

# AQUATICA

THE JOURNAL OF THE BROOKLYN AQUARIUM SOCIETY  
VOL. XXIV SEPTEMBER ~ OCTOBER 2009 No. 1



Photo: Joe Graffagnino



# AQUATICA

VOL XXIV • SEPT/OCT 2009 • NO 1

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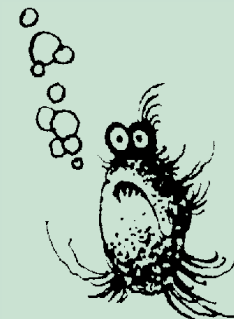
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## BROOKLYN AQUARIUM SOCIETY CALENDAR OF EVENTS 2009-2010

SEPT 11 Dana Riddle ~ Raising Coral Spawn: Can It Be Done? • Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction • Discount books & sales • Door prize • Raffles.

OCT 9 Giant Fall Auction ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods auction including a new 55 gallon tank & stand • Discount books & sales, Raffles • Door prize and much more.

NOV 13 Greg Sullivan ~ Building Filter Systems For Fresh & Marine Aquariums • Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction • Discount books & sales • Door prize • Raffles.

DEC 11 BAS Holiday Party ~ Members, their families and friends, all you can eat sitdown dinner • Fish Bingo & Prizes • BAS Awards presentations.

••••• 2010 •••••

JAN 8 Omer Mojena (Hikari) ~ Fish Nutrition • Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction • Discount books & sales • Door prize • Raffles.

FEB 12 Todd Gardner ~ Making The Jump To Saltwater

• Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction • Discount books & sales • Door prize • Raffles.

MAR 12 Bob Scherer ~ Pondering Ponds • Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction • Discount books & sales • Door prize • Raffles.

APR 9 Tony Pinto ~ Deep In The Kapuas: Collecting Bettas & Anabantids In Borneo • Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction. Discount books & sales • Door prize • Raffles.

May 14 Spring Auction Extravaganza ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods auction including a new 55 gallon tank & stand • Discount books & sales • Raffles • Door prize and much more.

JUN 11 Richard Ross ~ Cephalopods: Is There An Octopus In Your Future? ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction • Discount books & sales • Door prize • Raffles

SEPT 10 Jeff Bollbach ~ A Year In The Fish Room ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction • Discount books & sales • Door prize • Raffles.

OCT 8 Fall Giant Auction ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods auction including a new 55 gallon tank & stand • Discount books & sales, Raffles • Door prizes and much more.

NOV 12 Marine Speaker TBA ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction • Discount books & sales • Door prize • Raffles

DEC 10 BAS Holiday Party ~ Members, their families and friends, all you can eat sitdown dinner • Fish Bingo & Prizes • BAS Awards presentations

All Events held the 2nd Friday of the Month at 7:30pm at the Education Hall of the  
New York Aquarium ~ Surf Avenue & West 8th Street ~ Brooklyn, NY (unless stated)  
We request a \$5 Donation for non-members, good towards membership the night of the event only.

**FREE REFRESHMENTS AND FREE PARKING AT EVERY MEETING - UNLESS STATED**

### NOTICE TO ALL MEMBERS

A motion was made, seconded and passed at the March board meeting (3/7/08) that membership cards be made up and handed out the night a person joins the BAS. If you join or renew by mail you must come to the next general meeting to get your card. Publications will still be sent by mail. Web memberships do not get a card, and only get publications that may be on-line. The cost of mailing has gone up and this is a cost-saving measure.



Steve Matassa - BAS

# WATER CHANGES To Change Or Not To Change?



**I** am writing this article to try and clarify some misconceptions about water changes. Believe it or not, there are still many hobbyists who still do not think they have to do water changes. The reasons they give you are either one of two; I have a very good filter; or I have a lot of evaporation so I just replace a lot of top off water.

In reading articles and books, you will get many opinions on the subject of water changes; however, none will ever tell you that they do not need to be done. Omitting water changes is a disaster waiting to happen. It is not a matter of if, but rather when you will have problems. All fish need water changes, regardless of whether it is fresh water, salt water, reefs, or even ponds. I am going to try to give you my opinion on how often and how much to change based on my experience.

To begin with, we will address two misconceptions about water changes, the first being that you have a really good filter and do not need to do water changes. I do not care how good your filter is, it can only take out so

much. The concentration of the dissolved liquids it does not remove continues to rise until it is deadly. The only way to lower these levels is by water changes. Without water changes, your ammonia, nitrite, and nitrate will continue to rise until it is too late.

The second statement I hear from fellow hobbyists is that they get a lot of evaporation, and do not do water changes; they just top off water. This is the hobbyist who will also ask why his fish continue to die. When water evaporates from your tank, it is only the good clean pure water that evaporates. It leaves all the bad stuff behind like phosphate, fish waste, and nitrates. The only real way to remove these things is to do water changes.

Of all the statements you hear and/or read, the one I can tell you that is true is that water changes are necessary for proper fish health. Water changes will vary from tank to tank because of several factors, like your filtration, the amount of fish or inverts you have, lighting and, most importantly how heavy handed you are at feeding time. I have been successfully keeping fish for over 35

years, and what I will share is what works for me.

Water changes differ from fresh to saltwater and further differ depending on the fish and inverts. With most fresh water tanks, I like to change 20% to 30 % every 2 weeks. This typically works with most fresh water tanks, but keep in mind the factors I mentioned above. However, there are exceptions, like fry or discus to name a few. They would both need a considerably larger and more frequent changes.

When I kept discus, for example, I was doing water changes 3-4 times a week; anything less and the discus's health would suffer. If you do not have the time to do water changes at least twice a week with discus, then pick a different fish.

Another example: most fry need daily or at least every other day water changes for optimum growth and health. While I cannot go over every fish, I said, you will have to feel it out for yourself. The ways to tell if you are doing enough are whether your fish are healthy, an elevated nitrate level will elevate, and your pH dropping.

I also have a pond with koi and gold-





# WATER CHANGES To Change Or Not To Change?



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All fish need water changes, regardless of whether it is fresh  
water, salt water, reefs, or even ponds.**




fish which I change about 25% -30% once a month. When you first open your pond in the summer, it will be very green from the winter. Remember to do smaller, more often water changes until it clears up. You want to avoid shocking the fish; you must keep in mind that they have been in almost a dormant state for the winter months. The thing with water changes is that you want it to be as stressless as possible for your fish.

Now on to saltwater. In a fish only tank I like to change 20%-25% every 2-3 weeks, depending on those factors we talked

about. With saltwater you have to adjust more than just temperature, pH, and hardness; you will also have to adjust your salinity, keeping in mind the temperature has to be adjusted first. Temperature does have an effect on your salinity reading. I like to use a power head to dissolve the salt; letting it run for 10-15 minutes will usually do the trick. I am sure I do not have to remind you to dechlorinate your water.

In my reef tank, I have found that some corals, like *xenia*, are affected by the slight change in water chemistry. To combat this

issue, I suggest doing smaller water changes more often - 10% every week or two should do the trick. Pumping the new water in to your sump so that it has the opportunity to mix with the tank water gradually will reduce the amount of stress placed on the coral and fish. I use this technique everywhere I use a sump.

The suggestions I have provided you with are solely based on my personal experience. Regardless of the factors that may affect your tank, it is absolutely necessary to conduct water changes to ensure the health and longevity of your fish. 

# The Practical Plant

## TWO PLANT PROFILES

### 1

#### Propagating: *Heteranthera zosterifolia*

**T**his is a plant that I have been maintaining for quite some time now. It's not a very common plant, but I wouldn't call it a rarity either. The common name for this plant is "Stargrass." This is another of those light loving stem plants, although by stem plant standards it will do well with less light than most.

It is a native of Brazil and as such will not tolerate low temperatures. The leaves are narrow lanceolate in shape and up to about two inches long. *H. zosterifolia* will tend to hold these leaves at an upward angle. In good lighting the upper leaf surface is a bright green and the lower leaf surface is a pale grey-green to red-brown. Because of this color pattern, the upward angle of the leaves really adds to the decorative nature of this plant. The stem is fairly thick and robust looking, but the plant is actually delicate and easily damaged. Because of this, I wouldn't keep it with large

active, or plant eating fish. These thick stems will branch readily.

The plant does have a tendency to develop thick unsightly roots on its lower nodes. This habit makes it necessary to periodically pull up the entire plant and re-establish it from cuttings. The cuttings will root easily and grow quickly so this does not present any problem.

I am keeping this plant in my 15 gal-



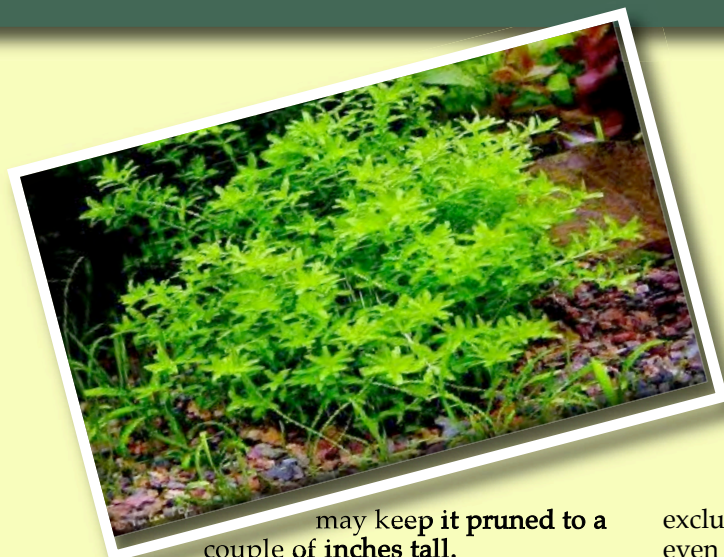
lon setup. This tank has intense lighting, but this plant did do fine when I had it in my 20 gallon (which has half the light). This aquarium is equipped with a 96 watt Compact Fluorescent lighting (Coralife "Aqualight" Quad which works out to 6.4 watts per gallon) and CO<sub>2</sub> enrichment. The pH is about 6.8, temperature is kept at 77° and the GH runs about 4-6°. A Fluval canister filter (model #104) with the output being directed through a submerged spray bar is doing my filtration. Under these conditions, the plant grows rapidly and requires a great deal of pruning. My substrate is Seachems Flourite. Although this plant develops an extensive root system for a stem plant, it does not seem to need additional substrate fertilizers. Overall I'd call "Stargrass" an unproblematic and recommendable plant.





## 2

### Propagating *Hemianthus micranthemoides/micranthemum*




**T**his is a very nice and versatile plant. Its common names, include "Japanese Pearlgrass" and "Baby's Tears." Despite its common name this plant is a native of North American. *H. micranthemum* has very fine stems with dense foliage of small bright green leaves. It will grow to about eight inches in height. At eight inches, it is perfect as a midground plant. It looks especially well planted in the gaps between rocks and other such decorations. But I also did call it versatile. This is because the plant is tolerant of aggressive pruning. Because of this nature, the plant can do double duty as a foreground plant. You

may keep it pruned to a couple of inches tall.

*H. micranthemum*, as long as it receives lots of light, is not an overly fussy plant. It will do well in temperate to tropical temperature ranges. It is also tolerant of GH, doing equally well in soft or fairly hard water. You should avoid alkaline pH values though. The stems are thin and delicate so you need to handle the plant gently, but they can be planted a couple of stems at a time in the same hole. A finer grained substrate will make the planting a bit easier. It does not require a rich substrate so root fertilization is not called for. The plant will feed almost

exclusively from the water column, and can even be grown as a floating plant if desired. This should make it a good plant for breeders as well. Even though it feeds from the water column, it does not need high levels of fertilizer in the water either. The plant can be propagated by either of two different methods. You can let it spread via runners, or take stem cuttings to root.

The bottom line is that if you can meet the needs of *H. micranthemum*, it is an attractive and well behaved plant. 

**EDITORS NOTE:** Members with questions about aquatic plants or setting up a planted tank can contact **Isidore (Izzy) Zwerin**, our plant editor. You can call him at (718) 449-0031 between 7pm to 10pm, Monday to Friday.

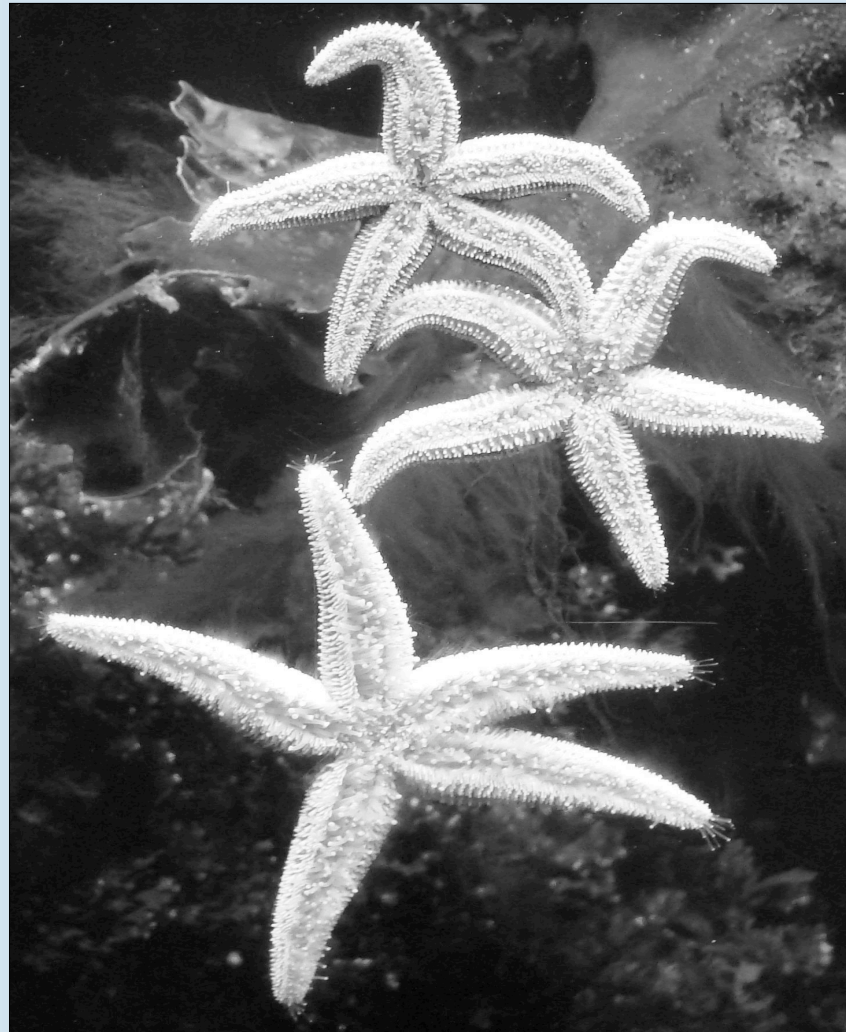


## STAR FISH May Benefit From Global Warming

Climate change is expected to cause widespread disruptions to ecosystems and their resident species. Some creatures will go extinct; others will expand their ranges and thrive.

A new study identifies starfish as one of the possible winners from rising ocean temperatures and carbon dioxide concentrations.

Rearing *Pisaster ochraceus*, a species of sea star, under varying conditions, **Rebecca Gooding**, **Christopher Harley**, and **Emily Tang** of the University of British Columbia in Vancouver found that increased temperature and acidity will significantly boost the echinoderm's growth rate, more than offsetting the negative effects of reduced availability of calcium carbonate, an important structural building block for many marine



invertebrates. The results contrast with other research which has shown a negative correlation between increased ocean acidity and growth rates of calcifying species.

"Our findings demonstrate that increased [CO<sub>2</sub>] will not have direct negative effects on all marine invertebrates, suggesting that predictions of biotic responses to climate change should consider how different types of organisms will respond to changing climatic variables," the authors write. "Some ecologically important species... may directly benefit from acidification."

Nevertheless, the new research is not a cause for complacency. A number of other studies have shown that acidification has wide-ranging impacts on sea life, including disorienting fish larvae and making it more difficult for calcifying organisms



like coral reef-building polyps and some types of plankton to form skeletons and protective shells, putting important marine ecosystems and food webs at risk.

Ocean acidification is linked to absorption of carbon dioxide ( $\text{CO}_2$ ) by oceans. As atmospheric concentrations rise due to  $\text{CO}_2$  emissions from fossil fuels and deforestation, oceans become more acidic.

Oceans worldwide absorbed approximately 118 billion metric tons of carbon between 1800 and 1994, according to a report published in 2006 by scientists at the National Center for Atmospheric Research and NOAA, resulting in increased ocean acidity. Should  $\text{CO}_2$  emissions continue at their current rate, scientists project that global ocean pH levels could drop from 8.1 today to 7.7 by 2100.

In the past, changes in ocean

**A new study identifies starfish as one of the possible winners from rising ocean temperatures and carbon dioxide concentrations.**



acidity have triggered mass extinction events. According to a study published in the September 2006 issue of *Geology*, dramatically warmer and more acidic oceans may have contributed to the worst mass extinction on record, the Permian extinction. During the extinction event, which occurred some 250 million years ago, about 95% of ocean's life forms became extinct.

Rebecca A.

Gooding, Christopher D. G. Harley, and Emily Tang. Elevated water temperature and carbon dioxide concentration increase the growth of a keystone echinoderm. *PNAS Early Edition* May 25, 2009.



Heok Hee Ng:

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## New Giant Danio Named *Devario anomalus*

**A** new species of *Devario* has been described in a recent issue of the journal *Zootaxa*. Kevin Conway, Richard Mayden and Kevin Tang name the new species from Bangladesh *Devario anomalus*.

*Devario anomalus* is distinguished from congeners by its unique colour pattern, consisting of 5–8 dark, irregular, vertical bars restricted to the front half of the body and widely separate from a short, broad P-stripe, originating level with or behind the origin of the anal fin.

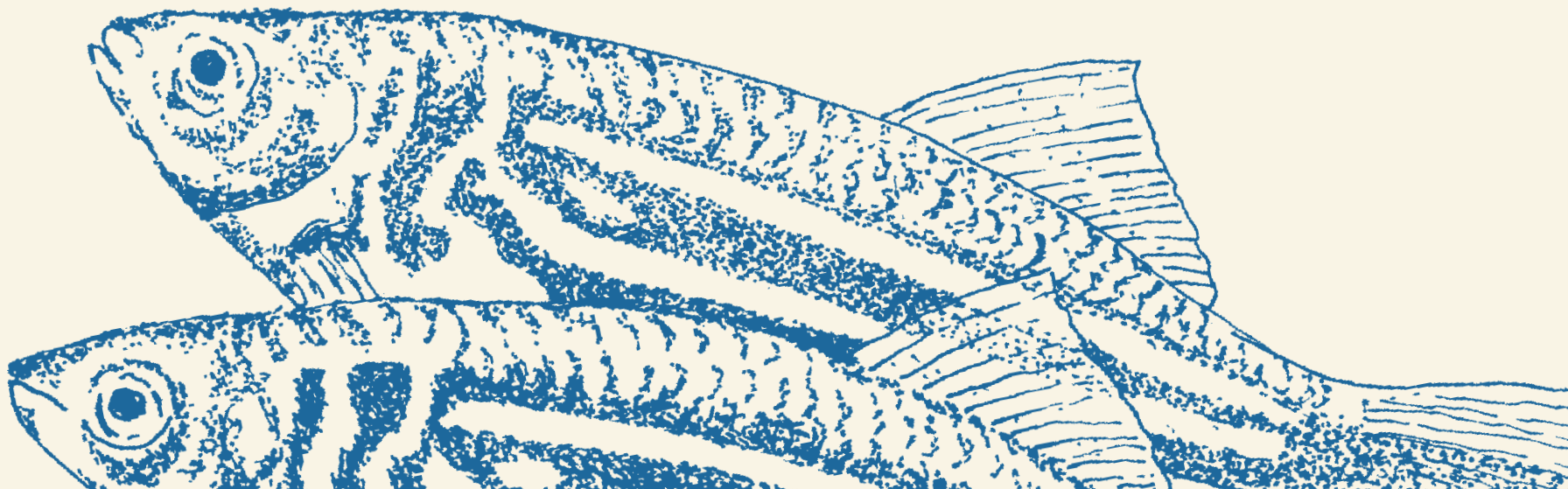
It is further distinguished from congeners reported from Bangladesh by the presence of maxillary barbels, an ascending process on the first infraorbital, and a lower number of lateral-line scales,

branched dorsal-fin rays, branched anal-fin rays, and circumduncular scale rows.

The species is named after the irregular vertical bars on the front half of the body (Greek *anomalos*=irregular).

Conway told *Practical Fishkeeping* that he did not think the species had been in the aquarium trade.

For more information, see the paper: Conway, KW, RL Mayden and KL Tang (2009) *Devario anomalus*, a new species of freshwater fish from Bangladesh (*Ostariophysi: Cyprinidae*). *Zootaxa* 2136, pp. 49–58





John Todaro BAS



## RUMMYNOSE TETRAS A FISH THAT CAN DRIVE YOU TO DRINK!

**R**ecently I sent up a 20 gallon tank as a species tank...I thought about what type of fish I would like to have in it and the crazy idea of having a school of Rummynose Tetras, *Hemigrammus bleheri*, came to mind. I've always liked these fish, but never kept them because of the horror stories I have heard from other aquarists and dealers.

This is a very sensitive fish. If the conditions are not just right, you can say goodbye to them even before you get them home, one dealer said. She ordered them once and they came in with half of the fish dead in the shipping bag and the other half slowly died one by one over the next few days.

This fish is sensitive to water quality and pH fluctuations can kill it. Another problem is that it does not take well to the addition of salt or other chemical additives to help it overcome diseases. A third problem is that you must keep it in a school of no less than 3 members of its own species. The larger the school, the better chance of the fish surviving. The secret to keeping these fish, I've been told, is to slowly acclimate them to your tank. The drip method is recommended. Also never add them to a newly set up tank or a tank that has not been cycled. I can guarantee you you'll be playing taps for them in a day or two. Even with the best cycled



tank, you should expect to lose a couple of fish.

Weekly water changes with Rummynose Tetras are a MUST, at 50-60% otherwise you may start to lose some in the following weeks.

Okay, you say if you're smart you should start thinking about a different school fish! Who needs all the "tsouris" with Rummynose Tetras.

Well, no one said I was smart and I thought I would do a special order at my local pet shop, since Carol the owner would not normally stock these fish after her unfortunate experience with them. I ordered two dozen fish. Carol said that I must pick them up as soon as they arrived, the next day. She just could not be responsible for them after what she had been through the last time she ordered them. Okay, not a problem, I said...wondering if I was asking for

trouble.

When I arrived the next day to pick them up. I went right to the tank she had put them in. One was already a floater...and the others had lost all their color...no red nose on any of them. They just looked like small silvery bait fish. She said, do you still want them. This was my chance to back out, but as I said, no one said I was smart.

Yes, of course, bag them up. Put six in a bag, and since I have a long drive back home, I brought a styro to keep them safe from temperature changes. The box also keeps them in the dark which helps to keep fish calm.

As soon as I got home, I floated the bags in the 20 gallon tank I had set up 3 weeks ago, with a Marineland canister filter and a 100 watt heater. I stocked the tank with water sprite and a larger female Amazon plant that had some runners and a couple of Anubis plants and some snails.

The temperature was 79°F. After about 15 minutes, I opened the bags and let the fish swim out. They immediately went to the bottom of the tank under the sword plant, and stayed there. I turned off the light to help them calm down...they still had no color at all.

A couple of hours later I went to check on the Rummies, with just the room light on. They were still under the sword plant breathing heavily and shaking...I was starting to worry

## RUMMYNOSE TETRAS

### A FISH THAT CAN DRIVE YOU TO DRINK!

about how soon they would be swimming in that big fish tank in the sky, but there was not much I could do...only time would tell.

The first thing the next morning, I checked to see how they were doing.

Well, they were now schooling along the bottom of the tank right above the gravel...all of them except one. One fish was shivering under the sword plant...This one is a goner, I thought. I checked closer and noticed that there was a white patch at the base of the tail fin. None of the other fish had this marking. They were all silvery and had started to show the red markings of rummynose tetras. This fish didn't! Sure enough, later that day he was gone. I carefully checked over the others...I found another one with a white patch, only this white patch was right under the dorsal fish... I thought this fish will be next - and the next morning it too was dead. Now I carefully checked over every fish left to see if any more had these markings. None that I could see, but the next day another fish was dead.

All this time, the fish never left the bottom of the tank, they just schooled back and forth but never more than a inch from the bottom. They would not even leave the bottom to feed, but waited for the food to drift down within a couple of inches from the gravel. I was starting to think these fish seem to be bottom schooling fish, but I had never read anything about that sort of behavior in Rummynose Tetras.

After four days, I had stopped losing fish. I was now down to twenty fish in the school, all with bright red noses and pretty striped white and black marking on the tail fin. Their bodies are silver with a blue shrimp cast on the gill plate. Very pretty fish and very active, darting back and forth from one end of the tank to the other. I fed them and to

**ORDER:** *Cypriniformes*  
**SUBORDER:** *Characoidei*  
**FAMILY:** *Characidae*  
**GENERA:** *Hemigrammus*  
**SCIENTIFIC NAME:** *Hemigrammus bleheri*  
**COMMON NAME:** Rummynose Tetra, Red-Nose Tetra, Firehead Tetra  
**REGION:** Native to Brazil & Colombia  
**SIZE:** up to 2 inches in the aquaria.  
**TEMPERATURE:** Between 78°F - 82°F.  
**WATER QUALITY:** pH 6.5 to 7.0 5 dH  
**HABITS:** Fairly peaceful  
**FOOD :** Omnivorous; live, frozen, flake foods.  
**SEX:** Male slimmer and smaller. Females will be fuller in body outlines.  
**BREEDING:** These fish are egg scatterers and will spawn in java moss or spawning mops on the bottom of the aquarium. Remove spawning fish after spawning as they will eat the eggs. Eggs will hatch and become free swimming after about four days. Fry are very small and should be feed infusoria and green water as first food, then brine shrimp nauplii.  
**REMARKS:** This a very sensitive fish and must have pristine conditions. Keep them in a well planted tank.

my surprise they raced to the top of the water and began striking at the small crushed flake food I had just sprinkled onto the water. They now school midlevel in the water column and I've stopped losing fish.

I still do not know what the white patch was on the fish that died, but none of the others have it...yet!

From what I have read about keeping

Rummynose Tetras, all seem to be in agreement that it is a peaceful fish, should be kept in schools and must have good water conditions. Also they like to inhabit the lower and middle water regions. I'm thinking of adding 'blackwater' extract to the tank water.


Sexing Rummynose Tetras is not easy. The females will have a fuller stomach area. The males will be smaller and slimmer.

There are two similar species and are often sold under the same common name Rummynose Tetra, *Hemigrammus rhodostomus* and *Petitella georgiae* (False Rummy-Nose tetra).

At this writing, they are all doing well. I would recommend trying this fish if you are ready to handle the loss of some of the school you buy. I recommend at least a dozen if not more fish, and keep them in a species tank, for their comfort and safety.

After they have settled in, sit down and have a drink and enjoy the sight of these little beauties flashing back and forth in the tank.

On the other hand if you've lost them all, like I did, see my post script. Pour yourself a stiff one and think about what other fish you're going to try next!

I hope you have better luck than I've had! PS: As of this writing, I have three rummynose tetras left, out of 23. I had my stiff drink and ordered 24 tiger barbs, *Barbus tetrazona* that seem to be very happy in the tank and the remaining three rummynose have joined the schooling barbs. 

#### References:

- Wikipedia, Rummy-nose tetra
- *The 101 Best Tropical Fish*, Kathleen Wood, Microcosm, TFH 2007
- *Aquarium Atlas.*, Baensch, H.A. Baench, 1986



***The BAS would like  
to give a special thanks  
to the following for making our  
“DAY AT THE RACES”  
fund raiser event possible.***

**Mgr. Walter Astudillo,**  
Manger of Regina Paciis RC Church

Attorney **John Meringolo**

All the Officers at the **68th Precient**  
especially **Deputy Commissioner**  
**Eric Rodreguiz** and **Sgt. John Strype**

**Ray Downs** of Pepsi

**Salty Dog Bar and Restaurant**



# THREADFIN RAINBOWFISH

## EXOTIC BEAUTIES FROM DOWN UNDER

**FAMILY:** *Melanotaenidae*

**SCIENTIFIC NAME:** *Iriatherina wernerii*

**COMMON NAME:** Threadfin Rainbowfish

**REGION:** Native to Papua New Guinea. Still waters in rivers and swamps

**SIZE:** up to 1 1/2 inches.

**TEMPERATURE:** Between 77°F - 82°F.

**WATER QUALITY:** pH 5.5 to 6.5 10° dGH

**HABITS:** Peaceful aquarium fish, best kept in a tank by themselves

**FOOD REQUIREMENTS:** Carnivorous; live, frozen of all types, may be trained to take flake foods.

**SEX:** Males display elongated, thread-like filaments and are more brilliant in color. Body color is light brown with silver reflections. Threadfish are dark brown to black.

**BREEDING:** Breeding this fish requires some attention. Best kept in small groups especially when breeding. The male will chase the female. Once spawning starts, the fish will spawn almost constantly. When enough eggs are deposited in the moss or mops, they should be removed to a small nursery tank. The fry will hatch, depending on temperature, within 8 to 12 days. Fry are extremely tiny and should be fed infusoria or cooked mashed egg (squeezed through a fine mesh cloth). When able to take larger food, feed fry brine shrimp nauplii.

**REMARKS:** Looks best with a fine sandy bottom and well planted with an open swimming area. The water should not be too soft (see water quality). Weekly water changes are recommended.

### References:

- *Rainbowfishes In Nature and in the Aquarium*, Dr. Gerald R. Allen, Tetra-Verlag, 1995
- *Baensch Aquarium Atlas*, Hans A. Baensch, Baensch, 1993
- *Aquarium Fish*, Dick Mills, Dorling Kindersley, 1993



Vinny Babino BAS



# ONE OF THEM

**W**e have all had them in our tanks now and then. It could be any type of fish. You know the fish I'm writing about....the fish you just can't get to breed no matter what you try. You will find a lot of people in the club that will tell you how easy it is to get them started.

They may even tell you they can't get them to stop. The best is when they tell you all you need to do is add water and a rock. Well, I added water and I added a rock and no luck. I dimmed the lights. I lit candles, put on some love songs, and even added some wine to the tank. No luck! Well, maybe not the wine. The point is sometimes we just try too hard. We tend to go out of our way to make things just right for the little guys that we go overboard with setting up the tanks. With all the information we can find on our home computers now, it is so easy to find out all we need to know about our little finny friends. You can find out what pH the water should be, the right temp the fish love... everything you need to know to make that wild caught fish happy. But was the fish from the wild? Or was the fish bred in some guy's fishroom? So you go out of your way, spend all kinds of money and the fish has never been in the wild.


One of the fish I was working with was the *Tilapia snyderae*. This is a small substrate spawning cichlid that is native to Lake Bermin in the country of Cameroon in West Africa. I have had this fish in my tanks for some time now and never had any luck getting them to

spawn. So let me tell you how I got the fish off my "One Of Them" list. I set up a twenty gallon tank for them. I used white play sand about 3 inches deep. I then added two clay flower pots set on their side on each side of the tank. We are starting to look like home now. I took some plants from other tanks and planted them all over the tank. Plants were placed in front of each flower pot to help cover the doorway. This way the fish had a nice place for the eggs. The heater was set for 78° and a small filter was placed in the tank. Then I did the most important thing we often fail to do.

I gave them a kiss and told them they were on their own. I didn't see much of the fish. The food was gone so they were eating.

After three weeks, I saw that the pair was setting up house. They dug a large pit in the middle of the tank right under one of the plants. And then the day came when the male and female were looking after their new family. Everything I read about the *Tilapia snyderae* told me that the pair would take good care of the fry. We will never know. I pulled them out of that tank so fast that they have to wear little neck braces from the whiplash.

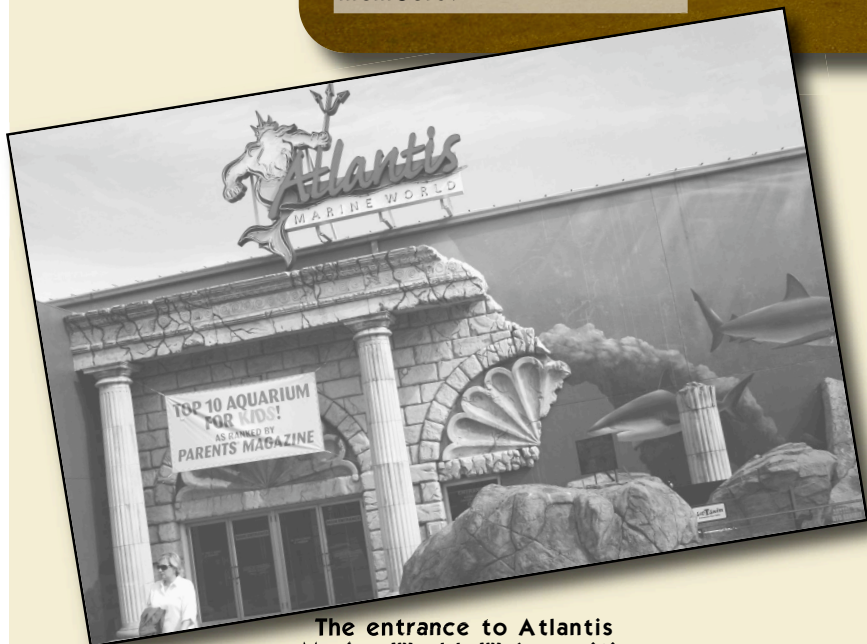
The fry are fed first bites and baby brine shrimp to start. With all the plants in the tank, there is always something live for the fry to feed on. Well, that's one more for the books.

Sometimes for the best results it is best to do less. 

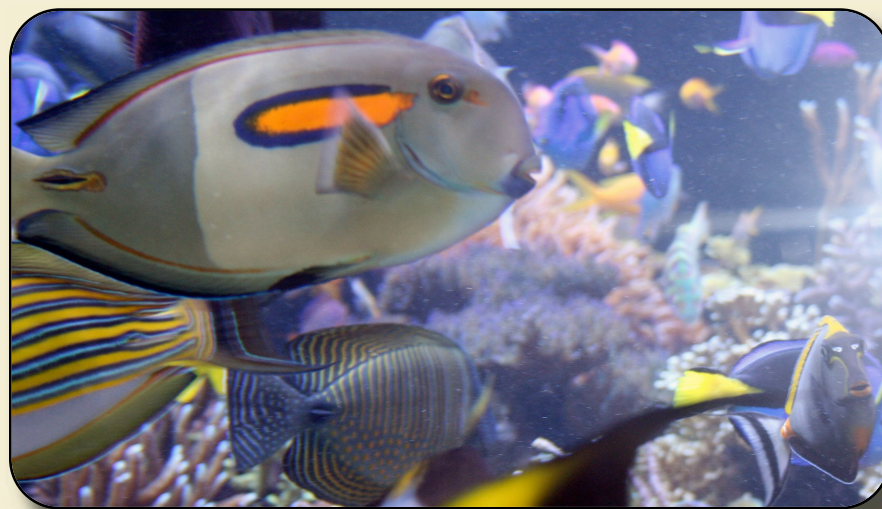
## Highlights from BAS's Bus trip to Atlantis Marine World



7am, Joe G., Ruth Stein and our driver are ready to go, but where are all the members?



The entrance to Atlantis Marine World. We're waiting for it to open at 10am.



A View of some of the inhabitants of AMW's 20,000 gallon reef tank



Harry Faustman and his lovely wife enjoying the cool breezes of the estuary.



Ron Kasman and grandson on the AMW's boat trip.



Stu and Denise Herskowitz

Bob DeBonis and Bernard Deren taking a break from the tour.





The crew taking a break to pose for a group photo.  
Spot anyone you know?

**Piranhas in the Amazon River display tank. These fish were 10 to 12 inches in size, quietly waiting for their next meal. Mummm, mummm!**



**Joe Yaiullo giving us a behind the scenes tour at AMW.**





# Coloration in *Acropora nana*

**C**aptive coral propagation has allowed us to observe genetically identical animals under varying aquarium conditions. Specifically, we have gathered information on coloration and are beginning to understand what factors are involved to induce coral pigment production.

Corals are often brown, due to the presence of zooxanthellae (symbiotic, photosynthetic dinoflagellates). Some corals will develop color brilliant coloration. What triggers this coloration? What can hobbyists do to maintain coloration in their captive corals?

This month's study involves the Pacific stony coral, *Acropora nana*. This attractive coral is often found on reefs with good water movement and, presumably, intense light. We hypothesized at least three factors could be involved with coloration - light intensity, water motion and alkalinity levels. (This, of course, assumes that other conditions in the aquarium

are correct, e.g., specific gravity of ~1.025; pH values of 8.0-8.4, etc.). We designed the following experiments to test our theories: Test #1: Low Light, Low Water Movement and High Alkalinity Levels, Test #2: Low Light, Higher Water Motion and Low Alkalinity Levels and Test #3: High Light, Low Water Motion and High Alkalinity Levels.

Some hobbyists may be surprised that we did not include ultraviolet radiation (UV) as a factor. We have measured UV energy in dozens of aquaria and have reached the conclusion that high doses of UV energy do not play a role in making corals turn purple, red, blue, etc. We have noted that green fluorescent pigments may be produced under conditions of higher UV energy (about 30 microwatts per square centimeter per second).

**Instrumentation** We used the following equipment in our studies: Quantum Meter with submersible cosine-corrected sensor.

LiCor, Lincoln, Nebraska. UV Radiometer, with UVA sensor (maximum sensitivity @ 365nm); UVB sensor (maximum sensitivity @ 310 nm). UVP Products, Upland, California. Electromagnetic Water Velocity Meter, Flo-Mate 2000, Marsh-McBirney, Frederick, Maryland.

## **Test #1: Low Light, Low Water Movement and High Alkalinity Levels**

One *Acropora nana* fragment was maintained for 60 days in an aquarium with high alkalinity levels (up to 16 dKH, or 5.7 meq/l). Light was provided by two 110watt VHO fluorescent lamps - one daylight, one Coralife 10,000° K. Light measurements were 105  $\mu$ Einsteins per square meter per second (abbreviated as  $\mu$ E), or about 5,000 lux. The coral remained brown. Little growth was noted. (We should mention that this coral fragment had time to heal after removal from the parent colony.)

# Coloration in *Acropora nana*

## Test #2. Low Light, Higher Water Motion and Low Alkalinity Levels

This test used dozens of fragments (genetically identical to that used in Test #1). Light levels were low (~100  $\mu$ Einsteins -5,000 lux). Water motion was measured at up to 0.11 ft/second. An alkalinity level of about 7 dKH (2.5 meq/l) was maintained. These corals remained brown. (We normally recommend higher water velocities; however, these coral fragments were stick-like. Thus they required less water motion than thicket-like adult colonies.) Some growth was noted - mostly encrusting growths around the bases.

## Test #3: High Light, Low Water Motion and High Alkalinity Levels

Using the same aquarium and fragment as in Test #1, we added a 175watt metal halide lamp (4,300° K and shielded for UV energy). Light intensity increased from 105  $\mu$ E to 210  $\mu$ E (about 10,000 lux). Alkalinity was as high as 16 dKH and as low as 8.4 dKH (5.7 and 3 meq/l, respectively). The coral's axial tips turned purple after several weeks. The time between removing the fragments from the adult

colony and the beginning of Test #3 was about 3 months.

## Observed Light Levels for *Acropora nana*

Our short study suggests that light is the most important factor for the promotion of coloration in this *Acropora* species. Our observations also suggest that pigments may not become apparent for 30 days or so after light levels are increased. This may take slightly longer if fragments or cuttings are taken from a parent colony, as they seem to first direct their energies to recovery.

Does lamp spectra influence coral coloration? We tend to think not (although caveats do apply). Our contentions are these: Zooxanthellae play an important part in coral growth and, hence, pigmentation. Zooxanthellae require only a certain amount of light for the process of photosynthesis. Further, zooxanthellae require light in the blue and red portions of the spectrum (and other portions if accessory pigments are present). When light levels no longer increase the rate of photosynthesis, the process is "saturated." We

believe that light saturation can occur in particular portions of the spectrum (that is, blue or red or green) with most lamps. Lamp Kelvin temperature does not matter if sufficient amounts of certain portions of the spectrum are produced. However, aesthetics play an important part in display aquaria and lamp Kelvin temperature is likely a prime consideration.

Based on our studies and observations, we believe that light intensity of at least 125-150  $\mu$ E (6,250 - 7,500 lux) is required for colorful *Acropora nana* specimens. Four 40-watt regular output fluorescent lamps will produce this much radiation to a depth of about 6 inches in an aquarium. Two 110watt VHO fluorescent lamps will deliver a sufficient amount of radiation to a depth of 18 inches.

We wish to thank the following persons for their participation in this study: **Walter Bobe, John Brandt** (Seashell Pets), **John Cummings, Noel Curry** (Scientific Corals) and **Steve Pratt**.



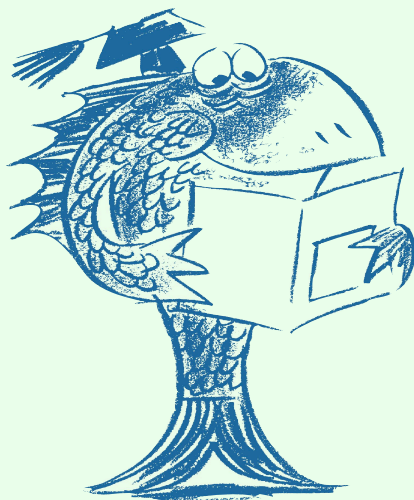
# Exchange Editor's Report

**I** am happy to be your new Exchange Editor. Vinny Babino has taken over the Membership Chairperson duties. He will be hard to replace, but will do a bang up job with our members so look for renewals in your mailbox. The Exchange Editor's job is reading publications from different clubs and suggesting items of interest to our members.

**H**onolulu Aquarium Society, *I'A O HAWAII, Fishes of Hawaii*, Volume 2009, Issue 6, puts a vivid idea in my mind about the fish that might be a part of one's tank as a hobbyist keeping tropical fish in this state. While there were no pictures of fish to ogle over, the fish keeping hobby all over does the same type of work. They talk about water changes, breeding, meetings, auctions and asking for members to get involved. As a matter of fact, member involvement is part of the HAS policy for all members. Food for thought. In addition, they're approaching their 60th anniversary in 2010.

**North Jersey Aquarium Society, The Reporter**, July 2009. Long time member **Ted Coletti** has a Summer Fish Tub & Water Garden Journal article where he talks about experimenting with plants and reminding us all that the season is only six months long. **Chuck Davis** also solves a problem you may have with the air supply not staying attached to the filter. He calls it PROBLEM SOLVED. And in the June 2009 issue he has a nice article titled ODD BALL CATFISH YOU CAN FIND. Good reading.

**Greater Chicago Cichlid Association, CICHLID CHATTER**, MAY-JUNE 2009, has a nice personal experience article from **Bob Chirempes** titled "What Has Fish Keeping Meant to Me?" Also, **Rick Borstein**, GCCA Webmaster,



president of FAAS and BAS speaker, November 2008, talks about cichlids in West Africa, Central America, and South America and establishing new species from new finds there.


**Greater City Aquarium Society – New York, MODERN AQUARIUM**, May 2009 published a very nice article about their "Meet the Experts Night" that was held on May 6, 2009. The night was moderated by the former long time President of the GCAS, **Joe Ferdenzi**. The expert panelists included our own BAS President, **Joseph Graffagnino**, **Harry Faustmann** and **Ed**

**Vukich**. Each one of these experts are well known for their longevity and knowledge of the aquatic hobby and their friendly approach to cultivating not only fish, foods and plants but also to educate the inquisitive hobbyist to maintain their interest in the hobby as well.

In the **June 2009 MODERN AQUARIUM** our own **William (Bill) Amely** has an informative article on the discovery of the *Betta Splendens* in the early 1900's and their popularity in the aquarium hobby. Bill has always been the Betta expert in my eyes, so his work is nice to read.

In his last report, **Vinny Babino** referred to you fish nuts out there and that you should listen to the **Blue Zoo Radio Show** on Monday nights.

On Monday June 8, 2009, Vinny spoke with host **Frank Reece** via telephone for 15-20 minutes and their talk was priceless.

Another well known BAS member **Ian Fuller** spoke to Frank, also via phone, from his home in England on July 6th, about the catfish part of the hobby. There is a link to the Blue Zoo Radio Show on the Brooklyn Aquarium Society's web page. If you click on it, you can hear the replay of these shows and all of the Blues Zoo broadcasts, among them our president Joe Graffagnini plus other luminaries in the aquarium hobby. 

If you're interested in reading any of these articles, contact Stu at a meeting or call him at 718-976-1321. There is a small copying fee of 25¢ per page, plus postage if articles are mailed. No postage if you pick up the article at a meeting.



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**Fran Hackett,**  
Associate Manager, Communications  
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