

*109 Years of Educating Aquarists*

# AQUATICNews

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*Brooklyn Aquarium Society Online Newsletter & Magazine*

VOL. 1

Winter 2020

No. 1

A photograph of two flatfish, likely starry flounders, resting on a dark, textured surface. The fish have dark bodies covered in numerous bright white spots and larger white patches. They are positioned diagonally, with one slightly above and to the left of the other.

**UPCOMING SPEAKERS**

**March 13 Jason D'Ambrosio**

**April 10 Robert Stark**

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

**HELD THE 2<sup>ND</sup> 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**



# Inside AQUATICNews



**3**

President's Message

**4**

Upcoming Speakers

**8**

## **DONATORS**

New Members &  
Renewals

**9**

## **BAS AWARDS**

New Members &  
Renewals



**Join us on Facebook and Meetup**

<https://www.facebook.com/groups/BAS.FB/>

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

**10**

National and Regional  
Events

## **ARTICLES**

**16**

Breeding Fish the Natural Way  
*Dee Manuel — BAS*

**18**

A profile of AMANO SHRIMP  
*Caridina Multidentata.*  
*Ryan Curtis— BAS*

**19**

African Biotypes in Your Home  
part 3—Tanganyika Sand Flats  
*Anthony P. Kroeger — BAS*

**21**

Frank's Fish Jello  
*Frank M. Greco*

**22**

Sexing Corydoras  
*Ian Fuller — BAS*

**25**

How the Icefish Got it's  
Transparent Blood — *NYT*

**27**

Tankful of Moons  
*Anthony P. Kroeger — BAS*

**12**

## **NYA NOTES**

Take a look inside  
the New York Aquarium's Ocean Wonders:  
Sharks! building.

**31**

Meet Our Sponsors

# President's Message

One of the coldest months of the year turned out to be warm and sunny when Joe Yaiullo, Curator of the Long Island Aquarium in Riverhead, Long Island arrived. His presentation entitled "Sometimes It's The Little Things" was fascinating. This event was a wake-up call for marine and freshwater hobbyists alike because it spoke about setting up the steps to prevent catastrophe, planning ahead so disaster doesn't strike and having redundancy parts and equipment in the event something fails. It was an enlightening and educational adventure from one of our oldest and dearest friends. Joe was kind enough to donate cuttings from the corals in his 20,000 gallon aquarium. The audience was very interested and asked many questions.



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 Writer's 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—if the articles submitted warrant an award (all payments are in BAS Bucks). Starts now and ends at the July Board meeting. More on this in near future.

The winds of March will blow in Jason D'Ambrosio, President of the North Jersey Aquarium Society and his topic for the evening will be Stingray Husbandry. Yes, you can breed stingrays in your home aquarium, providing you take the necessary

steps to keep them happy.

The Brooklyn Aquarium Society turned 109 years young on Valentine's Day. We are the oldest and largest general aquarium club in the United States and that is because of you—our members, our Board and Officers and the love we all have for aquatic creatures. So come on down on March 13 for an enjoyable evening with great people. We always try to have an interesting topic for you and our aquatic auction and sales tables can't be beat. As always there will be free parking and free refreshments, doors open at 7:30 pm.

New BAS T-shirts arrived along with hats and patches so get them before they sell out. We will have a new T-shirt contest. You may submit as many entries as you want and judging will take place at our June event. The winning T-shirt will be available for sale at our September meeting. Many noticed the BAS officers and Board members wore the regular BAS shirt with the word TEAM on the back. We did this to identify our members that work and help organize our events.

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. 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](http://WWW.BROOKLYNAQUARIUMSOCIETY.ORG).



Any member who wants to attend a Board meeting, which is held at Education Hall of the New York Aquarium on the 1st Friday of the month, September through June, please notify me at (347) 277-4793 by the Tuesday before the meeting.

Steven Matassa  
President  
Brooklyn Aquarium Society

*The birthday cake was a special surprise at February's meeting. Thanks to Marie Licciardello for handling this delicious treat.*



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VOL. 1 Winter 2020 No. 1

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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: Virginia Cahill 10 Ocean Parkway, B6, Brooklyn, NY 11218

**You can submit articles to the Editor by mail, or E-mail to: [basny.editor@gmail.com](mailto:basny.editor@gmail.com).**

## Brooklyn Aquarium Society Board of Directors

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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.

## Spring Speakers

**APRIL 10** Robert Stark *Successful Strategies for Reef Keeping* ~ Followed by an auction of marine fish, aqua-cultured corals, freshwater fish, plants & dry goods.

**MAY 8** Giant Spring Auction ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods.

**JUNE 12** Chad Clayton ~ *Copepods are Changing the Face of Aquaculture* ~ Followed by an auction of marine fish, aqua-cultured corals, freshwater fish, plants & dry goods.

**NO MEETINGS JULY & AUGUST**

## 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.

**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.brooklynaquariumsociety.com](http://www.brooklynaquariumsociety.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 Winter Speakers

## January 10

Lou Ekes

### *Reef Chemistry Made Easy*

Lou Ekus is CEO of Tropic Marin USA and, along with his wife, Leslie, are responsible for all Tropic Marin products, product support and aquarist assistance in the US and Canada.

Lou has been actively involved in the marine aquarium industry for over 22 years. He frequently works with aquarists, helping them with system issues big and small from large public aquariums to ½ gallon nano reefs. Lou has been a salt water aquarist most of his life. As



an adult, he designed and built a multi-tank system in his home consisting of a 150 gallon mixed reef tank, a 150 community fish only tank and a 90 gallon predator tank. This system also incorporated a custom lighting and filtration systems all designed and built by Lou. Due to time and traveling constraints, Lou has downsized and is enjoying the ease of care of a 150 gallon African Cichlid tank and is currently working on a small, 29 gallon, mangrove ecosystem experiment. Lou is an avid saltwater fly fisherman, holds a commercial hot air balloon license and is an antique car enthusiast, often taking trips in their 1931 Ford Roadster, named Irma, with Leslie.

There's no telling where the three of them will show up! Lou and Leslie have recently taken on the management of Aquarium Munster USA as well.

## February 14

Joe Yauillo

### *Sometimes It's the Little Things*



Joe Yauillo is the Curator of Long Island Aquarium and Exhibition Center. Born and raised on Long Island, Joe graduated Southampton College with a BS in Marine Biology.

Joe worked at the NY Aquarium from 1987–1995, then left to pursue a dream of building an aquarium on

Long Island. He was instrumental in designing, developing and building the Long Island Aquarium located at 431 East Main Street in Riverhead, which opened in June 2000. The exhibits include a 2,000 gallon clownfish/anemone tank, 120,000 gallon shark tank and a 20,000 gallon live coral tank, which to date is the largest closed reef system in North and South America, and the 4th largest in the world. Long Island Aquarium and Exhibition Center also features a unique 2 hour environmental tour boat, Atlantis Explorer, that navigates down the Peconic River and Flanders Bay. The tour is hosted by naturalists. Visit the web site for more details: [www.longislandaquarium.com](http://www.longislandaquarium.com)

## March 13

Jason D'Ambrosio

### *These Are Not the Teacups You're Looking For*

#### **A look at South American and Fresh Water Stingray husbandry.**

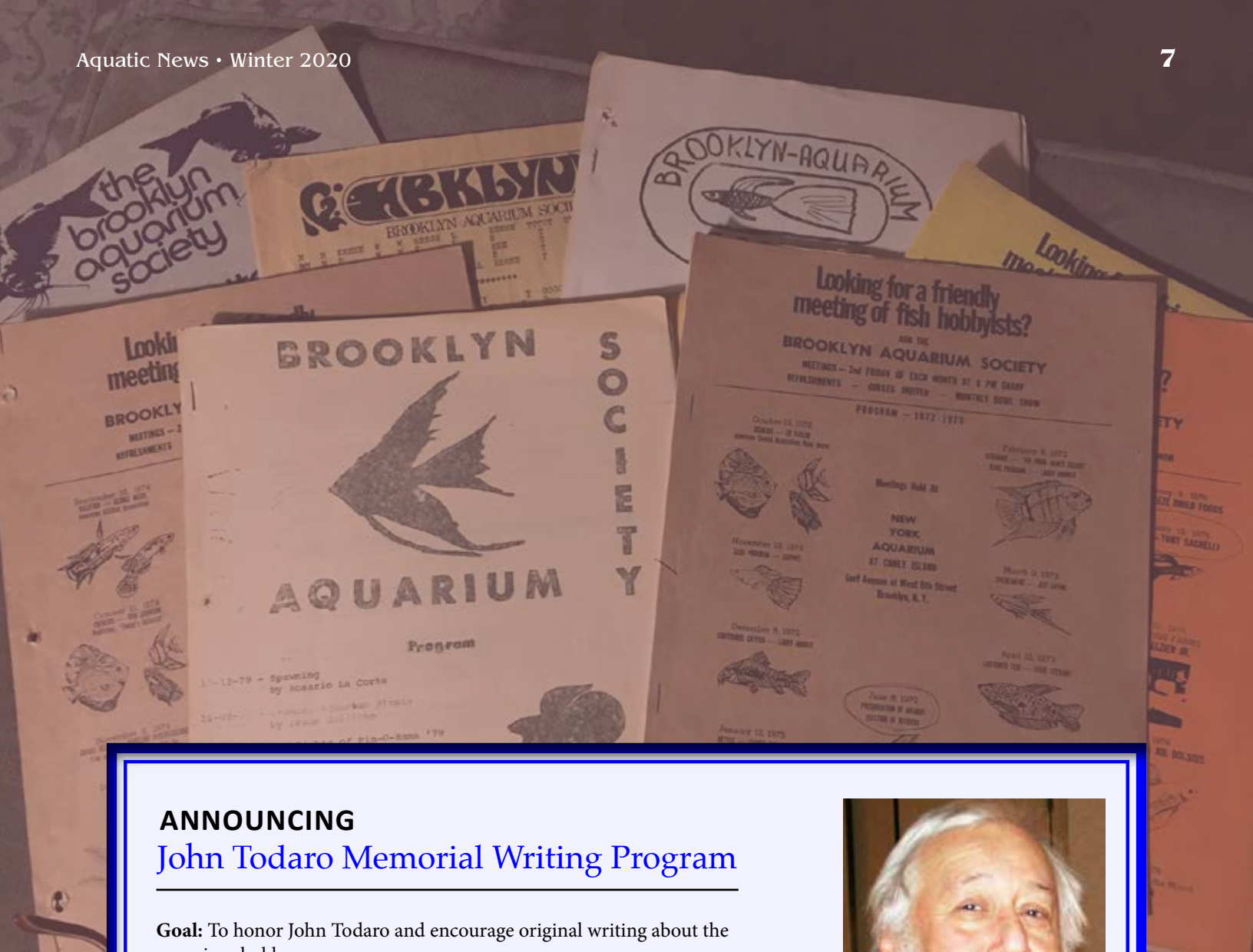


Jason D'Ambrosio has been the president of North Jersey Aquarium Society since 2018, and a long time moderator on Monsterfishkeepers.com. After falling in love with the hobby at 8 years old, Jason has spent the majority of his life taking care of animals, including dogs, snakes, frogs, fish, and his friends. As the proud keeper of monster fish such as stingrays and cichlids, he also keeps guppies, discus, and everything in between! Jason began breeding stingrays in 2017 and has learned a lot from experience and friends within the hobby. Outside of the hobby, Jason has an established 20 year career in finance, and is the co-parent to two rescue bulldogs.

### **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.



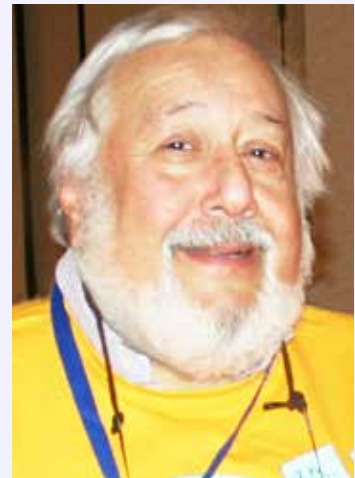
## ANNOUNCING

### 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 29.

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



# Thank You Donors

## Individuals for January 2020

Norman Benjamin  
BAS Archives  
Joe Graffagnino  
David Manuel  
Steve Matassa  
Kai Nguyen  
Scott Peters  
Gabe Scelta

Victoria Silverstein  
Daniel Smith  
Denis Vardaro  
Rob Wranovics

## Stores

Brooklyn Zoo & Aquarium, Brooklyn, NY  
Monster Aquarium, Queens, NY  
Pacific Aquarium, New York, NY

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## Individuals for February 2020

Salvatore Amato  
Nick DeCillis  
Joe Graffagnino  
Andy Hill  
Steve Matassa  
Scott Peters  
Dan Puleo

Marshall Sherman  
Alexander Vihnitsky  
Joe Yaiullo

## STORES/MFG

Brooklyn Zoo & Aquarium, Brooklyn, NY  
Long Island Aquarium, Riverhead, NY  
Monster Aquarium, Queens, NY  
Pacific Aquarium, New York, NY



## New Members

John Taylor

Alexander Vihnitsky

Chris Capuara

Leon Zeigler

Phil Brennan



## Renewing Members

Al DiSpigna

Andy Hill

Daniel Smith

Frank Zeigler

Kevin Tim Kee

Virginia Cahill

# Awards before the auction



**WAYNE SINKLER** received the **JOE & ANN BELLER MEMORIAL AWARD** — the highest BAS award!



**ALISSA SINKLER** took home the **RICHARD SPANVILL MEMORIAL AWARD**



**DENVER LETTMAN** is named **HOBBYIST OF THE YEAR**



**DANIEL SMITH** received the **WILLIAM F. DeFOE AWARD**

# National Society Events

**CHECK ALL TIMES AND DATES BEFORE ATTENDING**  
**Before going to any event check their web site for up-to-date information.**

**FEBRUARY 16, 2020**

**PIONEER VALLEY AQUARIUM SOCIETY ANNUAL AUCTION**

Starts at 11:30 a.m. Moose Lodge, 244 Fuller Road, Chicopee, MA 01020.

For more information: [jimcormier1@gmail.com](mailto:jimcormier1@gmail.com)

**MARCH 7, 2020**

**NEW ENGLAND FRAG FARMER'S MARKET**

At E.O. Smith High School, 1235 Storrs Road, Storrs, CT 10 A.M. –5 P.M.

For information: Jon at [swansonjl@hotmail.com](mailto:swansonjl@hotmail.com)

**MARCH 21-22, 2020**

**NEW ENGLAND CICHLID ASSOCIATION SPRING EQUINOX ESCAPEDE** Held at Double Tree

By Hilton (Bristol, CT) from 8:30 AM – 5 PM For info: [petergeorge@verizon.net](mailto:petergeorge@verizon.net)

**MARCH 22, 2020**

**JERSEY SHORE AUCTION**

Held at the South Wall Fire Rescue Company, 2605 Atlantic Ave., Manasquan, NJ 08736

For information: e-mail Bill Loesch at [allaboutpetsllc@yahoo.com](mailto:allaboutpetsllc@yahoo.com), [www.jerseyshoreas.org](http://www.jerseyshoreas.org)

**APRIL 17- 19, 2020**

**NEC 45TH ANNUAL CONVENTION**

Held at the Hilton Garden Inn, 1181 Barnes Road, Wallingford, CT. For information: [www.northeastcouncil.org](http://www.northeastcouncil.org)

**JUNE 11-14, 2020**

**AMERICAN LIVEBEARER ASSOCIATION CONVENTION**

Held in Coral Springs, FL For information: [www.Livebearers.org](http://www.Livebearers.org)

**JUNE 19-21, 2020**

**AMERICAN KILLIFISH ASSOCIATION CONVENTION**

Held in St.Louis, MO For information: [www.AKA.org](http://www.AKA.org)

**JUNE 25-28, 2020**

**INTERNATIONAL BETTA CONGRESS CONVENTION**

Held in Chicago, IL For info: <http://www.ibcbettas.org/>

**JULY 16-19, 2020**

**AMERICAN CICHLID ASSOCIATION CONVENTION**

Held in Sacramento, CA For information: [www.AKA.org](http://www.AKA.org)

**AUGUST 28-30, 2020**

**MACNA [MARINE AQUARIUM CONFERENCE OF NORTH AMERICA 2020]**

Held in Phoenix Convention Center, Phoenix, AZ For info:<https://MACNA.org>

# National Society Events Con't

**CHECK ALL TIMES AND DATES BEFORE ATTENDING**  
**Before going to any event check their web site 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 KILLIFISH 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](mailto: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](http://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](http://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](mailto:jguinasso@pvas.net) or Martha Morris, [martha\\_morris@hotmail.com](mailto:martha_morris@hotmail.com). or [pvas.net](http://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](http://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](mailto: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](http://www.TFSRI.net).

# Inside New York Aquarium



## Park Hours

NOVEMBER 3, 2019 — APRIL 3, 2020

Daily 10:00 AM - 3:30 PM • Park closes at 4:30pm

## **Ocean Wonders at the New York Aquarium**

There are over 115 marine species, 18 different kinds of sharks and rays! A visit to the Donald Zucker and Barbara Hrbek Zucker Ocean Wonders: Sharks! Will teach you something new about the most misunderstood animals out of the depths and nose-to-nose with you. Entering the exhibits, one must go through the unforgettable coral tunnel that surround you with blacktip reef sharks, zebra sharks, butterflyfish and even spotted Wobbegong sharks.

Look closely!

## **Do you need CO<sub>2</sub> to grow plants?**

**You don't have to add carbon dioxide to your aquarium in order to grow beautiful plants. All that your aquatic plants need is a reasonable balance of nutrients and light. Carbon dioxide is important for aquatic plant growth, but it is in the water even if you didn't put it there yourself.**



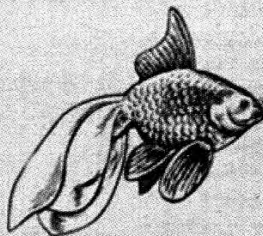
February 14th the Society will have been Educating Aquarists for 109 years.

We have reprinted the first 2 pages of our very first publication the

Brooklyn Aquarium Society Bulletin.

# Brooklyn Aquarium Society

## BULLETIN



Issued monthly to stimulate interest in the study of water life and organisms.

Headquarters and Society Rooms: Fairchild Building, 702 Fulton St., Brooklyn, N. Y.

Vol. I.

MAY, 1911.

Number 1

*"Es ist das Kolossale in der Natur, das Geheimnisvolle, Unerforschliche, welches sie uns so aussehend macht."*

### GREETING.

EVER since the first awakening of conscience in the nations and the final simultaneous increase in all branches of culture, we humans distinguish two separate enjoyments of nature. Upon the one hand—in the open childish sense of the human being—the entrance into nature and the appreciation of its continual changes, which are going on as a systematic quiet advance, is most exciting; while on the other hand, enjoyment is derived by our acceptance of the order in the universe and the workings of its psychic forces.

Before us we have the unending infinite wonders of the Creator and, as we poor mortals view these wonders, we are overcome by an uneasiness created by their vastness which we try to evade, because we feel that our powers, both of body and mind, are too limited to appreciate and much less to understand them. Still, when we see how every motion seems to be regulated by the existence of everlasting and eternal laws, a secret inquisitiveness seizes us, a craving for knowledge to find that which is concealed from us, to study these unknown earthly mysteries, their conditions and their surroundings!

Of all the gods which have divided among themselves the ownership of the world, Neptune reigns by far over the largest territory. So great are his possessions, that were a giant hand to take the glorious and mighty Alps and place them into the depths of the ocean, they would disappear without a sign, hardly changing the surface of the waters; and thus, when we see the size and depths of these bodies, how can we help but ask what creatures are living within their unknown bosoms!

At the time of Plinius, only seventy-four separate species of fish were known, as the knowledge of the ancients was drawn only from the Mediterranean and a small part of the Atlantic ocean. They had no idea of the enormous quantity of finny inhabitants in either the Polar or Tropic regions, while we, today, can count upward of ten thousand species. Yet, there remains no doubt but that far down in the unknown depths there yet lives many an unnamed member of the fish family. "It is still unknown," says the great Humboldt, "whether the waters do not contain even a greater variety of animal life than the earth." And, thus driven by a craving for knowledge and an interest in animal and plant life, we, the BROOKLYN AQUARIUM SOCIETY, have banded ourselves together to increase our understanding of all fish, plants and inhabitants of the water as may be kept in private aquaria, both for study and for pleasure.

The further to show our good intentions and energy, we issue this monthly bulletin which shall be circulated over the globe, reaching to our friends in the *Nymphaea* in Leipzig, the *Isis* in Munich, the *Triton* of Berlin, the Hamburg and Copenhagen, New York, Philadelphia and other societies, to whom we also extend our fraternal greetings, a cordial invitation to exchange papers and attend our meetings and outings.

This is but our birth, and in our future life to come, we shall leave marks behind us not easily forgotten and which no wave shall eradicate! Just as our society name for closer friendship is *Myosotis*, the forget-me-not of the waters, we intend the BROOKLYN AQUARIUM SOCIETY shall be the forget-me-not of all lovers of aquaria.

—RUDOLPH LIENAU, D. D. S.

### A PLEA FOR THE MICRO-AQUARIUM.

THOMAS I. MILLER.

**W**HAT a wealth of life there is in an aquarium!

The ordinary observer glories in the beauty of the growing water plants and the rare fish seen so close at hand.

The microscopist, however, is the only one who really sees the marvelous beauty of the miniature pond. Objects too minute for man's unaided vision are his delight. Verily he lives in a world unknown to most mortals.

Perhaps the chief charm lies in the fact that much of this life has no counterpart in larger forms. Get a microscope and enter the realm, and great will be your joy.

Do you know that the very first form of life which appeared on this earth belonged to the vegetable kingdom, and that it was a little one-celled plant called a diatom?

There are about 2,500 described species of diatoms and the beauty of their silicified skeletons has long made them favorite objects for the microscope. The study of these minute plants created the demand for better and higher powered lenses for the microscope, and without these lenses our present knowledge of bacteriology would have been impossible.

Every aquarium is full of these fairy plants, and yet perhaps the reader has never seen even one species. Many persons have mistaken ideas as to the expense of a microscopic outfit. For the beginner excellent microscopes can be bought for about fifteen dollars. It is by no means necessary to buy a new instrument. Bargains in second-hand instruments are often offered by the dealers.

*Continued on page 2.*

## THE "BALANCED" OR SELF-SUSTAINING AQUARIUM.

ALL of us have seen and most of us have had at some time small glass globes in which we have kept gold fishes. In this article we do not care to consider such a method of maintaining them, inasmuch as it is not only cruel to keep our fish friends under such circumstances, but when we desire to study the lives and conditions of the creatures kept therein, the views obtained through these receptacles are distorted; therefore, we shall relegate such articles of torture to the background and give them no consideration, except to urge the discontinuance of their use.

The aquarium which we offer for discussion is rectangular in shape and may either be made all of glass or with iron, brass or tin frames. It is desirable that it be proportionate in size:—that is, the depth should not exceed the length to any great extent nor the width be much smaller in proportion to the depth, as we must bear in mind that the aquarium ought to be ornamental as well as useful. A good medium sized aquarium should measure about 12 inches long, 9 inches wide, and 14 inches deep. This will hold about six gallons of water and under proper conditions, successfully maintain a balance with six fishes not more than three inches in length.

Of course the aquarist, if he desires, may use a larger or smaller aquarium. The larger the aquarium, the greater the number of fishes that may be kept in it.

As everyone knows, water contains oxygen. The fishes breathe the oxygen from the water through their gills, which are adapted to utilize it, and exhale carbonic acid gas (poisonous). Obviously, it is necessary to supply oxygen in the water as rapidly as the fishes exhaust it. How shall we do this? Does it necessarily mean that we shall have to use pumps and other complicated apparatus?

Fish are found in ponds which are not only without tide, but are destitute of all sources for supplying fresh water. The secret of it all is this: there are certain water plants which, under the action of daylight, absorb the poisonous exhalations of the fish and give off oxygen.

It is our desire to explain as clearly as possible, to avoid all technical terms whenever we can, and thus to make it an easy matter for the beginner to obtain the necessary plant life for the successful maintenance of fish life.

The following plants are good oxygenators and may be obtained from any aquarium store. The Floating Arrowhead (*Sagittaria natans*) is of exceptional value and very graceful. Another very useful plant is the Water-weed (*Anacharis canadensis*). With these two varieties, the aquarium may be set up and successfully maintained. Other good plants are the Fanwort (*Cabomba caroliniana*), and the Water-Milfoil (*Myriophyllum*).

It is advisable to have plenty of plant life in the aquarium.

On the location of the aquarium for proper lighting facilities, many aquarists differ. However, aquaria may thrive under any of the light conditions provided there is not too much or too little light. Experience only can solve this question and in our next issue we shall explain the arranging and stocking of the aquarium with fishes.

## HOW TO START AND MANAGE A TERRARIUM.

HERMANN RABENAU.

THE terrarium, like the aquarium, is one of the most beautiful ornaments for the home. While the aquarium serves as a means to study aquatic life, the terrarium is used for the purpose of studying terrestrial life.

It is more or less difficult to observe smaller animal nature, such as reptiles and batrachians, in the open, but it can be done successfully in a terrarium.

Plants are rather hard to keep in the house, as the moisture and dry air with the dust under ordinary conditions, are not suitable for their cultivation. The terrarium maintains the moisture and keeps the dust out. It is the nearest we can get to nature in keeping plants in the home.

A terrarium is best made rectangular in shape with a cover made of screening which can be easily removed. The bottom should be provided with a drainage pipe leading to some kind of a vessel suitable to receive the residue water. The ventilation and drainage are two very important factors. The bottom of the terrarium should be covered to a depth of about two or three inches with loose material, such as flower-pots, bricks, cinders or charcoal, broken to about the size of pigeons' eggs. This should be covered with a layer of moss to prevent the soil from being washed down and stopping the drainage. The best soil is leaf-mould from the woods. After the soil is placed in, we have to appeal to our knowledge of landscape gardening to enhance the appearance of our miniature garden. Rock-work in the background will serve both as an ornament and a resting place for the inhabitants. A flat pan, two or three inches deep, with its edges covered with moss, may be sunk in the soil and so arranged as to resemble a pond. The larger plants should be placed in the background and the smaller ones nearer the front in order to permit a clear view. The places between the plants may be filled with moss. The whole arrangement should have good light, as we all know that light is essential to the growth of plants.

A number of snakes, newts, etc., may be kept this way, but care should be used in placing them together as their natures should be considered. For instance, snakes are very apt to eat frogs and toads, and it would not be advisable to put them together in a terrarium, unless the latter are too large for the former to swallow.

Our next issue will deal with the making of a terrarium and the maintenance of plant and animal life therein.

*Continued from page 1.*

The magnification of the lenses, or objectives, is generally stated in diameters. The statement that an objective gives a power of ten diameters, simply means that a line one-tenth of an inch in length would appear, when viewed with the microscope to be one inch in length. Three objectives giving powers of from ten to two hundred and fifty diameters are all that are required.

We are fortunate in having a most excellent text book entitled, "Aquatic Microscopy for Beginners," by Dr. Alfred C. Stokes. This book is full of useful hints for the beginner.

The micro-aquarium should have flat sides and is best made of plate glass having a thickness of about one-eighth inch. In size, it should hold not less than one gallon of water. Put some pond mud in the bottom and then add a few water plants. Fish and snails should be excluded as they devour many of the forms we want for study.

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# Breeding Fish The Natural Way

By DEE MANUEL

**WE OFTEN SET OUT** as fish keepers to provide a habitat healthy enough for fish to survive and thrive. This is the story of my experience breeding the American Flagfish outside. You can acquire proven pairs of fish, feed and wait or you can provide the habitat, get a large enough group in just the right conditions to promote the fishes natural paring instinct on their own. Both methods can achieve the same goal. I am a hobbyist that does the latter method and hopes for the best. In this article I hope to inspire other less experienced fish keepers to try breeding the lesser bred species and others by applying a few simple practices.

The American Flagfish (*Jordanella Floridae*) which is part of the killifish family comes from slow-moving marshes, swamps, lakes and ponds in North America, Florida to the Yucatan Peninsula. The Flagfish is also a species that is not often found in big-box stores but regularly collected in the wild. In an effort to lower the hobby's impact on the environment, species like this are great for choices for breeding. They are a small cold-water tolerant fish which add a splash of color to the aquarium or pond.

Step one was to learn about where this fish came from and set up an appropriate outdoor environment. You must also wait for mother nature to provide the stable platform for fish to survive to elements. I live in New York City, so for me this means June. I set up my back yard container pond with heavy plantings of guppy grass, wood and rock structures to mimic its' lake habitat. My pond was set up using a 70 gallon trough 6 feet in length and about 12 inches deep made of heavy food grade plastic which establishes the breeding space and water stability to support this fish's natural breeding conditions as well as night-time temperature swings. Glass is a terrible choice outdoors which I found out the hard way. Glass goes



*American Flagfish Jordanella Floridae*

from hot to cold very fast. Bad Choice. This set up sat in full sunlight. The temperature was cool at night and warm in the day ranging between 65° and 80°. The key was to provide enough shade to moderate the water temperature and support plant growth and keep the water cool enough so the plants wouldn't burn. Solar powered fountain pumps were used to move water throughout the day and aerate the water. The trough was placed under my grape vine that kept it out of full sunlight. At night the water sat quite still.

The Flagfish is known for eating hair algae and does well in heavily planted aquarium. It will nip on plants so fast growing types like java moss or guppy grass are a good choice. Algae control was one of the factors in my decision to add this fish to the summer pond. Fish such as White Cloud or mountain minnows would also be a great choice for outdoor breeding in this set up.



The trick to pairing this and many species is to acquire a pair. This is done by getting three or more females to one male which can be differentiated by the drab coloration dark blotching and rounder bellies usually seen in the females of this particular fish. Male Flagfish are much more decorated with heavy markings and brighter coloration. This fish breeds in the heavy cover so I am a fan of the old half flower pot cave method.

They will mate with the male placing his dorsal over the female. After mating several times the female will go away. This will occur over several days. The male will guard his territory. Anything that tries to eat the eggs will be attacked by him. I saw this behavior within a week of adding 4 fish.

The fry emerged from the super tiny eggs within 6 days so you may choose to move the fry to a separate 10 gallon tank with a sponge filter to house these little fellas. In a future article I will explain how to construct a floating fry pin to house the fry as you see them in the pond. Catching the fry in a heavily planted tank is close to impossible let alone a 6 foot tub so be ready to catch the parents or be ready to allow the fry to “fin” for

themselves. The great thing about raising them in outdoor tubs or ponds is the abundance of live mosquito larva, algae growth and sunlight to keep fry healthy. I supplemented their diet with crushed flake after I began to notice them free swimming.

I know what you’re thinking. This is what I do with just about any breeding fish. Remember, these fish were bred outside with no power, heat or individual attention. When the summer temps stabilize at about 75° the ability to sustain a breeding environment to this and many other species outdoors will create a great opportunity for success in this and many otherwise hard to breed species.

This is my third year of breeding fish outdoors and to my great surprise I continued to find fry outside although temps have dropped to 50°. I have raised Paradise fish, Danios, Mollies, Flagfish and White Clouds (which I had never been able to breed indoors.)

The most important thing to remember is that every fish has its own ideal living environment so finding the species that best fits your intended set up will increase your chances for success. Mother Nature will do the rest.

TheShrimpFarm.com is the place to go for freshwater shrimp. The new owner is Ryan Curtis, with a new mailing address:

The Shrimp Farm USA, 2401 East Washington St, STE 200 A2, Bloomington, IL 61704 and has set up an Aquarium Shrimp Forum <http://theshrimpfarm.com/forum/index.php>. You can go to this forum and ask questions, talk to other shrimp nuts and discuss anything and everything related to Freshwater Aquarium Shrimp.



# AMANO SHRIMP



**SCIENTIFIC NAME:** *Caridina multidentata*

**OTHER SCIENTIFIC NAMES:** *Caridina japonica*

**COMMON NAME:** Amano Shrimp

**OTHER COMMON NAMES:** Japanese Swamp Shrimp,  
Yamato Numa-Ebi Shrimp

**ORIGIN:** South East Asia

**FOUND IN THE WILD:** Yes

**PH RANGE:** 6.5 - 8.0

**TEMPERATURE RANGE:** 70° - 80°F

**HARDNESS RANGE:** 3 - 10 dkh

**LIFE SPAN:** 2 - 3 Years

**SIZE:** 1-2 inches

**IDEAL PH:** 7.2

**IDEAL TEMPERATURE:** 75°F

**IDEAL HARDNESS:** 8 dkh

**GESTATION PERIOD:** 30 Days

**DIET:** Omnivore

Anthony P. Kroeger — BAS

## HOW TO SETUP

*African biotopes in your home*

## Part 3

# Tanganyika Sand Flats

**THIS TIME LET'S LOOK** elsewhere; to Lake Tanganyika and specifically to the sand flats off its rocky shores.

Many people think of the Rift Lakes as mainly rocky, in some ways that is correct. Many of the shores and islands are rocky, but between them are sand flats.

A fairly simple environment to recreate since it has interesting species of fish that live here. All the *Xenotilapia* species and others such as *Lamprologus sexfasciatus* and *Lamprologus ornatipinnis* [shell dwellers] occur in sand flats environment. Any of these species combined would provide you with many hours of interesting behavior to watch and enjoy.

That being said let's build your Tanganyika Lake flats.

I use fine sand of light natural color. I make a sand bed about one-inch deep. To this, I add jungle Vallisneria planted randomly along the sides, corners and back of the tank. I do not make a solid hedge as that wouldn't be natural. Then I add various size snail shells. Mystery and ramshorn snail shells are the most natural, but I find seashells [conches, etc.] also work quite well. These shells add a lot of interest and color but obviously are not natural in this environment. The shell dwellers really love them so who am I to say if they should be used or not.

The flats have very high lighting. So keep your lights bright. If possible locate your tank so it gets some natural sunlight every day. Your fish will thank you for this.



*Lamprologus sexfasciatus*

The flats are a resource-poor environment so do not overfeed your fish or allow algae to build up. For fish to inhabit this tank I suggest Tanganyikan lake killies – *Lamprochthys tanganicus* to fill the upper regions of your sand flats aquarium.

You must take care to keep your substrate clean. It is what your fish live on. Never allow



*Lamprologus ornatipinnis*



The lake is home to 250 cichlid fish species, out of which 98% are endemic to the lake. It's also home to 75 non-cichlid fish species, out of which approximately 60% are endemic. Most fish live along the lake's shoreline, to a maximum depth of about 590 feet.

The lake's largest biomass of fish lives in open waters. The incredible diversity of fish in the lake Tanganyika makes it important for the study of speciation in evolution.

anaerobic conditions to occur in your substrate. I vacuum my substrate every week when I do my weekly water changes. In addition, I stir the substrate a couple of times a week. I take a pair of planting tongs and stir sand. If you do not take care of the substrate and allow it to compact or become dirty you will find that your fish will rapidly develop bacterial diseases; the lower strata fish first.

Any bacterial diseases in a sand flats environment is always an indication of a dirty and improperly cared for substrate.

There are lots of interesting fish behavior for you to enjoy in a Tanganyika Lake flats biotope tank! Just keep it clean.

Happy fishkeeping!



John Todaro - BAS  
 From the Brooklyn Aquarium Society's publication  
 SCRUMPTIOUS MEALS & LIVE FOOD TREATS  
 Compiled, Edited & Written by John Todaro

# Frank's Fish Jell-O™

**H**ere's a recipe used by **Frank M. Greco**, a former member of the BAS.

Frank says it can be tweaked as needed. Add more veggies, or more meat, etc., depending upon the species of fish being fed.

Despite Frank's whimsical name, make sure you use only Knox® unflavored gelatin as the binder.

I'm pretty sure your fish will not care for cherry flavored Jell-O™.



## R E C I P E

### INGREDIENTS:

400 grams of non-oily fish  
 275 grams clams  
 600 grams Tetra Marin™  
 (You can leave this out. Just increase the greens, fish and/or clams by 600 grams)  
 150 grams Carrots  
 150 grams Greens\*  
 200 grams Yeast (I use Salt Creek MicroFeast L-10. If you can't find it, just increase the greens, fish and or clams or add 200 grams of a good quality flake food. DO NOT use bakers or brewers yeast.)  
 1-250 mg. capsule of Vitamin E  
 (Open capsule, pour out oil)  
 1 250 mg. Vitamin C  
 (tablet crushed)  
 20 mg. Potassium iodide  
 (can be omitted if unavailable)  
 700 mg. Knox® unflavored gelatin.  
 100 mg. liquid multivitamin  
 700 ml. Water to mix ingredients  
 1600 ml. boiling water to mix gelatin

### PREPARATION:

Place the first 9 ingredients in a blender, and add the 700 ml. of cold water and 100ml. multi-vitamins. Blend on high until well mixed. Boil water add gelatin, stir until dissolved, then add to blended ingredients and mix on high until well blended. Pour into shallow bakers pan (with sides) and allow to gel. Once set, cut into small squares and freeze. Thaw what you need to feed fish. Will keep about 1 year if kept frozen. Can be grated by using a cheese grater.

\*Use kale, collard greens, parsley and similar greens. DO NOT use spinach or lettuce as both are lacking nutritionally.

Ian Fuller - BAS

# Sexing Corydoras



**I suppose the most asked question I get from Corydoras keepers is, 'How do I sex them'. A simple enough question you may think but the answer is never quite as easy as that. There are several factors that need to be looked at, with a lot depending on the species involved.**

There are three main areas of difference, Body, Fins and Color. When buying new stock it can often be a very difficult task to determine the sexes, freshly imported fish can be especially difficult depending on their overall condition on arrival. Newly imported fish are often under fed, having been kept in holding tanks awaiting dispatch, sometimes going for weeks on end without any food at all. In such cases it is a good idea to buy at least six specimens and condition them up. Generally speaking Corydoras are hardy little creatures and it does not usually take very long to get them into reasonably good condition, making it far easier to determine the sexes. Taking each of the three areas in turn:

## Body

Firstly before I go into body shape in detail, it is safe to say that the female of a

species grows a little fuller and longer in the body than males. Sometimes the difference can be as much as twenty percent. *C. paleatus*, *C. aeneus* *C. hastatus* and *C. pygmaeus* are prime examples.

Looking at body shape there are two views to consider, the side profile and the overhead. Starting with the side view a female should have a greater body depth between the dorsal and ventral fins and the belly area its self should also look a little plumper. When viewed from above the widest point of a males body is at the point immediately behind the insertion of the pectoral fins. The widest point of a females body is at a point slightly forward of the ventral fins.



**(Tip)** When buying new unfamiliar stock, politely ask the shopkeeper to place several specimens in a container so you can view them from above. This way it is far easier to see the true body shape than when they are swimming around in a tank. It would not be such a good idea though if the shop were very busy, then I would select at least three small and three large specimens.

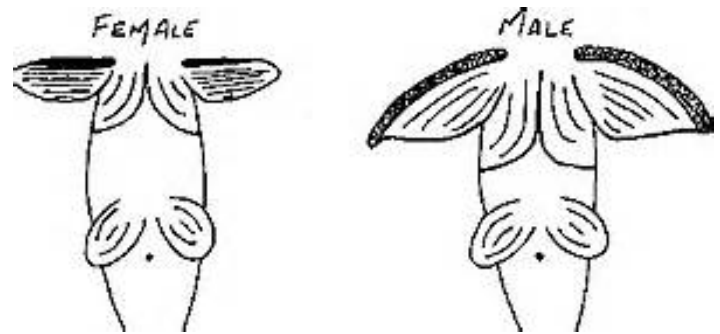


## Fins

The second area of difference to look at is the fin shape, there are a few species that fin shape and length are obviously different, two examples of this are *C. macropterus* and *C. barbatus*. There are other species where there are no discernable differences in fin shape at all; some of the long nosed species tend to fall into this category, with *C. coriatae* and *C. vittatus* being two examples.

As general rule it is the ventral fins that will show any variance between the genders, even when all of the other fins look identical. The ventral fins of males tend to be elongated and pointed in varying degrees depending on the species; females have fins that are more rounded and fan shaped.

**(Tip)** Select three fish that have the most pointed fins and three that have the most



rounded, ask for them to be put into separate bags, where they can then be compared. It is easier to view the lower fins in a clear plastic bag than in the stock tank.

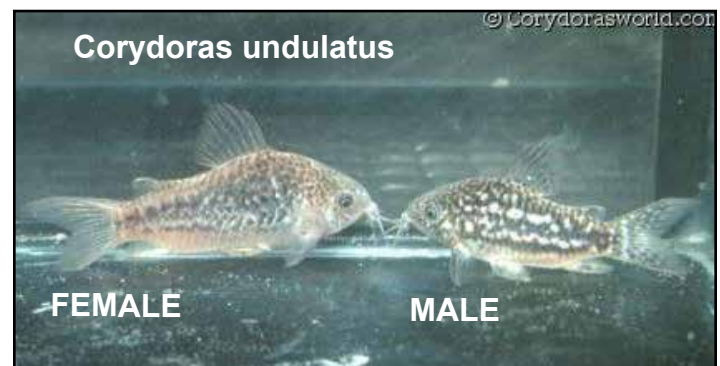
## Color

There are a number of species where the sexes can easily be distinguished by color. Most of these belong to the elegans group, with males showing brighter more intense coloring. There are one or two species from *C. elegans*, where males and females have color patterns that are so different it would be easy to mistake them for two separate species.

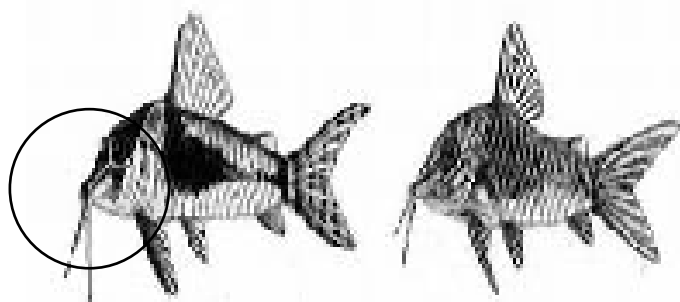
**(Tip)** When buying, if you are in any doubt buy equal numbers of both color forms and if affordable, five or six of each, this will give the best chance of acquiring both sexes if they do turn out to be separate species.

## Secondary dimorphism

There are a number of species where males show secondary dimorphism, which takes the



form of odontodes (bristles) developing on the pectoral fin spines. It is most, if not all the members of what used to be referred to as the 'acutus group' that develop these growths, they are long snouted species such as *C. acutus*, *C. blochi*, *C. fowleri*, *C. semiaquilus*, *C. stenocephalus* and *C. vittatus* to name but a few. These growths are usually most evident and develop to their extreme when the males are in their best breeding condition and are trying to coax females to breed. After the breeding season is over the odontodes (bristles) may still be visible but will be greatly reduced; in some species they may disappear altogether. Where there are a group consisting of several males, it will almost certainly be the dominant male that will show the most prominent growth of bristles. There are times when a male will suddenly lose his bristles, almost over night.



**Corydoras stenocephalus**

Water conditions or a sudden decline in health putting the fish under stress can be the cause; the bristles reduce in size and may even disappear altogether, regenerating when the conditions are favorable, or more usually at the onset of the next breeding season.

There are three species that instead of growing odontodes (bristles) on the pectoral fin spines, the males grow cheek bristles on the sides of the head. These are permanent



**Corydoras geoffroy**



growths and as far as I have observed do not show any exaggerated growth at breeding times. The four species are *C. geoffroy*, *S. barbatus*, *S. kronei*, and *S. macropterus*.

One species, *C. geoffroy* is unique in that it has both permanent cheek bristles and seasonal growths on the pectoral fins. This is a fish originating from Surinam and is seldom seen in the hobby.

JoAnna Klein - New York Times February 28, 2019

## How the Icefish Got Its Transparent Blood and See-Through Skull



Research shows how the Antarctic blackfin icefish differs from its close relatives on the genetic level.

The blackfin icefish, *Chaenocephalus aceratus*, lacks hemoglobin and lives in Antarctic waters, where the temperature is often close to the freezing point of seawater.

Credit: Doug Allan/Nature Picture Library, via Minden Pictures

**The Southern Ocean around Antarctica was once warmer. Then about 30 million years ago, the temperature dropped. Few fish could survive temperatures that were just above seawater's freezing point, and they either migrated to warmer waters or went extinct.**

**O**ne bottom-dweller held on. Through the power of natural selection, its descendants developed traits that let them survive these unlikely conditions. Today, the Antarctic blackfin icefish, or *Chaenocephalus aceratus*, thrives in these frigid waters with no scales, blood as clear as water and bones so thin, you can see its brain through its skull.

How this creature — no longer a bot-

tom-dweller - can live in such a hostile environment has long fascinated scientists, who have mapped its genome and continued exploring its unusual traits. In a paper published Monday in *Nature Ecology and Evolution*, a team of scientists compared the genome of the Antarctic blackfin icefish to those of its close relatives. They found that, across these genomic maps, and tens of millions of years of evolution, gene families

had shrunk or expanded, giving rise to some of the icefish's most unusual features. In addition to revealing how the icefish managed to adapt to extreme Antarctic conditions, the team's findings provide a new way to look at the genetics behind human diseases such as anemia and osteoporosis.

"A trait that's maladaptive in one environment can be adaptive in another," said **H. William Detrich**, a marine scientist at

Northeastern University who has been studying icefish for decades and helped lead the study. He added that, "we can learn a lot about human physiology and medicine by studying these evolutionary outliers."

The icefish first surprised science with its clear blood after a Norwegian zoologist caught one in the early 20th century. The species no longer makes red blood cells and hemoglobin to carry oxygen through its body. Those traits are essential to the survival of other vertebrate species, all 60-some-thousand of us.

Now, why would the icefish go and do a thing like that?

Becoming the modern icefish required millions of years of natural gene hacking. Parts of their genomes that, in adults, were dedicated to making antifreeze for blood were greatly expanded. More genome space became dedicated to making ice-preventing proteins in the shell-like casings that surround icefish embryos.

Frigid water holds more gasses, including oxygen, than warmer water does. But in water so cold, red blood becomes gunky, hard to pump and more likely to freeze. So the fish basically "evolved a therapy for anemia," said

**John Postlethwait**, a developmental biologist at the University of Oregon who also worked on the paper. It developed supersize gills and lost its scales, which enabled it to absorb the water's plentiful oxygen through its skin. It also expanded its circulatory system with extra vasculature and a heart four times the size of closely related, red-blooded species.

Over evolutionary time, the icefish

accumulated lipids, or fats, which, like oil, float in water. It also developed floppy bones that were less mineralized than those of their ancestors. This allowed the icefish to rise in the water column, like spaghetti in boiling water, and eat krill and other creatures that couldn't be found near the sea floor.

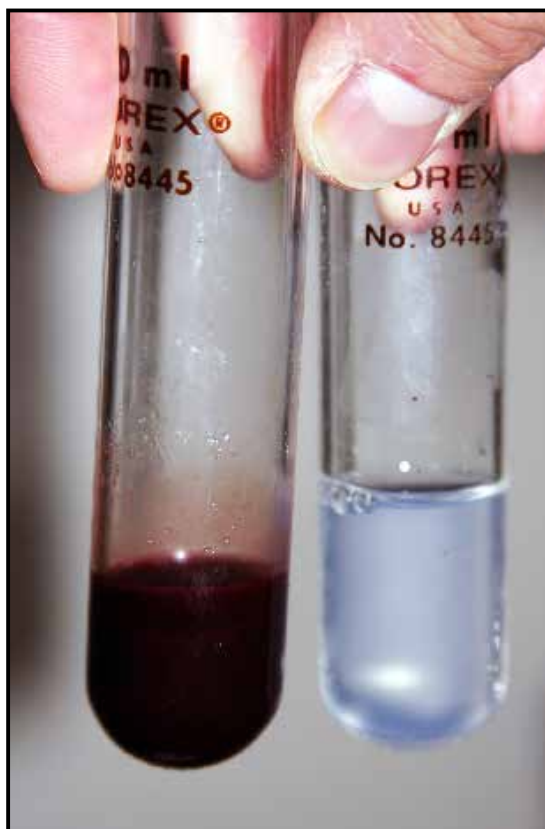
The research team is still working to understand how these adaptations in bone density are reflected in the icefish genome. That may lead to insights into how humans lose bone density and develop osteoporosis with age, the researchers said.

Similarly, by looking at how the icefish gets by with severe anemia, scientists may learn something about why humans don't.

Creatures such as the icefish are what **Charles Darwin** called "wrecks of an-

cient life," because they lost important traits of their ancestors, like red blood cells and dense bones. Dr. Postlethwait calls them "evolutionary mutant models," because their genomes could help explain why some physiological traits can be adaptive for one animal but disease states in another.

The icefish may be a wreck of ancient life, but it's a wonderful wreck.



An icefish's blood, right, is clear, whereas the blood of its Antarctic relative, the marbled rockrod, left, is crimson and has red blood cells.

Credit: Northeastern University

**Anthony P. Kroeger - BAS**



# A TANK FULL OF MOONS!



**The African Moon Tetra**  
*Bathyaethiops caudomaculatus*

**A**frican Moon Tetras are one of my favorite tetras! Beautiful, rare, peaceful — This is a bragging rights fish!

Native to the clearwater Congo River basin streams, it grows to about 3 inches. Colors are beautiful, a metallic green body is overlaid with light fluorescent blue on females and gold on males. An indistinct neon blue overlay covers the mid-flanks. A small black shoulder spot and huge black caudal peduncle spot worth with black eyes and silver iris adorn the body. Males have a red striped nape head to dorsal fin. All fins have black fin rays, anal and pelvic have

neon blue edging, Females have a short red stripe on the nape just in front of the dorsal fin. A thin black stripe occurs at the caudal fin base and thin black “tiger stripes” cover the flanks shoulder to tail. But these stripes are not dark, but rather like shadows.

This is a peaceful schooling tetra. You should always keep them in a school of at least 6 fish or more.

These are expensive fish. They are wild caught and come from areas that are difficult to collect in. Usually available only in season. If you see this fish offered — buy them! You may not see it again for quite a while.



Give them some room. A 30-gallon long is okay, a 55-gallon is better. Use a power filter, dark substrate, plant the sides of the tank heavily, keep the light low and cover their tank. Anubias and Java fern are good plants to use.

They like soft, acidic water and a temperature between 76° and 80°F. Change 20 to 25% of the water weekly. Not more than that! Moon tetras don't like huge volume water changes.

Moon tetras eat all foods including flakes and pellets, but do best with lots of frozen and freeze dried foods. They love bloodworms, tubifex, brine shrimp and daphnia.

Feed moon tetras as least twice a day. They eat small quantities through out the day and do much better with many small meals rather than one large meal a day.

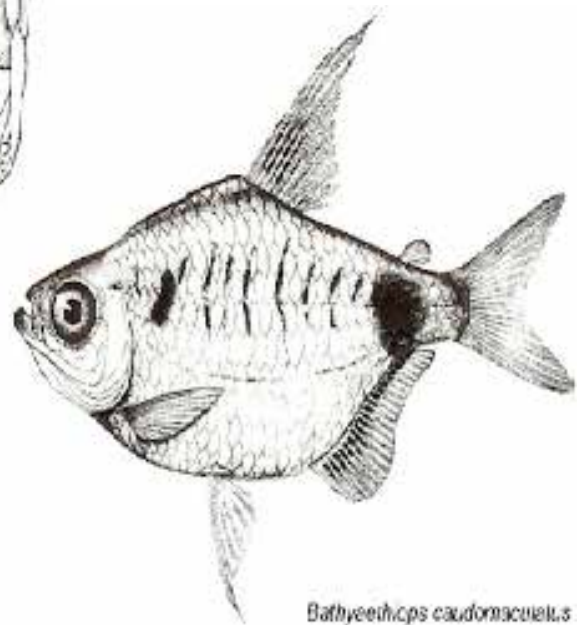
Moon tetras have spawned in the aquarium but this tetra is difficult to breed. Lots of BAP points when you do!

Moon tetras are fairly hardy in water to their liking. Do not let their water quality slip. They do not tolerate any ammonia or nitrite and will quickly fall ill with bacterial diseases if exposed to poor water conditions.

They are sensitive to all dye medications so use 1/2 the recommended dose.

Beautiful, rare, well worth acquiring if you can find them. Try some moon tetras in your aquarium.

Happy Fishkeeping.



*Mithridates caudomaculatus*

BROOKLYN AQUARIUM SOCIETY PRESENTS

# THE JOHN TODARO MEMORIAL WRITING PROGRAM

## GOAL

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.

## THE ANNUAL PRIZES ARE:

(paid in BAS Bucks)

1st Prize  
\$50

2nd Prize  
\$25

3rd Prize  
\$10



## SHIRTS, HATS & PATCHES

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short sleeve T-shirt.  
White lettering states the  
society's mission...

**Educating  
Aquarists  
Since 1911**



**A FEW BLACK  
BAS T-SHIRTS LEFT**

**BACK**



**FRONT**



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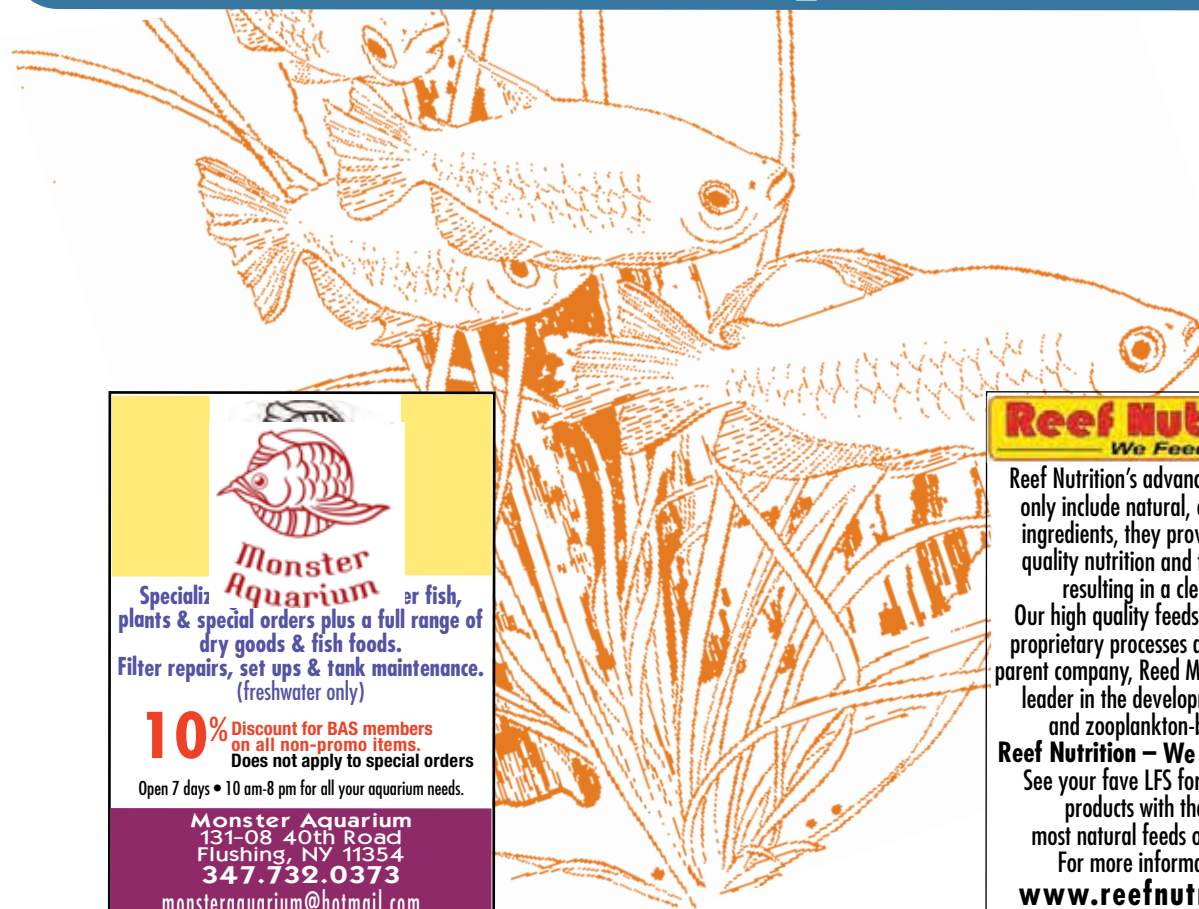
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Filter repairs, set ups & tank maintenance.  
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# BENEFITS OF MEMBERSHIP IN THE BROOKLYN AQUARIUM SOCIETY

**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 web site. 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!**

The **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 (718) 238-1792.

**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 for a small fee for members (a refundable deposit is required on each tape. A small mailing and handling fee is deducted from this fee). You may borrow tapes for 30 days. You cannot copy them.

**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.

**Educating Aquarists Since 1911**

# Become an educated aquarist



## 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, and fish auctions. Free parking and refreshments. All meetings are free to members. Visit us on line: [WWW.BROOKLYNAQUARIUMSOCIETY.ORG](http://WWW.BROOKLYNAQUARIUMSOCIETY.ORG)

**NAME** \_\_\_\_\_ **OCCUPATION** \_\_\_\_\_

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**TYPE & LENGTH of MEMBERSHIP:** (CHECK ONE)

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**FAMILY**

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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 ☐

### Official use

Member number: \_\_\_\_\_ Type of membership [F] [I] [S] Date paid: \_\_\_\_\_  
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