Sea Star

wasatch marine aquarium society

April **2008**

WHAT'S INSIDE?

If you have questions about the Sea Star or to submit an article contact Shane Heil

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Did you know ?

MACNA XX will be held at the Westin Peachtree Plaza in Atlanta. The 73 story tower is the tallest hotel in the western hemisphere!

Fish Nerds – Convene!

By Shane Heil

Aquarium conferences are a unique experience for hard core hobbyists. There are many activities to satisfy your need for all things aquatic. Whether you're interested in listening to scientific lectures about zooxanthellae classification or you're more inclined to wander rows of vendors looking at the latest in aquarium gadgets – most conferences will have something for you! But, they're not all created equally.

Conferences will vary in size and focus, but generally you will have the opportunity to hear from well known speakers, browse the trade show, purchase coral frags and new equipment, enter raffles for prizes and just hang out with aquarium folks. Most events include a banquet with a key note speaker.

Do a little research and plan your vacation to enjoy another aspect of the hobby that you may have overlooked. ***And remember*** – Paid Members that attend a national aquarium conference receive a free WMAS logo shirt to wear at the event. So, buy your tickets early and sport your club colors with pride!

Midwest Frag Fest www.midwestfragfest.com
Dates: May 3-4, 2008
Location: Rockford, Illinois
Cost: $55

International Marine Aquarium Conference www.theimac.org
Dates: May 30 – June 1, 2008
Location: Chicago, Illinois
Cost: $149. (discount available for WMAS members thru April 30)

Coral Conference & Frag Swap www.liveaquaria.com
Dates: June 20-22, 2008
Location: Rhinelander, Wisconsin
Cost: $65 for traders, $45 for guests

Marine Aquarium Conference of North America www.macnaxx.com
Dates: September 5-7, 2008
Location: Atlanta, Georgia
Cost: $129

ReefaPalooza www.reefapalooza.com
Dates: October 11-12, 2008
Location: Costa Mesa, California
Cost: TBD

March Meeting Recap

By Adam Blundell

Meeting Date: 06-Mar-08 Attendance: approx. 50

Tank of the Month-

Jim Brimley (wingnut). Jim has a 210 gal aquarium (72x24x29) He uses 250 watt Reeflux halides, a standard sump and large ASM skimmer. Jim has 20 species of very diverse fishes, tons of corals, but also many invertebrates.

The three things I found most interesting were 1) he has a Garibaldi damselfish that he brought home from Mexico 2) he does a 40 gallon water change every week 3) while he has fishes and coral like everyone else, he also has a very large collection of shrimp and crabs. This is a great looking tank, near the Sugarhouse area (by our club meeting location). To learn more about Jim's tank please click on Tank of the Month link on our website or contact him to see it in person anytime.

WMAS Game Night-

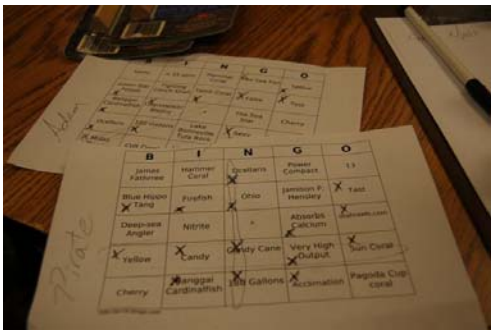
Tonight we played a version of Reef Bingo. This meeting was led by Debbie Morril and Eva Rushton. The two of them did an absolute fabulous job of running the show. They made a bunch of bingo cards with all sorts of reef words and phrases. Each paid membership was worth two Bingo cards. Additional cards sold for $5 each, or 3 for $10.

A Powerpoint slide show presented questions and the first person to raise their hand with the correct answer (this was a little more chaotic than expected) earned a small prize. After playing for 40 minutes we had several Bingos in the crowd. Each time someone got Bingo they were given a ticket for the final raffle. The final raffle included many prizes by some wonderful sponsors and donors.

Congrats to all the winners, thanks to the many club members who came to play, and a HUGE THANK YOU to Debbie and Eva for putting together one of the most fun and entertaining meetings we've had.

Next Month

Please join us as club member and calcium reactor guru Corey Price leads the way. Corey will be explaining everything you need to know about building calcium reactors, and he'll even build one in front of us. We'll also have a nice raffle during that meeting - guess what the prize will be....



At a Glance: The Longhorn Cowfish

By Shawn Winterbottom

Used by Permission: Jeffrey Jeffords, Divegallery.com

The Longhorn Cowfish (*Lactoria cornuta*) is also commonly known as the Yellow Boxfish. It is sometimes confused with the Yellow Dot Boxfish, but they are different species.

The Longhorn Cowfish is generally considered a peaceful fish, so it should be one of the first introduced into your aquarium. However, it can become a little aggressive towards newcomers. Juvenile Longhorns will often form small groups, but as they mature they become solitary and will be intolerable of other Longhorns.

This fish is a slow eater, so be careful. Other, more aggressive eaters may consume the food and the Longhorn won't get enough to eat. The Longhorn is considered omnivorous and should be fed a variety of meat and greenstuffs. They are not picky and will eat shrimp, worms, clams, mussels, snails, tunicates, and other fish. They will even eat flake food, but won't thrive on it. Care should be taken as they will eat tube worms. They like to forage in the sand bed for food and will blow jets of water at the sand to uncover crabs, shrimp, etc. Like other puffers/boxfish, their teeth continue to grow. So, as the Longhorn matures, feed it hard shelled foods like ghost shrimp and snails.

One distinction from other fish is the lack of a gill cover, which is replaced by a small slit or hole. The hexagonal plate-like scales of these fish are fused together into a solid, triangular, box-like carapace, from which the fins and tail protrude. Their unique method of swimming, called ostraciform swimming causes them to look as if they are hovering. They have no pelvic skeleton, so they lack pelvic fins. They are such slow swimmers cowfish are easily caught by hand, making a grunting noise when captured. This is the most well-known cowfish species in the aquarium trade.

Warning, the Longhorn's skin is poisonous and it may release toxins in the water when stressed or threatened. This toxin (ostracitoxin) will kill other tanks mates, including other Longhorns. The Longhorn must be alive to synthesize its bodily chemicals into the toxin; therefore it cannot release its toxin after it dies. It may, however, have residual toxin if it were in the process of releasing toxin when it died.

Generally only expert aquarist should keep these fish because of the threat to wipe out your aquarium. However, the fish itself is considered fairly durable and adapts easily to captivity. In the wild, these fish can grow up to 20" in length. But rarely grow larger than 16" in captivity. Generally, they are only 1-4" in the Fish Stores. Because of their potential size, it is recommended to have a 125g tank or larger.

Did you know ?

Called the "rainforests of the sea," coral reefs are the greatest expression of ocean life, and the most bio-diverse ecosystem on earth with 30 of 34 known animal phyla present. Alarmingly, an estimated 25% of coral reefs have already disappeared and an estimated two-thirds of all coral reefs are at risk today.

Breeding the Banggai

By Bob Carlson

My pair of Banggai cardinals soon after spawning. The "pregnant" male is on the left (note the distended lower jaw)

My latest reef keeping adventure got started when I decided to add two Banggai Cardinalfish (*Pteragon kauderni*) to my 125 gallon mixed reef aquarium. Although I was familiar with Banggai cardinals I had never owned any before. Since they are fairly small fish I had decided to get two specimens for my reef.

I had read some reports (here at the WMAS and elsewhere) on breeding these fish, but originally that was not my intent. Needless to say, I was as surprised as anyone when I noticed that one of my Banggai had stopped eating and appeared to have a mouthful of something. "Eggs! You've got eggs!" my fellow WMAS members advised. Thus began a continuing odyssey that has (so far) resulted in the successful rearing of two broods of Banggai cardinalfish, totaling 22 fry, with more hopefully to come in the near future.

It would be difficult to cover every little nuance of the experience without turning this article into a full-fledged "book"; so I will try to limit the topic to the basics that I have learned and experienced in breeding and rearing these fish. This is something that most hobbyists could undertake with only a minimum of equipment and time (and maybe a year or two of successfully managing a marine aquarium under their belt).

Sexing the Banggai Cardinalfish

Of all the aspects of breeding, this is probably the most difficult part. There are three markers for determining male and female on these fish; however, all are notoriously unreliable in the home aquarium. The length of the secondary dorsal fin (spine) is noticeably longer on adult males in the wild, as much as a half inch longer. In the hobby, however, this delicate fin is often either broken off during capture and transit of wild-caught specimens, or else bitten off by rival males or even overzealous tank mates at feeding time. The second marker is size difference; adult males are generally ¼ to ½ inch longer than females. The size difference between individuals is also a factor of the fish's age, however. The final marker is the difference in jaw size / shape / structure between an adult male and a female – but only at such time as the male is carrying eggs. At other times the jaws of males and females look virtually identical. So then, how do you secure a definite male / female pair? The most reliable method is to purchase 4 to 6 juveniles and let the fish pair off as they mature.

Caring for the Banggai Cardinalfish and Conditioning the Fish for Spawning

Once you have a pair, you can prepare them for spawning. I have read where others have fed heavily with live foods as an enticement to spawn. While I don't think that would hurt, I also don't feel it is absolutely necessary. In my case, I choose to feed my adult Banggai (and all my fish, for that matter) as varied a diet as possible. Banggai cardinals are pretty much omnivorous and will eat most varieties of frozen food, such as mysis, brine, plankton, bloodworms, tubifex, beef heart, squid, mussel; even "vegetarian" formulas like Emerald Entrée. They do not care for flake and pellet foods and will usually ignore those, however. Water parameters tend to fall into the middle range of to which most marine aquarium life is accustomed. If you can provide conditions below for them, feed them a varied diet, and not house them with any overly aggressive species – as not to cause them undue stress - you will have created the optimal conditions for spawning.

- Temperature: 76 – 80F; not varying by more than 3 or 4 degrees F in a 24-hour period
- Specific Gravity / Salinity: 1.024 – 1.026
- pH: around 8.0
- Alkalinity: between 7 – 11 dkH
- Negligible readings for NH3 / NO2 / NO3
- Partial water changes as necessary

Spawning Behavior of the Banggai Cardinalfish

One of the interesting things about the Banggai is that the gender roles are reversed. The female is the aggressor and initiates the mating ritual. The male takes a more passive role than in most other species. Mating will start with the gravid female casually pursuing her mate, drawing close to him and shaking her body with small, quivering movements. Initially the male acts disinterested; after an hour or two of enticement the female will usually get his attention.

The actual spawning event is rather quick and usually goes unnoticed by the aquarist. The female releases her eggs in a kind of sac; the male quickly fertilizes it and then takes the entire sac into his mouth. The male will then incubate the eggs for 18–24 days until they hatch; he continues to hold the newly hatched fry for up to another week before releasing them. During this entire time the male does not eat.

My first batch of fry at around 6 days of age

Rearing Banggai Fry

For those of you with experience raising the fry of freshwater livebearers (guppies, mollies, etc.) the process for Banggai fry is remarkably similar. I removed the “pregnant” male to a separate nursery tank. The easiest way to accomplish this without stressing the fish is to wait until nightfall, then turn off all the lights on the aquarium for at least one hour. If you then turn all your lights back on at once, you will “stun” the fish and netting him out is a simple task.

The first and second brood fry together. Note that the month old babies were already about 3 times the size of the newborns.

Once isolated, it is just a wait-and-see process until the first babies are released. Usually the male releases the brood in darkness; sometimes over the course of two or even three days. Once he is done releasing (you will see his bulging jaw return to normal) you can net him out so he doesn’t try to eat the fry.

The male should be separated from the female for at least the first two weeks after he releases the fry. This will allow him time to recuperate and regain his strength (remember, at this point he has not eaten for close to a month). If you put the pair together the female will try to initiate spawning again within the first few days. The male may go along or he may refuse; if they spawn and he starts carrying again so soon you run the risk of the male aborting the brood due to hunger or illness. I did not realize this and my pair spawned again only 10 days after the male released the first brood! Although he managed to carry the second brood to full-term, there were only 10 babies the second time. The rapid turnaround between spawns may have resulted in a lower yield.

The nursery tank is set up right alongside the main display and circulates water between the two tanks to help prevent waste buildup inside the nursery tank.

Feeding the almost 1 cm long fry is relatively easy (as fry feeding goes) because the fry can take newly hatched brine shrimp as soon as they are released. No rotifer or greenwater cultures are needed; just buy or build a brine hatchery, buy some brine eggs and you are all set.

Feeding should take place 3 or 4 times a day; as much as the fry will consume in 10 minutes time. After about a month the now 1.5 cm fry can be weaned onto frozen baby brine and Cyclopeeze. The fry will reach approx. 2.5 cm (1 inch) long at around 3 months of age. They reach sexual maturity at about 1.75” long at 6 or 7 months of age.

Skimmer – Mesh Mod

By Faxon Moulder

There has been a lot of talk on the board about doing a “Mesh Mod” to your skimmer. Let’s first discuss how a protein skimmer works, and the idea behind the “Mesh Mod” will become clear.

A protein skimmer is more accurately called a foam fractionator. It uses bubbles to separate molecules in a mixture. Our tank’s water is a mixture of many different types of molecules. Some of these molecules are hydrophobic (literally meaning “scared of water”, oils, organic molecules, etc.), some are hydrophilic (“loves water”, salt, sugar, etc.), and others are amphipathic and show hydrophobic and hydrophilic behavior (proteins, large organic molecules, etc.). Any time you have molecules that act different ways under different circumstances you can use those differences to separate the molecules. A foam fractionator uses the air/water interface to attract hydrophobic molecules and the hydrophobic ends of amphipathic molecules, in the same way that you can observe the oily rainbow that is visible on a puddle of water after a short rain. A protein skimmer simply makes lots of bubbles (air water interfaces) available for the molecules in the water to gather on. Early protein skimmers used regular pumps to mix the air and water to get a good number of bubbles. Later on, someone discovered that if they replace the large paddles on the pumps with many posts they would get smaller bubbles, and the needle wheel skimmer pump was born.

The Mesh Mod uses the same principle as the needle wheel skimmer. Because the filaments of the mesh are smaller in diameter than the “needles” (posts) on the wheel, and there are many passages between those filaments, the bubbles get broken down into very tiny bubbles. This creates an enormous amount of surface area for the molecules to collect on, and this increased collection makes a drier, more concentrated skimmate.

I did the modification on my ASM G3 skimmer with a Sedra 5000 needle wheel pump. Very few tools are required; a drill with a small bit, a utility knife, and some good scissors. The modification uses a very specific mesh called Enkamat. This is the hardest part to find. Well, it is not hard to find but you have to buy a piece that is 39” by 72” from Aquatic Eco-Systems. The mod uses about 6 square inches of the 2808 inches in the piece from Aquatic Eco-Systems. Luckily, I bought an entire piece and have been making the material available at different times for those interested in doing the mod. I have been charging a dollar for more than enough to do a single Mesh Mod. The only other supplies you need are 4 small zip ties (the smaller the better).

Image A. Remove the posts from the disk of the impellor.

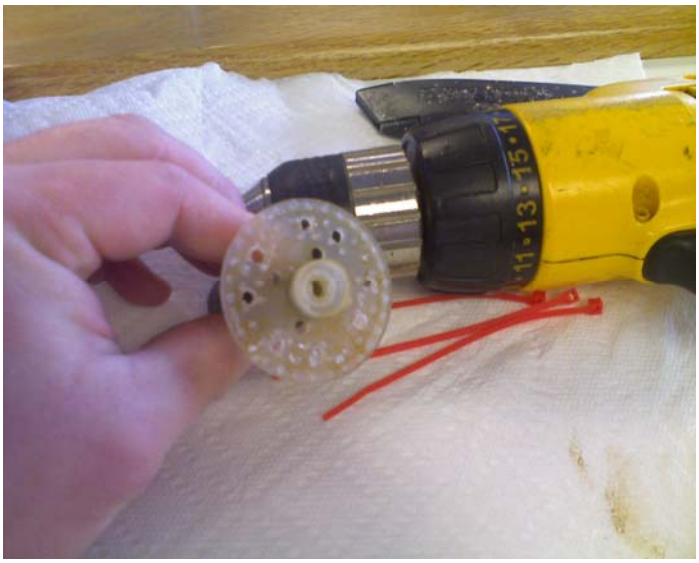


Image B. Drill eight evenly spaced holes through the disk.

After taking the needle wheel impellor out of the pump (be very careful with the ceramic shaft, it is somewhat fragile, and sometimes difficult to remove) you have to cut off all of the needles (posts) off of the flat portion of the disk. See image A. This is the point of no return, and a new impellar is about $32. Be careful to keep track of the smaller round pieces of the needle wheel to reassemble properly. Also, be very careful with the utility knife to avoid a quick trip to the ER.

After all of the posts have been removed as low as possible, drill 8 evenly spaced holes around the middle of the disk. See image B. There are already 4 holes in the Sedra disk. I left them there, and did not put zip ties through them. I figure, the engineer put them there for some reason, so I'm not going to plug them up.

Image C. Attach the mesh squares using zip ties.

To make the mesh attachment easy I just cut 4 squares of mesh bigger than the disk and stacked them up right over the center post. I was also careful to make all of the zip ties face the same direction, just to keep the spinning disk somewhat balanced. See Image C. After the mesh was zip tied down (not too tight, but snug), I cut out the center section, which was the hardest part of the whole modification. You have to use the very tip of the scissors and clip out all of the little bits of mesh, being careful not to remove too much. Next, I trimmed the excess mesh from the circumference of the disk, and snipped off the end of the zip ties. I also checked to make sure there were no pieces that were going to swing out at high speed and cause problems. I reassembled the impellor into the pump and put it back onto the skimmer.

The result was immediate and dramatic. With the skimmer tube dropped all the way down, very dry skimmate came out of the neck almost immediately and I noticed that the skimmer body was much whiter and foamier than before. I am sure that my well-stocked tank will benefit from having these molecules removed so efficiently.

Used by permission: Gary L. Parr
www.gparr.com

Bubble Coral

By Brandon Bauman

Years ago, I went in to a local fish store to buy some of my first corals for my first reef tank. I was captured by a mystical pearl colored coral covered in bubbles. I immediately asked the employee if it would do well in my tank. Unfortunately, with his assistance we decided I shouldn't purchase the coral because I lacked the lighting conditions required to keep one in good health. Since then I have always stopped to look at one when I see it available in whatever fish store I happen to be in. It makes me think and feel like relaxing. The bubbles just seem to flow in the water. Let me tell you what I've learned about bubble coral in researching it.

This coral comes from the reefs of the Indo-Pacific Ocean. It is usually found along shallow water on a vertical surface or cave. It has a hard white skeleton underneath and what are characterized as large fleshy polyps or water filled "bubbles" on top. When inflated these bubbles cover the entire skeleton and are usually white, grayish blue, or yellowish in color. They can be found in green and other colors and are quite the spectacle. When these bubbles deflate, which is usually when the lights are turned off, its sweeper tentacles extend for feeding or for defense.

Did you know ?

The scientific name for the beautiful LPS coral aptly named bubble coral is Plerogyra sinuosa. The Greek translation means plera (full) and gyra (circle) or full circle.

Hardiness: Care level is easy. Moderately hardy, take time to adapt to aquarium conditions/changes and start to grow. Its bubbles are quite fragile and can be punctured easily. Try to only handle them exclusively by the skeleton.

Lighting: Prefers moderate to strong lighting for fast growth. It can survive with lower lighting. If you have only compact fluorescent lighting, I would suggest placing it near the top of the tank.

Water Current: Prefers low to moderate current. If it is not extending its bubbles, it may be due to too much current.

Temperature: 75-84°

Aggressiveness: Moderate – its sweeper tentacles pack a fairly potent sting so it shouldn't be positioned too closely to its neighbors.

Feeding: It is photosynthetic, but enjoys occasional direct feeding of brine shrimp or other meaty foods once a week and will assist in achieving more rapid growth.

Notes: Bubble coral is dependent upon correct calcium levels for skeletal development. Addition of Strontium and trace elements would also be good.

Aquarium Tips & Tricks

By Sea Star Staff

The WMAS message board is full of helpful tips that can simplify your reef keeping adventure. One such tip involves the use of petroleum jelly to protect metal components around your saltwater tank. Anthony posted the following tip:

> *I thought I'd share this with others since it has been a big help to me. I've had trouble in the past keeping hinges and screws from rusting in the canopy of a tank. I started taking a Q-tip and lightly swabbing on some medicinal petroleum jelly(pure and unscented) on these and have had no rust problems for several years now. One application usually lasts a year or more.*
>
> *If you already have rusty parts I recommend replacing them then doing an application of the jelly to protect the new hardware.*

This is certainly a great preventative measure that can avoid some costly repairs in the future. This tip got me thinking; where else can I use this to solve some of life's little problems? Here's a little of what I found that may be applicable to Sea Star readers …

Water Spots on Wood Furniture

Rub petroleum jelly into damaged area with your fingers and let stand for a few hours or overnight. In the morning, remove the excess with a paper towel and buff with a soft cloth.

Emergency Shoe Shine

A thin coat of petroleum jelly on shoes, boots and purses will keep them looking great and help repel water and salt. It will also help you look your best at the next WMAS meeting.

Super Glue Cap

Put a thick coating on the inside threads of the cap to keep it from gluing itself shut. This will work on nearly all threaded caps and lids.

Squeaky Doors

Quiet a noisy door hinge on your aquarium stand. A little petroleum jelly will lubricate the hinge pin without a messy drip on your carpet.

Cuts and Sores

When petroleum jelly was first released its purpose was to protect cuts and scrapes by acting as a barrier against moisture and bacteria.

Car Battery Posts

Stop corrosion by applying petroleum jelly to your car's battery posts. This will ensure you make it to the WMAS's frag fest in June.

Scalp Moisturizer

Applied liberally to your quickly balding head, petroleum jelly will moisturize and protect the newly exposed skin. Your head can also be buffed to nice sheen before fish club meetings.

Mustache / Eye brow Grooming

No need for a trimmer, tame those unruly moustaches or eye brows with a dab of petroleum jelly to look your very best. (you know who you are)

Lights

A thin coating of petroleum jelly on light bulb threads will prevent them from galling and avoid a broken bulb during replacement.

Ring Remover

Apply petroleum jelly to your ring finger to remove your wedding band before submersing it in your aquarium – or even before MACNA.

Grease Your Baseball Glove

Petroleum jelly is the best ball glove conditioner for the money. Massage into the glove to soften the leather before the season and again before storing your mitt over the winter.

Rubik's Cube Lubricant

For you über-nerds out there – you can also use petroleum jelly to lubricate your chick magnet / hand held puzzle. It will allow it to be manipulated with greater ease.

Corals, Corals, Corals

"Friday night and I need a fight. My motorcycle and a switchblade knife. Handful of grease in my hair feels right. But what I need to make me tight are … " I wonder what the hair bands of the 1980's would have sung about if not for corals? That is definitely a question for an after-meeting dinner! Anyway, check out the May and June 2008 meetings of the Wasatch Marine Aquarium Society to get your fix – and ROCK ON!

Coral Propagation Seminar

May

Join us for an in-depth look at coral propagation. We will examine methods of fragging several different coral varieties and demonstrate common and not so common techniques to successfully cut and attach coral fragments. The procedures will be projected overhead, so there won't be a bad seat in the house! Feel free to ask questions and share your experiences as we strive to improve the success of local coral propagation.

Frags from each of the demonstrations will be available to purchase.

Summer Frag Fest!

June

You asked for it - and we delivered! Come enjoy a warm weather festival of frags. This meeting will be a WMAS fundraiser. We will have many prize coral colonies in our auction and literally hundreds of frags to choose from. In addition, there will be some surprise items available that you won't want to miss.

Donations are graciously accepted and much appreciated. So, bring some frags to donate and take some new ones home to celebrate the coming of summer.