DELTA TALE

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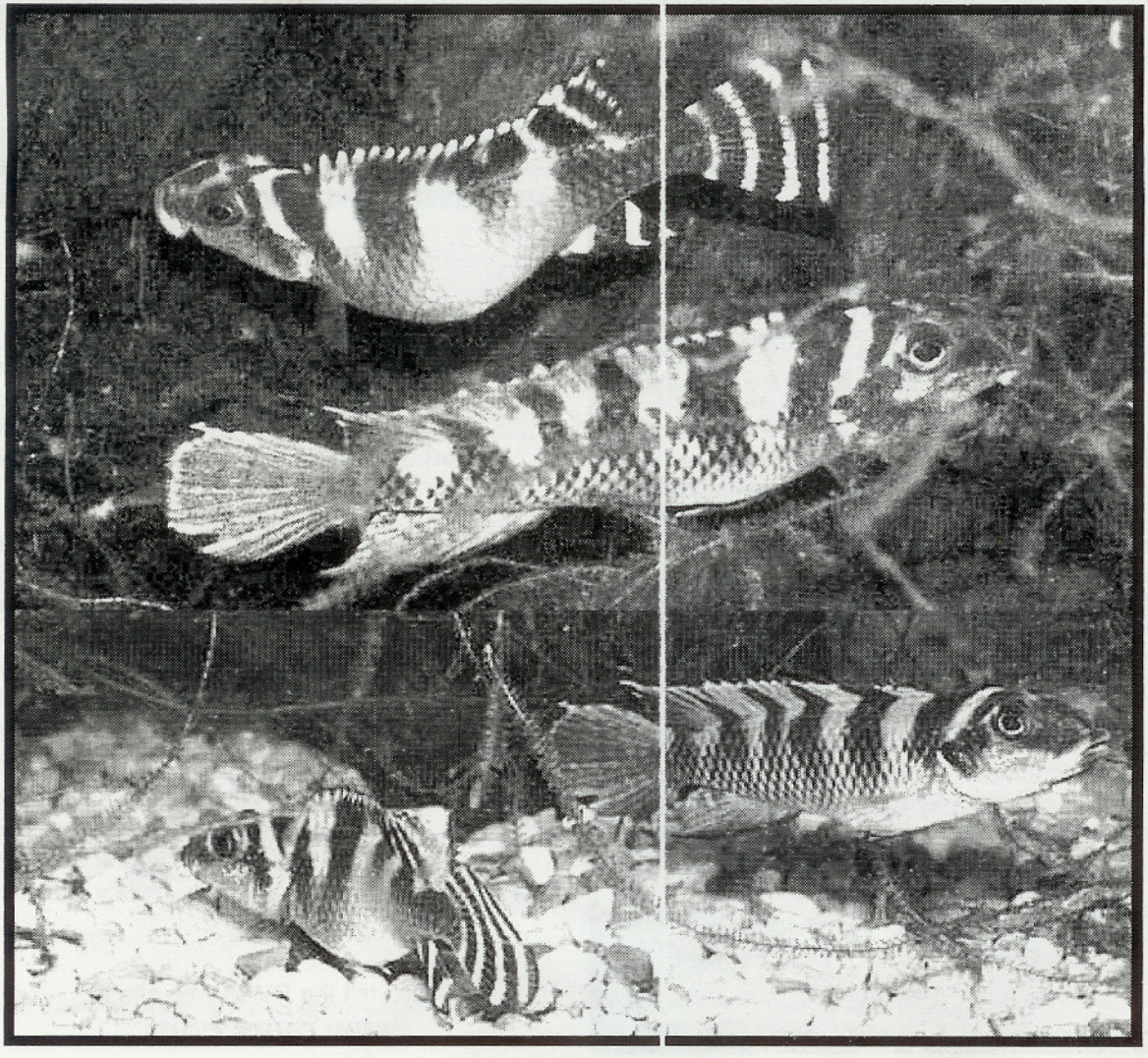

DELTA TALE

Volume 32, Number 1

Delta Tale is published bimonthly for the benefit of the membership of the Potomac Valley Aquarium Society, Inc., a non-profit educational and social organization. The society was founded in 1960 for the purposes of furthering the aquarium hobby through the dissemination of information and advice, and the promotion of good fellowship among the membership by organized activities and competitions.

All correspondence to PVAS and Delta Tale should be directed to:

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Any submissions, comments, questions or suggestions may be sent to the editors by e-mail at delta@pvas.com

Cover Photo: *Nannochromis transvestitus* by PVAS member Francine Bethea

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Delta Tale	Andrew Blumhagen
	Alysoun McLaughlin
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www.pvas.com

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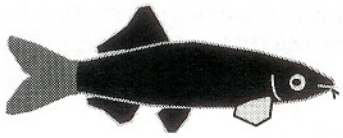

Line drawing by PVAS member Gene Moy

President's Message

David Snell

It's hard to believe that another year has come and gone. It only seems like yesterday that I became Treasurer, but that was 1996. I want to thank everyone, our Officers, our Board, and our members, who made 2000 a fine year.

We already have 3 auctions lined up for 2001 with a 4th in the works. We are working hard on our Fall Event, with the goal of holding the first PVAS Tropical Fish Show in over 10 years. In order to make this event a success, PVAS requires the support (translated - volunteer manpower) of every member over the course of the 3-day event. I need everyone to contact Dov Goldstein at dov@fantasticaquatics.com to volunteer his or her time for the November 2-4 Fall Workshop and Show. If we don't get the manpower, we won't hold the Show.

PVAS received an excellent donation of new aquarium supplies from Scott Saunders of Oodles of Angels. This $3000 worth of supplies will be put to good use through our Ways and Means committee. Thank you, Scott!!

The Delta Tale is getting back on track thanks to the hard work of Andrew Blumhagen and Alysoun McLaughlin. They put together a number of great issues of the Delta Tale using a new format and layout. As always, the Delta Tale could use your articles for publication. We can't rely on Don Kinyon (a.k.a. Mr. BAP) to write every article. Articles can be on any topic related to the tropical fish hobby and we encourage members to contribute articles beyond the usual Breeder's Award reports. Everyone should be able to contribute at least one article on his or her tropical fish knowledge and experience. Also, please welcome our new member Nancy Johnson. She will be helping out with the Delta Tale as our new Exchange Editor.

Maintenance of the PVAS web site has been transitioned to Larry Grenier. After nearly 3 1/2 years, it's time to let someone else manage the site. Recently, I simply have not had the time to maintain the site as required and I know Larry will do a fine job.

Welcome Francine Bethea and Larry Wilkie as the new Membership Co-Chairs. All membership payments and information updates need to be directed to them. They are actively working to collect past-due memberships. If you have not already renewed your membership for

2001, you need to get your $12 in now. For new members, the membership fee is $12/year, due in January. For those who join during the year, the membership fee is reduced at a rate of $1/month.

The PVAS Membership committee is also working hard to update everyone's membership information. We hope in the next few months to put together a membership directory in printed and/or electronic form available to all PVAS members. To be as accurate as possible, the Membership committee will need to update the following information, but not limited to: name, address, home phone, work phone, fax number, email address(es), web site(s), general areas of interest, etc., etc. Email your updates to mmbrshp@pvas.com

We need to extend a big THANK YOU to Gene Aldridge for his countless years as the prior Membership Chairperson. Thank you, Gene!!!

'Til next time,

David

From the Editors' Tank

Last year we made a resolution to publish the Delta Tale on its regular schedule. This year we intend to keep it... also part of our fresh start for the year: we have included minutes from the January board meeting. If you have any questions about the topics that were discussed, see any board member. We have included a note from Francine Bethea on our new membership effort and up-to-date standings for the Breeder's Award Program. Nancy Johnson has taken over from Julio Melgar as Exchange Editor; see her article for a sampling of the wealth of information that is available from the publications of other clubs from across the country.

In this issue, we are continuing Gene Aldridge's Peruvian Amazonia and Andrew Blumhagen's My First Reef Aquarium. In addition, we have a fascinating article by Don Kinyon on color forms (or possibly speciation?) of *Corydoras*; some advice for starting a new planted tank from Bill Pabst; a review of a book on native fishes from Nancy Johnson; and articles on *Apistogramma viejita* from Don Kinyon, *Nannochromis transvestitus* from Francine Bethea and *Poecilia reticulata* from Gene Moy.

Enjoy and keep those articles coming!

Alysoun and Andrew

Board Minutes

Pete Thrift

A meeting of the 2001 PVAS Board of Directors was held on January 8, 2000, at the Wood Recreation Center. President David Snell called the meeting to order at 7:20 PM. Present was the entire Board - John Burns, Henry Darin, Dov Goldstein, Rick McKay, Joe Szelesi, David Snell, Robert Smith, Pete Thrift, and Lorne Williams.

President Snell listed the dates for this year's weekend events – an auction on February 18th, an auction on June 10th, and the show/workshop/auction weekend on November 2 - 4. A discussion followed on whether to hold a fourth auction in August. A motion to hold a fourth auction in August was made by Burns and seconded by Darin. The motion was passed with Richter opposing. A motion to restrict the November 4th auction to live fish and plants only. The motion passed with Darin opposing.

The Board unanimously agreed that the November weekend will consist of at least a workshop and an auction. A go/no-go decision on adding a tropical fish show to the weekend will be made by the Board at the March meeting.

There was a lengthy discussion on whether to allow vendors at future PVAS auctions. Discussion points included the amount of noise caused by vendor activity, whether all vendors should be PVAS members, and the differences between sellers and manufacturer representatives. A motion was made by Burns to not permit vendors in the same room as the auction, but was tabled until the March meeting. There was an unanimous decision to allow Marineland and John Mangan at the February auction.

George Richter volunteered to investigate obtaining formal IRS non-profit status for the club.

The meeting was adjourned at 7:55 PM. The next meeting will be held at 7PM on March 12th, before the regular meeting at the Wood Center.

Line drawing by PVAS member Gene Moy

Bowl Show

Don Kinyon/Dov Goldstein

The bowl show program for the year 2000 was a great success. We had 14 participants and over 100 total entries. At the December party, some very nice prizes were awarded to the first three places. Thanks to all who took the time to bag up their pets and show off a bit.

Final Standings for 2000

Don Kinyon.....61
Lorne Williams.....34
Dov Goldstein.....23
Andrew Blumhagen.....16
Francine Bethea.....11
Bill Pabst.....10
Alysoun McLaughlin.....8
Barbara McClorey.....7
Hank Darin.....4
Duc Lam.....4
Rick McKay.....4
Kelly Kinyon.....3
Gene Moy.....3
Dan Schueckler.....1

January 2001 Bowl Show Standings

Hank Darin, Guppy Pair..... 4
Bill Pabst, *Iriatherina werneri*.....4
Alysoun McLaughlin, *Crossocheilus siamensis*.....3
Don Kinyon, *Melanotaenia praecox*.....3
Andrew Blumhagen, *Hemichromis cristatus*.....2

What's Happening

March 12.....Monthly Meeting
April 9.....Monthly Meeting
May 14.....Monthly Meeting
June 10.....Spring Auction
July 9.....Monthly Meeting
August TBD.....Summer Auction
August 13.....Monthly Meeting
September 10.....Monthly Meeting
October 18.....Monthly Meeting
Note: 3rd Monday
November 2-4.....Fall Fish Festival
November 12.....Monthly Meeting
December 10.....Holiday Party

A map and directions to the monthly meetings are printed on the back cover of the *Delta Tale*.

Membership Update

Francine Bethea

The Potomac Valley Aquarium Society would like to announce and welcome all the new members listed below. Some of the names listed are people who may have joined very recently and were not given a proper welcome. Please excuse any misspelling; I cannot transcribe hieroglyphics. If your name is spelled incorrectly, see Francine Bethea. Beside each name is listed the member's interest and reason for joining.

Emily A. Novotry.....corys, rainbowfish,tetras, social and information
Leslie Keefer.....bettas and catfish, love the auctions
Tim Shifflett....African cichlids, marine, reef fun
Doug Patac.....fish that live
Henry Deford.....cichlids
Michael Kaiser.....gouramis
Jack Smith.....West Africans, guilt
Andrew Schwartz.....West Africans, hobbyist
Kevin Collins.....saltwater
Terrance G. Bates, Sr.
Zhong Qiy-Yan.....discus
Kenneth Warren
David Horton.....Stingrays
Pamela Champ.....cichlids, harassment from member
Henry Muhlenberg
Doug T Fowler.....catfish, cichlids, tetras, saltwater
Joshua Wiegart.....cichlids, neotropical
Chris Derneto
Michael Brem.....all fish
Edgar Canlas.....cichlids
Evan Seigel.....small freshwater
Nick Little.....angels, discus, corys
Daryl Hudson.....dwarf cichlids, meeting members, exchange information
Christi Jo Hammond

Next issue, we will list all the folks who have yet to pay their dues for 2001.

Send payment to:

Membership
Potomac Valley Aquarium Society
PO Box 664, Merrifield, VA 22116
Make checks payable to PVAS

Peruvian Amazonia

Part 2 of 2

Eugene T. Aldridge, Jr.

Part 1 of Peruvian Amazonia was printed in Volume 31, Numbers 3 and 4 (double edition). Part 1 documented the first five days of Gene's trip in June 1987 with the American Cichlid Association to Iquitos, Peru. For a copy of the previous issue, contact the editors at delta@pvas.com.

Thursday

We left early in the morning toward Marupa Island and the village of Marupa on the Amazon River in the vicinity of the mouth of the Napo River. It took nearly an hour to get my shoes on in the morning, they were really wet. Shortly we left the big boat in the small boats to go up the Napo River. The M/V Margarita continued on toward Marupo. We asked the local natives if we could collect some fish and after a lot of talking they said NO they did not want outsiders taking their fish. So we went up a side stream up into a lake-appearing body of water. I do not know if it was a lake or just a wide place in a river. We found several good places where fish should have been, but there were none. We also saw some of the side effects of the recent earthquake in Ecuador. Something had come down and took the whole side of the mountain with it, breaking and pushing everything flat to ground. Mud, rocks and trees had been pushed down into the water. The edges of the lake were a mess with all the junk. This was why the water in all the rivers and streams wwas full of so much junk and debris. We went to another stream. Here we used the seine and caught several fish we had never seen before. The seine was set up in a little stream (about half as big as Four Mile Run) then the others went up about 200 feet to flush fish down to the seine. It was not easy as there was a lot of cover over the stream, making it difficult to even move. After picking the seine clean we packed up and returned to the M/V Margarita, now anchored at Marupa Village. To save my few clean clothes, I had started the day out with the wet clothes from yesterday. By the time we got back to the boat, everything was dry but my shoes. The top layer of them got dry but not the insides. We could not have asked for nicer weather with the sun out all the time and hot.

The Marupa Village is not on the main part of the Amazon River, as it is only about 150 feet wide at this point. On getting on board the M/V Margarita, I found my luggage and one of the Amazon Camp owner partners, Al. I thanked him very, very much for bringing my clothes. We all spent a lot of time talking and he told us what was to happen the next day. My things were carried up to my cabin, so I went up and started to unpack. Customs had gone through all of my things and missing was my micro recorder, blank tapes, a flashlight and a knit shirt. There was really nothing I could do but complain, which I did. There is no way that something like that could be proved; luckily, my other camera and film were there. The only item that was very expensive, besides the camera, was the recorder, which cost $100. I took the tewo styros and the cardboard box down to the lower deck and left them for use holding fish. With no tanks or tubs, they were urgently needed to hold fish. I took an early shower, including washing my hair for the first time, and put on my own clothes.

I wanted to have Maria was the borrowed clothes, but they said NO. So I just returned it as it was, dirty. Most went into the village. From what I could see, it was quite nice. A few clapboard buildings and a few houses still with thatch. With the river bank being about 20 feet up, the houses were not very far off the ground. Al left in the late afternoon to return to Iquitos in a speed boat with a 150 horsepower motor. Once started, it could really move out, doing 40 knots without trouble. After dinner, a local school teacher was brought on board by Alfredo. Her name was Julie and she was quite nice-looking. She understood a LITTLE English, about as much as several of us understood Spanish. John P. and Alfredo provided the necessary interpretations. She left in about 45 minutes. She was interesting to talk to. We found out on Friday from Al that Peru requires all teachers to spend two years in Amazonia and pays their salaries. All the villages have schools up to a 6th grade equivalend. The village must provide a free house equal to local housing and provide them with food. There are regional schools above the village schools. If the teacher feels a child has the ability to go on, he or she must leave home to go, at no cost to the family. As the culture is so family-oriented, not too many leave for further education. We also learned a little about local government here. Their equal to a mayor is called a lieutenant governor, then the town elders and the teacher. The teacher is the main recorder after the lieutenant governor. Being able to read and write makes a teacher a very important asset to the local villages. After the teacher left, some of the boys went back into town. The clothes came back from Maria. About 10:30 p.m., I went to bed and slept very well and happy.

Friday

At 10:30 a.m., we left the Marupa Village for Iquitos. The trip as far as the naval base was uneventful. This time, the naval officer came down to the boat, I assume to check on what we had caught and would be taking out of the country. He left the boat and, about 30 minutes later, we docked at the Amazon Camp pier. I left everything I planned to leave with Chuck in a locked cabin for future use. I told him to do what he pleased with it. Al came down with several other company people to meet us and get us registered at a local hotel to spend the night. While we were walking toward the base of the hill we had to climb, I asked Al if they had been told about my being handicapped. He said yes, they had been advised and were prepared. He then asked me how I had made out and was I treated right by the boat crew. I told him I was treated very well and could not have asked for a better time. I told him that I was not able to go on the walking trips, though I would have liked to, but I went on the boat trips. During this short walk, I also asked Al if they had gotten our passports. He said no, but they would call Lima when they reached the office. They helped me to the top the same way as going down. With my cane in my left hand and someone holding my right, and someone else periodically grabbing my belt and lifting. Whoever it was must have been talk and strong, because lifting 185 pounds with one hand is not easy. I did not see what it was, although Al and his partner were the only ones big and tall enough to have done it. After getting to the top, we walked across the street to the Hotel Tuistos, where we were to spend the night. Some got single rooms while others shared a room. I shared a room with Paul. We were told to be at the company offices around the corner at 5:00 p.m. We went to our room, where Paul took a quick shower and I washed my hands and face. Our room looked right out on the officers' quarters for the local army detachment. There was a man on the door with a machine gun, so I felt it best not to take pictures out the window. Many countries get very upset when you take pictures of their military facilities and airports. We went downstairs to meet the others before walking around the corner to the company offices. It was roughly two blocks. I was the last one to be seated. Someone in the group remembered the name of the company the girl meeting us in Lima had on her name tag. That company was called and they said the same girl would meet us on Saturday with the passports. We both thanked them very much for making the call.

The head of the fish department of the Iquitos Institute was introduced, then he gave us a short talk in Spanish about the local fish. John P. did a very good job acting as interpreter. I equate the Institute to a college or small university. After the talk, we went to the Institute and saw a super collection of local fish the department head had collected in the last couple of days just for us to see. After about 56 minutes, we returned to the hotel. We were told to be downstairs at 7:00 for the "Captain's Dinner". I was so beat that I just washed my face again and rested, while Paul went out and shopped. We missed going to the local exporter that was on our schedule, as we were running late. Had we left the Marupa Village at 7:00 a.m. like we were supposed to, instead of 10:30, we would have had enough time.

At 7:00 p.m., we walked across the street and down a flight of stairs to a restaurant for dinner. We all had the recommended fish dinner. It was quite good but did not compare with Maria's cooking. The fish was a little overdone for me, but the rest of the meal was pretty good. During dinner, Alfredo, who sat next to me, was very subdued. He would only talk when asked a direct question. The cause must have been being with the big bosses, as he was not that way on the boat. As we were getting ready to leave, those of us leaving for home the next day were told to be downstairs at 8:00 a.m. ready to go. Paul and I went back to our room as the stores were closed, so no shopping was possible. Some of the others went out on the town. The room was nice, considering where we were. The air conditioner was a problem and took several calls before we got it to work. Finally it started to work, but a few hours later it froze up and was solid ice by morning. I took a shower and went to bed. We found out later that the room only cost $11 a night.

Saturday

We were up at 6:00 a.m. and got ourselves ready for a long day. The sign on the hotel restaurant door said it would open at 6:30, so we went downstairs at about that time. It did not until 7:00, and I am not sure if they really wanted to open it then. We had been told by Alfredo that the papaya juice was alright to have, so we both had it and toast while Paul ahd tea and I had coffee. The toast was hard and dry, not like we are used to, and it was necessary to cut the coffee with hot water as it came in a small pitcher thick enough to float a spoon. About a teaspoon made a normal cup of coffee for me.

As we were eating, some of the others came down to eat. Before taking our order, the waiter was insistent on wanting to see our room key. It must have been to charge our room as it was taken care of by Amazon Camp. I do not remember whether we left a tip or not. On finishing breakfast, we went to the lobby. Paul told me to sit down and he would get the luggage. Shortly after 8:00, the van arrived to take us to the airport for the trip home. We all said goodbye.

On arriving at the airport,. the company people got our seat assignments and our luggage checked. There was some trouble with the customs agent concerning the fish boxes that John S. and Jay were taking home. The two boxes were clearly marked "Live Tropical Fish" so this appeared to be the problem. There were plenty of other boxes with no markings that were not questioned, so I am sure the markings raised the issue. Had they been plan, no one would have known the difference. After much discussion, they were let go. The flight left for Lima close to on time at 9:30. I had an aisle seat again in the second row. One thing I should mention before going any further: in Peru there were no loading ramps like we are used to in this country. They use the stair types like we used 30 years ago.

In Lima, I was met by a wheelchair and a pusher. I was taken up to the area the luggage would come into. It was a good 20 minutes before it got there. During this 20 minutes, I gave my chair pusher a $2 tip. While we were waiting, the gril from the travel agency met us. She gave us our passports and said she was glad not to be responsible for them any more. After all our luggage was accounted for, she took us to a Paucett Airline counter to get our seat assignments and to check our luggage to Miami. After this, we paid our exit tax, which was $10 American. On coming through last Sunday, I had seen the windows that said very clearly that American money was acceptable. This was not true in Costa Rica, where only local money could be used even though it was only about $2.50 or $3. With this done, we now had about 20 minutes before checking through on the next step. Immigration had to see that the tax was paid and to Exit Stamp our passports. John O). decided to stay close to me and suggested that we go to a gift shop. I liked the idea as I had not had any time in Iquitos to get anything. We went to one close by that looked interesting. I boguht two T-shirts, two small seven-inch dolls, a metal hanging plate and a tapestry. I used travelers checks to pay for them. It was at this point that I learned that they do not give change. Luckily, I was only due $4 out of $60, so I didn't worry too much because the salesman had cut all the listed prices for me. I was happy with what I bought, so I did not push the issue. While my things were being wrapped and receipts prepared for me, I paid the pusher another $2 tip. We were now ready to get in line to go through and get our passports stamped. Instead, I was taken behind the line through a side gate and, after a few missteps by my pusher, everything was taken care of. Now we proceeded to the loading gate. In a few minutes, an airline employee took me away from the pusher and out the door we went. Just outside, she asked us to point out our luggage, which we did, then on to the stairs. I took my time getting to the top as my legs were beginning to feel the effects of a week on a boat. My seat was 1C with John O. in seat 1B and a young Russian in seat 1A. I stood up until everyone was on board to keep people from falling over my feet.

We left Lima about on time, close to 1:00 p.m. The plane was nearly full, so there were a few empty seats. During the flight to Panama City, we played two types of bingo at the same time. The first was to fill the rows B, N and O with the second to fill the whole card. John O. won on the first game and shared $100 prize with two other people. They were asked if they wanted to draw for the total prize and they said NO. A third is better than nothing. We landed in Panama City for an hour while refueling and to let people off the plane to walk around. I stayed on the plane and had to use the restroom twice as something I had eaten had gone straight through me. After this, I had no other problems.

On the flight to Miami, we were given drinks and a light dinner. John did not eat, but the Russian boy ate it with thanks. We got to Miami Airport about 8:00 p.m. where I was met by a Sky Cap with a wheelchair. In Miami it is a long walk from the incoming gates to immigration and customs. The Sky Cap wheeled me onto a subway, up an elevator and down a long walk. On entering immigration, you see a wall of little windows with people standing in line behind them to be checked in and a small sign telling U.S. citizens to go to the right. Down on the right, there is one man who says open your passport to the picture page and hold it up beside your face. This done, we are waved through. At customs, we had to wait 30 minutes more for our luggage to get there. When it did come, it was collected and we went toward the actual checking area. As we approached the gate to this area, a gentleman stepped out saying he was a

customs agent and asked if we were citizens. Could he see our declaration forms? We gave them to him. He asked each of us separately, twice, was everything we had to declare on the list. We both said yes, then he asked John about the fish. After a few minutes, the forms were signed and we were told to go on. We said "Thank You" and went on. On leaving the customs area, we separated as it was now well after 9:00 and John had to catch a 10:30 flight to JFK, New York. I was staying in the airport hotel, as all the flights for D.C. had left at or before 8:00. The hotel is right in the airport, so you can get there without going outside.

The Sky Cap took me to the hotel check-in counter, where I had to wait some 15 minutes to get checked in. During this wait, I gave the Sky Cap a $10 tip. After I was all checked in, she took me right up to my room. I thanked her very much. I then called my daughter, Susan, and told her I was in Miami and what time I would be in. We agreed they would meet me in the luggage pick-up area rather than have them come all the way out to the plane.

I went downstairs to find something to eat, but none of the close places were open at that time of night. So I went to a close-by bar for a beer. I had an interesting talk with the bartender and at 11:30 p.m. went to my room to shower and bed.

Sunday

My flight to Dulles did not leave until 12:30 p.m., so there was no real rush to get anything done on Sunday morning. I went down and asked the bell captain where I could get something to eat and sit down. He told me a place that was only about 100 feet around the corner. I went there and the food was pretty good though the waitress service was slow and terrible. Then I returned to my room and watched TV until about 10:30 a.m. when I called the bell captain to have someone come up and get my luggage. In a few minutes, a bell man was there for my luggage. I checked out, then he asked what airline I was going out on. I told him and away he went, telling me to follow him, which I did at a slow pace. He slowed down when he found out that I could not run after him. At the United counter he dropped me off and I gave him a nice tip. The United girl was quite friendly, so we talked for a long time as she was not busy. I checked everything including the paddle. She said it would have to be wrapped as it was sharp, so she found

Continued on page 13

My First Reef Aquarium

Part Two of Two

Andrew Blumhagen

Part 1 of My First Reef Aquarium was published in Volume 31, Numbers 3 and 4 (double edition). The first part of the article covered the topics of equipment, furnishings and setup of a microreef in a six-gallon Eclipse. For a copy of the previous issue, contact the editors at delta@pvas.com.

Livestock

This is the fun part. Finally, the animals that inspired this project in the first place can be added. Don't get too carried away, though... the first rule of successfully starting a micro reef is to go slowly. There is a natural progression in which the animals should be added to the tank. First start with algavores. These serve an important purpose in the reef, but don't need to be boring or unnoticed. There are essentially three choices for the cleanup crew: hermit crabs, snails, and algavorous fish. Most fish, like tangs and lawnmower blennies, grow too large and are too aggressive for the six-gallon Eclipse, so they can be ruled out entirely. Once the problem algae are under control and the live rock appears to be growing coralline algae and other "good" organisms like feather-duster worms, sessile (non-moving, like corals) invertebrates may be added. If all goes well, a fish or decorative shrimp may be added to complete the system. Of course, it's not necessary or even advisable to keep all of the various decorative organisms discussed here. Space and nutrient management are the key to a successful micro-reef aquarium.

Two species of hermit crabs are appropriate for this system, Blue-Legged (*Clibanarius tricolor*) and Scarlet-Legged (*C. digueti,* also known as Red-Legged or Mexican Red-Legged) Hermit Crabs. Blue-Legged Hermits are easily identified by (no surprise here!) their blue legs with white and red bands at the joints. They are also somewhat smaller than their red cousins. Scarlet-Legged Hermits are easily identified by their astonishingly bright red legs. Their bodies are a pale orange or pink color. Hermit crabs are ubiquitous to all reef aquariums, barring only those that contain predators. A few moments watching them reveals why. Hermits are sufficiently entertaining to merit their own tank and look especially good featured in a small system. They scramble over the reef, daintily picking morsels from the rock while dragging their disproportionately large homes

on their backs. You may periodically find "corpses". Before you despair an untimely death in the tank, realize that these are probably molts left behind by the growing Hermits. The addition of a few snail shells (usually available from the retailer that sold you the Hermits) may be a good idea to keep the little clowns from trying to evict a compatriot from its own shell as they grow out of their old ones. Hermits are excellent algavores and will also consume any uneaten food in the aquarium. In a six-gallon reef, as many as a dozen Hermits may be maintained, perhaps more, and the two species may be combined. Start by adding six or eight total. If a hair alga problem is evident, add more. Hermits usually cost two or three dollars each.

Another useful and popular algavore for the microreef aquarium is the *Astraea* (*Lithopoma tectum*) snail. These small snails, which look like rounded, spiral turbans with small lines of knobs following the spiral, readily eat diatoms (brown algae) and filamentous algae. I recently added five of these snails to a 45- gallon marine aquarium and they ate a substantial layer of algae on the front glass in less than a week. *Astraea* snails should not be confused with their larger cousins, *Turbo* sp. snails. *Turbo* snails, while also excellent algavores, grow too large for a small system. Check with your retailer to make sure you buy the right species. *Astraea* snails eat substantially more than hermit crabs, so fewer are needed. Start with two or three, but only if there is a discernible layer of algae for them to eat. They may starve otherwise. If these are not controlling alga growth after a couple of weeks, add one or two more. Five or six *Astraea* snails are probably the limit for this reef system. They should cost about the same as hermit crabs.

Now that the live rock has cured and problem algae are under control, the system is ready for corals and their close relatives. There are thousands of species of corals in the world's oceans and probably hundreds available in the aquarium trade. A few of the easiest to keep will be discussed here. First, however, there are a few important general concepts to understand about corals and other cnidarians. Cnidarians (formerly Coelenterates, for those folks that may have taken high school biology before the reclassification) are animals, even though they may look quite vegetative or even alien. The phylum Cnidaria encompasses corals, anemones, jellyfish and hydras. The distinguishing feature of a cnidarian is its stinging cells. The cells contain a small harpoon, which is triggered by physical, electromagnetic or chemical stimuli. These harpoons come in many shapes, and may contain varying levels of toxins which may be injected into a predator, intruder, or ill-placed neighbor. Practically, this means that any cnidarian must not touch any other animal in the aquarium. Damage or death to one or both of the animals in question will certainly ensue. Most cnidarians kept in aquaria are structured as polyps. Large, single specimens, like anemones, can be up to three feet across. Others, like small polyp stony corals, are large colonies of tiny polyps attached to each other's tissue. A polyp has a foot at the bottom, a mouth at the top and a column in between. There may be tentacles around the mouth that can grab food and stuff it into the mouth. Rudimentary digestive organs, called mesenteries, are found inside the body column. Polyps usually only have one or two layers of cells and so are very delicate. The bulk of the polyp's mass is actually seawater; polyps can control the amount of water between cell layers and thus extend or contract depending on the situation. Many marine cnidarians have a symbiotic relationship with zooxanthellae, which are photosynthetic algae that live inside the cnidarian's cells. Zooxanthellae feed on the waste chemicals that are produced by the cnidarian and in turn produce sugars and other compounds, which the cnidarian uses as an energy source. These photosynthetic algae are the reason that a powerful light source of the appropriate spectrum and photoperiod is so important to the success of many corals and their relatives in captivity. Cnidarians are also able to absorb minerals and organic compounds directly from the ambient water. Ammonia, in small amounts, is actually an important nutrient for many cnidarians; calcium, magnesium, carbon and other minerals are also important. Only healthy cnidarian specimens should be purchased from a retailer. They should be well extended with uniform colors and without rips in the tissue. Bleached or patchy specimens are unhealthy and should not be purchased. Damaged specimens will not recover. Generally speaking, if the specimen looks good, it is probably healthy.

Corallimorpharians, commonly known as mushroom anemones or mushroom corals, are one of the most popular cnidarians found in aquaria. These are individual polyps that look like disks with a small mouth in the center. They attach themselves to a hard substrate by a foot on their undersides. Mushrooms come in an astonishing variety of colors from red to blue to green to many shades of brown. They can have stripes, spots, rough textures or smooth. They come from pristine reef waters and muddy harbors. There is truly a mushroom for everyone. Mushrooms utilize photosynthetic zoox-

anthellae but don't necessarily need as much light as their stony cousins. Fortunately, they let you know what they think of their habitat. If they are getting too much light, they will not fully extend or will shrivel before the light goes out. You can solve this by placing the mushrooms farther down in the tank or in the shade, or by tilting the rock so that the light does not hit the them directly. If they are not getting enough light they will extend themselves upward toward the light in a trumpet shape. This is also easily solved by moving the mushrooms up in the aquarium or by tilting them so that they can absorb more direct light. Over time, mushrooms will adjust the amount of zooxanthellae in their tissues to the level best suited to their environment and individual needs. They may also need a little help from the aquarist to adjust. If new mushrooms are not faring well, the photoperiod can be reduced to eight or nine hours per day, then gradually increased. Too much light can be a problem as mushrooms will actually "overeat" leading to high levels of dangerous hydrogen peroxide in their tissue. Iodine supplements can ease this problem (see the "Maintenance" section below). Healthy mushrooms are likely to reproduce in the aquarium. Frankly, this is a rather odd process. A glob of slimy-looking tissue is extended from the parent mushroom. A mouth will appear on the glob and the mushroom will start to take shape. Once the clone can support itself, the connection to the parent will be severed. Mushrooms have a couple other "behavioral" idiosyncrasies. Some species actually feed by catching prey or debris on their discs. Once dinner is secured, the mushroom will turn itself inside out to consume it. In this state they look like rotting figs. When mushrooms are disturbed they may expel their mesenteries (digestive organs). These twisted, white strings will be reclaimed in a few hours.

Another hardy choice of cnidarians for the micro reef is zoanthids, or zoanthid polyps. These are small, individual polyps that live in dense colonies but, with a few exceptions, are not actually attached to one another at the base of each polyp. Zoanthids also utilize zooxanthellae and should be placed where they will receive maximum light levels. They are particularly vulnerable to the stinging cells of other cnidarians so particular care is needed in placing them with a buffer zone between them and their neighbors. Healthy zoathnids will also reproduce in this system. A bud will appear at the foot of the parent polyp and will grow into a full-sized clone. As with corallimorpharians, the clone will separate from the parent once it is self-sufficient. Zoanthids can reproduce rapidly in and may cover large areas of live rock in the tank. If your colony is "too" successful, it may be necessary to remove covered live rock and return them to the dealer or trade them with a friend. Perhaps the most popular zoanthids are Yellow Polyps (*Parazoanthus* sp.). As their name suggests, they are yellow in color, ranging from dark mustard to bright sunshine shades. They look essentially like hydras with tall columns and long tentacles extending from the crown. Their mouth is a bright yellow knob in the center of the tentacles. Most other zoanthid varieties have a wide disk on top of a stalk, with a ring of tentacles around the rim of the disk. They are usually brown and may have green iridescence and/or a brightly-colored center and mouth. Identification of these species is tricky but care for all of them is the same. In fact, many zoanthid colonies for sale actually contain more than one species. Common varieties are sold as Button Polyps, Sand Polyps, Colony Polyps, Sea Mats (these are the polyps that attach to one another at the base) or simply Zoanthid Polyps. Take note that not every cnidarian sold as a "Polyp" is a zoanthid. Certain true corals, like Clove Polyps and Star Polyps, may have different requirements and should not be confused with zoanthids.

Corallimorpharians and zoanthids are not true corals. There are subtle morphological differences that distinguish them from corals, like the number of tentacles and the size and shape of the mesenteries relative to the polyp size. Few true corals that are appropriate for this system. A few that are often mistaken for zoanthids are exceptions: Green Star Polyps and Brown Star Polyps (*Briareum spp.*) could make a nice addition to this system. These look like zoanthids except that they form an encrusting brown or reddish mat from which the polyps grow. In a healthy colony, the mat will spread over the live rock and new polyps will pop up from the growth. Star Polyps may coat the inside wall of an aquarium, creating a very attractive backdrop. Care of Star Polyps is similar to that of zoanthid polyps except that they don't need quite as much light. Pulsing or Pumping *Xenia* (*Xenia spp.*) is another popular soft coral but is more demanding than zoanthids or corallimorpharians. It has stalks from which branches of polyps extend. When healthy the feathery tentacles make a grabbing motion, opening and closing while swaying in the current, but *Xenia's* movement can pose a risk to other organisms in the tank. Make sure that branches do not touch other cnidarians as they sway in the current. *Xenia* is an active coral that provides fascinating movement in the tank. *Xenia* needs a lot of light, so it should be placed directly

the middle and top of the aquarium where the light is brightest. Varieties that are darker in color will be more successful as they have greater concentrations of zooxanthellae.

So what's a fish tank without any fish? In this system, it's perfectly reasonable to decide against keeping any fish. Most fish offered for sale in the trade will simply grow too big. If you decide to keep a fish, it should be added only after the population of cnidarians has been established for a few weeks. In my micro reef, I kept a single Pacific Yellowtail Blue Damselfish (*Chrysiptera parasema,* not to be confused with the Atlantic Yellowtail a/k/a Jewel Damselfish) very successfully. Yellowtail Damsels are striking royal blue with (no surprise here) a sunshine-yellow tail. They are playful and will spend much of their time in view. Their close relatives, Blue Devils, (*Chrysiptera cyanea*) also will not outgrow a six-gallon aquarium. Of course, the most popular family of marine fish for aquaria is the clownfish. The most popular species of the family, the Percula Clownfish (*Amphiprion percula*) will stay small enough to keep in the system. Perculas are bright orange with three white bars and varying degrees of black around the bars and fin margins. Their comical swimming motion and bright color makes them extremely endearing. A Percula should be kept as a single specimen to avoid overloading the tank with nutrients. Neon Gobies (*Gobiosoma oceanops* and *G. evelynae*) are another possible choice and are perhaps the only fish that could be kept in a small group of two or three. They are black with a neon blue or gold stripe from nose to tail. They are long and narrow and typically only grow to two inches long. Unfortunately, their natural life span is only about one year, so they would have to be replaced periodically. Another goby commonly offered in the trade, the Citron Goby (*Gobiodon citrinus*), might also be considered but only as a single specimen. Finally, several members of the Genus *Pseudochromis*, commonly called Dottybacks or Basslets, may be considered. The Orchid Dottyback (*Pseudochromis fridmani*), Strawberry or Magenta Dottyback (*P. pophyreus*) and Fairy Basslet or Bicolor Pseudochromis (*P. paccagnellae*) each stay small enough to live comfortably in this system. While selecting a fish at a dealer, make sure that there are no obvious problems such as torn fins or external parasites or infection. Ask the dealer to feed the fish before you purchase it to ensure that it has adapted to life in an aquarium. Feeding fish and the other reef denizens will be discussed in the "Maintenance" section below.

Besides fish and cnidarians, there are a few other decorative animals that fare well in a micro reef. Common Cleaner shrimp (*Lysmata amboinensis*) are beautiful crustaceans that add quite a bit of character to the tank. They are golden-yellow with a narrow white stripe down their back and a wider red stripe on either side of the white stripe. They have long white antennae that sweep around looking for food and potential predators. The Cleaner shrimp's close relative, the Fire shrimp (*Lysmata debenius*), is another good choice. They also have long white antennae, but are colored deep scarlet with a few small white spots. Both species are cleaners in the wild, where they climb fearlessly onto large fish to pick parasites and bits of dead skin. They'll even venture inside the mouth of ferocious predators, such as groupers. In captivity, they may learn to hop onto their aquarist's hand to perform the same service. This is a trick that should be reserved for regular maintenance, when the water level in the tank is lowered and the aquarist's hands are free of any contaminants. Either shrimp can be kept as single specimen unless there are no fish in the system, in which case two or three may be kept and the species may be mixed. Two species of commonly available crabs make good reef residents as well. Emerald crabs (*Mithrax sculptus*) are uniformly gray-green in color and make excellent algae grazers as well as adding interest to the micro reef. Sally Lightfoot crabs (*Percnon gibbesi*), which have narrow purple, orange, brown and yellow stripes, are also good algae grazers and move around quite a bit more than the Emerald crabs. Both of these are also best kept as single specimens in a micro reef. Finally, there is a family of segmented worms that make beautiful additions to reef aquaria. Feather Duster worms construct a tube or burrow to protect their body. They then stick a plume of tentacles out of the tube to trap plankton and floating debris. Small Feather Dusters are likely to appear in healthy live rock, but larger specimens are sold individually. They come in a wide variety of colors. Most of them have brown, gold and/or black striped tentacles, while others have pink and white stripes. When Feather Dusters sense movement, either by vibrations in the water or by sudden changes in light patterns, they rapidly suck themselves back into their protective tubes. After a few moments, they cautiously extend their tentacles again.

This list of animals should give a nearly limitless number of livestock combinations for a micro reef. The animals highlighted here are by no means the only ones appropriate, but are some of the most common and popular selections. There are many, many animals that

are certainly not appropriate for this system. Anemones, Giant Clams (*Tridacna* spp.), and stony corals (with a few possible exceptions) will almost certainly not survive in this system. Any fish or crustacean that grows to more than two or three inches is not appropriate and many others may damage other animals in the aquarium. Additional research is a good idea; a few resources are listed below. Most importantly, never purchase an animal without knowing what its needs and behavioral traits are.

Maintenance

Maintenance of a micro reef should not be onerous and will become easy once a regular routine is established. Examine the aquarium's inhabitants on a daily basis. Note any differences in behavior, appearance and health of the animals. If an animal dies, whether mobile or sessile (non-moving), remove it immediately. Otherwise, the byproducts of decay will completely disrupt the balance in the reef and cause harm to the other animals. Take note of extraordinary algae growth and take appropriate measures (described below) if it continues unabated. Water loss from evaporation should be replenished periodically with fresh water (evaporation removes only water, not salt!). The water level should not be allowed to drop more than a half inch below the top frame of the aquarium. Otherwise, the salt level will rise and the splashing will leave salt deposits on the insides of the tank and hood. If there are fish, shrimp, crabs and other larger decorative animals in the aquarium, they will need to be fed. Feed a small pinch of general marine flake food three or four times a week. If there are Feather Duster worms in the tank, crush a flake or two into fine powder and add it to the reef. There should not be any noticeable amount of uneaten food about one half hour after feeding. Hermit crabs and shrimp will clean up most leftovers. Most reef inhabitants will appreciate periodic feedings of live or frozen brine shrimp, brine shrimp nauplii and *Daphnia*, if available. *Daphnia* and newly hatched brine shrimp are particularly good for cnidarians and Feather Duster Worms.

Perform a one-gallon water change every two weeks. Make sure that your hands are clean before starting maintenance. It may be wise to rinse them very well in warm water to ensure that no soap, shampoo, grease or anything else is left on them. DO NOT wash your hands in soap just before maintenance. The traces left on your hands will be enough to kill many organisms in the tank. Before removing the hood to change water, remove any salt deposits (salt creep) that may have formed from splashing water around the filter. Remove the hood very slowly so that salt creep does not accidentally fall into the tank. Cnidarians can be burned by small pieces of salt that land on their tissue. If there's a gravel substrate, a small vacuum and siphon should be used to remove detritus from the gravel. If there is no gravel, a siphon tube should be directed under and between rocks where detritus buildups are noticeable. Certain kinds of algae, such as cyanobacteria (slime algae) and filamentous algae, can and should be removed by siphon. Once a gallon of water or so is removed, wipe the inside of the aquarium even if there is little or no noticeable algae. Use an acrylic-safe sponge or pad, which is dedicated only to this reef system, to clean algae. It's probably a good idea to mix saltwater 24 hours before adding it to the tank to ensure that it is completely dissolved and stable. As mentioned in part one, high quality salt mixes contain all trace minerals necessary to maintain healthy animals in the reef. Iodine is a possible exception. Iodine can reduce stress in corallimorpharians and encourage rapid growth of coralline algae. If your mushrooms and coralline algae are healthy, don't bother with it. Iodine is quite toxic so great care must be exercised with it. Iodine reef supplements are available in liquid and powder form. Use half the suggested dosage for five gallons of water once a month. Liquid drops may be put into a small container of water and divided if needs be (it's hard to measure half a drop!), then added to the mixed saltwater. Add the new water very carefully with the stream of water directed away from any cnidarians. Once the aquarium is refilled, replace the top and wipe the outside with a clean, dry, soft cloth. Acrylic can scratch! Test the cloth to be used on your cheek or inner arms to see whether there are any sharp particles or rough spots on the cloth that might scratch the tank. Every month the carbon and floss cartridge should be replaced. The light bulb should be replaced every nine to twelve months.

Trouble Shooting

The biggest challenge in keeping a micro reef is controlling algae. If algavores are not keeping algae under control, it may be necessary to start a more aggressive regimen of water changes. One gallon every week or two gallons every two weeks should help reduce algae. A phosphate remover designed for reef aquariums may be necessary for particularly bad outbreaks. The photoperiod may also be reduced to discourage algae growth but this must be balanced with the needs of the animals

containing photosynthetic zooxanthellae. There are a few "bad" organisms that may grow in a reef aquarium. One is Green Pearl algae (*Valonia*) which looks like green bubbles that grow directly on the live rock. *Valonia* will stress and possibly damage any cnidarians with which it comes into contact. In small numbers it is not harmful, but if the population of *Valonia* starts to increase, removal may be necessary. They can be removed from the rock with a pair of tweezers or deft fingers. *Aiptasia* anemones are another pest that can quickly grow out of control. They look like yellow polyps but are an ugly brown color and can grow much larger. Like their decorative cousins, *Aiptasia* uses powerful stinging cells to ward off neighbors and predators. In small numbers they will not pose a problem to the other animals in the tank, but if their rapid reproduction is unchecked, they can overcome a small aquarium quickly. The best way to avoid *Aiptasia* is to not purchase live rock that has them growing on it. Even so, a couple of hitchhikers are likely to reveals themselves after the reef is established. Unfortunately, they are rather difficult to remove. One strategy for removal is to grab them with a pair of pliers and pull as much off the rock as possible. This prevents them from reproducing for a while, but they are likely to grow back. Peppermint shrimp (*Rhynchocinetes uritai*) are reported to eat *Aiptasia,* but they will also eat decorative zoanthids. Other methods, like injecting them with vinegar or boiling water with a syringe, have also been suggested. A full-blown outbreak will probably require outside research and a little experimentation.

Outside of controlling problem algae and *Aiptasia*, stress in cnidarians is probably the most likely challenge in keeping a micro reef. Other animals living in the tank may stress Cnidarians. While the fish and crustaceans mentioned in this article are not likely to attack cnidarians, it's always an outside possibility. If another animal is observed irritating or attacking a cnidarian regularly, you must make a decision whether to keep the stressed cnidarian or the guilty party. A photoperiod that is too long or too short may also cause stress. Shriveled cnidarians may appreciate a little less light for a period of time, followed by a gradual increase, so that they may adjust. Pale or weak-looking cnidarians may appreciate an increase in the photoperiod. Poor water quality will also cause stress in cnidarians. You may wish to periodically take a water sample in to an aquarium store for a broad-spectrum water test, especially if any of the animals appear to be struggling. If the results indicate a

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Book Review: North American Native Fishes for the Home Aquarium

by David M. Schleser, published by Barron's, 1998,
170 pages, 119 color photos
Review by Nancy Johnson

I ordered this book from a seller on eBay because I'm interested in fish of the Chesapeake Bay. We have a house on the Nanticoke River, which is a marshy area with lots of creeks. The only fish I've ever kept in an aquarium is the sheepshead minnow, the males of which have a flash of bright blue on their heads.

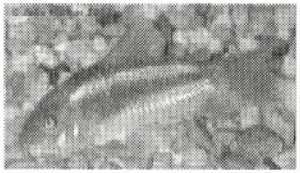
This is a very nice book, but being brief it doesn't cover a large number of fishes. It does have a fair amount of information on the darters, sunfish and sticklebacks. The photos are very well done. I just wish the book had more of them!

One of "Native Fishes" strengths is the sections on keeping "Reasons to Keep Native Fishes," "Fish Taxonomy and Anatomy, "Status of Our Native Fishes," and "The Native Fish Aquarium." Also included are good instructions on the tools you need, and the methods to use to catch fish.

For someone who has never kept an aquarium before, this books gives a concise, yet fairly thorough description on how to set up and maintain an aquarium. It also covers diseases and treatments, although I was disappointed that it didn't suggest salt and raised temps for ich. The book wraps up with a glossary, bibliographical references, an index and tables of abbreviations, equivalents and conversions. For a small book, it does cover a lot of territory.

In short, I would recommend this small, inexpensive book for your library. It's a good book for younger readers as well, as the writing is very clear and easy to understand. It would be a particularly nice gift for someone who would like to catch and keep some native fishes, but who doesn't have a lot of experience with aquarium keeping.

Line drawing by PVAS member Gene Moy



The Colors of *Corydoras*

Don Kinyon

Photo by PVAS member Julio Melgar

There are a few "new" imports of *Corydoras* catfish coming in from South America lately that some Cory cat nuts, such as myself, are excited about. Some of the most colorful, and promising to be the most popular fish, are a group that may or may not be *aeneus*. They resemble this most common of catfish in body shape and temperament, but tend to have a very bright iridescent stripe arcing from just behind the eye all the way to the tail. The color of the stripe can be green, orange, or red.

It isn't my purpose to argue the point of whether or not these fish are indeed a color form of *aeneus*; I'll leave that to the scientists. I will attempt to give, from a hobbyist's point of view, the similarities and differences of the fish both to each other, and to the common *aeneus*.

I have kept each of these varieties in my tanks for at least a year and some for much longer. They are similar in appearance, but the behavior and especially egg production, in my experience, are much different. This doesn't conclude that the fish aren't all *aeneus*, I'm sure, and I have no way of knowing that the fish were the same age when spawned, as some were young and some adults when they came to me. All the fish were approximately the same size when they spawned, and all had been kept under the same water conditions and fed the same foods.

The chart will better show what I mean:

As you can see, the numbers vary greatly.This is a very unscientific observation; I have no way of knowing that all the females present took part in the spawn, and the number of spawns are probably not sufficient to get a good idea of the true tendencies of the fish. Some Corys have a tendency to eat the eggs before they can be moved, and others don't, and so on. The chart only shows the limited experience that I've had with the fish in my own fish room.

The coloration of the different varieties of adult fish is varied. The brightest of the bunch by far are the "laser green". The stripe glows so brightly that many people avoid buying the fish for fear that they have been shot with dye or hormones. I was skeptical myself, but found the fry retain the color, so I don't believe that the fish were "worked on" at all. In natural light, the color can take your breath away. The "red stripe" have a lot of color, though not as much as the greens. They have a much darker body color, and the iridescent stripe is red-orange. The "Peru orange stripe" has the least iridescence, and the body color is lighter. The stripe is pale orange, and some fish don't show any iridescence much behind the shoulder.

Another difference I've found with the fish is the hardiness of the adults and fry. Of the common albino form, which I'm fairly sure were tank- or farm-raised, there were no casualties in the years that I kept them. The wild caught "Peru orange stripe" were much the same, as I still have the same three after two years. The wild caught "red stripe" were in great shape when I received them, but there were still a few deaths within the first two months; after this initial period, they all survived. The "laser green", on the other hand, can make one crazy trying to get them to live in captivity. These are

Fish	*Total Females*	*Total Spawns*	*Total Eggs*	*Avg. Eggs per Female per Spawn*
Albino Aeneus	3	3	218	22.4
Laser Green	2	3	351	21.9
Red Stripe	5	2	58	5.8
Orange Stripe	1	2	199	99.5

also wild-caught fish. I started out with seven specimens and it nearly made me cry to pay out that much money for fish all at one time, especially after they started to die off. By the end of the third month in my tank, there were four left: luckily enough the survivors were two males and two females.

The placement of the eggs when spawning varies between the color forms, also. The "laser greens" put eggs mostly on the front glass (usually the only clean pane in my tanks), while the reds hide them mostly among the plants, and the orange form haphazardly laid eggs anywhere that they will stick. When spawned in new surroundings, as were the green and orange varieties on occasion, the fish held true to their own patterns.

The fry of all the color strains seem to be hardy enough, though I still occasionally lose broods of the "laser green" for no apparent reason. The fry of the "Peru orange stripe" are as healthy as any of the common *aeneus* that I've had, while the "red stripe" grow very slowly and never seem to eat as ravenously as any of the others. I've had spawns of the three color varieties all at around the same time, so I was able to observe the differences between the fry firsthand, comparing directly. All the fry were raised in the same conditions and fed the same foods; micro worms to start, and after a few days, baby brine shrimp and fine flake food. The water was from the tap: 7.4 pH and 140 ppm of total hardness.

Water changes were done twice weekly at 25 percent. The substrate was fine sand (play sand from Lowe's—two dollars for fifty pounds), sponge filters were in all the fry tanks, and there was approximately the same amount of fish-per-gallon in each of the tanks.

At one month, the difference could be seen in the three color varieties. The "red stripe" had a very dark body color, while the orange and green colors had lighter coloration. The "laser green" already showed the start of the iridescent green stripe above the shoulder.

At two months, the differences were even more pronounced. The dark body coloration of the "red stripes" got even darker, and they started to show the iridescent line. The "laser greens" got even brighter, while the "orange stripes" failed to show much color as yet.

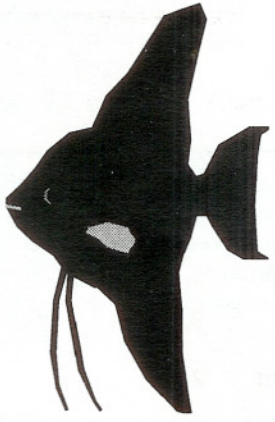
At three months of age, the "laser greens" are a smaller version of the adult. They are at a length of over 1" and show all the color of the adult. The "Peru orange stripe" are about the same size, but show only part of the adult coloration. The "red stripe" are almost as colorful as the adults, but only ¾" long.

Whether these fish each get their own identification or are decided to be a color form of the *Corydoras aeneus*, they are a pleasant resident in any community tank, or a delight in a species tank or breeding setup.

For more information:

Planet Catfish. Jools has done a great job on this site—great picture gallery and good articles in Shane's (Linder) World. http://www.planetcatfish.com/core/index.htm
Aqualog. All *Corydoras* by Glaser, Schafer, and Glaser. ID type photos and basic information on many *Corydoras*
Corydoras by Werner Seuss. Much breeding and general information, pictures on most *Corydoras* cats
Back to Nature Guide to Catfishes by Dr. David Sands. Good information and pictures on many catfishes, including *Corydoras*
An Atlas of Freshwater and Marine Catfishes by Dr. Warren Burgess. Large work on most any catfish found. Some of the newer imports are excluded, but information on all included fish is accurate and plentiful.

Thanks to Ernest J. Gemeinhart, Cory nut extraordinaire, for putting up with my questions.



Line drawing by PVAS member Gene Moy

Advice for a New Planted Tank

Bill Pabst

Author's note: This "article" evolved from an email I wrote to a fellow hobbyist about her new planted tank. I don't pretend to make any claims about the correctness of my recommendations, or about the quality of brand-name products mentioned. This is just what works for me. I am sure there are experienced plant growers who will read this article and be appalled at my lack of precision. I welcome your responses, and perhaps this article can serve as a beginning for a dialogue about keeping planted tanks.

For your new plant tank - definitely throw a school of Danios or other cyclers in there. I have been through a couple of roller coaster rides of cycling, different types of algae, lack of growth, and non-lush overgrowth problems with my planted tanks. They are finally settling down (for now), and the well-cycled water definitely helps, as well as algae eating residents. A combination of Siamese algae eaters and *Otocinclus* catfish do a good job, but keep in mind that they only act as a sort of preventative medicine for beard algae, by eating it before we can actually see it. They can be part of a solution to an already established algae problem. *Corydoras* catfish seem to help my planted tanks too, perhaps because they clean up uneaten food before it rots, or they help stir the gravel a bit with their rooting.

As for the 8.5 pH, try to bring it down to neutral 7 or a little under. I can't recall the exact reason, but almost all aquarium plants tend to stop growing, or wither and die, at alkaline pH. I am currently trying out Seachem's "Acid Buffer" and "Alkaline Buffer," but I don't think the directions on the bottle apply equally to everybody's water, everywhere.

Adding C02 will lower pH as well, but maybe not enough. There are varying levels of how accurately one can measure the CO2 level in the water, ranging from pricey electronic monitoring equipment, to water test kits, to nothing. I lean towards the latter, because I know the "D.I.Y." (do-it-yourself) CO2 system that I use probably doesn't put enough in to cause a problem, and I have never found a fish gasping at the surface. CO2 also acts as a wonderful deterrent to beard algae. It makes the algae growths melt away. To test the pH I use Mardel's "Aqualab" test strips, which are imprecise but very quick and accurate enough to tell you if there is an unexpected spike or drop.

One lesson I learned - if you get an algae explosion, don't do a big water change, that just encourages it. Rather, add de-ionized or reverse osmosis water, which can lower the pH and discourage algae by starving it of phosphates and other nutrients. Prune back the worst affected plants, severely if necessary, and they will eventually grow and out-compete the algae for nutrients and light. The more light the better; I have good luck with Hagen "Life-Glo" aperture fluorescent bulbs, but they are more expensive than other brands. I have also had success with Aquamarine's "Phosphate Eliminator," which is actually a biological agent that eats phosphates but doesn't disrupt the biological filter.

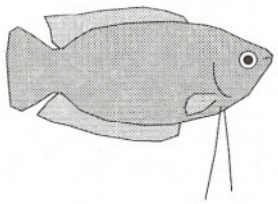
Another factoid that, when I read it, made me slap my forehead, is this: aquarium water can be, if done right, simultaneously high in dissolved carbon dioxide AND oxygen. It's not like our lungs where one gets exchanged for the other. So keep in mind that surface movement increases the liquid/gas interchange, which is good for fish that need the oxygen, but mostly wastes the CO2. "Real" plant growers usually have some kind of diffusing device that increases the amount of time the CO2 bubbles spend in contact with the water. I have Aquaclear filters and I set them on the low setting to decrease surface movement, until they get a little clogged, and then the high setting becomes low. A side note - if you are running Aquaclear or other filters that have the replaceable carbon bag inserts, take them out. They can suck up the iron and trace minerals that plants need, and can leach phosphates, which leads to nasty hair algae. In my Aquaclears I use two sponges instead, and once in a while take one out and rinse it, so that the biological filtration isn't totally lost, but the mechanical is replenished. In fact I have used this system elsewhere, including plant-less fry grow-out tanks, and they don't seem to miss the carbon one bit.

Another idea is to turn the filters to the high setting at night, when both the fish and plants are consuming oxygen, then turn them to low during the day, so that the CO2 builds up for photosynthesizing. This is easy enough to do at feeding time, but somehow hard to remember.

I fertilize once a week with Aquarium Pharmaceutical's "Leaf Zone," which has chelated iron, which is supposed to remain in liquid suspension until used by the plants, instead of oxidizing. I also add the directed dose, or less, of "Black Water Extract," "Plant Gro," or "Freshwater Total" for trace elements and nutrients.

This is how I do the CO2: I use the half-gallon plastic jugs that cranberry juice comes in. I tried at first with 2 liter soda bottles, but the plastic that the caps are made of seems less cooperative for sealing shut with glue. The jugs also have a wider mouth, which is makes for less mess when pouring out the smelly used mixture. I put a hole in the cap with a nail heated up on the stove. Then I put the airline tubing through and glue on both sides with "Goop" brand glue. I bought the plumber's variety at Home Depot and it seems to live up to its reputation. I guess it would be better to use a piece of rigid tubing and a rubber stopper for that part, but I don't have any. The longer the tube-line into the tank, the more pressure is needed to get the bubbles going. I always put a check valve just above the bottle. This requires even more pressure, but it reassures me that my tank won't siphon out in the event of who-knows-what.

The recipe recommendations I have seen on the web vary. I am using about 1 1/2 to 2 cups of sugar and 1 generous teaspoon of yeast, poured through a funnel and then shaken. I definitely recommend buying a jar of active yeast instead of the expensive little packets. I leave the bottle about a third empty, in case the mixture foams up into the line, but this has never happened so far. I think starting it with warm water helps the yeast activate, but definitely stir the mixture to get the sugar dissolving. It seems to take a day to get started, and lasts varying amounts of time depending on temperature. I have been restarting the mixture about once a week by pouring out most, but not all, of the crud and putting fresh ingredients in. I think it also helps to use water that has dechlorinated by aging rather than chemicals. If it can't seem to get going, try a little more yeast. If it runs out quickly, try a little less yeast, or more sugar. If the mix smells like beer, it's cooking away. If it smells like wine, it's probably starting to run out, but can be encouraged to work for another day by shaking the jug.



Line drawing by PVAS member Gene Moy

My First Reef Aquarium, continued from page 9

for a stressed cnidarian and it eventually dies, consider it a lesson learned and don't try that particular animal again.

Conclusion

I hope this article inspires a few folks to venture into the wonderful world of marine reef keeping. Buyers beware, however; small reefs are known to be habit-forming and often turn into much larger ones! Since I started this article, Marineland has introduced a twelve-gallon Eclipse system that would be equally well suited to a simple micro reef, but will obviously cost more to set up and stock. Read as much as possible and don't be afraid to ask questions, but keep in mind that there are as many opinions on the art of reef keeping as there are fish in the sea. Experience is the key and keeping a reef is the only way to gain it. Enjoy the micro reef; it will treat you to hours of fascination.

References

The Conscientious Marine Aquarist by Robert Fenner

The Reef Aquarium, volumes one and two, by Charles Delbeek and Julian Sprung

Dr. Burgess' Mini-Atlas of Marine Aquarium Fishes by Warren Burgess et al.

Peruvian Amazonia, continued from page 4

a big piece of cpear plastic and wrapped it. I found a chair to sit in and read a book until about 11:30, when I walked down to the gate area. A little after noon, the plane started to load and it left on time for Dulles.

The two and a half hour flight to Dulles was uneventful and we landed at 3:00 p.m. A young United girl met me with a wheelchair and took me onto the tram to get to the main terminal and told me someone else would take me the rest of the way. That someone was not there, so she took me all the way down to the luggage pick-up area. There I was met by Richard, my daughter's new husband. My luggage was picked up, then we went out to the car and home. About 4:30 we got to my apartment and I was glad to be home. My little bird friend Molly was very glad to see me. It was good to be home.

Breeders Award Program

John Mangan

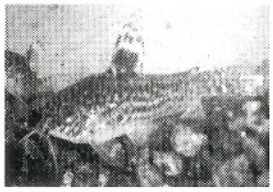
I'd like to thank all of you that participated in the BAP over the past year and hope more of you will join the program this year. I hope to begin working on a revision of the BAP rules some time in the next few months.

Anyone with any suggestions for changes, or any other comments, please let me know so they can be taken into consideration. One change that I would like to begin now is that for 10 point fish, in addition to notifying a checker by phone for the first verification, you may also notify a checker or the BAP chairman by email. Any questions, comments, etc., concerning BAP can be sent to me at ranchogoodeid@aol.com.

BAP Checkers

Checker	Area
David Snell (703) 968-9084	Centreville/Chantilly/Manassas
Mike Cardaci (703) 222-3833	Centreville
Dov Goldstein (301) 694-7582	Frederick MD
Gene Moy (703) 765-0865	Mt Vernon/Olde Town
Rick McKay (703) 281-1647	Oakton/Vienna
Francine Bethea (301) 809-3894	Prince George's County
Lorne E Williams (301) 630-7674	Prince George's County
Pete Thrift (703) 971-0594	Springfield/Franconia
Gerry Hoffman (540) 347-7486	Warrenton/Manassas
John Mangan (703) 491-4980 ranchogoodeid@aol.com	Occuquan/Lake Ridge

More checkers are needed for the Breeder's Award Program. There are a number of areas where we don't have anyone. Even if there is someone already listed for your area we could always use someone else to help spread the work around.



Aspidoras pauciradiatus

Don Kinyon

Photo by PVAS member Don Kinyon

Here is something a little different for the *Corydoras* catfish nuts: an *Aspidoras*. This little gem was described by Weitzman and Nijssen in 1970 and classified as a *Corydoras*. It was later put into the genus *Aspidoras*.

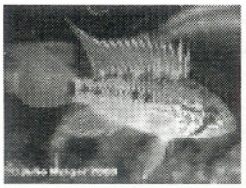
This Aspidoras species have generally the same body as their close cousins, favoring the shorter-snouted species with a more straight-ahead mouth, such as *Corydoras pygmeaus* or *hastatus*. They are small, not reaching more than 1½". The adult fish are silver or white with black markings: spotted along most of the body, with stripes or a blotch on the dorsal fin, and wavy stripes on the tail. There is no eye stripe common to many *Corydoras*.

In the swiftly flowing, well-oxygenated waters of the Rio Araguaia, Brazil, these little catfish are at home. When one can duplicate these conditions in the home aquarium, the fish thrive. My particular setup used a 35-gallon cube-style tank filled with rainwater; pH of 6.0 and total hardness near zero. I placed a large power head with a sponge filter attached to it in one corner and turned it to its strongest setting. The outlet had to be drilled to accept an airline, and a second air line attached to a diffuser was placed near the current. A single stone with a small Java Fern grown to it, along with some small bog wood pieces in the center of the tank, completed the setup. No heater was used, so the tem-

Continued on page 20

Current BAP Standings

PVAS Member	Points	Award Level
Don Kinyon	985	Master Breeder
Gerry Hoffman	905	Master Breeder
Jeffrey Burke	445	Advanced Breeder
Gene Moy	290	Intermediate Breeder
Lorne Williams	220	Intermediate Breeder
John Mangan	165	Intermediate Breeder
Shane Linder	85	Breeder
David Snell	75	Breeder
Francine Bethea	60	Breeder
Dov Goldstein	55	Breeder
Kelly Kinyon	10	Breeder



Apistogramma viejita

Don Kinyon

Photo by PVAS member Julio Melgar

Here's another *Apistogramma* that is getting to be "in demand" in the hobby. It's no big surprise, given the coloration and demeanor of the fish. Some very colorful strains are coming out of Europe, especially Germany.

I got about 20 young fish from a friend who needed to thin out his tanks to give youngsters more space to grow. I gladly accepted them and had a 135 gallon tank housing some other Apistos about the same size.

With all that space and heavy feeding of live, frozen and dry foods, the fish quickly grew and started to pair up. When they did, I set up a 20 gallon long tank to house one of the larger pairs. The water was collected rain water, pH of 6.2 and hardness of 1°.

It was only a matter of days before the first spawning, but before the eggs hatched, they disappeared, so I lowered the water's pH to 5.5 and tried again. The second spawn lasted longer until the eggs hatched, but then they were gone. I raised the temperature to 80°F and tried once more. The third time proved to be the charm, and the female was soon leading the babies around the tank in search of food. The male kept to himself, but seemed not to be in any danger or pose a threat to the young, so I left both parents in the tank.

The fry ate microworms and newly hatched brine shrimp as first foods, and soon were big enough to take grindal worms and chopped white worms. About one month after the babies hatched, they ceased to follow the mother fish. Although neither parent ever seemed a threat to the young, I took them out to give the fry more room to grow. At two months, the young are 3/8" long and acting much like the parents did.

These fish are ideal for someone who may be limited in tank space, but likes to see cichlids behave like cichlids.

Poecilia reticulata: Guppy

Gene Moy

Guppies are reported to have started many in the aquarium hobby. They are enduring favorites at the PVAS auctions. Many varieties are available in different finnage and colors. Guppies are not very demanding with regard to water requirements, as they are very adaptable and over many years have adapted to home aquaria. Guppies are livebearers and reportedly breed profusely.

Sexing mature guppies can be done by looking at the shape of the anal fin. Females have a fan-shaped fin, while males have a pointed fin that forms what is known as a gonopodium. Males use this modified fin as a sex organ, to deliver sperm into the female.

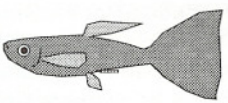
I picked up one pair for the bargain of $1. These were a pair of adult half-black yellow delta tails. The yellow tail pair went into a 5 1/2 gallon with a sponge filter. The tanks were kept at the rather cool temperature of 72ºF.

The Guppies were fed a basic flake diet, with a rare treat of a few black worms.

After a month, the yellow tail female gave birth to 5 young fry. The adults appeared not to be cannibalistic. A month after that, another 12 young were born. Subsequent spawns were larger. The largest spawn to date has been 30. The young are removed to another 5 1/2 gallon tank shortly afterwards, then to larger quarters with other fish as they grow. Fry are born at intervals of about every month.

The young guppies are initially fed a powdered fry food, graduating quickly to crumbled flakes, then to regular-size flakes. The young grow fairly quickly and are marketable in three months.

Thinking back, the last time I kept guppies was ... years and years ago, when I first started in the hobby. This brings back some memories.



Line drawing by PVAS member Gene Moy

Nanochromis transvestitus

Francine Bethea

The keeping of the *Nanochromis transvestitus* is not difficult at all. This cichlid from West Africa requires the same upkeep as all other dwarf cichlids in regard to live food and soft, acidic water. Since they are found in bodies of water with rocks and sandy sediment, it would be a good idea to provide these amenities to the breeding tank. Also, one should bear in mind that this species naturally lives in a black water environment. Therefore, the addition of a large piece of driftwood would ensure the tank water will have a brown tint. Additionally, a densely planted area will provide cover.

N. transvestitus is a uniquely different fish because it is the female that is the most colorful of the pair. Hence the name "*transvestitus*". Both fish exhibit an olive-brown base with darker, vertical bars that continue into the dorsal fin. The lips and gills are lined with white. Sexual dimorphism is obvious in mature fish, as their differences become more dramatic. The male will develop slightly elongated dorsal and anal fins while the female becomes more vivid in color and pattern. The female's anal fin and the end of her dorsal fin become black with white vertical stripes. This pattern is also visible in the caudal, whereas the male is lacking this pattern in any of these areas. One other striking feature of the female is that her belly becomes a bright red.

As previously mentioned, *N. transvestitus* lives in rocky, sandy areas. It is a voracious gravel mover. Once spawning commences, this species will dutifully dig under objects placed in the tank. When arranging heavy objects in any tank, it would be advisable to first position them on the tank floor and add the substrate second. Nothing is more disheartening than to have your breeders or their fry crushed by a collapsed cave.

At one of the PVAS auctions, I was fortunate to have enough money to win the bid for a pair of these fish. As usual, I didn't have an empty tank. Since the *transvestitus* were just small enough, I could justify putting them in a 2 ½-gallon for a little while.

I rearranged my collection to accommodate them in a 20-gallon long. This particular tank was originally set up for a pair of *Pelvicachromis taeniatus*. Therefore, the correct water parameters of a pH at 4.5 and a total hardness of 2º were already in place. There was an AquaClear 150 with a sponge on the intake. The heater was set at 80ºF. The decor consisted of a very large piece of driftwood with Java Moss in place. The surface of the water was covered with Duckweed and Riccia. The only addition I made to this tank was to put in some play sand, with a pile of slate partially buried in it.

In no time at all, the pair settled in. I began feeding them frozen bloodworms, daphnia, tubifex, white worms, and a little flake now and then. The fish had grown at an astounding rate. As they grew, their behavior became more animated. The female would flare and curve her body toward the male. This positioning into a 'S' shape exposed her red belly. The pair would swim around each other, suddenly stop and flare with mouths agape.

The pair began digging under the slate pile. There was barely room to enter the space as they took turns cleaning out the cave. On occasion, I would find the male facing the entrance motionless. Then the pair decided to dig under the driftwood instead. The depth of the trench was surprising. This is the location that the pair decided to spawn.

Fortunately for me, the eggs were visible. There were at least 40 white oblong eggs. Two days after spawning, the wrigglers were hanging in place. Within a few more days, the fry were moved to the original excavated site. Soon after, the pair took turns herding the fry around. The fry were fed micro worms initially and then bbs. They swam in a very tight-knit group, constantly foraging for even more food. This species grows quickly and is always on the move. If you can get your hands on a pair of *Nanochromis transvestitus,* you will be rewarded with a visually stunning fish that is far from difficult to breed.

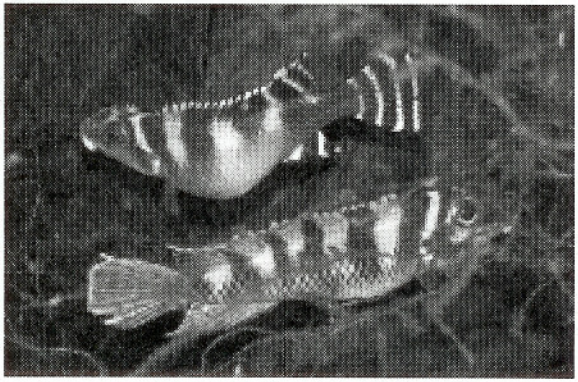


Photo by PVAS member Francine Bethea

Exchange Notes

Nancy Johnson

Hello!

I'm Nancy Johnson, the new Exchange Editor for Delta Tale.

I just joined PVAS at the November auction. I really love those auctions, but I missed the last one (please, never, NEVER hold an auction over a holiday weekend!).

I'm a stay-at-home Mom, and was an editor for about 20 years in a former life, including freelancing for 10 years, doing mostly corporate stuff. I keep thinking about getting back to work now that my kids are both in school, but between PTA volunteer activities, being a Brownie leader, and of course, my new unpaid vocation — fish, fish fish — somehow the time just hasn't materialized.

I have mostly South American fish. I have five tanks, two small tanks with pairs of apistos and another in which I'm trying to breed cories, a 110 with some discus (I'm getting out of discus, they just aren't active enough and that's my main display tank), and a 125 with two breeding pairs of cichlids, a large chocolate pleco, and a variety of rainbows and characins. One of the fish I have is an absolutely geophagus proximus. I would love to get another and try to breed them. If you have one and would like to arrange a swap or loan, please let me know!

A mention of Don Kinyon's article on *Corydoras barbatus* and Dov Goldstein's article on *Hemichromis cristatus* appears in the Jan 2001 issue of Gravel Gossip, a publication of the Diamond State Aquarium Society (Delaware).

I hope you enjoy the articles I chose for this issue. I also have requested e-mail copies of the articles listed below. If you'd like a copy, just e-mail me at natahoa@acninc.net and I'll send you a copy.

List of publications received:

Tropiquarium, Motor City Aquarium Society
No. Jersey Aquarium. Society Reporter
Mack Attack, Mid-Atlantic Cichlid Keepers
The Reflector, Central New York Aquarium Society
Tank Topics, Greater Akron Aquarium Society
All Cichlids, Michigan Cichlid Association
I'a O Hawai'i, Honolulu Aquarium Society
Paradise Press, Long Island Aquarium Society
Modern Aquarium, Greater City Aquarium Society, New York
Aqua News, Minnesota Aquarium Society
BAS Bulletin, Brooklyn Aquarium Society
Gravel Gossip, Diamond State Aquarium Society, Delaware
Aquatica, Brooklyn Aquarium Society
Youngstown Aquarist, Youngstown Area Tropical Fish Society
SWMAC, Southwestern Michigan Aquarium Society
Tropiquarium, Motor City Aquarium Society
The Skimmer, Ashtabula County Aquarium Club, Ohio
Fin Fax, Delaware County Aquarium Society, Ridley Park, Pennsylvania
The Nekton, Saskatoon Aquarium Society

Partial list of articles:

Food for Thought, by Bob Berdoulay, Dec. 11, 2000 issue of The Nekton, Saskatoon Aquarium Society. This is a review of a microfood ofered by OSI.

Big John's Top Ten List: Top Ten Things You Require in a Fishroom, by John Tomchuk, Decm 2000 issue of The Nekton, Saskatoon Aquarium Society

What's that fish?, by Bill Bishopp, Dec. 2000 issue of The Nekton, Saskatoon Aquarium Society. It's about how easy it is to misidentify fry and juvenile fish.

Inside the White House Fish Room, by Bob Kolimaga, Feb. 2, 2001 issue of Fin Fax, Delaware County Aquarium Society, Ridley Park, Pa. It's really, really funny!

Xystochromis (Haplochromis) phytophagus, The Christmasn Fulu, by Chris Guarino, junior member, Delaware County Aquarium Society, in the Feb. 2, 2001 issue of Fin Fax

Have Discus Will Travel, by Tom Stephens, Jan/Feb 2001 issue of SWMAC, Southwestern Michigan Aquarium Society. This article relates how this truck driver manages to keep discus and other fish alive while he travels around the country doing his runs, and visiting pet shops and breeders. A really fun article!

The "Unofficial MACNA XII Review," by Mark Swank-Schreffler, Jan/Feb. 2001 issue of SWMAC, Southwestern Michigan Aquarium Society. This article covers Julian

Sprung's presentation on microhabitats using saltwater plants.

Why Fish Do What They Do, Part 3, How Environment Affects the Breeding Strategies of Fish, by John Todaro, editor of Aquatica, Brooklyn Aquarium Society, Dec. 2000 issue

Hey, are you throwing that away, by Steve Michael, Jan/Feb. 2001 issue of Aqua News, Minnesota Aquarium Society

Synodontis multipunctatus!, by Richard Smaciarz, Jan/Feb issue of Aqua News, Minnesota Aquarium Society

The Platy, by Bernard Harrigan, in the Dec. 2000 issue of Modern Aquarium, Greater City Aquarium Society, New York

Thorichthys meeki — The Firemouth, by Lou Pochettino, Dec. 2000 issue of Mack Attack, Mid-Atlantic Cichlid Keepers

Silence, Please! (one man's struggle with the noisy air-pump problem), by "The Undergravel Reporter," (no name given!), Nov. 2000 issue of Modern Aquarium, Greater City Aquarium Society, New York

The Aquarist as a Naturalist (stocking your aquarium with beautiful, durable native fish), by Robert Rice, Dec. 2000 issue of Paradise Press, Long Island Aquarium Society

Breeding the Black Sailfin Goodeid - Girardinichthys viviparus, by Rich Serva, Feb./March 2001 issue of Tank Topics, Greater Akron Aquarium Society

No Beating Around the buescheri (*Lamprologus buescheri*), by Wayne Toven, Feb./March 2001 issue of Tank Topics, Greater Akron Aquarium Society

President's Message (a review of recent aquatic subjects covered in the media, very interesting!), by Joseph Ferdenzi, president of Greater City Aquarium Society, New York, from the Nov. 2000 issue of Modern Aquarium

Seahorses, by Bernard Harrigan, Modern Aquarium, Nov. 2000, Greater City Aquarium Society, New York

Review of "A-Z of Tropical Fish Diseases and Health Problems," by Dr. Peter Burgess, Mary Baily and Arian Exell, review written by Susan Priest in the Nov. 2000 issue of Modern Aquarium, Greater City Aquarium Society, New York

Goodeids Are Fish Too, by Larry Jinks, Dec. 2000 issue of Reporter, North Jersey Aquarium Society

A Symptom-Based Treatment for the Diseases of Discus (and other fish), Dionigi Maladorno, M.D., Dec. 2000 issue of Reporter, North Jersey Aquarium Society

Why do they eat their eggs?, Don Zilliox, Dec. 2000 issue of Mack Attack, Mid-Atlantic Cichlid Keepers

The Slo-Mo Bud, by Ray Spahn, Dec. 20, 2000 issue of The Reflector, Central New York Aquarium Society (article on hydrophila difformis, water sprite, budding and flowering).

Saltwater Plant Propagati on, by Ray Spahn, Dec. 2000 issue of The Reflector, Central New York Aquarium Society

Bring 'Em Back Alive

Tom Miglio

Reprinted in part from the Dec. 2000 issue of Aquatica, Brooklyn Aquarium Society

This past year I have been competing in fish shows and donating fish to several club auctions along the East Coast. To save time bagging these fish, I usually start bagging those headed for weekend shows and auctions on Thursday nights, with mixed results.

This year I tried an new product sold by Jungle ® Laboratories called Bag Buddies™. They are small blue tablets you add to the fish bag that condition the water and release oxygen.

I tested Bag Buddies on a Thursday evening by placing tablets in bags of trips of fancy guppies, kept them warm and left them in my fish room. I didn't open the styrofoam box until four days later. All the bagged fish arrived safe, were alive and in good condition.

I strongly recommend Bag Buddies. I haven't lost a bag of fish since I started using them ... and I've bagged fish for up to five days. Bag buddies can be used for either fresh or saltwater fish.

Killie Korner: Foods for Fish Fry

By Ray Suydam

Reprinted from the Long Island Aquarium Society's Paradise Press, Dec. 2000 issue

Here are some excellent foods for fish fry:

Infusoria (paramecium sp.)

Fill a 2 liter soda bottle with aged tank water. Add 2-3 drops of condensed milk. After a few days, the cloudiness will disappear, and the culture will "bloom" and a cloud of infusoria will be visible to the naked eye. Harvest with a long pipette. Add 9-12 drops of milk to an established culture to produce future "blooms." When the culture starts to look slimy, pour off about half into a new container, and add fresh tank water.

Microworms

Fill a used half gallon butter tub with about 2-3 inches of Gerber Barley baby food, then mix with water into a mash, not too dry or too wet. Add microworm starter culture, Cut a small hole in the lid of the butter tub for air, and glue a small screen over the hole. This will help keep out fruit flies. Cover, and store in a dark space. When ready to harvest, sprinkle a small amount of Fleischmans Yeast across the top of the culture, and cover. In a few hours, harvest the microworms swarming up the slides of the tub with a pop stick or finger, and feed. When culture begins to turn brown, start a new culture.

Vinegar Eels (turbatrix aceti)

Use a half gallon pickle jar, fill with 75 percent red cider vinegar. Add slices of peeled apples to become the culture "base". Add starter culture, cover jar with mesh to keep out fruit flies. To harvest, hang a thin scrubby pad into the culture for a few seconds, then squeeze out. Dip the pad in a cup of clear water, then feed with a pipette or eyedropper. Add new apple slices once in a while. This culture can last for years.

It is always recommended that you should keep more than one culture of each live food going at times, as to prevent entire culture losses. If you would like any of the above starter cultures, please speak to me at the meetings.

Tony's Top Ten: The Best Fish Websites

Tony Lovash

Reprinted from Youngstown Aquarist, Jan./Feb. 2000 issue

This is a new column that I will write for each newsletter. I will try to find and let you know of the best fish websites on the Internet. You can type in the address on your computer, or go to the club's website: YATFS.com. Click on the "Top Ten" webpage and you will find the hyperlinks I have put there.

Enjoy!

Tony Lovash

http://chat.aquariacentral.com/ A good chat room with a lot of knowledgeable people there to help you with any questions you might have.

http://aquaworldnet.com/dbws.shtml Everything you need to know about breeding DISCUS! Informative!

http://www.nanfa.org/ North American Native Fish

http://cichlidresearch.com all the cichlid information

http://www.killi.net/killies.html a great site on killifish

http://raisingfish.tripod.com Looking for a particular book on that rare breed of fish you just got? It's here.

http://www9.ewebcity.com/larryg/evntlist.asp Aquarists' Calendar of Events Listings.

http://www.aquariumfish.net/ Buy fish online

http://www.connix.com/~mko/ Lake Malawi cichlids

http://actwin.com/fish/index/php The Fish Information System answers all your questions.

Line drawing by PVAS member Gene Moy

Aspidoras pauciradiatus, continued from page 14

perature fluctuated between 70 and 78°. The end result was a whirlpool of very oxygenated water.

My six male and seven female catfish were active in their new environment. There was a spot near the rock where the current wasn't quite as strong that they could rest on the bottom, but most of the time they would swim in small groups into the current near the pump outlet.

I gave them as varied a diet as I could, rotating between live, frozen, and dry foods. The diet was heavy with high protein and high fat foods, such as beef heart, white worms, chopped earthworms, black worms, and daphnia. It took only a few weeks on this diet for the females to become so gravid that they could no longer rest flat on the bottom; when they tried to, they "teetered". The fish seemed very happy and healthy with the surroundings, but I noticed no spawning behavior.

Working with *Corydoras* species usually makes a person more in tune with the barometric conditions. If you keep watch of the barometer, it makes it a little easier to spawn some of the armored catfish, and probably many other varieties of tropical fish.

One evening when the barometer took a radical dive, I removed about 80 percent of the tank water and replaced it with much cooler rainwater. This brought on an immediate change in the fishes' behavior. All the fish began to swim vertically up and down the glass at the outlet of the power head. The next morning, they were still at it, but no spawning. They kept the same pattern up for the whole day, so that evening I did another drastic water change. There was little change in the morning of the third day, and although I hate to let work take time away from the fish room, I had to leave them.

Upon my return, I noticed the eggs on the glass, near where the group had been swimming for the past two days. They were still at it and continued until the lights went out that evening. I let them go one more day, then removed the adults to another tank. I counted about 20 eggs on the glass, in the plant, on the filter, and in the long algae growing on the bottom of the tank, but I assumed there were more. They were small and clear, and most seemed to be placed so that they would be near the current from the power head.

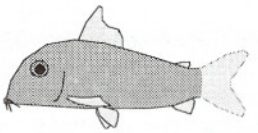
Within the next few days, some of the eggs turned white with fungus, but most did not, and five days after the spawn a few fry could be seen among the plant roots and strands of algae. After they were swimming for two days, they were given micro worms. I had only seen a few youngsters at a time at this point, and was curious as to how many there may have been. When it finally got the best of me, I reached in and pulled the stone from the bottom of the tank to see what was under it. This may not have been my best idea. I spent the next twenty minutes or so finding a place to set it back down without crushing baby catfish. As soon as I had taken the stone off the floor of the tank, an avalanche of fry fell from the plant roots and leaves.

After that lesson, I left them alone, save for water changes and feeding. Water changes were done twice weekly, at a rate of 25 percent, and feedings were twice daily and restricted to micro worms and newly hatched brine shrimp. With this schedule, the fry grew steadily, though not very quickly.

At one month of age the youngsters could be seen a lot of the time, searching for food and coming to the surface for a gulp of air. They were ?" by this time and starting to show some of the characteristics of the parents. Some flake food was added to their diet about this time and they took to it with gusto.

By the time the young were two months old, they were something to see. They were ¾" in length and their tails had grown disproportionately to the rest of their bodies. It seemed to be twice the size it should have been. On top of that, the whole of their tails was jet black. The effect on the observer was comparable to that of a puppy with too-big feet. They were eating much the same foods as the parents at this time and were out in the current most of the time.

At this writing the fish are three months old and have lost their oversized tails. They are still quite pleasing to look at, much like the adults in appearance. The adults and fry are now housed in the same tank, and it gets harder all the time to tell them apart.



Line drawing by PVAS member Gene Moy

Industry Supporters

The following manufacturers contributed to PVAS auctions in 2000:

Aquarium Pharmaceuticals, Inc.
Aquarium Systems
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Hikari Sales USA
Jungle Laboratories Corp.
Marineland Aquarium Products
Novalek
Omega One
OSI Marine Lab., Inc.
Penn Plax, Inc.
St. Jon Group (parent of Mardel Labs)
Tetra
TFH Publications

Trading Post

For Sale: Plastic fish bags and back issues of aquarium magazines, many different titles. Send SASE for catalog to John Mangan, 12633 Oakwood Dr., Woodbridge, VA 22192.

Your Ad Here: PVAS members may place an ad in the *Delta Tale* for free. Simply e-mail your notice to delta@pvas.com and it will be included in the next issue.

PVAS distributed a flier last year that inadvertently included information on "New Tank Syndrome" and "Adding New Fish To Your Aquarium" that was written by Ken and Andrew at Totally Fish.

PVAS sincerely apologizes for this mistake and values their patience. Ken, Andrew and the rest of the employees at Totally Fish have always been extremely supportive of PVAS; we appreciate their continued support and their ongoing effort to help people keep healthy fish.

Supporting Shops

The following local shops have donated to PVAS auctions or assisted in distributing the *Delta Tale*:

Centreville Aquarium
13830-15 Lee Hwy
Centreville, VA 20120
Phone: (703) 266-2100

Congressional Aquarium
142 Congressional Lane
Rockville, MD
Phone: (301) 881-6182

Noah's Ark
29 East Jackson Street
Front Royal, VA
(540) 622-2899

One Stop Pet & Aquarium
1321 Rockville Pike
Rockville, MD
Phone: (301) 309-9110

Pets World Incorporated
13633 Dumfries Road
Manassas, VA
(703) 791-5565

Totally Fish
14332 Layhill Road
Silver Spring, MD 20906
Phone: (301) 598-2229
www.totallyfish.com

Tropical Fish World
Walnut Hill Shopping Center
Gaithersburg, MD 20877
Phone: (301) 921-0000
www.tropicalfishworld.com

Tropical Lagoon
9439 Georgia Avenue
Silver Spring, MD
(301) 585-6562

Wally's Aquarium
6493 Little River Turnpike
Alexandria, VA
Phone: (703) 354-3399

POTOMAC VALLEY AQUARIUM SOCIETY
Post Office Box 664, Merrifield, VA 22116

Application for Membership

Date: _____

Name: _____

Street: _____ Apt.: _____

City: _____ State: _____ Zip: _____

Telephone: _____

Optional information

Occupation: _____

Where did you hear about PVAS/get this application?

Number of aquariums: _____ Time in the hobby: _____

Special interests: (e.g., catfish, cichlids, etc.)

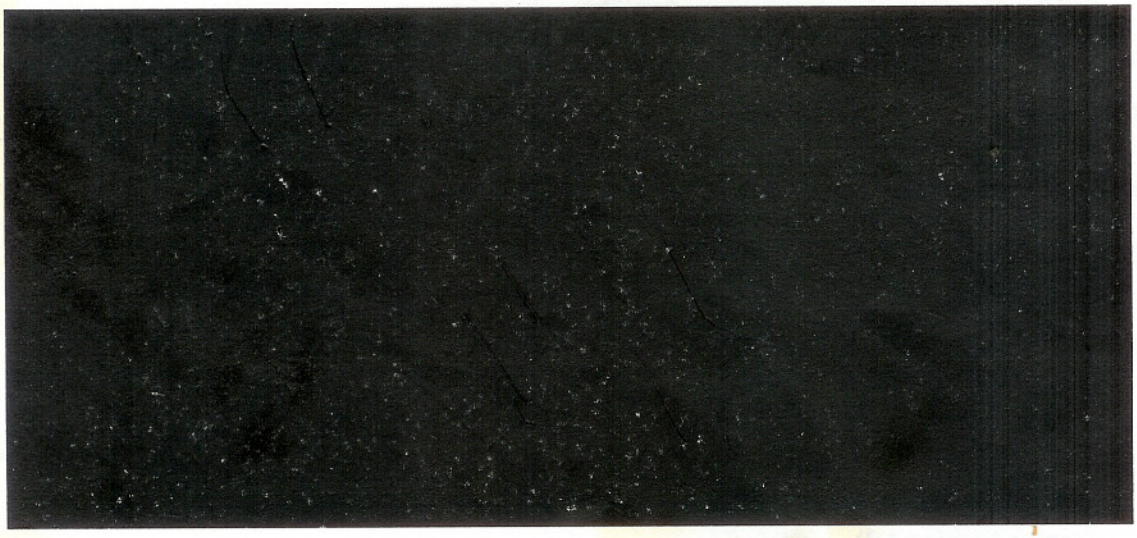
Reason for joining:

Membership dues for PVAS are:

Individual/Family:	$12/yr
Corresponding:	$9/yr
Junior (under 18)	$5/yr

Please send application and check to the address above. Renewals are due in January; at other times of the year, dues will be prorated.

POTOMAC VALLEY AQUARIUM SOCIETY
P.O. Box 664
Merrifield, VA 22116-0664



MEETINGS:are held at the John C. Wood Facility, 3730 Old Lee Highway (Route 237), Fairfax City, VA. We meet in Room 6, which is located behind the police station. Doors open at 7:30 and meetings start at 8:00 p.m.—EVERYONE IS WELCOME!