

109 Years of Educating Aquarists

AQUATICNews

Brooklyn Aquarium Society Online Newsletter & Magazine

VOL. 1

Summer 2020

No. 3



Due to Covid, Virtual Meetings Only

Monthly meeting at The New York Aquarium's Education Hall
Surf Ave. & West 8th St., Bklyn, NY 11229

Held the 2nd Friday each month, except July and August

Free Parking • Free Refreshments

\$5 Donation for Non-members. Good towards membership that night only.

For Information Visit brooklynaquariumsociety.com



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<https://www.meetup.com/Brooklyn-Aquarium-Society/>

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Meet Our Sponsors

President's Message

ALL OF US at BAS are hoping that everyone is well and staying safe and healthy. We all know this pandemic continues to grip our world. All of us are praying that we can resume normal life in the near future. I do not have any information as to when we can have in person BAS events at Education Hall. I have been in contact with Scott Doyle of the New York Aquarium and I am quoting his email response to my question about any updates we can share with our members. His response is:



Your meetings at the AQ will have to be on hold for the foreseeable future. We are not holding any classes, camps, or events in our public spaces. Even our management team has meetings of more than 3 people on Zoom.

We are in a wait and see mode right now, unfortunately. I appreciate your patience. If anything changes I will certainly reach out to you immediately.

With this in mind our scheduled event for September 11, 2020 with Harry Faustmann's topic "Live Foods" will be a virtual meeting. Information on the link to watch the video will be emailed to all paid members by David Manuel, Membership Chairperson. I hope you enjoy the presentation!

We are having a new T-Shirt contest for the next BAS shirt for our members. Please submit your drawings or art work, which will be selected soon, to Ginny at basny.editor@gmail.com.

BAS has a new program that we want all to participate in. In memory of BAS Editor

John Todaro we have created the John Todaro Memorial Writers Award. Any size article, you can add drawings or pictures for extra points, can be member and non-member allowed to enter, only 3 articles per author will be judged by a BAS committee. We have 1st prize is \$50, 2nd prize is \$25, 3rd prize is \$15 and several Honorable Mention prizes of \$5 if the articles submitted warrant an award (all payments are in BAS Bucks). It starts now and ends on Sunday Sept. 13th at 5:00 p.m. To enter please email your submissions to Ginny at basny.editor@gmail.com.

If you want to see different speakers and learn about different aquatic systems, fish, plants, and marine life, please let me know. The elected officials of the Brooklyn Aquarium Society are here to serve YOU! Please let us know what you want and why, because it would be helpful to everyone. It is important that you visit and patronize our sponsors, most of them are open because our pets must eat. It goes full circle: by helping them, they are also helping you as hobbyists and everyone is helping the Brooklyn Aquarium Society, so help us, help you!

For more info, please call our BAS Hotline at (718) 837-4455, or visit our modern website at WWW.BROOKLYNAQUARIUMSOCIETY.ORG

Steven Matassa

President

BROOKLYNAQUARIUMSOCIETY.ORG



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**The On-Line Journal
of the Brooklyn Aquarium Society**

VOL. 1 Summer 2020 No. 3

AquaticNews is published on line four times a year by the Brooklyn Aquarium Society. Original articles may be reprinted by other non-profit organizations, provided proper credit is given to the author and AquaticNews, and two copies are sent to the Exchange Editor. Transcriptions of lectures may not be reprinted without written permission of both AquaticNews Editor and the Speaker. A notice of where original

AquaticNews articles have been published should be sent to the BAS Exchange Editor; P.O. Box 290610, Brooklyn, NY 11229-0011.

AquaticNews 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:

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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.

Fall Speakers

SEPTEMBER 11 Harry Faustmann *Live Foods* ~ Followed by an auction of marine fish, aqua-cultured corals, freshwater fish, plants & dry goods.

OCTOBER 9 *Giant Fall Auction* Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods.

NOVEMBER 13 James Perrenod — *Advanced Discus Keeping*. Followed by an auction of marine fish, aqua-cultured corals, freshwater fish, plants & dry goods.

DECEMBER 11 *Holiday Party ~ Members, their families & friends*
BAS award presentations.

JANUARY 11, 2021 Pat Donston — *From Absolutely Fish*. Followed by an auction of marine fish, aqua-cultured corals, freshwater fish, plants & dry goods.



B. Deren '15

CHECK ALL TIMES AND DATES BEFORE ATTENDING

TBA (To be Announced) means the Society has not gotten a confirmed speaker. Before attending a meeting, please check www.brooklynnaquariumsociety.com or call the Society's hotline (718) 837-4455 for more information on late changes to the speaker or cancellation due to inclement weather. Meetings are always held on the second Friday of the month. There are no meetings in July or August.

2020 Fall Speakers

Sept. 11

Harry Faustmann
Live Foods!

Renown for his expertise with all tropical fish, Harry Faustmann's major focus is on killifish, of which he has written numerous articles, as well as competing in many shows, winning top honors across the country since 1977. They include Best of Show at the AKA annual show. Celebrated breeder, Harry has been active in the hobby since



1967 and keeping killifish since 1973.

Harry is currently a member of the AKA, LIKA, MAKa, NCAS, LIAS GCAS and LI Herp Society. With his interests extending to pond keeping and collecting aquatic creatures in the wild, Harry is also known for his skill and knowledge in the art of culturing live foods. Having had numerous outstanding spawns within his fishroom, some of the most exceptional include *Nothobranchius korthausae* "Red," which resulted in over a thousand fry after eight weeks of dry incubation, as well as *Simpsonichthys reticulatus* "Xingu."

Nov. 13

James Perrenod
Advanced Discus Keeping

James is the President of the Jersey Shore Aquarium Society and sits on the Board of Directors of the North American Discus Association (NADA). He is also the owner of Discus R Us, specializing in discus and other rare and uncommon Chichlids.

James will dispel the myth of difficult discus keeping and answer questions in an open discussion about keeping



discus, flowerhorns and other exotic cichlids. You can find more information about his business at www.facebook.com/DiscusRus.

James also creates custom aquariums, featuring a 1,250-gallon aquarium and a 750-gallon frag tank. He breeds discus and also sells

discus to retailers. He has 8,000–10,000-gallons of water in his warehouse and custom builds fish rooms and fish stores.

Jan. 11, 2021

Pat Donston
Biodiversity



Absolutely Fish owner Pat Donston started in the hobby with his first aquarium when he was nine years old. In college, he majored in Zoology, and got his Master of Science degree specializing in fish reproduction.

Upon completion of his Master's degree, Pat worked in a public aquarium teaching docents and volunteers about the biology of invertebrates in the inter-tidal exhibit.

Pat believes aquarium keeping is one of the best educational tools for children and adults to learn more about the oceans and reefs around the world. Learning about the animals one has as pets sparks an interest to become more aware of the environment in which we live. It can bring people closer to a part of the world they may never see or otherwise know.

Directions to New York Aquarium

Car Directions: Belt Parkway to Ocean Parkway South (Exit 7S). Take Ocean Parkway approx. 1/2 mile. The NY Aquarium will be on your left.

Subway Directions: Either the Q or F trains to West 8th St., NY Aquarium Station.



We're taking submissions through the summer with the winner announced at October's General Meeting and Auction.

THE PRIZE:
you get to see your design printed on a shirt!

TO ENTER:
email submission(s) by 9/13/20 to basny.editor@gmail.com

BAS's T-SHIRT DESIGN CONTEST

PAST WINNERS



Member News

During this period of stay home / stay safe mandate we will be working harder than ever to provide the best online information through our Forum and Facebook page. This will include live streaming of presentations and events of interest, as well as the supportive platform for your questions and inquiries.

WE HAVEN'T FORGOTTEN YOU.

New Members

Chris Capuara, Leon Zeigler, Phil Brennan

Renewing Members

Al Dispigna, Andy Hill, Dan Smith
Frank Zeigler, Kevin Tim Kee, Virginia Cahill



It's with great sadness that we announce *Pauline Griffin* has passed away on August 11 from a two year battle with cancer. She was a member of BAS for many years and an accomplished writer of 30 novels and 12 short stories! Our condolences to her family.

ANNOUNCING

John Todaro Memorial Writing Program

Goal: To honor John Todaro and encourage original writing about the aquarium hobby,

Please see more details on the full page flyer on page 34.

The prizes will be paid in BAS Bucks. 1st Prize – \$50, 2nd Prize – \$25, 3rd Prize – \$10 and Honorable Mention – \$5.





109 Years of Educating Aquarists

FRIDAY, Sept. 11 @ 7:30 PM

THE BROOKLYN AQUARIUM SOCIETY

PRESENTS

Harry Faustmann

Live Foods!



GRINDAL WORMS

VIRTUAL MEETING!

At The New York Aquarium, Education Hall,
Surf Ave. & West 8th St., Bklyn, NY 11229

HELD THE 2ND FRIDAY EACH MONTH, EXCEPT JULY AND AUGUST

Free Parking • Free Refreshments

\$5 Donation for Non-members. Good towards membership that night only.

For Information Visit **BROOKLYNAQUARIUMSOCIETY.COM**

Or Call BAS 24 hr. Calendar of events hotline (718) 837-4455

Car Directions: Belt Parkway to Ocean Parkway South (Exit 7S). Take Ocean Parkway approx. 1/2 mile. The NY Aquarium will be on your left.

Subway Directions: Either the Q or F trains to West 8th St., NY Aquarium Station.

National Society Events

WHAT TROPICAL FISH EVENTS HAVE BEEN CANCELLED OR POSTPONED?

AMERICAN CICHLID ASSOCIATION CONVENTION

AMERICAN LIVEBEARER ASSOCIATION CONVENTION

AMERICAN KILLIFISH ASSOCIATION CONVENTION

ANNUAL TROPICAL FISH WEEKEND

CATFISH CONVENTION

INTERNATIONAL BETTA CONGRESS ANNUAL

MEADOWLANDS EXPO CENTER

NORTHEAST COUNCIL OF AQUARIUM SOCIETIES

Plus...

MOST LOCAL CLUB SHOWS, AUCTIONS, MEETINGS

AND WEEKEND EVENTS.



Marcin Smok

National Society Events Con't

Most meetings are either virtual or cancelled. Check their website for up-to-date information.

BIG APPLE GUPPY CLUB

Meets: the last Tuesday each month (except Jan, Feb, July, and August) @ 7:30 to 10:00 pm. Alley Pond Environmental Ctr., 228-06 Northern Blvd., Queens, NY. Info: Donald Curtin (718) 631-0538 or twindon1@aol.com

BUCKS COUNTY AS

Meets the 1st Thursday of the month except August. Meetings start @ 7:30pm doors open @ 7:00 pm, at the Churchville Nature Center, 501, Churchville Lane, Churchville, PA. Info: bca-online.com

CAPITAL CICHLID ASSOCIATION

Meets the 2nd Saturday of each month* at: John F. Kennedy High School, 1901 Randolph Road, Glenmont, MD 20902 Doors open at 1:00 and the meeting starts at 2pm. *We do not hold regular meetings in March, July, August, or December.

DANBURY AREA AS

Meets the 4th Friday of the month @ 7:30 pm at Laura Sprain Memorial Cornerstone park, 1 Fair St. Carmel, NY 10512. Info: Rich Litsky (845) 228-0372 or Joe Masi (845)-896-4793 or daas@northeastcouncil.org

GREATER CITY AS

Meets the 1st Wednesday of the month @ 7:30 pm at the Queens Botanical Garden, except for January and February.

Info: Claudia Dickinson at: ivyrose@optonline.net or (631)-668-5125, or www.greatercity.org

Greater Hartford AS

Meets 4th Tuesday of the month @ 7:00 pm at the Lutz Children's Museum, 247 S. Main St., Manchester, CT. Info: (860)-643-0949

Jersey Shore AS

Usually meets the 2nd Monday of the month at the South Wall Fire Rescue Co., 2605 Atlantic Ave., Manasquan, NJ. @ 7:30 pm.

Info: www.jerseyshoreAS.org; or (732)-859-5595 or mws71@yahoo.com

LONG ISLAND AS

Meets the 3rd Friday of the month at SUNY Stony Brook's Maritime Science area, Room 120 in Endeavor Hall (After you enter building, take hallway on the right. Room 120 is first room on the left) on the State University at Stony Brook Campus, Stony Brook, NY 11794. Doors open @ 7:30 pm, meeting starts @ 8:00pm. Info: www.liasonline.org

LONG ISLAND REEF ASSOCIATION

Meets the 1st Friday of the month @ 8:00 pm at Acan Lighting, 75 Austin Blvd, Commack, NY 11725. Info: <http://www.LongIslandReef.org>

METROPOLITAN AREA KILLFISH ASSOCIATION

Meets 4th Wednesday of the month @ 8:00 pm at the Meadowlands Environmental Center, Lyndhurst, NJ. Info: SLMACK@compuserve.com

NASSAU COUNTY ASA

Usually meets the 2nd Tuesday. of the month at Molloy College, 1000 Hempstead Ave., Rockville Centre NY @ 8:00 pm. General meetings open to the public. Info: Mike Foran (516)-798-6766, or at info@ncasweb.org

NORTH JERSEY AS

Meets the 3rd Saturday of the month 12:30 pm sharp at the Clark Public Library Union County just off the Parkway at exit 135. Info: www.njas.net

NORWALK AS

Meets the 3rd Thursday of the month @ 8:00 pm at Earthplace, The Nature Discovery Center, 10 Woodside Lane, Westport, CT. Info: Norwalkas.org

PIONEER VALLEY AS

Meets 1st Tuesday of the month at The First Congregational Church, 20 Lathrop St, West Springfield, MA @ 7:00 pm. Info: Jacob Guinasso, jguinasso@pvas.net or Martha Morris, martha_morris@hotmail.com. or pvas.net

RALEIGH AQUARIUM SOCIETY

Meetings take place on the first Thursday of each month @ 7:30PM at the NCSU Vet School. Info: RaleighAquariumSociety.org

TROPICAL FISH CLUB OF BURLINGTON

Meets the 2nd Thursday of the month at the VFW Hall, 73 Pearl St., Essex Junction, VT. Meetings start @ 6:30 pm. Info: David Banks at dbanks@together.

TROPICAL FISH SOCIETY OF RHODE ISLAND

Meets the 3rd Wednesday of the month at the Rhode Island Society for the Prevention of Cruelty to Animals. 186 Amaral Street, Riverside, RI 02915. Doors open around 7:00 and meetings start at 7:30. Info: www.TFSRI.net.

Club Exchange



By **ALISSA SINCKLER**

BUCKS COUNTY AQUARIUM SOCIETY

"The Buckette" April 2020

Reprinted with the permission of Missouri Aquarium Society from September to October 1917. The article *One man's trash... Is another man's treasure.* An aquabid how-to by Rick Renfro touches on the topic of how the things we choose to put in our tanks is part of an ecosystem and caring for every single thing in our tanks is essential down to the plants and snails. That every part of our tanks is important and being a part of this type of hobby should mean giving things we no longer believe we need to people who do.

KITCHENER WATERLOO 'FISH & TALES' APRIL 2020

An article *The Tale of Two Stans* by Chris Kioetstra is a good read on how to make more space for tanks and a step-by-step on how he went about doing so (with pictures), along with his inspiration and results.

NORTH JERSEY AQUARIUM SOCIETY 'REPORTER' APRIL 2020

Has interesting articles on fish such as: Dr. Paul's fish of the month:

Hyphessobrycon elachys tetra. M. Weitzman 1985. A brief breakdown of this species of tetra. With a focus on their color patterns, their water chemistry, and their breeding practices.

Tropical Fish History Guppies and Beyond by Bob Larsen. A story timeline from 1957 to 2020 through memories on how this award winning guppy breeder hobbyist begin dabbling in tropical fish and guppies.

Teleogramma brichardi by our own Joseph Graffagnino. An article on how the author reacted to seeing and handling the teleogramma brichardi. He recounts from meeting this fish, to identifying the genders, to making a tank home for them, and finally to breeding them.

YOUNGSTOWN AREA TROPICAL FISH SOCIETY MAY 2020

Has an interesting article called *Corydoras pygmaeus "Pygmy Cory"* by Brian LaNeve.

An article on his experience with this species of fish. The author includes how to identify the genders, the feeding and conditioning for them, how to set up a tank for them, their water conditions, how to spawn them, and how to take care of their babies.

NORTH JERSEY AQUARIUM SOCIETY 'REPORTER' MAY 2020

An article titled *Denizen...The Great Pike Livebearer (Belonesox belizanus)* by Chuck Davis is a breakdown of this fish species through his experiences with them. He discusses their sizes, their tank mates, and water conditions.

MISSOURI AQUARIUM SOCIETY'S 'THE DARTER' APRIL 2020

Has an article *Super Shelly's* by Brett Wimer. This is a reprint from Federation of Texas Crab Society's Fish Tales newsletter 2019. This article gives tips and tricks on how to breed "Multie's" a small African shell-dwelling cichlid, their environment, species description in aquariums and what makes them so unique.

The Wildlife Conservation Society locations
are now open to the public!

The NY aquarium opened August 27.

All visitors must reserve a date-specific ticket in advance.

Please check <https://nyaquarium.com/plan-your-visit> for details.



Tip of the Season

*You can use dollar store glue to attach
anubias to rocks and wood.*

It can be used to create coral frags too!

— from David Manuel



From the Wildlife Conservation Society's Digital Archives

Founded in 1895 as the New York Zoological Society, the Wildlife Conservation Society turns 125 years old this year! It was one of the first conservation organizations in the U.S. The Society began with a clear mandate: Advance wildlife conservation, promote the study of zoology, and create a first-class zoo. In fact they have five: the Bronx Zoo, Central Park Zoo, Queens Zoo, Prospect Park Zoo, and New York Aquarium.



ANGEL FISH, SQUIRREL FISH, AND SPANISH HOGFISH, at the Government Aquarium and Museum, Bermuda. Painted by Dr. Andrey Avinoff, eminent naturalist, entomologist, artist, and late Director of the Carnegie Museum, Pittsburgh, Pa.

Published by the New York Zoological Society.

Cameroon's Lake Ejagham African Cichlid

Sarotherodon knauerae

Joe Graffagnino — BAS



Sarotherodon

A unique and relatively unseen species in the aquatic hobby, the west African tilapian species hails from Lake Ejagham in Cameroon. I was at a North Jersey Aquarium Society event in January 2018 when I noticed a bag of six fish in the auction. I had never heard of this type of fish so I asked Doctor Loiselle, who I believed brought them to the meeting. He mentioned that they were a mouth-brooding cichlid, with a mild disposition but the eggs had a shorter incubation period of only 14 days.

I was able to win the bag and brought them home. I started them in a 15-gallon tank on my wet/dry filter system, after isolating the tank for several weeks; in the event of sickness. After a week the fish settled down and I noted the minor physical differences between sexes, except

for one fish. The males were darker and had a black coloration from under their chin to their stomach area. The black coloration remained on their underside. The females were lighter in color and when they came into breeding colors they developed a dark green color on their backs. I had two females and three males and 1 questionable.

As per Doctor Loiselle, the pH range in the wild fluctuated from 5.5 to 8.5 and water temperature remained fairly constant from 75 to 80 degrees Fahrenheit (F.). To get them to spawn the temperature should remain at 78-80 degrees (F.). The first spawn took place two months after their arrival. The largest fish, a female, was approximately five inches, while the others ranged from 3.5 – 4.5, was holding eggs in her

*Sarotherodon**Sarotherodon Fry*

buccal cavity, yet she continued to eat pellet food. The next day the eggs were gone. Three weeks later she laid her green eggs in a flower pot. The next day they were gone. I assumed as young fish they would need to learn how to be good parents. The following spawn was 20 days later. The tank temperature was 81 degrees F. and the ph was 6.7, again nothing. 30 days later the smaller female was holding eggs, but only for a day. I decided to move the group to a 40-gallon breeder tank.

The following month both females were holding eggs. I decided to catch and strip both females. I wanted to raise the fry. There were hundreds of eggs from each fish. I put the eggs in an egg tumbler with Methylene blue to prevent egg fungus. All the eggs were infertile. There was one saving grace from all these disasters. I found the reason why the larger female was not producing fertile eggs; her partner was a female

disguised as a male. I watched as both fish laid eggs in a broken flowerpot and both fish placed eggs in their buccal cavity. I separated that fish and split up the females with the remaining males. On the next spawn, I got fertile eggs. I believe that the fish had to become sexually mature to produce fertile eggs.

The *Sarotherodon knauerae*, while not a “pretty” fish species, was a challenge and provided surprises and challenges. A pleasant fish that rarely fought with each other except for chasing others away from its nesting place. They would be an interesting addition to any mid-size to a large aquarium of unique African cichlids.

References:

* Aquarium Husbandry of *Sarotherodon knauerae*, a Dwarf Tilapia from Lake Ejagham by Paul V. Loisel.

* Wikipedia, from a Google search

TheShrimpFarm.com is the place to go for freshwater shrimp. The owner is Ryan Curtis, with a new mailing address:
2401 East Washington St, STE 200 A2, Bloomington, IL 61704. Visit the Aquarium Shrimp Forum <http://theshrimpfarm.com/forum/index.php>
to ask questions, talk to other shrimp nuts and discuss everything related to Freshwater Aquarium Shrimp.

Self-Cloning Marble Crayfish



MARBLE CRAYFISH HISTORY

Marble Crayfish are said to have been discovered in an aquarium shop in Germany in the late 1990's.

MARBLE CRAYFISH CARE

Unlike most aquarium fishes and shrimp, Marbled Crayfish are not picky about their water at all. They can be housed in extreme conditions and will be fine.

MARBLE CRAYFISH DIET

This aquarium freshwater crayfish is an Omnivore. They are decent algae eaters, and if sufficient algae is not present, foods intended for aquarium fish and invertebrates can be used to supplement their diet. Another great supplement is blanched (boiled until soft) vegetables.

MARBLE CRAYFISH BREEDING

Marble Crayfish do not need a mate in order to breed. They are for lack of a better term "Self Cloning." Their offspring will be exact clones of their parents. They can even be grown in buckets!

MARBLE CRAYFISH BEHAVIOR

Marble Crayfish are non aggressive but cannot be housed with shrimp.

SPECIAL NOTES

As with all aquatic invertebrates, it is important to make sure copper does not get into the aquarium. Copper is toxic to all Dwarf Shrimp. Many medications contain elevated levels of copper, so it is recommended not to medicate an aquarium containing Dwarf Shrimp.

Scientific Name: *Procambarus Sp.*

Common Name: Marble Crayfish.

Other Common Name: Blue Marble Crayfish, Self Cloning Crayfish.

Temperment: This crayfish is not shrimp safe.

Breeding: Easy.

Care Level: Easy.

Origin: Germany.

Found in Wild: No.

General Water Parameters

pH Range: 6.2-8.0

Temperature Range: 64 - 80

GH Range: 3-15

KH Range: 3-8

TDS Range: 150-250

Life Span: 1-2 years

The Shrimp Farm's Water Parameters:

Ideal pH Range: 6.8

Ideal Temperature Range: 72

Ideal GH Range: 6-8

Full Grown Size: 3-16"

Gestation Period: N/A

TheShrimpFarm.com is the place to go for freshwater shrimp. The owner is Ryan Curtis, with a new mailing address: 2401 East Washington St, STE 200 A2, Bloomington, IL 61704. Visit the Aquarium Shrimp Forum <http://theshrimpfarm.com/forum/index.php> to ask questions, talk to other shrimp nuts and discuss everything related to Freshwater Aquarium Shrimp.

The Basics of Keeping Fresh Water Invertebrates

IT'S OFTEN THOUGHT THAT AQUARIUM ENTHUSIASTS DO NOT HAVE MUCH TO CHOOSE FROM WHEN IT COMES TO FRESH WATER INVERTEBRATES, BUT THIS REALLY ISN'T SO. EVEN WHEN COMPARED TO THE RICHNESS OF THE SEA, THERE ARE STILL MANY POSSIBILITIES FOR FRESH WATER AQUARIUMS.

Generally, there are two types of invertebrates that aquarium keepers can choose from, yet within these two choices we can find a surprisingly large variety of creatures that are suitable for living in an aquarium environment. The two choices on offer are mollusks and crustaceans. On the whole, these animals are usually very undemanding, hardy, and therefore pretty easy to keep.

Problems With Fresh Water Invertebrates

But this doesn't mean there aren't some difficulties involved with fresh water invertebrates - they certainly require proper care if they are going to lead healthy, fulfilling lives in your aquarium.

The first challenge with lots of types of invertebrates is that many of them are not compatible with the kinds of tropical fish we like to keep in our aquariums. Many fresh water invertebrates need a combination of brackish water and cool temperatures, which is damaging for many of our favorite fish. Another consideration is that lots of types of invertebrates require some kind of land to walk around on.

Another challenge for fresh water invertebrates is their feeding habits often present an issue for aquarists. Many types of

invertebrates need to eat living plants, others like to eat fish, and yet more exist primarily as filter feeders – which are almost impossible to feed.

A third, more manageable problem is that some types of invertebrates like to multiply at terrific rates, quickly becoming more pests than pleasures to keep in our aquariums.

Pets or Pests?

Fresh water invertebrates can in fact make excellent pets to keep in our aquariums. They are often fascinating to observe, yet we need to be very careful about which ones we choose. The main point is to avoid impulse buying of different types of invertebrates without doing your research first. Many fresh water invertebrates totally unsuited to life in a fresh water aquarium and will quickly die. Even those that are suitable for aquarium life need a lot of care and attention.

So which invertebrates are suitable for your fresh water aquarium? Let's take a look at some of the most commonly kept invertebrates.

Fresh Water Invertebrate Health Considerations

Most types of invertebrates are quite low

maintenance as far as healthcare goes, so long as the quality and chemistry of your water are kept in optimum condition. With the exception of the pond snail, most types of invertebrates are vulnerable to poor quality water, or water containing high levels of nitrates. While some fresh water invertebrates are able to breathe air, for example apple snails and crabs, most cannot do so, and could quickly succumb in tanks that have poor water conditions.

One of the most important issues to be aware of if you want to keep fresh water invertebrates is that of copper-based medication. These types of medicines should be avoided at all costs, because most types of invertebrates are extremely intolerant of these compounds. Most aquarium medications use copper, and so you will need to check carefully before you go treating your tank.

Another important consideration is that many fresh water invertebrates like to molt. Molting is a complex process, and depends on the animals receiving the right kind of diet and living in the right conditions. Under the wrong conditions, many invertebrates will not be able to molt, and will therefore die.

Dietary Needs

Fresh water invertebrates have special dietary needs that need to be considered. Often overlooked, many aquarium kept creatures eventually starve to death. What you need to remember is that most fresh water invertebrates are essentially scavengers, while others may be

filter feeders.

Filter feeders are especially difficult, as they need the appropriate amount of particulate matter to be provided for them on a regular basis. Ideally, you should add a small amount of specialized food for them each day. Algae-eaters meanwhile, will need to be provided with an alternate source of food, because any algae you have in your tank is never enough to sustain them long term.

Regarding snails and many types of crayfish fresh water invertebrates, these creatures need to eat certain kinds of aquarium plants, which will have to be provided for them. Note that many snails will also happily eat your fish eggs, and so they are a definite no-go for any breeding tank.

You also need to beware of certain types of invertebrates that can eat your tropical fish, such as many crabs, long-arm shrimp and crayfish, which are able to catch and eat surprisingly large fish.

Summary

To cap it all, fresh water invertebrates can make excellent additions to your aquarium, but don't go kidding yourself that they are easy creatures to keep. Virtually all types of invertebrates require a level of specialist care, and so you will need to research carefully any kind of creature you are considering keeping, to see if it really is a viable option for you.

Some of the easier fresh water invertebrates to keep are red cherry shrimp!





| Name | Pros | Cons |
|----------------------------|---|--|
| Algae Shrimp | Peaceful creatures, consume algae, flake etc. | Eaten by larger fish. |
| Apple Snails | Beautiful, easy to find and fun to watch. | Can damage aquarium plants, short lifespan in aquariums. |
| Clams & Mussels | Always an interesting addition! | Require cool water and filter feeder food, are often nibbled by fish, like to burrow out of sight. |
| Crabs | Fun novelty creatures to add to your aquarium, very active. | Need brackish water, dry land, can be predatory. |
| Crayfish | Attractive, brightly colored shades of red or blue. | Can be predatory and territorial, will fight each other, nocturnal. |
| Fan Shrimp | Large size makes them very interesting to observe. | Territorial, sensitive to poor quality water, difficult to feed. |
| Long-arm Shrimp | Hardy and large. | Can potentially grow very big, highly territorial, predatory. |
| Pond Snails | Inexpensive, easy to look after. | Can damage aquarium plants, high reproductive rate. |
| Nerites | Harmless to most plants, consume algae, don't breed in aquariums. | Some require brackish water, can be difficult to identify. |



HOW TO SETUP

South American biotopes in your home

PART 1

Whitewater Igarapes JUNGLE CREEKS

Anthony P. Kroeger — BAS

THE JUNGLE! A place of legends, lore, beauty and gorgeous aquarium fish. The Amazon River is synonymous with the jungle in many peoples minds. But the Amazon is the confluence of many river drainages all of which are fed by “Igarapes” — the local term for small jungle streams.

Igarapes occur in both white and blackwaters. Each is very different from the other, so for this article white water Igarapes will be covered.

Whitewater in the Amazon basin is water that has extensive nutrients in it, usually with moderate current, such water moves through broken forest canopy and sometimes fairly open

flood plains. Lighting is therefore moderate.

Aquatic and marginal plant life is heavy in such environments.

Many, many species of fish live in whitewater from tetras and cichlids to corydoras and many other species.

So, again lets start with our 55-gallon aquarium with a moderate current, which means a standard size power filter and medium lighting supplied by a regular LED light strip or fluorescent.

Plants are the dominant feature in this whitewater environment. You can add a piece of driftwood for interest to catch the eye, but do

not overdo it. This is a world of plants.

Most of the plants are swordplants — *Echinodorus* species. These are excellent aquarium plants for the hobbyist.

To visually suggest and replicate such a plant heavy environment, I suggest you plant “zones,” background, sides, center, foreground. Then fill each “zone” with a different swordplant species.

Background plants must be tall but not overly wide. I suggest narrow leaf Amazon swordplants for this such as *Echinodorus uruguayensis*, the Uruguay Amazon swordplant or *Echinodorus angustifolius*, both hardy, cheap and readily available this choice is a no-brainer.

Side plants add both depth and color. So for side plants I suggest either ruffled swordplants like *Echinodorus major*, the crinkled leaves add visual contrast to the other swordplants making a more varied environment for both you and your fish to enjoy — or any of the newer rubra/ruby swordplant species, like the ruby melon swordplant, *Echinodorus barthi*. These

swordplants do cost more than regular Amazon swords, but the sides of the tank are shorter, so you will need less of them to fill the space.

The foreground needs a short grassy-like carpet. Pygmy chain swords, *Echinodorus tenellus* are the obvious choice here. Again hardy, cheap and readily available this plant will fill its “zone” quickly.

Now onto the center “zone,” there really is only one choice, the true broadleaf Amazon swordplant — the queen of aquatic plants *Echinodorus amazonicus* swordplant. Expect to pay more for this center plant and expect to look a bit to find it. Pick the plant with the broadest leaves. It will grow to be the center piece of your tank. Plant it just off center to obtain a pleasing effect.

But what other sword to put under what will be your future center plant? Here the various *Echinodorus* “ozelot” swords can be used to great effect. For a beautiful “dappled” appearance mix both the “red” ozelot and “green” ozelot. These are rather small but wide swords and will not impede the view or interfere with the broadleaf



Echinodorus ‘red flame’ — a good choice for below the centerpiece: *Echinodorus amazonicus*.

towering above them.

Look for *Echinodorus* “ozelot green” and *Echinodorus* “red flame” green leaves are splashed with burgundy red splotches. These are smaller wide swords and will not impede your view or interfere with the broadleaf *Echinodorus osiri* sword towering above them. Plus ozelots have the benefit of being hardy, cheap and available everywhere.

Now you’re ready for fish! But what to add? Angelfish of course! Angel’s are native to this environment and a great choice! Any color/finnage mutation is fine, but for my taste the natural silver or black or blacklace look best. I would add 6 to 8 angels in a 55-gallon tank.

For the surface I suggest silver hatchetfish, unique in shape and active, they add visual interest. Try a school of 6 to 8 of them.

You could add a school of 15 to 25 neons for color, but look at them as expendable “snacks” if your angels get large and are hungry.

Rather than lose neons I would suggest a school of 12 to 15 black neons or lemon tetras. Being larger they are too big to be angel “snacks”.

For the bottom any corydoras is fine: 4 to 6 is a good place to start. Personally, I like *C. julii* for the nice pattern. Again, all of these fish are reasonably priced and hardy, as well as available everywhere.



Echinodorus amazonicus — For the center



Echinodorus tenellus — For the foreground

This environment does require care and maintenance of its water. Mulm does not accumulate in a whitewater environment, so be sure to remove any dead plant leaves.

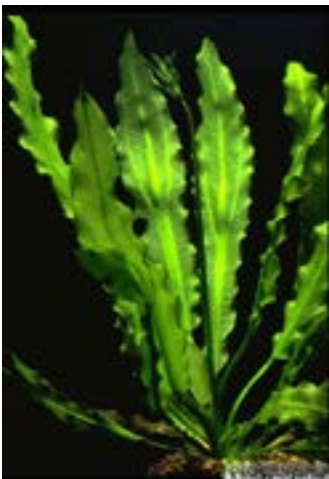
Gravel vac your substratum of sand weekly to keep it sweet and clean. I change 35% of my water weekly. Replace it with slightly warmer conditioned tap water. I add replacement water at 80°F and keep my tank at 78°F.

Ammonia, nitrites and nitrate in whitewater is always low. I test for each of these weekly.

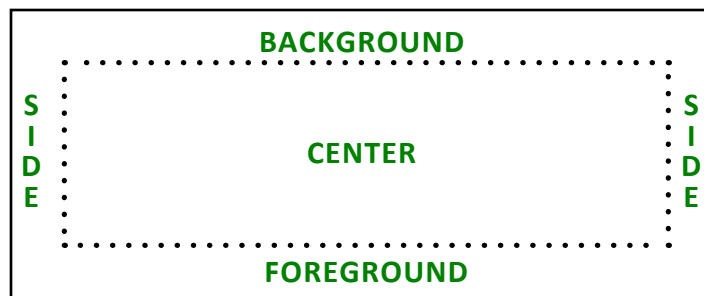
For a true piece of the Amazon in your home, a whitewater “igarape” is hard to beat.

Happy Fishkeeping!

Additional examples of sword plants, that exist in an Amazonian environment.



Echinodorus major



Echinodorus barthi



Echinodorus uruguayensis



Echinodorus angustifolius

Ian Fuller – BAS

Cool Cats

WHEN IT COMES TO what are the right temperatures to maintain certain fish, that is something that creates an element of debate wherever fish keepers meet. This seems to be even more evident when the subject is catfish, or in my particular case, where *Corydoras* catfish are concerned. For this particular discussion, I would like to address some of the *Corydoras* species that prefer the cooler end of the so-called tropical scale. When we use the term tropical, we are usually talking about temperatures around 75° Fahrenheit. Here, we are talking about a temperature range considerably lower, 60° to 70° Fahrenheit (15.5° - 21° Celsius).

There are four species in particular that would be very comfortable living at these lower temperatures. Two of them in fact become very uncomfortable and stressed if the temperatures rise much above 70°F. Dealing with these two first, they are closely related and resemble each other in colour pattern, in particular the females. They are *Corydoras barbatus* (Quoy & Gaimard, 1834), coming from fast flowing rivers that empty into Guanabara Bay in the State of Rio de Janeiro and *Corydoras kronei* (A. de Miranda Ribeiro, 1907), which comes from the Rio Ribeira de Iguape basin São Paulo State. The third species is *Corydoras macropterus* (Regan, 1913), which also comes from São Paulo State; this species is a little more tolerant of higher temperatures but they will eventually start to suffer if maintained in warmer water for long periods. The fourth species is *Corydoras paleatus* (Jenyns, 1842) originating from the Rio Paran, north west of Buenos Aires in Argentina. All four species are found at least 22° South of the equator, in the case of *Corydoras paleatus* 33° South. The water temperatures in these areas fluctuate far more than we would imagine, with temperatures of below 60° F being



regularly recorded.

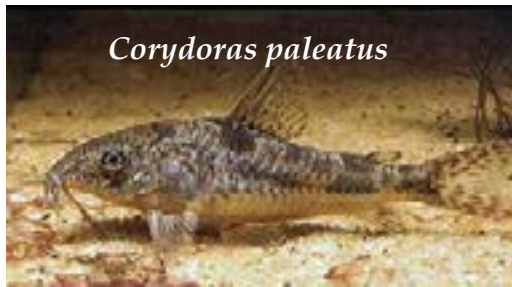
My recommended set up for any of these four species would be a tank of at least 24 inches in length, with a thin layer of smooth grained sand (10 to 12mm), a few lumps of sandstone or other inert rock to create a few hiding places and give the illusion that you are looking at a sandy creek or a river bank. Two or three clumps of Java fern attached to pieces of bog wood will add a bit of colour and a few soaked Oak or Beach leaves scattered on the bottom, would give it that final authentic touch. For filtration I would recommend an outside canister type power filter, this will create good water movement, optimum filtration and they are very easy to maintain. I would only install a heater to combat extreme winter temperatures, if you live in an area that is free from winter frosts then I would not use a heater at all. The natural day / night temperature fluctuation would actually be beneficial to all four species. The three species *Corydoras barbatus*, *Corydoras kronei* and *Corydoras paleatus* I have successfully spawned at 60°F. (15.5°C) and in the case of *Corydoras paleatus* the lowest was 55°F.

In smaller tanks, 24-inch minimum, *Corydoras barbatus* and *Corydoras kronei* are best kept in

pairs. If there are two males per female, which is the preferred ratio with most *Corydoras* species, there will certainly be squabbling, if not out and out serious fighting. The males of both species are territorial and become especially aggressive towards each other during the breeding season. *Corydoras paleatus* I have found are best kept in multiples of three, two males per female.

Corydoras macropterus, although a species that also enjoy the cooler temperatures, are not a fish for the inexperienced *Corydoras* keeper.

They are a fish that inhabit Blackwater biotypes and require a little more water preparation. Soft and acid water is a term we have heard and read about for many years and is a requirement of many fishes. For *Corydoras macropterus* it is a requirement that should be observed if the fish are to be given a reasonable chance to breed. They will survive without to many problems in neutral water (7pH. 8-10 GH) but are definitely at their best when the water is around 5-6 pH. 2 - 3 GH. To help put some of the natural elements into the water, I use pieces of soft bog wood and Oak leaves, which are allowed to leach their tannins into the water, this gives the water the appearance of weak tea. Regular water checks must be kept on the pH to make sure that it does not suddenly



crash to dangerously low levels, which can happen very quickly in a small environment like a aquarium. The best way I have found to avoid such problems is by twice weekly 25% or 30% water changes. Rainwater filtered through moss peat is a good way of creating the right water conditions, providing of course, that there are no industrial contaminants in it. If it is found that the rainwater is not suitable through contamination, the rain water can be filtered through a

water-purifying device and trace elements added to create exact parameters needed.

Corydoras macropterus males are territorial all the time and not just at breeding times, they are very aggressive towards each other, even when there is an abundance of females. In the past whenever I have attempted to keep these fish, let alone breed them, I have had trouble with males fighting and killing each other. The best method I have found to stop any serious damage from being caused is to slightly overcrowd them. For the last twelve months I've had a group of 6 males and 5 females in an 18" x 12" x 12" tank and so far there has been no harm done from their little squabbles. Because of the overcrowding I change 25% of their water every day. So far I have been unable to breed this species but I'm working on it.



MarineAndReef.com Newsletter #242 April 24, 2019



How to ACCURATELY Test Aquarium Water



Good aquarists don't maintain aquariums—they maintain water. And it is impossible to maintain your water without testing. Reference our Aquarium Testing Recommendations Chart to see what parameters to test for and how often. When you test you want the most accurate and precise measurements you can get. Here are some tips to help you improve your precision and accuracy.

Precision

How consistent are your test results? When you test your pH three times, and each time the test measures 8.2, the test is very precise. If the test measures 8.1, then 8.3, and then 8.2 the test is not precise. Precision does not mean the results are correct, but that they

are repeatable. Even if the actual pH of the water you tested was 6.5 and your result were consistently 8.2, your results would still be precise.

The key to getting precise results is performing your tests identically each and every time. Here are some simple steps to help you stay consistent.

1. Wash your test tubes with RO water
2. Follow the directions exactly. This means adhering to the exact recommended waiting time between steps.
3. Test in the same place and at the same time every time you test. This will result in precise results as lighting effects how your eye reads color based tests, and some parameters change throughout the day.

4. Use syringes to measure aquarium water rather than the lines printed on test cylinders. This will ensure you start with a more consistent amount of water for each test.

Accuracy

Accuracy describes how close your results are to the actual value. If your pH test result is 8.2 and the pH value is actually 8.2, the results are accurate. If your average result is 8.2, even though none of the actual results are 8.2, the results are still accurate.

To make sure that your results are accurate there are a few steps you can take.

Remove the weakest link

A test is no more accurate than its least accurate factor, and usually the least accurate factor is the human element. When you use your eye to read a color based test, or to read numbers on a scale, your eye is different from everyone else's and this can be a cause of errors in the results. Using a digital pH meter, digital refractometer, and digital colorimeter will remove the human error from your testing.

Use reference solutions

How do you know if your test kit is reporting correctly? Use a reference solution. A reference solution is a solution created in a lab that is certified to give a specific result. There are pH solutions,

salinity solutions, TDS solutions and natural sea water solutions. Using your test on the solution will let you know how close to the true value your test kit is reading. If you have electronic testers, you can adjust them to match the value the solution is reporting by calibrating your tester.

Use multiple methods

There are many things that can cause a test to be inaccurate. Stray voltage in your aquarium can cause your pH probe to read incorrectly. A dirty test vial can result in false readings with colorimetric pH tests. Because of this it is often best to use two different technologies for testing. You could test with both a colorimetric test and digital meter, or using a hydrometer and refractometer.

Use testing services

There are services where you can have lab technicians test your water for you. With the ICP Water Analysis Kit from ICP-Analysis.com you can take a sample of your water and send it to the ICP Lab to be tested using inductively coupled plasma (electronic plasma spectroscopy). The results are emailed to you. This is an excellent way to have professional test results on your tank and get insight into what could be causing a problem or limiting your tank's potential.

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Anthony P. Kroeger – BAS

When Foxes Fly!



**One of my favorite ‘shark’ type fish is the flying fox!
Interesting behavior and beautiful color
makes it well worth a place in your aquarium.**

Hailing from Indonesia to Borneo, and growing to a length of about 6” inches, this beautiful fish is primarily exported from Indonesia. All specimens offered are wild caught. This species has not been successfully bred on a commercial scale in captivity. Prices are moderately high.

A smaller, similar, but much less colorful species called the Siamese flying fox, *Epalzeorhynchus siamensis* is frequently exported from Bangkok.

Flying fox are very pretty. A greenish, yellow body, white belly and dark chocolate brown upper body are set off by a broad black stripe

running snout to tail. This stripe runs into the caudal fin splitting it in half. A metallic yellow stripe snout to tail runs right above the black stripe. Caudal, pelvic, anal and ventral fins are bright red. The first rays of the pelvic and anal fins are blue.

The dorsal fin has a yellow orange base, black fin rays with a white tip.

Flying fox needs a roomy tank with well oxygenated water. This is an active fish. I use a 30-gallon long for one specimen, more room is even better. Use a sand substrate, lots of plants, roots and rocks. A power filter is mandatory. Always. cover their tank! They will launch



Epalzeorhynchus siamensis



Epalzeorhynchus kalopterus

themselves out of the smallest hole. Flying fox are excellent jumpers!

Easy to feed, they eat all foods. They love algae. feed them spirulina too.

Always keep their water quality high. But soft, neutral, with a temperature between 75° and 80°F is best for them.

Flying fox are hyper and scrappy fish, they will mercilessly harass each other. Keep them alone or in a group of 6 or more to spread out their aggressive behavior.

Do not keep flying fox with slow moving or

long finned fish. They make angels and bettas miserable. Great with fast fish though. Flying fox go great with danios, rainbowfish, barbs, serpa tetra, silverdollars, etc.

They also do well with kribbs, firemouths, blue acara and similar cichlids too!

Once established, flying fox are very hardy long lived fish. Just make sure you keep their water clean!

Put a fox in your tank...a flying fox.

Happy fishkeeping.

Word Search

By MARTY KARFINKEL

R E D C A P R C A T T T Q
 V N Y J Q B Z S A F G J D
 P E Y E R T S R A L E M G
 E D P P L A M N T L I S R
 Y A P O R A T O A L H C B
 E E J A C A I C P U Y L O
 E H S U I S S T B M A K R
 L N O L H L E U S C O H Z
 B O L R R C N L K E Y P C
 B I M A A K N M E U L O W
 U L E J I N O A K T M E B
 B P D N L O D I R E Y K C
 L X Q N R L N A T D Z Z P

BlackMoor
 BubbleEye
 Calico
 CelestialEye
 Comet
 Fantail
 Lionhead
 Oranda

Pearlscale
 PomPom
 Ranchu
 RedCap
 Rhyukin
 Sarassa
 Shubunkin
 Telescope

Crossword Puzzle Challenge

By MARTY KARFINKEL



ACROSS

- 3 Betta nest
- 5 Oodinium commonly
- 6 Pond snails
- 8 pH reading below 7.0
- 10 Brine Shrimp
- 11 Started as a female, became a male
- 13 pH reading over 7.0
- 14 Too much light
- 15 Saltier than freshwater, but not seawater
- 16 Connects tail to body
- 18 Kisser for one
- 20 Mutations

DOWN

- 1 "Hole-in-the-head" causing parasite
- 2 External parasite problem
- 4 Nemo
- 7 Pesky disc-shaped louse
- 9 Tail fin
- 12 Gill cover
- 17 Abdominal fluid problem
- 19 White spot disease nickname

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To honor Editor John Todaro and encourage original writing about the aquarium hobby.

PROGRAM CRITERIA

The writing program is on a fiscal year basis (July 1 – June 30).

There is no limit on the number of articles submitted by an author. However, only three (3) articles will be evaluated by the committee for the writing awards. Judged by the committee and if a tie the Chairperson's decision is final.

Articles on breeding fish will have a dual submission in both the writing program and the Breeders Award Program. The writing program is open to members and non-members of any age.

The committee will evaluate and vote on each article based on the following criteria:

- The originality of the article (past year, plagiarism of another's work or previously published articles will be disqualified).
- Clarity of species and subject matter.
- Depth of research – research articles to include citations and footnotes to sources if any.
- Use of scientific names for fish, plants and corals.
- Spelling
- Artwork &/or photos submitted with the article will receive extra points if related to the article or deduct points if incorrect or unrelated to the article.
- If an originally submitted article is printed by another club, within the same year as the same article is submitted to BAS, the author will not be penalized.

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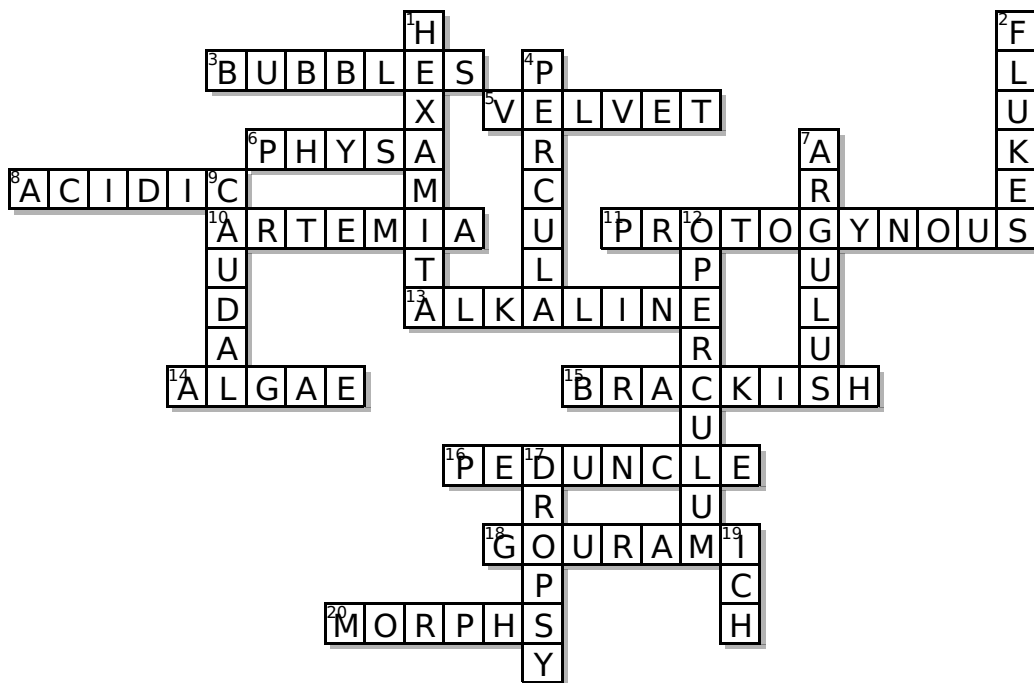
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BENEFITS OF MEMBERSHIP IN THE BROOKLYN AQUARIUM SOCIETY

Your Membership Card is your Passport to Becoming an *"Educated Aquarist."* Don't lose it. Put it in your wallet or purse. You'll need it to attend Monthly Events and get discounts at participating pet stores.

YOUR MEMBERSHIP BENEFITS INCLUDE:

Free Admission to all general meetings, held on the 2nd Friday of the month (except July & August) at 7:30 pm at the Education hall of the New York Aquarium, at Coney Island, Surf Avenue at West 8th Street, Brooklyn, N.Y. The Society presents expert speakers on all aspects of the hobby, from freshwater fish to marine aquatic life. Door prizes and raffles at every meeting. Breeder Awards Program (BAP) – Certificates and trophies awarded. General meetings are open to the public (\$5 donation is requested for non-members). Free parking and free refreshments.

Special Interest Groups (SIGs) hold meetings, free at members' homes, for members only. Here's your chance to network with members with the same interests. Discuss, ask questions, learn, teach and develop your expertise in freshwater and/or marine aquarium keeping.

AquaticNews The Journal of the Brooklyn Aquarium Society, our tri-monthly (4 issues except July & August) award winning publication is on our website. Each issue is filled with articles on both marine and freshwater aquaria keeping. Articles can be downloaded.

Meeting reminder! All members receive flyers announcing speakers via email, keeping members up to date.

Calling all writers, artists and photographers! All members will have the opportunity to submit articles, photography and illustrations for publication in the **AquaticNews!**

BAS is on-line at BASNY.ORG. You'll find up-to-date information about our monthly events, links to other aquarium societies in the US and stores, manufacturers and related aquarium sites. We have an on-line library with downloadable articles. We have our own BAS forum, where you can interact with other freshwater, marine or reef members and post free hobby-related classifieds where members sell and trade fish, corals, plants and equipment.

BAS Hotline: For the latest information call the BAS 24 hour Hotline 718 837-4455 for event and inclement weather information. If you need advice on fish keeping, breeding or where you can find rare or hard to find fish, you can often get help calling the Hotline. Help from the Hotline is always free.

Volunteer: The Brooklyn Aquarium Society is an organization run by volunteers. Without them there would be no BAS. Volunteers help set up events, write articles, coordinate projects, assist and work on committees, help at auctions and meetings. Join in, help, learn and have fun doing it. Call Steven Matassa, President (347) 277-4793.

Video Tape Library: We have a video tape library on different aspects of fish care and breeding plus past BAS Speaker Events. These video tapes are available via our BAS Forum. You must be a member of our Forum. Membership is free.

Discounts for Members at many BAS participating pet stores when you present your current BAS membership card.

Welcome and we hope you take advantage of the many benefits BAS has to offer.

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* 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 []

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Member number: _____ Type of membership [F] [I] [S] Date _____
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