts, donations of goods or gift vouchers to the club or special offers.

Advertisements in The Living Reef do not necessarily reflect MASWA's endorsement of any product, service or advice offered by the advertised business. If you would like to advertise in The Living Reef, please contact Nigel Clark (Social Coordinator) on 0412 412 681 or email: dovetails@iprimus.com.au.



Reef Online has generously donated several prizes for MASWA to use as we wish throughout the year PLUS an extra 5% MASWA discount on top of the existing 5% MASA discount (ie, MASWA members now get a 10% discount from the Reef Online store.

Web: www.reefonline.com.au



Marine West has generously donated \$50 worth of gift vouchers each month to MASWA.

Address:

Unit 1, 29 McIntyre Way, Kenwick, WA 6107

Tue-Sun 10:00am- 5:00pm

Tel/Fax: (08) 9493-0966

Email: pjwdrw@bigpond.com

Web:

<http://perth.citysearch.com.au/E/V/PERTH/0057/37/10/1.html>

REEFY HINTS & TIPS

Water circulation is very important for coral growth and survival. Over time pumps and powerheads get significant amounts of algal and bacterial growth on their impeller and inner walls. This growth will reduce the flow and could at times stop the flow completely. Clean your pumps and powerheads in a regular basis to avoid any unnecessary water circulation problems. ☺

MASWA Message Board....

THIS MONTH'S RAFFLE PRIZES

Just one \$2 ticket (or 6 for \$10) puts you in the draw to win one of the following prizes this month: **Gift Vouchers**

Please note, regardless of how many raffle tickets you buy, you can only win one raffle prize per meeting. Purchasing more tickets does give you a greater chance of winning, though.

RAFFLE PRIZE DONATIONS

If anyone has any books, hardware, livestock or any bits and pieces they wish to get rid of how about donating them to the raffle table? All the monies raised in the raffle go back into MASWA so the better the raffle the better the prizes and the more we can do during the year.

MASWA MEMBERSHIP FOR 2005 IS NOW DUE!

The end of the year is quickly approaching and membership subscriptions for MASWA 2005 are now due. We will not be carrying unfinancial members for months at a time like in previous years. It has recently been decided by the committee that there will be a membership surcharge for those members requesting a paper/posted copy of the newsletter. The reason for this will be discussed at the upcoming meeting. If your membership dues are not paid by the January 2005 meeting you will be struck off the membership register and receive no more newsletters! For payment options please see the "MASWA Contact Info" on page 2.

GENERAL MEETING AGENDA (Wednesday Evenings)

For those new members who have not been with us long or perspective visitors/members reading this for the first time below is a rough agenda of what happens at a MASWA meeting:

7:30pm: socialise and catch up with friends, introductions of visitors and new members to everyone by social coordinator and other committee members.

8:00pm: opening of meeting, formal introduction by president, welcome visitors and new members.

8:30pm: introduce host, host presentation of aquarium.

9:00pm: draw raffle and if appropriate start "fragfest" or guest speaker talk/presentation.

9:30pm: draw meeting to a close.

MASWA DOOR PRIZE!

From now on, we will be having door prizes at every meeting. In order to be in the draw to win the prize, all you have to do is make sure you **write down your name** (and the name of any partner/guest you have brought with you) **on the meeting registration sheet** and then **put on your name badge** (ensure that partners/guests have one too). Once

you've done that, see Nigel Clark (Social Coordinator) for your free door prize ticket.

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. So far this year we have received 18 articles submissions from 6 different members. The race to win the \$100 is not out of reach yet so submit your articles to be in it to win it! There are only two more newsletters left this year! The race aint over yet!

GET YOUR COMPLIMENTARY COPY OF REEF CULTURE MAGAZINE

Some of you may have heard of Reef Culture, the Australian marine breeding facility based in Queensland. Reef Culture currently breeds and sells six species of clownfish. They can also supply you with live rock, live rotifers, live brine shrimp, microalgae concentrate (for feeding rotifers, brine shrimp, etc) and related hardware (see <http://www.reefculture.com.au>).



Reef Culture decided to publish a nationally-available magazine for the Australian marine hobby. The first edition of the magazine has just come out and is currently on sale at major newsagents for \$4.95. It is very nicely put together and contains beautiful photos and interesting articles such as: Planning a Marine Aquarium, Shelled Giants (the Tridacnid clams), Marine Diseases, Food Facts (info about duplicating natural diets), Shark Bay Behind the Scenes (about Sea World's new exhibit), MASA's Photo Competition, Artemia (Brine Shrimp), Colours of the Reef (why reef fish are so colourful) and Information about MASA.

Reef Culture very generously sent MASWA a complimentary copy for each financial MASWA member. To get your free copy, all you have to do is turn up to the next MASWA meeting and be a financial member. If you are not able to get to the next MASWA meeting, give Nathan a call on 0416 09 2000 and organise a time to collect your copy.

GET READY FOR THE 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 2005 at the first general meeting of the year. This is the first year in which we have run MASWA with a full committee and we would like to see the same happen in 2005. The Positions in the MASWA committee are:

- President**
- Vice President**
- Secretary**
- Treasurer**
- Newsletter Editor**
- Webmaster**
- Social Coordinator**
- Fragfest 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 Marilyn's cooking (Paul Taylor'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

FRAGFEST V COMING UP IN NOVEMBER

The fifth FRAGFEST is coming up in November which means this will be the last time earn points to win the "Fecund Fishy" and "Slice and Dice" Trophies. So start fragging now!

REEFY HINTS & TIPS

Safety in around marine aquariums is a very important topic. Having electricity in such close proximity to saltwater is practically asking for trouble. Avoid possible electric disasters by not placing powerboards in areas where water may leak or drip onto them and try and locate them as far as possible from the water. ☺

Why Are My Acro's Going Brown?....

Note: This is an article that was posted in a thread on [MASA](#).

By DAMO, FROM MUDGEE NSW

Nutrients

Every coral will respond differently, some will tolerate higher levels of nutrients than others. If you can get nutrients low enough all acro's will grow, and at a reasonably fast rate. But as nutrients increase, the coral will slow in growth or show intermittent growth spurts, if nutrients are a little higher again the corals stop growing but remain alive, they will tend to not extend polyps and actually decrease in numbers of polyps.

Slightly higher nutrients again and the coral starts to die, often slowly losing tissue in small areas at a time, these areas then provide surface for algae to grow which in itself cause more stress to the colony. The higher the nutrients go the quicker the

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coral will die. The nutrient levels that cause these changes in coral are progressive, and different to each coral. All other environment factors play part as well.

I measure nutrients by observation of my corals, you can pick a slight rise within days and if you act you can rectify it in the same time frame. Every day I inspect all colonies for the following:

- Growth
- Tissue loss or bleaching polyp extension
- Colour of new growth
- Colour of older parts of the colony
- Colour on the shaded side of the colony
- Colour on the very ends of new tips
- Polyp colour

Growth - Every day each of my coral show new growth if there seems to be no growth for 3 days there is some thing wrong, I then look for other signs as well.

Tissue loss or bleaching - bleaching can often happens for various reasons, fish pecking at it, changing water conditions too quickly, too much light. Changing water conditions and light go hand in hand, if you reduce the Zooxanthelae too quick the coral will not have time to produce reflective pigment to protect itself so it will receive too much light causing it to bleach. I often see this but only in small spots areas which recover quickly. Often these areas will colour different to other areas.

Polyp extension - One of the more easy observation, some species extent more than others, but all will show polyps. The most common time for coral to extend their polyp fully is about 30 minutes after lights out, however most extend all day, some more than others. As a rule, poor polyp extension indicates nutrients in the water. Shortly after lowering nutrients polyps can be seen fully extended, this type of extension should be aimed for at all times.

Colour of new growth - New growth lacks Zooxanthelae, it is a good indicator of what to aim for in the entire colony as far as browning is concerned. With many corals the colour around new growth is most spectacular. With low nutrients you will get a wide range of colours between species, as the nutrients increase colours seem to more blue, green or brown, loosing reds pinks purples and yellows. The aim here is to look close at the coral, the colour will look metallic and have depth. The metallic glow looks like it is radiated from the surface skin, but you can see though the skin to a deeper depth of colour that has no end (like looking into fog) you can see you are looking though the first part but cant tell how far.

Colour of older parts of the colony - The older parts are the hardest to change back to nice colours, the longer it has been dark the longer it takes to lighten, but it is a good indicator that nutrients are being kept low is it tends to lighten with time, if it darkens the nutrients have increased. In most cases I haven't been able to get the same shade of colour as seen in new growth, but many are close, a slightly darker shade.

Colour on the shaded side of the colony - this area is a good place to observe Zooxanthelae density. Some corals will have colour others wont. Those that don't have colour should be a pail skin tone, those with colour are the same pail tone but of the colour of lit parts of the coral. Similar to older parts of the coral, the darker these areas go the higher the nutrients. I aim for a very pail glassy look.

Colour on the very ends of new tips - Often corals will show a colour that is a contrast to the colony on the very tip. Greens may have blue, blue and yellow may have green, some may be red, the colour is usually fluorescent. If you maintain low

nutrient this is a good indicator of adequate light intensity, the coral needs to be growing for this to happen. As you increase the intensity the contrast colour will be more pronounced or colour a larger area of the tip. If light is too strong the coral may stop growing. If the light is not strong enough you won't get the contrast colour.

Polyp colour - Like the rest of the coral the polyps will darken with nutrients. Some polyps will be the same colour as the colony, others white, others a contrasting colour. Some corals may be green where the coral encrust the rock and white or another colour on branches. However all will change in shades of colour with levels of nutrients. Looking at polyps on new growth is a good indicator of what you should aim for. The good thing about polyp colour is it will change quicker than the coral in older areas of the coral. When trying to lower nutrients, you can observe the polyps change, maintaining the new colour will lead to the coral lightening.

To be able to observe these changes you need to get to know your tank and corals, no 2 coral are the same, even frags from the same colony will act slower or faster than the next. I hope from my explanation you can get an idea of how I constantly monitor my tank conditions by observation more than test kits can.

REEFY HINTS & TIPS

Changing metal halide and fluorescent lamps at regular intervals is very important. To help you remember try writing down these important dates somewhere in your hood or cabinet that will be easily seen! ☺

Fishy Links and News....

GASPING FOR LIFE

By DAVID FLICKLING

A rule of thumb for environmentalists has always been that cuddly sells. If you are looking for a fetching logo, make sure it has a mammal in it.

The Worldwide Fund for Nature has a giant panda, and Fauna and Flora International an Arabian oryx. Somehow, the more scaly, slimy, creepy-crawly corners of the animal kingdom have managed to escape conservationists' letterheads.

You can't blame charities for this - they're in the business of raising money for their projects. It would be a foolish fundraiser who risked revenue because of squeamishness about pandering to our soft spot for sweetness.

However, the priorities sometimes seem so skewed that you wonder whether we should buy fur coats and big eyes for all those non-mammals out there, just to give them a level playing field.

Compare the situation of two unique Australian creatures. On one side, there is the koala, an animal whose habitat stretches across south-east Australia, from Brisbane to Adelaide. It breeds vigorously - with overall numbers sometimes standing at

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more than 100,000 - and is so abundant in some areas that locals are calling for it to be culled.

On the other, you have the Queensland lungfish, confined to half a dozen Queensland rivers, extraordinarily picky about breeding, numbering less than 10,000, and facing possible extinction because of plans to build a dam in the heart of its primary habitat.

Australian scientists are united in arguing that the koala is at no risk of extinction. Nonetheless, when a sincere - if somewhat melodramatic - charity declared that it could be wiped out in 15 years, the news was picked up uncritically and flashed around the world.

Pity the poor lungfish: when the world expert on the species wrote a letter to the scientific journal *Nature* to warn that it faced extinction, the silence outside the scientific community was deafening.

This was particularly egregious, because the Queensland lungfish is no ordinary animal. It can breathe air, wriggle over the ground on muscular fins, grow up to 5ft in length and live for more than 80 years. It is a 130 million-year-old living fossil related to the ancestors of all mammals, birds, reptiles and amphibians.

According to Per Ahlberg, an expert on fossil lungfish at Sweden's Uppsala university, allowing the animal to die out "would be at least as scandalous as destroying the pyramids for a housing development".

"It's one of the last survivors of an ancient lineage," says Jenny Clack, of Cambridge university. "We can only base our understanding of the early evolution of land vertebrates by looking at living animals. If you're going to pick an animal that's evolutionarily important and threatened, this would have to be close to the top of the list."

Queensland lungfish are identical to fossils found in New South Wales, and are closely related to the first vertebrates to crawl on to land 360 million years ago. With four fleshy fins and no tail, lungfish can survive in stagnant water that would suffocate other fish by rising to the surface and gulping air into their single lung.

There are two other species of lungfish, in Africa and South America, but the Queensland version is the closest to the common ancestor which crawled out of the water to become the first land vertebrate.

When it was first described scientifically in 1870, by an Australian museum curator who had seen a "Burnett river salmon" being gutted for dinner, the lungfish was hailed as the first evidence of a missing link between fish and amphibians.

However, work has already begun on the A\$210m (£81m) dam which will flood 26 miles of the creature's Burnett river habitat to create a reservoir 100,000 times the volume of Loch Lomond.

In its other native river, the Mary, lungfish populations are under pressure from sooty grunter fish introduced from northern Queensland. Introduced lungfish populations on four other rivers in southern Queensland are not regarded as stable.

The main reason for the vulnerability of the lungfish, according to Jean Joss, of Sydney's Macquarie university, is its extreme fussiness about spawning. Lungfish have favourite breeding sites to which they return each year and, if conditions are unsuitable one year, will return year after year until matters improve.

Earlier this year, Professor Joss wrote to *Nature*, warning that fish ladders being built around the sides of the Burnett dam would not be enough to save the lungfish.

"Lungfish have been shown to be very faithful to their spawning sites, so the ability to migrate to a nonexistent spawning site will do nothing to ensure recruitment to the population," she wrote.

Gordon Grigg, a University of Queensland expert on animal population, said the dam risked wiping out the shallow water weed beds in which the lungfish breeds and lives. "When you build a dam like this, you get fluctuating water levels which create this intertidal desert," he explained.

"Anybody who thinks they can build a dam like this and not put the fish at risk is kidding themselves. You can talk optimistically about building a fishway and managing water levels, but it's mainly an indication of good intent so that the approval will be given to build the dam."

Even the farmers for whom the Burnett is being dammed are divided about the virtues of the project, which is likely to prove so expensive that the state government may have to subsidise irrigation water from the dam.

However, the Burnett flows through the heart of Hinkler, Australia's most marginal federal seat, which is held by the government's coalition partners, the National party, with a margin of just 0.04%. Queensland's Labor government promised the dam would be built before the state's 1998 election, and has no intention of stopping the project.

Pictures of the koala are as abundant as flies, but it's hard to get your hands on an image of the Queensland lungfish.

There is one shot of a specimen on the website of Queensland's department of primary industries and fisheries - the researcher holding it is grappling it, as you would a prize salmon. It's definitely not a cuddle. <http://www.guardian.co.uk/elsewhere/journalist/story/0,7792,1303559,00.html>

ELECTRICITY HELPS REVIVE DAMAGED CORAL REEF

PEMUTERAN, North Bali — As the late-afternoon sun bathes the beach with a soft warmth, gentle waves lap quietly at the shore -- and strollers occasionally stumble over a thick wad of white cables embedded in the fine, black sand.

The cables seem to disappear into the sea, where large blue plastic balls bob in the waves. And they seem to come out of nowhere, sprouting like a nasty growth on the face of this stretch of tropical paradise on Bali's north western coast.

The wires are part of an ambitious underwater experiment: using low-voltage electrical current to stimulate regrowth in a badly damaged coral reef.

Conceived by American coral expert Tom Goreau and German architecture professor Wolf Hilbertz, the project began four years ago and has already achieved remarkable results.

Covering a total length of 305 metres, the Karang Lestari Project is the world's largest coral nursery ever built using this technology.

"You can really see the difference in the reef in just a short time," said Chris Brown, owner of Reef Seen Aquatics Dive Centre, which co-sponsors the project along with local hotels and shops committed to preserving the reef.

The technique is also being used experimentally in other tropical locations, such as Mauritius in the Indian Ocean, but the project in Bali is the largest and most ambitious of its kind.

"We find that electricity reinforces the coral that's already there, and has a profound effect on the condition of surrounding corals," said Brown. "It shows you can take good coral and make it better."

Indonesia is home to 581 of the world's 793 known reef-building coral species, and most thrive in Pemuteran Bay. The area has long been a favourite among scuba divers, who will go elsewhere, affecting tourism, if the reef dies.

On the sandy ocean floor from three to six metres down are dozens of grids made from welded construction bars. Seen from above, they look like some underwater playground equipped with jungle gyms, monkey bars, upside-down cone and other climbing equipment. One looks like the ribcage of a whale.

Wires carrying the electrical current are secured to the bars and are plugged into onshore charging stations. Brown estimates the amount of electricity used in a week is about the same as a 60-watt lightbulb uses in a month.

Non-swimmers can follow the reef's renewal in colour photographs displayed at Taman Sari Bali Cottages, a sponsor that injected some \$15,000 US to get the project started in 2000.

Brown, an Australian who settled in this fishing village of 8,000 people in 1992 and a co-owner of the cottages, said that within days of receiving their first jolts of electricity, the bars grew a white limestone film. This covering provides the necessary substrate for coral growth.

The grids were then seeded with small fragments of live coral, which began to grow "between five and 10 times faster than normal, with much brighter colours and more resilience to hot weather and pollution," said Randall Dodge, an American who goes by the single name Naryana and who co-owns the Taman Sari Cottages.

Some corals have been transplanted directly onto the bars, attached by wires or wedged into specially designed spaces. Soft corals, sponges, tunicates and anemones were also transplanted.

Vibrant colours and growth up to 1.25 centimetres in less than a month have been recorded. Grids that suffered power failures saw less vigorous development and duller colours.

"Today, the fish are back, including deep-water fish which come into the reef to rest during the daytime," Naryana said. The regenerated reef has attracted squid, cuttle fish, sea urchins and starfish. Batfish, damsel fish and cleaning fish also have clustered in the area, along with dense schools of snappers.

Divers also have noted the presence of large groups of young fish -- a good sign of future self-sustaining populations and the long-awaited return to a balanced ecosystem.

Naryana described the reef as a "total wasteland" when the project began. He said the El Nino weather phenomenon bleached it in the early 1990s, killing most of the coral in shallow water, and the 1998 Asian economic crisis forced starving fishermen to adopt destructive fishing practices that caused further damage.

Another near-catastrophe came in the mid-'90s with the arrival of some 70,000 voracious Crown of Thorns starfish, most of which divers yanked from the water before they could devour the reef.

Concerned citizens like Brown and Naryana have long supported community programs to educate the locals about the long-term consequences of the reef's worst enemy: fishing with explosives.

"Fishermen from Pemuteran actually went out and stopped the bombers," Naryana said. "It took education, talking and demonstrations to convince them that ocean conservation is the future."

Naryana agrees with Goreau and Hilbertz that the reef project is not just about jump-starting an ecosystem but rather an investment in the preservation of rapidly disappearing coral species and the fish that breed there.

Brown hopes the technique will spread to countries that lack the money for more expensive methods to regenerate or improve their coral reefs.

http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/1093_014421412_2

REEFY HINTS & TIPS

Beating a disease or parasite outbreak in a reef aquarium can often be a nightmare. Part of the solution is not to introduce the diseases or parasites in the first place. Never put aquarium water from another aquarium in your tank. It's not the 100% of the cure but it can help reduce the chances of an outbreak happening. ☺

For Sale, Swap and Wanted to Buy....

FOR SALE:

10 ft tank, skimmer, calc reactor, lights, rock and fish.
Asking Price \$2000
Contact Terry Peake at terry@auscyber.net if you are interested.

FOR SALE:

Acrylic tanks – suitable for algal and rotifer culture.
Asking Price ? Make an offer!
Contact Nigel Clark on 0412 412 681 if you are interested.

FOR SALE:

EX breeding setup – 35X aquariums, stands, lighting, filters and pipework.
Asking Price \$3400 ONO for the lot!
Contact Peter Packer on 0407 520 430 or 9300 0083 if you are interested.

WANTED TO BUY:

Second hand Chiller to fit 250 Litre tank
Contact: **Andrew Brandreth** on 0423 801 552 or email bsa@powerdsl.com.au.



<http://www.reefonline.com.au>



As part of the sponsorship agreement with MASWA, Reef Online are offering 10% discount to MASWA financial members on everything in the store. This is not an introductory offer, this offer will be in place for as long as the agreement is in place!

Reef Online prides itself on selling only the best in Aquarium equipment, such as AquaFX Water Filters, Korallin Calcium Reactors, AquaC Protein Skimmers, Salifert Test Kits, and only the best book titles... many of which are not available anywhere else in Australia!



Check us out at <http://www.reefonline.com.au> and see what all the fuss is about!
No web access, no problem... give Natalie a call on 0408 530 934!



<http://perth.citysearch.com.au/EV/PERTH/0057/37/10/1.html>

Welcome to Marine West. With over 20 years combined experience, Paul & Danuta Williams are specialising in creating exciting living reefs for your home or office.



Address: [Unit 1, 29 McIntyre Way, Kenwick, WA 6107](#)
Opening Hours: [Tue - Sun 10:00am - 5:00pm](#)
Tel/Fax: [\(08\) 9493 0966](#)
Email: pjwdrw@bigpond.com

Advertisements in The Living Reef do not necessarily reflect MASWA's endorsement of any product, service or advice offered by the advertised business. If you would like to advertise in The Living Reef, please contact Nigel Clark (Social Coordinator) on 0412 412 681.

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.



Membership Application / Change of Details Form 2004/2005

Office Use Only

* Membership No.	* Application Date: / /
* Annual Membership (pro-rata for remaining months of the calendar year @ \$2 per meeting):	
General - \$24 θ	Country/Associate - \$12 θ
	Pro-rata - \$ θ

Items below marked with a * are mandatory.

Name (Family Name must be included)*:

Address*:

Postcode*:

Telephone No. (H)*:

Telephone No. (W):

Mobile No.:

Email Address (no Hotmail addresses):

I wish to receive the MASWA Newsletter via*: Email θ Post θ

Answering the following questions is not mandatory, but it does help the society in preparing articles, presentations and tours for future newsletters and meetings.

Where did you first hear about MASWA? _____

How many marine aquariums do you have? _____

Would you like one of the experienced MASWA members to guide you in setting up/improving your aquarium? **Yes** θ **No** θ

Is there a particular area of marine aquaria that you feel you need help with/more info. on?

What are you hoping to gain by joining MASWA?

Date*:

Signature*:

Payment can be made by:

CHEQUE - make cheques payable to the MASWA treasurer, **Paul Tayler**

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

Send applications to:

MASWA Membership Applications
C/o Paul Tayler
PO Box 7185
Shenton Park WA 6008