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The responsibility and ethics of keeping corals doesn't stop with the home aquarist. It is also most importantly the responsibility of the aquarium retailer to ensure that he/she has up to date current information on coral keeping and has a holding system where corals are in kept conditions where they will not die a slow death, but will survive and actually grow if they are not purchased and happen to stay in the shop for a period of time. Not wanting to rub the retailers up the wrong way, unfortunately there is not a lot of good and current coral keeping information coming from them. In most of the shops corals will slowly die from poor water quality, low light levels and stinging each other - caused by poor placement. In my opinion this is just not good enough! There is no excuse for improperly holding living animals!

The technology and information for keeping corals in a healthy and happy state is freely available and practiced in most parts of the world. We are somewhat behind in Australia however the internet has made it possible to communicate with aquarists in Europe and the USA and read worldwide discussions on keeping and caring for corals. This information has slowly trickled through via some very dedicated marine aquarists and now Australia is beginning to enter the modern age of coral keeping.

It is up to us to do something about it. We have to make a decision to try and inform retailers of the situation and hopefully convince them of the importance of keeping corals under the proper conditions. Monetary gain should never be put in front of the health and welfare of animals. Well maybe in a perfect world! Unfortunately fish and corals are not seen as animals that suffer in improper conditions in captivity and hence the relevant authorities are not concerned with them at all.

fish. Krill are very nutritious and full of beneficial highly unsaturated fatty acids. They are also a good source of natural pigments that will bring out the colours of your fish.

Hikari frozen foods are high quality and eaten by almost anything. In marine aquariums with mixed populations of fish and corals it's a good idea to feed a variety of foods together. In my aquarium I feed Daphnia, Mysis, Plankton and Bloodworm all at the same time! It looks like a snowstorm after the food goes in but thanks to a very efficient protein skimmer and a tank full of many critters, all the food gets eaten up.

Being a Responsible Coral Keeper

by David Bloch

This article is about a topic that is very close to my heart. I find it very distressing just thinking about it. Hopefully after you have read it you will have a different outlook on keeping corals.

Many of you would have heard all the grim reports of coral bleaching and the eventual total loss of coral reefs around the world within the next thirty years or so. All this news does not leave the marine aquarists in a good light. We as a group who have the desire to keep marine organisms in captivity have to come to terms with the dilemma that the majority of the organisms that we put in our aquariums have come from the "wild" coral reefs. Even though the numbers of corals and fish collected are small, they still contribute to the problem of coral reef destruction. This does not have to sound as grim as it is however. It has been pointed out by some "reef gurus" that marine aquarists may be the holders of the only remaining stocks of corals and fish once the reefs are gone. In a way we could all end up with our own "Noah's" ark, a genetic library of coral from where they can be resurrected.

Taking all this all into account it is our responsibility then to ensure that we have an aquarium that is capable of keeping corals not only just barely alive but thriving. If corals do not survive longer than a few months and don't grow, a decision must be made to either make changes to our aquariums so that the corals can thrive or not keep corals at all! This may sound harsh however I think that unless we can push a strong responsible code of ethics for the captive keeping of corals then we as marine aquarists will find that it will become increasingly difficult to fight environmental groups and governmental departments banning coral collection all together.

Next Meetings

July's meeting will be held at Grant Magil's house. The address is 7 Begonia Way, Forrestfield. The meeting will be at 7:30 pm on WEDNESDAY, 27th July. The address is. This is the third meeting Grant has had. It should be good to see how his tank has progressed since the last time we saw it. Grant's tank is a 4'x2'x2' tank is setup with live rock, live sand, metal halide lighting and a Red Sea Berlin venturi skimmer.

August's MASWA meeting will be held at Andrew Jones's house. The address is 19a Binstead Court, Koondoola. The meeting will be on WEDNESDAY, 25th August and will start at 7.30pm. Andrew has a 4ft large "Berlin" tank setup. The aquarium is full of live rock and live sand and has an internal protein skimmer and a 400-watt MH light. In this tank are some really cool fish including a Marine Betta or Comit.

Previous Meetings by David Bloch

May's meeting was held at Mike Hudson's house in Kalamunda. We had a pretty good turnout of members even though Mike's place was halfway to Kalgoorlie (sorry Mike – we now really appreciate it when you come to the other meetings – Ed.!)! Mike's two tanks looked great. His fish and anemone tank was a site to be seen. His anemones were enormous and looked extremely healthy. Its amazing how well Bubble-tip anemones do when you have the correct lighting! Mike's reeftank was also a great looking tank. The rock had very extensive pink coralline algae coverage on it and you would never suspect that this rock was once dead! Mike had some great looking corals and a few unusual tank residents that kept us all amused. His unusual residents were these cute little worm like crawling pipefish and a painted cray.

June's meeting was held at Rick Whites place in Morley. Rick's tank was only newly setup because he had only recently moved into his new house. The tank was only just developing but already had the beginnings of a good looking tank. He had some nice corals and a really healthy looking juvenile Emperor Angelfish. This angelfish was supposed to be on loan from Seaview Aquariums but I don't think Rick will be giving it back in a hurry! He has to catch it first!!! Rick had some nice *Goniopora* sp. corals and it should be interesting to keep a check on how these coral.

do over the next few months. Historically *Goniopora sp.* corals do not last too long in captivity. The usual lifespan is somewhere from 6 to 18 months. MASWA held a raffle at Rick's place. The prizes up for grabs were bags of marine calcareous algae called Halimeda, a 750g of Kalkwasser from **Reefs Downunder** and a \$50 gift voucher from **Marine West**. The lucky winner of the **Marine West** gift voucher was Andy Dolphin. He now has no excuse to buy some more fish for his tank!

MASWA

Marine Aquarists Society of Western Australia

After consultation with fellow members Andy, Nathan and Paul I have put into writing the guidelines for this society. This set of guidelines is by no means final and I would appreciate any positive or negative feedback. Please read it through carefully. We will have a discussion about the guidelines at the July meeting.

Society Guidelines:

- MASWA meetings are held at 7:30 pm on the last Wednesday of each month. The venue is a different member's house each month and the locations are advertised in the bimonthly Society newsletter. Members are not required to host meetings, but it is appreciated very much by the society so that different aquariums can be seen by all members on a regular basis.
- Visitors are entitled to at least one complimentary newsletter. The complimentary newsletter will be the next edition issued following the meeting the visitor attended. This newsletter serves as a reminder letter but visitors will not receive any more reminders after this. If a visitor comes to a meeting after the newsletter has been issued, the visitor should donate the membership amount and become a member. If the visitor does not wish to donate, the visitor may be turned away from the meeting. If the visitor is not able to pay, the visitor must see one of the council members to explain and may be granted a continuance.
- Visitors will receive a membership form and an information sheet about MASWA with their complimentary copy of the MASWA newsletter.

Fantastic Frozen Foods!

by David Bloch

Over the last few month a new brand of frozen fish food has hiit our shores. The brand name is Hikari and it comes from Japan.

Many of you who have had goldfish or koi would know the Hikari name as it is known for its quality foods in this area. The new foods are all fortified with vitamins and minerals and come in varieties suiting both freshwater and marine fish.

The available varieties include:

- **Bloodworm** – *a staple frozen food for the tropical fish enthusiast since frozen food became available! This is a high quality product and does not have the strong unpleasant smell associated with other brands. This food can also be fed to marines!*
- **Frozen Daphnia** – *this is a seldom used frozen food but is absolutely great for small or juvenile fish and even corals! Plankton eaters like Anthias, Chromis and some wrasses adore this food.*
- **Frozen Brine Shrimp** – *a commonly used food that everything likes! This brineshrimp is far superior to other brands because its vitamin and mineral fortified. Brineshimp are not normally considered nutritious unless they have been "gut loaded" with goodies prior to being fed out or frozen. These ones have!*
- **Frozen Mysis Shrimp** – *a great new food. Mysis shrimp are small prawn like shrimp much the same size as brineshrimp. ALL fish seem to love'em! It's great for the majority of small to medium marine fish and is a far better choice than bloodworm as a staple food for marines.*
- **Frozen Ocean Plankton** – *another great new food. Ocean plankton is similar to mysis, only larger. It's great for the medium to large fish and is taken with great gusto!*
- **Frozen Krill** – *a new food that is causing a small revolution! This is what whales eat! Krill are like small prawns about 2 to 3cm long. They are a great alternative to feeding whitebait to predatory*

swimming stage of the jellyfish.

The spotted jelly has a similar lifecycle to the moon jelly. They have separate sexes and mature jellies release sperm and eggs into the water. The fertilised eggs adhere to the mouth tentacles of the jellyfish from where they develop into a free swimming planula larva. The planula larvae soon settle on a suitable surface and grow into a scyphistoma. Like the moon jelly polyps, the scyphostoma that settle in the deeper areas are able to survive the winter months in these saline pockets. The scyphistoma stage resembles a small anemone and soon starts to form a series of divisions close to the top of the polyp. The uppermost divisions soon mature and are released as free swimming stage of the jellyfish.

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Jellyfish are an integral part of the Swan/Canning Estuary. They are very conspicuous and at times can be a nuisance, especially to people who are drag netting for prawns or are swimming where the jellies are swarming. They are however not dangerous and should not be killed or abused just because they are jellyfish. They are very interesting organisms and if you haven't already had a good look at them in the Jellyfish tank at Underwater World, please do so and I am sure you will be pleasantly surprised to see how interesting and relaxing they really are to watch.

- Membership donations fall due in November each year and are to be donated in advance for the next 12 months membership. Reminder letters will be sent in January and February to members who have not yet donated. If membership donations are not received by the March meeting, non-donating members may no longer be sent newsletters and may be turned away from meetings.
- Membership donations are as follows: Adults \$20 and Juniors \$10 (Under 18).

Annual Donations Overdue! LAST REMINDER!!!!

Please be aware that the annual donation for membership is due and has been since January! The suggested donation is \$10 for Juniors (under 18), \$20 for Singles. If you have not yet paid, could you pass donations on to Andy Dolphin as soon as possible. The continued funding of the society is much appreciated by your society's members and newsletter organiser.

The people I currently have listed as paid-up members are D. Collins, D. Bozic, J. Fletcher, G Weryk, R. White, M. Hudson, P. Harris, N. Cope, A. Dolphin, P. Groves, D. Bloch, J. Anderson, S. Tofts, G. Magill, C. Lawrence, F. Krause, P. & M. Olive, T. Fiorentino and P. & C. Melvin. Unfortunately, we have had to carry non-financial members for 7 months now and can no longer afford to do so. Consequently, this will be the **last** newsletter sent to unfinancial members. If your name is not on the list of paid members and you think it should be, contact Andy on 9377 7362 (a/h).

Jellyfish of the Swan/Canning Estuary

by David Bloch

The Swan/Canning Estuary is a rich and diverse environment that harbours all manner of life. Much of this life is not always obvious but one group of animals, the jellyfish, are very obvious and are perhaps the most conspicuous residents of the whole estuary.

Jellyfish are simple animals that are grouped in the phylum Cnidaria. The name Cnidaria refers to the power to sting, a feature that is common to the majority of the animals in this phylum. Also grouped in this phylum, and related to jellyfish, are such animals as the corals, the anemones and the hydroids. All members of the phylum Cnidaria are radially symmetrical and have a simple body structure. Two basic body structure types are found amongst the animals in this phylum. They are the polyp and the medusa. The polyp body type consists of a cylindrical body that is attached to a substrate with a central mouth surrounded by a ring of tentacles. Such animals represented by this body type are anemones, corals and hydroids. The second body structure type, the medusa, are bell shaped and are fringed with tentacles. They are free swimming and are represented by the jellyfish.

Living in the Swan/Canning Estuary, are two species of jellyfish. They are the moon jelly *Aurellia aurita* and the spotted jelly *Phyllorhiza punctata*. The moon jelly resembles a transparent saucer reaching a size of around 15cm and having four U shaped structures hanging around the central mouth. It is often found in dense clusters just below the surface of the water. This jellyfish has stinging cells that enable it to capture prey items such as zooplankton however the stinging cells do not seem to cause irritation to people. It has a wide distribution around the world and is commonly found in both inshore and oceanic waters. In the Swan/Canning Estuary it is mainly found around the lower reaches of the Swan and Canning rivers, from Fremantle to South Perth. The spotted jelly looks very different to the moon jelly and cannot be confused with it in any way. It has a distinctive brown coloured ovoid shaped bell with large oral arms or tentacles hanging from the centre of the bell. The upper surface of the bell has distinctive white spots. The brown colour of this jelly is due to the presence of symbiotic algae living in its tissues. These algae are believed to provide the majority of the jellyfishes nutritional requirements. This jellyfish does have stinging cells but they do not appear to affect people. The spotted jelly is distributed throughout Australia and is commonly found in sheltered embayments and harbours. In the Swan/Canning Estuary it is commonly found right from Fremantle

up to Garret Road bridge in the Swan River and Shelley Bridge in the Canning.

The abundance of each species of jellyfish in the Swan/Canning Estuary changes depending on the time of year. The reason for this is because of the seasonal salinity difference of the estuary. The salinity difference in the estuary is caused by the strong winter freshwater flush that moves downstream after the heavy rains of winter. This large volume of freshwater acts like a bulldozer and pushes the more salty water of the upper reaches of the river downstream. In the shallower areas of the river the saltier water is totally displaced however in deeper channels and holes the freshwater runs over the top leaving the saltier water on the bottom. The surface waters of the estuary remain almost entirely fresh however underneath salinity gradients called haloclines develop. As the winter inundation of freshwater slows down the tidal influence starts to take effect and a wedge of saltwater is pushed upstream, as far upstream as Guilford.

Many of the organisms found in the Swan/Canning Estuary have adapted to life in such a dynamic and changing environment. They are able to repopulate areas of the estuary that have become unlivable because of unsuitable environmental conditions. The jellyfish are no exception. Both the moon jelly and the spotted jelly are very abundant during mid to late summer but as soon as winter approaches their numbers decline to the point where they are very scarce and by mid winter they are not found in any numbers at all. Many of the jellyfish get flushed out to sea and or die because of the low salinity water. As soon as the salinity of the estuary increases they start to appear and by mid to late summer they are once again found in large numbers in most areas of the estuary. The reasons why they are able to repopulate the estuary so quickly and effectively are because of particular aspects of their lifecycles which enable them to survive the winter low salinity conditions.

The life cycle of the moon jelly involves the free swimming medusae, or adult jellies, releasing eggs and sperm. The fertilised eggs develop into a planula larvae. The planula larvae settle on a suitable hard surface and change into a polyp. At this stage they resemble a small sea anemone. It is where the polyp settles that enables the jellyfish to survive over winter. The polyps that settle in the deeper saline areas of the river, survive over winter because these areas remain saline all year round. The polyp stage then goes through a process called strobilation

Meetings – Social Calendar

September 29th Phil Melvin's house: **193 Summerlakes Pde, Ballajura**

October 27th ???

November 24th ???

December 29th ???

If there is anything you would like to know more about or anything you would like to add to the newsletter, perhaps you have a different view to those hearin, call or send comments to the editor, David Bloch. Remember, this is your newsletter.

Attention: *If you are able to hold a meeting at your place, please let us know.*

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

Andy Dolphin, Craig Lawrence, Darren Collins, David Bloch, Dennis Bozil, Frank Krause, Grant Magill, Greg Weryk, Jan Anderson, Jim & Gloria Fletcher, Mike Hudson, Nathan Cope, Paul Groves, Peter Harris, Peter and Marina Olive, Phiul and Caron Melvin, Rick White, Steve Tofts, Tony Fiorentino.

If you've paid your money and your name is not on this list, tell Andy! Members on the web should check they are on the web site members list. Thanks to all of you for your encouragement and support, we look forward to seeing you at the next meeting!

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 liablilites, 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.

