

In Depth

Tropical Fish Club of Burlington

March–April 2018



History of Aulonocara, Part 1

The Hustle

Collecting Fish in Florida

Concepts in Breeding Aquarium Fish

Calendar of Coming Events

and so much more!



Aulonocara sulfur head photo by David Banks

In Depth

published by The Tropical Fish Club of Burlington

Established February 1989



We meet on the second Thursday of each month, September through June, at 6:30 PM at the VFW Hall, 73 Pearl St, Essex Junction, VT.

Our membership consists of adults, children and teens. Many members are very experienced and have been keeping fish for years, and others are just getting started. People of all ages and experience levels are always welcome. Meet and learn from those who share your interests!

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Cyrtocara moorii, the Blue Dolphin cichlid is endemic to Lake Malawi and grows up to 10".
photo by Livy Strong

From the President

by David L Banks, Jr



I am always at a loss as what to include in my president's column when I sit down to write it. Eventually as I sit there thinking about it, words get written down as I tell about upcoming events, take a look at past meetings and sometime tell stories about my fish keeping experiences. But I thought I would start this off with something a little different.

Why have a fish club? My first thought is so that we can talk about fish with others that like fish, too. I think the hobby is very different if you have others to share it with. While you may enjoy your tank or tanks at home, talking with others can give you inspiration, and you get to share some of your experiences with others, which in turns gives them new ideas. It is this exchange that drives the purpose of the club and what makes it so worthwhile in my mind. Being a part of a larger entity makes you feel like you can accomplish more. Of course, there are the more tangible things too like access to fish and plants from other members, discounts at local stores, this newsletter and learning from our wonderful guest speakers!

Of course I will include my routine thoughts, too. At our March meeting, I will be presenting a program on "Getting Started Breeding Fish". Our April meeting will feature Mark Denaro from Pennsylvania speaking on Labyrinth fish. Mark is a very popular speaker around the country and has a wealth of information to share. Mark will also be speaking at the OVAS meeting in Pittsford on the Peruvian Amazon and in Montreal on Wild Bettas.

April 14th will be our third annual swap meet. We started three years ago with a coral frag swap and had Justin Credabel speak. Last year we opened it up to the freshwater side and added reptiles and didn't have a speaker. Despite getting 10 inches of snow the night before, which ended the morning of the event, we had close to 200 attendees! This year we will NOT have snow and I expect to have over 300 in attendance. Our list of vendors is looking good and I will post a list as we get things a little more finalized. Be sure to come out and support this event! Get there early for the best selection, and stay late for the best deals. Free admission and a great raffle, too. It's a great event for families.

The NEC convention is also coming up this month, and it looks like TFCB will be well represented again this year. So much going on that weekend. Weekend-long conventions take things to an even higher level and really give you a chance share your time with other hobbyists for that two-way flow of excitement and knowledge!

The lineup of speakers for the remainder of the year is posted on the [web site](#), and meetings are posted on [Facebook](#). All back issues of In Depth for the past 8 years are also available on our web site.

Looking forward to our conversations and sharing of ideas!

David

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43rd Annual NEC Convention March 16-18, 2018 Rocky Hill, CT www.northeastcouncil.org

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The Aquatic Experience, NJ. Everything aquatic under one roof! October 19-21, 2018 www.aquaticexperience.org

Editorial

Getting Involved, Making a Difference

By Ann Whitman



On my recent trip to Florida (see [collecting article](#) on page 17), I got to visit the [Coastal Aquarium Society](#) club in Sarasota. They meet in the [Pritzker Marine Biological Research Center](#) on the New College of Florida campus. The meeting room is like no other I've ever seen! Tanks holding thousands of gallons of seawater are built into three of the walls and each ceiling-high tank represents a specific marine habitat. Imagine sitting in a room watching a slide show while being watched by a school of 18" sheephead!

One of the many benefits of belonging to a fish club is that you automatically have fish friends wherever you go. From the minute I walked into the CAS meeting, I felt like I had met old friends. We were all so excited about sharing our fish stories, that the president, Mike Jacobs, had to call us to order to start the presentation. Just like home!

For the past few years I've looked for ways to promote our hobby, to bring more people into clubs and get the word out about the importance—and some of the deeper opportunities—of fish keeping. That's why I serve as the TFCB secretary and newsletter editor, and one of the reasons why I breed fish and travel to conferences. These goals also inspired me to get more involved in the [Northeast Council of Aquarium Societies](#), which represents more than 30 fish clubs throughout the northeastern U.S. and organizes a 3-day convention each spring. One of the events that takes place at the NEC convention is a [silent auction](#) that raises funds for freshwater and marine conservation. I will be one of the people responsible for that auction this year. In a world where it feels increasingly difficult to have an individual impact, it's one thing I know I can do to help. I also volunteered to serve on the NEC Board of Governors as an at-large member to add my voice to those who will guide the organization into the future.

As some of you know, I spent last year dealing with one of those scary medical diagnoses that makes you reevaluate how you spend your time and energy. After having had plenty of time to just sit and ponder, I no longer postpone joy and now seek more opportunities to find it and share it with others. I aspire to more meaningful activities, but don't beat myself up when I fall short (everyday). I think more about what I want to leave in this world for those who come after. It sounds heavy, but it isn't. Mostly, I figured out that I want to have and leave more joy.

Keeping fish brings me joy, sharing fish stories and experiences brings me joy, contributing to the conservation of species brings me joy, and knowing that I can help others succeed in the hobby brings me joy. And I know this is true for others. It helps me rationalize the time and expense of traveling to regional events to hobknob with like-minded fish nuts, the hours spent doing water changes and staring into the tanks, surfing the web for breeding hints, and reading Facebook to see what others are doing in their fish rooms. Turns out, that's what I really enjoy!

Ann

Speaker of the Month: March

Breeding Fish—Getting Started

David Banks

This is a look at the first steps in starting to breed fish with a look at why and how to breed in general followed by a look at three specific species. General information for the beginner, but also includes some insight that will be useful to more advanced breeders.

David is the current president of the Tropical Fish Club of Burlington and co-founded the club in 1989 with his wife, Janine. David is past president of the Northeast Council of Aquarium Societies and still holds several positions within that organization. He has been an active breeder of tropical fish for over 25 years, at one time concentrating mainly on African cichlids in his 17-tank fishroom. David and Janine have been active in the NEC Breeder Participation Program and are one of only 5 to have ever achieved the plateau of “Master Breeder”. David is also involved in conservation and has always kept space in his tanks for several endangered species, ranging from Lake Victorian cichlids to livebearers and killifish.

Speaker of the Month: April

Into the Labyrinth

Mark Denaro

Mark is coauthor of “Adventurous Aquarist Guide to the 101 Best Freshwater Nano Species” from Microcosm Publishing. A well-known speaker and judge, Mark has lectured to more than 50 aquarium societies in 20 states, plus Canada and Bermuda, and has spoken at numerous regional and national conventions.



He is a past president of the International Betta Congress, Indianapolis Aquarium Society, Bucks County Aquarium Society, and the American Labyrinth Fish Association, where he is a founding member. Mark has been keeping freshwater and marine aquariums since the 1970's, and has bred 200+ species of freshwater fish, 10 species of marine fish, 30+ species of marine invertebrates, and propagated 150+ species of aquatic plants. He has been involved in all phases of the pet business, including import, wholesale, retail, online, installation and maintenance companies. He has written articles for several national and international magazines and writes the recurring column ‘Into the Labyrinth’ as well as feature articles for Tropical Fish Hobbyist magazine.



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Club Meetings and Events

by Ann Whitman photos by Janine Banks

In February, Ira Gardner-Morse spoke on making the transition to a dedicated fish room and showed slides from his visits to club members' homes. He kept the audience chuckling with his tips and advice as well as insights and comments on what he saw and learned in the visits. If you missed his presentation, he will be giving the talk to the [OVAS club](#) on Tuesday, March 13th, 7:00 PM in the Mclure library in Pittsford, VT. We expect to have a carpool to that meeting.



CALENDAR OF COMING EVENTS

March 8	TFCB meeting, David Banks speaker, <i>Breeding Fish</i>, VFW Essex Jct, VT
March 10	TFSRI auction, Cumberland, RI
March 11	JSAS auction , Manasquan, NJ
March 13	OVAS meeting , Ira Gardner-Morse speaker, <i>Fish Rooms</i> , Pittsford, VT
March 16–18	NEC Convention , Rocky Hill, CT
April 10	OVAS meeting , Mark Denaro speaker, <i>Peruvian Amazon</i> , Pittsford, VT
April 11	Montreal Aquarium Society , Mark Denaro speaker, <i>Wild Bettas</i> , Montreal, Quebec
April 12	TFCB meeting, Mark Denaro speaker, <i>Labyrinth Fishes</i>, VFW Essex Jct, VT
April 14	TFCB Fish, Frog & Reptile Swap Meet, Holiday Inn, So. Burlington, VT
April 16	BAS auction , Boston, MA
April 22	NJAS auction, East Brunswick, NJ
April 28	CNYAS annual auction , Syracuse, NY
May 4–6	American Livebearer Association convention, Grand Rapids, MI
May 5	BCAS spring auction , Churchville, PA
May 10	TFCB meeting, Jen Williams speaker, <i>Aquascaping</i>, VFW Essex Jct, VT
May 11	BASNY auction , Brooklyn, NY
June 7–10	NANFA Conference , Young Harris, GA
June 9–10	NEFGA IGFA Guppy Show & Auction, Lancaster, MA
July 4–8	American Cichlid Association convention, Houston, TX
June 14	TFCB meeting, Rich Pierce, Tony Terceira speakers, <i>Aquarium Photography</i>, VFW Essex Jct, VT
July 4–8	American Cichlid Assoc. Convention , Houston, TX
July 14–15	SJGG IFGA Guppy Show & Auction, Griggstown, NJ
Sept 13	TFCB meeting, Klaus Steinhaus, <i>CARES Fish Conservation</i>, VFW Essex Jct, VT
Sept 14–16	Keystone Clash convention, Harrisburg, PA
Oct 4–7	All-Aquarium Catfish Convention , Herndon, VA
Oct 11	TFCB meeting, Ian Fuller speaker, <i>Corydoras catfish</i>, VFW Essex Jct, VT
Oct 19–21	Aquatic Experience , Meadowlands, Secaucus, NJ
Oct 21	NJAS auction, East Brunswick, NJ
Nov 8	TFCB meeting, VFW Essex Jct, VT
Nov 11	TFCB annual auction, Holiday Inn, So. Burlington, VT

2018 Burlington Aquarium Fish, Frag and Reptile Swap Meet



Saturday, April 14, 2018

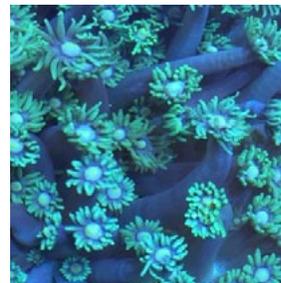
11:00AM – 3PM

Holiday Inn, Williston RD, South Burlington

Free Admission

Door Prizes and Raffle

Fun Family Event. All are Welcome.



Come see what other hobbyist breeders have to offer!

What to Expect:

Local Breeders, Hobbyists and Retailers selling—

- Freshwater fish, shrimp and plants
- Saltwater coral frags
- Reptiles
- New and used equipment and aquariums.



To Sell at the Swap:

Please register with number of tables desired and a brief description of your items **before March 26th**. Table availability is limited. If any space is still available on the day of swap, prices will increase by \$5.

1 table for \$20

2 tables for \$35

½ table for \$10

Note: You are completely responsible for your own items and the well-being of your livestock. TFCB holds no responsibility whatsoever for your items or for the health of your livestock .

Setup will begin at 9AM

You may sell any item related to aquariums and reptiles, except species prohibited by the State of Vermont. Please check with TFCB for prior approval for non-aquarium or non-reptile related items.

Questions and Registration:

David Banks - dbanks@together.net 802-372-8716

Brian Candib – bcandib@comcast.net – 802-864-0746

Sponsored by [The Tropical Fish Club of Burlington, tfcb.org](http://TheTropicalFishClubofBurlington.org)



A Fishy Game

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 O Q C B F R H Q F L C R A U T
 R W A Y I A E I U S L N H E C
 R G O I L Z S K A A T E N S V
 C E L S L H D U N S R Q P X C
 G A R T I H Q T R O P I C A L
 R U U A K A M C K N A T U S K
 E S P D E X D G N E C V L M K
 T U N P A B M R M O L L I E S
 A E J I Y L E A D V I C X N B
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 LOACHES
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 PELLETS
 PLANTS
 SHRIMP
 TANK
 TETRA
 TFCB
 TROPICAL
 WATER



The Hustle

By Robert Hintze

Saturday, 8:30 PM, just back from a dinner out with my wife that took twice as long as anticipated and I am itching to get to work, the deadline is Sunday, 7:30 AM Richmond Park & Ride... I will be joined by Ann Whitman and Livy Strong for the 3-hour drive through ice and foul weather. Destination, the Pioneer Valley Aquarium Society annual auction, in Chicopee, MA, a mere 200 miles away...

Advance Planning

Eagerly anticipating this event, I had already spent time looking through the fish room for items to auction. The terms, always a bit different at each auction, were a 50/50 split to \$14.00 then the buyer gets the rest, which sounds great, unless your lots sell for less than \$15.

So I grabbed a few saltwater books (bad idea in hindsight), a NIB florescent Deep Blue light and some random sponge filters and box filters I had kicking around. I had invested another couple hours on Friday bagging plants and making live food cultures to try to get ahead of the game, knowing that I would be bagging fish on Saturday evening.

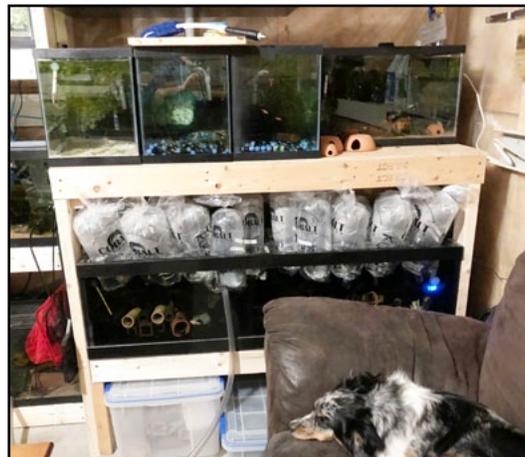
Now one could bag fish anytime the day prior or even two days prior with proper bagging skills, but I prefer to get it done as close as I can to the actual auction. Many times I do it the morning of the auction, if I can swing it, but this time I had at least 10 bags to catch and sort.

It's All Fun and Games

So here we are 8:30 Saturday night and I start off with my tank full of *Coptodon kottae* juvenies. There must be 100+ and it reminds me of a piranha tank. When feeding they go nuts and I should have known that when a net goes in the tank, they also go nuts—jumping out and bouncing around on the floor. So I wind up draining the tank down in order to prevent all the fish from jumping onto the floor and try to get similar sized juvenies into three bags of 10 fish each. Wound up with all sizes and a bonus fish or two in each bag on purpose. I really have too many of these guys. (Hit me up if you need some of these very attractive and endangered cichlids.)

I expect the next three bags will go way smoother despite the fact that I thought it was a good idea to put 7 Honduran Red Point cichlids (that I am growing out to breed) into a tank full of similar-sized *Cryptoheros nanoluteus* that I am bagging for auction. I mean come on, one is blue and one is yellow. How hard can it be? Well once you disrupt tank by sticking the net in, guess what? They all go grey from stress and look the same.

Ok, now I have separated the HRP or have I? Ugh, think



Fish are bagged and ready for the auction.



Coptodon kottae juvenies get pretty jumpy and fly out of the tank when approached with a net.

there are 7 back in the tank maybe it was 6. Flashlight on the fish causes a slight sheen of yellow or blue so things worked out, but not as quickly as it would had they been in their own tank.

What else can I bag? Hmm, let's grab 10 assassin snails, those will be a good sell. The Nebula Steel guppies are always a hit, let's grab two bags of 3 pairs each. Lastly and just cuz, I grab two bags of random Tangerine Endlers, again 3 pairs or so in each.

11:25 PM. Done bagging and need to show someone. Who is up at this hour? Dave Banks! HE must love my 11:30 texts of bagged fish. In 3 hours I accomplished 11 bags of live fish, not a world record by any means.

So I have 35 items for auction: 9 live foods, 6 plants, 11 fish bags and 9 random items from the fish room. Think I should do pretty well, time to get some sleep.

A Day at the Auction

Auction starts and, out of the gate, I had my eyes set on a group of *Guianacara sterglosi*, the 5th lot up or so, and I won the group of 7 for \$18.00. This turned out to be my favorite buy of the auction, as they are a great South American Cichlid that fit in perfectly in my 125. My NIB florescent light comes up and sells for \$22, that's \$15 in my pocket, I'm only out \$3 so far...

The auction runs from 11:30-5ish, long time to sit, I usually wander around the hall, bidding on this or that from different locations. Up come my Nebula Steel guppies, oh boy! And sold for \$5. Really? They know there are three pairs in the bag, right? Those saltwater books sold for 3-5 dollars each for quality and expensive books. Oh well, that's the way things go. And those last bags of Endlers I just grabbed as a last-minute addition wound up selling for \$8 and \$13, while both bags of Nebula Steel went for \$5 each. How is that logical?

Well it's not logical and that is one of the many reasons auctions are so much fun. It is a blast just attending and watching all the deals unfold and the fun only increases when you have things to sell. One day your vinegar eels sell for \$9, today they sold for \$1. It's the way things go, although I'm still a little bitter about my Nebula Steels, I almost wanted to buy them back.

This auction was good overall, and I wound up selling \$237 or so and getting a net payout of \$117.50. Not going to make a living here at auctions, but it's fun and helps offset my purchases or even make a few dollars. Not bad for a hobby.

Lot #	Description	split	
1	Vinager eels	2	1
2	"	1	1.5
3	"	4	2
4	White worms	9	4.5
5	White worms	7	3.5
6	White worms	5	2.5
7	Micro worms	1	1.5
8	Micro worms	1	1.5
9	Micro worms	2	1
10	Deep Blue submer Ho 2x Light	22	15
11	Auto Top off system	7	3.5
12	Java Moss	6	3
13	Java Moss	7	3.5
14	Java Moss	9	4.5
15	Horw wort	5	2.5
16	Horw wort	1	1.5
17	Horw wort	2	1
18	4 sponge filter	11	5.5
19	4 Box filter	3	1.5
20	2 sponge filter	13	6.5
21	Marine Hard book Book	3	1.5
22	Maring for Dumato Book	3	1.5
23	Nano Reef Book	6	3
24	Cleanfish Breeding Book	5	2.5
25	Coptodon hottae (8)	10	5
26	Coptodon hottae (3)	5	2.5
27	Coptodon hottae (10)	12	6
28	Assasin snails (2)	10	5
29	Cryptoceros Nano (Lotus 7)	3	1.5
30	Cryptoceros Nano (Lotus 7)	7	3.5

117.5

Page one of my auction registration with totals from the day's sales. I made a profit!



A group of *Guianacara sterglosi* ended up being my favorite buy at the auction. They fit right into my 125.

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March 16-18, 2018
Rocky Hill, CT

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21
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- Silent Auction for Conservation
- Speaker Program Mini Auctions
- SNEKA Killie Auction

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This article was written in the mid 1980s as one of the requirements for the Northeast Council of Aquarium Societies, Judging school, headed by Lee Finley and Bruce Smith. A very special thanks to four people who made this article possible. Lee Finley, Stuart Grant, Dr. Paul Loiselle, Rich Rosen. It will be printed here in two parts, with the second part in the May/June 2018 issue.

THE FAMILY CICHLIDAE THE GENUS AULONOCARA A BRIEF HISTORY, MAINTAINING and BREEDING, SPECIES DESCRIPTION and JUDGING

by Dave Quinn

HISTORY: THE GENUS AULONOCARA

In 1921 The British ichthyologist C. Tate Regan erected the genus *Aulonocara* for a distinctive little Haplochromin cichlid from Lake Malawi in which the bones of the forehead, cheeks and lower jaw were characterized by a remarkable enlargement of the pores of the cephalic lateralis system, these pores are an extension of the lateral lines which are readily visible on the flank of these and other cichlids. To Regan, these remarkable enlarged facial openings resembled the holes on a flute, hence the derivation of the generic name from Aloes, the Greek word for that instrument.

In the early 1950s the British Government sent a team of fishery scientists to study northern Lake Malawi, around the Nkhata Bay area. The scientists were P.B.N. Jackson, Tony Ribbinck, Geoff Fryer and Derek Iles. Their task was to improve the protein food yield for undernourished Africa and continue the scientific research and collecting studies done in 1921 by C. Tate Regan and in 1913 by Dr. G.A.Boulenger and Rodney Wood. Although their study was



Aulonocara caroli photo by David Banks

generally restricted to a 250m stretch of rocky shores at Nkhata Bay, brief excursions to other parts of the lake indicated that the species assemblages at different localities varied and that at least some species have very limited distributions.

In 1962 the first live fishes were exported from Lake Malawi to aquarists, since then a lucrative trade in ornamental fishes has expanded so that by the mid-seventies more than 400,000 were exported annually. Exporters of Lake Malawi fishes confirmed observations that many *Aulonocara* species are endemic to a particular area. As some of these species are restricted to limited areas and exist in small numbers the possibility of over-exploitation is real. There is a possibility that this is one reason why *Aulonocara* species had only been collected for scientific research work and not for exporting. Up to that time *Aulonocara nyassae* Regan 1922, *Aulonocara christy* Trewavas 1935, *Aulonocara rostrata* Trewavas 1935, *Aulonocara macrochir* Trewavas 1935, had been described but not yet exported.

It wasn't until the early 1970s that the first species of *Aulonocara* were exported to the United States by Henny and Peter Davies, and were received by Seymour Greenspan to distribute to aquarium hobby. The first received was *Aulonocara nyassae* a blue bodied species with a wide red band that ran from the top of the body to the bottom just after the operculum. The second was *Aulonocara* sp. "sunshine" which

displayed a yellow body with a blue-green face and the leading edge of the dorsal trimmed in white. It would not be until 1985 that the sunshine peacock would be formally described as *Aulonocara baenschi*.

The third species *Aulonocara* “regal”, was a blue bodied fish with the lower half orange-yellow. The dorsal and caudal fins edged in white. As with *Aulonocara baenschi*, it would be many years before this species was formally described. This also took place in 1985 and the scientific name of this species is now *Aulonocara stuartgranti*.

During the middle 1970s and early 1980s the importing of wild fishes from Lake Malawi slowed down to the point of almost nonexistence. This is when the Florida Fish Farmers became very popular with wholesalers throughout the United States. This was unfortunate for those of us who are SERIOUS hobbyist and who care about the blood lines of a species. Some fish farmers didn't and we wound up with a lot of hybrids. The genus *Aulonocara* was one that suffered in this area.



Aulonocara flavescent photo by David Banks

Thanks to Stuart Grant and Norm Edwards, who started exporting Malawi fishes to the United States in late 1984 to Aquaculture, Inc. (Florida) and in late 1985 to African Fish Imports, Lombardo's African Imports and African Aquatics International Inc. (all located in New Jersey) new varieties of wild fishes once again became available. With almost every shipment there were new species of *Mbuna*, *Haplochromis* and *Aulonocara*. With all the new species, the name given to them was the species area at which they had been collected.

In mid 1986 Norm Edwards retired leaving only Stuart Grant to do all the collecting. The areas at which Norm Edwards collected were around Monkey Bay, Otter Point and Lake Malawi National Park which are located at the southern end of Lake Malawi. The Government of Malawi is presently refusing to issue any collecting permits to these areas. What this means to the hobby is the loss of *Aulonocara* sp. “caroli”, *Trematocanus walteri*, and *Trematocranus jacobfreibergi*. Two new species and one old standby that had almost disappeared from the hobby. With some luck those of us who still have these species can maintain, breed them and distribute them throughout the hobby. It may be years or possibly never, before wild specimens can be brought in and introduced with what is left of these species.

There are some generalizations that can be made about this species complex as a whole which give an indication as to why they adapt themselves so well to life in a home aquarium, and why they are among the most rewarding of all fishes to keep. The first is, that in nature they are accustomed to life in a self-contained microcosm in a gigantic lake, completely independent and separate, such as around a tiny island or isolated rocky outcrop in a sandy beach. Secondly, we have eliminated their natural predators and can provide an adequate supply of excellent food. The Malawi Fisheries Department estimated that Lake Malawi has 400-500 endemic species of cichlids, of which a possible 20 belong to the genus *Aulonocara*.

One of the most interesting characteristics of the genus *Aulonocara* was originally noted by Regan, are sensory canals on the head and cheeks. Which are enlarged around the interlateralis bones. These enlarged openings called cephalic pits are used as a form of sonar, transmitting high-frequency sounds waves through the water and registers the vibrations reflected from an object.

According to latest scientific research, species of the genus *Aulonocara* have been observed searching

for food at sunset and sunrise. This may be one of their survival methods. It is possible that their predators may be at rest at this time, giving the *Aulonocara* time to search for the aquatic invertebrate and insect larvae that make up the main food source for the genus.

In the early 1970 when the first species of *Aulonocara* were arriving at wholesalers, their bright colors reminded the importer of a male Peacock with his brightly colored feathers and it was decided to call this little group “Peacocks” and this common name is still with us today. The man responsible for the name is John Lombardo.

Part 2 of this article will continue in the May/June issue of In Depth, and will include sections on breeding, showing and judging Aulonocara species.



This article originally appeared in the June 2002 issue of In Depth.

Concepts in Breeding Aquarium Fish

by David L Banks Jr, TFCB

One aspect of being a tropical fish hobbyist is breeding the fish you keep. It gives you satisfaction in knowing you must be taking good care of the fish, plus opens a new challenge of our hobby. But where does one begin, what are the secrets to breeding fish?

Well, there are no secrets, just some things that make it possible to raise offspring from your current fish. I will not give a cookbook process for spawning fish, since many species have very different requirements. Instead I want to give you things to think about.

First, why do you want to breed fish? What are your goals? This is important to consider because it will effect how you go about it and what resources you will need. Are you only interested in getting the fish to spawn and raise fish to share with other hobbyists, or do you want to try to learn more about the fish you are keeping? Of course you may never get the chance to really answer the question of “why”, it may just happen. Fish do breed all the time after all; it is part of their natural life cycle.

Do some research. Many species have already been bred by aquarists. This can give you an idea of where to start, and what worked for others. Also keep in mind that just because the fish spawned for someone else, they may not in similar conditions for you. If you are attempting a fish that doesn't have a lot known about its spawning behavior, try to find similar species, find out where they are found in the

wild. The more information you have, the better your chances are of being successful.

Once the fish spawn the hard part is over, right? Wrong, the hard part is usually just beginning! Like I said, fish spawn all the time, the trick really is being able to raise the fry. How do the fish spawn, are you able to witness the event, how do you ensure the fry will be able to survive?

Fish in general are opportunistic feeders, and eggs could be considered food for some fish. Do the fish you are trying to work with need to be in a special setup, like a species tank, or do you need a way to separate the adults from the eggs.

What will you feed the newly hatched fry? How large will they be? Fry that don't have the correct sized food in the right location may not survive. You may need to plan ahead of time to start appropriate live food cultures; artemia, microworms, infusoria are all small live foods that can be used for a first food for the fry and are fairly easy to culture. Many fish will not need live foods, but your chances of success always seem much better with live foods.

Do you have an appropriate aquarium to be able to raise the fry to a size where someone else could easily care for them? Once you get the process down for a particular species, you need to consider how many tanks you would require to raise just a few spawns of a single species. Each spawn may need to be separated from the next, as the larger fry may out compete the smaller fry for food, or they may even be large enough to eat them. You don't want to over crowd them, but you also need to balance overcrowding with their need to be able to easily find their food. In general you want to confine the fry when they are very small, and when they get older, you want to maximize their space.

Also when considering what species you are interested in spawning, think about what will you do with the fry? Will you be able to grow them large enough to bring to the pet store? Most stores aren't interested in small fish, they will want fish similar to the size they already have. Is it a species that has resale value? Do you have other hobbyists that would be interested in the species. Club auctions are usually a great place to distribute fry, but remember that fish can have large spawns, and it will be very easy to flood your market. There are many species that always have appeal; there are also the "new" fish that will attract interest. Of course you may be interested in certain species just because they interest you, or offer a challenge.

I hope this gets you heading in the right direction. Breeding fish for me has definitely been the most rewarding part of the hobby. The challenges, the excitement it generates and the feeling of accomplishment really are what keeps my interest and are the rewards for the work that goes into keeping the fish!



Collecting Native Fish in Florida

By Ann Whitman

“I see an alligator over there,” my husband hollered from the top of the bridge. “About 6’ long, it’s on the opposite bank. I’ll let you know if it moves.” From my patch of weedy, litter-strewn, muddy slope under the Manatee River bridge, I couldn’t see these Florida water hazards. Having a ‘gator spotter was a real perk.

“Not having much luck here anyway. Just mosquito fish and beer cans. I’ll be right up.”

Eastern mosquito fish (*Gambusia affinis holbrooki*) is pervasive throughout Florida’s freshwater rivers, lakes, ponds and ditches. Although it is native, it isn’t a particularly attractive fish and tends to bully other small fish when kept in an aquarium. In many places where I collected, every scoop of my [Perfect Dipnet](#) yielded about 20 to 50 of these small livebearers.

We had been kayaking on Lake Manatee in the State park earlier in the day, and I had tried collecting around the boat launch and public beach. Again, only catching mosquito fish, ghost shrimp and a few juvenile bass. I really needed a seine or cast net, but had to make do with the tools at hand. Today I was hoping for the golden topminnow (*Fundulus chrysotus*), bluefin killifish (*Lucania goodei*), and Florida flag fish (*Jordanella floridae*), but all eluded me. I did collect a few water plants and a bag full of fallen oak leaves to add to my biotope tanks, though, and I saw an armadillo, so the day wasn’t a total loss.

Collecting on the East Coast

My husband, Don, and I drove to Florida in late January loaded down with our kayaks and gear, his bicycle, and a trunk load of my fish nets, buckets, Kritter Keepers, pumps and paraphernalia. I had planned our trip specifically to include as many collecting opportunities as possible and came well prepared! I even remembered my water shoes this year...

A few days after arriving in Florida, I started my collecting forays in the Punta Gorda to Naples area with my sister, Joan. After dropping Don off at a kayak launch, she and I headed up Burnt Store Road to try our luck at several spots listed in the Florida Collecting Guide. I was only interested in small fish that are suitable for transporting back to my Vermont aquariums, and this area promised a number of desirable killifish, livebearers and topminnows species. A number of small streams pass under this road and most are easily accessible.

The first stop, next to a low concrete bridge, yielded about 15 nice young sailfin mollies (*Poecilia latipinna*), an exciting find! I also netted many invasive African jewel cichlids, juvenile sunfish, and



The author collecting fish in a narrow creek off Burnt Store Road near Punta Gorda, FL. Note the handy dip bucket used to hold fish for observation and transport back to the main bucket. photo by Don Whitman

ubiquitous mosquito fish, all of which I returned to the water. Unfortunately, Florida is now home to more invasive species than any other state in the US

At the next stop, I found nothing interesting near the road, so I waded upstream through a tangle of fallen trees and overhanging brush. This is snake territory, so I kept a keen lookout and poked the ground with my net as I proceeded. My efforts were rewarded, though, when I caught my first golden topminnows! This is a lovely species that grows to about 2-1/2" to 3" long and sports red and gold speckles on its gold-green body. I also caught a single female marsh killifish (*Fundulus confluentus*), but was unable to find more to keep her company.



From left to right: An exotic African jewel fish caught in the net, a group of sailfin mollies, a good collecting spot at a boat ramp in the Everglades where we caught flag fish, bluefin killis and mollies, as well as plenty of ghost shrimp, mosquito fish, young bluegills and bass..

Into the Everglades

Our second day of collecting was along Alligator Alley, the Interstate 75 corridor between Naples and Fort Lauderdale. Joan and I stopped at several rest areas with boat ramps where water access and parking were easy. We caught our first bluefin killis and Florida flag fish here, as well as a few more sailfin mollies. We also caught many juvenile bluegill, warmouth and largemouth bass, but none of the highly desirable Everglades pygmy sunfish (*Elassoma evergladei*).

On the eastern end of Alligator Alley, we took a left and headed north on Rte 27 to Sawgrass Recreation Park, a little roadside attraction that features airboat rides, a small zoo and fried alligator kabobs. At the edge of the parking lot, across from the food truck, we waded through the mud into the water between a dumpster and creosoted utility poles. Hardly a promising scene, and I made a mental note to rinse my feet and legs in clean water at the next opportunity. Grass and weeds covered the bottom of the shallow water, though, and my first swipe with the net came up with the most exciting



I caught my coveted swamp darters (far right) in this unlikely looking location next to utility poles and a dumpster. After slipping through the mud, a few sweeps of the net over the grassy bottom turned up a few of these perky little fish.

catch of the day. Swamp darters! This species (*Etheostoma fusiforme*) was very high on my wanted list and I managed to catch two pairs.

Urban Opportunities

During our second week in Florida, I made a couple of solo collecting trips in the suburban Sarasota area. I didn't expect to catch anything very exciting in the roadside ditches along the busy roads, but I still had a few days left on my fishing license. As it turned out, I had one of my more successful catches of sailfin mollies in a 2-foot wide stream between a McDonalds and Walgreens on 4-lane Fruitville Road. A few miles east of that lucky spot, I pulled over to try my luck in a pond next to the busy highway. Bingo! My first good haul of least killifish (*Heterandria formosa*), which is actually tiny livebearer that thrives in home aquaria. My net also pulled up a good collection of huge dragonfly larvae and water beetles, which I quickly flipped back into the water.

An hour spent in a pond behind a Home Depot didn't turn up anything other mosquito fish, but it was an excellent spot to collect large empty snail shells that are perfect for my colony of shell-dwelling cichlids (*Neolamprologus multifasciatus*). I also grabbed a few empty freshwater clams shells to add to my Florida biotope tank and some clumps of Spanish moss to use as spawning mops. Note: all of these collected items get boiled before use!

It's About the Journey

My main rule about collecting fish is that I only keep what I can responsibly (and legally) care for. Overall, I spent about 5 days collecting, but kept only six species and came home with fewer than 50 fish. I released more than 99% of the fish I caught. For me, most of the fun is in the hunt. What's in that ditch? What will this swish of the net bring up? What is that fish? Collecting in Florida is also about spending time with my sister, talking about fish and podging about off the beaten path. I don't much care for the sprawling development, crowded highways and tourist traps that Florida is famous for, but, if you look between the buildings, along the roadsides and in the countryside between cities, there's plenty of wildlife lurking beneath the surface. Just watch out for the snakes and alligators!



Bluefin killifish in the dip bucket for observation. These pretty fish make a nice school in the aquarium.



A tributary of the Manatee River near Bradenton, Florida. photo by Don Whitman

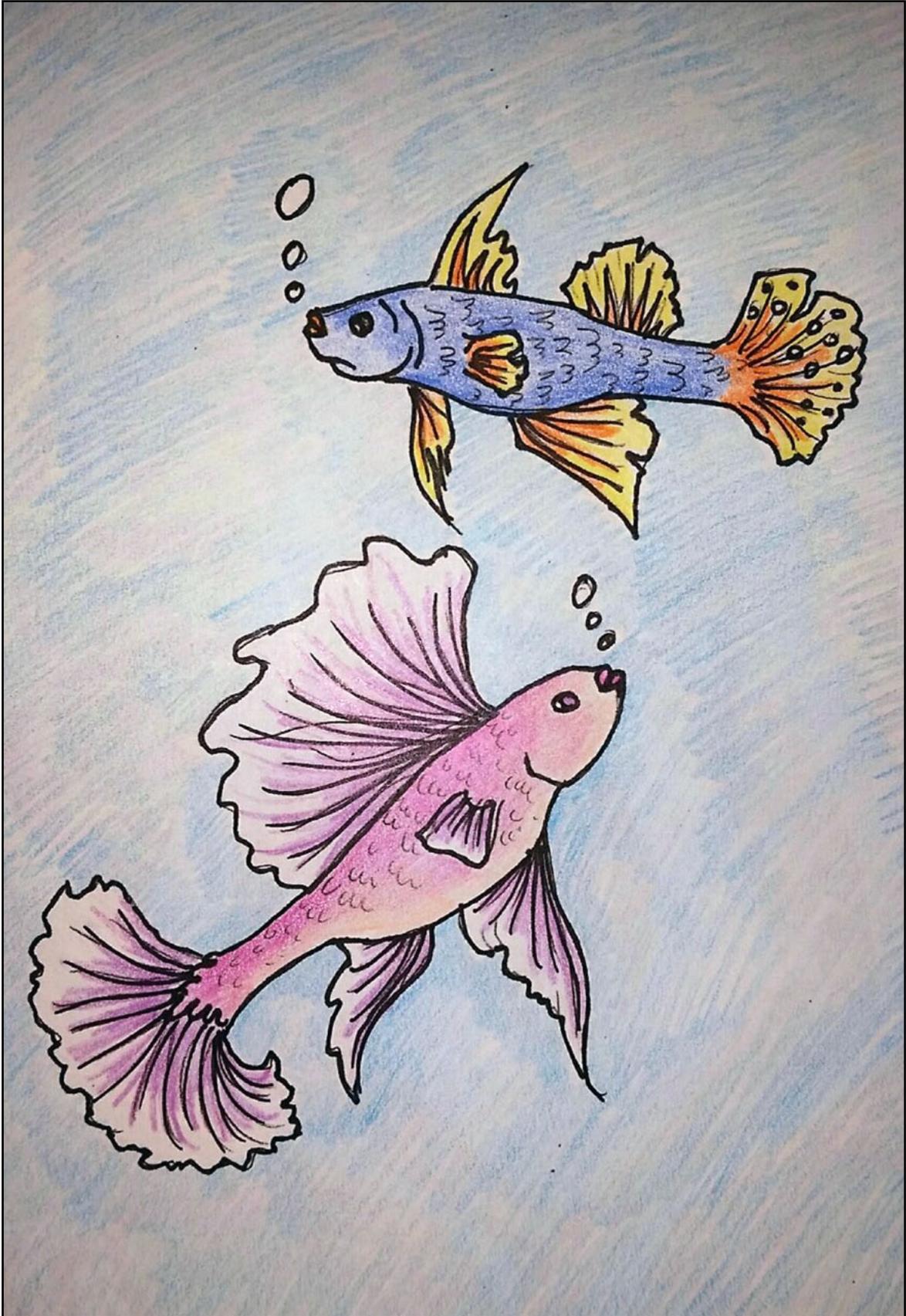


Illustration by Jenifer Barnes