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January Presidents Message



Here we are at the end of 2009 and the beginning of 2010. What to write about? I really thought about recapping last year as many shows on TV do at this time but then I thought I don't like those shows and I don't watch them. The last thing I think you as the reader would want to do is read about facts that you probably already know. However I would like to mention we had several new class winners in 2009 and two first time Grand Overall Champions. Tim Mousseau won Gran Overall Male and Gordon Easterling won Grand Overall Female. Now that is worth mentioning!

I would like to take some time and talk about this very publication. In 2009 there were 12 editions. We have a definite lack of material and we need help from each and every one of you reading this message. To recap articles:

January 4, February 2, March 2, April 2, May 2, June 6, July 3 and a reprint, August 2, September 1 and two reprints, October 4, November 6, December 4

February through May was a very embarrassing period for an organization with as much knowledge as ours. November was outstanding and September was unexplainable. Here is a list of writers and number of articles:

Anthony Fischinger - 5, Jim Alderson - 4, Tom Allen - 4, Dave Polunas - 4, Forum Moderator - 3, Michael Marcotrigiano - 3, Gregory Dickman - 2, Joe Grimes - 2, Nick Evanoff, Bob Lewis, Stephen Kwartler, Derrick Clayton, Jim Gourlie, Cathy Mertz, Art Lembke, Brad Smith and Tim Mousseau all sent in one article a piece.

The reason for this whole message is twofold. One is there is a wealth of information, knowledge and experience out there. Each one of you readers could and should contribute to the success of the other members. The other is quite simple. As a member of this organization you expect a monthly bulletin that contains helpful information.

I expect a better and larger eBulletin this year each and every month and I expect the writers who wrote one article to write two and I expect those of you that have not contributed anything for several years to get an article into our editor. It is your bulletin!



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Guppy Videos

Michael Marcotrigiano New England Fancy Guppy Association

With the advent of cheap video cameras and free internet hosts which allow you to upload personal videos, there is an explosion of videos on the internet. People feel compelled to let everyone see "movies" of everything from personal moments in their lives to dangerous pranks - and of course pet videos. Most of it is junk – fuzzy horrible movies that make you really appreciate fine film. On a snowy day I decided to search for guppy videos from the United States and beyond (and there are more from beyond) and found too many. I decided to spare you from doing the same - watching the fuzzy movies of community tanks with the passing pet shop guppy. Instead I distilled my findings into a list of movies you may think are worth seeing when you can't fall asleep at night. Grant it, most are not IFGA winning guppies but the mutations from abroad and the images of shows are entertaining if you like that sort of thing. If you don't, don't bother reading on and don't email me to complain about the video quality. Trust me I've done you a big favor being selective. The links should be live so all you need to do is click and watch. Hopefully you have Ethernet because a dial up will take forever. Happy viewing. I suggest no butter on the popcorn for your keyboard's sake.

Above each link is a brief description of what you will see. Keep in mind that some links may go dead over time as people remove their videos.

The British National Guppy Show

<http://www.youtube.com/watch?v=2FhkNqTCv1s>

British Guppy Show – gosh what a different set up

<http://www.youtube.com/watch?v=Uvt8-V4BLqw>

Expensive British Guppies (read the text on the right)

<http://www.youtube.com/watch?v=3wgcN48WYbg&feature=related>

2009 Malaysia Guppy Competition

<http://www.youtube.com/watch?v=xE41nsrbwDA>

2009 Singapore Guppy Competition

<http://www.youtube.com/watch?v=PdM9QjQukkq>

Blue Grass Swallow Tail Guppy Pair/ Platinum Full Gold Swallowtail Guppy <http://www.youtube.com/watch?v=Wn2nzn01Blk>

Japanese Blue Grass Swallowtails

<http://www.youtube.com/watch?v=csCwHZthApM>

Red Albino Male Guppies

<http://www.youtube.com/watch?v=gtrv446zu10>

Full Red Albino Guppies Courting

<http://www.youtube.com/watch?v=ZP5S5bwXjwI>



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Guppy – “Yellow Peacock”

http://www.youtube.com/watch?v=4qy_yO5JYSI&feature=PlayList&p=6B9449AE97395279&index=2

Belgian platinum (or Japan Blue) Reds – interesting

<http://www.youtube.com/watch?v=g9prWKO2lv8&feature=PlayList&p=6B9449AE97395279&index=6>

Tank of Black Moscow

<http://www.youtube.com/watch?v=7SZ-wnc2HKA&feature=PlayList&p=6B9449AE97395279&index=19>

I think this means Albino Half Black (Pastel)

<http://www.youtube.com/watch?v=QAazIhKZORs&feature=PlayList&p=6B9449AE97395279&index=27>

Long-fin (not swallowtail) in red albino, snake, and other colors plus baby pictures

http://www.youtube.com/watch?v=sX_OnMxxySg

Female in the process of giving birth for the newbies who have not seen it!

http://www.youtube.com/watch?v=XqCzCRCMgyw&feature=PlayList&p=E056EC3D28DA4274&playnext=1&playnext_from=PL&index=9

Japan Blue Firefin (interesting caudal but what class? – none)

http://www.youtube.com/watch?v=_Bsd2WaVV5g

Japanese Blue Grass in a planted tank

http://www.youtube.com/watch?v=a0NY_ISqPGs&NR=1

The standards for the Hong Kong Guppy Association look like IFGA except for delta angle

<http://www.youtube.com/watch?v=JkliHQBKuf0>

Asian albinos with some green in their tails

http://www.youtube.com/watch?v=Q-_U1H4XCI0

Merah guppies imported into Australia (Why?) – this is a crown tail guppy mutation in a half black pastel background

<http://www.youtube.com/watch?v=mebVOcNswVw>

Full black ribbon fin (male normal, females ribbon fin)

<http://www.youtube.com/watch?v=VSggLQBOewI>

Swallowtail and Ribbon Fin Males (with commentary)

<http://www.youtube.com/watch?v=9q7cSzaRsb8>

Platinum double swords

<http://www.youtube.com/watch?v=aUCJUPymTBc>

Intense red albino females in this tank

<http://www.youtube.com/user/haya23busa#p/u/78/oIwVkhmhyTA>

A sales page with lots of links to guppy videos

<http://www.guppy.petbh.com.br/english/sales.html>

the end, for now!



IFGA eBulletin

Article Encouragement!

By : Tim Mousseau

It seems like over the last few years we have had less and less articles in our bulletin. Getting people to write articles have always been a problem but it seems like it has become a trend recently. It always seems that the few articles we do get are from the same people. I am not saying that I don't like reading all articles but it would be nice to hear from new people. Some of our regular authors have stopped writing; I myself have been one of those people. Some of the people who do write articles often take care of other IFGA business, so after awhile they feel that they have done their part. I wrote article after article for many years. After seeing no new people writing, I felt why should I keep writing articles for others to enjoy when not a lot of people are writing an article for me to enjoy.

The bulletin needs to be a give and take group project. There are some people that feel that they are not good writers. Let it be known that our editor will be more than willing to help you with your article or direct you to somebody who can. If you are not good with spelling or grammar, they will fix that for you too; just take the time and write an article. Even if you are just starting in the hobby there are several things you can write about. Some topics could be about how you found the IFGA, why you like fancy guppies or what equipment you picked to use in your setup. It doesn't have to be large articles just get something on paper. There are many people who would love to read it.

I feel that there are some things that the IFGA can do to encourage articles. The biggest one would be to give IFGA membership credit to people who write articles. How about every article a person writes they get \$5.00 off their next membership renewal? So if a person writes 5 articles they will get one free year of membership. This would drastically increase the amount of articles we receive for the bulletin. There would have to be article size requirements to keep people honest but I feel a program like this could really help. There are also many people who have old bulletins with many good articles in them. Upon prior approval, we could let people type then up word for word and submit them for \$2.50 off their membership renewal.

The IFGA has approximately 140 members and we have twelve bulletins per year. If we can average one article per person per year each bulletin we could have approximately 11 articles in it. Being able to read that many articles per month about something you love would be more than worth the \$25.00 membership fee itself.

Sensible Outcrossing

By James C. Alderson

The pure strain is the standard of success in the guppy hobby, the guppy holy grail. To begin with such a diverse number of colors and patterns found in the wild guppy, and have molded them into the beautiful lines that comprise IFGA show guppies is truly a remarkable accomplishment. As breeders, we all know that given the genetic opportunity, the fish we breed will always try to revert back to the wild type. The value of the pure strain lies in the similarity of the genes giving us consistent traits in there



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offspring, such as color size, and finnage. As we increase the purity of our lines through inbreeding and line-breeding, we also concentrate the number of recessive traits that are expressed in their offspring.

Sensible Outcrossing By James C. Alderson (Continued)

Some of these recessive traits might be favorable, like a dorsal fin that matches the caudal fin, but many can affect the strain negatively, such as reduced resistance to disease or diminishing fertility. Out-crossing guppies increases the genetic diversity of the fish, reduces the number of recessive traits expressed, and results in most cases, results in some degree of hybrid vigor.

The generally accepted method of improving your line is to acquire another line of the same color that displays some of the characteristics that are weak in your strain and cross them. This works quite well in many cases, if the correct combination of strains are used and the correct genders are selected for the cross. Remember, about 85% of the male characteristics are carried by the male and only about 15% of the male phenotype is carried by the female. Although fifteen percent doesn't seem like a lot, it can be the difference in a mediocre fish and a show stopper. My question is "How are we going to take our fish to the next level?" We, as breeders, seemed to be trapped into a zone of line-breeding. How are we going to make a strawberry red fish or a solid blue? How are we going to invent a purple color that jumps off the bench or a pastel shade in another color than white or cream? How are we going to get a large caudal that equals the body size on every fish? Just as Hahnel fathered the delta tailed guppy and Shubel masterminded the matching dorsal fish, we have to take our genetic charges to the next level of development. This is going to take some thinking out of the IFGA box!

I once crossed a nice Tom Allen purple male to a Vic Piteo HB pastel female hoping to get a HB purple. The offspring were about two and one-half months old. At this point the fish were large bodied with a smudgy, indistinct pattern in the caudal. In my wisdom, I proclaimed the whole tank must go! I wiped it out and filled the tank with reds. As I admired my reds in the tank several months later, I noticed a large, absolutely stunning HB AOC male with light purple caudal and a black pattern. He was the lone survivor of the previous tank wipeout. I showed the fish at three shows winning the HB AOC Delta class twice and placing twice in BOS. I crossed him back into my HB AOC females and got remarkable bump the quality of the line for many generations. Indeed, most out-crosses are not this successful, but they can result is a quantum leap in the quality of your fish.

There are some decided drawbacks to out-crossing.

- 1) Most outcrosses do not produce the desired result and many produce downright duds.
- 2) They take away tank space, food and labor from other lines.
- 3) As in my case, the value of the fish may not be apparent until they are nearly mature.
- 4) Their genetics are not reliable. You can't sib them and expect to get similar fish.

Here are some tips to help you limit some of the liabilities of outcrossing.

- 1) Make intelligent choices when outcrossing. (More later)
- 2) Only keep one or two batches of an outcross. You don't need five tanks of them.
- 3) Keep the fish until they are at least 4 to 5 months old. You will not be able to predict how they are going to mature as you may normally be able to with the parent lines.
- 4) Cross back to the parent lines or a line similar in genetics to the parent lines.

Outcrossing generally increases the size, vigor, disease resistance and fertility of the offspring. This is due to in an increase in the heterogeneity, or mixture of genes, reducing the number of recessive traits



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that are expressed in the fish. While I don't recommend you begin numerous outcrosses with reckless abandon, I think a thought out plan to make a quantum leap in the quality of your fish is a worthwhile venture. After this show, it seems there is a certain amount of staleness in some of the classes that have not progressed much in the past 10 or 15 years. This is not an incrimination of IFGA breeder, only a call to stimulate our collective creativity in enhancing out lines.



The Aquarium Corner Filter

James S. Koga

<http://www.csupomona.edu/~jskoga/Aquariums/Cornerfilter.html>

October 09, 2008

The lowly corner filter (or as it is sometimes called, the box filter) gets little recognition these days. Once the mainstay of the hobby, it is used mostly in quarantine or fry tanks, if at all. However, this page is here to tell you about the virtues of this wonderfully low tech method of filtration.

This page was written for those aquarists who are already familiar with basic filtration concepts. If you are not familiar with them, please read the materials at the Filtration FAQ first. (Use the link near the end of this page).

Types

There are two basic types: a "standard" type, those designed to be used without airstones, and a "deluxe" type, those driven by airstones. The type without airstones are very inexpensive (one of my aquarium supply catalogs lists the Lee Economy model for \$1.99!). However, I don't recommend this type, in that it suffers from a lower flow rate and can be far noisier than the airstone driven type. The large bubbles produced also agitate the water in a more violent fashion (hence the greater noise). Contrast this with the gentle flowing of the many small bubbles generated by an airstone.

There is another type of filter that sometimes goes by the name "corner filter". This is the Penn Plax Clear-Free Corner Cartridge Filter and its clones. It does not share most of the desirable characteristics of the corner filter that I know and love, and my remarks here are not applicable to them.



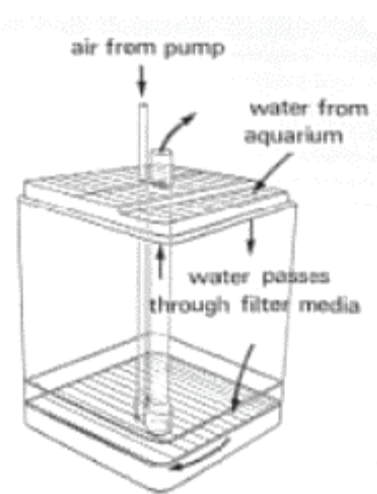
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How it Works

The corner filter works on the principle of an "air lift". A stream of bubbles moving up a tube also pushes water up with it. Water flows into the top, sides or bottom vents of the filter to take its place. As the water flows through the filter, it passes through filter media.

The diagram shows the path that air and water take through the filter; this is another example of the simple, non airstone type...

This "air lift" is the same mechanism that draws water through an airstone driven [undergravel filter](#).



Advantages

Inexpensive to obtain and operate. They just don't cost very much. Even the largest one will cost about \$6 via mail order. Since you are buying media in bulk, your supplies are purchased at the lowest possible unit cost. A fairly high quality air pump (which has repair kits available) of adequate power will cost about \$6.

Easy to maintain Though they are nowhere near as quick to change filter media as with some outside power filters, they are nowhere near as troublesome as a canister filter.

Versatile in terms of filter media See the discussion below about filter media.

Simple in design and therefore (close to) foolproof. Anyone who has tried to deal with a noisy or stuck impeller will appreciate the simplicity of this filter. The most complex part of the system is the air pump, and that is often so inexpensive that you can afford to stock a back up in case of problems.

Aerates the water An airstone driven corner filter provides more aeration than most powered filters.

Less effected by power outages Any filter that keeps its biological filter media



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immersed in a larger body of water is not much effected by short power

outages: the bacteria will be in a larger body of water (in the tank versus in the filter chassis) and will therefore be subjected to less stress. Air pumps merely start up again when the power comes back on and there is no loss of siphon, etc. Battery powered air pumps are available for use during a prolonged power outage.

Less violent water movement Since there is no falling water, spray bars, etc., corner filters can be used in situations with fragile tank inhabitants (such as fry tanks).

Disdvantages

Unightly. What can I say? Unless you hide it with plants or decor, it sticks out like a sore thumb. And if the media is dirty, it looks really bad...

Takes up habitat space in the aquarium. In a smaller aquarium, this may be a real issue. Tanks with smaller footprints (tall hexes for example) may not be able to afford the space taken up by this filter.

Slightly inconvenient to maintain. It's simple to maintain, but you do have to yank it out of the water, which may get your hands wetter than you would like. If your tank is deep, you may have to get your arms (not just your hands) wet when you set it back in.

May be less durable than hoped for. Some of the cheaper import "no name" brands may be made of a plastic that turns brittle.

Difficult to pack. Those models with odd shaped media chambers may be difficult to pack. See **Media**, below.

Vulnerable to attack by large aggressive fish. It's right there in the habitat - and there is not much you can do to protect it.

Not suitable for large aquariums. I had to think about this one for a while. Sure, with today's air pumps, you could set up a three Lee Triple Flow models with turbo thinwall tubing for a 60 gallon tank, and it would work, but in that situation you are better off with a power filter of some sort. I think.

Comparison

Let me make some comparisons to other types of filtration. A most likely rival for a low cost set up is the conventional flow [undergravel filter](#) (UGF). Both the corner filter and the UGF are air lift driven, that is, they both use air pumps to move water. The UGF has an advantage in that since it is covered with gravel, it is mostly out sight, making a better appearing aquarium. However, the big trade off is that a UGF will have a problem with the accumulation of mulm (crud) underneath the filter plate. No matter how conscientious you are about vacuuming the gravel, you will still need to clean under the plate. This can be done with a periodic (say, once or twice a year) major tank "tear down", or by



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trickier methods which involve either periodically forcing water down the lift tubes or vacuuming under the plate via the lift tubes (see links for further info on these methods). Contrast this with the process of cleaning out a corner filter: lift it out and clean it out, with little disturbance to the tank and its inhabitants. I happen to like UGF's but I only use them on very small tanks that are easy to tear down. Also, a UGF is poor at offering chemical filtration options. For mechanical filtration, it performs **too** well, leading to the above mentioned cleaning problems.

A Rationale...

Much of the aquarium hobby seems to be driven by a boyish fascination with hardware (it **is** a male dominated market). I admit to having this same fascination, but my fascination is with the simpler devices as well as the high tech ones.

Thus, a fascination with biowheels and fluidized beds and the like can lead to some excesses. If I can keep my ammonia and nitrite levels undetectable with a low(er) tech filter (be it a corner filter or a Whisper 2 with some Bio Chem Beads), what's the rationale for spending more money on a canister/biowheel/fluidized bed/trickle filter setup? The more complicated and higher tech the set up, the more serious are the possibilities of problems (canister filters sometimes stop undetected, biowheels cease to turn, and fluidized beds crash or eject their sand, and big trickle filters break their siphons or overflow).

I'm not totally against these innovations - I would just like aquarists to keep all the possibilities in mind. Please consider my remarks here a form of mild advocacy for corner filters; only you can decide what filter is best in your situation.

Media

The media chamber of a corner filter can be relatively large, but your choices of filter media are all very much influenced by the fact that there is often an air lift tube running through the center of the chamber. This may lead to the situation where water will bypass the filter media. (Bypass is a big no no for some people - one of the big selling points of canister filters is that they prevent bypass). Of the different media, bypass is far less likely to happen with the mechanical filter media; it may occur to some extent with the chemical or biological media. However, there are ways to deal with the bypass, and please note that many of the other filtration systems also allow for bypass. The following is a rundown on the options for the different media. Please keep in mind that some media will perform more than one of these functions.

Mechanical filtration media. The medium of choice is filter floss, purchased in bulk bags, the biggest bargain in filter media today. Be careful not to pack it too tightly. Filter pads might be cut to fit, but due to the positioning of the air lift



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tube, this is probably not worth it. Sponge (foam) may be used as well, but it would also have to be cut to fit.

Chemical filtration media. Here we have to deal with the problems of the shape of the media chamber and with bypass. Chemical media is usually in the form of small granules (activated carbon, chemical beads, resins, etc.). The best way to distribute this media is to put down a layer of it in the water flow after the mechanical media. Unfortunately, this makes for a messy cleanup; I prefer to put it in a loosely packed filter bag. Having it loosely packed allows me to distribute it in the media chamber a bit better.

The bag helps me to keep some semblance of control over where this stuff goes (and I can live with the bypass).

Biological Media. Note that most any media (floss, sponge, carbon, etc.) will become biologically active if left long enough in the water flow to grow the requisite bacteria. The old time method with using just carbon and floss was to discard only half of the dirty floss at maintenance time so as to maintain biological filtration. So in addition to mechanical media which you may use as biological media as it ages (but be sure to clean it so as to prevent clogging) certain types of biological media are best. Due to the relatively small size of the media chamber, commercial bio media that comes in small pieces are good. Cell Pore Bioblox cubes, Eheim Efisubstrat, Seachem Matrix, etc. fit this bill. Some people even use gravel. However, unless you put these in a filter bag, you may find them hard to manage come maintenance time.

Ceramic noodles, such as these Filstar Ceramic Rings, when strung together on [monofilament fishing line](#), are the best biological media...

The biological media of choice are ceramic "noodles" (Biomax Rings, Filstar Ceramic Rings, etc.) loosely strung together with [filament fishing line](#). They are relatively small, and being loosely the media can be distributed about the chamber, while also allowing fast removal.



[mono-](#)
strung,



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Make it "Turbo"

It is possible to get a better water flow by increasing the volume of the "air lift". This can be achieved by fitting a longer lift tube to the top of the filter where the bubbles come out. The problem is getting a tube that fits. Of the Lee "Triple Flow" models, only the "medium" sized one can take 1 inch thinwall. Since it is standard sized thin-wall as used on UGFs, you can then replace this with a longer length of tubing and cap it off with the "elbow" part of the UGF lift tube assembly.

I prefer the Perfecto brand elbows. The elbow produces a more "directional" flow as the water exits the filter. In their heyday, there were turbo models that featured media chambers without lift tubes

going through the center, and media chambers that could be lifted out of the tank without disturbing the rest of the filter.

Setup

In packing the filter, remember that mechanical filtration should be first in the flow of water, followed by either chemical or biological. Air lines should have a check valve (which prevents water from flowing out of the aquarium and into the air pump in case of equipment or power failure). Air stones suitable for UGF's are appropriate. Air stones can sometimes vary in quality in that some allow more air flow than others - replace any that do not flow well upon initial set up. Use an air pump powerful enough to produce a large amount of bubbles. I have read that air pumps should properly be set up with a gang valve with at least one open (unused) valve to bleed off excess pressure, but I have never bothered.

Maintenance

Whenever you approach the aquarium, take a quick glance at the filter to see if the flow of bubbles is still plentiful. Do filter maintenance at a decent interval (once a month or sooner: this is a judgment call) by replacing or cleaning out mechanical media, replacing chemical media and less frequently, cleaning the biological media. Biological media (and this includes mechanical media that is doubling as biological) needs some care when cleaning: in order to not kill off the bacteria, rinse gently in about-to-be-discarded tank water (do this during a water change so you have some of this water). Remember that it is quite all right for biological media to "look dirty". You are only cleaning it to prevent clogging and to remove an outer layer of bacterial growth from time to time.



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(Continued from page 11)

Also, be sure to clean out the intake vents.

The filter itself requires little or no long term maintenance other than to check for brittle plastic. You may want to clean out the lift tube and the filter housing from time to time for cosmetic reasons. However, the other components of the system may need some attention:

Air stones. Air stones tend to load up with hard water deposits under my tap water conditions; they also may get coated with slime. Dirty air stones can be refurbished by cleaning with an algae scrub pad and a soaking in a strong bleach solution. However, with small air stones selling for as little as \$1.49 for a packet of four, you might want to consider them disposable.

Check valves. Depending on the quality of your check valves, you may wish to replace them every year or so. You can test them by blowing on them (yuck!) in the direction of air flow that they are supposed to block.

Air line check valves are among the items that need occasional maintenance...

Links

It is vitally important for an aquarist to understand the establishment of the nitrogen cycle (biological filtration) in a new tank. See [Beginner FAQ: The Nitrogen Cycle](#) for an explanation.

The basic types of filtration and filters are covered in the [Filtration FAQ](#) and Wikipedia's [Filter \(Aquarium\)](#) article

The Undergravel Filter [Controversy](#) talks about problems with UGFs.

No [turmoil in my mind](#) (about UGFs) by Frank G Anderson

About.com's Guide Picks - [Top Box \(Corner\) Filters](#) is a buyer's guide to brand name corner filters.

Filters

Manufacturers

[Lee's Aquarium and Pet Products: Economy](#); Triple Flow: [S](#) | [M](#) | [L](#)

[Penn-Plax](#)

Owstrow, Marshal E. **Goldfish; A Complete Pet Owner's Manual**. Hauppauge: Barron's Educational Series, 1985.

This book describes using corner filters that have been modified into "turbo" models and has a very enlightened explanation (for the time) on how media can become biologically active.

<http://www.csupomona.edu/~jskoga/Aquariums/Cornerfilter.html> (9 of 10)1/5/2010 4:15:13 PM

The Aquarium Corner Filter

[James S. Koga](#)

<http://www.csupomona.edu/~jskoga/Aquariums/Cornerfilter.html>

October 09, 2008



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A Touch of Green
By Stan Shubel

Those of you who have read my book or several articles I have written about breeding may still have some questions about some of the methods I use. While they have worked well for me close on to 50 years they may not be the ideal solution for everyone due to not having related lines, number of available tanks, etc. I will try and describe some of the procedures I follow in trying to establish a new color line.

Every couple of years when I cross two particular lines of my blues (I keep four separate lines) a green or two will show up. Usually I have a list of breeders that want any that I have available. This time just for the heck of it I thought I would try and do a little work with them myself. So I took two dark forest green males and using a flashlight picked out three sisters that showed a bit of green in their caudals.

In the first generation all of the young males had dark green caudals with no blue coloration, but most of the dorsals were very dark. Body color and size was quite good. I then picked what appeared to be the best colored males for the next generation breeding. So far the third generation (F3) seems to be about the same as the second. (One of the problems with dark greens or dark blues is that unless you have a good frontal light they appear to be almost black and many of them get disqualified at shows as they only show about 25% of the class color.)

At the same time I had a few HB Green females left over from a line that I was dropping and bred them to a medium colored male. Most the young in the first generation were much lighter in color than the first line with iridescent colors in several of the males. I also tried using a couple of clear tailed females but the resulting young were not good enough to continue working with. I possibly could have bred some of the young females back to their father but did not want to tie up more tank space.

By the second generation the color had improved even more and the dorsals were a definite improvement over the first line. The body color was also improving with no sign of the HB characteristics which would indicate that the HB chromosomes are Y linked. So now I had two lines of steadily improving fish with good caudals and fair matching dorsals.

While checking out some young purple males one day I noticed one with good green color in the caudal and dorsal as well as a fair body color. I may get one green in one thousand fish with the purple lines. Again why not? With plenty of dark virgin females available another cross was made. The F1 generation produced some very large dark fish with a mixture of decent greens. At four months of age many of the young males have seven point bodies and are still growing, very active and vigorous fish. One plus from this cross is that I will take some of the darker females and cross back to the purple line that they came from. As it was time to make a purple cross (the fish were starting to lose a little body size) this will work out just fine. This will give me a third line of greens.

My next move was to take one of the lightest tailed males from the second line back to one of the virgin females from the first line. The F1 drop gave me a lighter colored caudal and good body color with decent dorsal color. A couple of the F1 males with the best color were then bred back to virgin sisters of the original mother. I wanted a close relationship but it was not necessary to breed back to the mother as I was close to the color I wanted. This gave me a fourth green line to work with.

As expected in all of the various crossing I was doing, there is a percentage of colors that are not wanted. So it will be necessary to be very selective in picking out breeders as the program progresses. One of the misconceptions that some breeders labor under is that if you breed a male to two of his sisters and split the drops that you will have two separate lines. This is not the case; all you will have are more fish from the same line. It is important to keep each female's drop separated so you can determine which females throw the best fish.



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This is the main reason I separate the males and females as soon as it is practical. With tank or group breeding you have no idea which fish is bred to which. I will occasionally breed cousins rather than brother to sister, which would still be inbreeding but not quite so close.

By utilizing the slightly different breeding methods with related fish you gain many of the advantages of hybrid fish (crossing unrelated lines) for increased growth and vigor, but without the negative side of most F1 fish not resembling either parent. This type of fish is often sold at fish auctions. At one time one of the breeders showed me a dropping of young from fish he had purchased from an auction, he had six different types of fish, none of them very good. But occasionally you can pick up some decent fish to help improve your line. I usually cross fish after three or four generations, or when the line starts going down hill.

Some of the lines I work with took years to develop, but now the quality of fish is so much improved it is relatively easy to come up with good fish. I've got a good idea what I am looking for in the greens, but there is still a long way to go.

Getting away from the breeding, I'll occasionally have a tank of fish, usually females, that just start dying, for no apparent reason. The tank water checks out fine and the fish show no discomfort or visible signs of any disease, they just die usually one or two a day. After trying all the medications available to me with no effect, I found the only thing to do was to transfer the remaining fish to a different tank and this usually stopped the problem.

I had received a new batch of brine shrimp eggs which I set up for hatching in my normal way. When I went to harvest the eggs after 36 hours I found the hatch was very poor, with the neck of the inverted vinegar bottle full of brownish gunk with just a ring of live shrimp above it and the hatched eggs floating on top. First I tried changing the salt level, to no effect. I then changed the P.H. with no effect. I changed the temperature and air flow, same result. After a few more days of fooling around I noticed my fish starting dying, not just one tank this time but fish all over the room, and dozens at a time. I started changing water and medicating and moving fish, but by this time it was too late. Again no indication of any problem, the fish would eat well and the next morning many of them would be dead. It got to the point where I hated to go into the fish room as I was losing up to 50 fish each day.

Finally after about a month the disease had run its course and the fish stopped dying. After losing a lot of good fish and several lines, things are back to normal and all the empty tanks are filled up again with young fish. Onward and Upward.

Stan