AQUATICA

THE ON-LINE JOURNAL OF THE BROOKLYN AQUARIUM SOCIETY
VOL. 28 SEPTEMBER ~ OCTOBER 2014 No. 1

Paratilapia polleni Pollen's cichlid 3rd place winner
Judith Weinberg's entry in the 39th NEC Convention fish show

Photo: **John Todaro**

103 Years of Educating Aquarists

AQUATICA

VOL. 28 SEPTEMBER - OCTOBER 2014 NO. 1

Contents

PAGE 2 THE *AQUATICA* STAFF

PAGE 3 CALENDAR OF EVENTS
BAS Events for the years 2014 - 2015.

PAGE 4 BAS 2014 PHOTO CONTEST.
The rules for our second photo contest. Take your best shot and send it in...you may be a winner.
BAS Board

PAGE 5 ONE-OF-A-KIND. Learn more about the Butterflyfish which is the only species in the genus *Pantodon.*
JOHN TODARO, BAS

PAGE 7 SPECIES PROFILE. The Butterflyfish, *Pantodon buchholzi.*
JOHN TODARO, BAS

PAGE 8 WHAT IS THE BEST WAY TO "CYCLE" A REEF TANK? Directions on how to cycle a reef tank.
ROBERT M. METELSKY

PAGE 9 THE ORIGINAL CICHLID. Personal experiences with breeding *Cichlasoma facetum.*
ANTHONY P. KROEGER, BAS

PAGE 11 MADAGASCAR'S BLACK BEAUTY. A report on the Polleni Cichlid. This is an endangered African cichlid.
JOHN TODARO, BAS

PAGE 14 SPECIES PROFILE. Polleni Cichlid, *Paratilapia polleni.*
JOHN TODARO, BAS

PAGE 15 THE PRACTICAL PLANT. Propagating *Didiplis diandria,* a stem plant native to North America and rather easy to grow.
IZZY ZWERIN, BAS

PAGE 16 HOBBY HAPPENINGS. More adventures in fish keeping and breeding by master breeder Larry Jinks.
LARRY JINKS, RAS, BAS, NJAS

Page 18 SUITABLE AQUARIUM BLENNIES. Information on the care and needs of blennies and what they need in your reef tank.
GERALD JENNINGS & JERRY HALL

PAGE 21 AN EXPERIENCE WITH WHIPTAIL CATFISH OF THE GENUS *RINELORICARIA.* Ian's experience with breeding this interesting species of catfish.
IAN FULLER, BAS

PAGE 24 SPECIES PROFILE. The Whiptail catfish, *Rineloricaria hasemani.*
JOHN TODARO, BAS

PAGE 25 CATFISH CONNECTIONS. Introducing a new column for you catfish enthusiasts.
SY ANGELICUS, BAS

PAGE 26 SPECIES PROFILE. Angelicus catfish, *Synodontis angelicus.*
JOHN TODARO, BAS

PAGE 26 SPECIES PROFILE. The Checkerboard barb, *Puntius oligolepis.*
JOHN TODARO, BAS

PAGE 27 MARINE AQUARIUM DO'S & DON'TS FOR BEGINNERS. Basic information on keeping a marine aquarium that could save you a lot of time, money and disappointment.
DOUG KAMP, aquariumsonline.com.au

PAGE 30 THE EVOLUTION OF CICHLIDS. If you have ever wondered how cichlids got to where they are...read this article and learn about their history.
SABINE WILKINS, Cichlid Society of NSW Australia

PAGE 35 BAS SPOTLIGHT. A review of Petqua in Manhattan, a pet store that has contributed to our auctions for years.
BILL AMELY, BAS

PAGE 36 SUPPORT OUR SPONSORS. THEY SUPPORT US. WE MUST SUPPORT THEM.

PAGE 38 SPONSORS ADS.

PAGE 39 MEMBERSHIP APPLICATION.

AQUATICA STAFF

Editor:	**John Todaro**
Associate Designer:	**Ginny Cahill**
Copy Editor:	**Kay Martin**
Freshwater Shrimp Editor:	**Brad Kemp**
Catfish Editor:	**Sy Angelius**
Marine Editor:	**Open**
Plant Editor:	**Izzy Zwerin**
Illustrations:	**John Todaro**
	Chris Giam
	Julia Noonan
	Shelly Sacks

Contributing Writers:
Bill Amely
Sy Angelius
Ian Fuller
Terry Hall
Gerald Jennings
Larry Jinks
Doug Kemp
Anthony Kroeger
Robert M. Metelsky
Michelle Stuart
John Todaro
Sabine Wilkins
Izzy Zwerin

Note: The Editor takes full responsibility for misspellings and punctuation errors.

AQUATICA is published on line bi-monthly (except July/August) by BAS. **Original articles** may be reprinted by other non-profit organizations, provided proper credit is given to the author and ***AQUATICA***, and two copies are sent to the Exchange Editor. Transcriptions of lectures may not be reprinted without written permission of both Editor and the Speaker. A notice of where original ***AQUATICA*** articles have been published should be sent to the **BAS Exchange Editor; Stu Hershkowitz,** P.O. Box 290610, Bklyn, NY 11229-0111
AQUATICA will exchange publications with all interested societies. If we do not receive your publications for three consecutive months, we will assume you no longer wish to exchange and your club may be removed from our mailing list.

ALL CORRESPONDENCE CONCERNING THIS PUBLICATION SHOULD BE SENT TO:

• Editor: **John Todaro, 247 Middletown Road, South Londonderry VT, 05155 - Phone: 802 824-3743**
Fax: Same. You can submit articles to the Editor by mail, fax, or E-mail to: JTODDYBAS@AOL.COM.

The **Brooklyn Aquarium Society Inc.** is a non-profit organization 501(c) (3) for people interested in the aquarium hobby and the study of aquatic life. The Society meets the 2nd Friday of each month except July and August at the Education Hall of the New York Aquarium at Coney Island, Surf Avenue at West 8th St., at 7:30 PM. Meetings are open to visitors. Refreshments are served. Membership is $25 per year family/$20 individual/$15 for students under 14. Send inquiries or membership checks payable to:
Brooklyn Aquarium Society, c/o Membership Chairperson, P.O. Box 290610, Brooklyn, NY 11229-0011.

Brooklyn Aquarium Society Board of Directors

Officers

President:
Joseph Graffagino
1st Vice President:
Steve Matassa
2nd Vice President:
Marie Licciardello
Treasurer:
Denise Hershkowitz
Corresponding Secretary:
Dan Smith
Exchange Editor:
Stuart Hershkowitz
Membership Chairperson:
Christina Cingari
Sergeant-at-Arms:
Lita Goldberg
Recording Secretary:
Kay Martin
Web Master:
Bernard Deren
Editor:
John Todaro

Board Members

Bill Amely
John Fox
Marty Karfinkel
Gennady (Gene) Kogan
Tomasz Lis
David Manuel
Dr. Robert M. Price
Alfred Turrisi

Brooklyn Aquarium Society

Calendar of Events ~ 2014-2015

SEPT 12 Greg Sullivan ~ Saltwater for the Squeamish ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.
OCT 10 Giant Fall Auction ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods, including a 55 gallon tank & stand.
NOV 14 James Fatherree ~ Reef Basics ~ Marine fish,aqua-cultured corals, freshwater fish, plants & dry goods auction.
DEC 12 Holiday Party ~ Members, their families and friends, all you can eat sit-down dinner • Fish Bingo & Prizes • BAS awards presentations.

2015

JAN 9 TBA Freshwater ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.
FEB 13 Joe Yaiullo - Marine TBD ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.
MAR 13 Discus Hans - Discus ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.
APR 10 Todd C. LaJeunesse - The Intriguing Evolution of Palau Corals ~Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.
MAY 8 Giant Spring Auction ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods including a 55 gal. tank & stand.
JUN 12 TBA ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

JULY/AUGUST – NO MEETINGS

SEPT 11 TBA ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.
OCT 9 Giant Fall Auction ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods, including a 55 gallon tank & stand.
NOV 13 TBA ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.
DEC 11 Holiday Party ~ Members, their families and friends, all you can eat sit-down dinner • Fish Bingo & Prizes • BAS awards presentations.

BAS 2014 PHOTO CONTEST

OFFICIAL RULES

NO PURCHASE OR PAYMENT NECESSARY TO ENTER OR WIN

HOW TO ENTER:

The 2nd Brooklyn Aquarium Society Photo Contest will be announced Friday May 9th 2014 at the monthly Society's meeting, All entries will be accepted until Sunday October 13th, 2014. The results of the Contest will be announced on November 14th, 2014 at the Society's monthly meeting, as well as the awards ceremony. Digital photos must be submitted to basnyphotocontest.weebly.com in JPEG format. Photos submitted must be 6MP or greater. As a condition of registration, you will be required to fill out all spaces marked with an asterisk (*) to signify that you accept and agree to be bound by these Official Rules. With each submission, articipants must include the following:

1) Name of Photographer.
2) Phone Number.
3) Email.
4) Screen name under which they wish to appear.
5) Category in which photo is to be entered.
6) Scientific and Common Name of Subject in Photo.

CATEGORIES:

FRESH WATER

Best Aquascape
Best Nano Aquarium (2 ½ - 10 gallons)
Best Med-sized aquarium (12 - 40 gallons)
Best Large aquarium (50 + gallons)
Spectacular Freshwater Fish
Most Fabulous Plant
Most Amazing Freshwater Invert
Best Freshwater Photo (any category)
Awesome Ponds
Best Fully Aquatic Creature in Their Environment

SALT WATER

Best Aquascape
Nano Aquarium (2 1/2 -10 gallons)
Best Med-sized aquarium (12 - 40 gallons)
Best Large aquarium (50 + gallons)
Spectacular Saltwater Fish
Most Breathtaking Coral Reefs
Most Amazing Saltwater Invert
Best Saltwater Photo (any category)
Best Fully Aquatic Creature in Their Environment

PHOTO ELIGIBILITY:

To enter, you must be a member of the Brooklyn Aquarium Society in good standing or an active (at least 5 posts in the prior 3 months) member of the BAS Forum. No age restrictions. BAS judging individuals and their immediate family are not eligible. Entries that fail to comply with the Official Contest Rules will be disqualified.

IMAGE MODIFICATIONS:

Minor digital enhancement is permitted, but images that have been significantly modified or appear unnatural will be disqualified.

NUMBER OF ENTRIES:

An individual may submit a maximum of three (3) photos per category.

PHOTO SUBJECT RESTRICTIONS:

Photos must be appropriate for category entered. Photos unrelated to the contest or of questionable content will not be considered. BAS retains sole discretion as to what constitutes appropriate content. Photos must not contain people or other objects other than the subject for the category entered.

DEADLINE:

Contest ends midnight Sunday October 19th, 2014. Any late entries will not be considered.

PRIZES:

Prizes for each category to be announced during the September 12th, 2014 BAS meeting, on the basnyphotocontest.weebly.com site, on the BROOKLYN AQUARIUM SOCIETY Facebook page, and on our web site (WWW.BROOKLYNAQUARIUMSOCIETY.ORG). No substitution or transfer of prize permitted by winner. Sponsors reserve the right to substitute prize of equal or greater value.

JUDGING:

Entries will be judged on the basis of overall photographic quality, showing clarity and effectiveness in conveying the beauty and/or unique character of the object in their respective categories. A panel of judges consisting of representatives of the Contest's sponsors as well as members of the BAS Board will judge the entries and all contest decisions are final.

WINNERS:

The judging panel will select 19 winning entries (one per category). Winners and all prizes will be announced and presented during the BAS November 14th, 2014 meeting. For any winner not able to attend the meeting, the prize will be kept at BAS until the December 12th, 2014 meeting. If the winner/s fails to collect the prize as mentioned earlier, the prize/s will be mailed to the contestant.

PHOTOGRAPHER/COPYRIGHT:

Entries must be submitted by the original photographer. Do not submit a photo taken by someone other than yourself. You must be the sole owner of the image submitted. By submitting your photo, you guarantee that you are the author and copyright holder of the photo. By submitting, the contestant waives all rights upon submission and therefore has no recourse whatsoever in the use of the photo. Winner agrees by submitting photos for consideration that they may be used by the sponsors of our contest who donate the prizes, in their advertising or other promotional efforts at no additional remuneration. Winning entries will be published in BAS publications and on our Web site.

ADDITIONAL TERMS AND CONDITIONS:

BAS is not responsible for computer system, hardware, software, or program malfunctions or other errors, failures, or delayed computer transactions or network connections that are human or technical in nature. Furthermore, BAS is not responsible for: (i) lost, misdirected, misplaced, illegible, unintelligible, incomplete, or late entries or (ii) any act, failure to act, or delay regarding the transmitting or processing of entries. BAS reserves the right, in its sole discretion, to cancel or suspend all or any portion of this contest without notice. BAS is entitled to interpret these rules as needed and its decisions are final. BAS reserves the right to disqualify any entrant that BAS has reason to believe is not the original work of entrant, or does not otherwise meet the contest rules.

John Todaro - BAS

ONE-OF-A-KIND

The Butterflyfish, *Pantodon buchholzi* is the only species in the genus and the genus *Pantodon* is the only one in the family *Pantodontidae*.

The Butterfly fish is a one-of-a-kind fish in appearance. The upturned mouth tells us it's a surface feeder and the size of the mouth tells us it will eat more than just insects that land on the surface of the water. Small fish that venture too near the surface may also be snapped up.

Their large pectoral fins resemble butterfly wings and help the fish glide short distances out of the water to hunt low flying insects and to escape predators.

The Butterflyfish is a dull yellow with brown speckles along its sides with a faint horizonal line along its sides. They live in slow-flowing pools of water and spend most of their time at the surface almost motionless, waiting for unsuspecting insects and small fish to pass by.

If you intend to keep these fish, keep them with fish that prefer middle or bottom areas to live in, as Butterflyfish are intolerant of surface dwelling fish and they could likely become a meal for your Butterflyfish.

Personally, I would recommend a species tank for them. It does best in a shallow tank, maybe a 30 with a water level of between 6 or 8 inches. To make the fish feel safe, it's important that there be floating plants in the tank.

Try to keep some of the surface area open for them to swim and feed from. You will see why this is important later. Also very important; keep the tank tightly covered...remember these fish are flyers and you don't want them flying to the floor of your fishroom or living room.

Butterflyfish do best in slightly soft to medium hard water that is slightly acid. A pH of about 6.5 and a hardness of 10°dGH would be good.

This oddball fish is not often tank bred successfully, but if you want to give it a try, here are some tips that may help you succeed.

Keep a group of Butterflyfish of about 6 to 8 fish in a planted 30 gallon tank and wait for them to pair off.

When you think you have a pair, remove the other Butterflyfish and start a heavy feeding program with the pair left in the tank.

Feed a variety of live foods, fruit flies, chopped earth worms, blood worms, and best of all, mosquito larva. Butterflyfish will also accept dry flake foods.

(**Editors Note:** You can breed mosquitos in a bucket of still water left outside in the spring and early summer. Take care, you don't want the mosquito larva to hatch. Once you see larva in the bucket, it would be prudent to cover the bucket with fine netting. You can catch the larva with a small brine shrimp net and place them in a plastic container. To feed the larva to your fish, use a baster to suck up the larva and feed the fish by gently squeezing the bulb to release a few larva at a time - making sure that all the released larva are snapped up by the fish. You don't want larva escaping and hiding among the plants and metamorphizing into mosquitos and flying around your house and making a meal of you!

Spawning

When spawning, the fish will coil around each other and release up to half a dozen eggs at a time. The eggs will float to the surface. The fish will spawn repeatedly, dropping up to 80 to 200 eggs. The eggs should be scooped out with a large spoon or sucked up with a baster and placed in a tank filled with water from the parents tank with a water temperature of 78˚ to 80˚.

At these temperatures, the fry should hatch out in about 36 hours. Keep in mind that when the eggs are first laid, they are transparent, but within 8 to 10 hours turn dark brown to black.

Now your work starts

The young are hard to raise. They need live foods, small enough for them to eat such as live brine shrip *nauplii,* microworms, vinegar eels or any really small live food. Keep the water level at about 2 inches.The reason for this is to keep the fry and the brine shrimp *nauplii* as close together as possible to each other. The fry do not chase the brine shrimp, but snap up only those shrimp that swim past them at the surface.

One trick to keep the brine shrimp at the surface is to have a small light bulb (25 watts) above the surface of the water. The light will attract the brine shrimp *nauplii,* since they are photosensitive and will concentrate at the water surface where they will be more likely found by the fry and eaten.

It would be a good idea to paint the outside of the bottom glass black and keep the sides of the tank covered with stripes of black poster board up to the level of the water which should be 2 inches. This way the only light is coming from the top of the tank. Make sure the light bulb does not heat up the water and kill the fish. Also keep the tank covered. Not to keep the fry from jumping out, but to keep the moisture in.

Clear plastic shoe boxes, I think, are perfect for raising fry and they can be purchased at any Kmart or Walmart for less than a couple of bucks each.

SPECIES PROFILE

Scientific Name: *Pantodon buchholzi*
Family: *Pantodontidae*
Common Name: Butterflyfish
Origin: West Africa; Nigeria, Cameroons, Zaire.
Distribution: Found in small ponds with slow moving water.
pH Range: 6.5 - 7.5
Temperature Range: 75˚ - 82˚F
Breeding Temperature: around 82˚F and soft water, a pH of 6.5, 10° dGH,
Life Span: 5 years or longer.
Size: up to 4 inch.
Temperament: Peaceful.
Diet: Omnivore, but should be feed a diet of live fruit flies and other live foods They will accept floating flake foods.
Sexing: Difficult to tell. Females will be rounder.
Breeding: The hardest part of breeding *Pantodon buchholzi* (Freshwater butterflyfish) is raising the fry, as they only accept live food found at the surface. Set up a breeding aquarium with a pair of *Pantodon buchholzi* (Freshwater butterflyfish) and lots of floating plants. Lower the pH level (6.5) and raise the temperature (around 82˚ F). Give the pair lots of live foods. The spawning spans over several days and once it's completed, it's recommended to remove the pair or the eggs.
Remarks: The ideal set-up for the African Butterfly is an aquarium of at least 30 gallons with plenty of plants that reach near the surface that this fish can use for cover. They can handle a wide range of temperatures up into the mid 80's. These fish can jump out of the water, and can even glide short distances. It is therefore very important to have a tight fitting top on the aquarium to stop the fish from jumping out.

Reference:

- **LiveAquaria.com**
- **Aquaticcommunity.com**
- ***The Encyclopedia of Freshwater Tropical Fishes,*** 5th Expanded Edition, H. Axelrod, C. Emmens, W. Burgess, N. Pronek. G. Axelrod, TFH, 1996.
- ***The Encyclopedia Tropical Aquarium Fish,*** Dick Mills, Dr. Gwynne Vevers, Cresent Books, 1986.
- ***Exotic Aquarium Fishes,*** W. T. Innes, Innes Publishing Co. 1953
- ***Aquarium Atlas***, Dr. Rudiger Riehl, Hans Baensch, Baensch, 1982.

Robert M. Metelsky
Author of the book *Simplified Reefkeeping*, 3rd ed. available at simplifiedreefkeeping.com Aquarticles

What is the best way to "CYCLE" a Reef Tank?

CYCLE THE TANK WITH LIVE ROCK ONLY

Step 1. Purchase all (or if your budget is low at the time, get at least 1/2) of the live rock you will use, and proceed to step 2. When ready, get the second 1/2 of the rock.

Step 2. When all the live rock is in the tank, test for ammonia and nitrite. You need to get a zero reading, which could take 2 to 6 weeks, depending on the amount of die-off on the rock. Do not proceed to step 3 until steps 1 and 2 are complete.

Step 3. Begin to add inverts (clams, shrimp, starfish, crabs, snails). Add a few at a time, checking ammonia and nitrite. After all inverts are added, and the test results for ammonia and nitrite are zero, proceed to add your corals, a few at a time. Continue to test for ammonia and nitrite until all your corals are added. When the readings are at zero (this will usually take about 2 weeks, possibly longer), proceed to add the fish in the same manner as above, until all the fish have been added. Cycling the tank with live rock is the simplest, most trouble-free way to start a reef tank.

Step 4. When the test results read zero, and you begin to test and record nitrate, your tank is completely cycled. When you cycle this way, the live rock does most of the conditioning. This is the way to start your system. It is definitely the safest procedure, because it is hard to know how much die-off the live rock has on it. This way you won't endanger the valuable, delicate specimens you will add later. Remember, only bad things happen fast. You will need to exercise patience, resisting the impulse to do things in reverse. Remember: live rock first, inverts second, corals third, and fish last. You are now up and running. This will take about 2 to 6 weeks, possibly longer.

Once all the rock is in the tank, the cycling of the water will begin. In approximately three days, there should be a measurable amount of ammonia. Test and record the ammonia at this time. Continue to test and record it at three to four-day intervals. The reading will rise and rise, until one day it will drop off and be zero. At that time, begin to test for nitrite.

The nitrite cycle is very similar to the ammonia cycle, so use the same procedure as described for ammonia. Do not become alarmed with the test results! This is the cycling process, and the tank will balance out! As long as you do not have any fish, inverts or coral in the tank, you have nothing to worry about. Be patient, let nature take its course, and the tank will cycle.

When the nitrite test reads zero, you should begin to test for nitrate. You will get only very faint nitrate readings, because the tank is now balanced and has virtually no bio-load (waste products from fish, invertebrates, etc.).

When the bacteria "catch up" (multiply to process the waste in the tank), you will get zero readings of ammonia and nitrite The tank has now had its first and largest cycle. When you add more livestock, this will increase the waste load, and the bacteria will have to multiply and catch up with the increased load. You will get mini-cycles of ammonia and nitrite when you add livestock. These small cycles will be insignificant as long as you don't add too many creatures at once. Begin by adding inverts, two to three at a time, until they are all in. Do the same with the corals (possibly slower because of the cost). Test for ammonia and nitrite a few days after each addition. If the test results are zero, proceed to add creatures as described until all inverts and corals are added. Give them a week or so to acclimate. Test for ammonia and nitrite. When they register zero, and the inverts and corals appear to be well adjusted, you are ready to add fish in the same manner as described.

THE ORIGINAL CICHLID

One of my favorite cichlids is the oldest one in the hobby. That cichlid is the *Chanchito*. Originally it was called *Cichlasoma facetum*. It is currently undergoing taxinomy revision and multiple species (8 so far) are now involved.

This fish is native to southern Brazil, Paraguay and Uruguay. It is a very hardy and easy fish to breed. They will grow to about 6 to 8 inches. Water conditions are not critical. They do like a temperature between 75˚ and 80˚F. I raise that to 82˚F for breeding. All species require similar care.

The fish are colored bronze/green with irregular black marking and banding. The eyes, dorsal, and caudal fin edges are red. At breeding time, the female becomes bright yellow with the black colors becoming deeper. Her fins become coal black and both fish get fire engine red eyes. The male also becomes almost black during breeding. In typical cichlid fashion, the males have a longer and pointed dorsal fin, the females' is rounded.

These fish avidly defend their territory, but are no more pugnacious than similar sized cichlids. They shred plants, so forget about a planted tank with these fish. *Chanchitos* eat all standard fare. They like spinach. They are heavy feeders and conditioned well, they will give you larger spawns.

I condition mine with live earthworms,

and plain oatmeal cookies (don't laugh! They like them as much as I do), spinach and frozen bloodworms.

I was given my first pair of *Chanchito*, but normally it is best to raise 6 or so young together to get a pair. My pair spawned every 30 days when kept at 82˚F. I conditioned them for 2 weeks prior to spawning.

A lot of jaw locking,fin spreading, tail slapping and pit digging accompanied spawning. Both parents helped to clean the spawning site. The pits were later used for the fry. *Chanchitos* seem to prefer terra cotta colored spawning sites. Mine spawned in 10" flower pots laid on their sides and on red sand stones.

They never spawned on black slate or in any black caves. In fact, they would not even dig a pit near a black stone.

Spawns are large. A good pair can easily provide 300 to 500 fry. The parents are especially protective and they will give you a surprisingly hard bite or nip if you put your fingers in the tank when they are guarding their fry. These fish are not afraid of you!

The eggs will hatch in about 6 to 8 days. The fry are then moved to a different pit every day and are well guarded by the parents. The fry will remain in the pits for about 5 days, depending upon the temperature.

Once they are free swimming, feed them brine shrimp *nauplii*. Soon after that, they can be fed crushed flake food. Their growth is rapid if feed well.

When the fry are free swimming, they hover around the parents whose color is now especially intense. I have seen fry graze off the parents, such as discus fry do, but I don't know if they were really feeding off the parents or not, although I suspect they were. Raising the fry is not difficult. I removed the parents 10 days after the fry were free swimming.

These fish do recognize their owners and will interact like Oscars do. They will always swim up and greet you.

Chanchitos are not commonly seen anymore, having been replaced by newer species. But if you see some they are well worth obtaining, or ask you fish store to order some for you. You'll not find a better example of cichlid behavior and fry care.

The original cichlid is just as fine as ever. Enjoy!

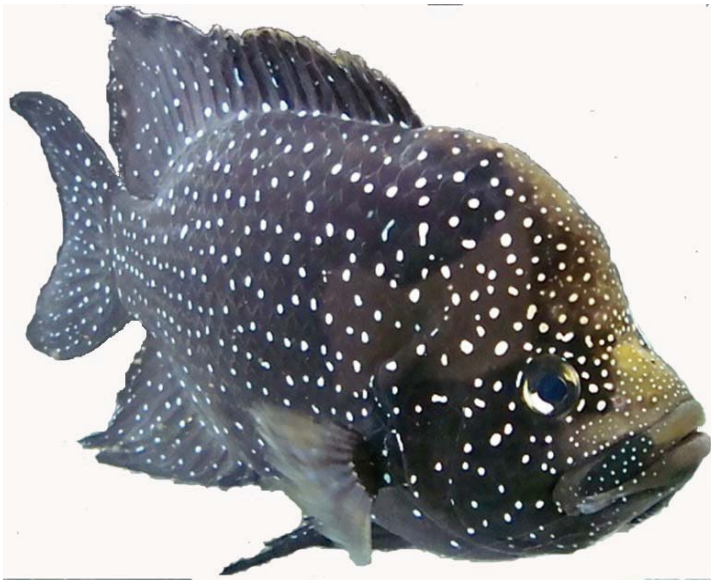
Tony

Photo: **Ronaldo Higet**

John Todaro - BAS

MADAGASCAR'S BLACK BEAUTY

A strikingly beautiful fish that is sometimes referred to by the common names Polleni Cichlid and Black Diamond Cichlid. It is the most popular of all Madagascar cichlids. P. polleni has an outgoing personality, similar to the Oscar. There is still much to be discovered about this fish and its closely related kin. There are four other Paratilapia that have been informally described. It has been proposed that these fish are different species and not regional variants. P. polleni has large spots. It is an endangered species.



Paratilapia polleni is a laterally compressed full-bodied fish. Like most cichlids, it resembles a perch-type fish in shape, hence the taxonomic designation perciformes - 'perch-like.' Males in captivity will develop a nuchal hump, a layer of fat above the eyes, though not to the same degree as other similar African cichlids, such as the *Cyphotilapia frontosa* and *Tilapias* of Africa. Adult *P. polleni,* and sub-adult dominant individuals are jet black in color, covered with brilliant iridescent white spots; the eye is a bright yellow. Male *P. polleni* can reach up to 11 inches, females usually half that size.

Sexing individuals becomes easier as they mature. In addition, males tend to have longer and sharper pelvic fins, and the edge of the dorsal and anal fins are often straighter in males, and more 'rounded' in females. Among aquarists it is often said that the females, though smaller are more beautiful in their coloration and patterning. There are two color varieties of the *P. polleni* the 'large spot' and the 'small spot.' Our cover photo is if the small spot variety.

As usual, adults display strong coloration during courtship and spawning. Among cichlid enthusiasts, there is some confusion as to the names of these two varieties, with large spot individuals sometimes being erroneously referred to by the junior synonym *P. bleekeri.* Juveniles with a length of less than 1 inch are usually dull brown.

In the wild, *P. polleni* inhabits a number of rivers and associated streams in northern Madagascar, including the environs of the town of Andapa, where most individuals exported for the aquarium trade in recent years were collected.

P. polleni is an omnivorous fish and occasional opportunistic piscivore, approaching smaller unsuspecting fish by stealth, with their dark color giving them an advantage. They will sneak up on smaller fish from below during the pre-dawn hours and suck the smaller fish into their mouths using the typical cichlid 'suction effect' caused by quickly opening their mouths. Thus, using stealth, they are able to prey on fish they would otherwise not be able to catch. In Madagascar, *P. polleni* is a food fish, and like many cichlid fishes in many regions, reputed to have a good flavor.

P. polleni are temperature and pH tolerant. They are reasonably hardy and rarely shy. As such, this fish is an ideal aquarium resident if given the appropriate environment and tank mates, considering the large size it can grow to become. As for diet, they eat most commercial fish foods, such as flakes, pellets, frozen foods, and alike. They are highly proficient at capturing live foods as well.

P. polleni displays the same kind of 'intelligent' behavior attributed to "Oscars," *Astronotus ocellatus.* They can be trained to eat from the hand and will recognize the approach their owner.

P. polleni are more cautious and easily spooked than many of the more readily available cichlids, but otherwise they adapt easily to aquarium life.

They can be aggressive towards conspecifics, especially if a male/female bond develops. The pair bond between males and females is sporadic and easily broken. If this happens, the female can become imperiled by the male's aggression and either he or the female should be removed from the tank. Despite their good qualities, *P. polleni* is not well known in the aquarium trade, though this is beginning to change. If they display full coloration, non-dominant and sub-dominant individuals of any size will often suffer aggression from the alpha individual(s). For this reason, you

Paratilapia polleni

should generally keep only one or two individuals in an aquarium with many other like sized fish. These traits may contribute to the relative obscurity of *P. polleni* in the hobby. I would think it best if they were kept in their own species tank of no less than 55 gallons, with lots of plants and hiding places.

They have been known to kill tank mates upon reaching maturity. *P. polleni* generally tolerates tankmates too large to eat. Successful aquarium spawnings are common. There have been reports of *P. polleni* living with other cichlids as they are not that aggressive; however, they are best kept with other fish and cichlids about the same size.

Breeding

Prior to spawning the male will darken considerably and dig a large pit in the substrate. The female will deposit her eggs in the pit.

Between 48 and 60 hours later the fry should hatch. The parents will care for the brood and may move them around the tank. Once the fry are free swimming, they can be fed on newly hatched brine shrimp *napplii*. It might be prudent to remove the fry to a grow out tank.

John

References:
Wikipedia.com.
Aquarium Atlas, Vol. 4 Baensch,

SPECIES PROFILE

Scientific Name: *Paratilapia polleni*
Family: *Cichlidae*
Common Name: Polleni Cichlid (small spot)
Origin: Northern and central Madagascar.
Distribution: Rivers and streams.
pH Range: 8.0 - 8.5
Temperature Range: 80˚F
Water Hardness: Soft.
Breeding Temperature: Around 82˚F and soft water, a pH of 6.5, 10° dGH.
Life Span: 5 to 8 years.
Size: up to 10 inches.
Temperament: Mildly aggressive.
Diet: Omnivorous feeders, but they are opportunistic feeders and will eat smaller fish. Earthworms are readily accepted. Best to keep them with larger fish or fish their size.
Sexing: Males are usually larger with more pointed fins and often lack the vivid color of females. The male's genital papillae is long and pointed, while the female is shorter, thicker.
Breeding: Reference: A spawning pair will clean a rock or driftwood as a spawning site. A flower pot would make a good spawning site. Their eggs are non-adhesive and formed with a long filament at one end.

After spawning, the female will weave these filaments together until the eggs form a mass, like a bunch of grapes. This moves around freely, hence the need for the flower pot. Usually they have no more than 500 eggs per spawning. These are mouthed by the parents and often moved to different sites.

They can be egg eaters, especially if sharing their tank with other fish.

The eggs hatch in 60 hours and are guarded by the parents. After a few days they become free swimming and take brine shrimp and commercial fry food.

The fry grow slowly, taking a couple of months to reach about 1 inch. The fry will be cannibalistic and prey on their smaller brothers and sisters. Separating them by size would help stop this, especially as the females can be identified quite early because of their smaller size.

The Practical Plant

PROPAGATING

Didiplis diandria

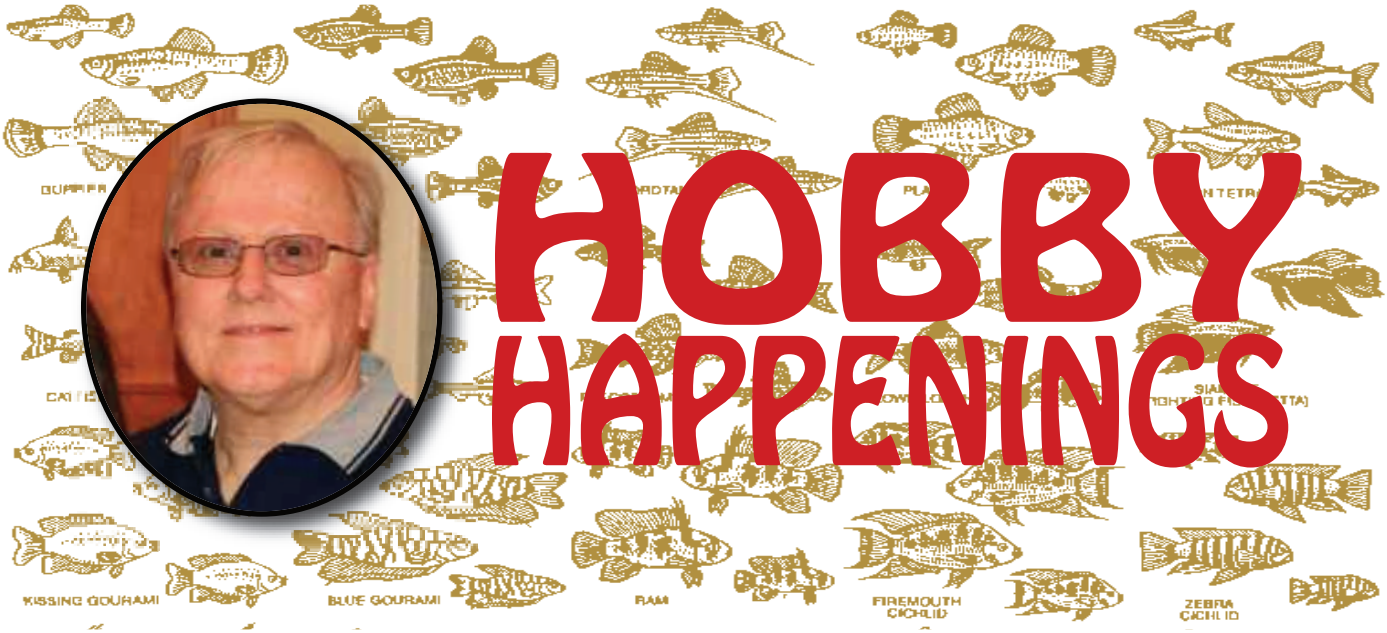
Didiplis diandria is a stem plant. It can grow fairly tall, but is tolerant of pruning so it can be kept as a midground plant. With regular pruning, the plant can get fairly bushy. The plant is not a fast grower by stem plant standards. This is the only member of this genus native to North America. It likes a well lit aquarium, but the light does not need to be very intense. The plant is basically a light green, but grown with sufficient light the plant will start to take on reddish tones, especially the vegetative tip. The plant will regularly develop tiny dark reddish/brownish flowers at the base of the leaf at the stem nodes.

I keep it in a twenty gallon long. I am using Caribe Sea's "eco-Complete" as a substrate. I have a Whisper 30 hang on power filter. The aquarium is heated to 78° to keep my Tetras happy, but this plant will tolerate fairly cool water. I keep the GH about 60 (but the plant will tolerate medium hard water) and the pH is 6.8.

Since the aquarium is only 12" tall, I chose a fixture made by Coralife called the "Aqualight T-5 double." I would describe the lighting on this aquarium as the "upper" end of moderate. The system is CO_2 enriched as well. Since the bio-load in this system is fairly heavy, and many of the other plants in this tank are slow growing species (like Java Fern, *Bolbitis, Anubias* and others), I only supplement this aquarium with potassium and trace elements to deter algae growth from excess nutrients, a common problem with slow growing plants. To propagate this plant, just take some stem cuttings and insert them into the substrate.

I have seen this plant sold under the name "Bloodstar Grass." The leaves are linear about 15-25 mm long, opposite each other and arranged cross wise. The stem nodes are extremely close together, so the leaves are very dense. Overall, this is a great plant. It is attractive and versatile. It will thrive in moderate to intense lighting, soft to medium hard water and tropical to temperate temperatures are fine. The only negative criticism I have is that the plant is a little prone to extraneous roots growing on the lower stem nodes so this plant looks its best with something shorter in front of it.

Izzy



HOBBY HAPPENINGS

What a great weekend of fish, friends and fun! I spent the first weekend of June at the Tropical Fish Club of Burlington's 25th Anniversary Event. I flew into Burlington on Friday and took the shuttle to the Holiday Inn South Burlington where the event was held. Later that afternoon TFCB president, **David Banks**, accompanied by speakers **Eric Bodrock** and **Stephan Tanner**, swung past the hotel on their way home from the local brewery tour (which I missed!) to give me a ride to David and **Janine Banks**' home for the Friday night barbecue. The Banks live on the shore of Lake Champlain, which is even more beautiful in June than November when I spoke in Vermont and stayed with them (ice on the lake and daily snow flurries!). They provided plenty of food and drink and a beautiful sunset over the lake. A lot of camaraderie and fish talk among old and new friends finishing around the fire pit by the lake. I hitched a ride back to the hotel with fellow NJAS member **Steve Edie** from St. Louis and the MASI club.

Saturday morning brought the speaker programs with Eric Bodrock *"Conditioning, Spawning and Raising Freshwater Tropical Fish*", Stephan Tanner "*Breeding Plecos*" and **Rachel O'Leary** *"Freshwater Invertebrates"*, followed by a buffet deli lunch. After the break the speakers continued with **Regina Spotti** *"Girls, Pantyhose and Fishkeeping"* and Eric Bodrock *"Spawning Oddball Fish"*. The charter bus from NY-NJ arrived with club members from **North Jersey AS, Brooklyn AS** and **Jersey Shore AS** late afternoon. After the last speaker we headed for the Burlington Boathouse and a Lake Champlain dinner cruise aboard the Spirit of Ethan Allen. A very good dinner and great company enjoyed as I sat with friends from the NJ/NY clubs. After the cruise we finished up a long day with a few beers at the hotel bar during the Rangers hockey game.

Sunday morning opened with another talk by Rachel O'Leary "*Freshwater Nano Tank Diversity"* and then the auction. I was disappointed as I was flying home and I wouldn't be able to bid on

some great fish I was interested in. After the auction I was invited along with Steve Edie to the Banks' home for an informal dinner on the deck with the speakers. What a great group of people to hang out with! I told Janine that their lineup of talks may have been the best overall group I had ever seen. It was a great weekend and I flew back to NC on Monday much richer for the experience.

At the end of June I'll see Eric Bodrock and Regina again as I'll be staying at their home and seeing their respective fishrooms when I speak at the **Pittsburgh Club**. In July **Frank Nell**, **Robert Sanderford** and I will be off to the **ACA convention** in Louisville, with an opportunity to see **Rusty Wessel's** fish house again. What a whirlwind of travel, but I've also had some spawnings and will be getting BAP entries ready for the **Raleigh** and **Atlanta** auctions in September. I've got to do a water change now and catch some fish to bring to Pittsburgh. I'll keep you posted.

Larry

Photo: **Joe Graffagnino**

Gerald Jennings and **Terry Hall**
Reprinted with permission. Gerald is a Director of the Calypso Group www.calypso.org.uk, and webmaster of Ifocas, www.ifocas.fsworld.co.uk Aquarticles

Suitable Aquarium Blennies

More and more aquarists are beginning to discover the great attraction of keeping cold-water marine life, for though the colours and shapes of tropical marines are outstanding, those of our native fishes are not to be despised. In addition there is a lot to be said for learning the different techniques of managing marine aquariums with less expensive fishes which you can collect for yourself.

The blennies of our coast are excellent subjects for keeping in a cold-water marine aquarium, but do make sure that it is kept cold, for though some blennies frequent rock pools that heat up considerably between tides, they cannot stand too much heat and live far better in the cold. Use plenty of rocks and weeds for a blenny aquarium, and try to arrange an above-surface ledge of rock onto which the blenny can climb. The pectoral fins and ventral fins of some blennies are used like hands and feet for crawling about, and while this is mainly when they are in the water - and thus lighter - they are sometimes used to drag the fish onto an above-surface ledge. This is not to "sun" themselves as some folk think, for to expose themselves to the sun for any length of time would be fatal to any blenny as they must keep their gills damp. Therefore, if you do arrange a rock ledge at or above water level; be sure to drape wet seaweed

over it to form a dank cave. Inside this, your blenny will often conceal himself.

Then it is just a matter of obtaining your blenny and that, fortunately, is not at all difficult if you have access to the coast anywhere, and who hasn't nowadays? Choose a beach where there are some rock pools and a time when the tide is out. Search each pool carefully, looking under the bladder wrack where it hangs in festoons down the side of the pool. Most likely the first fish you find will be a "Shanny." This is one of the most common of our blennies for it is present all around our coast. It is an interesting fish because of the variation in its colouring and blotchy markings. In length it can be up to six inches, while the colour is greenish-yellow, darkened with blotches of black, brown, or grey. Many blennies have a small filament sprouting from just above the eyes. The Shanny does not, so this feature can be used to distinguish it from others of a similar appearance. Although the food of the Shanny is mainly small water creatures of many kinds and some fishes, it does also eat some seaweed. In captivity, it is easy to keep and soon learns to eat scraps of raw fish, pieces of mussel, and similar foods.

Butterfly Blenny, *Lipophrys ocellaris*

With a similar taste in food, the Butterfly Blenny, *Lipophrys ocellaris,* is very much harder to find, for it has now become fairly rare. Nevertheless, it may occasionally be found among thick masses of seaweed in the larger pools towards the lower tide marks. It is up to 7 inches long. This blenny is easy to recognise, for it has the first spine in its dorsal fin extended beyond the others and there is a large "eye-spot" on the dorsal composed of a round black spot surrounded by a thin white line. In addition, the Butterfly Blenny has a filament above its eves.

Montagu's Blenny, *Lipophrys montagui*

Montagu's Blenny, *Lipophrys montagui*, is a smaller fish than the first two mentioned, being only 3 inches long. This one also has the filament on the head above the eyes, but, in addition, this filament is of an orange colour and it is connected to the dorsal fin by a series of small tentacles which sometimes show clearly and at other times are hardy discernible. The Montagu's Blenny lives in the tide edge among rocky pools and seaweeds and is somewhat more colourful than the first two described. It is brownish-grey with darker bands, but over this colouring is a series of bluish-white spots. The caudal is of an orange-red colour like the filaments over the eyes. Being smaller, it is sometimes more convenient to keep in an aquarium, but always remember that all blennies have powerful jaws and teeth so that smaller living creatures are rarely safe from them. The Montagu's Blenny is inclined to skulk under rocky ledges, keeping out of sight for long periods.

Looking something like the others but a larger size, is the Tompot Blenny, *Paralipophrys gattorugine*. This reaches a length of nine inches and has acquired its name of "Tompot" because it is so often found in lobster pots which it has entered to steal the bait. It will not normally be found in rock pools because its normal haunts are in slightly deeper water among rocks. The simplest way to catch one of these is with a hoop net baited with any kind of fish, or crushed-up shore crabs. Lower this to the bottom near rocks and after five minutes haul it up very smartly.

Belonging to a slightly different group, though still with the name of blenny: *Blennius ascanii* or Yarrell's Blenny. This fish is up to 7 inches

long, and lives in similar places to the Tompot, so may also be found in lobster pots or the hoop net. In color, the Yarrell's Blenny is reddish-brown, marked with blotches of lighter and darker colors. It is a longer, more slender fish than those already described; the filament over the eyes is supplemented by smaller ones farther forward, and by quite large ones on the first spines of the dorsal.

Viviparous Blenny, *Zoarces viviparu*

An extremely interesting fish is the Viviparous Blenny, *Zoarces viviparus*. Although this fish is reputed to reach a length of two feet, such big ones are rarely seen and a more normal size would be less than a foot. It would need a much larger aquarium but would be worth the extra trouble. The females mate in winter and carry their young about inside themselves for 3-4 months. When released, the babies are 1 to 1.5 inches long, perfectly formed and well able to fend for themselves. A large female can give birth to about two hundred at a time. This fish should be sought among seaweed lying on tumbled rocks near the lower tide marks, while the young ones may be almost anywhere in that sort of region.

All these blennies have been kept in captivity and all are good feeders, so that they are most suitable for a first attempt at keeping salt-water fishes.

Ian Fuller – BAS

An Experience with Whiptail Catfish of the Genus *Rineloricaria*

The term Whiptail catfish points us to a group of fishes that are very unique in their physical make up. There are many genera that fall into the category commonly referred to as Whiptails. My experience with them as been limited to members of the genus *Rineloricaria*.

There are around forty known species of this genus all of which have distinctive long thin tapering twig-like body shapes that are covered over their entire lengths by hard interlocking bony plates known as scutes. Another striking feature of these fishes is their external mouthparts that are formed into suction like pads, some being more pronounced than others and may have lace-like filaments on their trailing edges.

The most difficult aspect with these fishes is their identification; many species have similar body and fin markings.

When it comes to housing these fishes, it is not too difficult as they are easily pleased. Tank size is not that important so long as it is large enough for the fish not to be cramped. A 17 inch X 10 inch X 10 inch tank would be adequate for a single pair; as for the substrate, I would use fine gravel or smooth grained course sand with either internal or external power filtration. Filtration is to a certain degree a personal preference thing, but if an under gravel system is your preferred choice, then I would recommend a slightly larger tank 23 1/2 inch X 12 inch X 12 inch and a larger sized gravel. The fine gravel or sand would soon become clogged and ineffective.

A powerhead would be needed either fitted to the undergravel filter uplift tube or as a separate unit, this is to provide a good flow of water around the tank. *Rineloricaria,* as well as other genera of whiptail catfish, enjoy good water movement. In their natural habitats, they are found in fairly shallow running water. They are very strong swimmers, but seem to prefer to maneuver themselves around unsing their pectoral and ventral fins.

Tank furnishings are again something that is a personal thing, but these fish like to graze amongst leaf litter and on pieces of wood. I have a breeding trio of what I believe to be *Rineloricaria hasemani* Isbrücker & Nijssn, 1979. Their tank is 24 inch X 24 inch X 23 inch and is filtered by an internal power filter, 6 inch layer of smooth sand; the rest of the décor consists of three pieces of bog wood, two larger clumps of java fern and two 12 inch diameter terracotta closed off pots. These pots are normally used for larger indoor plant displays where they are inserted to full depth into the soil. The pots are then filled with water, which then leaches slowly into the soil. Although not designed for the aquatic trade, they make ideal breeding sites for *Rineloricaria* to spawn in or for that matter any of the other smaller *Ancistrine* cave spawners.

Feeding *Rineloricaria* is not much of a problem because they will eat almost anything.

Feeding *Rineloricaria* is not much of a problem because they will eat most anything. I read in many publications that these fish are supposed to be vegetarian, but I have found that all the plants that are in the tanks with all my six species of *Rineloricaria* are perfectly safe, for that matter, so is algae that grows everywhere. I have tried the same experiment in all the tanks in which I house these fish. In each tank I have placed all at the same time tablet, granulated and algae wafers. The fish are onto the tablets and granulated food almost straight away, but with the algae food it takes until the following morning before it disappears. I firmly believe that most if not all, species of *Rineloricaria* are carrion and insectivorous, and the diet that I give my fish consists of frozen or fresh chopped mussels, bloodworms, granulated catfish pellets, chopped earthworms

and when avaliable live blood worms.

Whenever I have tried feeding vegetable foods such as cucumber or couchette, these have been ignored and needed to be removed. The fact that two of the species are breeding tells me that their diet is pretty much to their liking.

Sexing these fish when freshly imported can be a bit of a problem unless the fish have arrived in really good condition. Than the males can usually be distinguished by the fact that they have odontodes (bristles) on the side of their heads and on the upper surface of the pectoral fins. With some species, the presence of odontodes is less evident and other methods of sexing need to be used. The first of these is the shape of the head. When viewed from above; the head of the male is wider and less pointed than the female. The female is wider and also plumper in the body when viewed from above. The second area to look at is the pectoral and dorsal fin spine, which tend to be a little thicker in males.

Sometimes it is really potluck when buying so-called pairs, especially if the fish are on the small side and immature. So when I cannot be one hundred percent sure, I usually buy at least four, two fat and two slim - very scientific I know, but it ofter works.

Once the fish are settled and conditioned, it will not be too difficult to tell the sexes apart.

In the tank with my trio of *Rineloricaria hasemani,* I have two of the terracotta pots and, after about a week, the male took up residence in one of them. He would stay in there all the time or at least until the lights went out and then forage for food.

The two females, on the other hand, were always out and about looking for food. Once a female had come into breeding condition, she would join the male in the pot and the two of them would stay in there for several hours, or, if she was not entirely happy only a few minutes.

A day or so later she would join him again, only this time when she came out the male could be seen lying on top of a group of largish, possibly three millimeter diameter greenish colored eggs. The male religiously sticks to his task of guarding the eggs for the following ten to twelve days, during which time as far as I could tell, because of not being able to observe any night-time activity, he did not eat.

When the young started to hatch, they were all eaten by the male. A month or so later, they had spawned again. I waited until day ten when I could see that the eggs were very dark and nearing hatching, then I removed the pot from the tank and gently expelled the male, who shot out and hid amongst the plants and bogwood. In fact, I never saw him for about six days and then one day he appeared taking up residence in the other pot.

The pot with the eggs was placed in a shallow tank containing water from the main tank, a sponge filter and an airstone that created a fairly powerful water flow around the pot to create maximum oxygen content. The following day, all the fry had emerged from their eggs looking exactly like tiny miniatures of their parents.

There were no signs of a yolk sack as I have seen with newly hatched *Corydoras* so I decided to put a little food in the tank, in the form of two broken up sinking tablets. By my return the next evening all the food was gone. Tablets and catfish pellets form the basis of their diet with a little chopped mussel.

After their first month the fry have almost doubled in size because of the amount of food they where getting and twenty five percent water changes which are made every day.

I have also introduce a dozen or so of dried oak leaves; to help with water conditioning and to give the fry some cover.

As there is no substrate in the tank, their environment is quite bright which is unnatural for them. By the time they reached two months, they were moved to a larger growing out tank, making the hatching tank ready for the next batch of fry, which will not be long in coming, as the male is now sitting on another batch of light green eggs.

SPECIES PROFILE

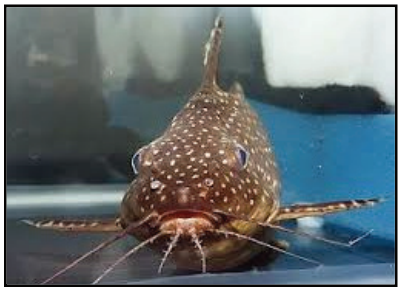
Scientific Name: *Rineloricaria hasemani*
Family: *Loricarlldae*
Common Name: Haseman's Whip-tailed catfish
Origin: South America, lower Amazon.
Distribution: Rivers and streams.
pH Range: 5.8 - 7.8
Temperature Range: 75˚ to 80˚F
Water Hardness: Soft.
Size: up to 5.4 inchs
Temperament:. Peaceful.
Diet: Omnivorous; bloodworms and live worms. and some vegetable matter, ideally from natural algae and high-quality flake food. They are nocturnal and should be fed at night.
Sexing: Males have whiskers on the side of the head which is not as pointy as the females. Whiptails normally reach sexual maturity when they're around 3 1/2 inches long. Whiptails will form their own pairs.

Breeding: The female will release her eggs which are fertilized and guarded by the male. The female can produce up to 300 eggs. The male will guard the eggs for approximately one week. The female should be removed since she may eat the eggs. Eggs will hatch after one week The male should be left with the fry until they are free swimming, then remove the male.
Raising Fry: The fry feed on their yolk sac for the first day. On the second day, give them infusoria and green water. Do frequent water changes. In three days, feed newly hatched brine shrimp nauplii. When provided with nutritious food, Whiptail fry can reach a length of 3 cm in no more than five weeks. After 3 cm, the growth rate normally slows down.

Reference:
AquaticCommunity.com

CATFISH CONNECTIONS

ALLOW ME TO INTRODUCE MYSELF, I'M SY ANGELICUS. YOU CAN CALL ME SY FOR SHORT. I HAVE A VERY LARGE FAMILY WITH MANY RELATIVES I'D LIKE TO TELL YOU ABOUT AND I WILL INTRODUCE YOU TO SOME OF MY FAMILY IN FUTURE COLUMNS.



For now though, I have to toot my own horn and let you know a bit about myself.

My original home was the Congo (formerly Zaire) in the Congo River, especially in a large waterway called Stanley Pool.

Our water at home is soft and acidic, but I adjust to pretty much any type of water offered to me (when I vacation in aquariums), as long as it's clean and well oxygenated. I vacation often in aquariums.

I consider myself an athletic, active, robust and hardy member of my family. Not bragging, but properly cared for I will live a very long time… 10 years or more.

I'm a flashy dresser; usually I wear a black, chocolate brown or black suffused with purple suit with either large or small white spots on it.

My favorite hobby is eating. I love all foods and I'm not picky. Frozen blood worms, brine shrimp, and high quality flake foods all are delicious! I have the bad habit of binge eating live black worms. I'll stuff myself, so don't offer me too many black worms. I have to watch my athletic figure you know.

Normally, I get along well with all my neighbors. I seldom bother anyone, well, except for my brothers -- we get scrappy. But if you had a brother like mine, well, you know the way that goes; enough said. Just so you know, though, I do think of very small neighbors as a snack. Neons are great snacks! Yum!

I'm more than capable of self-defense if need be. Lots of times I vacation with rock possessing, territorial obsessed cichlids. They can be a pain, but generally we get along quite well. Live and let live.

I love summer, coming from the Congo where it's summer all year long. I like warm water; 78˚F is best for me. I also like roots, caves and plants so I can take a siesta during the day.

I'm sort of a night owl and prefer to party at night. I'm just like any other rock star party boy. But I do wake up any time for good food. So tempt me with food and I'll visit you often.

I have some really "keen" athletic pursuits. I swim upside down often. How many other fish do you know that can pull that off, unless they are on their way down the toilet? My runty cousin *Nigriventris* can, but he's not nearly as big as me (he gets to 2 1/2 inches; I get to 8 inches or more) so my stunts are much more impressive.

It never ceases to amaze me about all the stunned looks from the aquarium "window watchers" that I get when I vacuum flake food at chow time, upside down at the surface. Yes, I love being the center of attention.

"Room service" when I vacation in aquariums sometimes is a pain. Usually I just get worked up up while the vacuum is run and 25% of my water

is changed. That's good in my book. The problem comes when I'm made to change rooms. I'm not big on that. The good aquarium "hotels" move me with a glass or plastic container. The cheap ones use a net. That's not good. My fin spines can easily get stuck in a net and it's really rough on me and the "hotel staff" to get me out. So always move me with a glass or plastic container.

My romantic life is private. I seldom breed in the aquarium. But if you want to tempt me and put me in the mood, give me massive soft water changes and feed me high protein foods. A slight temperature drop helps too. Oh and of course, a beautiful lady to woo.

I rarely get sick. But I hate getting chilled. When I do, I usually get really itchy with ick. Do not give me green medicine. I can't take that. I'm not big on any medicine, but if you give me half a dose of yellow or blue meds, it helps. Better yet, just turn up the heat. Hint: 86˚F kills ick. That way I can feel better. One final thing: If you really want me to be a happy vacation guest, feed me some swatted houseflies or bugs from your next picnic! I love those!

All told, I'm a fun, pretty cool and easily satisfied vacation guest. So when can I visit you?

Send your invitation to Sy Angelicus c/o BAS.

Well I'm off on vacation again. Next time I'll tell you about one of my relatives from South America

A whisker wave to you.

Sy

John Todaro – BAS

SPECIES PROFILE

Scientific Name: *Synodontis angelicus.*
Family: *Mochokidae.*
Common Name: Angelicus catfish.
Origin: Africa, Zaire, Cameroons.
pH Range: 6.5 - 7.5.
Temperature Range: 75˚ to 82˚F.
Water Hardness: 3 - 20 dGH.
Life Span: Up to 10 years.
Size: Up to 8 inches.
Temperament:. Semi aggressive.
Diet: Omnivorous; not a fussy eater. Eats foods like cucumber and spirulina discs. Live and frozen foods will be greedily accepted.
Sexing: Lay fish in your hand with head toward your palm. Hold the dorsal spine between your middle and ring finger so the fish is belly up and you won't get stuck --- which hurts like crazy! The genital pore is in a small furrow of tissue and will be obstructed by the pelvic fins. The male has a somewhat ridged genital *papillae* on which the spermatoduct is on the back side. A gravid female will show an extended *papillae,* but the oviduct is on the ventral side of the *papillae* and may show a little redness if really gravid. Females are more yellow-brown.
Breeding: Not successfully bred in the aquarium, thought to be an egg scatterer. Eggs have been produced in several private and public collections, but none have hatched.
Note: Needs a cave to call home. Like most *riverine, synos* favor arching overhanging structures and large broad leaf plants. Prefers rocks to bogwood.

References:
www.plantcatfish.com
http//blogs.thatfishplace.com/thatfishblog

Doug Kamp
Australia, from his website aquariumsonline.com.au
Aquarticles

Marine Aquarium DO'S & DON'TS for Beginners

Over the years I have come across a number of helpful DO'S and DON'TS for marine aquarium keeping that would have saved me a lot of time, money and disappointments. If only I had them all together in a list from the start!

Well, here they are - I have decided to jot a few of them down in the hope that they will save at least one new marine aquarist some time, money or disappointment.

This is only a very basic guide and is not meant to be conclusive or detailed - just a memory jolter in bullet point form that you can refer to every now and then to refresh your memory.

I encourage you to research in more detail any and all of these points using your favourite marine aquarium book or even the internet.

THE DO'S

- **Do** buy a good book on marine aquarium keeping. This should be your first purchase and most valuable accessory.
- **Do** look at your tank every day to check your fish and invertebrates' health. Are they acting differently than normal; do they have any damage or signs of illness, etc?
- **Do** react quickly when you think something is wrong. Test your water quality and conditions. Look for indicators of problem or disease. Read your aquarium books; search the internet and talk to your friendly marine aquarium retailer for advice.
- **Do** create a maintenance schedule that helps you remember to regularly check your water quality, top up with freshwater, replace saltwater, replace consumables, etc.
- **Do** feed small amounts of food regularly.
- **Do** feed a varied diet that accommodates all your inhabitants' needs.
- **Do** ensure you have adequate filtration (biological and/or mechanical).
- **Do** ensure you have sufficient circulation in your tank. Most people recommend at least 10 x your tank's volume be circulated every hour. This includes powerheads, filters (both internal and external), protein skimmers, circulation pumps, etc.
- **Do** use a timer if possible on your tank's lights, as the inhabitants like regularity with respect to their daytime and night-time.
- **Do** adopt a photoperiod that considers the output and intensity of your lights and either mimics the inhabitants' natural environment or that of your local environment.
- **Do** wash your hands before putting them in the tank or working with any equipment that will come into contact with your tanks water. Soaps, creams, medicines, etc., can all harm your inhabitants.

• **Do** use good quality activated carbon in your tanks. This removes unwanted toxins and keeps the water crystal clear.
• **Do** regularly replace your activated carbon (approx. every 8 weeks).
• **Do** keep your tank as close as possible to Natural Sea Water conditions (NSW). These are, for the most, a pH of 8.3, Specific Gravity (SG) of 1.025, temperature of 25 degrees Celsius. There are many other levels that need to be considered (e.g., Calcium, Carbonate Hardness, Iron, Silicon, Phosphate, Copper, etc.,) but these are the main ones.
• **Do** acclimatise your new fish and inverts appropriately - your marine aquarium retailer should notify you of their requirements as they can vary from 10 minutes just for temperature adjustment for hardy fish to hours for sensitive inverts.
• **Do** use, where possible, natural sea water in your tank. There is nothing like the real stuff!
• **Do** make sure you know where the real sea water is coming from. You don't want it to have been collected in your local marina or just offshore as it may not be suitable as it could contain all sorts of man made pollutants.
• **Do** use RO/DI (Reverse Osmosis/Deionised) water when real sea water is not available. Use it to top up or when mixing new salt, especially in tanks that contain corals and other sensitive invertebrates.
• **Do** use a protein skimmer if possible. It complements your mechanical and biological filtration and, in some cases, is a mandatory requirement for keeping certain inverts.
• **Do** ensure you understand the nitrogen cycle. This is the fundamental basis for how wastes in the aquarium get converted from toxic chemicals (ammonia and nitrites) to less toxic chemicals (nitrates) by bacteria that live in your water.
• **Do** select your new fish and inverts very carefully. Ensure they are not damaged, diseased or otherwise looking unwell. If possible, quarantine them in a separate tank before adding them to your main tank. An alternative is to use an Ultraviolet (UV) steriliser for about four weeks after adding the new inhabitants to kill off any newly introduced diseases.

The Don'ts

• **Don't** overfeed. This is most probably one of the most common mistakes for a beginner. Fish always appear hungry and it is very tempting to feed them often but this can cause all sorts of problems, the most common being poor water quality. If not corrected, this can lead to sickness and death of your fish and inverts in a short time. If you are going to feed very often, then ensure you only feed small amounts and that it all gets eaten immediately. Also test your water quality often (e.g., test ammonia, nitrite and nitrates at least a couple of times a week).
• **Don't** overstock your tank. This is also one of the most common mistakes for beginners. Tanks can only successfully support a certain amount of life in them and this is based upon a number of factors. Some of these are volume, surface area, aeration, circulation, filtration (mechanical and biological), maturity, quantity and frequency of water changes, flow, number of fish and inverts, etc. It is better to start slow and small and build your way up. Talk to your local marine aquarium retailer for advice on stocking levels.
• **Don't** rush the maturation of your new aquarium. This is another one of the most common mistakes for beginners. Sea water is a complex living thing. It contains thousands of elements, compounds, minerals and organisms that are all reacting together. When setting up a new aquarium, it takes time to mature enough to sustain higher order living animals such as fish and inverts. Generally, it can take up to eight weeks for the nitrogen cycle to complete and the sea water stabilise enough to allow for the addition of fish. A good idea is to stick to one or two hardy fish initially and then slowly add more fish over a period of time, all the time keeping a very close eye on water conditions. I would be testing daily for pH, salinity (SG), ammonia, nitrites and nitrates during this phase. After six months or so if everything is going all right, I would then consider basic, hardy invertebrates such as soft corals, algaes, shrimps, anemones, star fish, urchins etc. After these have been living successfully for a while (after about one to two years), I would then consider the more sensitive inverts such as stony corals, clams etc.

• **Don't** mix inhabitants (fish or inverts) without some research of your own and/or advice from your local marine aquarium store. They don't all get on together, even if they look weird or wonderful and you just have to have it!
• **Don't** change any critical aquarium conditions too drastically. Stability is your friend. The main ones include salinity (Specific Gravity or SG), pH and temperature.
• **Don't** use water from your tap without treating it and testing it. Some local water supplies have unwanted chemicals such as copper (Cu), Iron (Fe), Ammonia (NH_4), Nitrites (NO_2), Nitrates (NO_3) and heavy metals in them. They all have chlorine and chloramines in them and need to be removed before being added to the aquarium (or even mixing salt in; remove the chlorine first).
• **Don't** use fly sprays, air fresheners, incense, etc., in the same room as your fish tanks, as they may well poison your inhabitants.
• **Don't** use the cheap types of hydrometers to measure your Specific Gravity (salinity) as they are inherently inaccurate! These include your common floating type (they quite often also contain a thermometer in them as well) and the floating needle types that stick to your glass and a little plastic needle floats in the water indicating your SG! These types are also affected by temperature and may be giving an incorrect reading if not used correctly. I find the most accurate is a refractometer and they are not too expensive (approx. $100).
• **Don't** use only one powerful heater in your aquarium. It may save you a little money, but if it breaks (turns off, or even worse gets stuck on) you could lose everything. Preferably, use two smaller heaters so that if one breaks you have a back up and if one gets stuck on, it won't cook your fish.

About the Author

Doug Kamp has been keeping aquariums for 30 years, the last 15 of those being mainly marine aquariums. Doug is the proprietor of Aquariums Online which is an online mail order business based in Perth, Australia. This article and others can be found at **www.aquariumsonline.com.au**

Sabine Wilkins

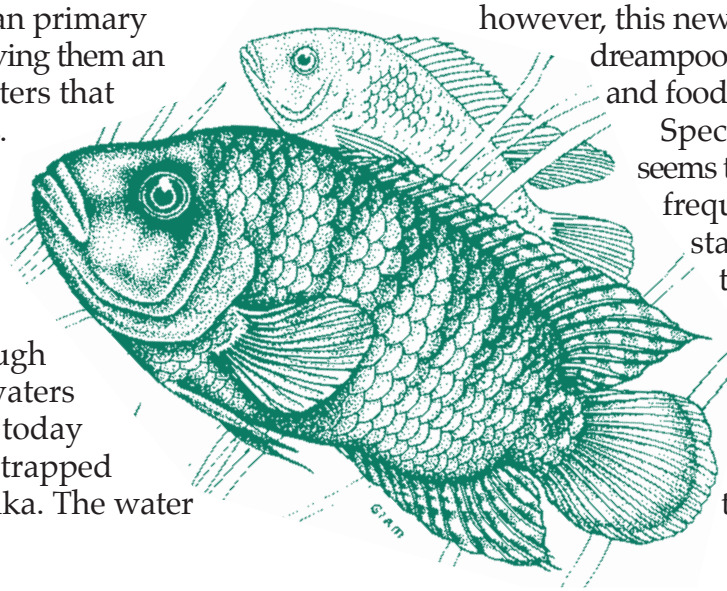
A talk presented at the June 2001 meeting of the Cichlid Society of NSW, Australia, Aquarticles

The Evolution of Cichlids

All of us are fascinated by cichlids, and probably by their diversity and the sheer number of species and variations on the theme cichlids. At one time or another we have probably wondered where do they came from. How did they get to where they are, and how come there are so many different species? With this article I will attempt to give some ideas on how to solve the riddle that is cichlids.

Cichlids are secondary freshwater fish. That means that they derived from seawater fish that again populated the freshwater. This has one great advantage over other species whose ancestors never went back to the sea: secondary freshwater fish have a much higher tolerance for salt than primary freshwater fish, therefore giving them an advantage in colonising waters that are high in dissolved minerals.

The first cichlids probably inhabited the rivers of Africa, where we still find some species today. A long time ago, the Great African Rift cut through the Congo River, and the waters of the inflowing of what is today the Malaragasi River were trapped and formed Lake Tanganyika. The water became stagnant and was warmed by sun as well as geothermal energy exposed at the bottom of the Rift. At the same time, large quantities of salts were dissolved from the underlying exposed rocky lake floor, making it hard for primary fresh water fish to colonise the new Lake. For cichlids, however, this new environment became a dreampool. It was rich in nutrients and food and low in competition. Specialisation and speciation seems to take place more frequently and rapidly in stable environments. The temperate regions around the world, with their huge fluctuation in climatic conditions, have lower diversity in comparison with the huge diversity



"In changing environments, however, it is an advantage to be a generalist and so be able to exploit everything that comes along."

found in the tropics, where the climatic conditions are largely stable, which supports this theory. And it makes sense. In stable environments, adaptations or changes in behaviour /anatomy/morphology that set individuals apart from the masses and that allow these individuals to exploit a certain part of this environment more efficiently, will have an advantage over all the others that are fighting with each other for everything. In changing environments, however, it is an advantage to be a generalist and so be able to exploit everything that comes along.

Besides being secondary freshwater fish and so having an advantage over primary freshwater fish, which would have had a hard time to deal with the large amounts of dissolved salts in the water, cichlids also sport another advantage, an anatomical feature, the pharyngeal apparatus. The pharyngeal apparatus serves very much like our teeth, whereas the teeth or the lips serve more like our hands. The upper pharyngeal jaw may be moved up and down and dislocated and the lower pharyngeal jaw can be moved forwards and backwards. Cichlids are therefore able to chew their food and exploit vegetable matter for food. The cell walls of plants cannot be digested in the guts of vertebrates, but the chewing action crushes the cell wall and allows digestion of the cell contents. The pharyngeal apparatus has also proven to be very adaptable. Different feeding habits usually go hand in hand with a different morphology of the pharyngeal apparatus.

So; we have a largely stable environment full of cichlids all competing for the same kinds of food, except of course for some individuals that show mutations that enable them to gather some kind of food more effectively. I would like to demonstrate this with one example from Lake Tanganyika. The lake was split into two or even three separate lakes for a long time, before it combined to one lake again. In the southern part of the lake *Lamprologus sexfasciatus* lives on small snails, the shells of which it crushes with its pharyngeal jaws, but also on invertebrates. In the northern part of the lake *L. tretocephalus* feeds on snails, large and small, which it crushes with its extremely well developed bony plates of the pharyngeal jaw, whereas the nocturnal *L. toae* lives exclusively on invertebrates. It is imaginable that the ancestor of all three species was something closer to *L. sexfasciatus*. The population in the northern lake evolved into two species that are very successful at exploiting their respective niches, whereas the population in the southern lake remained relatively unspecialised.

For some reason, speciation seems to occur in bouts and not steadily over time. During times of explosive speciation, a second specialisation developed, which involved the breeding mechanism. In cichlids, we see basically two strategies: Substrate spawners, which expend a huge amount of energy into producing an enormous number of eggs and to guarding these eggs. In the example of *Boulengerochromis*, this is taken to the extreme. Parents will not eat while their offspring is around. Eventually the parents will die while guarding their young and not so young offspring.

The other strategy involves the production of only relatively few eggs and the expending of energy in guarding these and the larvae by

"So, how did the cichlids in lake Malawi and lake Victoria evolve so rapidly in their respective lakes?"

mouthbrooding females.

Lake Tanganyika is the largest museum of natural history in the world. It is probably also the oldest isolated body of water cichlids could settle. Geological studies have revealed that Lake Tanganyika is at least 20 million years old, during which time its water level rose and dropped repeatedly. In fact, until about 40,000 years ago, the water level was 600 metres below its present level. However, things were very different in the other two lakes. DNA studies of 16 species, representing the major Malawian cichlid groups, suggest that all the Malawian cichlids arose from one single species within the past 70,000 years. In Lake Victoria, 14 equally representative species had an even more recent common ancestor. These same DNA studies revealed that all the Malawian and Victorian species descended from one lineage found in the rivers and streams of east Africa, which in turn was derived from one single lineage of maternal mouthbrooding cichlids from Lake Tanganyika. The surprise came when recently data were published by geologists that proved that Lake Victoria was dry for 5,000 years until about 12,000 years ago. That means that the enormous multitude of Victorian cichlids evolved in the relatively short period of time of 12,000 years. Palaeontologists from other fields would expect such recent ancestors to be indistinguishable from modern forms.

So how did the cichlids in Lake Malawi and Lake Victoria evolve so rapidly in their respective lakes?

Genetic differences are known to exist among different colour forms of rocky-shore cichlids that live around the edge of the Lake Malawi and islands. Genetic differences were even found in populations living separated by a 700 m. wide sandy bay. This means that there are hundreds of geographically isolated populations, which are potentially able to diverge into new species. You could even see that we have the privilege of observing the infinitely slow process of evolution. This is why it is important for us to take note of where our fish come from. Geographical variants do show genetic differences that should be preserved, because in nature they are kept apart as well.

Could a similar process have taken place in Lake Victoria? A recent study has revealed more than 130 species inhabiting the rocky shores. As in Lake Malawi, many populations appear restricted to small islands or rocky outcrops separated by sandy or swampy bays. Rocky-shore cichlids are highly specialised to exploit their habitat, do not move around freely in the open water or along sandy shores and lack a dispersal phase in their lifecycle, such as migration. Their isolated lifestyle obviously plays an important role in their rapid diversification.

However, according to **George Turner,** a well known cichlid researcher, this is probably not the whole story. And it doesn't explain the vast number of species inhabiting sandy or muddy shores or the deep water. Lake Victoria has 300 such species, Lake Malawi 350. So how did these evolve? There must be some other process driving speciation in these non-isolated populations and accounting for an even faster rate of speciation than in the rocky shores.

According to George Turner, just feeding specialisations can't explain everything.

Until now I have talked only about African cichlids. But what of the American cichlids? How come that cichlids are present in an area that far away from Africa?

Ole Seehausen, who researched Lake Victoria extensively, found that female mouthbrooders speciate faster than the rest, so we should be thinking about sexual selection, he says.

Sexual selection by females is most powerful, when males play no part in parental care and can mate with lots of females in one season. It can lead to the evolution of spectacular male courtship displays, colours and structures, all of which we see in cichlids. Of all the endemic cichlids of Malawi and Victoria, those of some of the most diverse groups in Tanganyika are maternal mouthbrooders. In these species, the males are larger, brighter and have longer fins than the females. Often researchers use male courtship colours for the identification of closely related species. Females perhaps use the same cues to identify their mates. If so, sexual selection might play a key role in speciation. This was tested in the laboratory (or better the aquarium), and these tests showed that females of *Pseudotropheus auratus* discriminate between males during courtship by the number of eggspots on the anal fin. This is strong evidence that sexual selection acts on male courting traits.

Even clearer evidence came when Ole Seehausen observed females of a yet undescribed species discriminate between males of different colours in clear water conditions, but mated at random in turbid waters with limited visibility. Female choice can therefore prevent hybridisation between two species in their natural habitat. Computer simulations show that female selection can result in one species splitting in two in only a few generations. However, two conditions must be present for this to occur: females must see a large number of males to choose from, and relatives may not disperse very far between generations. Both conditions seem to be fulfilled in many African cichlids.

Until now I have talked only about African cichlids. But what of the American cichlids. How come that cichlids are present in an area that far away from Africa? How did they get there? In the early days before we had the knowledge we have now, one theory said that cichlids may have evolved at a time when the continents still formed a huge landmass called Pangea. However, Pangea broke up and the continents floated apart a long time before cichlids ever evolved. So what did really happen?

Over the past millions of years the water level of the ocean fluctuated widely coinciding with Ice Ages, where a lot of the water was bound in the ice covering much of the earth. When the ice sheets melted, the sea level rose again. During the times of low sea levels, the water may have receded far enough to expose peaks at the ocean floor and form islands, or maybe have receded even far enough to uncover the Atlantic ridge, a huge mountain range running across the floor of the Atlantic from Africa right up to the north of South America. Cichlids probably resembling those of the genera *Hemichromis* (our jewels) and *Thylochromis* moved along the coasts of this ridge, just like the monkeys and many other animals

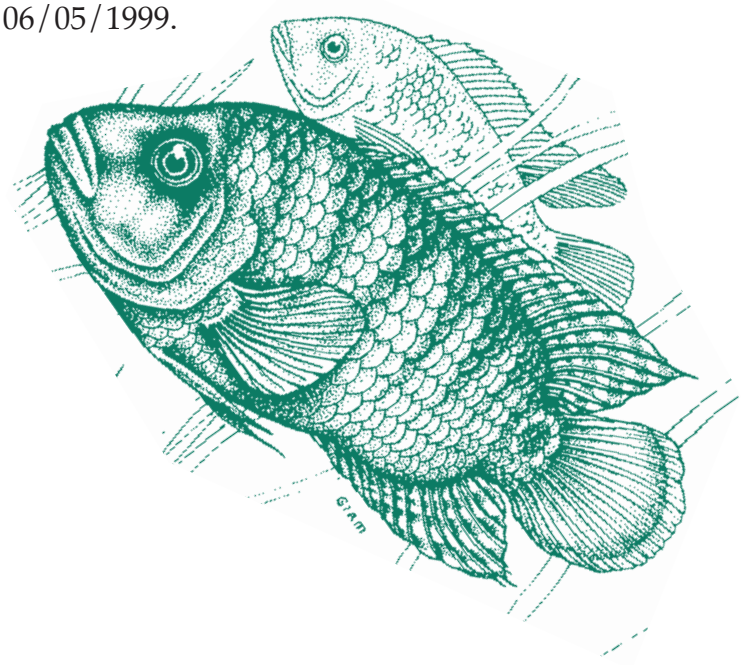
"Ironically, now that we are starting to understand how such a large diversity was able to evolve our greatest challenge will be to preserve that diversity."

and plants did, and finally colonised South America. Again their nature of being a secondary freshwater fish would have helped them survive in the salty ocean water. By colonising one brackish river mouth after the other, eventually they would have spread to the northern tip of South America. Central America as we know it today did not exist at that time, rather it was a series of islands. Cuba and Hispaniola, the site of the oldest known American fossil cichlid, were closer to where Central America is today, before they moved eastwards to where they are today.

And again we observe feeding specialisations and breeding specialisations amongst the many species that have evolved in the Americas. Within the genus *Geophagus*, we see complete substrate spawners to mouthbrooders.

Ironically, now that we are starting to understand how such a large diversity was able to evolve, our greatest challenge will be to preserve that diversity. Population explosion around the lakes and with it pollution and overfishing, as well as habitat destruction in America are threatening our favourite fish. Our aquariums are increasingly becoming something of Noah's Ark, so we should treat our jewels with great care. They may yet become the last hope for the survival of these species.

Further Reading:
Ad Konings: *Cichlids from Central America*. TFH Publications, 1989.
Ad Konings: *Tropical Fish Hobbyist*. 1991, pages 89 - 94.
Colin Tudge: *All fish bright and beautiful. New Scientist Magazine*, Vol. 133, Issue 1807, 08/02/1992, pg 50.
Jeff Hecht: *Variations on an evolutionary theme. New Scientist Magazine*, Vol. 151, Issue 2045, 31/08/1996, pg 15.
Hans Kruuk: *One man and his bucket. New Scientist Magazine*, Vol. 152, Issue 2051, 12/10/1996, pg 42.
George Turner: *Small fry go big time. New Scientist Magazine*, Vol. 155, Issue 2093, 02/08/1997, page 36.
Geoffrey Fryer: *Lake was wet. New Scientist Magazine*, Vol. 155, Issue 2100, 20/09/1997, pg 61.
Kate Douglas: *Homeloving female, vegan, rather dull, seeks compatible male for brief sexual encounter. Only blue fish need apply. New Scientist Magazine*, 06/05/1999.



BAS SPOTLIGHT

PETQUA
2604 Broadway
(between 98 & 99 St.)

Located in the heart of the Upper West Side of Manhattan, **Petqua** (a/k/a New York Aquatics and Pets) offers a wide range of pets and pet supplies. It is owned by **Sam Laroche** and managed by **Ed Freotte**, whose store offers cat and dog lovers a wide variety of food, accessories and pet care products.

Their fish room is located on the lower level and carries fresh and saltwater fish, plants and live rock. They are more than happy to place special orders for customers who are looking for hard to find fish, such as wild bettas, rare *Corydoras* catfish and fancy goldfish as examples.

Petqua specializes in setting up and maintaining ponds (probably one of the few in Manhattan that do this). They actually have a 150 gallon pond setup in the lower level.

As of the writing of this article; here's a small example of their aquatic livestock:

Brsichis splendens, the emerald corydoras	$5 ea.
Corydoras panda, the Panda Cory	$5 ea.
Swordtails & Platies	$4 ea.
Bettas, Double tails and half-moons	$4 ea.
Aquarium Plants (depending on species)	$3 to $19 per plant.

They also offer parrots through special orders only.

Petqua has been in business for more than 17 years (over 11 years at their present location). A visit to **Petqua** is well worth the trip. Remember to mention that you're a member of the Brooklyn Aquarium Society. They would love to know that.

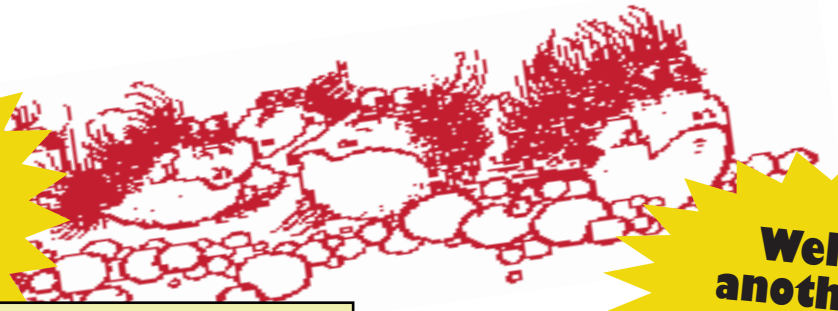
They're good, knowledgeable people and have generously donated fish and dry goods to our auctions for several years now. Get to know them as a reliable resource.

HAPPY FISHKEEPING EVERYONE.

Bill

PETQUA
2604 Broadway, Manhattan, NY 10025
b/t 98th St & 99th St in Manhattan Valley
Transit information: 1 2 3 A B C. Get Directions on website
Phone: (212) 865-6060 Website: petquaonline.com
Hours: Monday to Saturday 10am - 8pm
Sunday 10am - 6pm

SUPPORT OUR SPONSORS. THEY SUPPORT US. WE MUST SUPPORT THEM!



Welcome our newest sponsor!

WORLD CLASS AQUARIUM has been serving the hobby since 1986. *New Yorker Magazine* recognized them as the *"best aquarium supply store in the five boroughs."* You'll be pleased to know that they:

- Offer a large selection of freshwater, marine fish, corals, plus a full line of aquarium, bird, and small animal products.
- **They give a 10% discount to BAS members with a current membership card.**
- Carry a selection of large and small tanks and cabinets.
- Have a marine biologist on staff.
- Design and install aquariums for educational institutions.
- Do maintenance for home or office aquariums.
- Build glass tanks and sumps to your specifications.

If you're into birds, check out their selection of hand-fed baby parrots, African grays, cockatoos, macaws, Amazons, conures, parakeets, and canaries.

Call or stop by to see what new babies have arrived!

Owned by two hobbyists, **Allan** and **Robert**, who offer a personal touch and pride themselves on "world class" quality. They're always available to answer questions. You can also subscribe to their Newsletter.

Visit **www.WorldClassAquarium.com** and sign up.

WORLD CLASS AQUARIUM
2015 Flatbush Ave., Brooklyn, NY 11234
Ph: **(718) 258-0653** • F: **(718) 258-4637**
Store Hrs: Mon - Sat 10AM - 7PM • Sunday 10AM - 6PM

ABSOLUTELY FISH'S staff is knowledgeable and can help you solve your aquatic problems. **They offer a 15% discount on select fish, marine life & supplies with current BAS membership card.** A really great aquatic shop. Well worth the trip.

ABSOLUTELY FISH
1080 Route 46 W., Clifton, NJ 07013
Ph: **1 (973) 365-0200**
Open 7 days a week:
Mon - Fri 12AM - 9PM • Sat 12AM - 8PM • Sun 12AM - 5PM

Welcome another new sponsor!

AQUARIUM VILLAGE has 4 to 5 livestock shipments of freshwater, saltwater fish and corals every week, to offer you a great selection at a great price. With 6,000 gals. of stocked tanks, 1,000 coral frags and 2 tons of live rock in stock at any one time. Saltwater is their specialty, but you'll also see a large selection of African cichlids, 1,000 gals. of tropical fish, goldfish, koi and plants and a wide range of equipment, accessories and supplies to fit all your needs. They also do installation and maintenance. A well-trained staff is on hand to answer questions and provide quality service. Richard, the owner, also welcomes group buys and offers specials to BAS members and unbeatable prices for new tank set-ups.

This is a must visit store!

AQUARIUM VILLAGE
473 A2 Old Country Road, Westbury, NY 11590
Ph: **(516) 333-0682 • www.nyAquariumVillage.com**
Mon - Sat 11 - 9 • Sun 11 - 6

"C" THE JUNGLE PET STORE in the heart of Brooklyn carries a full line of pet supplies, tropical fish, birds, and small animals. They offer a **10% discount to BAS members with a current membership card.**

"C" THE JUNGLE PET STORE
247 New Lots Ave., Bklyn NY 11207
Ph: **1 (718) 649-2536**
Hrs: Tue-Sat 10AM - 8PM • Sun 10AM - 6PM

FAUNA is Manhattan's largest exotic pet boutique and a new sponsor of the BAS. **Dan offers a 10% discount to members.** They keep over 2,300 gallons stocked with freshwater, marine fish and corals. They also carry small animals, birds and reptiles. Make a point to visit and tell them you saw their ad in the *BAS Bulletin* and *Aquatica*. This store will blow you away!

FAUNA
265 West 87th St. between Bway & West End Ave., NY, NY
Ph: **212-877-2473**
Store hrs: M-W-T-F 11AM - 7PM • Closed Tues.
Sat 11AM - 7PM • Sun 11AM - 6PM

SUPPORT OUR SPONSORS. THEY SUPPORT US. WE MUST SUPPORT THEM!

MANHATTAN AQUARIUM has one of the largest selections of marine fish & corals on the East Coast. Located conveniently at 522 West 37th St. in Manhattan. You should check them out for all your Marine Fish & Coral needs.

BAS MEMBERS GET A 10% DISCOUNT WITH CURRENT MEMBERSHIP CARD.
MANHATTAN AQUARIUM
522 West 37th Street, NYC, NY 10018
Ph: **212 594-2271** • Fax: **212 594-2271**
www.ManhattanAquarium.Com • www.UniqueCorals.Com

MARK'S DISCUS. Over 4,000 gallons of hormone free Brooklyn bred discus & angelfish. Mark stands behind his quality fish with a live delivery guarantee. Feel free to contact him with your questions. **10% discount for BAS members with current membership card.**
MARKSDISCUS.COM
You're welcome to visit their hatchery by appointment only. Call for directions.
Ph: **917-202-7699**
Open 7 days and all Holidays • 9am -11pm

PACIFIC AQUARIUM & PET INC., in Manhattan's Chinatown, carries ornamental goldfish, koi, freshwater fish, & aquatic plants. **BAS members get 10% discount with current card** (Discounts not to be combined with other specials). They have a full line of aquarium supplies. You can order custom size tanks.
PACIFIC AQUARIUM & PET INC.
46 Delancy St., NY, NY 10002
Ph: **1 (212) 995-5895**
Open 7 days a week and all holidays 10AM to 7:30PM

PET SHANTY. Family owned & operated; 3 rooms of freshwater fish & 1 of marine fish & corals. They stock a vast list of fish, posted on line at http://petshanty.com. They also carry other pets and pet supplies. Check them out; they probably have what you want.
Members get a 10% discount with current card.
PET SHANTY
2507 U.S. Hway 22, Scotch Plains, NJ 07076
Ph: **1 (908) 889-8262** • Fax: **1 (908) 889-0803**
Mon-Fri: 10AM - 9PM • Sat: 10AM - 7PM • Sun 10AM - 5PM

PETLAND DISCOUNTS, the complete pet store, carries a full line of pet supplies for fish, dogs, cats, birds, reptiles and small animals. Also a variety of fish, birds, small animals and reptiles. Open 7 days a week. Locations in New York, New Jersey & Connecticut. Over 15 stores in Brooklyn. Shop on line at: See the white pages, for a store near you.
WWW.PETLANDDISCOUNTS.COM.

REEFS2GO.COM. They're located in sunny Florida. Visit their web site to view the full line of saltwater fish, inverts, corals, live foods for marine fish and corals, plus a complete line of saltwater dry goods and equipment. Get all the details on **FREE SHIPPING** and their **14 day Guaranteed Living or Credit policy**. If saltwater is your passion and you're looking for deals, check their Daily Deals and Over Stocked Items page. **For more great buys, check Buy 1 get 1 Free Offers**. Check out the site. Read the testimonials and if you still have questions, call them Monday to Thursday from 10AM to 5PM EST at **727-623-0914.**

JOSEPH S. REISMAN & ASSOC. Accounting & Tax Experts. They specialize in aquarium societies, aquarium hobbyists, aquarium retail suppliers and stores and aquarium wholesale suppliers. They offer a 10% discount to Brooklyn Aquarium members with a valid membership card.
Ph: **718-332-1040** • Fax: **800-518-5251** or
www.TAXHELP1040.COM

WARDLEY ADVANCED NUTRITION PERFECT PROTEIN formula is the first fish food designed to meet the amino acid requirements of fish to support their growth and good health. Amino acid content determines a foods quality, not the precentage of protein.
Better Nutrition and Cleaner Water
Now that's advanced.

ZOOMED AQUARIUM LOG not only floats, but also provides security, comfort and stress reduction for fish and other aquatic pets. It floats at the surface so that fish can swim inside and it comes in three sizes for any aquarium. Find out more about it and other ZooMed aquatic products at
WWW.ZOOMED.COM

Please Patronize Our Sponsors.
They support us, we must support them.
Tell them you saw their ad in the *Aquatica*.

Please Patronize Our Sponsors. They support us, we must support them.
Tell them you saw their ad in the *Aquatica*.

Membership & Renewal Application Brooklyn Aquarium Society

Mail This Form And Your Check Payable to Brooklyn Aquarium Society to
BROOKLYN AQUARIUM SOCIETY, ATT: MEMBERSHIP CHAIRPERSON
P.O. BOX 290610, BROOKLYN, NEW YORK 11229-0011

Meetings are held at the NY Aquarium Education Hall on the 2nd Friday of the month at 7:30pm. Knowledgeable speakers on fish care and culture, door prizes, raffles, and fish auctions. All meetings are free to members. Visit us on line:
WWW.BROOKLYNAQUARIUMSOCIETY.ORG

NAME_____OCCUPATION_____

ADDRESS_____CITY_____STATE____ZIP_____

PHONE (DAY) _____(EVE)_____(FAX)_____

E-mail Address_____

TYPE & LENGTH of MEMBERSHIP: (CHECK ONE)

INDIVIDUAL				FAMILY				[ ] $15 STUDENT 1YEAR
1yr. $20	2yr. $36	3yr. $51	4yr. $68	1yr. $25	2yr. $45	3yr. $63	4yr. $85	(UNDER 18 YEARS)

*If family membership, please list all family members. **Only first two listed will have voting rights.**

1_____ 2_____ 3_____

4_____ 5_____ 6_____

Number of tanks [ ] marine [ ] freshwater [ ] Do you breed fish? [yes] [no]

If yes, what types do you breed:_____

_____

Special interest (if any)_____

_____

How did you hear about BAS [friend] [dealer] [flyer] [*Aquatica*] [mag ad] [online] **other**_____

To volunteer check [yes] [no] A board member will contact you if you check yes.

On occasion, the Brooklyn Aquarium Society uses its mailing list to send notices of interest to our members.
If you **DO NOT** wish to receive these mailings please check here [ ]

Official use

Member number:_____ Type of membership [F] [I] [S] Date paid:_____ Board approved date _____
Amount paid:_____ Renewal/member since_____